Attachment 8 to

1CAN041004

Fatigue Crack Growth Analysis of Pressurizer Level Sensing/Sampling Nozzle (No Existing Weld Pad) Repair

Non-Proprietary

Structural Integrity Associates, Inc.	CALCULATION PACKAGE	File No.: ANO-34Q-330 Project No.: ANO-34Q

PROJECT NAME: Pressurizer Small Bore Nozzle Repairs

Contract No.: 32226, Revision 2

CLIENT: Welding Services Inc.	**PLANT:** Arkansas Nuclear One, Unit 1

CALCULATION TITLE: Fatigue Crack Growth Analysis of Pressurizer Level Sensing/Sampling Nozzle (No Existing Pad) Repair

Document Revision	Affected Pages	Revision Description	Project Mgr. Approval Signature & Date	Preparer(s) & Checker(s) Signatures & Date
0	1-21 A1-A27 Computer Files	Original Issue	GSM 3/9/07	CJF 3/09/07 GAM 3/09/07

SI Form F2001R2a

Table of Contents

1 INTRODUCTION 3
2 METHODOLOGY 3
3 ANALYSIS 3
3.1 Stress Intensity Factors 3
3.1.1 Governing ΔK Location 4
3.2 Crack Growth Modeling 5
3.3 Fatigue Crack Growth Analysis 5
4 RESULTS OF ANALYSIS 6
5 CONCLUSIONS 6
6 REFERENCES 21
APPENDIX A PC-CRACK OUTPUTS A1

List of Tables

Table 1: Base Case "K versus a" Definitions used in pc-CRACK (Bore Location) 7
Table 2: Base Case "K versus a" Definitions used in pc-CRACK (Clad Location) 7
Table 3: Design Transients 8
Table 4: Transients Analyzed 8
Table 5: Transient K Definitions used in pc-CRACK 9
Table 6: Fatigue Crack Growth Summary 10
Table 7: Filename Description 11

List of Figures

Figure 1: Delta K, Heatup/Cooldown with Insurge 12
Figure 2: Delta K, Heatup/Cooldown with HPI 13
Figure 3: Delta K, Internal Pressure (2,340 psi – 2,050 psi) 14
Figure 4: Crack Dimensions at the Penetration Bore Location 15
Figure 5: Crack Dimensions at the Clad Interface Location 16
Figure 6: Stress Intensity Factor vs. Crack Size used in pc-CRACK at the Penetration Bore Location . 17
Figure 7: Stress Intensity Factor vs. Crack Size used in pc-CRACK at the Clad Interface Location 18
Figure 8: Fatigue Crack Growth Results at the Penetration Bore Location 19
Figure 9: Fatigue Crack Growth Results at the Clad Interface Location 20

1 INTRODUCTION

The objective of this calculation is to perform a fatigue crack growth analysis based on bounding thermal transients, weld residual stress, and internal pressure for the pressurizer level sensing/sampling nozzle (no existing pad) repairs at Arkansas Nuclear One, Unit 1 (ANO-1). This calculation is applicable to the following nozzle repairs:

- Two upper level sensing nozzles (no existing pad)
- Two lower level sensing nozzles
- One sampling nozzle
- One modified level sensing nozzle with thermowell replacement

Fatigue crack growth is determined for crack propagation from the J-groove weld into the ferritic low alloy steel pressurizer material (SA-516, Grade 70 [1]). Crack growth is determined based on the fracture mechanics analysis which is documented in Reference 1.

2 METHODOLOGY

The fatigue crack growth of a representative model of the pressurizer level sensing/sampling nozzle repairs listed in Section 1 is determined as follows:

- Extract stress intensity factors from each of the thermal transient analyses performed in Reference 1, and obtain stress intensity factor ranges, ΔK, that will conservatively maximize the crack growth.

- Determine the location where the maximum difference in stress intensity factor (ΔK) occurs for each applicable transient using results from bounding transients. Use the stress intensity factor (K) as a function of crack depth at this location to determine the fatigue crack growth using the **pc-CRACK** [2] software program.

3 ANALYSIS

3.1 Stress Intensity Factors

Crack growth is primarily driven by the relationship between the stress intensity factor range (ΔK) and the crack depth (a) at a given point on the crack tip. Thus, to perform the fatigue crack growth analysis, the K vs. "a" curve, which will produce the maximum ΔK vs. "a" for each transient, must be determined. This is accomplished as follows:

- Obtain K vs. "a" curves for each transient and each of the flaw sizes discussed in Sections 3.1.1 and Section 3.2. Within the **pc-CRACK** [2] program, the thermal K results for each transient from Reference 1 are added to the K results for residual stress and pressure (internal operating pressure, and crack face pressure), where the K due to pressure is multiplied by the pressure given in Tables 1 and 2, divided by 1,000 (the pressure analyses performed in Reference 1 were run for 1,000 psi). The stress intensity factor base cases ($K_{thermal}$, $K_{residual}$, and $K_{pressure}$) and the corresponding pressures that are used are tabulated in Tables 1 and 2 for each assumed flaw.

- Calculate and compare ΔK vs "a" at each crack front location for applicable transients to select the maximum ΔK location along the crack front. The maximum total K values from the cooldown

[redacted]

- Use the K vs "a" curve for each transient at the governing crack front location as input to the fatigue crack growth analysis. This is a conservative approach that assumes that K and the crack growth are constant along the crack front such that the flaw shape remains the same (self-similar crack growth).

3.1.1 Governing ΔK Location

[redacted]

The thermal and pressure stress intensity factors calculated in Reference 1 are used to compute the stress intensity factor ranges (ΔK) for each transient condition. The stress intensity factor results given in the Excel spreadsheet "LVL_FLAW1-3_K.xls" [1] are used for this analysis in spreadsheet "LVL_FLAW1-3_CG". The stress intensity factor range results for the heatup/cooldown with insurge and heatup/cooldown with HPI thermal transients are shown in Figures 1 and 2. Note that the crack tip element results located in the clad ("Adjusted Crack Tip No." 145-148) are excluded for the purposes of this analysis since potential crack propagation in the ferritic low alloy steel base metal is the concern here. The maximum ΔK occurs at approximately the same locations for all cases, at the penetration bore and at the pressurizer base metal/clad interface. The K values at the penetration bore ("Adjusted Crack tip No." 108) and the pressurizer base metal/clad interface ("Adjusted Crack Tip No." 144) are therefore used in the fatigue crack growth analysis, because they are judged to be bounding.

The crack depth at each governing location for each flaw is provided in Reference 1, and included in Tables 1 and 2. The K values at the maximum ΔK locations are tabulated for each flaw configuration (Flaw 1, Flaw 2, and Flaw 3) in Tables 1 and 2 for all base transient load cases. One additional data point is added (by linear interpolation) for each transient at each location in order to provide a total of four data points for the "K vs. a" curve, as required by **pc-CRACK** [2] for curve-fitting purposes. This interpolated value is labeled "Interp." in the first column of Tables 1 and 2. These values are used in **pc-CRACK** [2] for the fatigue crack growth analysis, using the base case ID names listed in Tables 1 and 2. Based on the pressure values shown in Table 4, factors are applied to the base case K values in Tables 1 and 2 to define the minimum and maximum stress intensity factors for the fatigue crack growth analysis, as shown in Table 5, and described further in Section 3.3.

3.2 Crack Growth Modeling

To simulate crack growth, the postulated flaws in the J-groove weld and cladding are assumed to grow in a self-similar manner. This assumption was utilized in order to facilitate modeling three separate flaw depth configurations in the fracture mechanics portion of the analysis [1]. For the fatigue crack growth analysis, it is necessary to define the trend for K as a function of crack depth ("K vs. a") for the configurations described in Reference 1 (Flaw 1, Flaw 2, and Flaw 3). An approximate representative crack depth (a) is determined for the locations along the crack front of each flaw, as shown in Figures 4 and 5. The crack depth dimensions (a) are given in Tables 1 and 2 for each governing location along the crack front (Analysis Crack Tip No.) of the three flaw configurations, and a fourth interpolated point, required by **pc-CRACK** [2].

3.3 Fatigue Crack Growth Analysis

The postulated flaws can potentially grow due to cyclic fatigue loading. The methodology of Section XI, Appendix A of the ASME Code [4] was used to perform the fatigue crack growth analysis. The fatigue crack growth rate (da/dN) for the ferritic steel pressurizer material is a function of the range of applied stress intensity factor (ΔK_I) that can be expressed in the form of a Paris law. Since the postulated flaw is exposed to the pressurizer water environment, the ASME Code fatigue crack growth curves for carbon and low alloy steels in water environments are used for the pressurizer material. The general ASME Code, Section XI fatigue crack growth law is given as:

$$\frac{da}{dN} = (C_O)(\Delta K_I)^n$$

where the scaling constant, C_O, and n are further expanded within the **pc-CRACK** [2] program.

[redacted]

The fatigue crack growth analysis is performed using the fracture mechanics software program **pc-CRACK** [2]. The base case definitions of the stress intensity factors versus crack size (K vs. "a") listed in Tables 1 and 2 are input directly into **pc-CRACK** with the scale factors given in Table 5 for K_{max} and K_{min}. The input stress intensity factor trendlines are shown in Figures 6 and 7, for the penetration bore and pressurizer base metal/clad interface locations, respectively.

The filenames used in the analysis are listed in Table 7 and are included with the project computer files.

4 RESULTS OF ANALYSIS

The fatigue crack growth analysis is performed for the penetration bore and pressurizer base metal/clad interface, which are the bounding locations, for 60 years of crack growth. The stress intensity factors were entered into **pc-CRACK** [2], using the K values listed in Tables 1 and 2, and the factors given in Table 5 for K_{max} and K_{min} (Table 5 includes the number of design cycles of each transient that were used in the analysis). The end-of-evaluation period stress intensity factors, which are computed in **pc-CRACK** for all transient cases analyzed in the fatigue crack growth analysis, are presented in Table 6. The crack growth over time is shown in Figures 8 and 9 for the penetration bore and pressurizer base metal/clad interface locations, respectively. The crack growth summary and maximum stress intensity factors for each bounding transient at the end-of-evaluation period are listed in Table 6 for both locations for 60 years of plant operation.

The fatigue crack growth analysis outputs from **pc-CRACK** are included in Appendix A.

5 CONCLUSIONS

The crack growth analysis was performed for the various pressurizer level sensing/sampling nozzles listed in Section 1 for a period of 60 years. The maximum end-of-evaluation period crack growth is 0.274 inches at the bore penetration, and 0.216 inches at the clad interface location. As shown in Table 6, not all end-of-evaluation period stress intensity factors meet the ASME Code allowable limits. Therefore, elastic plastic fracture mechanics (EPFM) evaluations, to be performed separately, are needed to qualify the nozzle repairs.

Table 1: Base Case "K versus a" Definitions used in pc-CRACK (Bore Location)

Flaw Config.	Analysis Crack Tip No.	Adjusted Crack Tip No.	Crack Depth, a (in). (2)	Residual Stress	1,000 psi Internal Press.	Heatup	[redacted]	Steady-State
Pc-CRACK Load Case ID Name:				RESID	PRESS	HEATUP	[redacted]	STEADY
Pressure (psi):				NA	Note 1	2200	[redacted]	NA
				Stress Intensity Factors (psi-in$^{1/2}$)				
Flaw 1	108	108	0.938	49057	19399	-28818	[redacted]	-13822
Flaw 2	201	108	1.313	20711	19760	-17946	[redacted]	-6217
Interp.	NA	NA	1.474	20183	20711	-16962	[redacted]	-5244
Flaw 3	261	108	1.634	19655	21661	-15979	[redacted]	-4271

Notes: (1) Pressure K values are for 1,000 psi. Appropriate scale factors are then used to scale the values to the correct pressure value for each transient.
(2) See Figure 4 for orientation of "a".
(3) Bounding Stress intensity factors for the cooldown with HPI transient are conservatively used.

Table 2: Base Case "K versus a" Definitions used in pc-CRACK (Clad Location)

Flaw Config.	Analysis Crack Tip No.	Adjusted Crack Tip No.	Crack Depth, a (in). (2)	Residual Stress	1,000 psi Internal Press.	Heatup	[redacted]	Steady-State
Pc-CRACK Load Case ID Name:				RESID	PRESS	HEATUP	[redacted]	STEADY
Pressure (psi):				NA	Note 1	2200	[redacted]	NA
				Stress Intensity Factors (psi-in$^{1/2}$)				
Flaw 1	144	144	0.842	26128	13596	-28136	[redacted]	-16189
Flaw 2	165	144	1.230	28786	14381	-41581	[redacted]	-29595
Interp.	NA	NA	1.397	28838	14922	-42878	[redacted]	-30568
Flaw 3	225	144	1.563	28891	15463	-44174	[redacted]	-31540

Notes: (1) Pressure K values are for 1,000 psi. Appropriate scale factors are then used to scale the values to the correct pressure value for each transient.
(2) See Figure 5 for orientation of "a".
(3) Bounding Stress intensity factors for the cooldown with insurge transient are conservatively used. Bounding pressure from cooldown with HPI is conservatively used.

[redacted]

Table 5: Transient K Definitions used in pc-CRACK

Transient Name[1]	# Cycles/ 60 years	# Cycles per year	Kmax		Kmin	
			Base Load Case[2]	Scale Factor	Base Load Case[2]	Scale Factor
Trans 1A	360	6	RESID	1.000	RESID	1.000
			CD	1.000	HEATUP	1.000
			PRESS	0.100[3]	PRESS	2.200
Trans 2A/2B	2160	36	RESID	1.000	RESID	1.000
			PRESS	2.250	PRESS	2.150
			STEADY	1.000	STEADY	1.000
Trans 3/4	27000	450	RESID	1.000	RESID	1.000
			PRESS	2.250	PRESS	2.150
			STEADY	1.000	STEADY	1.000
Trans 5/6	12000	200	RESID	1.000	RESID	1.000
			PRESS	2.300	PRESS	2.092
			STEADY	1.000	STEADY	1.000
Trans 7	465	8	RESID	1.000	RESID	1.000
			PRESS	2.340	PRESS	2.050
			STEADY	1.000	STEADY	1.000

Notes: (1) Transient labels in **pc-CRACK.**
(2) Defined in Tables 1 and 2.
(3) 100 psi pressure based on governing K values from cooldown with HPI.

Table 6: Fatigue Crack Growth Summary

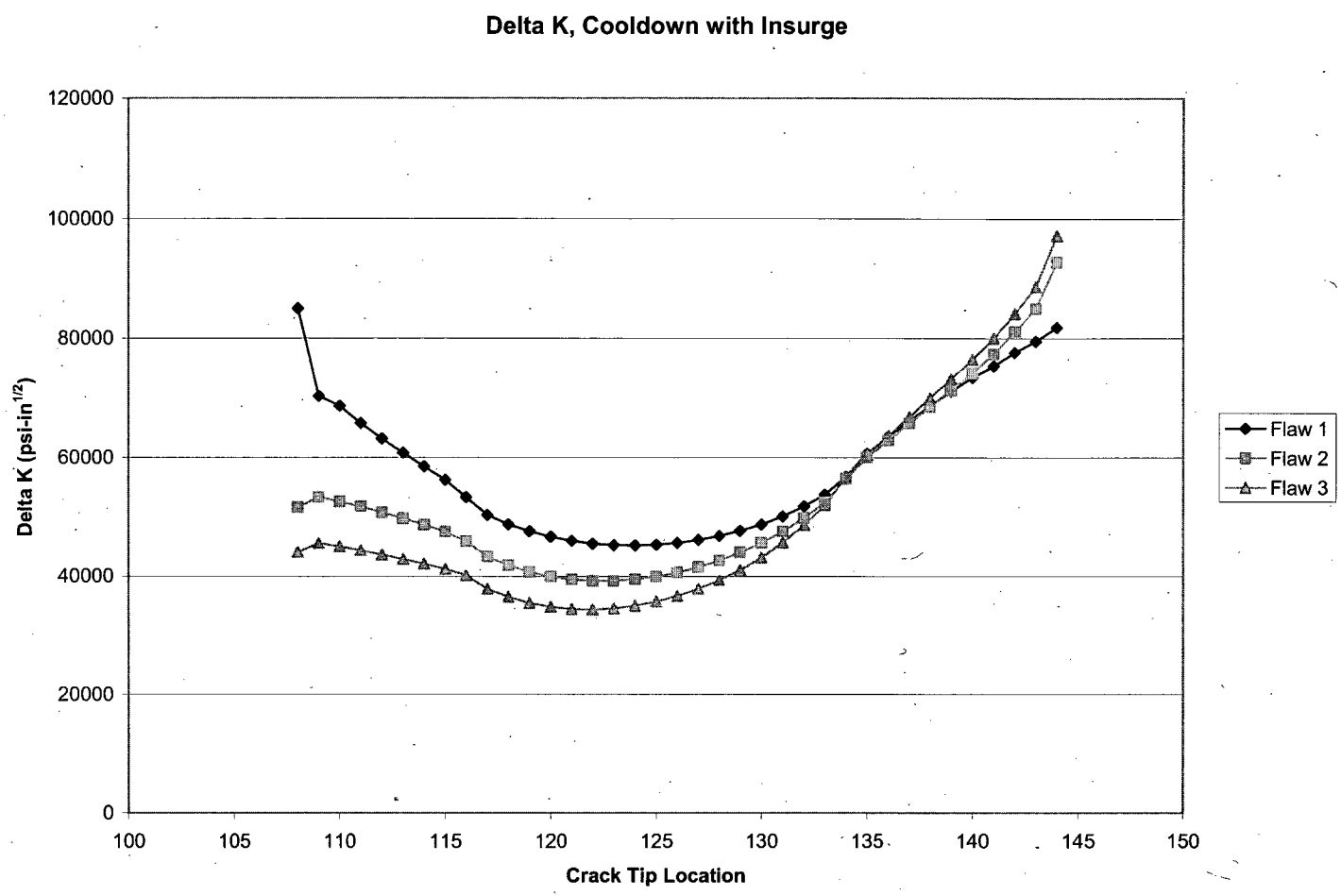
Location	Initial Crack Depth (in)	**pc-CRACK** Final Crack Depth (in)	Crack Growth (in)	Time (years)	Maximum End-of-Evaluation Period Stress Intensity Factor (ksi-in$^{1/2}$)					
					Transient Name[1]					
					1A (K max)[2]	1A (K min)[2]	2A/2B	3/4	5/6	7
Bore	0.938	1.212	0.274	60	114.0	50.8	64.3	64.3	65.3	66.1
Clad Interface	0.842	1.058	0.216	60	112.0	22.9	35.5	35.5	36.2	36.8
K Allowable (ksi-in$^{1/2}$) [1]					141.42	63.25	63.25	63.25	63.25	63.25
Pass?					Yes	Yes	No	No	No	No

Notes:

(1) Transient label in **pc-CRACK.**
(2) For heatup/cooldown combination, the end-of-evaluation stress intensity factor K max (100 psi pressure) and K min (2,200 psi pressure) are evaluated since the allowable limits are different for the two conditions, as per Reference 1.

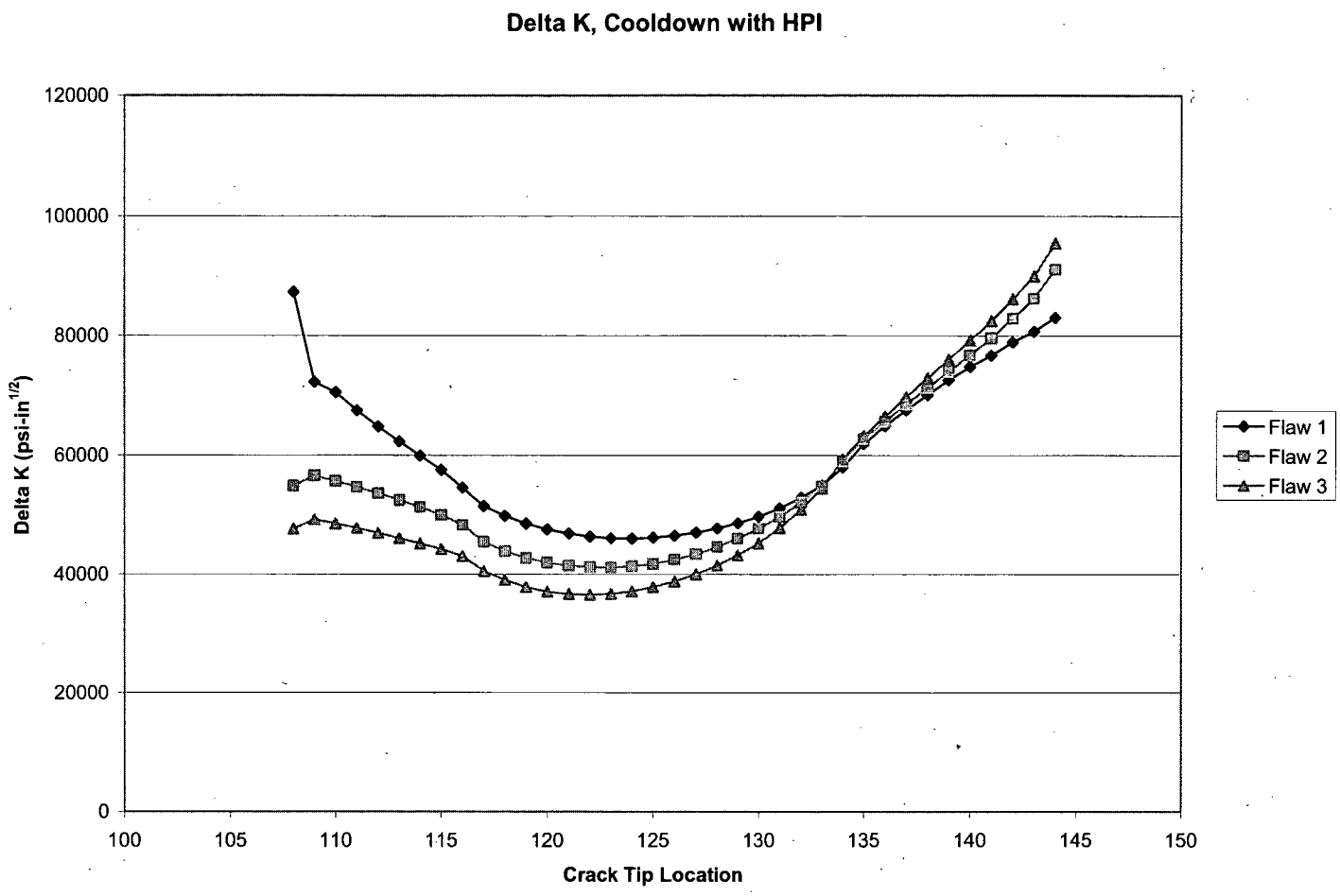
Table 7: Filename Description

Filename	Description
LVL_BORE.LFM	**pc-CRACK** database; penetration bore location
LVL_BORE.OUT	**pc-CRACK** results file; penetration bore location
LVL_CLAD.LFM	**pc-CRACK** database; pressurizer base metal/clad interface location
LVL_CLAD.OUT	**pc-CRACK** results file; pressurizer base metal/clad interface location
LVL_FLAW1-3_CG.xls	Crack growth spreadsheet



Note: ΔK calculated based on total stress intensity factors which include residual, thermal, and appropriate pressure for each transient

Figure 1: Delta K, Heatup/Cooldown with Insurge



Note: ΔK calculated based on total stress intensity factors which include residual, thermal, and appropriate pressure for each transient

Figure 2: Delta K, Heatup/Cooldown with HPI

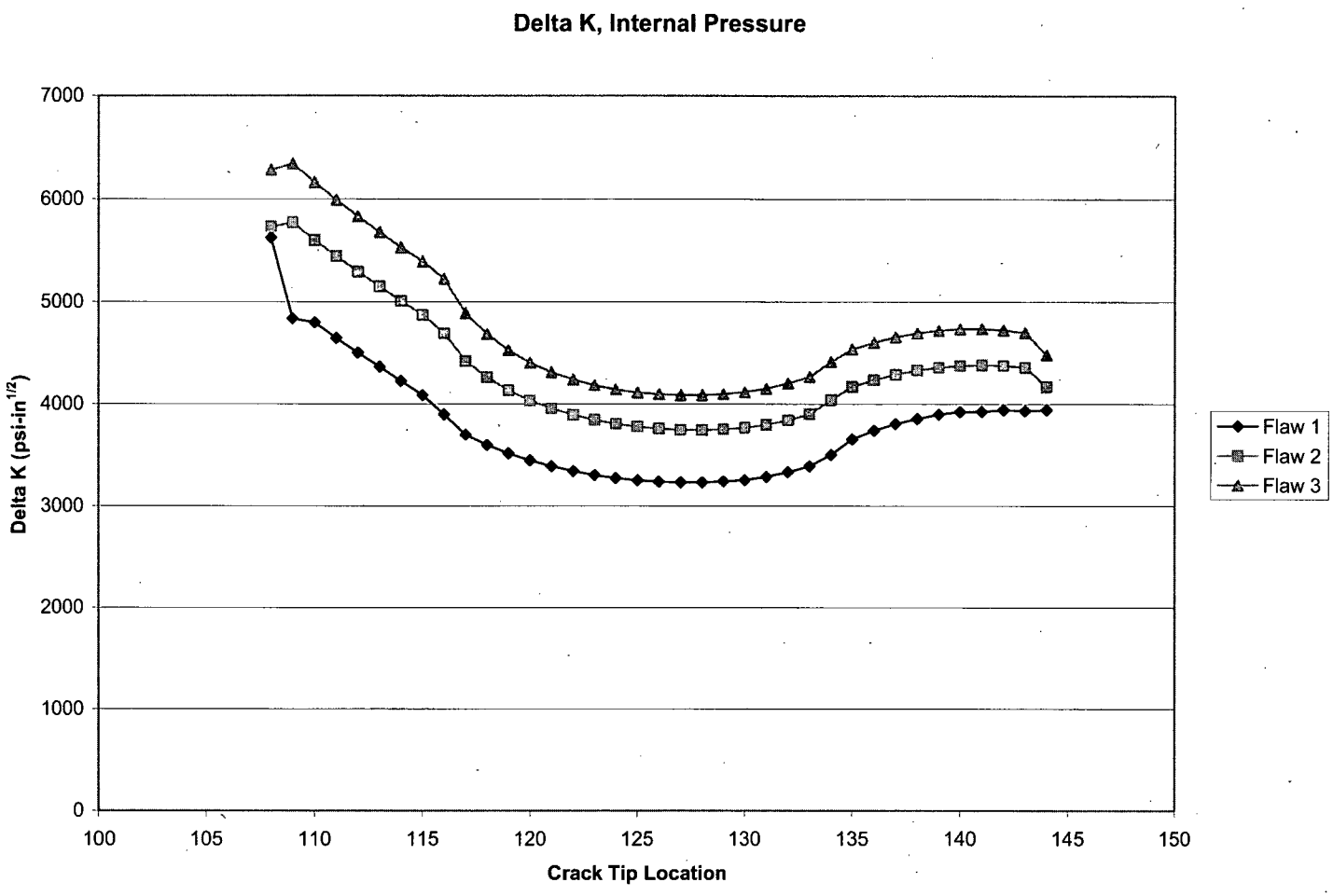


Figure 3: Delta K, Internal Pressure (2,340 psi – 2,050 psi)

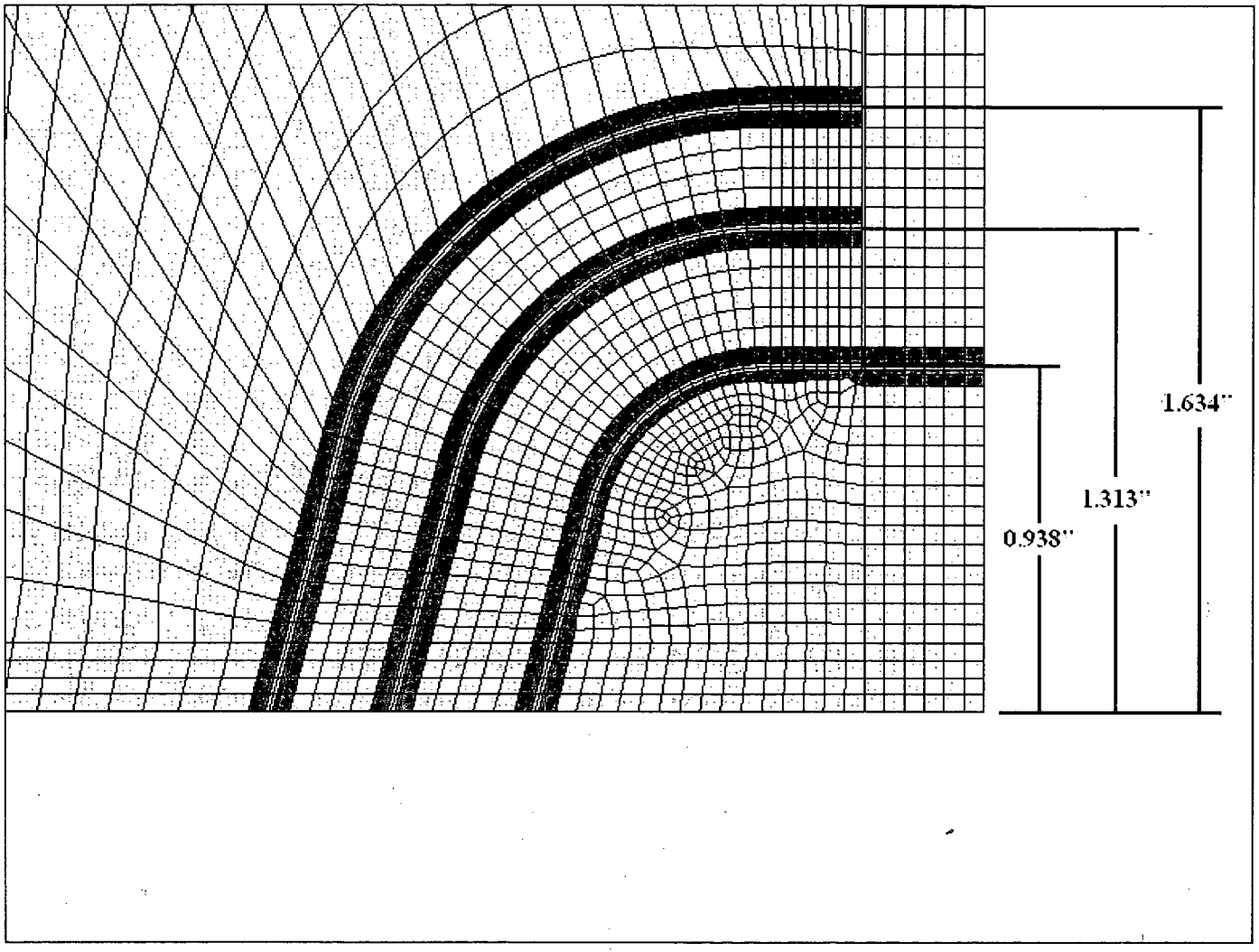


Figure 4: Crack Dimensions at the Penetration Bore Location

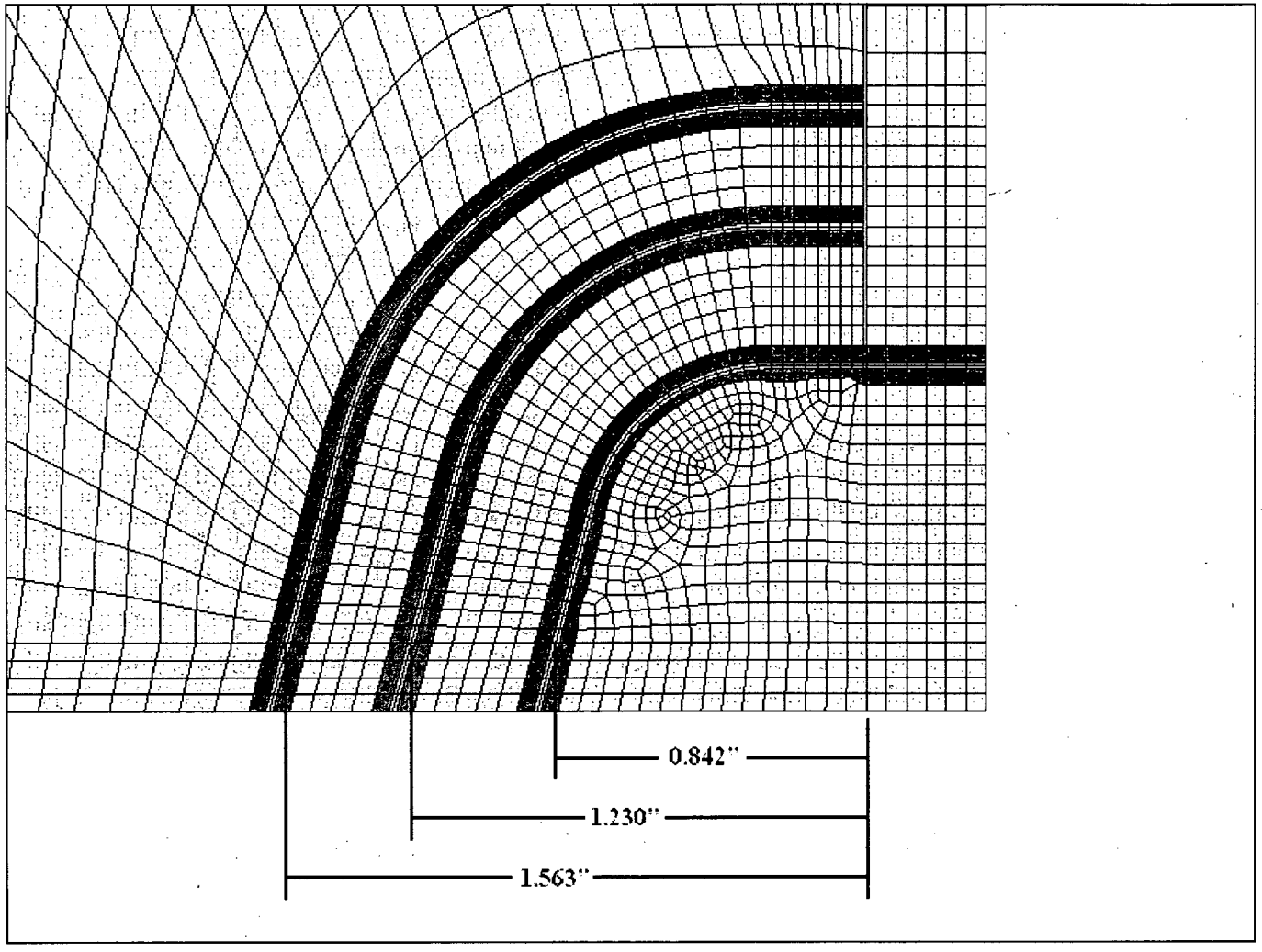


Figure 5: Crack Dimensions at the Clad Interface Location

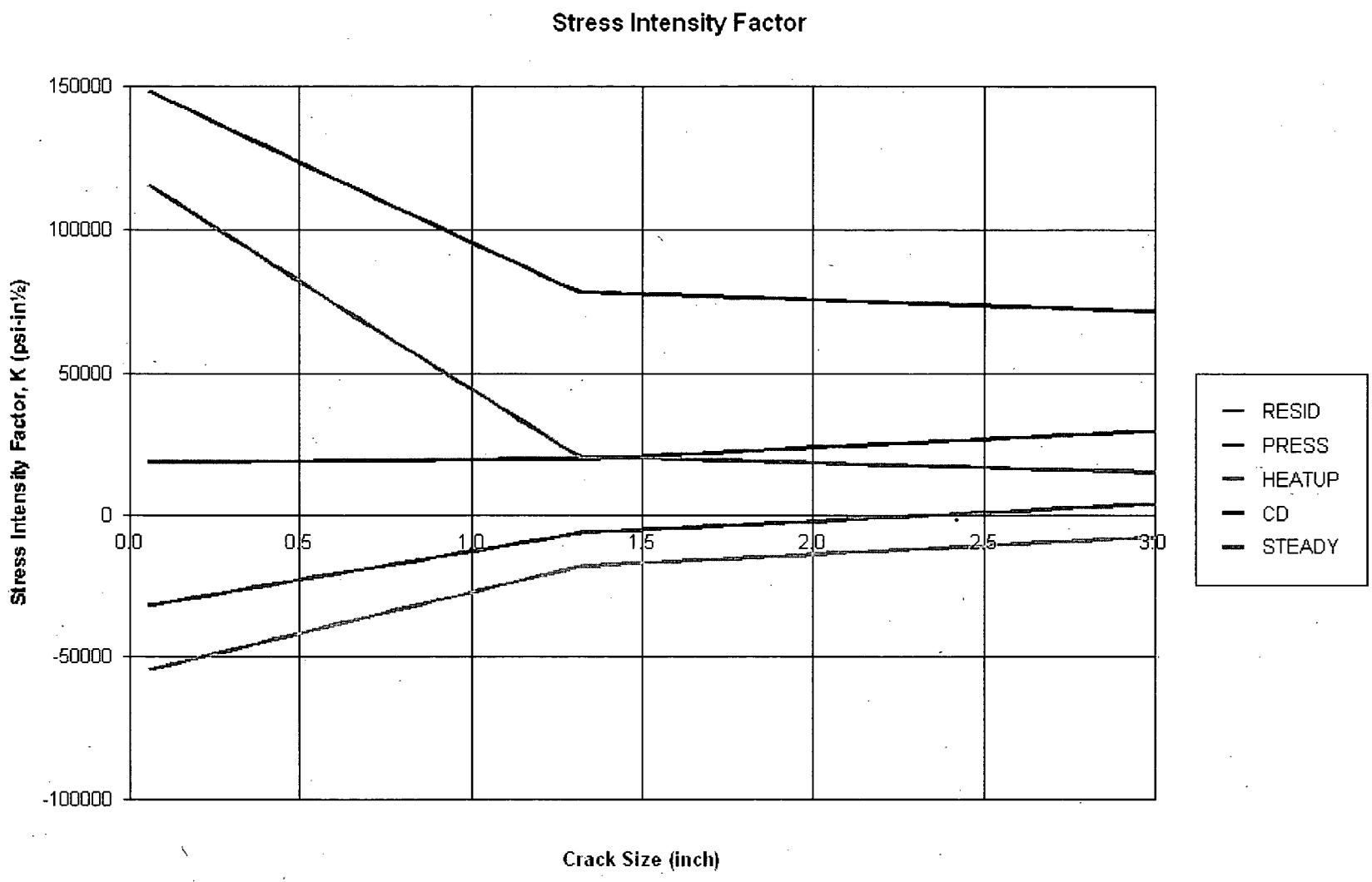


Figure 6: Stress Intensity Factor vs. Crack Size used in pc-CRACK at the Penetration Bore Location

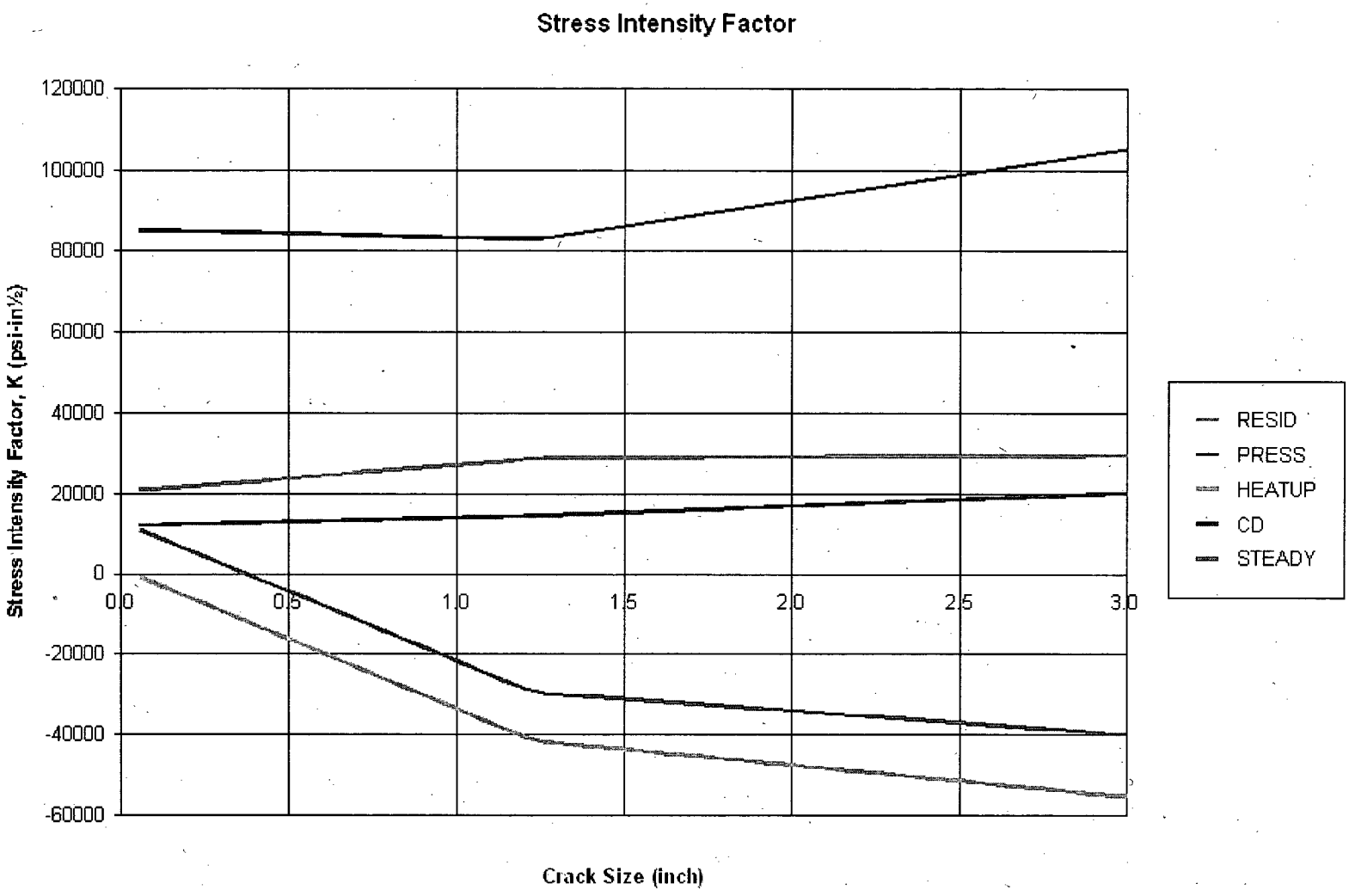


Figure 7: Stress Intensity Factor vs. Crack Size used in pc-CRACK at the Clad Interface Location

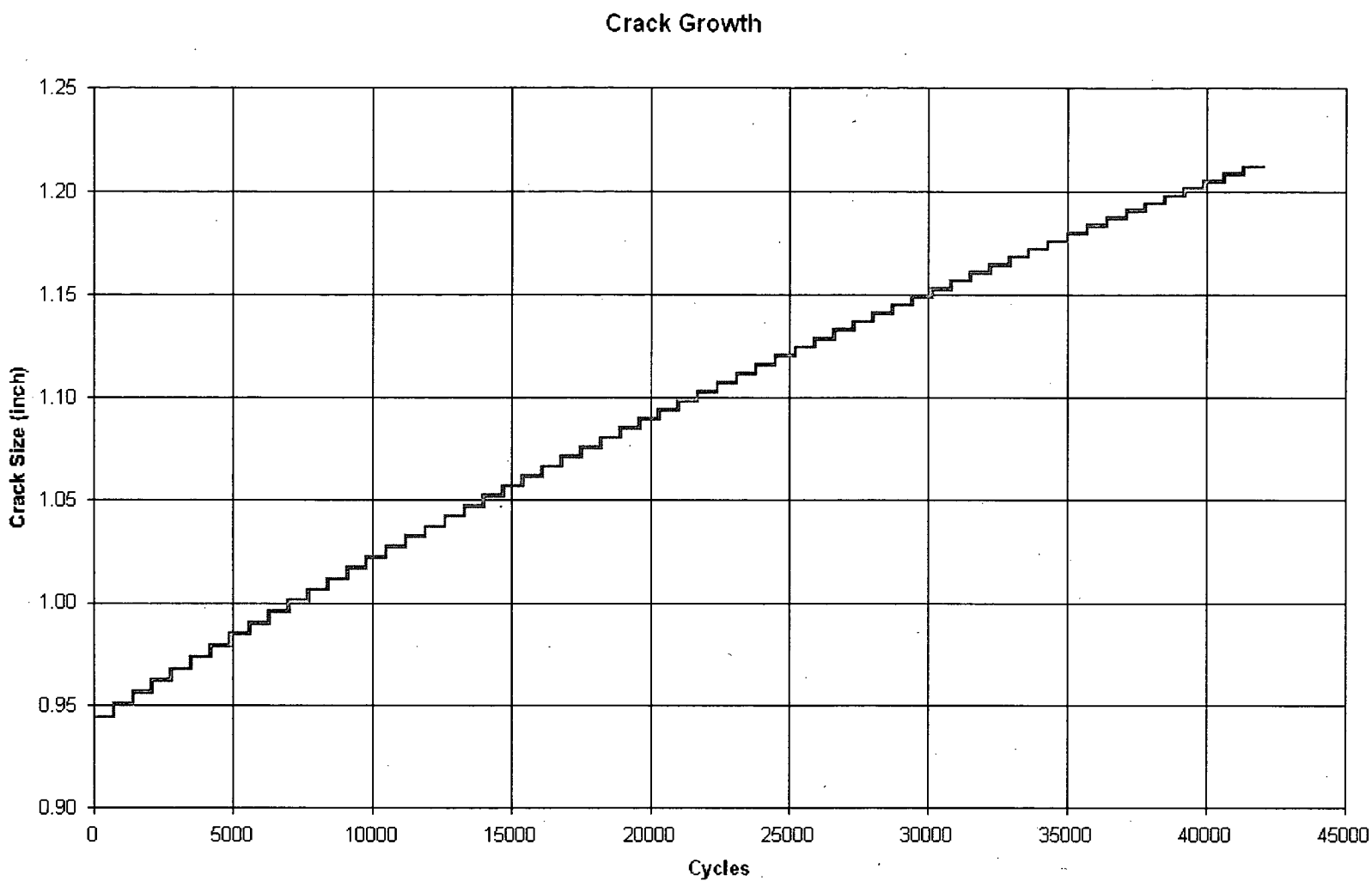


Figure 8: Fatigue Crack Growth Results at the Penetration Bore Location

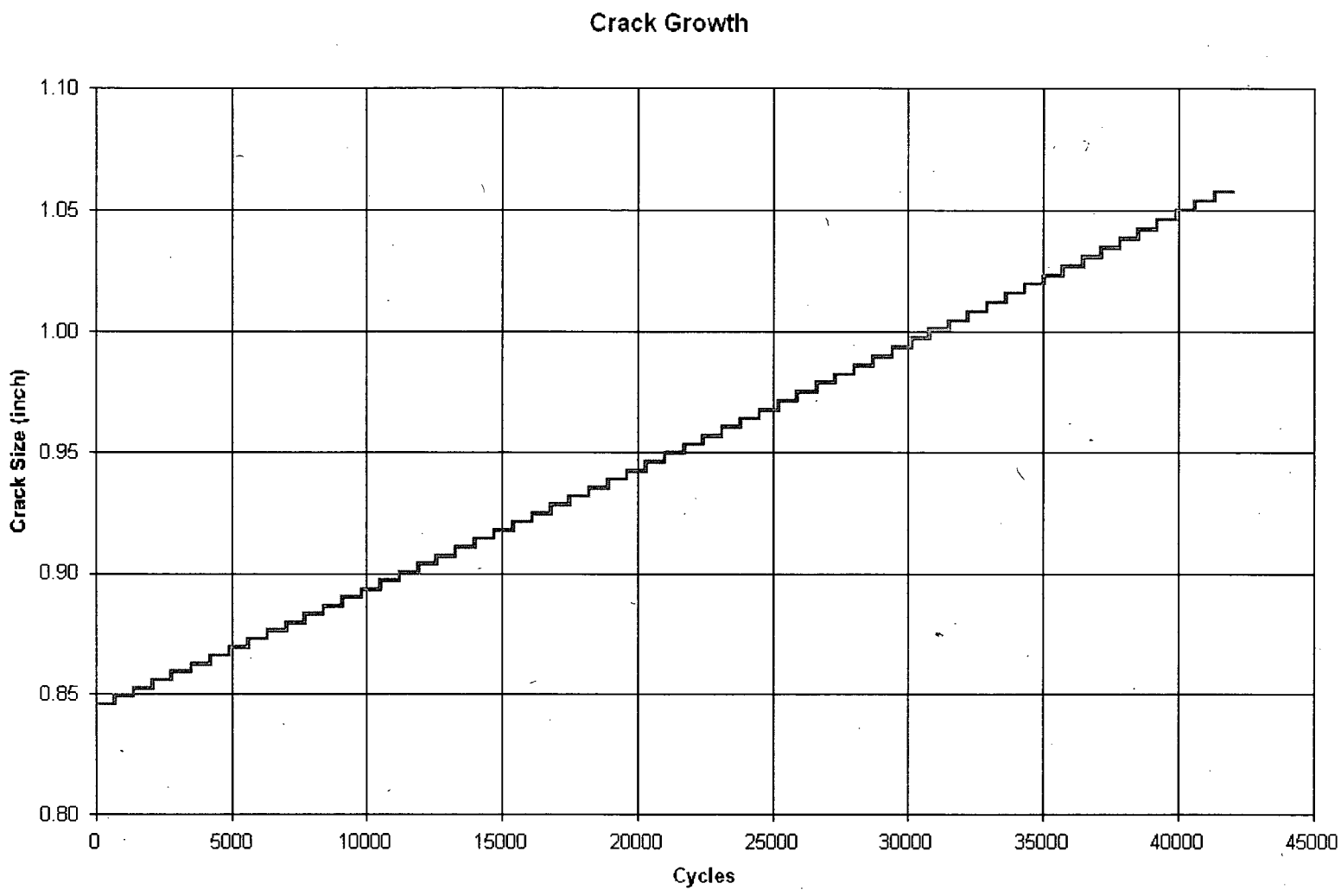


Figure 9: Fatigue Crack Growth Results at the Clad Interface Location

6 REFERENCES

1. Structural Integrity Calculation ANO-34Q-326, Rev. 1, "Pressurizer Level Sensing/Sampling Nozzle (no existing pad) Repair Fracture Mechanics Analysis."

2. **pc-CRACK** for Windows, Version 3.1-98348, Structural Integrity Associates, 1998.

[redacted]

4. ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition with Addenda through 2000.

[redacted]

APPENDIX A

PC-CRACK OUTPUTS

Penetration Bore Location

tm
pc-CRACK for Windows
Version 3.1-98348
(C) Copyright '84 - '98
Structural Integrity Associates, Inc.
3315 Almaden Expressway, Suite 24
San Jose, CA 95118-1557
Voice: 408-978-8200
Fax: 408-978-8964
E-mail: pccrack@structint.com

Linear Elastic Fracture Mechanics

Date: Mon Dec 04 15:07:41 2006
Input Data and Results File: LVL_BORE.LFM

Title: ANO-1 Level/Sampling Nozzle Fatigue Crack Growth; Bore Location

Load Cases:

Case ID: RESID --- K vs a

Depth	K
0.9380	49057.0000
1.3130	20711.0000
1.4740	20183.0000
1.6340	19655.0000

Case ID: PRESS --- K vs a

Depth	K
0.9380	19399.0000
1.3130	19760.0000
1.4740	20711.0000
1.6340	21661.0000

Case ID: HEATUP --- K vs a

Depth	K
0.9380	-28818.0000
1.3130	-17946.0000
1.4740	-16962.0000
1.6340	-15979.0000

Case ID: CD --- K vs a

Depth	K
0.9380	99270.0000
1.3130	78411.0000
1.4740	77765.0000

1.6340	77120.0000

Case ID: STEADY --- K vs a

Depth	K
0.9380	-13822.0000
1.3130	-6217.0000
1.4740	-5244.0000
1.6340	-4271.0000

Case ID	Stress Coefficients C0	C1	C2	C3	Type
RESID	0	0	0	0	K vs a
PRESS	0	0	0	0	K vs a
HEATUP	0	0	0	0	K vs a
CD	0	0	0	0	K vs a
STEADY	0	0	0	0	K vs a

Crack Model: User Input K Versus Crack Size

Crack Parameters:
Max. crack size: 3.0000

Crack Size	Stress Intensity Factor Case RESID	Case PRESS	Case HEATUP	Case CD	Case STEADY
0.0600	115424	18553.8	-54273	148108	-31627.8
0.1200	110889	18611.5	-52533.5	144770	-30411
0.1800	106354	18669.3	-50793.9	141433	-29194.2
0.2400	101818	18727.1	-49054.4	138096	-27977.4
0.3000	97283	18784.8	-47314.9	134758	-26760.6
0.3600	92747.6	18842.6	-45575.4	131421	-25543.8
0.4200	88212.3	18900.3	-43835.9	128083	-24327
0.4800	83676.9	18958.1	-42096.3	124746	-23110.2
0.5400	79141.6	19015.9	-40356.8	121408	-21893.4
0.6000	74606.2	19073.6	-38617.3	118071	-20676.6
0.6600	70070.8	19131.4	-36877.8	114733	-19459.8
0.7200	65535.5	19189.1	-35138.3	111396	-18243
0.7800	61000.1	19246.9	-33398.7	108059	-17026.2
0.8400	56464.8	19304.7	-31659.2	104721	-15809.4
0.9000	51929.4	19362.4	-29919.7	101384	-14592.6
0.9600	47394	19420.2	-28180.2	98046.3	-13375.8
1.0200	42858.7	19477.9	-26440.7	94708.8	-12159
1.0800	38323.3	19535.7	-24701.1	91371.4	-10942.2
1.1400	33788	19593.5	-22961.6	88034	-9725.44
1.2000	29252.6	19651.2	-21222.1	84696.5	-8508.64
1.2600	24717.2	19709	-19482.6	81359.1	-7291.84
1.3200	20688	19801.3	-17903.2	78382.9	-6174.7
1.3800	20491.3	20155.8	-17536.5	78142.2	-5812.09
1.4400	20294.5	20510.2	-17169.8	77901.4	-5449.48

1.5000	20097.2	20865.4	-16802.3	77660.2	-5085.89
1.5600	19899.2	21221.6	-16433.6	77418.3	-4721.01
1.6200	19701.2	21577.9	-16065	77176.4	-4356.14
1.6800	19503.2	21934.1	-15696.4	76934.6	-3991.26
1.7400	19305.2	22290.4	-15327.8	76692.7	-3626.39
1.8000	19107.2	22646.6	-14959.1	76450.8	-3261.51
1.8600	18909.2	23002.9	-14590.5	76208.9	-2896.64
1.9200	18711.2	23359.1	-14221.9	75967.1	-2531.76
1.9800	18513.2	23715.4	-13853.3	75725.2	-2166.89
2.0400	18315.2	24071.6	-13484.6	75483.3	-1802.01
2.1000	18117.2	24427.9	-13116	75241.4	-1437.14
2.1600	17919.2	24784.1	-12747.4	74999.6	-1072.26
2.2200	17721.2	25140.4	-12378.8	74757.7	-707.386
2.2800	17523.2	25496.6	-12010.1	74515.8	-342.512
2.3400	17325.2	25852.9	-11641.5	74273.9	22.3632
2.4000	17127.2	26209.1	-11272.9	74032.1	387.239
2.4600	16929.2	26565.4	-10904.3	73790.2	752.114
2.5200	16731.2	26921.6	-10535.6	73548.3	1116.99
2.5800	16533.2	27277.9	-10167	73306.4	1481.86
2.6400	16335.2	27634.1	-9798.38	73064.6	1846.74
2.7000	16137.2	27990.4	-9429.76	72822.7	2211.61
2.7600	15939.2	28346.6	-9061.14	72580.8	2576.49
2.8200	15741.2	28702.9	-8692.51	72338.9	2941.36
2.8800	15543.2	29059.1	-8323.88	72097.1	3306.24
2.9400	15345.2	29415.4	-7955.26	71855.2	3671.11
3.0000	15147.2	29771.6	-7586.64	71613.3	4035.99

Crack Growth Laws:

```
Law ID:   FERRITIC
 Model:   ASME Section XI - ferritic steel in water environment

  da/dN = CL * SL * dK^5.95  for dK <  dKtran
  da/dN = CU * SU * dK^1.95  for dK >= dKtran
where
      dK = Kmax - Kmin
       R = Kmin / Kmax
for R <= 0.25:
  SL = 1.0                  SU = 1.0    dKtran = 17.74
for 0.25 < R <= 0.65:
  SL = 26.9 * R - 5.725     SU = 3.75 * R + 0.06
  dKtran = 17.74*{(3.75 * R + 0.06)/(26.9 * R - 5.725)}^0.25
 for 0.65 < R:
  SL = 11.76                SU = 2.5    dKtran = 12.04

where:
  CL =  1.4408e-030
  CU =  1.4267e-013
 are for the selected units of:
   force: lb
  length: inch
```

Material Fracture Toughness KIc:

Material ID: FRACT

Depth	KIc
0.0000	200000.0000
1.0000	200000.0000
3.0000	200000.0000

Initial crack size= 0.9380
Max. crack size= 3.0000

Number of blocks= 60
Print increment of block= 1

Subblock	Cycles /Time	Calc. incre.	Print incre.	Crk. Grw. Law	Mat. Klc
Trans 1A	6	1	6	FERRITIC	FRACT
Trans 2A/2B	36	1	36	FERRITIC	FRACT
Trans 3/4	450	1	450	FERRITIC	FRACT
Trans 5/6	200	1	200	FERRITIC	FRACT
Trans 7	8	1	8	FERRITIC	FRACT

Subblock	Kmax Case ID	Kmax Scale Factor	Kmin Case ID	Kmin Scale Factor
Trans 1A	RESID	1.0000	RESID	1.0000
	CD	1.0000	HEATUP	1.0000
	PRESS	0.1000	PRESS	2.2000
Trans 2A/2B	RESID	1.0000	RESID	1.0000
	STEADY	1.0000	STEADY	1.0000
	PRESS	2.2500	PRESS	2.1500
Trans 3/4	RESID	1.0000	RESID	1.0000
	STEADY	1.0000	STEADY	1.0000
	PRESS	2.2500	PRESS	2.1500
Trans 5/6	RESID	1.0000	RESID	1.0000
	STEADY	1.0000	STEADY	1.0000
	PRESS	2.3000	PRESS	2.0920
Trans 7	RESID	1.0000	RESID	1.0000
	STEADY	1.0000	STEADY	1.0000
	PRESS	2.3400	PRESS	2.0500

Crack growth results:

Total Cycles /Time	Subblock Cycles /Time	Kmax	Kmin	DeltaK	R	DaDn /DaDt	Da	a
Block: 1								
6	6	1.50e+005	6.27e+004	8.69e+004	0.42	9.96e-004	9.96e-004	0.944
42	36	7.86e+004	7.66e+004	1.94e+003	0.98	6.20e-010	6.20e-010	0.944
492	450	7.86e+004	7.66e+004	1.94e+003	0.98	6.20e-010	6.20e-010	0.944
692	200	7.95e+004	7.55e+004	4.04e+003	0.95	4.84e-008	4.84e-008	0.944

700	8	8.03e+004	7.47e+004	5.63e+003	0.93	3.49e-007	3.49e-007	0.944
Block:	2							
706	6	1.49e+005	6.24e+004	8.64e+004	0.42	9.85e-004	9.85e-004	0.95
742	36	7.82e+004	7.63e+004	1.94e+003	0.98	6.21e-010	6.21e-010	0.95
1192	450	7.82e+004	7.63e+004	1.94e+003	0.98	6.21e-010	6.21e-010	0.95
1392	200	7.92e+004	7.52e+004	4.04e+003	0.95	4.85e-008	4.85e-008	0.95
1400	8	8.00e+004	7.44e+004	5.63e+003	0.93	3.50e-007	3.50e-007	0.95
Block:	3							
1406	6	1.48e+005	6.22e+004	8.59e+004	0.42	9.75e-004	9.75e-004	0.9558
1442	36	7.79e+004	7.60e+004	1.94e+003	0.98	6.22e-010	6.22e-010	0.9558
1892	450	7.79e+004	7.60e+004	1.94e+003	0.98	6.22e-010	6.22e-010	0.9558
2092	200	7.89e+004	7.49e+004	4.04e+003	0.95	4.85e-008	4.85e-008	0.9559
2100	8	7.97e+004	7.41e+004	5.63e+003	0.93	3.51e-007	3.51e-007	0.9559
Block:	4							
2106	6	1.47e+005	6.19e+004	8.54e+004	0.42	9.65e-004	9.65e-004	0.9617
2142	36	7.76e+004	7.57e+004	1.94e+003	0.97	6.23e-010	6.23e-010	0.9617
2592	450	7.76e+004	7.57e+004	1.94e+003	0.97	6.23e-010	6.23e-010	0.9617
2792	200	7.86e+004	7.46e+004	4.04e+003	0.95	4.86e-008	4.86e-008	0.9617
2800	8	7.94e+004	7.37e+004	5.63e+003	0.93	3.51e-007	3.51e-007	0.9617
Block:	5							
2806	6	1.47e+005	6.16e+004	8.49e+004	0.42	9.54e-004	9.54e-004	0.9674
2842	36	7.73e+004	7.54e+004	1.94e+003	0.97	6.24e-010	6.24e-010	0.9674
3292	450	7.73e+004	7.54e+004	1.94e+003	0.97	6.24e-010	6.24e-010	0.9674
3492	200	7.83e+004	7.42e+004	4.04e+003	0.95	4.87e-008	4.87e-008	0.9674
3500	8	7.91e+004	7.34e+004	5.63e+003	0.93	3.52e-007	3.52e-007	0.9675
Block:	6							
3506	6	1.46e+005	6.14e+004	8.44e+004	0.42	9.45e-004	9.45e-004	0.9731
3542	36	7.70e+004	7.51e+004	1.94e+003	0.97	6.25e-010	6.25e-010	0.9731
3992	450	7.70e+004	7.51e+004	1.94e+003	0.97	6.25e-010	6.25e-010	0.9731
4192	200	7.80e+004	7.39e+004	4.04e+003	0.95	4.88e-008	4.88e-008	0.9732
4200	8	7.88e+004	7.31e+004	5.64e+003	0.93	3.52e-007	3.52e-007	0.9732
Block:	7							
4206	6	1.45e+005	6.11e+004	8.39e+004	0.42	9.35e-004	9.35e-004	0.9788
4242	36	7.67e+004	7.48e+004	1.94e+003	0.97	6.26e-010	6.26e-010	0.9788
4692	450	7.67e+004	7.48e+004	1.94e+003	0.97	6.26e-010	6.26e-010	0.9788
4892	200	7.77e+004	7.36e+004	4.04e+003	0.95	4.89e-008	4.89e-008	0.9788
4900	8	7.85e+004	7.28e+004	5.64e+003	0.93	3.53e-007	3.53e-007	0.9788
Block:	8							
4906	6	1.44e+005	6.09e+004	8.34e+004	0.42	9.25e-004	9.25e-004	0.9844
4942	36	7.64e+004	7.45e+004	1.94e+003	0.97	6.27e-010	6.27e-010	0.9844
5392	450	7.64e+004	7.45e+004	1.94e+003	0.97	6.27e-010	6.27e-010	0.9844
5592	200	7.74e+004	7.33e+004	4.04e+003	0.95	4.89e-008	4.89e-008	0.9844
5600	8	7.82e+004	7.25e+004	5.64e+003	0.93	3.54e-007	3.54e-007	0.9844
Block:	9							
5606	6	1.44e+005	6.06e+004	8.29e+004	0.42	9.16e-004	9.16e-004	0.9899
5642	36	7.61e+004	7.42e+004	1.94e+003	0.97	6.28e-010	6.28e-010	0.9899
6092	450	7.61e+004	7.42e+004	1.94e+003	0.97	6.28e-010	6.28e-010	0.9899
6292	200	7.71e+004	7.31e+004	4.05e+003	0.95	4.90e-008	4.90e-008	0.9899
6300	8	7.79e+004	7.22e+004	5.64e+003	0.93	3.54e-007	3.54e-007	0.9899

Block:	10							
6306	6	1.43e+005	6.04e+004	8.25e+004	0.42	9.06e-004	9.06e-004	0.9954
6342	36	7.58e+004	7.39e+004	1.95e+003	0.97	6.29e-010	6.29e-010	0.9954
6792	450	7.58e+004	7.39e+004	1.95e+003	0.97	6.29e-010	6.29e-010	0.9954
6992	200	7.68e+004	7.28e+004	4.05e+003	0.95	4.91e-008	4.91e-008	0.9954
7000	8	7.76e+004	7.19e+004	5.64e+003	0.93	3.55e-007	3.55e-007	0.9954
Block:	11							
7006	6	1.42e+005	6.02e+004	8.20e+004	0.42	8.97e-004	8.97e-004	1.001
7042	36	7.55e+004	7.36e+004	1.95e+003	0.97	6.30e-010	6.30e-010	1.001
7492	450	7.55e+004	7.36e+004	1.95e+003	0.97	6.30e-010	6.30e-010	1.001
7692	200	7.65e+004	7.25e+004	4.05e+003	0.95	4.92e-008	4.92e-008	1.001
7700	8	7.73e+004	7.17e+004	5.64e+003	0.93	3.55e-007	3.55e-007	1.001
Block:	12							
7706	6	1.41e+005	5.99e+004	8.15e+004	0.42	8.88e-004	8.88e-004	1.006
7742	36	7.53e+004	7.33e+004	1.95e+003	0.97	6.31e-010	6.31e-010	1.006
8192	450	7.53e+004	7.33e+004	1.95e+003	0.97	6.31e-010	6.31e-010	1.006
8392	200	7.62e+004	7.22e+004	4.05e+003	0.95	4.93e-008	4.93e-008	1.006
8400	8	7.70e+004	7.14e+004	5.64e+003	0.93	3.56e-007	3.56e-007	1.006
Block:	13							
8406	6	1.41e+005	5.97e+004	8.11e+004	0.42	8.79e-004	8.79e-004	1.011
8442	36	7.50e+004	7.30e+004	1.95e+003	0.97	6.32e-010	6.32e-010	1.011
8892	450	7.50e+004	7.30e+004	1.95e+003	0.97	6.32e-010	6.32e-010	1.011
9092	200	7.60e+004	7.19e+004	4.05e+003	0.95	4.93e-008	4.93e-008	1.011
9100	8	7.67e+004	7.11e+004	5.65e+003	0.93	3.56e-007	3.56e-007	1.011
Block:	14							
9106	6	1.40e+005	5.95e+004	8.06e+004	0.42	8.70e-004	8.70e-004	1.017
9142	36	7.47e+004	7.28e+004	1.95e+003	0.97	6.33e-010	6.33e-010	1.017
9592	450	7.47e+004	7.28e+004	1.95e+003	0.97	6.33e-010	6.33e-010	1.017
9792	200	7.57e+004	7.16e+004	4.05e+003	0.95	4.94e-008	4.94e-008	1.017
9800	8	7.65e+004	7.08e+004	5.65e+003	0.93	3.57e-007	3.57e-007	1.017
Block:	15							
9806	6	1.39e+005	5.92e+004	8.02e+004	0.42	8.62e-004	8.62e-004	1.022
9842	36	7.44e+004	7.25e+004	1.95e+003	0.97	6.34e-010	6.34e-010	1.022
10292	450	7.44e+004	7.25e+004	1.95e+003	0.97	6.34e-010	6.34e-010	1.022
10492	200	7.54e+004	7.13e+004	4.05e+003	0.95	4.95e-008	4.95e-008	1.022
10500	8	7.62e+004	7.05e+004	5.65e+003	0.93	3.58e-007	3.58e-007	1.022
Block:	16							
10506	6	1.39e+005	5.90e+004	7.97e+004	0.43	8.53e-004	8.53e-004	1.027
10542	36	7.42e+004	7.22e+004	1.95e+003	0.97	6.35e-010	6.35e-010	1.027
10992	450	7.42e+004	7.22e+004	1.95e+003	0.97	6.35e-010	6.35e-010	1.027
11192	200	7.51e+004	7.11e+004	4.05e+003	0.95	4.96e-008	4.96e-008	1.027
11200	8	7.59e+004	7.03e+004	5.65e+003	0.93	3.58e-007	3.58e-007	1.027
Block:	17							
11206	6	1.38e+005	5.88e+004	7.93e+004	0.43	8.45e-004	8.45e-004	1.032
11242	36	7.39e+004	7.19e+004	1.95e+003	0.97	6.36e-010	6.36e-010	1.032
11692	450	7.39e+004	7.19e+004	1.95e+003	0.97	6.36e-010	6.36e-010	1.032
11892	200	7.49e+004	7.08e+004	4.05e+003	0.95	4.96e-008	4.96e-008	1.032
11900	8	7.56e+004	7.00e+004	5.65e+003	0.93	3.59e-007	3.59e-007	1.032

Block:	18							
11906	6	1.37e+005	5.85e+004	7.88e+004	0.43	8.37e-004	8.37e-004	1.037
11942	36	7.36e+004	7.17e+004	1.95e+003	0.97	6.37e-010	6.37e-010	1.037
12392	450	7.36e+004	7.17e+004	1.95e+003	0.97	6.37e-010	6.37e-010	1.037
12592	200	7.46e+004	7.05e+004	4.05e+003	0.95	4.97e-008	4.97e-008	1.037
12600	8	7.54e+004	6.97e+004	5.65e+003	0.92	3.59e-007	3.59e-007	1.037
Block:	19							
12606	6	1.37e+005	5.83e+004	7.84e+004	0.43	8.28e-004	8.28e-004	1.042
12642	36	7.33e+004	7.14e+004	1.95e+003	0.97	6.38e-010	6.38e-010	1.042
13092	450	7.33e+004	7.14e+004	1.95e+003	0.97	6.38e-010	6.38e-010	1.042
13292	200	7.43e+004	7.03e+004	4.06e+003	0.95	4.98e-008	4.98e-008	1.042
13300	8	7.51e+004	6.94e+004	5.65e+003	0.92	3.60e-007	3.60e-007	1.042
Block:	20							
13306	6	1.36e+005	5.81e+004	7.80e+004	0.43	8.20e-004	8.20e-004	1.047
13342	36	7.31e+004	7.11e+004	1.95e+003	0.97	6.39e-010	6.39e-010	1.047
13792	450	7.31e+004	7.11e+004	1.95e+003	0.97	6.39e-010	6.39e-010	1.047
13992	200	7.41e+004	7.00e+004	4.06e+003	0.95	4.99e-008	4.99e-008	1.047
14000	8	7.48e+004	6.92e+004	5.66e+003	0.92	3.60e-007	3.60e-007	1.047
Block:	21							
14006	6	1.35e+005	5.79e+004	7.75e+004	0.43	8.12e-004	8.12e-004	1.052
14042	36	7.28e+004	7.09e+004	1.95e+003	0.97	6.40e-010	6.40e-010	1.052
14492	450	7.28e+004	7.09e+004	1.95e+003	0.97	6.40e-010	6.40e-010	1.052
14692	200	7.38e+004	6.97e+004	4.06e+003	0.95	4.99e-008	4.99e-008	1.052
14700	8	7.46e+004	6.89e+004	5.66e+003	0.92	3.61e-007	3.61e-007	1.052
Block:	22							
14706	6	1.35e+005	5.77e+004	7.71e+004	0.43	8.05e-004	8.05e-004	1.057
14742	36	7.26e+004	7.06e+004	1.95e+003	0.97	6.40e-010	6.40e-010	1.057
15192	450	7.26e+004	7.06e+004	1.95e+003	0.97	6.40e-010	6.40e-010	1.057
15392	200	7.35e+004	6.95e+004	4.06e+003	0.94	5.00e-008	5.00e-008	1.057
15400	8	7.43e+004	6.87e+004	5.66e+003	0.92	3.61e-007	3.61e-007	1.057
Block:	23							
15406	6	1.34e+005	5.75e+004	7.67e+004	0.43	7.97e-004	7.97e-004	1.062
15442	36	7.23e+004	7.04e+004	1.95e+003	0.97	6.41e-010	6.41e-010	1.062
15892	450	7.23e+004	7.04e+004	1.95e+003	0.97	6.41e-010	6.41e-010	1.062
16092	200	7.33e+004	6.92e+004	4.06e+003	0.94	5.01e-008	5.01e-008	1.062
16100	8	7.41e+004	6.84e+004	5.66e+003	0.92	3.62e-007	3.62e-007	1.062
Block:	24							
16106	6	1.34e+005	5.72e+004	7.63e+004	0.43	7.89e-004	7.89e-004	1.066
16142	36	7.21e+004	7.01e+004	1.95e+003	0.97	6.42e-010	6.42e-010	1.066
16592	450	7.21e+004	7.01e+004	1.95e+003	0.97	6.42e-010	6.42e-010	1.066
16792	200	7.30e+004	6.90e+004	4.06e+003	0.94	5.01e-008	5.01e-008	1.066
16800	8	7.38e+004	6.82e+004	5.66e+003	0.92	3.62e-007	3.62e-007	1.066
Block:	25							
16806	6	1.33e+005	5.70e+004	7.59e+004	0.43	7.82e-004	7.82e-004	1.071
16842	36	7.18e+004	6.99e+004	1.95e+003	0.97	6.43e-010	6.43e-010	1.071
17292	450	7.18e+004	6.99e+004	1.95e+003	0.97	6.43e-010	6.43e-010	1.071
17492	200	7.28e+004	6.87e+004	4.06e+003	0.94	5.02e-008	5.02e-008	1.071
17500	8	7.36e+004	6.79e+004	5.66e+003	0.92	3.63e-007	3.63e-007	1.071
Block:	26							

17506	6	1.32e+005	5.68e+004	7.55e+004	0.43	7.74e-004	7.74e-004	1.076
17542	36	7.16e+004	6.96e+004	1.95e+003	0.97	6.44e-010	6.44e-010	1.076
17992	450	7.16e+004	6.96e+004	1.95e+003	0.97	6.44e-010	6.44e-010	1.076
18192	200	7.25e+004	6.85e+004	4.06e+003	0.94	5.03e-008	5.03e-008	1.076
18200	8	7.33e+004	6.77e+004	5.66e+003	0.92	3.63e-007	3.63e-007	1.076
Block: 27								
18206	6	1.32e+005	5.66e+004	7.51e+004	0.43	7.67e-004	7.67e-004	1.08
18242	36	7.13e+004	6.94e+004	1.95e+003	0.97	6.45e-010	6.45e-010	1.08
18692	450	7.13e+004	6.94e+004	1.95e+003	0.97	6.45e-010	6.45e-010	1.08
18892	200	7.23e+004	6.82e+004	4.06e+003	0.94	5.03e-008	5.03e-008	1.08
18900	8	7.31e+004	6.74e+004	5.67e+003	0.92	3.64e-007	3.64e-007	1.08
Block: 28								
18906	6	1.31e+005	5.64e+004	7.47e+004	0.43	7.60e-004	7.60e-004	1.085
18942	36	7.11e+004	6.91e+004	1.95e+003	0.97	6.46e-010	6.46e-010	1.085
19392	450	7.11e+004	6.91e+004	1.95e+003	0.97	6.46e-010	6.46e-010	1.085
19592	200	7.20e+004	6.80e+004	4.06e+003	0.94	5.04e-008	5.04e-008	1.085
19600	8	7.28e+004	6.72e+004	5.67e+003	0.92	3.64e-007	3.64e-007	1.085
Block: 29								
19606	6	1.30e+005	5.62e+004	7.43e+004	0.43	7.53e-004	7.53e-004	1.09
19642	36	7.08e+004	6.89e+004	1.95e+003	0.97	6.47e-010	6.47e-010	1.09
20092	450	7.08e+004	6.89e+004	1.95e+003	0.97	6.47e-010	6.47e-010	1.09
20292	200	7.18e+004	6.77e+004	4.07e+003	0.94	5.05e-008	5.05e-008	1.09
20300	8	7.26e+004	6.69e+004	5.67e+003	0.92	3.65e-007	3.65e-007	1.09
Block: 30								
20306	6	1.30e+005	5.60e+004	7.39e+004	0.43	7.46e-004	7.46e-004	1.094
20342	36	7.06e+004	6.86e+004	1.95e+003	0.97	6.47e-010	6.47e-010	1.094
20792	450	7.06e+004	6.86e+004	1.95e+003	0.97	6.47e-010	6.47e-010	1.094
20992	200	7.16e+004	6.75e+004	4.07e+003	0.94	5.05e-008	5.05e-008	1.094
21000	8	7.23e+004	6.67e+004	5.67e+003	0.92	3.65e-007	3.65e-007	1.094
Block: 31								
21006	6	1.29e+005	5.58e+004	7.35e+004	0.43	7.39e-004	7.39e-004	1.098
21042	36	7.04e+004	6.84e+004	1.96e+003	0.97	6.48e-010	6.48e-010	1.098
21492	450	7.04e+004	6.84e+004	1.96e+003	0.97	6.48e-010	6.48e-010	1.098
21692	200	7.13e+004	6.73e+004	4.07e+003	0.94	5.06e-008	5.06e-008	1.098
21700	8	7.21e+004	6.64e+004	5.67e+003	0.92	3.66e-007	3.66e-007	1.098
Block: 32								
21706	6	1.29e+005	5.56e+004	7.31e+004	0.43	7.32e-004	7.32e-004	1.103
21742	36	7.01e+004	6.82e+004	1.96e+003	0.97	6.49e-010	6.49e-010	1.103
22192	450	7.01e+004	6.82e+004	1.96e+003	0.97	6.49e-010	6.49e-010	1.103
22392	200	7.11e+004	6.70e+004	4.07e+003	0.94	5.07e-008	5.07e-008	1.103
22400	8	7.19e+004	6.62e+004	5.67e+003	0.92	3.66e-007	3.66e-007	1.103
Block: 33								
22406	6	1.28e+005	5.54e+004	7.27e+004	0.43	7.25e-004	7.25e-004	1.107
22442	36	6.99e+004	6.79e+004	1.96e+003	0.97	6.50e-010	6.50e-010	1.107
22892	450	6.99e+004	6.79e+004	1.96e+003	0.97	6.50e-010	6.50e-010	1.107
23092	200	7.09e+004	6.68e+004	4.07e+003	0.94	5.07e-008	5.07e-008	1.107
23100	8	7.16e+004	6.60e+004	5.67e+003	0.92	3.67e-007	3.67e-007	1.107
Block: 34								
23106	6	1.28e+005	5.52e+004	7.24e+004	0.43	7.19e-004	7.19e-004	1.112

23142	36	6.97e+004	6.77e+004	1.96e+003	0.97	6.51e-010	6.51e-010	1.112
23592	450	6.97e+004	6.77e+004	1.96e+003	0.97	6.51e-010	6.51e-010	1.112
23792	200	7.06e+004	6.66e+004	4.07e+003	0.94	5.08e-008	5.08e-008	1.112
23800	8	7.14e+004	6.57e+004	5.67e+003	0.92	3.67e-007	3.67e-007	1.112
Block:	35							
23806	6	1.27e+005	5.50e+004	7.20e+004	0.43	7.12e-004	7.12e-004	1.116
23842	36	6.94e+004	6.75e+004	1.96e+003	0.97	6.52e-010	6.52e-010	1.116
24292	450	6.94e+004	6.75e+004	1.96e+003	0.97	6.52e-010	6.52e-010	1.116
24492	200	7.04e+004	6.63e+004	4.07e+003	0.94	5.09e-008	5.09e-008	1.116
24500	8	7.12e+004	6.55e+004	5.68e+003	0.92	3.68e-007	3.68e-007	1.116
Block:	36							
24506	6	1.26e+005	5.48e+004	7.16e+004	0.43	7.06e-004	7.06e-004	1.12
24542	36	6.92e+004	6.72e+004	1.96e+003	0.97	6.52e-010	6.52e-010	1.12
24992	450	6.92e+004	6.72e+004	1.96e+003	0.97	6.52e-010	6.52e-010	1.12
25192	200	7.02e+004	6.61e+004	4.07e+003	0.94	5.09e-008	5.09e-008	1.12
25200	8	7.10e+004	6.53e+004	5.68e+003	0.92	3.68e-007	3.68e-007	1.12
Block:	37							
25206	6	1.26e+005	5.47e+004	7.13e+004	0.43	6.99e-004	6.99e-004	1.124
25242	36	6.90e+004	6.70e+004	1.96e+003	0.97	6.53e-010	6.53e-010	1.124
25692	450	6.90e+004	6.70e+004	1.96e+003	0.97	6.53e-010	6.53e-010	1.124
25892	200	7.00e+004	6.59e+004	4.07e+003	0.94	5.10e-008	5.10e-008	1.124
25900	8	7.07e+004	6.51e+004	5.68e+003	0.92	3.68e-007	3.68e-007	1.124
Block:	38							
25906	6	1.25e+005	5.45e+004	7.09e+004	0.43	6.93e-004	6.93e-004	1.129
25942	36	6.88e+004	6.68e+004	1.96e+003	0.97	6.54e-010	6.54e-010	1.129
26392	450	6.88e+004	6.68e+004	1.96e+003	0.97	6.54e-010	6.54e-010	1.129
26592	200	6.97e+004	6.57e+004	4.07e+003	0.94	5.11e-008	5.11e-008	1.129
26600	8	7.05e+004	6.48e+004	5.68e+003	0.92	3.69e-007	3.69e-007	1.129
Block:	39							
26606	6	1.25e+005	5.43e+004	7.05e+004	0.43	6.87e-004	6.87e-004	1.133
26642	36	6.85e+004	6.66e+004	1.96e+003	0.97	6.55e-010	6.55e-010	1.133
27092	450	6.85e+004	6.66e+004	1.96e+003	0.97	6.55e-010	6.55e-010	1.133
27292	200	6.95e+004	6.54e+004	4.07e+003	0.94	5.11e-008	5.11e-008	1.133
27300	8	7.03e+004	6.46e+004	5.68e+003	0.92	3.69e-007	3.69e-007	1.133
Block:	40							
27306	6	1.24e+005	5.41e+004	7.02e+004	0.44	6.81e-004	6.81e-004	1.137
27342	36	6.83e+004	6.64e+004	1.96e+003	0.97	6.56e-010	6.56e-010	1.137
27792	450	6.83e+004	6.64e+004	1.96e+003	0.97	6.56e-010	6.56e-010	1.137
27992	200	6.93e+004	6.52e+004	4.07e+003	0.94	5.12e-008	5.12e-008	1.137
28000	8	7.01e+004	6.44e+004	5.68e+003	0.92	3.70e-007	3.70e-007	1.137
Block:	41							
28006	6	1.24e+005	5.39e+004	6.98e+004	0.44	6.75e-004	6.75e-004	1.141
28042	36	6.81e+004	6.61e+004	1.96e+003	0.97	6.56e-010	6.56e-010	1.141
28492	450	6.81e+004	6.61e+004	1.96e+003	0.97	6.56e-010	6.56e-010	1.141
28692	200	6.91e+004	6.50e+004	4.08e+003	0.94	5.12e-008	5.12e-008	1.141
28700	8	6.99e+004	6.42e+004	5.68e+003	0.92	3.70e-007	3.70e-007	1.141
Block:	42							
28706	6	1.23e+005	5.37e+004	6.95e+004	0.44	6.69e-004	6.69e-004	1.145
28742	36	6.79e+004	6.59e+004	1.96e+003	0.97	6.57e-010	6.57e-010	1.145

29192	450	6.79e+004	6.59e+004	1.96e+003	0.97	6.57e-010	6.57e-010	1.145
29392	200	6.89e+004	6.48e+004	4.08e+003	0.94	5.13e-008	5.13e-008	1.145
29400	8	6.97e+004	6.40e+004	5.68e+003	0.92	3.71e-007	3.71e-007	1.145
Block:	43							
29406	6	1.23e+005	5.36e+004	6.91e+004	0.44	6.63e-004	6.63e-004	1.149
29442	36	6.77e+004	6.57e+004	1.96e+003	0.97	6.58e-010	6.58e-010	1.149
29892	450	6.77e+004	6.57e+004	1.96e+003	0.97	6.58e-010	6.58e-010	1.149
30092	200	6.87e+004	6.46e+004	4.08e+003	0.94	5.14e-008	5.14e-008	1.149
30100	8	6.94e+004	6.38e+004	5.68e+003	0.92	3.71e-007	3.71e-007	1.149
Block:	44							
30106	6	1.22e+005	5.34e+004	6.88e+004	0.44	6.57e-004	6.57e-004	1.153
30142	36	6.75e+004	6.55e+004	1.96e+003	0.97	6.59e-010	6.59e-010	1.153
30592	450	6.75e+004	6.55e+004	1.96e+003	0.97	6.59e-010	6.59e-010	1.153
30792	200	6.84e+004	6.44e+004	4.08e+003	0.94	5.14e-008	5.14e-008	1.153
30800	8	6.92e+004	6.35e+004	5.69e+003	0.92	3.72e-007	3.72e-007	1.153
Block:	45							
30806	6	1.22e+005	5.32e+004	6.85e+004	0.44	6.51e-004	6.51e-004	1.157
30842	36	6.73e+004	6.53e+004	1.96e+003	0.97	6.59e-010	6.59e-010	1.157
31292	450	6.73e+004	6.53e+004	1.96e+003	0.97	6.59e-010	6.59e-010	1.157
31492	200	6.82e+004	6.42e+004	4.08e+003	0.94	5.15e-008	5.15e-008	1.157
31500	8	6.90e+004	6.33e+004	5.69e+003	0.92	3.72e-007	3.72e-007	1.157
Block:	46							
31506	6	1.21e+005	5.30e+004	6.81e+004	0.44	6.46e-004	6.46e-004	1.161
31542	36	6.70e+004	6.51e+004	1.96e+003	0.97	6.60e-010	6.60e-010	1.161
31992	450	6.70e+004	6.51e+004	1.96e+003	0.97	6.60e-010	6.60e-010	1.161
32192	200	6.80e+004	6.40e+004	4.08e+003	0.94	5.15e-008	5.15e-008	1.161
32200	8	6.88e+004	6.31e+004	5.69e+003	0.92	3.72e-007	3.72e-007	1.161
Block:	47							
32206	6	1.21e+005	5.29e+004	6.78e+004	0.44	6.40e-004	6.40e-004	1.165
32242	36	6.68e+004	6.49e+004	1.96e+003	0.97	6.61e-010	6.61e-010	1.165
32692	450	6.68e+004	6.49e+004	1.96e+003	0.97	6.61e-010	6.61e-010	1.165
32892	200	6.78e+004	6.37e+004	4.08e+003	0.94	5.16e-008	5.16e-008	1.165
32900	8	6.86e+004	6.29e+004	5.69e+003	0.92	3.73e-007	3.73e-007	1.165
Block:	48							
32906	6	1.20e+005	5.27e+004	6.74e+004	0.44	6.35e-004	6.35e-004	1.168
32942	36	6.66e+004	6.47e+004	1.96e+003	0.97	6.62e-010	6.62e-010	1.168
33392	450	6.66e+004	6.47e+004	1.96e+003	0.97	6.62e-010	6.62e-010	1.168
33592	200	6.76e+004	6.35e+004	4.08e+003	0.94	5.17e-008	5.17e-008	1.168
33600	8	6.84e+004	6.27e+004	5.69e+003	0.92	3.73e-007	3.73e-007	1.168
Block:	49							
33606	6	1.20e+005	5.25e+004	6.71e+004	0.44	6.29e-004	6.29e-004	1.172
33642	36	6.64e+004	6.45e+004	1.96e+003	0.97	6.62e-010	6.62e-010	1.172
34092	450	6.64e+004	6.45e+004	1.96e+003	0.97	6.62e-010	6.62e-010	1.172
34292	200	6.74e+004	6.33e+004	4.08e+003	0.94	5.17e-008	5.17e-008	1.172
34300	8	6.82e+004	6.25e+004	5.69e+003	0.92	3.74e-007	3.74e-007	1.172
Block:	50							
34306	6	1.19e+005	5.24e+004	6.68e+004	0.44	6.24e-004	6.24e-004	1.176
34342	36	6.62e+004	6.43e+004	1.96e+003	0.97	6.63e-010	6.63e-010	1.176
34792	450	6.62e+004	6.43e+004	1.96e+003	0.97	6.63e-010	6.63e-010	1.176

34992	200	6.72e+004	6.31e+004	4.08e+003	0.94	5.18e-008	5.18e-008	1.176
35000	8	6.80e+004	6.23e+004	5.69e+003	0.92	3.74e-007	3.74e-007	1.176
Block: 51								
35006	6	1.19e+005	5.22e+004	6.65e+004	0.44	6.18e-004	6.18e-004	1.18
35042	36	6.60e+004	6.41e+004	1.96e+003	0.97	6.64e-010	6.64e-010	1.18
35492	450	6.60e+004	6.41e+004	1.96e+003	0.97	6.64e-010	6.64e-010	1.18
35692	200	6.70e+004	6.29e+004	4.08e+003	0.94	5.18e-008	5.18e-008	1.18
35700	8	6.78e+004	6.21e+004	5.69e+003	0.92	3.74e-007	3.74e-007	1.18
Block: 52								
35706	6	1.18e+005	5.20e+004	6.61e+004	0.44	6.13e-004	6.13e-004	1.183
35742	36	6.58e+004	6.39e+004	1.96e+003	0.97	6.65e-010	6.65e-010	1.183
36192	450	6.58e+004	6.39e+004	1.96e+003	0.97	6.65e-010	6.65e-010	1.183
36392	200	6.68e+004	6.27e+004	4.08e+003	0.94	5.19e-008	5.19e-008	1.183
36400	8	6.76e+004	6.19e+004	5.69e+003	0.92	3.75e-007	3.75e-007	1.183
Block: 53								
36406	6	1.18e+005	5.19e+004	6.58e+004	0.44	6.08e-004	6.08e-004	1.187
36442	36	6.57e+004	6.37e+004	1.96e+003	0.97	6.65e-010	6.65e-010	1.187
36892	450	6.57e+004	6.37e+004	1.96e+003	0.97	6.65e-010	6.65e-010	1.187
37092	200	6.66e+004	6.25e+004	4.08e+003	0.94	5.19e-008	5.19e-008	1.187
37100	8	6.74e+004	6.17e+004	5.70e+003	0.92	3.75e-007	3.75e-007	1.187
Block: 54								
37106	6	1.17e+005	5.17e+004	6.55e+004	0.44	6.03e-004	6.03e-004	1.191
37142	36	6.55e+004	6.35e+004	1.96e+003	0.97	6.66e-010	6.66e-010	1.191
37592	450	6.55e+004	6.35e+004	1.96e+003	0.97	6.66e-010	6.66e-010	1.191
37792	200	6.64e+004	6.24e+004	4.09e+003	0.94	5.20e-008	5.20e-008	1.191
37800	8	6.72e+004	6.15e+004	5.70e+003	0.92	3.76e-007	3.76e-007	1.191
Block: 55								
37806	6	1.17e+005	5.15e+004	6.52e+004	0.44	5.98e-004	5.98e-004	1.194
37842	36	6.53e+004	6.33e+004	1.96e+003	0.97	6.67e-010	6.67e-010	1.194
38292	450	6.53e+004	6.33e+004	1.96e+003	0.97	6.67e-010	6.67e-010	1.194
38492	200	6.62e+004	6.22e+004	4.09e+003	0.94	5.20e-008	5.20e-008	1.194
38500	8	6.70e+004	6.13e+004	5.70e+003	0.92	3.76e-007	3.76e-007	1.194
Block: 56								
38506	6	1.16e+005	5.14e+004	6.49e+004	0.44	5.93e-004	5.93e-004	1.198
38542	36	6.51e+004	6.31e+004	1.96e+003	0.97	6.67e-010	6.67e-010	1.198
38992	450	6.51e+004	6.31e+004	1.96e+003	0.97	6.67e-010	6.67e-010	1.198
39192	200	6.61e+004	6.20e+004	4.09e+003	0.94	5.21e-008	5.21e-008	1.198
39200	8	6.68e+004	6.11e+004	5.70e+003	0.91	3.76e-007	3.76e-007	1.198
Block: 57								
39206	6	1.16e+005	5.12e+004	6.46e+004	0.44	5.88e-004	5.88e-004	1.201
39242	36	6.49e+004	6.29e+004	1.97e+003	0.97	6.68e-010	6.68e-010	1.201
39692	450	6.49e+004	6.29e+004	1.97e+003	0.97	6.68e-010	6.68e-010	1.201
39892	200	6.59e+004	6.18e+004	4.09e+003	0.94	5.22e-008	5.22e-008	1.201
39900	8	6.67e+004	6.10e+004	5.70e+003	0.91	3.77e-007	3.77e-007	1.201
Block: 58								
39906	6	1.15e+005	5.11e+004	6.43e+004	0.44	5.83e-004	5.83e-004	1.205
39942	36	6.47e+004	6.27e+004	1.97e+003	0.97	6.69e-010	6.69e-010	1.205
40392	450	6.47e+004	6.27e+004	1.97e+003	0.97	6.69e-010	6.69e-010	1.205
40592	200	6.57e+004	6.16e+004	4.09e+003	0.94	5.22e-008	5.22e-008	1.205

```
   40600        8 6.65e+004 6.08e+004 5.70e+003 0.91 3.77e-007 3.77e-007  1.205

Block:    59
   40606        6 1.15e+005 5.09e+004 6.40e+004 0.44 5.78e-004 5.78e-004  1.208
   40642       36 6.45e+004 6.26e+004 1.97e+003 0.97 6.69e-010 6.69e-010  1.208
   41092      450 6.45e+004 6.26e+004 1.97e+003 0.97 6.69e-010 6.69e-010  1.208
   41292      200 6.55e+004 6.14e+004 4.09e+003 0.94 5.23e-008 5.23e-008  1.208
   41300        8 6.63e+004 6.06e+004 5.70e+003 0.91 3.78e-007 3.78e-007  1.208

Block:    60
   41306        6 1.14e+005 5.08e+004 6.37e+004 0.44 5.73e-004 5.73e-004  1.212
   41342       36 6.43e+004 6.24e+004 1.97e+003 0.97 6.70e-010 6.70e-010  1.212
   41792      450 6.43e+004 6.24e+004 1.97e+003 0.97 6.70e-010 6.70e-010  1.212
   41992      200 6.53e+004 6.12e+004 4.09e+003 0.94 5.23e-008 5.23e-008  1.212
   42000        8 6.61e+004 6.04e+004 5.70e+003 0.91 3.78e-007 3.78e-007  1.212


                        End of pc-CRACK Output
```

Pressurizer Base Metal/Clad Interface Location

tm
pc-CRACK for Windows
Version 3.1-98348
(C) Copyright '84 - '98
Structural Integrity Associates, Inc.
3315 Almaden Expressway, Suite 24
San Jose, CA 95118-1557
Voice: 408-978-8200
Fax: 408-978-8964
E-mail: pccrack@structint.com

Linear Elastic Fracture Mechanics

Date: Mon Dec 04 15:22:25 2006
Input Data and Results File: LVL_CLAD.LFM

Title: ANO-1 Level/Sampling Nozzle Fatigue Crack Growth; Clad Location

Load Cases:

Case ID: RESID --- K vs a

Depth	K
0.8420	26128.0000
1.2300	28786.0000
1.3970	28838.0000
1.5630	28891.0000

Case ID: PRESS --- K vs a

Depth	K
0.8420	13596.0000
1.2300	14381.0000
1.3970	14922.0000
1.5630	15463.0000

Case ID: HEATUP --- K vs a

Depth	K
0.8420	-28136.0000
1.2300	-41581.0000
1.3970	-42878.0000
1.5630	-44174.0000

Case ID: CD --- K vs a

Depth	K
0.8420	83603.0000
1.2300	82852.0000
1.3970	84947.0000

1.5630	87041.0000

Case ID: STEADY --- K vs a

Depth	K
0.8420	-16189.0000
1.2300	-29595.0000
1.3970	-30568.0000
1.5630	-31540.0000

Case ID	Stress Coefficients C0	C1	C2	C3	Type
RESID	0	0	0	0	K vs a
PRESS	0	0	0	0	K vs a
HEATUP	0	0	0	0	K vs a
CD	0	0	0	0	K vs a
STEADY	0	0	0	0	K vs a

Crack Model: User Input K Versus Crack Size

Crack Parameters:
Max. crack size: 3.0000

Crack Size	Stress Intensity Factor Case RESID	Case PRESS	Case HEATUP	Case CD	Case STEADY
0.0600	20770.9	12013.9	-1038.09	85116.6	10830.3
0.1200	21181.9	12135.3	-3117.21	85000.5	8757.22
0.1800	21593	12256.6	-5196.34	84884.3	6684.12
0.2400	22004	12378	-7275.46	84768.2	4611.03
0.3000	22415	12499.4	-9354.58	84652.1	2537.94
0.3600	22826.1	12620.8	-11433.7	84535.9	464.845
0.4200	23237.1	12742.2	-13512.8	84419.8	-1608.25
0.4800	23648.1	12863.6	-15592	84303.7	-3681.34
0.5400	24059.1	12985	-17671.1	84187.5	-5754.43
0.6000	24470.2	13106.4	-19750.2	84071.4	-7827.53
0.6600	24881.2	13227.8	-21829.3	83955.3	-9900.62
0.7200	25292.2	13349.2	-23908.4	83839.1	-11973.7
0.7800	25703.3	13470.6	-25987.6	83723	-14046.8
0.8400	26114.3	13592	-28066.7	83606.9	-16119.9
0.9000	26525.3	13713.3	-30145.8	83490.7	-18193
0.9600	26936.4	13834.7	-32224.9	83374.6	-20266.1
1.0200	27347.4	13956.1	-34304.1	83258.5	-22339.2
1.0800	27758.4	14077.5	-36383.2	83142.3	-24412.3
1.1400	28169.5	14198.9	-38462.3	83026.2	-26485.4
1.2000	28580.5	14320.3	-40541.4	82910.1	-28558.5
1.2600	28795.3	14478.2	-41814	83228.3	-29769.8
1.3200	28814	14672.6	-42280	83981	-30119.4
1.3800	28832.7	14866.9	-42746	84733.7	-30469
1.4400	28851.7	15062.1	-43213.7	85489.4	-30819.8

1.5000	28870.9	15257.7	-43682.1	86246.3	-31171.1
1.5600	28890	15453.2	-44150.6	87003.2	-31522.4
1.6200	28909.2	15648.8	-44619	87760	-31873.8
1.6800	28928.4	15844.3	-45087.4	88516.9	-32225.1
1.7400	28947.5	16039.8	-45555.9	89273.8	-32576.4
1.8000	28966.7	16235.4	-46024.3	90030.6	-32927.7
1.8600	28985.8	16430.9	-46492.7	90787.5	-33279.1
1.9200	29005	16626.5	-46961.2	91544.4	-33630.4
1.9800	29024.1	16822	-47429.6	92301.2	-33981.7
2.0400	29043.3	17017.6	-47898	93058.1	-34333
2.1000	29062.5	17213.1	-48366.5	93815	-34684.4
2.1600	29081.6	17408.6	-48834.9	94571.8	-35035.7
2.2200	29100.8	17604.2	-49303.4	95328.7	-35387
2.2800	29119.9	17799.7	-49771.8	96085.6	-35738.3
2.3400	29139.1	17995.3	-50240.2	96842.4	-36089.7
2.4000	29158.2	18190.8	-50708.7	97599.3	-36441
2.4600	29177.4	18386.4	-51177.1	98356.2	-36792.3
2.5200	29196.5	18581.9	-51645.5	99113	-37143.6
2.5800	29215.7	18777.4	-52113.9	99869.9	-37495
2.6400	29234.9	18973	-52582.4	100627	-37846.3
2.7000	29254	19168.5	-53050.8	101384	-38197.6
2.7600	29273.2	19364.1	-53519.3	102141	-38548.9
2.8200	29292.3	19559.6	-53987.7	102897	-38900.3
2.8800	29311.5	19755.2	-54456.1	103654	-39251.6
2.9400	29330.6	19950.7	-54924.6	104411	-39602.9
3.0000	29349.8	20146.2	-55393	105168	-39954.2

Crack Growth Laws:

Law ID: FERRITIC
Model: ASME Section XI - ferritic steel in water environment

```
  da/dN = CL * SL * dK^5.95  for dK <  dKtran
  da/dN = CU * SU * dK^1.95  for dK >= dKtran
where
      dK = Kmax - Kmin
       R = Kmin / Kmax
for R <= 0.25:
  SL = 1.0                  SU = 1.0    dKtran = 17.74
for 0.25 < R <= 0.65:
  SL = 26.9 * R - 5.725     SU = 3.75 * R + 0.06
  dKtran = 17.74*{(3.75 * R + 0.06)/(26.9 * R - 5.725)}^0.25
 for 0.65 < R:
  SL = 11.76                SU = 2.5    dKtran = 12.04

where:
  CL =  1.4408e-030
  CU =  1.4267e-013
 are for the selected units of:
   force: lb
  length: inch
```

Material Fracture Toughness KIc:

Material ID: FRACT

Depth	KIc
0.0000	200000.0000
1.0000	200000.0000
3.0000	200000.0000

Initial crack size= 0.8420
Max. crack size= 3.0000

Number of blocks= 60
Print increment of block= 1

Subblock	Cycles /Time	Calc. incre.	Print incre.	Crk. Grw. Law	Mat. Klc
Trans 1A	6	1	6	FERRITIC	FRACT
Trans 2A/2B	36	1	36	FERRITIC	FRACT
Trans 3/4	450	1	450	FERRITIC	FRACT
Trans 5/6	200	1	200	FERRITIC	FRACT
Trans 7	8	1	8	FERRITIC	FRACT

Subblock	Kmax Case ID	Kmax Scale Factor	Kmin Case ID	Kmin Scale Factor
Trans 1A	RESID	1.0000	RESID	1.0000
	CD	1.0000	HEATUP	1.0000
	PRESS	0.1000	PRESS	2.2000
Trans 2A/2B	RESID	1.0000	RESID	1.0000
	STEADY	1.0000	STEADY	1.0000
	PRESS	2.2500	PRESS	2.1500
Trans 3/4	RESID	1.0000	RESID	1.0000
	STEADY	1.0000	STEADY	1.0000
	PRESS	2.2500	PRESS	2.1500
Trans 5/6	RESID	1.0000	RESID	1.0000
	STEADY	1.0000	STEADY	1.0000
	PRESS	2.3000	PRESS	2.0920
Trans 7	RESID	1.0000	RESID	1.0000
	STEADY	1.0000	STEADY	1.0000
	PRESS	2.3400	PRESS	2.0500

Crack growth results:

Total Cycles /Time	Subblock Cycles /Time	Kmax	Kmin	DeltaK	R	DaDn /DaDt	Da	a
Block: 1								
6	6	1.11e+005	2.78e+004	8.33e+004	0.25	5.61e-004	5.61e-004	0.8454
42	36	4.05e+004	3.91e+004	1.36e+003	0.97	7.48e-011	7.48e-011	0.8454
492	450	4.05e+004	3.91e+004	1.36e+003	0.97	7.48e-011	7.48e-011	0.8454
692	200	4.11e+004	3.83e+004	2.83e+003	0.93	5.84e-009	5.84e-009	0.8454

700	8	4.17e+004	3.77e+004	3.94e+003	0.91	4.22e-008	4.22e-008	0.8454
Block:	2							
706	6	1.11e+005	2.78e+004	8.34e+004	0.25	5.61e-004	5.61e-004	0.8487
742	36	4.04e+004	3.90e+004	1.36e+003	0.97	7.51e-011	7.51e-011	0.8487
1192	450	4.04e+004	3.90e+004	1.36e+003	0.97	7.51e-011	7.51e-011	0.8487
1392	200	4.11e+004	3.82e+004	2.83e+003	0.93	5.86e-009	5.86e-009	0.8487
1400	8	4.16e+004	3.77e+004	3.95e+003	0.91	4.23e-008	4.23e-008	0.8487
Block:	3							
1406	6	1.11e+005	2.77e+004	8.35e+004	0.25	5.62e-004	5.62e-004	0.8521
1442	36	4.03e+004	3.89e+004	1.36e+003	0.97	7.53e-011	7.53e-011	0.8521
1892	450	4.03e+004	3.89e+004	1.36e+003	0.97	7.53e-011	7.53e-011	0.8521
2092	200	4.10e+004	3.81e+004	2.83e+003	0.93	5.88e-009	5.88e-009	0.8521
2100	8	4.15e+004	3.76e+004	3.95e+003	0.90	4.25e-008	4.25e-008	0.8521
Block:	4							
2106	6	1.11e+005	2.76e+004	8.36e+004	0.25	5.64e-004	5.64e-004	0.8555
2142	36	4.02e+004	3.89e+004	1.36e+003	0.97	7.55e-011	7.55e-011	0.8555
2592	450	4.02e+004	3.89e+004	1.36e+003	0.97	7.55e-011	7.55e-011	0.8555
2792	200	4.09e+004	3.81e+004	2.83e+003	0.93	5.89e-009	5.89e-009	0.8555
2800	8	4.14e+004	3.75e+004	3.95e+003	0.90	4.26e-008	4.26e-008	0.8555
Block:	5							
2806	6	1.11e+005	2.75e+004	8.37e+004	0.25	5.65e-004	5.65e-004	0.8589
2842	36	4.01e+004	3.88e+004	1.36e+003	0.97	7.57e-011	7.57e-011	0.8589
3292	450	4.01e+004	3.88e+004	1.36e+003	0.97	7.57e-011	7.57e-011	0.8589
3492	200	4.08e+004	3.80e+004	2.84e+003	0.93	5.91e-009	5.91e-009	0.8589
3500	8	4.14e+004	3.74e+004	3.95e+003	0.90	4.27e-008	4.27e-008	0.8589
Block:	6							
3506	6	1.11e+005	2.74e+004	8.37e+004	0.25	5.66e-004	5.66e-004	0.8623
3542	36	4.01e+004	3.87e+004	1.36e+003	0.97	7.60e-011	7.60e-011	0.8623
3992	450	4.01e+004	3.87e+004	1.36e+003	0.97	7.60e-011	7.60e-011	0.8623
4192	200	4.07e+004	3.79e+004	2.84e+003	0.93	5.93e-009	5.93e-009	0.8623
4200	8	4.13e+004	3.73e+004	3.95e+003	0.90	4.28e-008	4.28e-008	0.8623
Block:	7							
4206	6	1.11e+005	2.74e+004	8.38e+004	0.25	5.68e-004	5.68e-004	0.8657
4242	36	4.00e+004	3.86e+004	1.36e+003	0.97	7.62e-011	7.62e-011	0.8657
4692	450	4.00e+004	3.86e+004	1.36e+003	0.97	7.62e-011	7.62e-011	0.8657
4892	200	4.07e+004	3.78e+004	2.84e+003	0.93	5.95e-009	5.95e-009	0.8657
4900	8	4.12e+004	3.73e+004	3.96e+003	0.90	4.30e-008	4.30e-008	0.8657
Block:	8							
4906	6	1.11e+005	2.73e+004	8.39e+004	0.25	5.69e-004	5.69e-004	0.8691
4942	36	3.99e+004	3.85e+004	1.37e+003	0.97	7.64e-011	7.64e-011	0.8691
5392	450	3.99e+004	3.85e+004	1.37e+003	0.97	7.64e-011	7.64e-011	0.8691
5592	200	4.06e+004	3.77e+004	2.84e+003	0.93	5.97e-009	5.97e-009	0.8691
5600	8	4.11e+004	3.72e+004	3.96e+003	0.90	4.31e-008	4.31e-008	0.8691
Block:	9							
5606	6	1.11e+005	2.72e+004	8.40e+004	0.24	5.70e-004	5.70e-004	0.8725
5642	36	3.98e+004	3.85e+004	1.37e+003	0.97	7.66e-011	7.66e-011	0.8725
6092	450	3.98e+004	3.85e+004	1.37e+003	0.97	7.66e-011	7.66e-011	0.8725
6292	200	4.05e+004	3.77e+004	2.84e+003	0.93	5.98e-009	5.98e-009	0.8725
6300	8	4.11e+004	3.71e+004	3.96e+003	0.90	4.32e-008	4.32e-008	0.8725

Block:	10							
6306	6	1.11e+005	2.71e+004	8.41e+004	0.24	5.71e-004	5.71e-004	0.8759
6342	36	3.97e+004	3.84e+004	1.37e+003	0.97	7.69e-011	7.69e-011	0.8759
6792	450	3.97e+004	3.84e+004	1.37e+003	0.97	7.69e-011	7.69e-011	0.8759
6992	200	4.04e+004	3.76e+004	2.84e+003	0.93	6.00e-009	6.00e-009	0.8759
7000	8	4.10e+004	3.70e+004	3.96e+003	0.90	4.34e-008	4.34e-008	0.8759
Block:	11							
7006	6	1.11e+005	2.70e+004	8.42e+004	0.24	5.73e-004	5.73e-004	0.8794
7042	36	3.97e+004	3.83e+004	1.37e+003	0.97	7.71e-011	7.71e-011	0.8794
7492	450	3.97e+004	3.83e+004	1.37e+003	0.97	7.71e-011	7.71e-011	0.8794
7692	200	4.03e+004	3.75e+004	2.84e+003	0.93	6.02e-009	6.02e-009	0.8794
7700	8	4.09e+004	3.69e+004	3.96e+003	0.90	4.35e-008	4.35e-008	0.8794
Block:	12							
7706	6	1.11e+005	2.70e+004	8.43e+004	0.24	5.74e-004	5.74e-004	0.8828
7742	36	3.96e+004	3.82e+004	1.37e+003	0.97	7.73e-011	7.73e-011	0.8828
8192	450	3.96e+004	3.82e+004	1.37e+003	0.97	7.73e-011	7.73e-011	0.8828
8392	200	4.03e+004	3.74e+004	2.85e+003	0.93	6.04e-009	6.04e-009	0.8828
8400	8	4.08e+004	3.68e+004	3.97e+003	0.90	4.36e-008	4.36e-008	0.8828
Block:	13							
8406	6	1.11e+005	2.69e+004	8.44e+004	0.24	5.75e-004	5.75e-004	0.8862
8442	36	3.95e+004	3.81e+004	1.37e+003	0.97	7.76e-011	7.76e-011	0.8862
8892	450	3.95e+004	3.81e+004	1.37e+003	0.97	7.76e-011	7.76e-011	0.8862
9092	200	4.02e+004	3.73e+004	2.85e+003	0.93	6.06e-009	6.06e-009	0.8862
9100	8	4.07e+004	3.68e+004	3.97e+003	0.90	4.38e-008	4.38e-008	0.8863
Block:	14							
9106	6	1.11e+005	2.68e+004	8.45e+004	0.24	5.77e-004	5.77e-004	0.8897
9142	36	3.94e+004	3.81e+004	1.37e+003	0.97	7.78e-011	7.78e-011	0.8897
9592	450	3.94e+004	3.81e+004	1.37e+003	0.97	7.78e-011	7.78e-011	0.8897
9792	200	4.01e+004	3.73e+004	2.85e+003	0.93	6.08e-009	6.08e-009	0.8897
9800	8	4.07e+004	3.67e+004	3.97e+003	0.90	4.39e-008	4.39e-008	0.8897
Block:	15							
9806	6	1.11e+005	2.67e+004	8.46e+004	0.24	5.78e-004	5.78e-004	0.8932
9842	36	3.93e+004	3.80e+004	1.37e+003	0.97	7.81e-011	7.81e-011	0.8932
10292	450	3.93e+004	3.80e+004	1.37e+003	0.97	7.81e-011	7.81e-011	0.8932
10492	200	4.00e+004	3.72e+004	2.85e+003	0.93	6.09e-009	6.09e-009	0.8932
10500	8	4.06e+004	3.66e+004	3.97e+003	0.90	4.40e-008	4.40e-008	0.8932
Block:	16							
10506	6	1.11e+005	2.66e+004	8.47e+004	0.24	5.79e-004	5.79e-004	0.8966
10542	36	3.93e+004	3.79e+004	1.37e+003	0.97	7.83e-011	7.83e-011	0.8966
10992	450	3.93e+004	3.79e+004	1.37e+003	0.97	7.83e-011	7.83e-011	0.8966
11192	200	4.00e+004	3.71e+004	2.85e+003	0.93	6.11e-009	6.11e-009	0.8966
11200	8	4.05e+004	3.65e+004	3.97e+003	0.90	4.42e-008	4.42e-008	0.8966
Block:	17							
11206	6	1.11e+005	2.66e+004	8.48e+004	0.24	5.81e-004	5.81e-004	0.9001
11242	36	3.92e+004	3.78e+004	1.37e+003	0.97	7.85e-011	7.85e-011	0.9001
11692	450	3.92e+004	3.78e+004	1.37e+003	0.97	7.85e-011	7.85e-011	0.9001
11892	200	3.99e+004	3.70e+004	2.85e+003	0.93	6.13e-009	6.13e-009	0.9001
11900	8	4.04e+004	3.64e+004	3.98e+003	0.90	4.43e-008	4.43e-008	0.9001

```
Block:    18
   11906        6 1.11e+005 2.65e+004 8.49e+004 0.24 5.82e-004 5.82e-004 0.9036
   11942       36 3.91e+004 3.77e+004 1.37e+003 0.96 7.88e-011 7.88e-011 0.9036
   12392      450 3.91e+004 3.77e+004 1.37e+003 0.96 7.88e-011 7.88e-011 0.9036
   12592      200 3.98e+004 3.69e+004 2.85e+003 0.93 6.15e-009 6.15e-009 0.9036
   12600        8 4.03e+004 3.64e+004 3.98e+003 0.90 4.44e-008 4.44e-008 0.9036

Block:    19
   12606        6 1.11e+005 2.64e+004 8.50e+004 0.24 5.83e-004 5.83e-004 0.9071
   12642       36 3.90e+004 3.77e+004 1.37e+003 0.96 7.90e-011 7.90e-011 0.9071
   13092      450 3.90e+004 3.77e+004 1.37e+003 0.96 7.90e-011 7.90e-011 0.9071
   13292      200 3.97e+004 3.69e+004 2.86e+003 0.93 6.17e-009 6.17e-009 0.9071
   13300        8 4.03e+004 3.63e+004 3.98e+003 0.90 4.46e-008 4.46e-008 0.9071

Block:    20
   13306        6 1.11e+005 2.63e+004 8.51e+004 0.24 5.85e-004 5.85e-004 0.9106
   13342       36 3.89e+004 3.76e+004 1.37e+003 0.96 7.93e-011 7.93e-011 0.9106
   13792      450 3.89e+004 3.76e+004 1.37e+003 0.96 7.93e-011 7.93e-011 0.9106
   13992      200 3.96e+004 3.68e+004 2.86e+003 0.93 6.19e-009 6.19e-009 0.9106
   14000        8 4.02e+004 3.62e+004 3.98e+003 0.90 4.47e-008 4.47e-008 0.9106

Block:    21
   14006        6 1.11e+005 2.62e+004 8.52e+004 0.24 5.86e-004 5.86e-004 0.9141
   14042       36 3.89e+004 3.75e+004 1.37e+003 0.96 7.95e-011 7.95e-011 0.9141
   14492      450 3.89e+004 3.75e+004 1.37e+003 0.96 7.95e-011 7.95e-011 0.9141
   14692      200 3.95e+004 3.67e+004 2.86e+003 0.93 6.21e-009 6.21e-009 0.9141
   14700        8 4.01e+004 3.61e+004 3.99e+003 0.90 4.48e-008 4.48e-008 0.9141

Block:    22
   14706        6 1.11e+005 2.62e+004 8.53e+004 0.23 5.87e-004 5.87e-004 0.9176
   14742       36 3.88e+004 3.74e+004 1.37e+003 0.96 7.98e-011 7.98e-011 0.9176
   15192      450 3.88e+004 3.74e+004 1.37e+003 0.96 7.98e-011 7.98e-011 0.9176
   15392      200 3.95e+004 3.66e+004 2.86e+003 0.93 6.23e-009 6.23e-009 0.9176
   15400        8 4.00e+004 3.60e+004 3.99e+003 0.90 4.50e-008 4.50e-008 0.9176

Block:    23
   15406        6 1.11e+005 2.61e+004 8.54e+004 0.23 5.89e-004 5.89e-004 0.9212
   15442       36 3.87e+004 3.73e+004 1.38e+003 0.96 8.00e-011 8.00e-011 0.9212
   15892      450 3.87e+004 3.73e+004 1.38e+003 0.96 8.00e-011 8.00e-011 0.9212
   16092      200 3.94e+004 3.65e+004 2.86e+003 0.93 6.25e-009 6.25e-009 0.9212
   16100        8 3.99e+004 3.59e+004 3.99e+003 0.90 4.51e-008 4.51e-008 0.9212

Block:    24
   16106        6 1.12e+005 2.60e+004 8.55e+004 0.23 5.90e-004 5.90e-004 0.9247
   16142       36 3.86e+004 3.72e+004 1.38e+003 0.96 8.02e-011 8.02e-011 0.9247
   16592      450 3.86e+004 3.72e+004 1.38e+003 0.96 8.02e-011 8.02e-011 0.9247
   16792      200 3.93e+004 3.64e+004 2.86e+003 0.93 6.26e-009 6.26e-009 0.9247
   16800        8 3.99e+004 3.59e+004 3.99e+003 0.90 4.53e-008 4.53e-008 0.9247

Block:    25
   16806        6 1.12e+005 2.59e+004 8.56e+004 0.23 5.91e-004 5.91e-004 0.9283
   16842       36 3.85e+004 3.72e+004 1.38e+003 0.96 8.05e-011 8.05e-011 0.9283
   17292      450 3.85e+004 3.72e+004 1.38e+003 0.96 8.05e-011 8.05e-011 0.9283
   17492      200 3.92e+004 3.64e+004 2.86e+003 0.93 6.28e-009 6.28e-009 0.9283
   17500        8 3.98e+004 3.58e+004 3.99e+003 0.90 4.54e-008 4.54e-008 0.9283

Block:    26
```

17506	6	1.12e+005	2.58e+004	8.57e+004	0.23	5.93e-004	5.93e-004	0.9318
17542	36	3.85e+004	3.71e+004	1.38e+003	0.96	8.07e-011	8.07e-011	0.9318
17992	450	3.85e+004	3.71e+004	1.38e+003	0.96	8.07e-011	8.07e-011	0.9318
18192	200	3.91e+004	3.63e+004	2.87e+003	0.93	6.30e-009	6.30e-009	0.9318
18200	8	3.97e+004	3.57e+004	4.00e+003	0.90	4.55e-008	4.55e-008	0.9318
Block: 27								
18206	6	1.12e+005	2.57e+004	8.58e+004	0.23	5.94e-004	5.94e-004	0.9354
18242	36	3.84e+004	3.70e+004	1.38e+003	0.96	8.10e-011	8.10e-011	0.9354
18692	450	3.84e+004	3.70e+004	1.38e+003	0.96	8.10e-011	8.10e-011	0.9354
18892	200	3.91e+004	3.62e+004	2.87e+003	0.93	6.32e-009	6.32e-009	0.9354
18900	8	3.96e+004	3.56e+004	4.00e+003	0.90	4.57e-008	4.57e-008	0.9354
Block: 28								
18906	6	1.12e+005	2.57e+004	8.59e+004	0.23	5.95e-004	5.95e-004	0.9389
18942	36	3.83e+004	3.69e+004	1.38e+003	0.96	8.12e-011	8.12e-011	0.9389
19392	450	3.83e+004	3.69e+004	1.38e+003	0.96	8.12e-011	8.12e-011	0.9389
19592	200	3.90e+004	3.61e+004	2.87e+003	0.93	6.34e-009	6.34e-009	0.9389
19600	8	3.95e+004	3.55e+004	4.00e+003	0.90	4.58e-008	4.58e-008	0.9389
Block: 29								
19606	6	1.12e+005	2.56e+004	8.60e+004	0.23	5.97e-004	5.97e-004	0.9425
19642	36	3.82e+004	3.68e+004	1.38e+003	0.96	8.15e-011	8.15e-011	0.9425
20092	450	3.82e+004	3.68e+004	1.38e+003	0.96	8.15e-011	8.15e-011	0.9425
20292	200	3.89e+004	3.60e+004	2.87e+003	0.93	6.36e-009	6.36e-009	0.9425
20300	8	3.94e+004	3.54e+004	4.00e+003	0.90	4.60e-008	4.60e-008	0.9425
Block: 30								
20306	6	1.12e+005	2.55e+004	8.61e+004	0.23	5.98e-004	5.98e-004	0.9461
20342	36	3.81e+004	3.67e+004	1.38e+003	0.96	8.18e-011	8.18e-011	0.9461
20792	450	3.81e+004	3.67e+004	1.38e+003	0.96	8.18e-011	8.18e-011	0.9461
20992	200	3.88e+004	3.59e+004	2.87e+003	0.93	6.38e-009	6.38e-009	0.9461
21000	8	3.94e+004	3.54e+004	4.00e+003	0.90	4.61e-008	4.61e-008	0.9461
Block: 31								
21006	6	1.12e+005	2.54e+004	8.62e+004	0.23	6.00e-004	6.00e-004	0.9497
21042	36	3.80e+004	3.67e+004	1.38e+003	0.96	8.20e-011	8.20e-011	0.9497
21492	450	3.80e+004	3.67e+004	1.38e+003	0.96	8.20e-011	8.20e-011	0.9497
21692	200	3.87e+004	3.59e+004	2.87e+003	0.93	6.40e-009	6.40e-009	0.9497
21700	8	3.93e+004	3.53e+004	4.01e+003	0.90	4.63e-008	4.63e-008	0.9497
Block: 32								
21706	6	1.12e+005	2.53e+004	8.63e+004	0.23	6.01e-004	6.01e-004	0.9533
21742	36	3.80e+004	3.66e+004	1.38e+003	0.96	8.23e-011	8.23e-011	0.9533
22192	450	3.80e+004	3.66e+004	1.38e+003	0.96	8.23e-011	8.23e-011	0.9533
22392	200	3.86e+004	3.58e+004	2.87e+003	0.93	6.42e-009	6.42e-009	0.9533
22400	8	3.92e+004	3.52e+004	4.01e+003	0.90	4.64e-008	4.64e-008	0.9533
Block: 33								
22406	6	1.12e+005	2.52e+004	8.64e+004	0.23	6.02e-004	6.02e-004	0.9569
22442	36	3.79e+004	3.65e+004	1.38e+003	0.96	8.25e-011	8.25e-011	0.9569
22892	450	3.79e+004	3.65e+004	1.38e+003	0.96	8.25e-011	8.25e-011	0.9569
23092	200	3.86e+004	3.57e+004	2.88e+003	0.93	6.44e-009	6.44e-009	0.9569
23100	8	3.91e+004	3.51e+004	4.01e+003	0.90	4.65e-008	4.65e-008	0.9569
Block: 34								
23106	6	1.12e+005	2.51e+004	8.65e+004	0.23	6.04e-004	6.04e-004	0.9605

```
   23142        36 3.78e+004 3.64e+004 1.38e+003 0.96 8.28e-011 8.28e-011 0.9605
   23592       450 3.78e+004 3.64e+004 1.38e+003 0.96 8.28e-011 8.28e-011 0.9605
   23792       200 3.85e+004 3.56e+004 2.88e+003 0.93 6.46e-009 6.46e-009 0.9605
   23800         8 3.90e+004 3.50e+004 4.01e+003 0.90 4.67e-008 4.67e-008 0.9605

Block:     35
   23806         6 1.12e+005 2.51e+004 8.66e+004 0.22 6.05e-004 6.05e-004 0.9642
   23842        36 3.77e+004 3.63e+004 1.38e+003 0.96 8.31e-011 8.31e-011 0.9642
   24292       450 3.77e+004 3.63e+004 1.38e+003 0.96 8.31e-011 8.31e-011 0.9642
   24492       200 3.84e+004 3.55e+004 2.88e+003 0.93 6.48e-009 6.48e-009 0.9642
   24500         8 3.89e+004 3.49e+004 4.01e+003 0.90 4.68e-008 4.68e-008 0.9642

Block:     36
   24506         6 1.12e+005 2.50e+004 8.68e+004 0.22 6.07e-004 6.07e-004 0.9678
   24542        36 3.76e+004 3.62e+004 1.39e+003 0.96 8.33e-011 8.33e-011 0.9678
   24992       450 3.76e+004 3.62e+004 1.39e+003 0.96 8.33e-011 8.33e-011 0.9678
   25192       200 3.83e+004 3.54e+004 2.88e+003 0.92 6.50e-009 6.50e-009 0.9678
   25200         8 3.89e+004 3.48e+004 4.02e+003 0.90 4.70e-008 4.70e-008 0.9678

Block:     37
   25206         6 1.12e+005 2.49e+004 8.69e+004 0.22 6.08e-004 6.08e-004 0.9714
   25242        36 3.75e+004 3.61e+004 1.39e+003 0.96 8.36e-011 8.36e-011 0.9714
   25692       450 3.75e+004 3.61e+004 1.39e+003 0.96 8.36e-011 8.36e-011 0.9714
   25892       200 3.82e+004 3.53e+004 2.88e+003 0.92 6.53e-009 6.53e-009 0.9714
   25900         8 3.88e+004 3.48e+004 4.02e+003 0.90 4.71e-008 4.71e-008 0.9714

Block:     38
   25906         6 1.12e+005 2.48e+004 8.70e+004 0.22 6.09e-004 6.09e-004 0.9751
   25942        36 3.74e+004 3.61e+004 1.39e+003 0.96 8.38e-011 8.38e-011 0.9751
   26392       450 3.74e+004 3.61e+004 1.39e+003 0.96 8.38e-011 8.38e-011 0.9751
   26592       200 3.81e+004 3.53e+004 2.88e+003 0.92 6.55e-009 6.55e-009 0.9751
   26600         8 3.87e+004 3.47e+004 4.02e+003 0.90 4.73e-008 4.73e-008 0.9751

Block:     39
   26606         6 1.12e+005 2.47e+004 8.71e+004 0.22 6.11e-004 6.11e-004 0.9788
   26642        36 3.74e+004 3.60e+004 1.39e+003 0.96 8.41e-011 8.41e-011 0.9788
   27092       450 3.74e+004 3.60e+004 1.39e+003 0.96 8.41e-011 8.41e-011 0.9788
   27292       200 3.81e+004 3.52e+004 2.89e+003 0.92 6.57e-009 6.57e-009 0.9788
   27300         8 3.86e+004 3.46e+004 4.02e+003 0.90 4.74e-008 4.74e-008 0.9788

Block:     40
   27306         6 1.12e+005 2.46e+004 8.72e+004 0.22 6.12e-004 6.12e-004 0.9824
   27342        36 3.73e+004 3.59e+004 1.39e+003 0.96 8.44e-011 8.44e-011 0.9824
   27792       450 3.73e+004 3.59e+004 1.39e+003 0.96 8.44e-011 8.44e-011 0.9824
   27992       200 3.80e+004 3.51e+004 2.89e+003 0.92 6.59e-009 6.59e-009 0.9824
   28000         8 3.85e+004 3.45e+004 4.03e+003 0.90 4.76e-008 4.76e-008 0.9824

Block:     41
   28006         6 1.12e+005 2.46e+004 8.73e+004 0.22 6.14e-004 6.14e-004 0.9861
   28042        36 3.72e+004 3.58e+004 1.39e+003 0.96 8.47e-011 8.47e-011 0.9861
   28492       450 3.72e+004 3.58e+004 1.39e+003 0.96 8.47e-011 8.47e-011 0.9861
   28692       200 3.79e+004 3.50e+004 2.89e+003 0.92 6.61e-009 6.61e-009 0.9861
   28700         8 3.84e+004 3.44e+004 4.03e+003 0.90 4.77e-008 4.77e-008 0.9861

Block:     42
   28706         6 1.12e+005 2.45e+004 8.74e+004 0.22 6.15e-004 6.15e-004 0.9898
   28742        36 3.71e+004 3.57e+004 1.39e+003 0.96 8.49e-011 8.49e-011 0.9898
```

29192	450	3.71e+004	3.57e+004	1.39e+003	0.96	8.49e-011	8.49e-011	0.9898
29392	200	3.78e+004	3.49e+004	2.89e+003	0.92	6.63e-009	6.63e-009	0.9898
29400	8	3.84e+004	3.43e+004	4.03e+003	0.89	4.79e-008	4.79e-008	0.9898
Block: 43								
29406	6	1.12e+005	2.44e+004	8.75e+004	0.22	6.17e-004	6.17e-004	0.9935
29442	36	3.70e+004	3.56e+004	1.39e+003	0.96	8.52e-011	8.52e-011	0.9935
29892	450	3.70e+004	3.56e+004	1.39e+003	0.96	8.52e-011	8.52e-011	0.9935
30092	200	3.77e+004	3.48e+004	2.89e+003	0.92	6.65e-009	6.65e-009	0.9935
30100	8	3.83e+004	3.42e+004	4.03e+003	0.89	4.80e-008	4.80e-008	0.9935
Block: 44								
30106	6	1.12e+005	2.43e+004	8.76e+004	0.22	6.18e-004	6.18e-004	0.9972
30142	36	3.69e+004	3.55e+004	1.39e+003	0.96	8.55e-011	8.55e-011	0.9972
30592	450	3.69e+004	3.55e+004	1.39e+003	0.96	8.55e-011	8.55e-011	0.9972
30792	200	3.76e+004	3.47e+004	2.89e+003	0.92	6.67e-009	6.67e-009	0.9972
30800	8	3.82e+004	3.42e+004	4.03e+003	0.89	4.82e-008	4.82e-008	0.9972
Block: 45								
30806	6	1.12e+005	2.42e+004	8.77e+004	0.22	6.19e-004	6.19e-004	1.001
30842	36	3.69e+004	3.55e+004	1.39e+003	0.96	8.57e-011	8.57e-011	1.001
31292	450	3.69e+004	3.55e+004	1.39e+003	0.96	8.57e-011	8.57e-011	1.001
31492	200	3.75e+004	3.47e+004	2.89e+003	0.92	6.69e-009	6.69e-009	1.001
31500	8	3.81e+004	3.41e+004	4.04e+003	0.89	4.84e-008	4.84e-008	1.001
Block: 46								
31506	6	1.12e+005	2.41e+004	8.78e+004	0.22	6.21e-004	6.21e-004	1.005
31542	36	3.68e+004	3.54e+004	1.39e+003	0.96	8.60e-011	8.60e-011	1.005
31992	450	3.68e+004	3.54e+004	1.39e+003	0.96	8.60e-011	8.60e-011	1.005
32192	200	3.75e+004	3.46e+004	2.90e+003	0.92	6.72e-009	6.72e-009	1.005
32200	8	3.80e+004	3.40e+004	4.04e+003	0.89	4.85e-008	4.85e-008	1.005
Block: 47								
32206	6	1.12e+005	2.40e+004	8.79e+004	0.21	6.22e-004	6.22e-004	1.008
32242	36	3.67e+004	3.53e+004	1.39e+003	0.96	8.63e-011	8.63e-011	1.008
32692	450	3.67e+004	3.53e+004	1.39e+003	0.96	8.63e-011	8.63e-011	1.008
32892	200	3.74e+004	3.45e+004	2.90e+003	0.92	6.74e-009	6.74e-009	1.008
32900	8	3.79e+004	3.39e+004	4.04e+003	0.89	4.87e-008	4.87e-008	1.008
Block: 48								
32906	6	1.12e+005	2.39e+004	8.80e+004	0.21	6.24e-004	6.24e-004	1.012
32942	36	3.66e+004	3.52e+004	1.39e+003	0.96	8.66e-011	8.66e-011	1.012
33392	450	3.66e+004	3.52e+004	1.39e+003	0.96	8.66e-011	8.66e-011	1.012
33592	200	3.73e+004	3.44e+004	2.90e+003	0.92	6.76e-009	6.76e-009	1.012
33600	8	3.78e+004	3.38e+004	4.04e+003	0.89	4.88e-008	4.88e-008	1.012
Block: 49								
33606	6	1.12e+005	2.39e+004	8.81e+004	0.21	6.25e-004	6.25e-004	1.016
33642	36	3.65e+004	3.51e+004	1.39e+003	0.96	8.69e-011	8.69e-011	1.016
34092	450	3.65e+004	3.51e+004	1.39e+003	0.96	8.69e-011	8.69e-011	1.016
34292	200	3.72e+004	3.43e+004	2.90e+003	0.92	6.78e-009	6.78e-009	1.016
34300	8	3.78e+004	3.37e+004	4.04e+003	0.89	4.90e-008	4.90e-008	1.016
Block: 50								
34306	6	1.12e+005	2.38e+004	8.82e+004	0.21	6.27e-004	6.27e-004	1.02
34342	36	3.64e+004	3.50e+004	1.40e+003	0.96	8.71e-011	8.71e-011	1.02
34792	450	3.64e+004	3.50e+004	1.40e+003	0.96	8.71e-011	8.71e-011	1.02

34992	200	3.71e+004	3.42e+004	2.90e+003	0.92	6.80e-009	6.80e-009	1.02
35000	8	3.77e+004	3.36e+004	4.05e+003	0.89	4.91e-008	4.91e-008	1.02
Block: 51								
35006	6	1.12e+005	2.37e+004	8.83e+004	0.21	6.28e-004	6.28e-004	1.023
35042	36	3.63e+004	3.49e+004	1.40e+003	0.96	8.74e-011	8.74e-011	1.023
35492	450	3.63e+004	3.49e+004	1.40e+003	0.96	8.74e-011	8.74e-011	1.023
35692	200	3.70e+004	3.41e+004	2.90e+003	0.92	6.82e-009	6.82e-009	1.023
35700	8	3.76e+004	3.35e+004	4.05e+003	0.89	4.93e-008	4.93e-008	1.023
Block: 52								
35706	6	1.12e+005	2.36e+004	8.84e+004	0.21	6.30e-004	6.30e-004	1.027
35742	36	3.62e+004	3.48e+004	1.40e+003	0.96	8.77e-011	8.77e-011	1.027
36192	450	3.62e+004	3.48e+004	1.40e+003	0.96	8.77e-011	8.77e-011	1.027
36392	200	3.69e+004	3.40e+004	2.91e+003	0.92	6.85e-009	6.85e-009	1.027
36400	8	3.75e+004	3.34e+004	4.05e+003	0.89	4.95e-008	4.95e-008	1.027
Block: 53								
36406	6	1.12e+005	2.35e+004	8.85e+004	0.21	6.31e-004	6.31e-004	1.031
36442	36	3.62e+004	3.48e+004	1.40e+003	0.96	8.80e-011	8.80e-011	1.031
36892	450	3.62e+004	3.48e+004	1.40e+003	0.96	8.80e-011	8.80e-011	1.031
37092	200	3.69e+004	3.39e+004	2.91e+003	0.92	6.87e-009	6.87e-009	1.031
37100	8	3.74e+004	3.34e+004	4.05e+003	0.89	4.96e-008	4.96e-008	1.031
Block: 54								
37106	6	1.12e+005	2.34e+004	8.87e+004	0.21	6.33e-004	6.33e-004	1.035
37142	36	3.61e+004	3.47e+004	1.40e+003	0.96	8.83e-011	8.83e-011	1.035
37592	450	3.61e+004	3.47e+004	1.40e+003	0.96	8.83e-011	8.83e-011	1.035
37792	200	3.68e+004	3.39e+004	2.91e+003	0.92	6.89e-009	6.89e-009	1.035
37800	8	3.73e+004	3.33e+004	4.06e+003	0.89	4.98e-008	4.98e-008	1.035
Block: 55								
37806	6	1.12e+005	2.33e+004	8.88e+004	0.21	6.34e-004	6.34e-004	1.039
37842	36	3.60e+004	3.46e+004	1.40e+003	0.96	8.86e-011	8.86e-011	1.039
38292	450	3.60e+004	3.46e+004	1.40e+003	0.96	8.86e-011	8.86e-011	1.039
38492	200	3.67e+004	3.38e+004	2.91e+003	0.92	6.91e-009	6.91e-009	1.039
38500	8	3.72e+004	3.32e+004	4.06e+003	0.89	5.00e-008	5.00e-008	1.039
Block: 56								
38506	6	1.12e+005	2.32e+004	8.89e+004	0.21	6.36e-004	6.36e-004	1.042
38542	36	3.59e+004	3.45e+004	1.40e+003	0.96	8.89e-011	8.89e-011	1.042
38992	450	3.59e+004	3.45e+004	1.40e+003	0.96	8.89e-011	8.89e-011	1.042
39192	200	3.66e+004	3.37e+004	2.91e+003	0.92	6.94e-009	6.94e-009	1.042
39200	8	3.72e+004	3.31e+004	4.06e+003	0.89	5.01e-008	5.01e-008	1.042
Block: 57								
39206	6	1.12e+005	2.32e+004	8.90e+004	0.21	6.37e-004	6.37e-004	1.046
39242	36	3.58e+004	3.44e+004	1.40e+003	0.96	8.92e-011	8.92e-011	1.046
39692	450	3.58e+004	3.44e+004	1.40e+003	0.96	8.92e-011	8.92e-011	1.046
39892	200	3.65e+004	3.36e+004	2.91e+003	0.92	6.96e-009	6.96e-009	1.046
39900	8	3.71e+004	3.30e+004	4.06e+003	0.89	5.03e-008	5.03e-008	1.046
Block: 58								
39906	6	1.12e+005	2.31e+004	8.91e+004	0.21	6.39e-004	6.39e-004	1.05
39942	36	3.57e+004	3.43e+004	1.40e+003	0.96	8.94e-011	8.94e-011	1.05
40392	450	3.57e+004	3.43e+004	1.40e+003	0.96	8.94e-011	8.94e-011	1.05
40592	200	3.64e+004	3.35e+004	2.92e+003	0.92	6.98e-009	6.98e-009	1.05

```
   40600        8 3.70e+004 3.29e+004 4.06e+003 0.89 5.04e-008 5.04e-008   1.05

Block:    59
   40606        6 1.12e+005 2.30e+004 8.92e+004 0.20 6.40e-004 6.40e-004  1.054
   40642       36 3.56e+004 3.42e+004 1.40e+003 0.96 8.97e-011 8.97e-011  1.054
   41092      450 3.56e+004 3.42e+004 1.40e+003 0.96 8.97e-011 8.97e-011  1.054
   41292      200 3.63e+004 3.34e+004 2.92e+003 0.92 7.01e-009 7.01e-009  1.054
   41300        8 3.69e+004 3.28e+004 4.07e+003 0.89 5.06e-008 5.06e-008  1.054

Block:    60
   41306        6 1.12e+005 2.29e+004 8.93e+004 0.20 6.42e-004 6.42e-004  1.058
   41342       36 3.55e+004 3.41e+004 1.40e+003 0.96 9.00e-011 9.00e-011  1.058
   41792      450 3.55e+004 3.41e+004 1.40e+003 0.96 9.00e-011 9.00e-011  1.058
   41992      200 3.62e+004 3.33e+004 2.92e+003 0.92 7.03e-009 7.03e-009  1.058
   42000        8 3.68e+004 3.27e+004 4.07e+003 0.89 5.08e-008 5.08e-008  1.058


                         End of pc-CRACK Output
```