Guide for Mechanistic-Empirical Design
OF NEW AND REHABILITATED PAVEMENT STRUCTURES

FINAL DOCUMENT

APPENDIX CC-1:
CORRELATION OF CBR VALUES WITH SOIL INDEX PROPERTIES

NCHRP

Prepared for
National Cooperative Highway Research Program
Transportation Research Board
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Submitted by
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The research team for NCHRP Project 1-37A: Development of the 2002 Guide for the Design of New and Rehabilitated Pavement Structures consisted of Applied Research Associates, Inc., ERES Consultants Division (ARA-ERES) as the prime contractor with Arizona State University (ASU) as the primary subcontractor. Fugro-BRE, Inc., the University of Maryland, and Advanced Asphalt Technologies, LLC served as subcontractors to either ARA-ERES or ASU along with several independent consultants.

Research into the subject area covered in this Appendix was conducted at ASU.

Foreword

This appendix is a supporting reference to the pavement design guidance presented in PART 2, Chapter 2 of the Design Guide. General correlations that describe the relationship between Soil Index Properties and the California Bearing Ratio (CBR) and Resilient Modulus (M_R) of unbound materials such as base, subbase, and subgrade layers are provided.

APPENDIX CC-1:
CORRELATION OF CBR VALUES WITH SOIL INDEX PROPERTIES

Study Objective

The objective of this study was to develop general correlations that describe the relationship between Soil Index Properties and the California Bearing Ratio (CBR) and Resilient Modulus (M_R) of unbound materials such as base, subbase, and subgrade layers in pavement systems. The correlations developed are intended for use in the 2002 Design Guide methodology. Once relationships were developed to predict CBR values, the use of $M_R = 2555\ CBR^{0.64}$ was used to correlate properties directly to estimates of M_R.

Sources of Information

The sources of information used to correlate CBR with soil index properties are:

1. Typical CBR ranges for USCS material classification (Table 1).
2. Grain Size Distribution ranges for materials defined with the Unified Soil Classification System (USCS). Given the requirements of the USCS, each USCS symbol implies certain limits on the given size distribution.
3. Grain Size Distribution ranges for materials defined by AASHTO Classifications A-1-a, A-1-b, and A-3 materials.
4. Atterberg Limits for the USCS materials. Likewise, each USCS symbol implies certain limits on the Atterberg Limits, particularly when the fact that most soils plot near the "A-line" is employed.

Typical CBR ranges for the USCS materials were extracted from *Principles of Pavement Design*, (Yoder & Witczak, 1975). The values are shown in the 12th column of Table 1. Three additional CBR values for the AASHTO classification materials were extracted from a slightly modified version of the *Guidelines for Use of HMA Overlays to Rehabilitate PCC Pavements* (NAPA Information Series 117, 1994). This modified graphical correlation of CBR, R-values, USCS, and AASHTO classification is shown in Figure 1. In addition, Tables 2 and 3 summarize the typical CBR and M_R ranges, and default (typical) M_R value for each USCS and AASHTO classification symbol.

The grain size distribution information was used to define typical ranges for D_{60} values and the Percentage Passing #200 sieve (P_{200}) for the USCS materials. These properties were chosen to correlate with CBR for simplicity, as they will always be required as input parameters in the 2002 Design Guide.

Typical ranges for the Atterberg Limits were estimated in order to get the Plasticity Index (*PI*). As with the D_{60} and the P_{200} properties, the *PI* of the soil is always required as an input parameter in the Design Guide.

The values of D_{60}, P_{200}, and *PI* were the index properties chosen for correlation. In addition, for materials with a $PI > 0$, a weighted Plasticity Index, termed *wPI* was used:

$$wPI = \text{Passing \#200} \cdot \text{Plasticity Index} = P_{200} \cdot PI \quad (1)$$

with P_{200} used as a decimal and *PI* used in % form

Table 4 shows typical ranges of D_{60}, P_{200}, *PI* and *wPI* for the USCS and AASHTO materials. These values were obtained by checking the Plasticity chart and Grain Size distribution curves, based on the classification criteria, to obtain ranges.

Methodology

The materials were divided into two groups:

a) Coarse materials, clean, typically non-plastic such as GW, GP, SW, and SP soils for which $wPI = 0$; and

b) Soils which contain more than 12% fines and exhibit some plasticity, such as GM, GC, SM, SC, ML, MH, CL, and CH, for which $wPI > 0$.

For coarse, clean soils ($wPI = 0$), it was decided to correlate the CBR value with the *Diameter 60* (D_{60}) from the grain size distribution curves. Figure 2 shows the data obtained from Tables 1 and 4 for non-plastic soils. Three additional data points were used based on the AASHTO classification system corresponding to A-1-a, A-1-b, and A-3 soils. These data points were obtained from Figure 1 and are indicated by the legend for Figure 2. The best-fitted equation to the data shown in Figure 2 is the following:

$$CBR = 28.09\,(D_{60})^{0.358} \quad (2)$$

Where: D_{60} = Diameter at 60% passing from the Grain Size Distribution – mm

Equation (2) is limited to D_{60} values greater than 0.01 mm and less than 30 mm. For D_{60} less than 0.01 mm, the recommended value of *CBR* is 5. For D_{60} greater than 30 mm, the recommended value of CBR is 95. This relationship is depicted in Figure 2, along with the goodness of the fit parameters.

For the second group (plastic materials), for which $wPI > 0$, the index properties chosen to correlate with the CBR values are the Passing #200 sieve (P_{200}) and the Plasticity Index (*PI*). These properties are combined into a parameter called *wPI*, defined by Equation (1).

Figure 3 shows the data obtained from Tables 1 and 2 for plastic materials ($wPI > 0$), along with the correlation and the goodness of fit. The correlation is represented by Equation (3), as follows:

$$CBR = \frac{75}{1 + 0.728(wPI)} \quad (3)$$

Results

Table 5 shows the calculated CBR based on Equations (2) and (3) for the different materials. Table 5 can either be included as a pop-up screen in the 2002 Design Guide software or simply presented in the User's Manual for the software, as a reference for the user.

Validation

As a preliminary validation of the correlations developed and depicted in Figures 2 and 3, the CBR values resulting from these correlations were compared to the ranges of CBR values recommended for materials defined by the USCS classification system in Figure 1 and Table 2. It is important to note that the CBR ranges recommended in Figure 1 for the USCS materials were not used as a data source to develop the CBR correlations in this report. Therefore, it is a valid source for validation of the results obtained.

Table 6 shows the CBR calculated by the correlations and the CBR ranges recommended in Figure 1 and Table 2. All of the CBR calculated values fall inside the range recommended, and therefore the correlations may be viewed as being quite reliable and consistent between all of the hierarchical sources of data used in the analysis.

Summary

1. The correlations shown above were derived primarily by selecting specific values (from recommended ranges of values) of *CBR*, *wPI*, and D_{60}.

2. These correlations were originally intended to get M_{Ropt} for frozen materials, so that F_{env} could be computed (within the EICM Module) for frozen materials. Given that M_{Rfrz} has very little effect on deformation, not much precision in M_R for frozen layers is needed.

3. Caution should be exercised when these correlations are used to obtain an estimate of M_{Ropt} (i.e., by using $M_{Ropt} = 2555\ (CBR)^{0.64}$) for materials other than frozen layers, because a very limited database was used to develop the correlations.

4. As the database relating D_{60}, *wPI*, and CBR grows, it may be possible to improve these correlations. It may also be possible eventually to derive even better correlations between D_{60} and M_{Ropt} and *wPI* and M_{Ropt} as direct correlations.

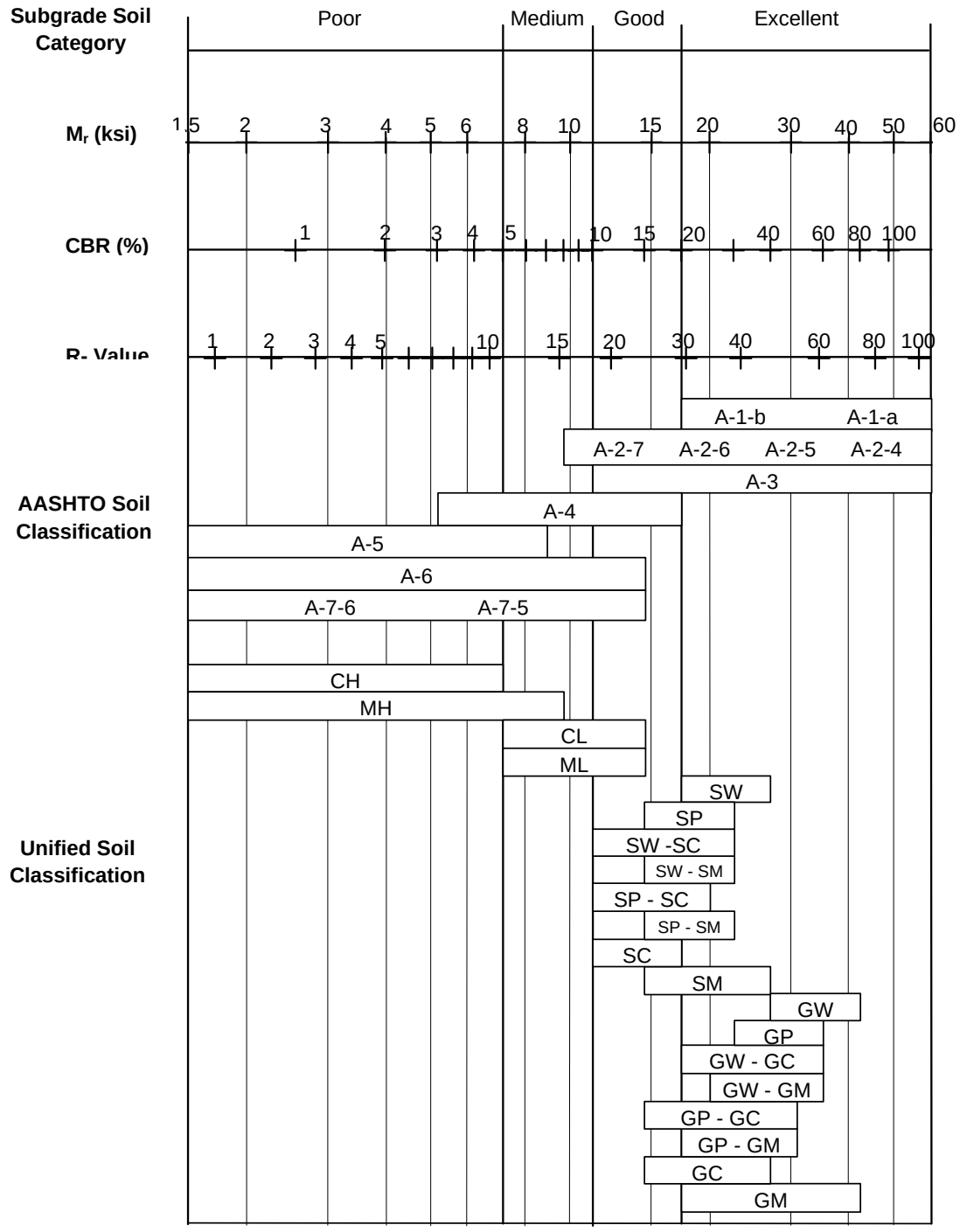

Figure 1. Typical Resilient Modulus Correlations to Empirical Soil Properties and Classification Categories.
(Modified from NAPA Information Series 117, "Guidelines for Use of HMA Overlays to Rehabilitate PCC Pavements", 1994)

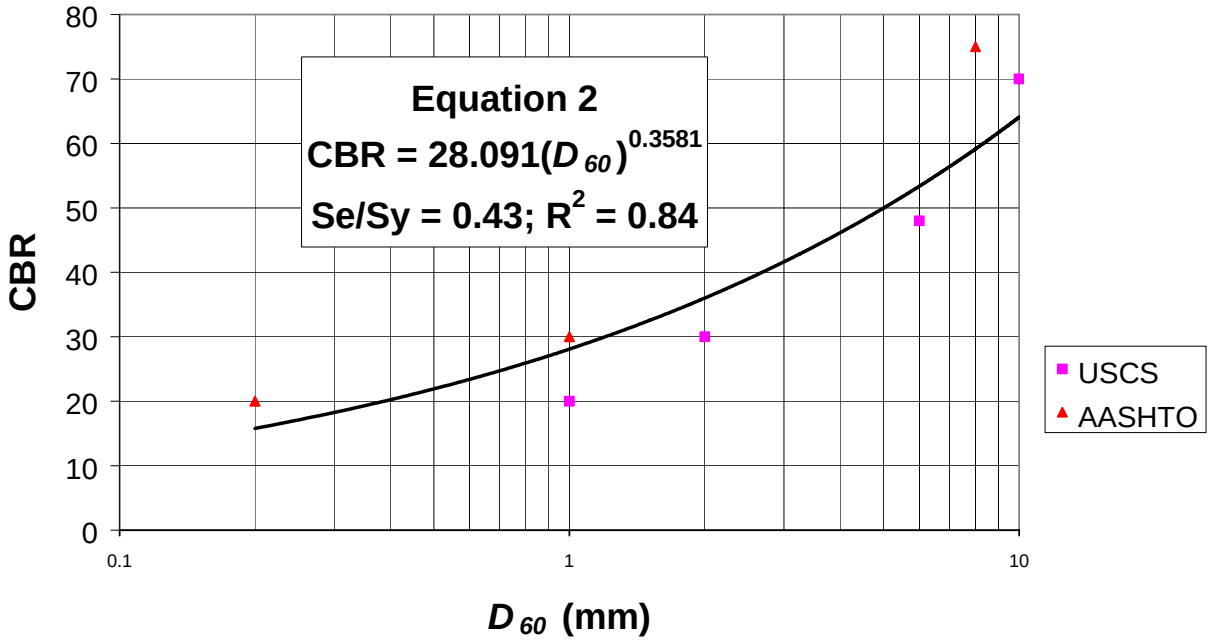

Figure 2. CBR Correlations for Coarse-Grained Materials

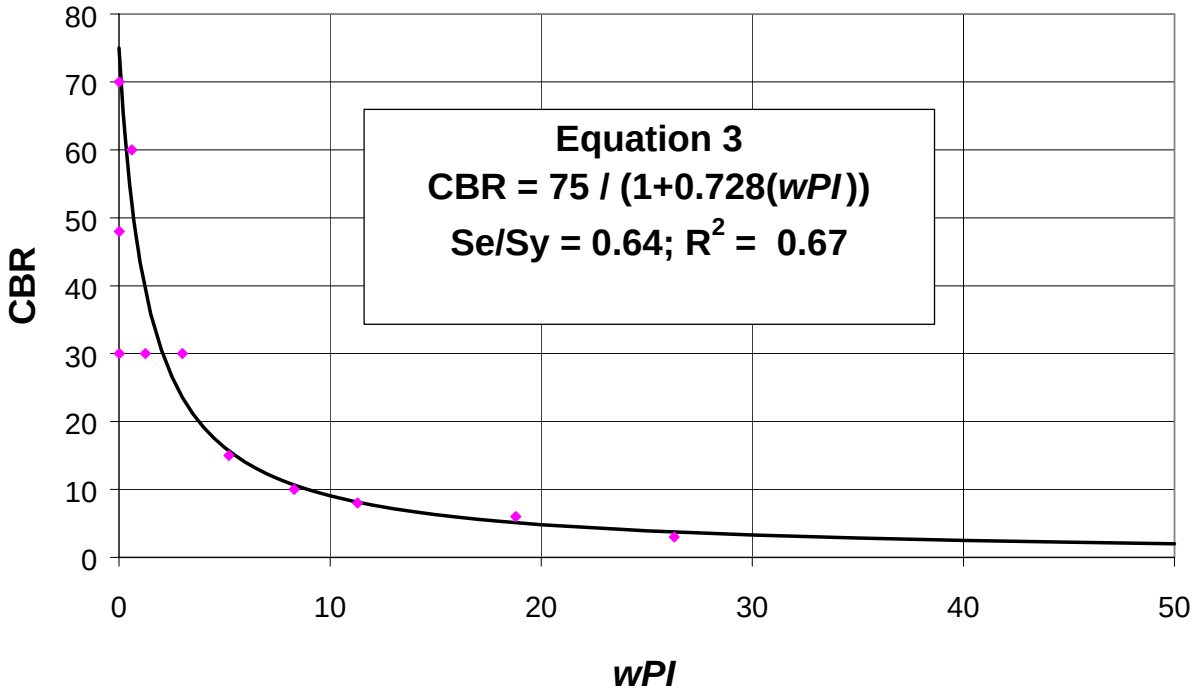

Figure 3. CBR Correlation for Plastic Materials

Table 1. CBR Values for Soils by the Unified Soil Classification System (USCS)

(Yoder & Witczak, "Principles of Pavement Design", 1975)

Major Division		Letter	Name	Value as Foundation When Not Subject to Frost Action	Value as Base Directly under Wearing Surface	Potential Frost Action	Compressi-bility and Expansion	Drainage Characteristics	Compaction Equipment	Unit Dry Weight (pcf)	Field CBR	Subgrade Modulus k (pci)
1	2	3	4	5	6	7	8	9	10	11	12	13
Coarse-grained soils	Gravel and gravelly soils	GW	Gravel or sandy gravel, well graded	Excellent	Good	None to very slight	Almost none	Excellent	Crawler-type tractor, rubber-tired equipment, steel-wheeled roller	125-140	60-80	300 or more
		GP	Gravel or sandy gravel, poorly graded	Good to excellent	Poor to fair	None to very slight	Almost none	Excellent	Crawler-type tractor, rubber-tired equipment, steel-wheeled roller	120-130	35-60	300 or more
		GU	Gravel or sandy gravel, uniformly graded	Good	Poor	None to very slight	Almost none	Excellent	Crawler-type tractor, rubber-tired equipment	115-125	25-50	300 or more
		GM	Silty gravel or silty sandy gravel	Good to excellent	Fair to good	Slight to medium	Very slight	Fair to poor	Rubber-tired equipment, sheepsfoot roller, close control of moisture	130-145	40-80	300 or more
		GC	Clayey gravel or clayey sandy gravel	Good	Poor	Slight to medium	Slight	Poor to practically impervious	Rubber-tired equipment, sheepsfoot roller	120-140	20-40	200-300
	Sand and sandy soils	SW	Sand or gravelly sand, well graded	Good	Poor	None to very slight	Almost none	Excellent	Crawler-type tractor, rubber-tired equipment	110-130	20-40	200-300
		SP	Sand or gravelly sand, poorly graded	Fair to good	Poor to not suitable	None to very slight	Almost none	Excellent	Crawler-type tractor, rubber-tired equipment	105-120	15-25	200-300
		SU	Sand or gravelly sand, uniformly graded	Fair to good	Not suitable	None to very slight	Almost none	Excellent	Crawler-type tractor, rubber-tired equipment	100-115	10-20	200-300
		SM	Silty sand or silty gravelly sand	Good	Poor	Slight to high	Very slight	Fair to poor	Rubber-tired equipment, sheepsfoot roller, close control of moisture	120-135	20-40	200-300
		SC	Clayey sand or clayey gravelly sand	Fair to good	Not suitable	Slight to high	Slight to medium	Poor to practically impervious	Rubber-tired equipment, sheepsfoot roller	105-130	10-20	200-300
Fine-grained soils	Low compressibility LL < 50	ML	Silts, sandy silts, gravelly silts, or diatomaceous soils	Fair to poor	Not suitable	Medium to very high	Slight to medium	Fair to poor	Rubber-tired equipment, sheepsfoot roller, close control of moisture	100-125	5-15	100-200
		CL	Lean clays, sandy clays, or gravelly clays	Fair to poor	Not suitable	Medium to high	Medium	Practically impervious	Rubber-tired equipment, sheepsfoot roller	100-125	5-15	100-200
		OL	Organic silts or lean organic clays	Poor	Not suitable	Medium to high	Medium to high	Poor	Rubber-tired equipment, sheepsfoot roller	90-105	4-8	100-200
	High Compressibility LL > 50	MH	Micaceous clays or diatomaceous soils	Poor	Not suitable	Medium to very high	High	Fair to poor	Rubber-tired equipment, sheepsfoot roller	80-100	4-8	100-200
		CH	Fat clays	Poor to very poor	Not suitable	Medium	High	Practically impervious	Rubber-tired equipment, sheepsfoot roller	90-110	3-5	50-100
		OH	Fat organic clays	Poor to very poor	Not suitable	Medium	High	Practically impervious	Rubber-tired equipment, sheepsfoot roller	80-105	3-5	50-100
Peat and other fibrous organic soils		P_t	Peat, humus, and other	Not suitable	Not suitable	Slight	Very high	Fair to poor	Compaction not practical			

Table 2. Unified Soil Classification

USCS Symbol	Typical CBR Range	M_R Range (ksi)	M_R Default (ksi)
CH	1 – 5	2.5 – 7	4
MH	2 – 8	4 – 9.5	6
CL	5 – 15	7 – 14	9
ML	8 – 16	9 – 15	11
SW	20 – 40	17 – 28	21
SP	15 – 30	14 – 22	17
SW-SC	10 – 25	12 – 20	15
SW-SM	15 – 30	14 – 22	17
SP-SC	10 – 25	12 – 20	15
SP-SM	15 – 30	14 – 22	17
SC	10 – 20	12 – 17	14
SM	20 – 40	17 – 28	21
GW	60 – 80	35 – 42	38
GP	35 – 60	25 – 35	29
GW-GC	20 – 60	17 – 35	24
GW-GM	35 – 70	25 – 38	30
GP-GC	20 – 50	17 – 32	23
GP-GM	25 – 60	20 – 35	26
GC	15 – 40	14 – 28	20
GM	30 – 80	22 – 42	30

Table 3. AASHTO Soil Classification

AAHSTO Symbol	Typical CBR Range	M_R Range (ksi)	M_R Default (ksi)
A-7-6	1 – 5	2.5 – 7	4
A-7-5	2 – 8	4 – 9.5	6
A-6	5 – 15	7 – 14	9
A-5	8 – 16	9 – 15	11
A-4	10 – 20	12 – 18	14
A-3	15 – 35	14 – 25	18
A-2-7	10 – 20	12 – 17	14
A-2-6	10 – 25	12 – 20	15
A-2-5	15 – 30	14 – 22	17
A-2-4	20 – 40	17 – 28	21
A-1-b	35 – 60	25 – 35	29
A-1-a	60 – 80	30 – 42	38

Table 4. Index Properties for Materials Classified by USCS and AASHTO Classification Systems

Symbol	D_{60} range (mm)	D_{60} used (mm)	*PI* range	*PI* used	P_{200} range (%)	P_{200} used (%)	Calc. *wPI*	*CBR* range	*CBR* used
A-1-a	> 2	8	0 – 6	0	0 – 15	5	0	60 – 80	75
A-1-b	0.45 – 2	1	0 – 6	0	0 – 25	5	0	30 – 60	30
A-3	0.074 – 0.4	0.2	0	0	0 – 10	5	0	15 – 35	20
GW	8 – 20	10	0	0	0 – 5	3	0	60 – 80	70
GP	6 – 15	6	0	0	0 – 5	3	0	35 – 60	48
GM	-	-	0 - 6	4	12 - 20	15	0.6	40 – 80	60
GC	-	-	7 – 20	13	12 - 35	23	3	20 – 40	30
SW	1 – 10	2	0	0	0 - 5	3	0	20 – 40	30
SP	0.07 - 6	1	0	0	0 - 5	3	0	15 – 25	20
SM	-	-	0 - 8	5	12 – 40	25	1.3	20 – 40	30
SC	-	-	7 – 20	14	12 – 49	37	5.2	10 - 20	15
ML	-	-	< 20	11	51 – 95	75	8.3	5 – 15	10
CL	-	-	7 – 22	15	51 – 95	75	11.3	5 – 15	8
MH	-	-	15 – 40	25	51 - 95	75	18.8	4 – 8	5
CH	-	-	22 – 50	35	51 - 95	75	26.3	3 – 5	3

Table 5. Calculated CBR values from Equations (2) and (3)

USCS Symbol	D_{60} used (mm)	*PI* used	P_{200} used (%)	Calculated *wPI*	Calculated *CBR*
GW	10	0	3	0	64.1
GP	6	0	3	0	53.3
GM	-	4	15	0.6	52.2
GC	-	13	23	3	19.5
SW	2	0	3	0	36.0
SP	1	0	3	0	28.1
SM	-	5	25	1.3	39.3
SC	-	14	37	5.2	15.7
ML	-	11	75	8.3	10.7
CL	-	15	75	11.3	7.7
MH	-	25	75	18.8	5.1
CH	-	35	75	26.3	3.5

Table 6. Calculated CBR values from Equations (2) and (3) Compared to the Recommended Ranges of CBR Values from Figure 1

USCS Symbol	Calculated CBR from Correlations	Recommended CBR Ranges from Figure 1
GW	64.1	60 – 80
GP	53.3	35 – 60
GM	52.2	30 – 80
GC	19.5	15 – 40
SW	36.0	20 – 40
SP	28.1	15 – 30
SM	39.3	20 – 40
SC	15.7	10 – 20
ML	10.7	8 – 16
CL	7.7	5 – 15
MH	5.1	2 – 8
CH	3.5	1 – 5

Guide for Mechanistic-Empirical Design
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APPENDIX CC-2:
ESTIMATING ORIGINAL AIR VOIDS IN GPS-LTPP SECTIONS

NCHRP

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Disclaimer

Acknowledgements

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Research into the subject area covered in this Appendix was conducted at ASU. The authors of this appendix are Dr. M. W. Witczak, Dr. C. E. Zapata, and Dr. M. W. Mirza.

Foreword

This appendix is a supporting reference to the pavement design guidance presented in PART 2, Chapter 2 of the Design Guide. General correlations that describe the relationship between Soil Index Properties and the California Bearing Ratio (CBR) and Resilient Modulus (MR) of unbound materials such as base, subbase, and subgrade layers are provided.

Estimating Original Air Voids of GPS - LTPP Sections

PROBLEM STATEMENT

The air voids at the time of construction (original air voids) of the asphalt mixture placed on a pavement section is required for the calibration and validation of the distress models used in the 2002 Design Guide. This information is needed for all the asphalt layers within the pavement section. As of date, a total of 56 GPS sites have been identified that will be used for the calibration of the distress models in the 2002 Design Guide. These sections were selected from the LTPP database that conforms to some minimum data requirements. The data was extracted from LTPP database by Fugro-BRE and was transferred to ASU research team for calibration of distress models for the new flexible design sections.

During the review of the data, it was observed that the information on the original air voids or the air voids at the time of construction might be in error. It was of paramount importance to make sure that the data used for calibration was error free. It was thus decided to carry out an investigation on the reliability of the original air voids obtained from the LTPP database.

PRELIMINARY INVESTIGATION

As a general criteria used in practice, “Design Air Voids” for dense graded mixes falls between 3-6% range while “Construction Air Voids” is generally 3-5% higher than the design air voids value. Information was obtained from the LTPP database both on the construction and design air voids. The results obtained are shown in Figure 1. It can be observed that in most instances the Design Air Voids are either equal or higher than the

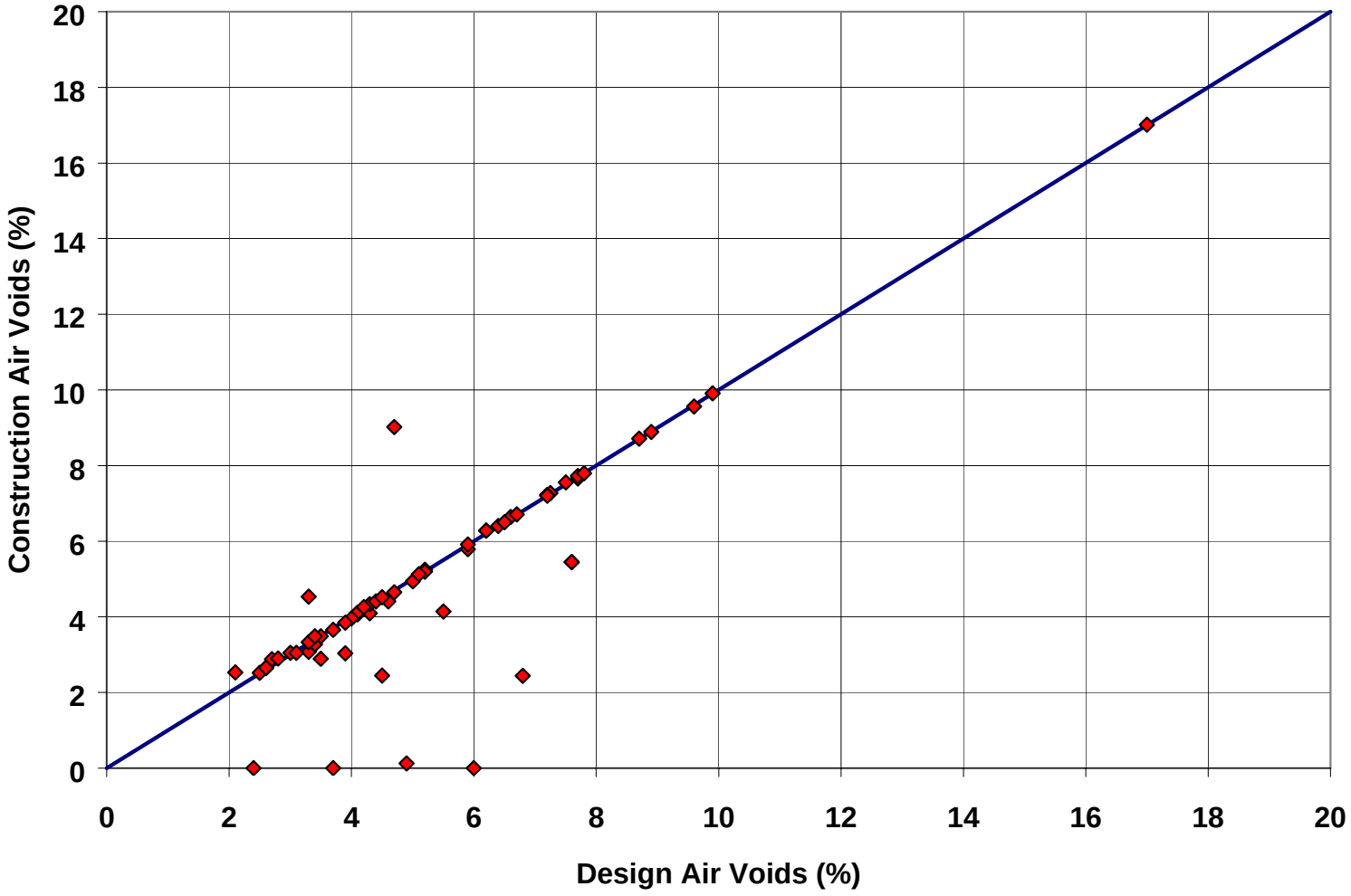


Figure 1. Design versus Construction Air Voids for 56 GPS Sections from LTPP Inventory Database

Construction Air Voids. This is unrealistic and in contrast from what it should be. As a consequence, the original air voids (construction air voids) data for the cited sections were considered unreliable given the magnitude of the values. Since the original air voids at the time of construction is the key information required for the calibration of the distress models, it was decided to look for information that can be used to estimate the initial air voids value for the selected sections. A study was carried out and the results are presented in this report.

LITERATURE REVIEW

Not much information and quantitative research is available to predict the change of in-situ mix air voids as a function of mix densification due to repeated loads under different environmental conditions for different mix types. However, it is well understood as to which factors contribute to the change in air voids in the real pavement. Among, several contributing factors, four major factors are logically felt to influence the rate of change of air voids as a function of time. These factors are:

1. Traffic.
2. Compaction/ Initial Air Voids.
3. Environmental Regime.
4. Mix and Bitumen Considerations.

A brief description of each of the above factors is given below.

Traffic

Traffic is one of the most important factors that influence the change in air voids for a particular mix. In general, the overall traffic effect is a function of the vehicular loads, gear configurations, traffic volumes and speed of the vehicles operating on the asphalt pavement. As the number of repetitions increase, the density of the asphalt concrete increases which results in a decrease in the air voids. High volume roads are more susceptible to larger

changes of air voids compared to low volume roads, if all of the other variables are kept constant.

Compaction/Original Air Voids

Compaction, at the time of construction, defines the initial mix density and the initial air voids (original air voids). The initial air void content of a mix will influence the rate of change in air voids due to traffic. The initial air void value is a function of both, the specific mix design and the field compaction. Higher initial air voids will result in greater change in air voids compared to lower initial air voids. It is known that an ultimate value of air voids is achieved after a certain period of time depending upon the mix, traffic and environmental conditions. This is commonly called the voids at refusal. Thus, it is important that any statistical model developed to capture this phenomenon approaches an asymptotic value.

Environmental Regime

While the fundamental environmental factors that influence asphalt aging are not clearly understood; it is clear that temperature does play a major role in the behavioral response of any asphalt mix. As a general indicator, the mean annual air temperature (as a surrogate parameter for the environment) does directly influence the change in air voids. Since asphalt mixtures are viscous materials, they are greatly affected by changes in temperature. Higher temperatures will make the asphalt less viscous, the mix less stiff and more susceptible to compaction under traffic loads. Thus, higher mean annual air temperatures will generally result in a greater change of air voids if all other variables are kept constant.

Mix and Bitumen Consideration

Under the same environmental conditions and traffic, harder asphalt cements will result in stiffer mixes. Stiffer mixes, under the same environment and traffic, will have less change in air voids compared to softer mixes.

Existing Predictive Approach

Mirza at el. (AAPT 1995), at the University of Maryland has developed a regression model based upon the information obtained from the field to predict the change in air voids as a function of time. The model developed is given below:

$$VA = \frac{VA_{orig} + 0.0111\ t - 2}{1 + 0.000424\ t\ \ Maat + 0.001169\ \frac{t}{\eta_{orig,77}}} + 2 \qquad (1)$$

where:

Va = aged air voids at time , t (%)

Va_{orig} = original air voids at the time of construction (%)

Maat = mean annual air temperature, deg F

$\eta_{orig,77}$ = original viscosity at 77 deg F

t = time (months)

In the above regression model a value of two percent was arbitrarily selected as a minimum air void for mathematical convenience. This value of 2% does have engineering justification in that sound or stable rut resisting mixtures will generally reach this threshold void level (2-3%) prior to excessive shear displacement caused by plastic flow. The selection was also influenced by the minimum standard error of estimate. The above model has a standard error of 1.65 and coefficient of multiple determination (R^2) of 0.96. It should be observed that the model is not a function of the traffic. This variable was not included in the model since no information was available on the traffic level, for the sections used in the development of this regression model. Table 1 gives the summary of the field projects used in the analysis. Appendix A gives the summary of the data.

Table 1
Summary of Data Points

Line No.	Test RD/Source	No. of Sections at each Test Road	No of Data Points
85-99	Michigan	6	36
348-394	Delaware	8	24
535-568	Texas (Dickens)	5	16
577-612	Texas (Dumas)	5	17
615-641	Texas (Lufkin)	3	9
1082-1084	Florida	1	3
1102-1250	Zaca Wigmore	15	56
1834-1836	Minnesota	1	3
1902-1939	BPR-Was, DC	6	28
	TOTAL	50	192

Revised Model with NCAT data

Revised coefficients were obtained for Mirza's model using additional data obtained from the National Center for Asphalt Technology (NCAT). A summary of the data obtained from NCAT is given in Appendix B. Appendix B-1 shows the raw data obtained from NCAT, whereas, Appendix B-2 shows the reduced data used in the analysis. All sections that do not have aged air voids value but only initial construction air voids were excluded from the analysis. The model obtained including Mirza's and NCAT data is given below.

$$VA = \frac{VA_{orig} + 0.0398\ t - 2}{1 + 0.00065\ t\ Maat + 0.00000101\ \frac{t}{\eta_{orig,77}}} + 2 \qquad (2)$$

$R^2 = 0.84$; $S_e/S_y = 0.613$

Figure 2 shows the goodness of fit plot along with the residuals. The total number of data points used for the analysis was 268. This includes 192 data points from Mirza's study, whereas remaining points were obtained from 22 additional projects provided by NCAT. The NCAT project location information is provided in Table 2. As mentioned earlier, the entire data is presented in Appendices A and B. The reduced data presented in Appendix B-2 was obtained by averaging the value corresponding to each section, and also eliminating outliers. An observation was considered an outlier, if an increase in air voids value was observed as a function of time. The air voids should decrease with time due to traffic loading and thus an increase is considered to be an outlier.

It can be observed in Figure 2, that the model presented in Equation (2) is slightly bias. The predicted values for air voids less than 5% is slightly higher. That is, the model has the tendency to predict higher values at longer periods of time, values that generally correspond to air voids for the aged condition. Furthermore, the model presents an

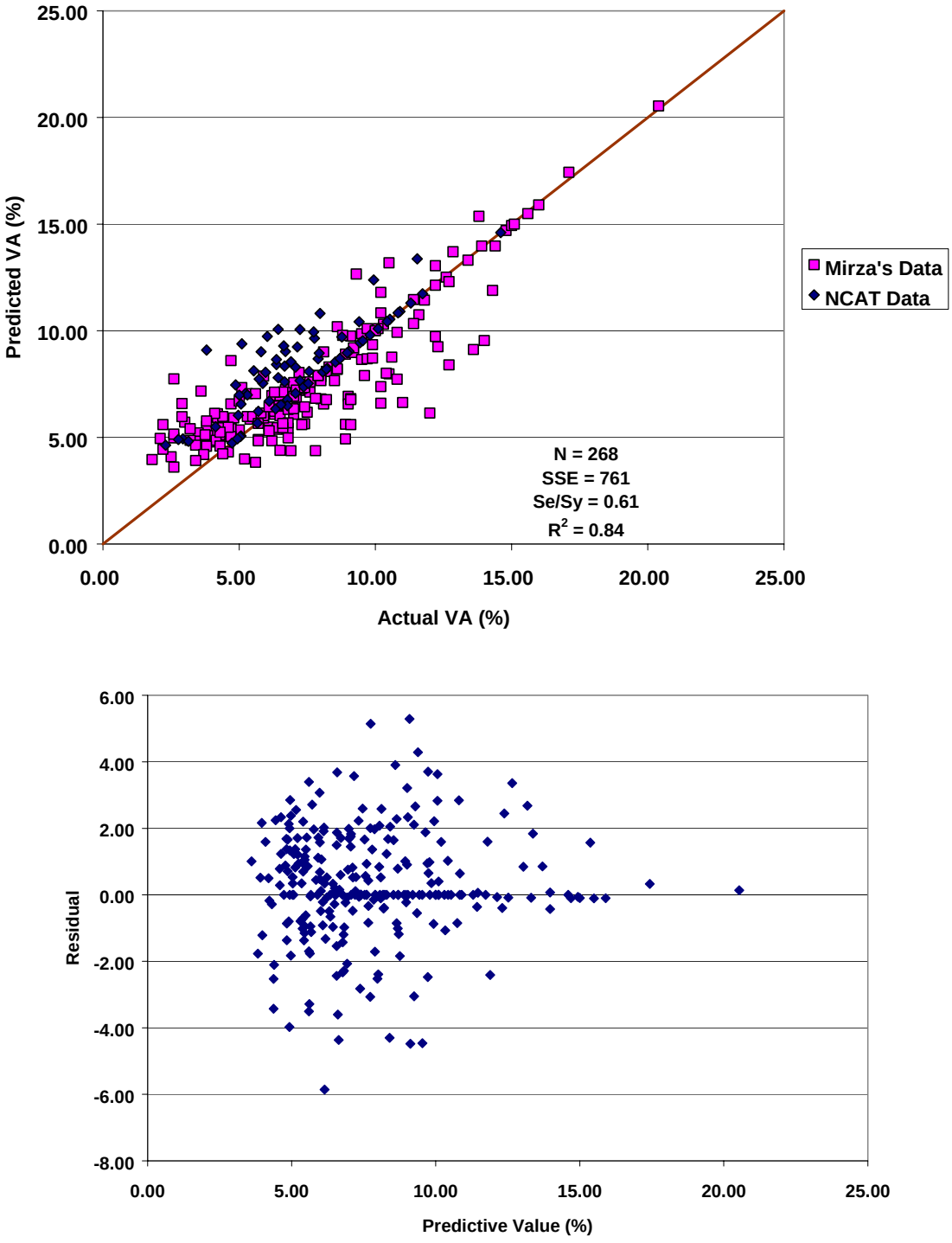


Figure 2 Actual versus Predicted VA – Equation 2 – Mirza & NCAT Data

Table 2

Project Locations for NCHRP 9-9 (1) Field Projects

Project ID	State	Location	Binder Grade
1-1	AL	Highway 157, south bound lane, app. 5 miles north of Moulton.	PG 67-22
1-2	AL	Highway 168, east bound lane, app. 2 miles east of Boaz.	PG 67-22
1-3	AL	Highway 80, west bound lane, near White Hall	PG 76-22
1-4	AL	Highway 84, east bound lane, near Monroeville	PG 67-22
1-5	AL	Highway 167, north bound lane, near Enterprise	PG 67-22
1-6	AL	Andrews Road, city street located in Opelika	PG 67-22
2-1	FL	Davis Highway, city street located in Pensacola, app. 2 miles south of I-10.	AC-30
3-1	MI	Highway 50, north bound lane, in Jackson	PG 58-28
3-2	MI	Highway 52 near Owosso	PG 58-28
3-3	MI	Interstate 75 north bound lane near Flint	PG 70-28
4-1	WI	Highway 45 south bound lane near Wisconsin Avenue in Milwaukee	PG 70-28
5-1	CO	Highway 9, south bound lane, in Frisco	PG 58-28
5-2	CO	Highway 82, south bound lane, south of Glenwood Springs	PG 64-28
5-3	CO	Pitkin Avenue at the intersection of 10^{th} street in Grand Junction	PG 76-28
5-4	CO	Highway 13 north bound lane, just north of Meeker	PG 64-28
5-5	CO	Highway 82, south bound lane, south of Glenwood Springs	PG 64-28
6-1	UT	Highway 150, west of Kamas	PG 64-34
7-1	IN	Highway 136 east bound lane near East Main Street in Brownsburg	PG 64-22
7-2	IN	Interstate 69 southbound near Auburn	PG 64-22
8-1	KY	Washington County Road 1786, near Lebanon	PG 64-22
8-2	KY	Interstate 64, east bound, near Olive Hill	PG 76-22
8-3	KY	Shelby County Road 1779, near Frankfurt	PG 64-22

asymptotic value of 2% that could be a serious limitation in the back-calculation of VA_{orig}. In other words, the model is invalid for aged air voids that are less than 2%.

FINAL MODEL

In order to develop the final model for the prediction of air voids as a function of time numerical optimization techniques were used for curve fitting. Several different structural model forms were used in the analysis. These included: exponential, logarithmic and hyperbolic functional forms. The selection of the final model was made with the consideration that it should be statistically and theoretically sound. Equation (3) presents the chosen model:

$$VA = \frac{VA_{orig} + \exp^{(-1.0528*t)} - 1}{1 + 0.01406t + 0.00125t^{0.2307} Maat - 0.00325t\,\eta_{orig,77}} \quad (3)$$

$R^2 = 0.89$; $S_e/S_y = 0.516$

The above model has a better R^2 compared to the model represented by Equation (2). The goodness of fit plot along with the residual analysis are shown in Figure 3. It is obvious that the bias observed by Equation (2) is no longer present for the predictions made with Equation (3). In addition, no asymptotic value was used in this case as in Equation (2); that uses a value of 2%. As stated before, a value of 2% was arbitrarily selected as a minimum air void for mathematical convenience and does have engineering justification in that sound or stable rut resisting mixtures will generally reach this threshold void level (2-3%) prior to excessive shear displacement caused by plastic flow. However, for the purpose of this

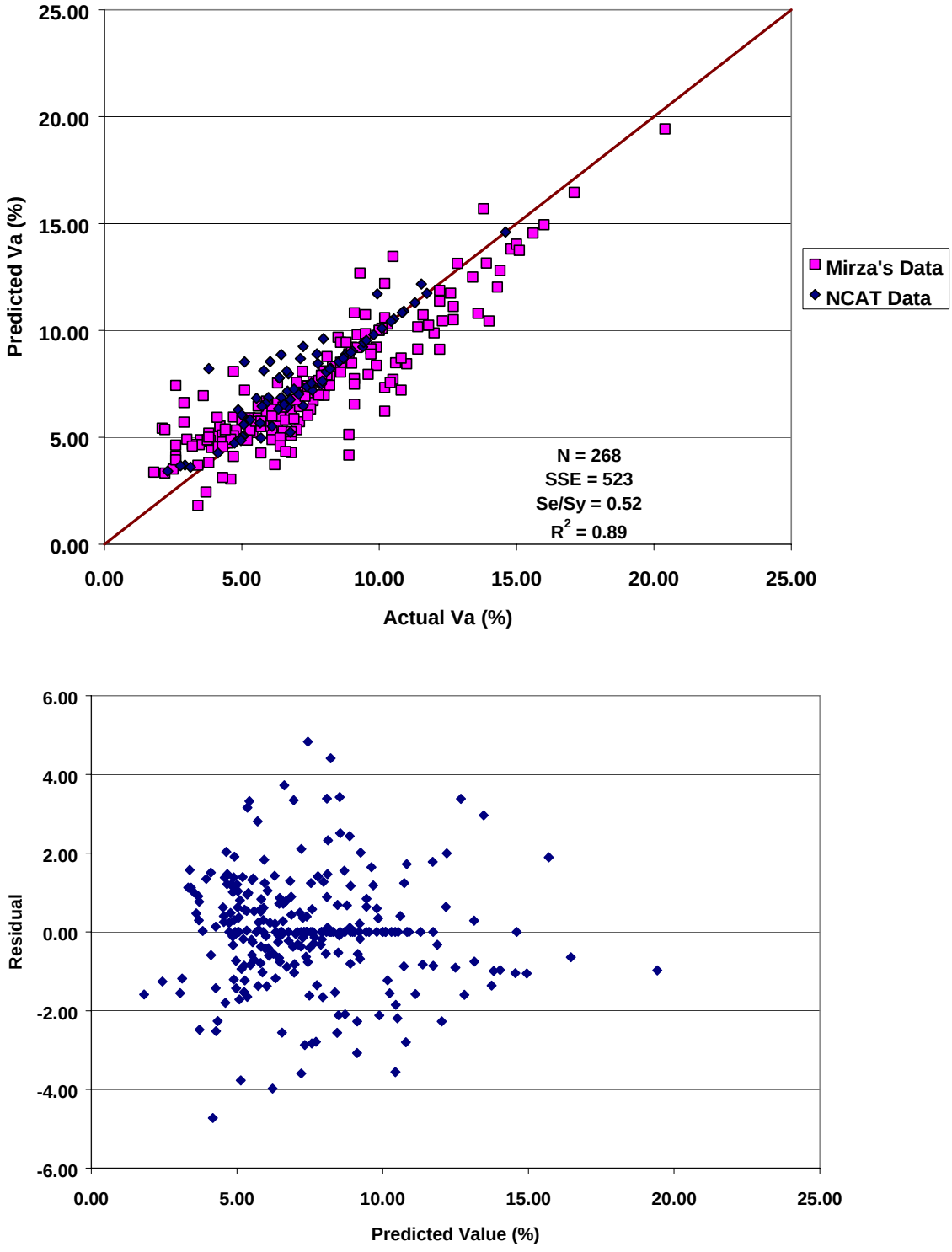


Figure 3 Actual versus Predicted VA – Equation 3 – Mirza & NCAT Data

study, it imposes a serious limitation, as it will be seen later when the above equation will be used to predict or back-calculate the initial air voids (VA_{orig}), given the aged air voids value.

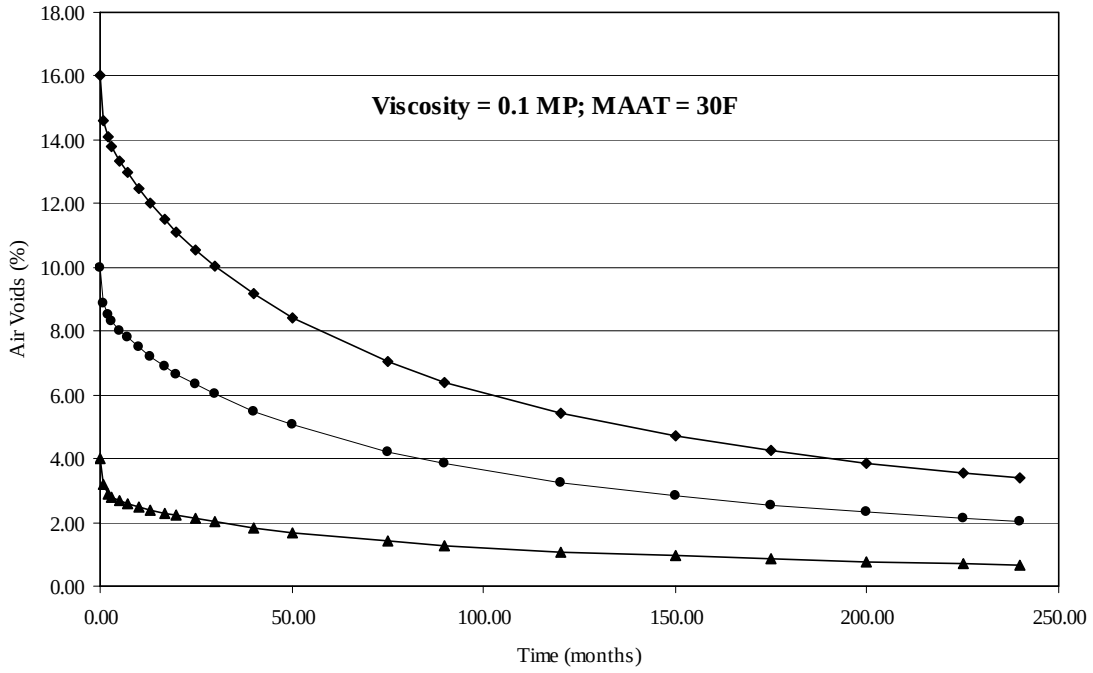
A sensitivity analysis was carried out for all the independent variables in Equation (3). Figure 4a and Figure 4b shows the relationship of air voids with time for two values of viscosities at two different temperature regimes. It can be observed that as the viscosity increases, or temperature decreases, the rate of change of air voids decreases. These results are quite rational. Figures 5 show the effect of mean annual air temperature for different levels of viscosity, however Figure 6 will show the effect of Viscosity for different levels of mean annual air temperature. Similar conclusions, previously reached in Figure 4 can be made. The predicted model indicates that harder asphalt and cold temperatures result in lower changes of air voids. These plots show that the model selected is rational and theoretically correct.

BACK-CALCULATION OF ORIGINAL AIR VOIDS FOR GPS SECTIONS

As mentioned earlier, the objective of this study was to estimate the air voids at the time of construction. This was needed because reliable data for initial air voids could not be obtained from the LTPP database for the selected sections. The Equation (3) previously developed was used to back-calculate the original air voids (air voids at construction). For this purpose, the following information was needed:

1. Air voids at any time, t
2. Mean annual air temperature
3. Original viscosity at 77 deg F

Item 1 and 2 were obtained directly from the LTTP database for the selected sections, but no information was available for viscosity at 77^{o}F. However, penetration at 77^{o}F was available in the LTTP database. The penetration values were converted to viscosity values by the model developed by Mirza at el. (AAPT 1995), at the University of Maryland. The regression model used is given below.



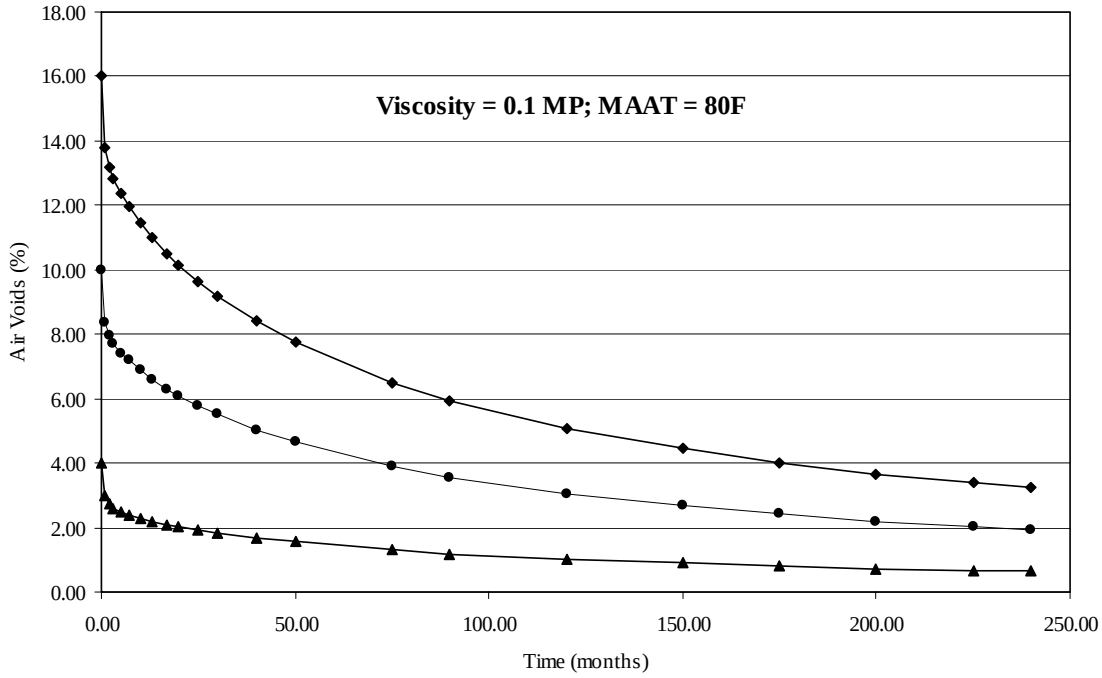
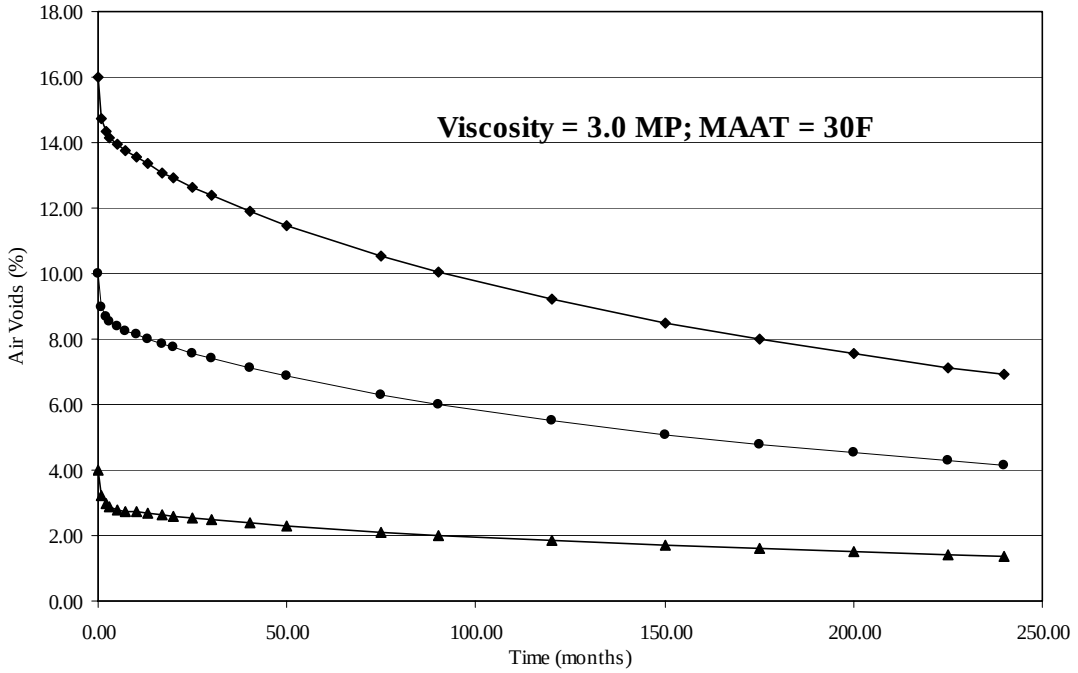


Figure 4a: Relative Importance of Initial Air Voids and the Effect of Mean Annual Air Temperature (η_{77F} = 0.1 MP)



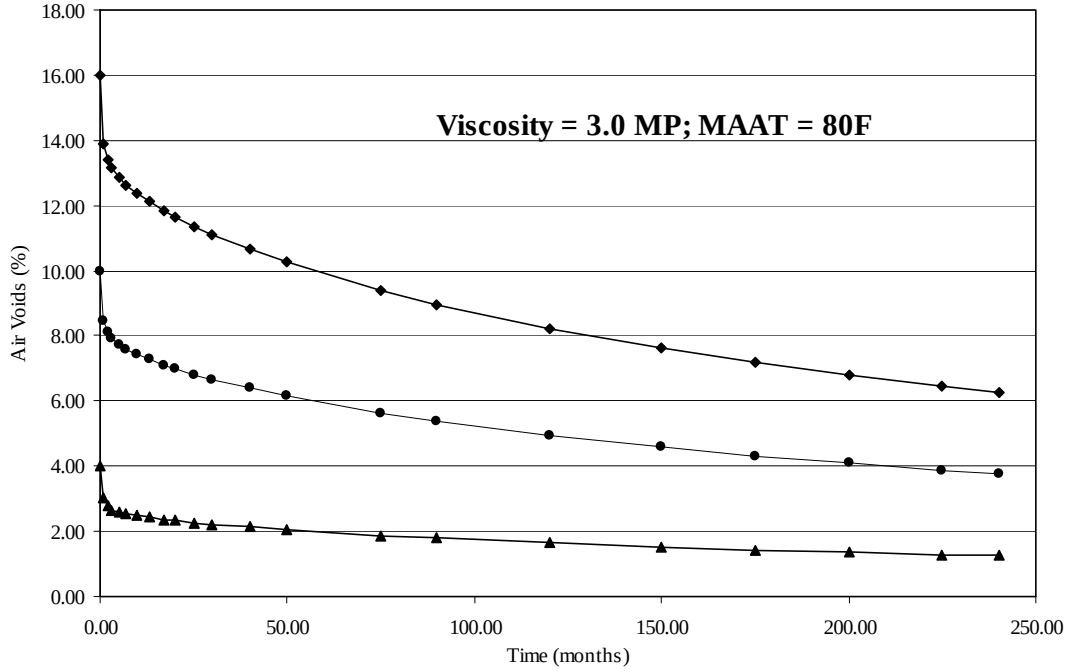


Figure 4b: Relative Importance of Initial Air Voids and the Effect of Mean Annual Air Temperature (η_{77F} = 3.0 MP)

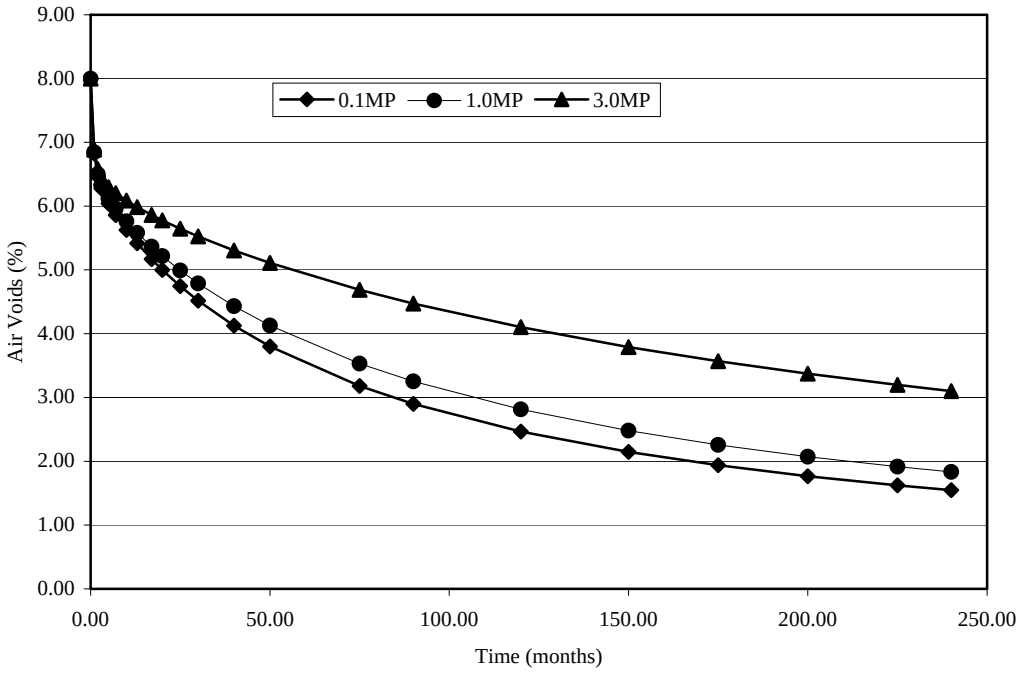


Figure 5: Effect of Viscosity on Predicted Air Voids (Maat = 50F)

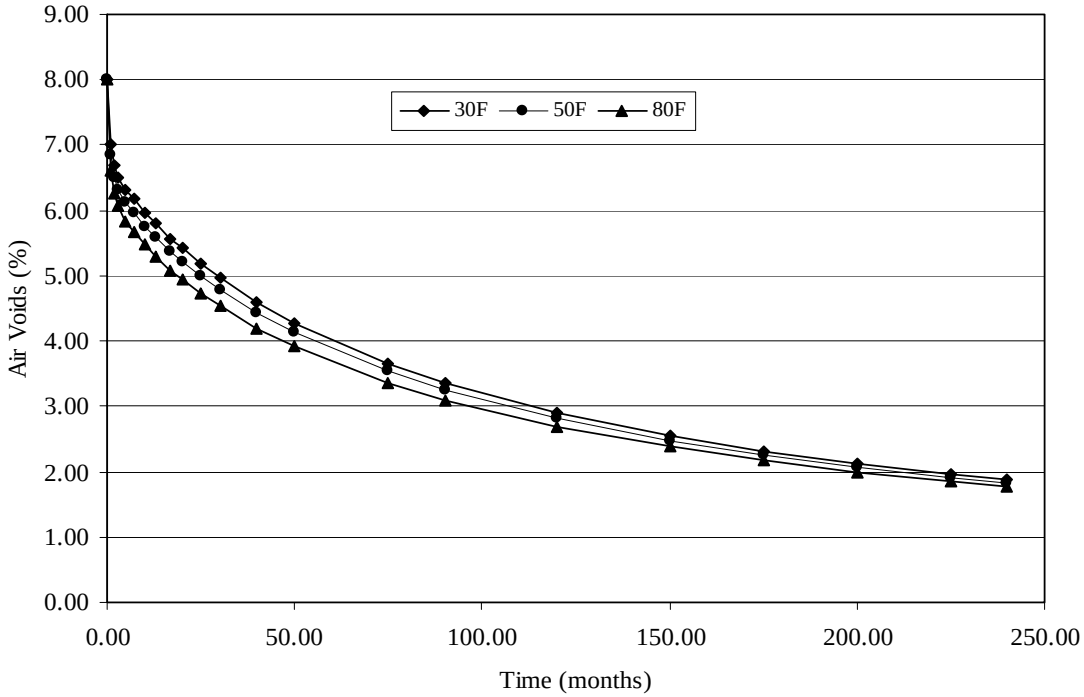


Figure 6: Effect of Mean Annual Air Temperature (Viscosity = 1.0 MP)

$$\log \eta = 10.5012 - 2.2601 \log(Pen) + 0.00389 \log(Pen)^2 \quad (4)$$

The η value is expressed in Poises. Accurate viscosity predictions over a *Pen* range from 3 to 300 have been observed for the mentioned predictive model (Equation 4).

Once the viscosity values were obtained, Equation (3) was then used to estimate the VA_{orig} for all the 56 sections to be used for the calibration of distress models for the 2002 Design Guide. The needed data and the back-calculated original air voids are shown in Table 3. The following observations were made with the back-calculated values.

1. It was observed that the "Design Air Voids" values are less than the predicted "Construction Air Voids" values and that is considered logically correct. This is in contradiction to the data obtained from the LTTP database.

2. In some situations, extremely high air voids were predicted by Equation (3). This is due to the fact, that relatively high air voids values are reported at longer time periods. That is, if the air voids at 252 months is reported to be 13%, then, the back-calculated value will be in excess of 30% in some instances. This is an unrealistic value.

3. The model developed was based upon surface mixes data and therefore, should only be applicable for the top layer. However, in some situations, especially for the full depth asphalt sections, more than one layer of asphalt is used in the pavement structure. Prediction of air voids for layers other than the top layer should be used with caution.

Because of these shortcomings, it was decided to come up with suggested values for these special situations. Table 3 provides the suggested or recommended values that

Table 3. Back-calculated VA_{orig} for the GPS-LTPP Sections

STATE CODE	SHRP_ID	LAYER	VA	Vaorig (Inventory)	AGE (months)	Maat (F)	Viscosity (Mega-Poises)	Pred. VA_{orig} Eq. (2)	Pred. VA_{orig} Eq. (3)	Suggested Value for Calibration
1	1019	1	-	-	-	65.5	1.89	-	-	-
1	4073	1	8.130	6.404	72	58.8	1.32	22.2	16.5	16.5
2	1001	1	1.642	-	132	37.0	0.33	-4.8	5.7	5.7
4	0115	1	9.210	-	12	60.9	11.97	12.2	12.1	12.1
4	0122	1	10.744	-	12	60.9	8.22	14.4	14.4	14.4
4	1024	1	6.766	3.037	204	53.3	0.93	32.5	24.6	**9.8**
5	2042	1	1.199	-	264	62.1	2.61	-17.9	4.3	4.3
8	1053	1	1.723	2.893	120	51.0	1.51	-4.2	5.0	5.0
8	2008	1	3.523	2.881	264	54.3	0.74	7.3	16.2	16.2
9	1803	1	6.288	3.048	108	50.5	2.28	17.3	13.0	13.0
12	3997	1	2.481	2.655	240	69.3	1.29	-1.9	10.1	10.1
12	4106	1	6.091	5.129	84	74.9	3.01	19.5	10.9	10.9
13	1031	1	3.415	6.710	156	58.6	1.04	5.6	10.9	10.9
13	4119	1	3.764	-	192	59.8	2.21	9.3	10.7	10.7
16	1009	1	0.652	4.407	240	47.7	0.56	-19.0	3.7	**7.6**
16	1020	1	5.780	0.124	96	48.9	0.75	13.5	14.2	14.2
16	1021	1	1.084	4.139	108	44.5	0.27	-6.1	3.8	3.8
16	9034	1	3.428	6.275	72	45.6	0.93	3.6	7.7	7.7
22	3056	1	5.146	3.279	84	66.3	3.01	13.2	9.2	9.2
27	1018	1	2.180	-	180	43.3	0.62	-4.1	8.3	8.3
30	8129	1	2.474	-	72	44.5	1.23	0.6	5.6	5.6
34	1638	1	6.330	-	108	54.9	1.78	18.8	14.3	14.3
35	1112	1	6.419	4.406	120	60.8	1.09	22.7	17.0	17.0
37	1006	1	11.230	17.012	144	60.3	1.26	57.8	31.0	**20.0**
37	1024	1	4.593	-	168	56.4	2.01	13.9	12.5	12.5
37	1645	1	4.580	8.889	96	61.9	1.55	10.8	10.6	10.6
37	1802	1	4.624	8.714	108	58.2	1.06	11.1	11.9	11.9
37	1992	1	5.351	9.562	48	58.7	1.95	9.6	9.3	9.3
37	2824	1	7.326	9.016	132	58.7	1.73	29.0	18.1	18.1
40	4154	1	9.862	4.652	60	61.3	1.73	26.3	17.8	17.8
40	4163	1	3.495	-	84	59.8	3.12	5.1	6.4	6.4
40	4165	1	5.264	-	120	58.7	2.07	15.5	12.1	12.1
42	1599	1	8.686	3.846	84	45.3	1.68	22.0	17.3	17.3
47	3104	1	7.913	2.449	96	56.2	2.80	24.9	14.3	14.3
48	0001	1	-	9.908	-	-	1.84	-	-	**12.9**
48	1076	1	2.033	2.529	204	60.2	1.26	-5.8	7.7	7.7
48	1077	1	2.350	-	144	61.4	0.68	-1.4	7.9	7.9
48	1109	1	4.866	4.940	120	67.5	3.37	15.2	8.9	8.9
48	1169	1	-	-	-	-	2.07	-	-	**6.7**
48	1174	1	-	-	-	-	0.80	-	-	-
48	2176	1	4.399	-	288	58.7	2.07	19.4	15.9	15.9
48	3559	1	5.613	5.912	288	67.2		-	-	**8.9**
48	3669	1	3.093	4.116	132	66.3	1.73	4.1	8.3	8.3
48	3679	1	9.971	3.328	72	65.9	1.68	31.8	19.4	19.4
48	9005	1	-	7.202	-	-	0.63	-	-	**10.2**
50	1002	1	3.358	4.260	120	43.7	1.20	3.2	9.0	9.0
50	1004	1	1.642	3.483	120	45.9	1.92	-4.4	4.5	4.5
51	2004	1	6.516	5.451	156	58.1	1.29	27.0	19.1	19.1
51	2021	1	5.891	5.451	108	53.0	1.29	16.1	14.3	14.3
56	1007	1	1.669	7.795	168	45.2	0.77	-6.7	6.2	6.2
56	2015	1	2.030	7.224	192	46.7	0.95	-5.4	7.7	7.7
56	2017	1	4.417	7.556	144	45.9	1.09	9.1	12.9	12.9
56	2020	1	3.021	3.658	108	45.1	4.71	2.0	4.1	4.1
56	2037	1	2.082	3.958	108	41.8	3.24	-2.0	4.2	4.2
56	7773	1	3.711	3.485	84	45.2	2.90	4.6	6.7	6.7

Table 3. Back-calculated VA_{orig} for the GPS-LTPP Sections (Contd)

STATE CODE	SHRP_ID	LAYER	VA	Vaorig (Inventory)	AGE (months)	Maat (F)	Viscosity (Mega-Poises)	Pred. VA_{orig} Eq. (2)	Pred. VA_{orig} Eq. (3)	Suggested Value for Calibration
88	1647	1	4.461	3.071	96	42.0	0.36	7.1	11.7	11.7
1	1019	2	3.766	-	96	65.5	1.89	7.2	8.5	8.5
1	4073	2	-	2.640	-	58.8	1.78	-	-	**5.6**
4	0115	2	5.931	-	12	60.9	3.30	7.3	8.0	8.0
4	0122	2	6.396	-	12	60.9	2.77	8.0	8.7	8.7
5	2042	2	2.529	-	264	62.1	2.61	-2.3	8.0	8.0
8	2008	2	-	-	-	54.3	0.74	-	-	-
9	1803	2	0.232	-	108	50.5	2.28	-10.4	1.4	**7.6**
13	1031	2	3.904	7.656	156	58.6	1.04	9.1	12.3	12.3
13	4119	2	5.881	-	192	59.8	2.21	27.3	16.1	16.1
16	1009	2	3.361	4.096	240	47.7	1.11	4.0	13.5	13.5
16	9034	2	2.499	6.275	72	45.6	0.93	0.7	5.9	5.9
22	3056	2	6.477	3.279	84	66.3	3.01	19.4	11.3	11.3
27	1018	2	9.950	4.334	180	43.3	0.53	43.3	34.8	**10.0**
34	1638	2	6.389	-	108	54.9	1.78	19.1	14.4	14.4
37	1006	2	5.180	6.504	144	60.3	1.26	17.5	14.9	14.9
37	1645	2	2.983	7.275	96	61.9	1.55	3.0	7.2	7.2
37	1802	2	6.223	7.724	108	58.2	1.06	19.3	15.7	15.7
37	2824	2	5.870	6.640	132	58.7	1.73	20.2	14.7	14.7
40	4154	2	6.331	5.248	60	61.3	1.73	14.3	11.8	11.8
40	4163	2	6.373	-	84	59.8	3.12	17.4	10.8	10.8
40	4165	2	7.031	-	120	58.7	2.07	25.4	15.8	15.8
42	1599	2	5.501	4.531	84	45.3	1.68	10.9	11.3	11.3
48	0001	2	-	-	-	-	1.84	-	-	-
48	1076	2	7.556	-	204	60.2	0.82	44.0	28.1	**12.6**
48	1077	2	2.233	-	144	61.4	2.61	-2.2	5.6	5.6
48	1109	2	-	5.790		67.5	3.37	-	-	-
48	1174	2	12.121	-	252	71.6	0.80	121.4	52.0	**16.2**
48	2176	2	-	3.047	-	-	2.07	-	-	-
48	3559	2	-	2.899	-	-		-	-	-
48	3669	2	7.054	5.192	132	66.3	1.89	30.7	17.2	17.2
50	1002	2	1.143	-	120	43.7	1.20	-6.6	3.7	3.7
50	1004	2	1.718	4.516	120	45.9	1.26	-4.1	5.1	5.1
51	2004	2	4.999	-	156	58.1	1.29	16.5	14.9	14.9
51	2021	2	-	2.440	-	-	1.29	-	-	**9.8**
88	1647	2	-	2.517	-	-	0.19	-	-	**5.5**
1	1019	3	7.102	-	96	65.5	1.89	24.2	15.2	15.2
4	0122	3	-	-	-	60.9		-	-	-
22	3056	3	8.267	4.065	84	66.3	3.01	27.7	14.2	14.2

* Numbers in bold are suggested values due to model limitations and/or lack of data to estimate them

should be used for the calibration of the distress models for the 2002 Design Guide. The suggested values are generally the ones given by Equation (3), however, for those instances where the predictions were not considered reliable, values based on experience were recommended. The latest recommended values are shown in bold in Table 3. Some guidelines used for the development of these suggested values are listed below.

- For layers other than the top layer, it is expected that no significant change in air voids will be observed as a function of time. This is because of low stress due to traffic and less effect of the mean annual air temperature. Therefore, if unrealistic values were observed, the original air voids value was considered to be close to the aged value.

- For the top layer, if unrealistic air voids were observed, the value was estimated by adding 3% to the design air voids. This is because as a general practice, construction air voids are 3 to 4 %higher than the design air voids.

The results obtained from this study are not perfect. However, the research team believes that the approach used above is the best to obtain the original air voids information needed for the calibration of the distress models.

Appendix A

Mirza's Data Set

Line	Test_Road	Mix_ID	VA (%)	Vaorig (%)	t (months)	Viscosity (Mega-Poises)	Maat (F)	Predicted VA
84	MICHIGAN	1	7.60	7.600	0	3.01	47.5	7.60
86	MICHIGAN	1	6.70	7.600	3	3.01	47.5	7.31
87	MICHIGAN	1	4.20	7.600	17	3.01	47.5	6.30
88	MICHIGAN	1	4.70	7.600	29	3.01	47.5	5.71
89	MICHIGAN	1	4.00	7.600	40	3.01	47.5	5.32
90	MICHIGAN	1	3.60	7.600	52	3.01	47.5	4.98
94	MICHIGAN	2	7.20	7.200	0	3.01	47.5	7.20
96	MICHIGAN	2	7.10	7.200	3	3.01	47.5	6.93
97	MICHIGAN	2	5.40	7.200	17	3.01	47.5	6.00
98	MICHIGAN	2	5.00	7.200	29	3.01	47.5	5.46
99	MICHIGAN	2	4.50	7.200	40	3.01	47.5	5.09
100	MICHIGAN	2	3.90	7.200	52	3.01	47.5	4.79
104	MICHIGAN	3	8.30	8.300	0	2.28	47.5	8.30
106	MICHIGAN	3	5.90	8.300	3	2.28	47.5	7.97
107	MICHIGAN	3	4.70	8.300	17	2.28	47.5	6.81
108	MICHIGAN	3	4.20	8.300	29	2.28	47.5	6.15
109	MICHIGAN	3	3.80	8.300	40	2.28	47.5	5.69
110	MICHIGAN	3	3.50	8.300	52	2.28	47.5	5.31
114	MICHIGAN	4	7.30	7.300	0	3.12	47.5	7.30
116	MICHIGAN	4	6.20	7.300	3	3.12	47.5	7.03
117	MICHIGAN	4	4.80	7.300	17	3.12	47.5	6.07
118	MICHIGAN	4	4.70	7.300	29	3.12	47.5	5.52
119	MICHIGAN	4	3.85	7.300	40	3.12	47.5	5.15
120	MICHIGAN	4	3.45	7.300	52	3.12	47.5	4.84
124	MICHIGAN	5	7.40	7.400	0	3.01	47.5	7.40
126	MICHIGAN	5	5.30	7.400	3	3.01	47.5	7.12
127	MICHIGAN	5	4.40	7.400	17	3.01	47.5	6.15
128	MICHIGAN	5	4.30	7.400	29	3.01	47.5	5.59
129	MICHIGAN	5	3.75	7.400	40	3.01	47.5	5.21
130	MICHIGAN	5	3.20	7.400	52	3.01	47.5	4.88
134	MICHIGAN	6	7.40	7.400	0	2.80	47.5	7.40
136	MICHIGAN	6	5.60	7.400	3	2.80	47.5	7.12
137	MICHIGAN	6	5.30	7.400	17	2.80	47.5	6.14
138	MICHIGAN	6	4.40	7.400	29	2.80	47.5	5.59
139	MICHIGAN	6	4.30	7.400	40	2.80	47.5	5.20
140	MICHIGAN	6	4.15	7.400	52	2.80	47.5	4.88
347	DELAWARE	AF-DEL	7.40	7.400	0	3.12	56.2	7.40
349	DELAWARE	AF-DEL	6.30	7.400	12	3.12	56.2	6.29
350	DELAWARE	AF-DEL	6.10	7.400	24	3.12	56.2	5.59
351	DELAWARE	AF-BPR	7.60	7.600	0	2.90	56.2	7.60
353	DELAWARE	AF-BPR	6.30	7.600	12	2.90	56.2	6.45
354	DELAWARE	AF-BPR	6.10	7.600	24	2.90	56.2	5.72
363	DELAWARE	AR-BPR	10.30	10.300	0	2.90	56.2	10.30
365	DELAWARE	AR-BPR	8.20	10.300	12	2.90	56.2	8.55
366	DELAWARE	AR-BPR	7.00	10.300	24	2.90	56.2	7.44
367	DELAWARE	AR-AI	8.90	8.900	0	3.01	56.2	8.90
369	DELAWARE	AR-AI	7.60	8.900	12	3.01	56.2	7.46

Line	Test_Road	Mix_ID	VA (%)	Vaorig (%)	t (months)	Viscosity (Mega-Poises)	Maat (F)	Predicted VA
370	DELAWARE	AR-AI	7.50	8.900	24	3.01	56.2	6.54
375	DELAWARE	BF-BPR	7.30	7.300	0	2.52	56.2	7.30
377	DELAWARE	BF-BPR	6.50	7.300	12	2.52	56.2	6.21
378	DELAWARE	BF-BPR	6.10	7.300	24	2.52	56.2	5.52
383	DELAWARE	BR-DEL	5.90	5.900	0	2.61	56.2	5.90
385	DELAWARE	BR-DEL	4.70	5.900	12	2.61	56.2	5.12
386	DELAWARE	BR-DEL	3.80	5.900	24	2.61	56.2	4.63
387	DELAWARE	BR-BPR	7.40	7.400	0	2.52	56.2	7.40
389	DELAWARE	BR-BPR	7.00	7.400	12	2.52	56.2	6.29
390	DELAWARE	BR-BPR	6.40	7.400	24	2.52	56.2	5.58
391	DELAWARE	BR-AI	6.50	6.500	0	2.52	56.2	6.50
393	DELAWARE	BR-AI	6.40	6.500	12	2.52	56.2	5.59
394	DELAWARE	BR-AI	5.70	6.500	24	2.52	56.2	5.01
535	TEXAS (Dickens)	(A)AC-20	13.40	13.409	0.25	4.00	59.5	13.34
537	TEXAS (Dickens)	(A)AC-20	12.70	13.409	24	4.00	59.5	9.28
538	TEXAS (Dickens)	(A)AC-20	12.00	13.409	60	4.00	59.5	6.80
541	TEXAS (Dickens)	(A)AC-10	16.00	16.024	0.25	1.35	59.5	15.94
542	TEXAS (Dickens)	(A)AC-10	14.30	16.024	12	1.35	59.5	12.82
543	TEXAS (Dickens)	(A)AC-10	9.10	16.024	24	1.35	59.5	10.84
544	TEXAS (Dickens)	(A)AC-10	9.00	16.024	60	1.35	59.5	7.76
547	TEXAS (Dickens)	(B)AC-20	15.60	15.612	0.25	1.20	59.5	15.53
549	TEXAS (Dickens)	(B)AC-20	14.00	15.612	24	1.20	59.5	10.57
550	TEXAS (Dickens)	(B)AC-20	8.00	15.612	60	1.20	59.5	7.59
553	TEXAS (Dickens)	(C)AC-20	14.80	14.809	0.25	2.75	59.5	14.73
555	TEXAS (Dickens)	(C)AC-20	13.60	14.809	24	2.75	59.5	10.14
556	TEXAS (Dickens)	(C)AC-20	9.00	14.809	60	2.75	59.5	7.34
565	TEXAS (Dickens)	(E)AC-20	15.00	15.053	0.25	1.90	59.5	14.97
567	TEXAS (Dickens)	(E)AC-20	12.30	15.053	24	1.90	59.5	10.27
568	TEXAS (Dickens)	(E)AC-20	11.00	15.053	60	1.90	59.5	7.41
577	TEXAS (Dumas)	(A)AC-20	13.90	14.071	0.25	1.90	55.4	14.00
578	TEXAS (Dumas)	(A)AC-20	11.60	14.071	12	1.90	55.4	11.50
579	TEXAS (Dumas)	(A)AC-20	9.20	14.071	24	1.90	55.4	9.85
580	TEXAS (Dumas)	(A)AC-20	8.10	14.071	60	1.90	55.4	7.23
588	TEXAS (Dumas)	(B)AC-10	12.20	12.214	0.25	0.36	55.4	12.15
590	TEXAS (Dumas)	(B)AC-10	10.50	12.214	24	0.36	55.4	8.41
591	TEXAS (Dumas)	(B)AC-10	5.50	12.214	60	0.36	55.4	6.19
598	TEXAS (Dumas)	(D)AC-10	12.60	12.601	0.25	0.53	55.4	12.54
599	TEXAS (Dumas)	(D)AC-10	12.20	12.601	12	0.53	55.4	10.23
600	TEXAS (Dumas)	(D)AC-10	8.60	12.601	24	0.53	55.4	8.75
603	TEXAS (Dumas)	(E)AC-20	17.10	17.559	0.25	1.60	55.4	17.47
604	TEXAS (Dumas)	(E)AC-20	10.50	17.559	12	1.60	55.4	14.20
605	TEXAS (Dumas)	(E)AC-20	10.20	17.559	24	1.60	55.4	12.06
606	TEXAS (Dumas)	(E)AC-20	8.50	17.559	60	1.60	55.4	8.66
609	TEXAS (Dumas)	(E)AC-10	20.40	20.692	0.25	0.97	55.4	20.58
610	TEXAS (Dumas)	(E)AC-10	13.80	20.692	12	0.97	55.4	16.58
612	TEXAS (Dumas)	(E)AC-10	9.50	20.692	60	0.97	55.4	9.86
615	TEXAS (Lufkin)	(A)AC-20	8.60	10.268	0.25	1.80	66.7	10.21
616	TEXAS (Lufkin)	(A)AC-20	2.60	10.268	12	1.80	66.7	8.26
617	TEXAS (Lufkin)	(A)AC-20	2.10	10.268	60	1.80	66.7	5.28

Line	Test_Road	Mix_ID	VA (%)	Vaorig (%)	t (months)	Viscosity (Mega-Poises)	Maat (F)	Predicted VA
625	TEXAS (Lufkin)	(C)AC-20	6.60	7.173	0.25	1.55	66.7	7.14
626	TEXAS (Lufkin)	(C)AC-20	3.00	7.173	12	1.55	66.7	5.94
627	TEXAS (Lufkin)	(C)AC-20	2.50	7.173	60	1.55	66.7	4.12
639	TEXAS (Lufkin)	(E)AC-20	6.50	6.696	0.25	1.90	66.7	6.67
640	TEXAS (Lufkin)	(E)AC-20	3.20	6.696	12	1.90	66.7	5.59
641	TEXAS (Lufkin)	(E)AC-20	1.80	6.696	60	1.90	66.7	3.95
1082	FLORIDA	Lowlight	15.10	16.653	3	1.28	69.5	15.48
1083	FLORIDA	Lowlight	12.85	16.653	6	1.28	69.5	14.48
1084	FLORIDA	Lowlight	9.30	16.653	9	1.28	69.5	13.63
1102	ZACA WIGMORE	A-1	12.70	14.023	5	0.17	56.9	12.47
1104	ZACA WIGMORE	A-1	9.90	14.023	20	0.17	56.9	9.58
1106	ZACA WIGMORE	A-1	6.30	14.023	59	0.17	56.9	6.49
1111	ZACA WIGMORE	C-1	10.20	13.423	5	0.13	56.9	11.86
1113	ZACA WIGMORE	C-1	8.10	13.423	20	0.13	56.9	9.02
1114	ZACA WIGMORE	C-1	7.00	13.423	35	0.13	56.9	7.48
1115	ZACA WIGMORE	C-1	6.80	13.423	59	0.13	56.9	6.09
1116	ZACA WIGMORE	C-1	6.80	13.423	91	0.13	56.9	5.09
1119	ZACA WIGMORE	D-1	14.40	16.003	5	0.12	56.9	14.04
1122	ZACA WIGMORE	D-1	9.70	16.003	35	0.12	56.9	8.61
1123	ZACA WIGMORE	D-1	6.30	16.003	59	0.12	56.9	6.90
1124	ZACA WIGMORE	D-1	5.90	16.003	91	0.12	56.9	5.68
1128	ZACA WIGMORE	E-1	11.80	12.994	5	0.16	56.9	11.56
1130	ZACA WIGMORE	E-1	10.60	12.994	20	0.16	56.9	8.91
1131	ZACA WIGMORE	E-1	10.20	12.994	35	0.16	56.9	7.44
1135	ZACA WIGMORE	F-1	12.20	14.899	5	0.19	56.9	13.27
1137	ZACA WIGMORE	F-1	9.50	14.899	20	0.19	56.9	10.20
1138	ZACA WIGMORE	F-1	8.60	14.899	35	0.19	56.9	8.48
1142	ZACA WIGMORE	G-1	11.40	11.684	5	0.19	56.9	10.47
1144	ZACA WIGMORE	G-1	10.40	11.684	20	0.19	56.9	8.19
1145	ZACA WIGMORE	G-1	9.10	11.684	35	0.19	56.9	6.90
1149	ZACA WIGMORE	H-1	9.70	11.410	5	0.17	56.9	10.20
1151	ZACA WIGMORE	H-1	8.00	11.410	20	0.17	56.9	7.96
1154	ZACA WIGMORE	H-1	6.80	11.410	59	0.17	56.9	5.56
1155	ZACA WIGMORE	H-1	6.80	11.410	91	0.17	56.9	4.72
1159	ZACA WIGMORE	J-1	10.80	11.200	5	0.13	56.9	9.95
1161	ZACA WIGMORE	J-1	10.80	11.200	20	0.13	56.9	7.68
1162	ZACA WIGMORE	J-1	10.20	11.200	35	0.13	56.9	6.45
1164	ZACA WIGMORE	J-1	8.90	11.200	59	0.13	56.9	5.33
1165	ZACA WIGMORE	J-1	8.90	11.200	91	0.13	56.9	4.53
1169	ZACA WIGMORE	B-1-1A	11.40	12.713	4	0.13	56.9	11.51
1171	ZACA WIGMORE	B-1-1A	9.90	12.713	19	0.13	56.9	8.72
1172	ZACA WIGMORE	B-1-1A	5.10	12.713	34	0.13	56.9	7.23
1173	ZACA WIGMORE	B-1-1A	4.10	12.713	58	0.13	56.9	5.89
1207	ZACA WIGMORE	D-2-2	8.80	13.777	16	0.14	56.9	9.89
1208	ZACA WIGMORE	D-2-2	7.20	13.777	31	0.14	56.9	8.06
1209	ZACA WIGMORE	D-2-2	2.90	13.777	55	0.14	56.9	6.45
1210	ZACA WIGMORE	D-2-2	2.20	13.777	87	0.14	56.9	5.33
1215	ZACA WIGMORE	E-2-2	6.60	6.863	16	0.16	56.9	5.35
1216	ZACA WIGMORE	E-2-2	6.20	6.863	31	0.16	56.9	4.63

Line	Test_Road	Mix_ID	VA (%)	Vaorig (%)	t (months)	Viscosity (Mega-Poises)	Maat (F)	Predicted VA
1217	ZACA WIGMORE	E-2-2	4.60	6.863	55	0.16	56.9	3.99
1223	ZACA WIGMORE	G-2-2	8.00	10.398	16	0.21	56.9	7.83
1224	ZACA WIGMORE	G-2-2	6.40	10.398	31	0.21	56.9	6.56
1225	ZACA WIGMORE	G-2-2	4.60	10.398	55	0.21	56.9	5.42
1231	ZACA WIGMORE	H-2-2	5.00	8.875	16	0.20	56.9	6.77
1232	ZACA WIGMORE	H-2-2	3.80	8.875	31	0.20	56.9	5.75
1233	ZACA WIGMORE	H-2-2	2.60	8.875	55	0.20	56.9	4.82
1234	ZACA WIGMORE	H-2-2	2.20	8.875	87	0.20	56.9	4.16
1239	ZACA WIGMORE	I-2-2(5.8)	7.10	9.6791	16	0.26	56.9	7.40
1240	ZACA WIGMORE	I-2-2(5.8)	5.80	9.6791	31	0.26	56.9	6.26
1241	ZACA WIGMORE	I-2-2(5.8)	4.30	9.6791	55	0.26	56.9	5.22
1242	ZACA WIGMORE	I-2-2(5.8)	3.40	9.6791	87	0.26	56.9	4.47
1247	ZACA WIGMORE	I-2-2(6.3)	4.70	11.892	16	0.26	56.9	8.93
1248	ZACA WIGMORE	I-2-2(6.3)	3.60	11.892	31	0.26	56.9	7.44
1249	ZACA WIGMORE	I-2-2(6.3)	2.90	11.892	55	0.26	56.9	6.09
1250	ZACA WIGMORE	I-2-2(6.3)	2.60	11.892	87	0.26	56.9	5.11
1834	MINNESOTA	P200/300	4.30	5.200	18	0.20	43.6	4.35
1835	MINNESOTA	P200/300	3.70	5.200	44	0.20	43.6	3.76
1836	MINNESOTA	P200/300	3.40	5.200	87	0.20	43.6	3.30
1901	BPR-WAS,DC	B-2	10.00	10.000	0	4.13	56.0	10.00
1903	BPR-WAS,DC	B-2	9.60	10.000	12	4.13	56.0	8.33
1904	BPR-WAS,DC	B-2	9.10	10.000	24	4.13	56.0	7.26
1905	BPR-WAS,DC	B-2	9.10	10.000	48	4.13	56.0	5.97
1906	BPR-WAS,DC	B-2	7.80	10.000	120	4.13	56.0	4.39
1907	BPR-WAS,DC	B-2	5.60	10.000	228	4.13	56.0	3.60
1908	BPR-WAS,DC	C-1	9.20	9.200	0	3.51	56.0	9.20
1910	BPR-WAS,DC	C-1	7.40	9.200	12	3.51	56.0	7.70
1911	BPR-WAS,DC	C-1	7.00	9.200	24	3.51	56.0	6.75
1912	BPR-WAS,DC	C-1	6.10	9.200	48	3.51	56.0	5.59
1913	BPR-WAS,DC	C-1	4.40	9.200	120	3.51	56.0	4.18
1914	BPR-WAS,DC	C-2	7.90	7.900	0	3.80	56.0	7.90
1916	BPR-WAS,DC	C-2	7.40	7.900	12	3.80	56.0	6.69
1917	BPR-WAS,DC	C-2	6.60	7.900	24	3.80	56.0	5.92
1918	BPR-WAS,DC	C-2	5.70	7.900	48	3.80	56.0	4.99
1919	BPR-WAS,DC	C-2	5.20	7.900	120	3.80	56.0	3.84
1920	BPR-WAS,DC	C-3	10.10	10.100	0	3.80	56.0	10.10
1923	BPR-WAS,DC	C-3	7.80	10.100	24	3.80	56.0	7.32
1924	BPR-WAS,DC	C-3	7.40	10.100	48	3.80	56.0	6.02
1925	BPR-WAS,DC	C-3	6.50	10.100	120	3.80	56.0	4.42
1926	BPR-WAS,DC	D-1	10.00	10.000	0	3.51	56.0	10.00
1929	BPR-WAS,DC	D-1	8.20	10.000	24	3.51	56.0	7.26
1930	BPR-WAS,DC	D-1	7.30	10.000	48	3.51	56.0	5.97
1931	BPR-WAS,DC	D-1	6.90	10.000	120	3.51	56.0	4.39
1933	BPR-WAS,DC	D-2	7.90	7.900	0	3.65	56.0	7.90
1935	BPR-WAS,DC	D-2	6.10	7.900	12	3.65	56.0	6.69
1936	BPR-WAS,DC	D-2	5.70	7.900	24	3.65	56.0	5.92
1939	BPR-WAS,DC	D-2	2.60	7.900	228	3.65	56.0	3.27

Appendix B

NCAT Data Set

Appendix B-1

Raw Data as Received from NCAT

ALABAMA DATA

		Gmb			VTM		
PROJECT I.D.	Gmm	CONSTR.	3 MONTH	6 MONTH	CONSTR.	3 MONTH	6 MONTH
AL1							
1.1	2.549	2.264	2.391	2.477	11.2	6.2	2.8
1.2	2.549	2.298	2.399	2.423	9.9	5.9	4.9
1.3	2.549	2.281	2.395	2.455	10.5	6.0	3.7
2.1	2.566	2.333	2.393	2.429	9.1	6.7	5.3
2.2	2.566	2.283	2.348	2.400	11.0	8.5	6.5
2.3	2.566	2.278	2.359	2.422	11.2	8.1	5.6
3.1	2.548	2.282	2.386	2.445	10.4	6.3	4.0
3.2	2.548	2.256	2.361	2.403	11.4	7.3	5.7
3.3	2.548	2.271	2.401	2.405	10.9	5.7	5.6

		Gmb			VTM		
PROJECT I.D	Gmm	CONSTR.	3 MONTH	6 MONTH	CONSTR.	3 MONTH	6 MONTH
AL2							
1.1	2.466	2.110	2.188	2.221	14.4	11.3	10.0
1.2	2.466	2.099	2.188	2.230	14.9	11.3	9.6
1.3	2.466	2.108	2.170	2.214	14.5	12.0	10.2
2.1	2.455	2.176	2.221	2.241	11.3	9.5	8.7
2.2	2.455	2.184	2.230	2.230	11.0	9.1	9.1
2.3	2.455	2.169	2.219	2.245	11.6	9.6	8.5
3.1	2.460	2.155	2.223	2.245	12.4	9.6	8.7
3.2	2.460	2.178	2.263	2.294	11.4	8.0	6.7
3.3	2.460	2.179	2.304	2.304	11.4	6.3	6.3

		Gmb			VTM		
PROJECT I.D.	Gmm	CONSTR.	3 MONTH	6 MONTH	CONSTR.	3 MONTH	6 MONTH
AL3							
1.1	2.472	2.190	2.279	2.285	11.4	7.8	7.5
1.2	2.472	2.217	2.280	2.315	10.3	7.7	6.3
1.3	2.472	2.204	2.281	2.285	10.8	7.7	7.6
2.1	2.487	2.259	2.335	2.350	9.2	6.1	5.5
2.2	2.487	2.232	2.333	2.319	10.2	6.2	6.7
2.3	2.487	2.238	2.293	2.316	10.0	7.8	6.9

		Gmb			VTM		
PROJECT I.D	Gmm	CONSTR.	3 MONTH	6 MONTH	CONSTR.	3 MONTH	6 MONTH
AL4							
1.1	2.525	2.289	2.310	2.327	9.3	8.5	7.8
1.2	2.525	2.289	2.325	2.326	9.3	7.9	7.9
1.3	2.525	2.281	2.342	2.347	9.7	7.3	7.0
2.1	2.528	2.199	2.372	2.366	13.0	6.2	6.4
2.2	2.528	2.185	2.364	2.285	13.6	6.5	9.6
2.3	2.528	2.235	2.335	2.330	11.6	7.6	7.8
3.1	2.514	2.275	2.379	2.359	9.5	5.3	6.2
3.2	2.514	2.241	2.379	2.351	10.8	5.4	6.5
3.3	2.514	2.302	2.397	2.382	8.4	4.6	5.2

		Gmb			VTM		
PROJECT I.D.	Gmm	CONSTR.	3 MONTH	6 MONTH	CONSTR.	3 MONTH	6 MONTH
AL5							
1.1	2.487	2.295	2.362	2.354	7.7	5.0	5.4
1.2	2.487	2.295	2.344	2.347	7.7	5.7	5.6
1.3	2.487	2.220	2.308	2.324	10.7	7.2	6.6
2.1	2.493	2.274	2.318	2.330	8.8	7.0	6.5
2.2	2.493	2.265	2.337	2.332	9.2	6.3	6.5
2.3	2.493	2.265	2.325	2.336	9.1	6.7	6.3
3.1	2.493	2.277	2.363	2.363	8.7	5.2	5.2
3.2	2.493	2.222	2.296	2.330	10.9	7.9	6.5
3.3	2.493	2.226	2.324	2.308	10.7	6.8	7.4

		Gmb			VTM		
PROJECT I.D	Gmm	CONSTR.	3 MONTH	6 MONTH	CONSTR.	3 MONTH	6 MONTH
AL6							
1.1	2.548	2.359	2.372	N/A	7.4	6.9	N/A
1.2	2.548	2.366	2.379	N/A	7.2	6.6	N/A
1.3	2.548	2.291	2.340	N/A	10.1	8.2	N/A
2.1	2.531	2.333	2.362	N/A	7.8	6.6	N/A
2.2	2.531	2.342	2.346	N/A	7.4	7.3	N/A
2.3	2.531	2.294	2.377	N/A	9.3	6.1	N/A

PROJ. I.D.	JOB LOCATION	MIX I.D.
AL1	MOULTON	12.5mm NMS COARSE GRADED SUPRPAVE
AL2	BOAZ	12.5mm NMS COARSE GRADED SUPRPAVE
AL3	SELMA	12.5mm NMS COARSE GRADED SUPRPAVE
AL4	MONROEVILLE	12.5mm NMS COARSE GRADED SUPRPAVE
AL5	ENTERPRISE	12.5mm NMS COARSE GRADED SUPRPAVE
AL6	OPELIKA	9.5mm NMS COARSE GRADED SUPRPAVE

FLORIDA, UTAH, WISCONSIN, AND INDIANA DATA

		Gmb			VTM		
PROJECT I.D	Gmm	CONSTR.	3 MONTH	6 MONTH	CONSTR.	3 MONTH	6 MONTH
FL1							
1.1	2.450	2.233	2.317	2.317	8.9	5.4	5.4
1.2	2.450	2.287	2.334	2.332	6.6	4.8	4.8
1.3	2.450	2.277	2.311	2.327	7.1	5.7	5.0
2.1	2.450	2.258	2.346	2.330	7.8	4.2	4.9
2.2	2.450	2.226	2.300	2.313	9.2	6.1	5.6
2.3	2.450	2.274	2.344	2.340	7.2	4.3	4.5

		Gmb			VTM		
PROJECT I.D	Gmm	CONSTR.	3 MONTH	6 MONTH	CONSTR.	3 MONTH	6 MONTH
IN1							
1.1	2.465	2.200	N/A	N/A	10.7	N/A	N/A
1.2	2.465	2.233	N/A	N/A	9.4	N/A	N/A
1.3	2.465	2.221	N/A	N/A	9.9	N/A	N/A
2.1	2.469	2.259	N/A	N/A	8.5	N/A	N/A
2.2	2.469	2.235	N/A	N/A	9.5	N/A	N/A
2.3	2.469	2.267	N/A	N/A	8.2	N/A	N/A
3.1	2.471	2.262	N/A	N/A	8.4	N/A	N/A
3.2	2.471	2.321	N/A	N/A	6.1	N/A	N/A
3.3	2.471	2.282	N/A	N/A	7.6	N/A	N/A

		Gmb			VTM		
PROJECT I.D	Gmm	CONSTR.	3 MONTH	6 MONTH	CONSTR.	3 MONTH	6 MONTH
UT1							
1.1	2.470	2.270	2.331	N/A	8.1	5.6	N/A
1.2	2.470	2.287	2.339	N/A	7.4	5.3	N/A
1.3	2.470	2.246	2.314	N/A	9.1	6.3	N/A
2.1	2.458	2.310	2.310	N/A	6.0	6.0	N/A
2.2	2.458	2.313	2.319	N/A	5.9	5.6	N/A
2.3	2.458	2.270	2.323	N/A	7.7	5.5	N/A
3.1	2.465	2.200	2.211	N/A	9.9	10.3	N/A
3.2	2.465	2.200	2.300	N/A	9.9	6.7	N/A
3.3	2.465	2.247	2.297	N/A	8.8	6.8	N/A

		Gmb			VTM		
PROJECT I.D	Gmm	CONSTR.	3 MONTH	6 MONTH	CONSTR.	3 MONTH	6 MONTH
IN2							
1.1	2.684	2.471	N/A	N/A	7.9	N/A	N/A
1.2	2.684	2.368	N/A	N/A	11.8	N/A	N/A
1.3	2.684	2.395	N/A	N/A	10.8	N/A	N/A
2.1	2.673	2.423	N/A	N/A	9.4	N/A	N/A
2.2	2.673	2.475	N/A	N/A	7.4	N/A	N/A
2.3	2.673	2.472	N/A	N/A	7.5	N/A	N/A
3.1	2.698	2.496	N/A	N/A	7.5	N/A	N/A
3.2	2.698	2.519	N/A	N/A	6.6	N/A	N/A
3.3	2.698	2.470	N/A	N/A	8.5	N/A	N/A

		Gmb			VTM		
PROJECT I.D	Gmm	CONSTR.	3 MONTH	6 MONTH	CONSTR.	3 MONTH	6 MONTH
WI1							
1.1	2.563	2.302	N/A	N/A	10.2	N/A	N/A
1.2	2.563	2.320	N/A	N/A	9.5	N/A	N/A
1.3	2.563	2.338	N/A	N/A	8.8	N/A	N/A
2.1	2.559	2.408	N/A	N/A	5.9	N/A	N/A
2.2	2.559	2.394	N/A	N/A	6.5	N/A	N/A
2.3	2.559	2.367	N/A	N/A	7.5	N/A	N/A
3.1	2.546	2.351	N/A	N/A	7.7	N/A	N/A
3.2	2.546	2.326	N/A	N/A	8.7	N/A	N/A
3.3	2.546	2.339	N/A	N/A	8.1	N/A	N/A

PROJ. I.D.	JOB LOCATION	MIX I.D.
FL1	PENSACOLA	9.5 NMS Coarse Graded Superpave
UT1	SALT LAKE CITY	12.5 NMS Fine Graded Superpave
IN1	BROWNSBURG	
IN2	FORT WAYNE	
WI1	MILWAUKEE	12.5 NMS Coarse Graded Superpave

COLORADO DATA

		Gmb			VTM		
PROJECT I.D	Gmm	CONSTR.	3 MONTH	6 MONTH	CONSTR.	3 MONTH	6 MONTH
CO1							
1.1	2.451	2.250	2.325	N/A	8.2	5.1	N/A
1.2	2.451	2.236	2.306	N/A	8.7	5.9	N/A
1.3	2.451	2.238	2.313	N/A	8.7	5.6	N/A
2.1	2.436	2.341	2.381	N/A	3.9	2.3	N/A
2.2	2.436	2.316	2.370	N/A	4.9	2.7	N/A
2.3	2.436	2.280	2.345	N/A	6.4	3.8	N/A
3.1	2.451	2.329	2.388	N/A	5.0	2.5	N/A
3.2	2.451	2.330	2.370	N/A	4.9	3.3	N/A
3.3	2.451	2.324	2.390	N/A	5.2	2.5	N/A

		Gmb			VTM		
PROJECT I.D	Gmm	CONSTR.	3 MONTH	6 MONTH	CONSTR.	3 MONTH	6 MONTH
CO2							
1.1	2.428	2.336	2.395	N/A	3.8	1.4	N/A
1.2	2.428	2.299	2.362	N/A	5.3	2.7	N/A
1.3	2.428	2.304	2.360	N/A	5.1	2.8	N/A
2.1	2.436	2.326	2.375	N/A	4.5	2.5	N/A
2.2	2.436	2.320	2.349	N/A	4.8	3.6	N/A
2.3	2.436	2.302	2.356	N/A	5.5	3.3	N/A
3.1	2.449	2.295	2.335	N/A	6.3	4.7	N/A
3.2	2.449	2.320	2.353	N/A	5.3	3.9	N/A
3.3	2.449	2.318	2.355	N/A	5.4	3.8	N/A

		Gmb			VTM		
PROJECT I.D	Gmm	CONSTR.	3 MONTH	6 MONTH	CONSTR.	3 MONTH	6 MONTH
CO3							
1.1	2.435	2.283	2.302	N/A	6.3	5.5	N/A
1.2	2.435	2.257	2.280	N/A	7.3	6.4	N/A
1.3	2.435	2.250	2.279	N/A	7.6	6.4	N/A
2.1	2.435	2.276	2.326	N/A	6.5	4.5	N/A
2.2	2.435	2.287	2.330	N/A	6.1	4.3	N/A
2.3	2.435	2.280	2.286	N/A	6.4	6.1	N/A

		Gmb			VTM		
PROJECT I.D	Gmm	CONSTR.	3 MONTH	6 MONTH	CONSTR.	3 MONTH	6 MONTH
CO4							
1.1	2.501	2.335	2.337	N/A	6.6	6.6	N/A
1.2	2.501	2.343	2.334	N/A	6.3	6.7	N/A
1.3	2.501	2.367	2.363	N/A	5.4	5.5	N/A
2.1	2.497	2.332	2.346	N/A	6.6	6.0	N/A
2.2	2.497	2.337	2.292	N/A	6.4	8.2	N/A
2.3	2.497	2.362	2.323	N/A	5.4	7.0	N/A
3.1	2.510	2.338	2.336	N/A	6.9	6.9	N/A
3.2	2.510	2.351	2.351	N/A	6.3	6.3	N/A
3.3	2.510	2.331	2.332	N/A	7.1	7.1	N/A

		Gmb			VTM		
PROJECT I.D	Gmm	CONSTR.	3 MONTH	6 MONTH	CONSTR.	3 MONTH	6 MONTH
CO5							
1.1	2.451	2.289	2.335	N/A	6.6	4.7	N/A
1.2	2.451	2.249	2.308	N/A	8.2	5.8	N/A
1.3	2.451	2.272	2.323	N/A	7.3	5.2	N/A
2.1	2.462	2.244	2.281	N/A	8.9	7.3	N/A
2.2	2.462	2.247	2.289	N/A	8.7	7.0	N/A
2.3	2.462	2.253	2.292	N/A	8.5	6.9	N/A
3.1	2.462	2.238	2.290	N/A	9.1	7.0	N/A
3.2	2.462	2.239	2.292	N/A	9.0	6.9	N/A
3.3	2.462	2.245	2.293	N/A	8.8	6.8	N/A

PROJ. I.D.	JOB LOCATION	MIX I.D.
CO1	FRISCO	12.5mm NMS FINE GRADED SUPERPAVE
CO2	GLENWOOD SPRINGS #1	12.5mm NMS FINE GRADED SUPERPAVE
CO3	GRAND JUNCTION	12.5mm NMS FINE-COARSE GRADED SUPERPAVE
CO4	MEEKER	12.5mm NMS COARSE GRADED SUPERPAVE
CO5	GLENWOOD SPRINGS #2	12.5mm NMS FINE GRADED SUPERPAVE

KENTUCKY AND MICHIGAN DATA

		Gmb			VTM		
PROJECT I.D	Gmm	CONSTR.	3 MONTH	6 MONTH	CONSTR.	3 MONTH	6 MONTH
KY1							
1.1	2.480	2.125	N/A	N/A	14.3	N/A	N/A
1.2	2.480	2.158	N/A	N/A	13.0	N/A	N/A
1.3	2.480	2.166	N/A	N/A	12.7	N/A	N/A
2.1	2.453	2.025	N/A	N/A	17.4	N/A	N/A
2.2	2.453	2.125	N/A	N/A	13.4	N/A	N/A
2.3	2.453	2.059	N/A	N/A	16.1	N/A	N/A

		Gmb			VTM		
PROJECT I.D	Gmm	CONSTR.	3 MONTH	6 MONTH	CONSTR.	3 MONTH	6 MONTH
KY2							
1.1	2.488	2.286	N/A	N/A	8.1	N/A	N/A
1.2	2.488	2.288	N/A	N/A	8.1	N/A	N/A
1.3	2.488	2.292	N/A	N/A	7.9	N/A	N/A
2.1	2.468	2.292	N/A	N/A	7.1	N/A	N/A
2.2	2.468	2.280	N/A	N/A	7.6	N/A	N/A
2.3	2.468	2.272	N/A	N/A	8.0	N/A	N/A

		Gmb			VTM		
PROJECT I.D	Gmm	CONSTR.	3 MONTH	6 MONTH	CONSTR.	3 MONTH	6 MONTH
KY3							
1.1	2.484	2.285	N/A	N/A	8.0	N/A	N/A
1.2	2.484	2.247	N/A	N/A	9.5	N/A	N/A
1.3	2.484	2.327	N/A	N/A	6.3	N/A	N/A
2.1	2.481	2.274	N/A	N/A	8.3	N/A	N/A
2.2	2.481	2.317	N/A	N/A	6.6	N/A	N/A
2.3	2.481	2.238	N/A	N/A	9.8	N/A	N/A
3.1	2.486	2.330	N/A	N/A	6.3	N/A	N/A
3.2	2.486	2.342	N/A	N/A	5.8	N/A	N/A
3.3	2.486	2.332	N/A	N/A	6.2	N/A	N/A

		Gmb			VTM		
PROJECT I.D	Gmm	CONSTR.	3 MONTH	6 MONTH	CONSTR.	3 MONTH	6 MONTH
MI1							
1.1	2.447	2.263	N/A	N/A	7.5	N/A	N/A
1.2	2.447	2.272	N/A	N/A	7.1	N/A	N/A
1.3	2.447	2.256	N/A	N/A	7.8	N/A	N/A
2.1	2.440	2.275	N/A	N/A	6.7	N/A	N/A
2.2	2.440	2.311	N/A	N/A	5.3	N/A	N/A
2.3	2.440	2.244	N/A	N/A	8.0	N/A	N/A
3.1	2.458	2.247	N/A	N/A	8.6	N/A	N/A
3.2	2.458	2.257	N/A	N/A	8.2	N/A	N/A
3.3	2.458	2.256	N/A	N/A	8.2	N/A	N/A

		Gmb			VTM		
PROJECT I.D	Gmm	CONSTR.	3 MONTH	6 MONTH	CONSTR.	3 MONTH	6 MONTH
MI2							
1.1	2.468	2.288	N/A	N/A	7.3	N/A	N/A
1.2	2.468	2.336	N/A	N/A	5.4	N/A	N/A
1.3	2.468	2.282	N/A	N/A	7.5	N/A	N/A
2.1	2.467	2.291	N/A	N/A	7.1	N/A	N/A
2.2	2.467	2.297	N/A	N/A	6.9	N/A	N/A
2.3	2.467	2.278	N/A	N/A	7.6	N/A	N/A

		Gmb			VTM		
PROJECT I.D	Gmm	CONSTR.	3 MONTH	6 MONTH	CONSTR.	3 MONTH	6 MONTH
MI3							
1.1	2.478	2.263	N/A	N/A	8.7	N/A	N/A
1.2	2.478	2.272	N/A	N/A	8.3	N/A	N/A
1.3	2.478	2.271	N/A	N/A	8.3	N/A	N/A
2.1	2.472	2.294	N/A	N/A	7.2	N/A	N/A
2.2	2.472	2.215	N/A	N/A	10.4	N/A	N/A
2.3	2.472	2.253	N/A	N/A	8.9	N/A	N/A
3.1	2.497	2.255	N/A	N/A	9.7	N/A	N/A
3.2	2.497	2.300	N/A	N/A	7.9	N/A	N/A
3.3	2.497	2.282	N/A	N/A	8.6	N/A	N/A

PROJ. I.D.	JOB LOCATION	MIX I.D.
KY1	LEBENON	
KY2	OLIVE HILL	
KY3	FRANKFORT	
MI1	BROOKLYN	9.5 NMS FINE GRADED SUPERPAVE
MI2	LANSING	9.5 NMS FINE GRADED SUPERPAVE
MI3	DETROIT	12.5 NMS COARSE GRADED SUPERPAVE

Appendix B-2

Reduced NCAT Data as Used in the Analysis

PROJECT I.D.	Time (months)	VA (%)	MAAT (F)	Viscosity (Mega-poises)
AL1-1	0	10.5	60.5	1.96
	3	6.0	60.5	1.96
	6	3.8	60.5	1.96
AL1-2	0	10.4	60.5	1.96
	3	7.8	60.5	1.96
	6	5.8	60.5	1.96
AL1-3	0	10.9	60.5	1.96
	3	6.4	60.5	1.96
	6	5.1	60.5	1.96
AL2-1	0	14.6	60.5	1.96
	3	11.5	60.5	1.96
	6	9.9	60.5	1.96
AL2-2	0	11.3	60.5	1.96
	3	9.4	60.5	1.96
	6	8.8	60.5	1.96
AL2-3	0	11.7	60.5	1.96
	3	8.0	60.5	1.96
	6	7.2	60.5	1.96
AL3-1	0	10.8	64.5	3.83
	3	7.7	64.5	3.83
	6	7.1	64.5	3.83
AL3-2	0	9.8	64.5	3.83
	3	6.7	64.5	3.83
	6	6.4	64.5	3.83
AL4-1	0	9.4	66.3	1.96
	3	7.9	66.3	1.96
	6	7.6	66.3	1.96
AL5-1	0	8.7	65	1.96
	3	6.0	65	1.96
	6	5.9	65	1.96
AL5-2	0	9.0	65	1.96
	3	6.7	65	1.96
	6	6.4	65	1.96
AL5-3	0	10.1	65	1.96
	3	6.6	65	1.96
	6	6.4	65	1.96
AL6-1	0	8.2	62.5	1.96
	3	7.2	62.5	1.96
AL6-2	0	8.2	62.5	1.96
	3	6.7	62.5	1.96

PROJECT I.D.	Time	VA	MAAT	Viscosity
	(months)	(%)	(F)	(Mega-poises)
CO1-1	0	8.5	44.5	0.42
	3	5.5	44.5	0.42
CO1-2	0	5.1	44.5	0.42
	3	2.9	44.5	0.42
CO1-3	0	5.0	44.5	0.42
	3	2.8	44.5	0.42
CO2-1	0	4.7	42.5	0.77
	3	2.3	42.5	0.77
CO2-2	0	4.9	42.5	0.77
	3	3.1	42.5	0.77
CO2-3	0	5.7	42.5	0.77
	3	4.1	42.5	0.77
CO3-1	0	7.1	53.2	2.15
	3	6.1	53.2	2.15
CO3-2	0	6.3	53.2	2.15
	3	5.0	53.2	2.15
CO4-3	0	6.8	45.7	0.77
	3	6.8	45.7	0.77
CO5-1	0	7.4	42.5	0.77
	3	5.2	42.5	0.77
CO5-2	0	8.7	42.5	0.77
	3	7.1	42.5	0.77
CO5-3	0	9.0	42.5	0.77
	3	6.9	42.5	0.77
FL1-1	0	7.5	67.7	2.27
	3	5.3	67.7	2.27
	6	5.1	67.7	2.27
FL1-2	0	8.1	67.7	2.27
	3	4.9	67.7	2.27
	6	5.0	67.7	2.27
UT1-1	0	8.2	52	0.40
	3	5.7	52	0.40
UT1-2	0	6.5	52	0.40
	3	5.7	52	0.40
UT1-3	0	9.5	52	0.40
	3	7.9	52	0.40

Guide for Mechanistic-Empirical Design
OF NEW AND REHABILITATED PAVEMENT STRUCTURES

FINAL DOCUMENT

APPENDIX CC-3:
UPDATED TRAFFIC FREQUENCY CALCULATION FOR ASPHALT LAYERS

NCHRP

Prepared for
National Cooperative Highway Research Program
Transportation Research Board
National Research Council

Submitted by
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Research into the subject area covered in this Appendix was conducted at ASU. The authors of this appendix are Dr. M. W. Witczak, Dr. M. W. Mirza, and Dr. J. Uzan.

Foreword

This appendix is a supporting reference to the pavement design guidance presented in PART 3, Chapters 3 and 6 of the Design Guide.

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APPENDIX CC-3:
UPDATED TRAFFIC FREQUENCY CALCULATION FOR ASPHALT LAYERS

BACKGROUND

Accurate pavement performance prediction is widely recognized by pavement community as one of the most important, complex and difficult task to pursue. The importance of such a goal cannot be overemphasized because this will result in better roads with the saving of millions of dollars. Performance prediction methodology can help in optimizing the selection of proper pavement materials and layer thickness for the pavement structure.

Historically, the analysis of pavement systems dates back to the late 1920's when empirical design methods were first introduced. The disadvantage of such empirical techniques is that they cannot provide accurate prediction for material, environment and traffic conditions that differ from those for which the models were originally developed. It was not until sixties that mechanistic-empirical procedures started to be implemented for the pavement analysis and design. These techniques introduced use of pavement response in terms of stresses and strains as major causative factors affecting pavement performance.

Interaction among pavement layers (material properties and thickness), environmental condition, applied load and variability of these factors will dictate when and where distress will initiate as well as the rate these distresses will progress. Among all the factors mentioned above for the implementation of the mechanistic approach, knowledge of material properties plays a key role in the determination of the response parameters such as the stresses and strains.

For a multi-layer pavement system, layers in the pavement system are comprised of different materials. These include bituminous material, unbound granular material and stabilized material such as the cement stabilized. The behavior of these materials depends upon several factors that need to be accounted to properly characterize the behavior of these materials in the pavement system.

In the case of the bituminous materials for a given mix type, the two most important factors that effects the materials behavior are the temperature and the rate of loading. In the 2002 Design Guide bituminous material is defined by the complex modulus. Enhanced integrated climatic model (EICM) is used to determine the temperature within the asphalt layers. Rate of loading or the frequency of applied load is a function of the traffic type (axle configuration), speed of the vehicle and the pavement structure. This document covers the approach that is used in the 2002 Design Guide for the determination of the loading frequency. This loading frequency will then be used for the determination of the complex modulus of the asphalt layers.

FACTORS EFFECTING THE LOADING FREQUENCY

In order to determine complex modulus (E*) of the asphalt layers within the pavement system, it is important that the frequency of loading should be simulated that actually occur in the field at

all depths. When considering the stress at a point within the pavement system, a wheel load at a considerable distance from that point will have no effect and the stress at that point is zero. When the load starts to move towards the point under consideration the stress increases and becomes maximum, when the load is directly above that point. In general, it is therefore reasonable to assume the stress pulse to be haversine, the duration of which depends upon the vehicle speed and the depth of the point below the pavement surface. The following relationship relates the time of load to the vehicle speed (velocity) and the effective length of the pulse.

$$t = \frac{L_{eff}}{17.6 v_s} \tag{1}$$

Where

t = time of load (sec)
L_{eff} = effective length (inch)
v_s = velocity (mph)

The effective length at a given point in the above equation is the duration of the haversine stress pulse and is dependent upon the layer properties and the loading configuration (axle spacing and the radius of contact). Thus, knowing the effective length of the stress pulse and the vehicle velocity, time of loading can be estimated from the above equation at any depth within the pavement system. Finally, the procedure for computing the loading frequency (f) is based on the base time of the loading pulse, according to the following relationship:

$$f = \frac{1}{t} \tag{2}$$

The frequency is defined in cycles per second or Hz.

EFFECTIVE LENGTH CALCULATIONS

The effective length is the length that defines the extent of the stress pulse at a specified depth within the pavement system. This is schematically shown in Figure 1.

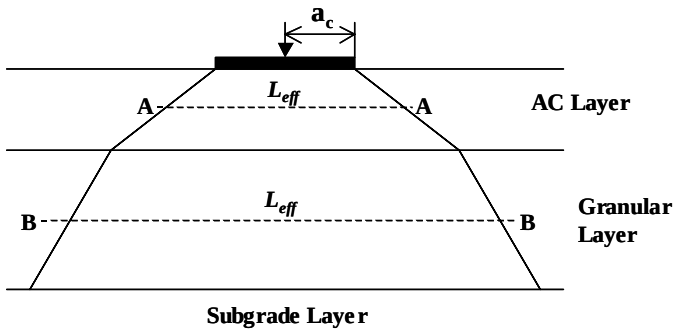


Figure 1: Effective Length Concept within the Pavement System

Figure 1 shows a typical three-layer pavement structure comprised of surface, base and a subgrade layer. The applied load on top of the pavement surface produces stresses in the underlying layers. The sloped lines show the distribution of these stresses with depth. The spread or the steepness of the stress distribution lines is a function of the stiffness. Stiffer materials tends to distribute the stresses over a much wider area compared to less stiff material. In Figure 7, asphalt being much stiffer compared to unbound granular layer results in flatter slope compared to granular material. This is because asphalt being a stiffer material compared to granular layer tends to distribute the stresses over a wider area compared to the granular base.

AA shows the length of the stress pulse within the asphalt layer at the mid-depth, whereas BB gives the effective length of the stress pulse in the granular base. As mentioned earlier, the slope of the stress distribution is a function of the stiffness of the layers. The slope value as a function of material stiffness is needed for the estimation of the effective length. Since at present no relationship exist to relate the stiffness to the slope of the stress distribution. A simplified approach was used to overcome this problem. A concept of equivalent thickness was used in the analysis and is discussed below.

Odemark first established the concept of equivalent thickness. Odemark's method is based on the assumption that the stresses and strains below a layer depend on the stiffness of that layer only. If the thickness, modulus and Poisson's ratio of a layer are changed, but the stiffness remains unchanged, the stresses and strains below the layer should also remain (relatively) unchanged. The stiffness of a layer is proportional to:

$$\frac{h^3 E}{1-\upsilon^2} \tag{3}$$

In the above equation, h is the thickness, E is the modulus and υ is the Poisson's ratio of the layer. The transformation shown in Figure 2 should, therefore, not influence the stresses or strains in layer 2 provided that:

$$\frac{h_1^3 E_1}{1-\upsilon_1^2} = \frac{h_e^3 E_2}{1-\upsilon_2^2} \qquad or \qquad h_e = h_1 \sqrt[3]{\frac{E_1}{E_2} \times \frac{1-\upsilon_2^2}{1-\upsilon_1^2}} \tag{4}$$

Where h_e is known as the "equivalent" thickness (the method is also called the "method of equivalent thickness" or MET).

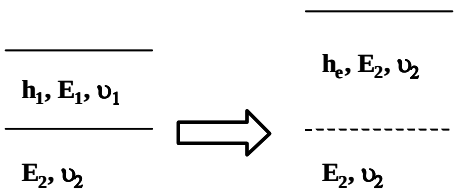


Figure 2: Odemark's Transformation of a Layered System

If in Equation 4, Poisson's ratio is assumed to be same for all layers (and in practice Poisson's ratio is seldom known with any degree of accuracy), the transformation may be written as:

$$h_e = h_1 \sqrt[3]{\frac{E_1}{E_2}} \tag{5}$$

Using the concept presented by Odemark, similar approach was applied to three-layer pavement structure and is shown in Figure 3. The pavement layers: asphalt and granular base layers are transformed into an equivalent subgrade modulus. The total thickness of the transformed section is given by equivalent thickness, h_e.

The next step is to estimate the stress distribution for the transformed section. The transformed section has the modulus of the subgrade and has an equivalent thickness of h_e. For simplicity the stress distribution for a typical subgrade soil is assumed to be at 45 degree and is shown in Figure 4. Using the stress distribution the effective length can be computed at any depth within the transformed pavement structure.

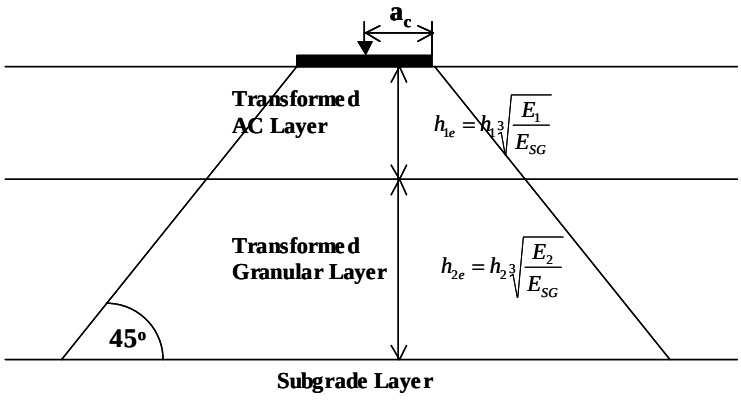


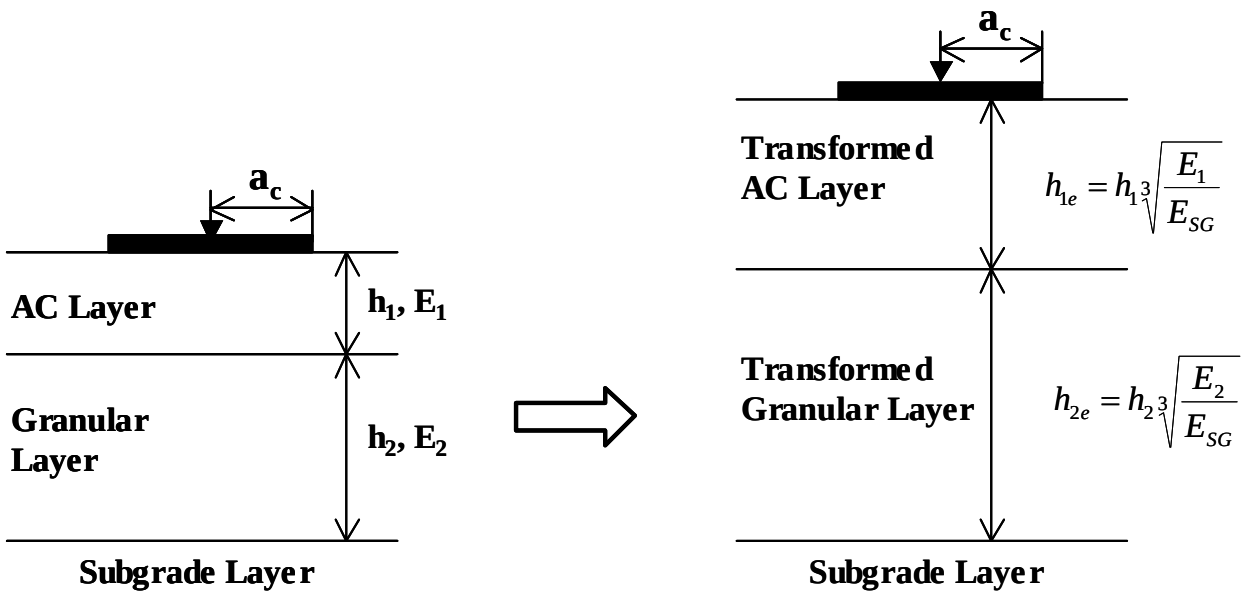
Figure 4: Effective Length Calculation using Transformed Thickness

EFFECTIVE DEPTH COMPUTATION USING TRANSFORMED SECTION

For any pavement layer the effective length of stress pulse is computed at a specific depth for which the loading frequency is needed for the computation of the modulus. This depth is the transformed depth and is termed as effective depth (Z_{eff}).

The effective depth is computed by the following relationship:

$$Z_{eff} = \sum_{i=1}^{n-1} \left(h_i \sqrt[3]{\frac{E_i}{E_{SG}}} \right) + h_n \sqrt[3]{\frac{E_n}{E_{SG}}} \tag{6}$$



$$h_e = h_{1e} + h_{2e} = h_1 \sqrt[3]{\frac{E_1}{E_{SG}}} + h_2 \sqrt[3]{\frac{E_2}{E_{SG}}} = \sum_{i=1}^{i=n-1} h_i \sqrt[3]{\frac{E_i}{E_{SG}}}$$

Figure 3: Equivalent Thickness Calculation

Where h_n is the thickness of the layer of interest (layer n)at which the computation is being made. If the effective depth is needed at the mid-depth of the third layer in the pavement structure, then $n = 3$. The following equation can be used for the computation of the effective depth.

$$Z_{eff} = \sum_{i=1}^{2}\left(h_i \sqrt[3]{\frac{E_i}{E_{SG}}} \right) + \frac{h_3}{2}\sqrt[3]{\frac{E_n}{E_{SG}}} \quad (7)$$

Where $h_n = h_3/2$ is the mid-depth of the third layer. In case of tensile strains at the bottom of the asphalt layer and if the modulus is required at the bottom of the third layer, when n = 3. Equation 6 can be rewritten as:

$$Z_{eff} = \sum_{i=1}^{2}\left(h_i \sqrt[3]{\frac{E_i}{E_{SG}}} \right) + h_3\sqrt[3]{\frac{E_n}{E_{SG}}} \quad (8)$$

In the above equation, h_3 represents the bottom of the third layer.

COMPUTATION OF EFFECTIVE LENGTH

The effective length of the load pulse at a specific depth under the wheel load is a function of the axle configuration. The approach of calculating the effective length of the loading pulse is based on the simplifying assumptions, inspired from the US Corps of Engineers approach for computing the Equivalent Single Axle Load (ESAL). This is based upon the following assumptions.

(a) No overlap occurs between axles at effective depth smaller than the free distance between axles.
(b) Full (Complete) overlap occurs at effective depths larger than two times the distance between axles.
(c) In the interval between depths defined in (a) and (b), the effective length varies linearly with depth on a log-log scale.

Based upon the above assumptions the effective length computation is given below as a function of axle type.

Single axle

In case of a single axle no overlap of stresses occur at any depth because any other axle is very far. This is schematically shown in Figure 5 for a typical three-layer pavement structure. As mentioned earlier the first step is the transformation of the pavement structure that has a modulus of subgrade and the total pavement thickness is transformed into an equivalent thickness, h_e. For the transformed structure the stress is distributed at angle of 45 degree as shown in Figure 5.

The effective length or the length of the stress pulse at any depth is defined by the following equation:

$$L_{eff} = 2.(a_c + Z_{eff}) \quad (9)$$

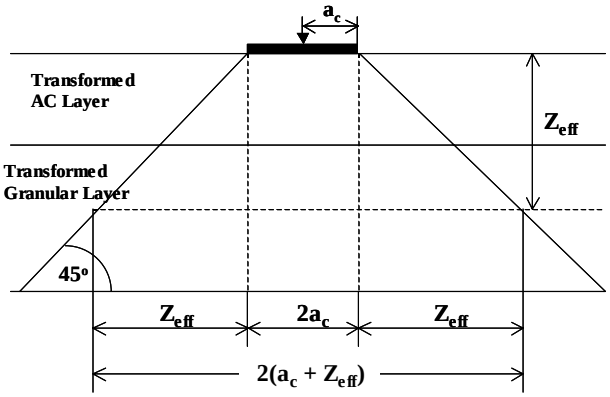


Figure 5: Effective Length Computation for Single Axle Load Configuration

Knowing the effective length can then be used with Equation 1 to estimate the time of load. This is then used with Equation 2 to estimate the frequency of load for the single axle configuration.

With single axle configuration, only one stress pulse is generated at a given point with the passage of single axle. This may not be true with other axle configurations when multiple stress pulses could be generated. Since only one stress pulse is generated to account for one single axle repetition, no multiplier is needed for single axle configuration. That is, the traffic multiplier is one ($N = 1$). The traffic multiplier for other axle configurations is discussed in the following section.

Tandem, Tridem and Quad axle

The effective length and the traffic multiplier for the single axle are discussed in the previous section. This section covers the details of the effective length and the traffic multiplier calculations for the tandem axle. Finally, a general relationship was developed for effective length and traffic multiplier calculation, which is applicable for the tridem and quad axles.

Figure 6 shows the layout of the tandem wheel configuration. "S_T" defines the tandem spacing between the axles in the direction of travel. Similar to the single axle configuration, for the calculation of effective length and the traffic multiplier, the pavement layers are transformed into equivalent subgrade modulus resulting into an equivalent thickness, h_e. The load applied due to the tandem axle is transferred to the pavement system and is distributed at an angle of 45 degrees as in the case of single axle configuration and is shown in Figure 6.

Figure 6 shows two stress envelopes are formed because of the tandem axle configuration. No overlap of stresses due to the applied load occurs close to the pavement surface and distinct peaks of stress pulse can be observed. As we go deeper into the pavement, stresses start to overlap and a full (complete) overlap occurs at effective depths larger than two times the distance between axles ($2. S_T$). Another important observation that can be made is with regards to traffic multiplier. Near the pavement surface, where no overlap occurs, two distinct stress pulses will be observed. In this situation the traffic repetitions must be

multiplied by a factor of two. This is needed since one repetition of tandem axle results in two distinct stress pulses. At depths greater

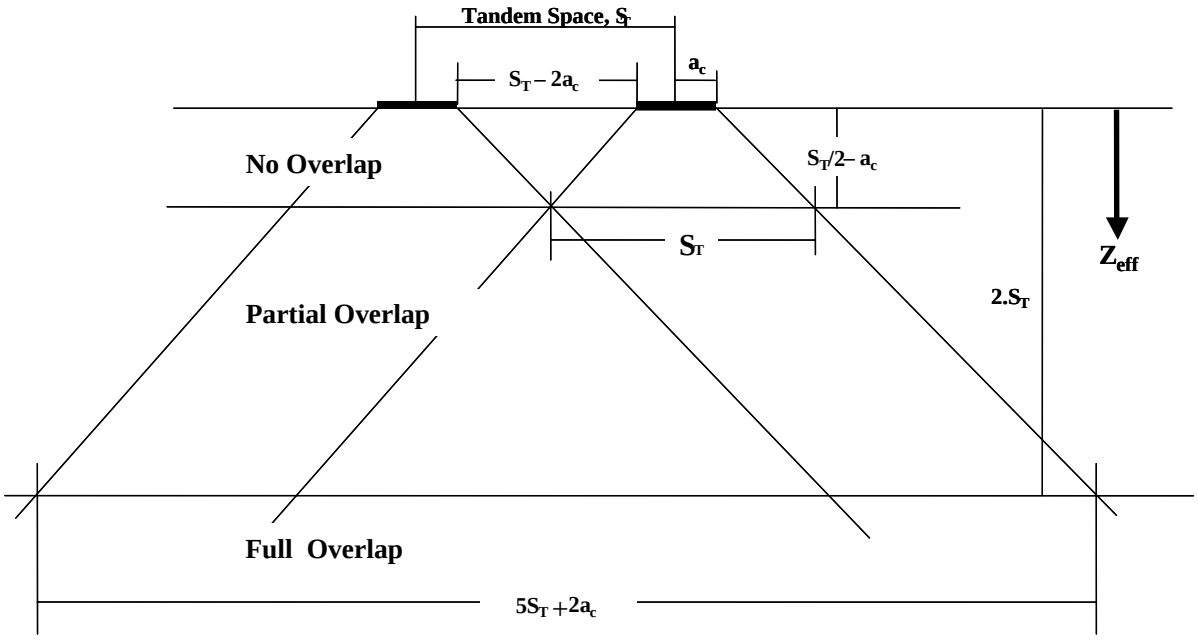


Figure 6: Effective Length Computation for Tandem Axle Load Configuration

than $2S_T$, where full overlap occurs the two axles will generate only one resultant stress pulse. The traffic multiplier in this situation is one, (*N =1*). Between these two limits, the effective length of the stress pulse and the traffic multiplier are the function of the amount of overlap of the stress pulses caused by tandem axle configuration.

Based upon the above discussion, it can be observed that three distinct conditions occur under the tandem axle configuration. These include: no overlap, partial overlap and full overlap. Each of these conditions is discussed below.

Condition #1

If $\mathbf{Z_{eff} < S_T/2 - a_c}$ (No overlap of stresses – see Figure 6)

In this condition no overlap of stresses occurs because of the tandem wheels. The effective length for this condition is defined by the following equation:

$$L_{eff} = 2.(a_c + Z_{eff}) \qquad (10)$$

As mentioned earlier, two distinct stress pulses can be observed resulting from the tandem axle configuration. In this situation the traffic count for the tandem axle is multiplied by 2, in order to account for the twin peaks at this depth interval.

Condition #2

If $S_T/2 - a_c < Z_{eff} < 2.S_T$ (Partial overlap of stresses – see Figure 6)

As shown in Figure 6, between these limits the stress pulses starts to overlap and the full overlap is achieved at a depth of $2.S_T$. At $S_T/2 - a_c$ the effective length can mathematically be defined as S_T, whereas, at a depth of $2.S_T$, the effective length is $5S_T + 2a_c$. This is shown in Figure 6 and also plotted in Figure 7.

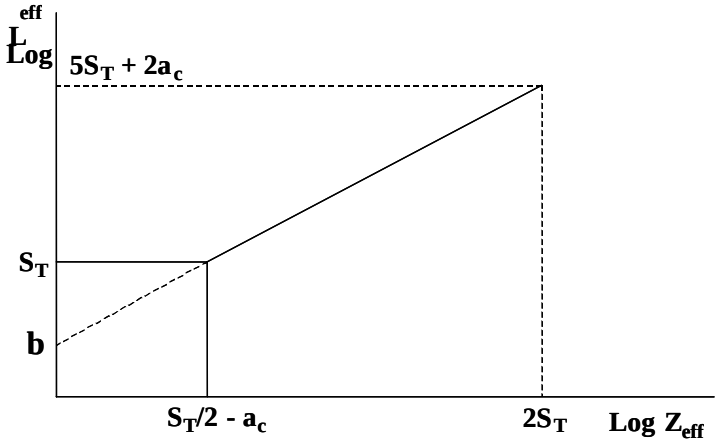


Figure 7: Relationship Between Effective Length and Effective Depth

The straight line in Figure 7 can be represented by the following linear relationship.

$$\log L_{eff} = a \log Z_{eff} + b \tag{11}$$

Where "a" is the slope of the line and "b" is the intercept. These parameters for the straight line can be defined as:

$$a = \frac{\log \frac{5S_T + 2a_c}{S_T}}{\log \frac{2S_T}{\frac{S_T}{2} - a_c}} \tag{12}$$

$$b = \log S_T - a \log\left(\frac{S_T}{2} - a_c\right) \tag{13}$$

The slope (a) and the intercept (b) are functions of the tandem spacing and the radius of contact for the tandem wheel configuration. These values can be used with Equation 11 to estimate the effective length as a function of effective depth.

Condition #3

If $\mathbf{Z_{eff} => 2.S_T}$ (Full overlap of stresses – see Figure 6)

As stated earlier a full overlap occurs at a depth equal to or greater than $\mathbf{2.S_T}$. The effective length at a depth greater than $2S_T$ is given by:

$$L_{eff} = S_T + 2a_c + 2Z_{eff} \tag{14}$$

The effective length remains constant beyond this depth and is also shown in Figure 7. Since full overlap occurs beyond this depth only single resultant stress pulse occurs. Based upon this the traffic multiplier is one (*N = 1*). Based upon the above discussion, similar to the effective length analysis, three conditions exist for traffic multiplier. These three conditions are shown in Figure 8.

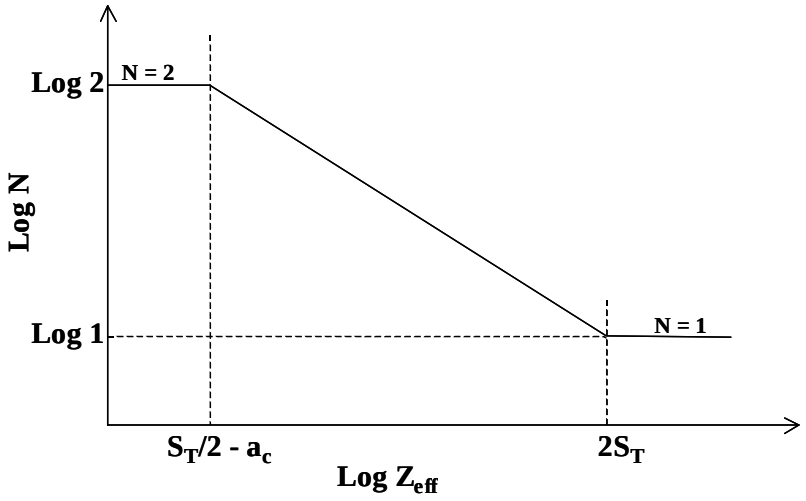


Figure 8: Traffic Multiplier as a Function of Depth

At a depth when no overlap of the stresses occurs, the two axles resulted in two distinct peaks resulting in a traffic multiplier of 2 (N = 2). However, when the full overlap occurs the two axles will result in a single stress pulse, since the stress pulses fully overlap. The traffic multiplier at this time is one (N = 1). The traffic multiplier for the partial overlap is given by the following linear relationship.

$$\log N = a \log Z_{eff} + b \tag{15}$$

Where "a" is the slope of the line and "b" is the intercept. These parameters for the straight line can be defined as:

$$a = \frac{\log 0.5}{\log \frac{2S_T}{\frac{S_T}{2} - a_c}} \tag{16}$$

$$b = \log 2 - a \log\left(\frac{S_T}{2} - a_c\right) \tag{17}$$

In the above equation, N is the number of peaks. Equations 15 thru 17 are for tandem axle configuration. Using the same approach a generalized solution is developed to account for tridem and quad axles. The generalized equations for the three conditions are given below.

Condition #1

If $\mathbf{Z_{eff} <= S_T/2 - a_c}$ (No overlap of stresses – see Figure 6)

$$L_{eff} = 2.(a_c + Z_{eff}) \tag{18}$$

As in the case of tandem axle, the number of stress peaks (N) is equal to the number of axles (*n*). This is also applicable for tridem and quad axle situation. That is, for tridem axle the traffic count is multiplied by three and in the case of quad axle the traffic count is multiplied by four.

Condition #2

If $\mathbf{S_T/2 - a_c < Z_{eff} < 2.(n\text{-}1)\ S_T}$ (Partial overlap of stresses)

$$\log L_{eff} = a \log Z_{eff} + b \tag{19}$$

Where "a" is the slope of the line and "b" is the intercept. These parameters for the straight line can be defined as:

$$a = \frac{\log \frac{5S_T(n-1) + 2a_c}{S_T}}{\log \frac{2S_T(n-1)}{\frac{S_T}{2} - a_c}} \tag{20}$$

$$b = \log S_T - a \log\left(\frac{S_T}{2} - a_c\right) \tag{21}$$

Where "*n*" in the above equation is the number of axles. The traffic multiplier is given by the following relationship.

$$\log N = a \log Z_{eff} + b \tag{22}$$

Where "a" is the slope of the line and "b" is the intercept. These parameters for the straight line can be defined as:

$$a = \frac{\log \frac{1}{n}}{\log \frac{2S_T(n-1)}{\frac{S_T}{2} - a_c}} \tag{23}$$

$$b = \log n - a \log\left(\frac{S_T}{2} - a_c\right) \tag{24}$$

Condition #3

If $\mathbf{Z_{eff} => 2.S_T\,(n\text{-}1)}$ (Full overlap of stresses)

$$L_{eff} = S_T(n-1) + 2a_c + 2Z_{eff} \tag{25}$$

Number of peaks N=1.

GRAPHICAL REPRESENTATION OF EFFECTIVE LENGTH AND TRAFFIC MULTIPLIER

The purpose of this analysis is to see the general trend of effective length and the traffic multiplier with depth. Trends in Figure 9 are developed for a_c = 3.5 inch and S_T = 50 inches. The trends were developed for single, tandem, tridem and quad axle configuration using the equations discussed earlier.

Figure 9 shows that the relationship between the effective length and effective depth is relatively independent of axle type. This is an important consideration since the relationship could only be established for one axle type and can be used for other axles. This will result in significant saving in computational time. Within the 2002 Design Guide the tandem axle is used as a standard axle to establish this relationship.

The second analysis was carried out to estimate the number of stress pulses as a function of depth. Figure 10 shows the result of the analysis. In case of single axle, number of peaks is always one, since no overlap of stresses occurs because of the single wheel configurations. In case of the tandem, tridem and quad axles as is discussed earlier numbers of peaks vary with depth because of the stress overlap. In all cases when the full overlap occurs number of peaks is always one.

From the results shown in Figure 9 for effective length, time of load is calculated for a velocity of 45 mph using Equation 1. The frequency is then determined from Equation 2 and is plotted in Figure 11. As expected all curves representing different axle configurations relatively falls on top of each other.

Thus, in the computational analysis frequency is only estimated for one axle type. This will result in a significant saving in the 2002 Design Guide software for estimating the frequency of load for the asphalt bound layers.

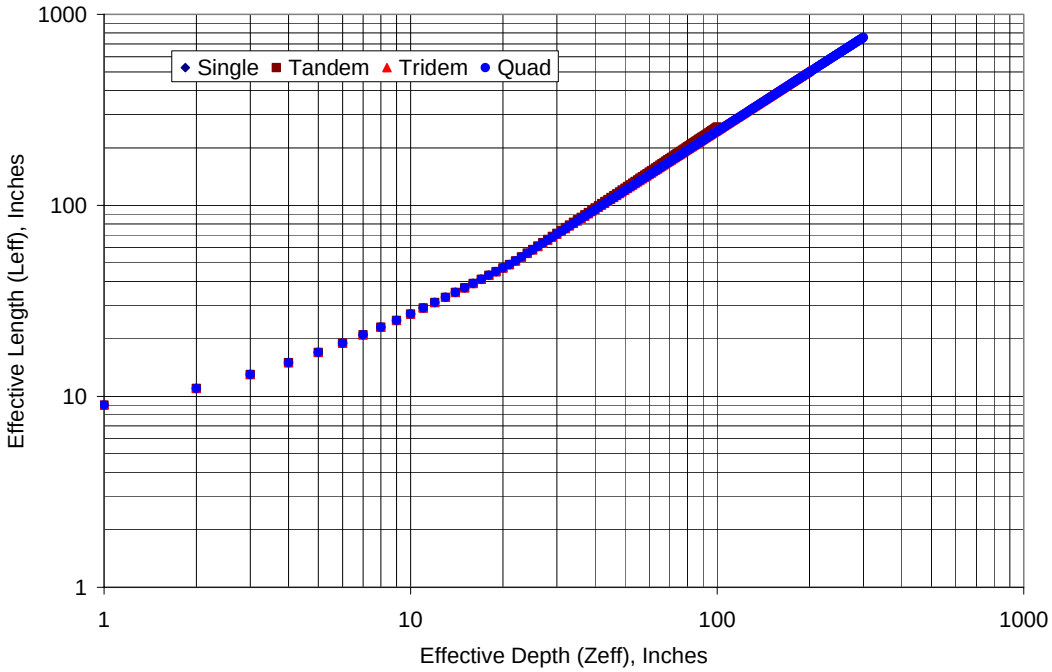


Figure 9: Relationship Between Effective Length with Effective Depth as Function of Axle Configuration

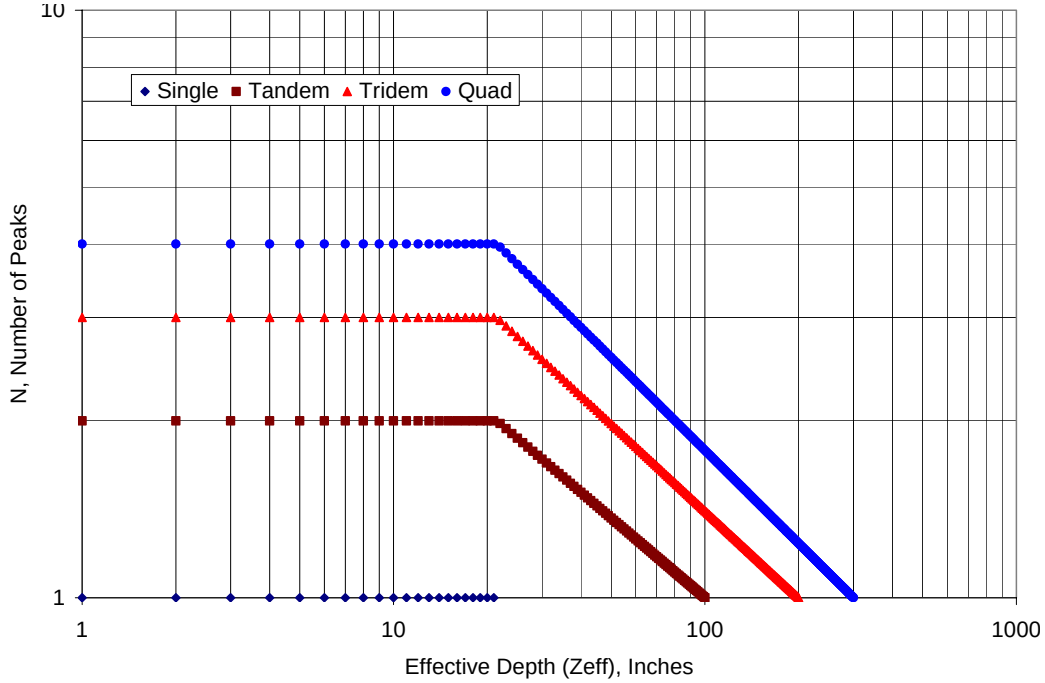


Figure 10: Number of Peaks as a Function of Depth for Different Axle Configurations

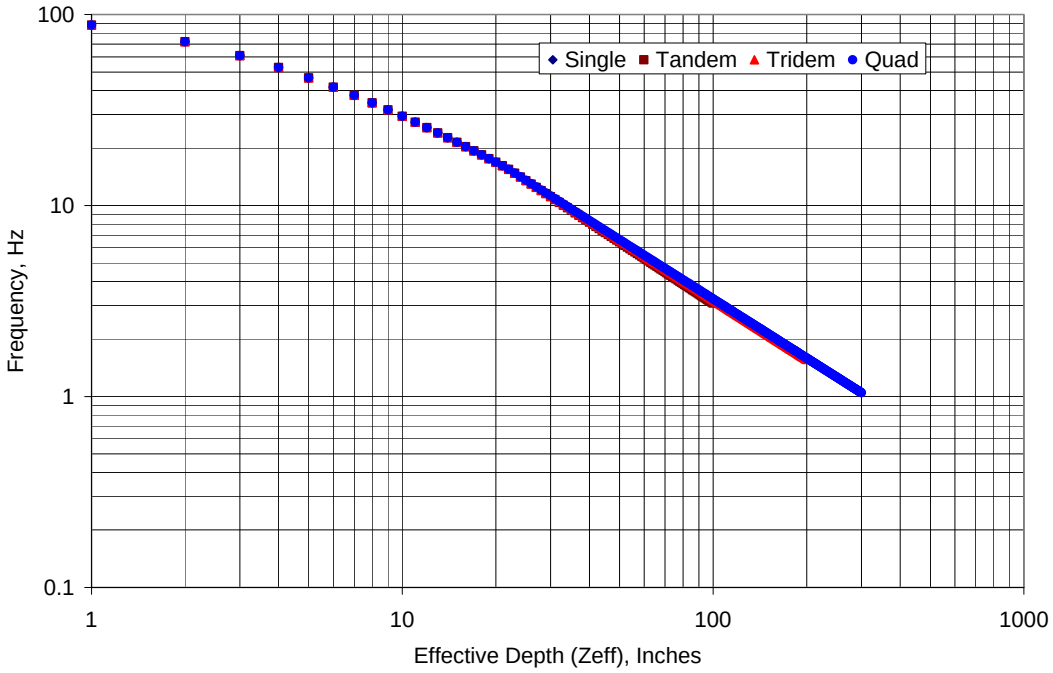


Figure 11: Relationship Between Frequency with Effective Depth as Function of Axle Configuration

EXAMPLE PROBLEM:

Given 4 layers system:

(a) First AC layer: $h_1 = 4$ inch, $E_1 = 500{,}000$ psi
(b) Second AC layer: $h_2 = 6$ inch, $E_2 = 300{,}000$ psi
(c) Base layer: $h_3 = 8$ inch, $E_3 = 50{,}000$ psi
(d) Subgrade layer: $E_4 = 10{,}000$ psi

Travel speed = 45 mph
Radius of contact area = 3.5 inch
Axle spacing = 50 inch.

Compute frequency and number of peaks at depths of 2, 7 and 14 inch.

1. <u>At depth of 2 inch</u>

$$Z_{eff} = 2.\sqrt[3]{\frac{500000}{10000}} = 7.37\ inches$$

For Single Axle:	L_{eff} = 21.74 inch	Frequency = 36.4 Hz	N = 1
For Tandem Axle:	L_{eff} = 21.74 inch	Frequency = 36.4 Hz	N = 2
For Tridem Axle:	L_{eff} = 21.74 inch	Frequency = 36.4 Hz	N = 3

For Quad Axle: L_{eff} = 21.74 inch Frequency = 36.4 Hz N = 4

2. <u>At depth of 7 inch</u>

$$Z_{eff} = 4.\sqrt[3]{\frac{500000}{10000}} + 3.\sqrt[3]{\frac{300000}{10000}} = 24.05\ inches$$

For Single Axle:	L_{eff} = 55.10 inch	Frequency = 14.4 Hz	N = 1
For Tandem Axle:	L_{eff} = 56.34 inch	Frequency = 14.1 Hz	N = 1.9
For Tridem Axle:	L_{eff} = 56.17 inch	Frequency = 14.1 Hz	N = 2.8
For Quad Axle:	L_{eff} = 56.12 inch	Frequency = 14.1 Hz	N = 3.8

3. <u>At depth of 14 inch</u>

$$Z_{eff} = 4.\sqrt[3]{\frac{500000}{10000}} + 6.\sqrt[3]{\frac{300000}{10000}} + 6.\sqrt[3]{\frac{50000}{10000}} = 40.22\ inches$$

For Single Axle:	L_{eff} = 87.44 inch	Frequency = 9.1 Hz	N = 1
For Tandem Axle:	L_{eff} = 97.42 inch	Frequency = 8.1 Hz	N = 1.5
For Tridem Axle:	L_{eff} = 95.83 inch	Frequency = 8.3 Hz	N = 2.2
For Quad Axle:	L_{eff} = 95.37 inch	Frequency = 8.3 Hz	N = 2.9

The above example clearly shows that the frequency of load is independent of the axle configuration. However, number of peaks (N) is a function of the axle type at a given depth. Another important observation, as we go to greater depths, frequency decreases. This is because time of load increases because the stresses are distributed over a wider area at 14 inches compared to 2-inch depth.

NCHRP 1-37 A

Development of the 2002 Guide for the Design of New and Rehabilitated Pavement Structures

APPENDIX CC-4:
Development of a Revised Predictive Model for the Dynamic (Complex) Modulus of Asphalt Mixtures

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March 1999

Introduction

The accurate estimation of the modulus of an asphalt mix plays a critical role in the design and performance of an asphaltic pavement structure. There are several methods used to evaluate this modulus. Direct testing procedures include the Complex (Dynamic) Modulus Test, the Diametral (Resilient or Indirect) Modulus Test and the Flexural Stiffness Test. Indirect predictive techniques such as nomographs (Shell, McLeod) and predictive equations (models) are also used.

Of all existing dynamic modulus predictive equations, the one developed by Witczak and colleagues at the University of Maryland over the last 25 years can be considered as one of the most rational and comprehensive. The most recent model developed by Fonseca and Witczak is superior to other models and it allows for the evaluation of dynamic modulus for a wide variety of asphalt mixtures/properties and also considers any degree of short and long term aging. Due to its mathematical structure (sigmoidal curve), it can be used to estimate the modulus of the mix at extreme temperature conditions (i.e., very cold or very warm) for load associated distress. (The equation should not be used for Thermal Fracture distress analysis). Many other models become highly irrational at these extreme points. The Witczak-Fonseca predictive equation is presented in Figure 1.

Study Objectives

The first objective of this paper was to assess the reliability of the Witczak-Fonseca dynamic modulus predictive equation on a new database, different from the one

$$\log E = -0.261 + 0.008225 \cdot p_{200} - 0.00000101 \cdot (p_{200})^2 + 0.00196 \cdot p_4 - 0.03157 \cdot Va - 0.415 \cdot \frac{Vb_{eff}}{(Vb_{eff} + Va)} +$$
$$+ \frac{1.87 + 0.002808 \cdot p_4 + 0.0000404 \cdot p_{38} - 0.0001786 \cdot (p_{38})^2 + 0.0164 \cdot p_{34}}{1 + e^{(-0.716 \cdot \log(f) - 0.7425 \cdot \log(\eta))}}$$

Where the variables represent:

E	Asphalt Mix Dynamic Modulus, in 10^5 psi
η	Bitumen viscosity in 10^6 poise (at any temperature, degree of aging)
f	Load frequency in Hz
Va	% air voids in the mix, by volume
Vb_{eff}	% effective bitumen content, by volume
p_{34}	% retained on the ¾ inch sieve, by total aggregate weight (cumulative)
p_{38}	% retained on the 3/8 inch sieve, by total aggregate weight (cumulative)
p_4	% retained on the No. 4 sieve, by total aggregate weight (cumulative)
p_{200}	% passing the No. 200 sieve, by total aggregate weight

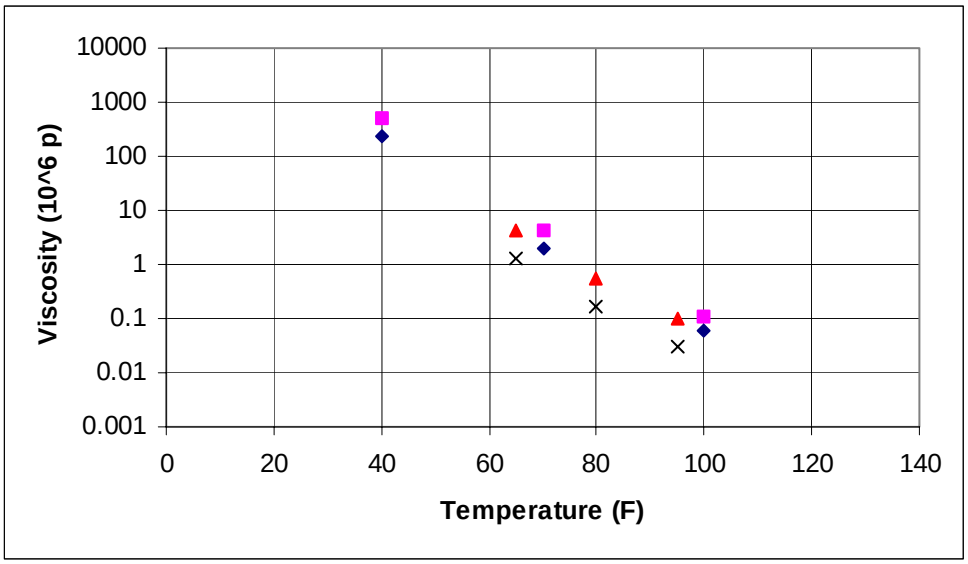
FIGURE 1. Witczak-Fonseca Dynamic Modulus Predictive Equation

on which the model was initially calibrated. The new database contains test results for a broader range of asphalt mixture types and test frequencies and temperatures.

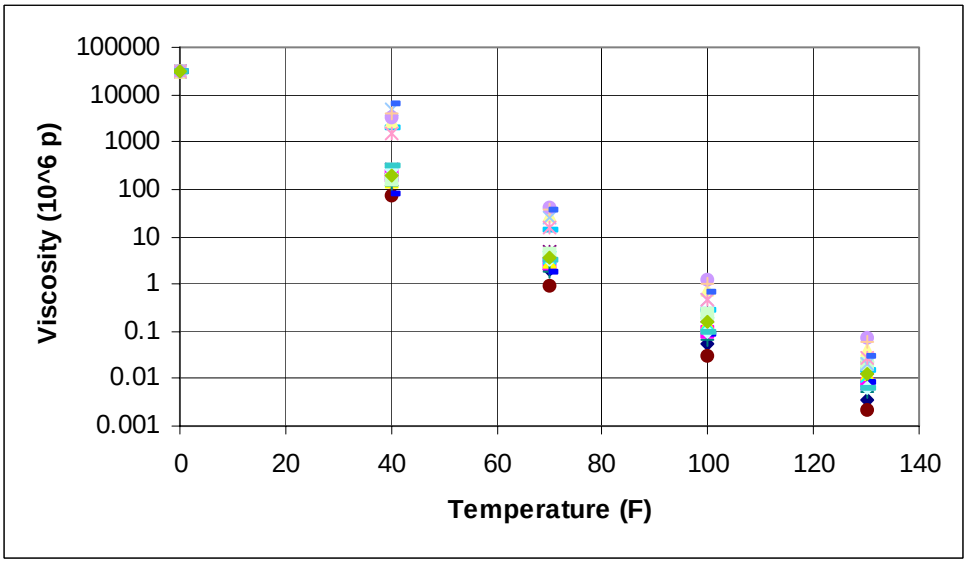
The second objective of the study was to recalibrate the model (if found to be necessary) using the combined database that consisted of the two mentioned databases (i.e. original and new) merged. The final model, obtained through the recalibration study, can then used to predict the dynamic modulus of asphalt concrete mixes for a very wide range of asphalt types (including modified asphalts), aggregate gradations and test temperatures and frequencies comprised in the combined database.

Model Limitations

As with any predictive equation, the classical statistical principles regarding model extrapolation outside the range of variables used to develop the model apply. In this respect, one limitation of the Witczak-Fonseca predictive equation is that the entire original database (1430 data points, 149 mixes) used in developing and calibrating the model was obtained on mixtures using only conventional asphalt cements. Therefore, the accuracy of the model prediction for modified asphalt cements was unknown. Despite the large number of data points, the original database covered only a narrow range of binder types, as shown in Figure 2-(a). Other limitations of the initial database are related to the method of compaction and specimen geometry (all test specimens were compacted by kneading compaction in cylindrical specimens, 4 in diameter by 8 in height). The original database used by Fonseca is presented in Appendix A.



a) Original



Database

b) New Database

FIGURE 2. Viscosity Values at Different Temperatures for the Original Database and for the New Database

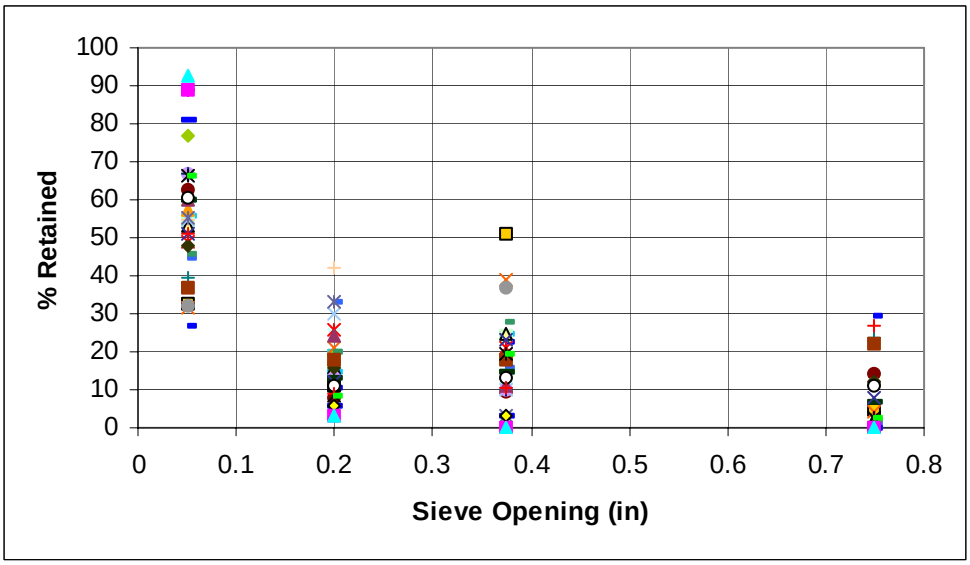
The New Database

As a result of several research projects and studies performed at the University of Maryland in the last 5 years, a new database (1320 data points) was available. The new data represents dynamic modulus test results for 56 additional mixes (20 or 30 data points per mix). Of the 56 mixes; 34 used modified asphalt cements. All test samples used in the new database were laboratory prepared by gyratory compaction. Cylindrical (2.75 in diameter by 5.5 in height) specimens were cored from each 6 in diameter gyratory plug. Compared to the original database, the new database covered a much wider range of viscosity values (20 binders @ 5 test temperatures) as shown in Figure 2-(b). However, only 5 aggregate gradations were used throughout the new database. The range covered by the aggregate gradations for both databases is presented in Figures 3-(a,b) and 4.

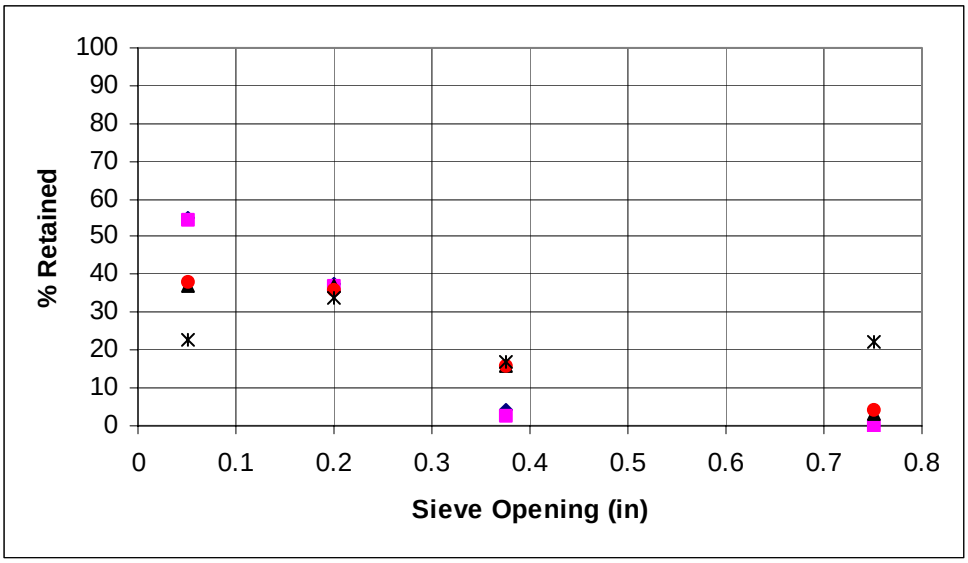
In order to apply the model to the new data, bitumen viscosity values were needed for each mix at the temperatures at which the tests were actually performed. These values were obtained by using the linear relationship between log-log viscosity (in centipoise) and log temperature (in degrees Rankine), also known as the A and VTS relationship. The new database, including values of the parameters A and VTS for each mix, is presented in Appendix B.

Assessing the Reliability of the Model on The New Database

Applied to the original database, the Witczak-Fonseca model has an adjusted R^2 of 0.87 and a Se/Sy ratio of 0.36 in arithmetic scale. Applied to the new database, the same model exhibited a lower adjusted R^2 of 0.73 and a higher Se/Sy ratio of 0.53 (in arithmetic scale). The plots of predicted versus measured dynamic modulus in



a) Original Database



b) New Database

FIGURE 3. Aggregate Gradations for the Original Database and for the New Database

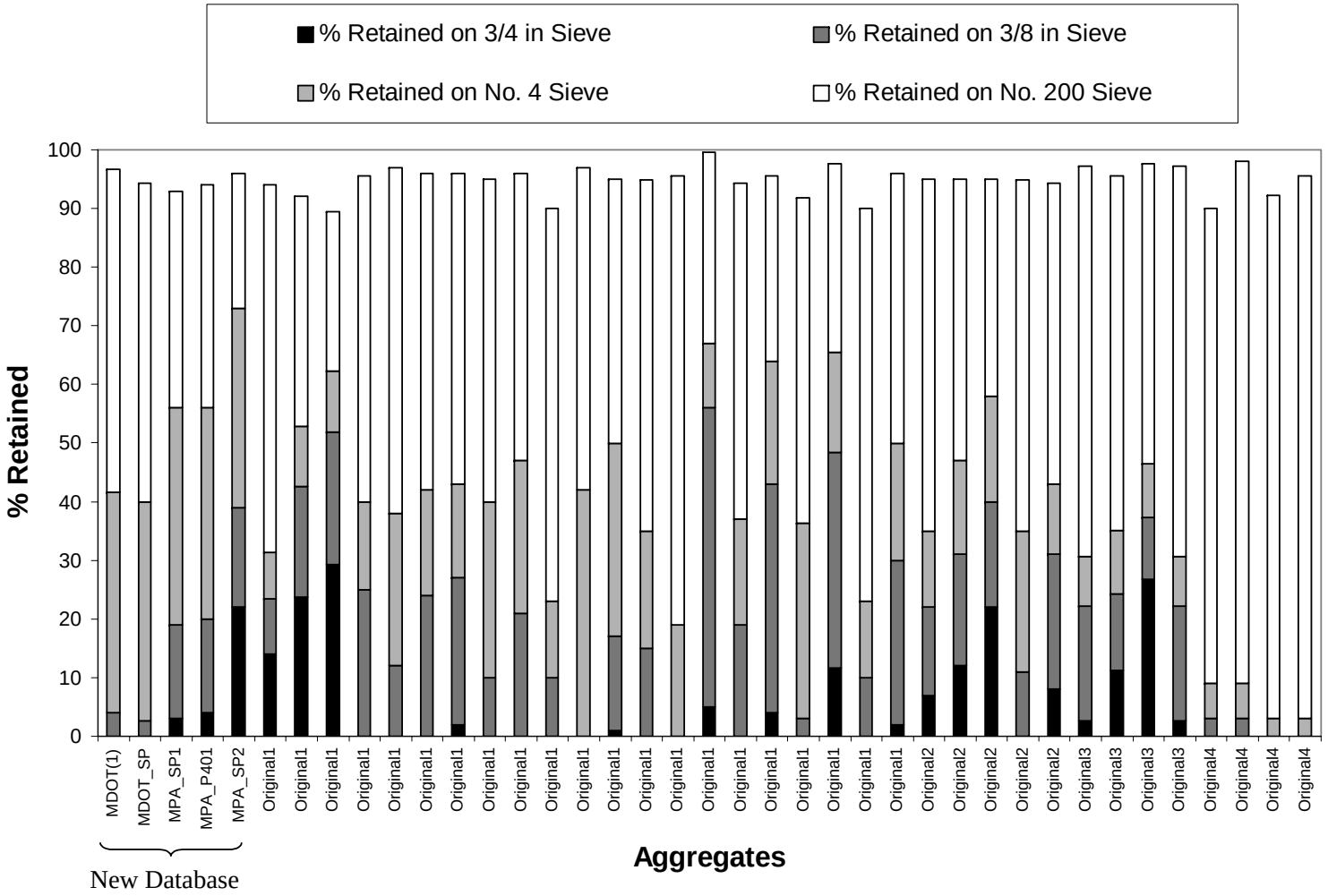


FIGURE 4. Aggregate Gradations

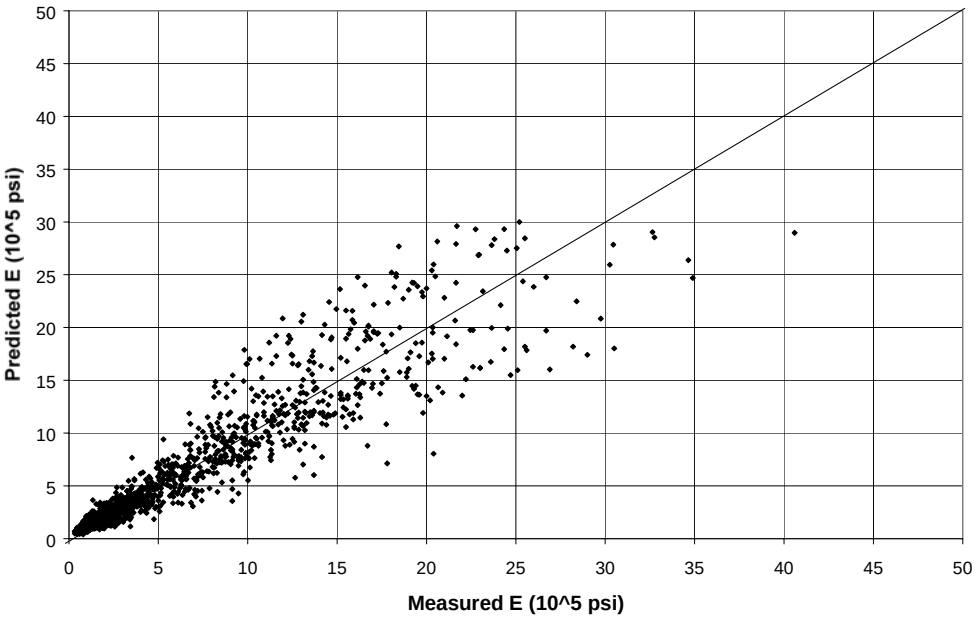
logarithmic and arithmetic scales are presented in Figures 5 and 6 for the original and the new database respectively.

It is obvious that a poorer agreement to the new database is present compared to the original database used by Fonseca. Overall the model is over-predicting and loses accuracy for values of the dynamic modulus higher than approximately 3 million psi. Initially, the potential factors suspected to cause this bias in estimation were provisionally felt to be due to:

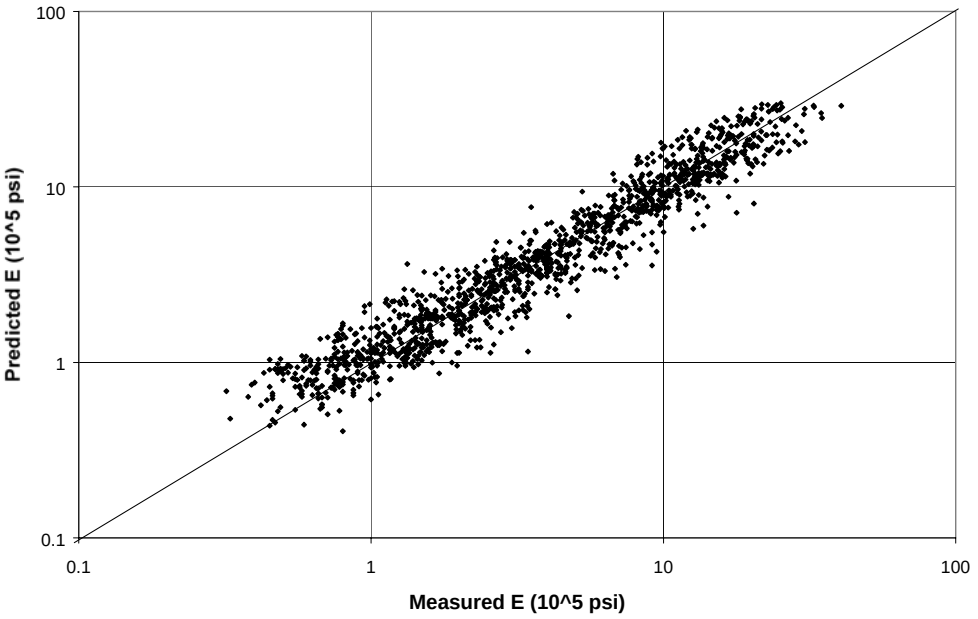
- the use of modified asphalt cements (broader range of binder types)
- aggregate sizes outside the range for which the models were calibrated
- measured dynamic modulus values outside the range on which the model was calibrated
- different specimen size (size effect)
- different method of compaction

The impact of using different aggregates and different binders can be evaluated by a graphical analysis. Two separate plots were developed: one for all mixes only using modified asphalt cements and another for those using conventional asphalt. These plots are presented in Figure 7. It can be observed that more of the mixes using modifiers plot above the equality line (i.e. bias), while almost all mixes using conventional asphalt (except two) generally plot on the equality line, as expected.

In order to assess the extent binder type and aggregate gradation influenced the accuracy of the model prediction, two sets of plots were developed. The first set presents plots of measured versus predicted dynamic modulus for mixes using identical binders but different aggregates (Figures 8 through 12). It is obvious that mixes that use the same

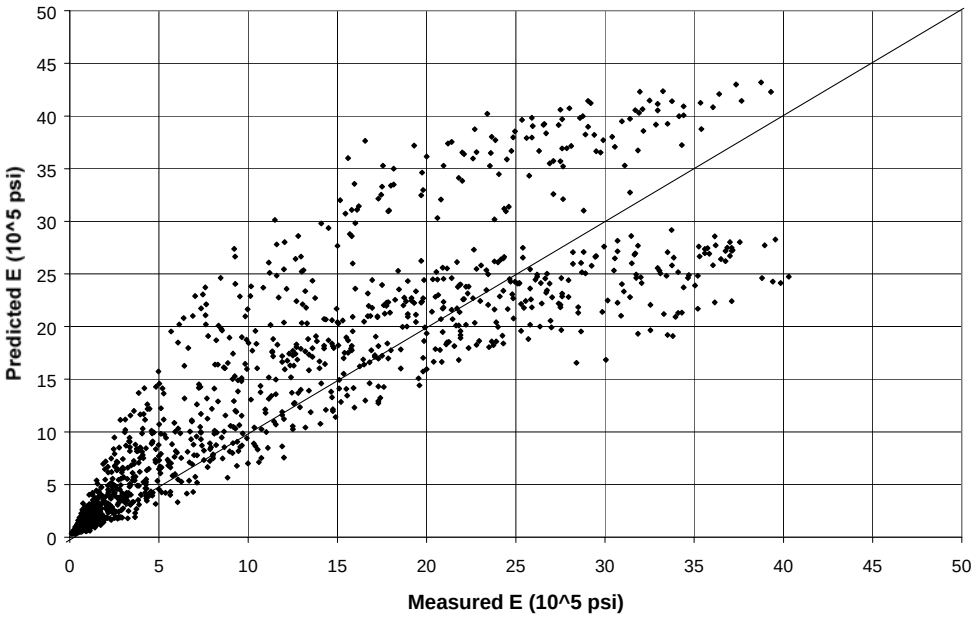


a) Values in Arithmetic Scale

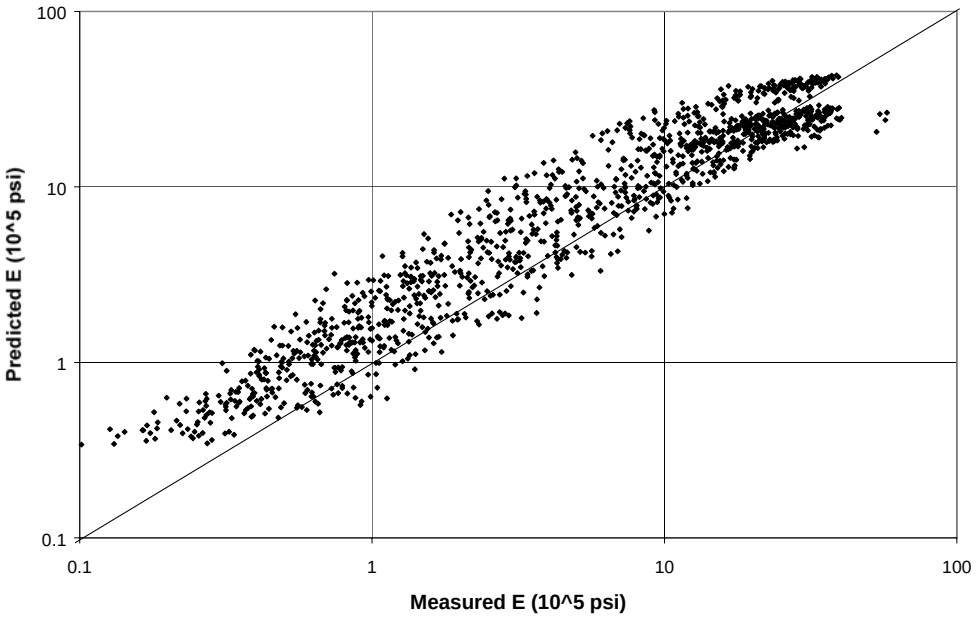


b) Values in Log Scale

FIGURE 5. Comparison of Predicted and Measured Dynamic Modulus Values for the Original Model on the Original Database

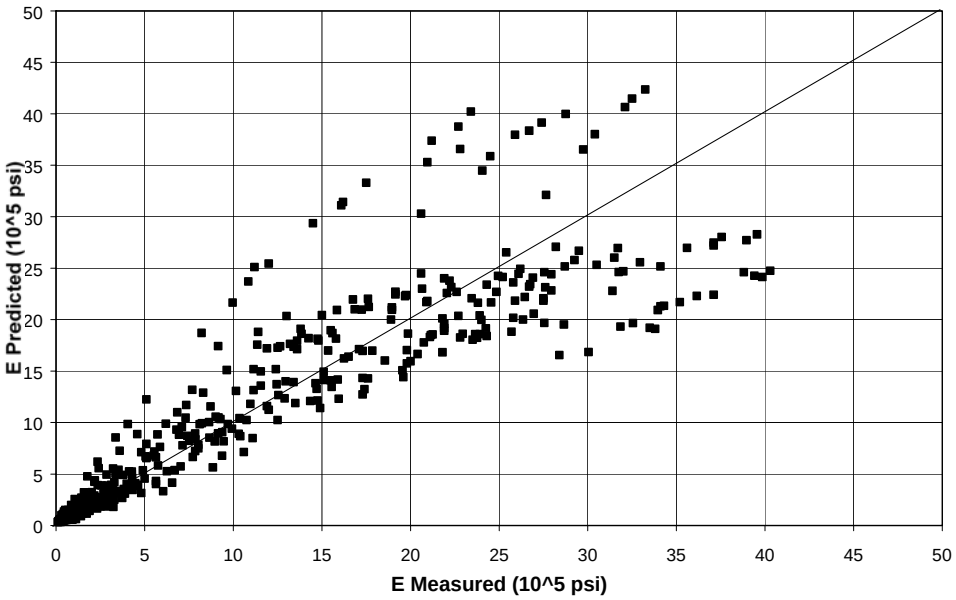


a) Values in Arithmetic Scale

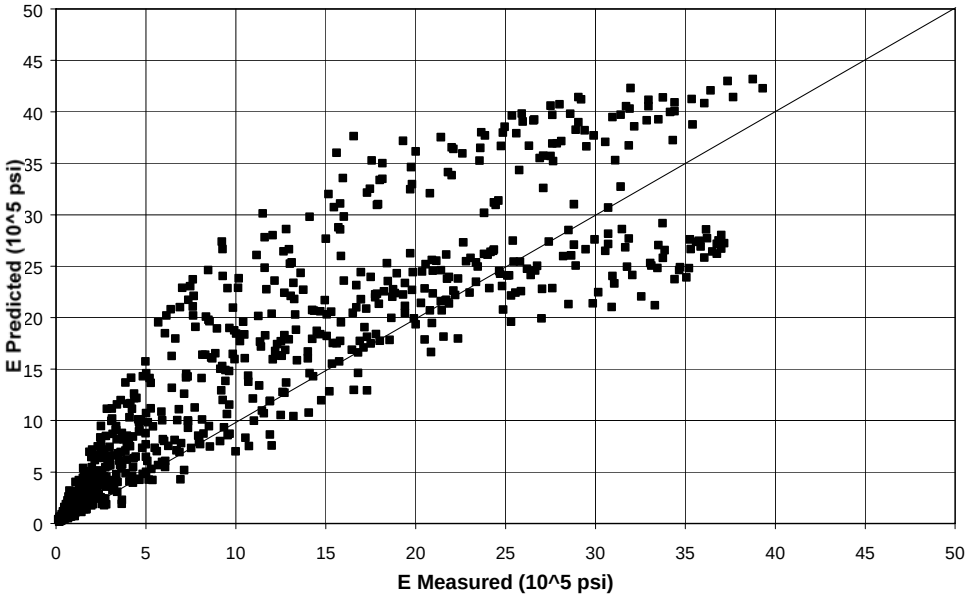


b) Values in Log Scale

FIGURE 6. Comparison of Predicted and Measured Dynamic Modulus Values for the Original Model on the New Database



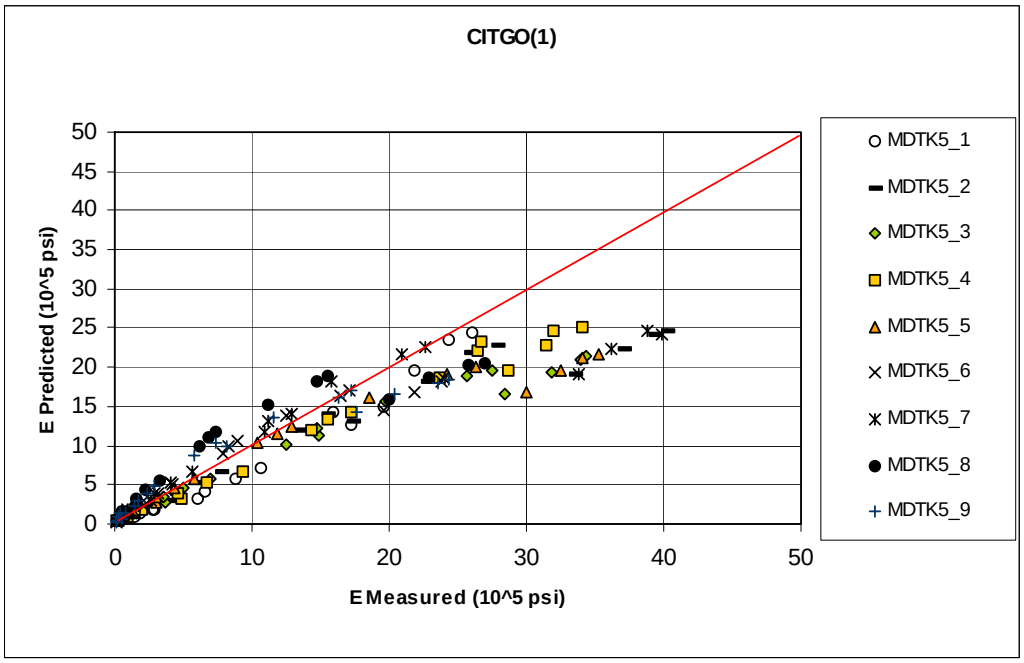
a) Mixes Using Conventional Binders



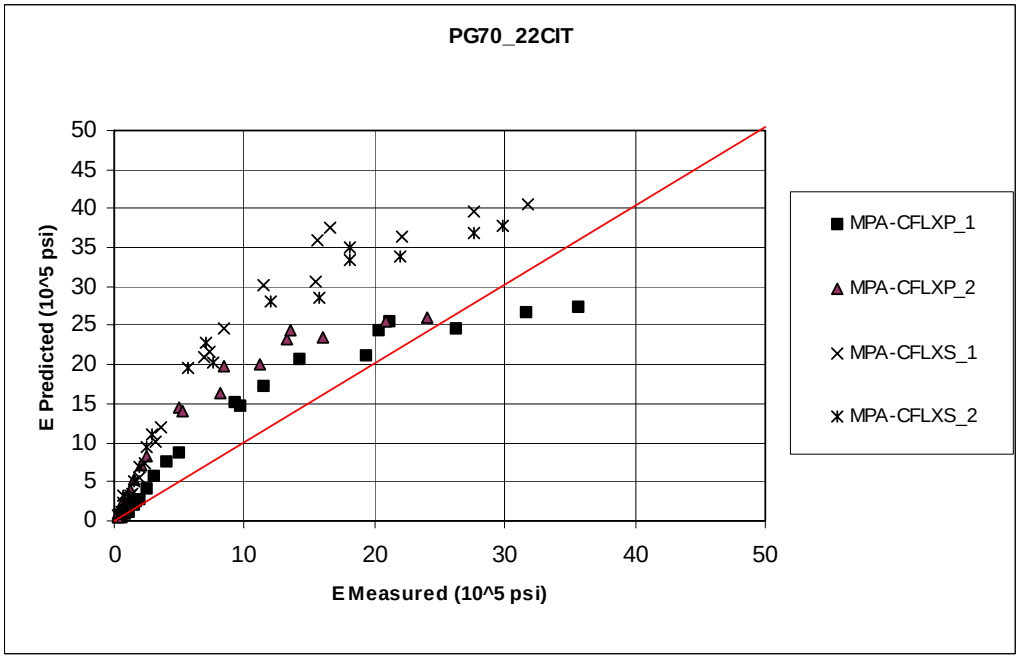
b) Mixes Using Modified Binders

FIGURE 7. Comparison of Predicted and Measured Dynamic Modulus Values for the Original Model on the New Database

(Conventional/Modified)



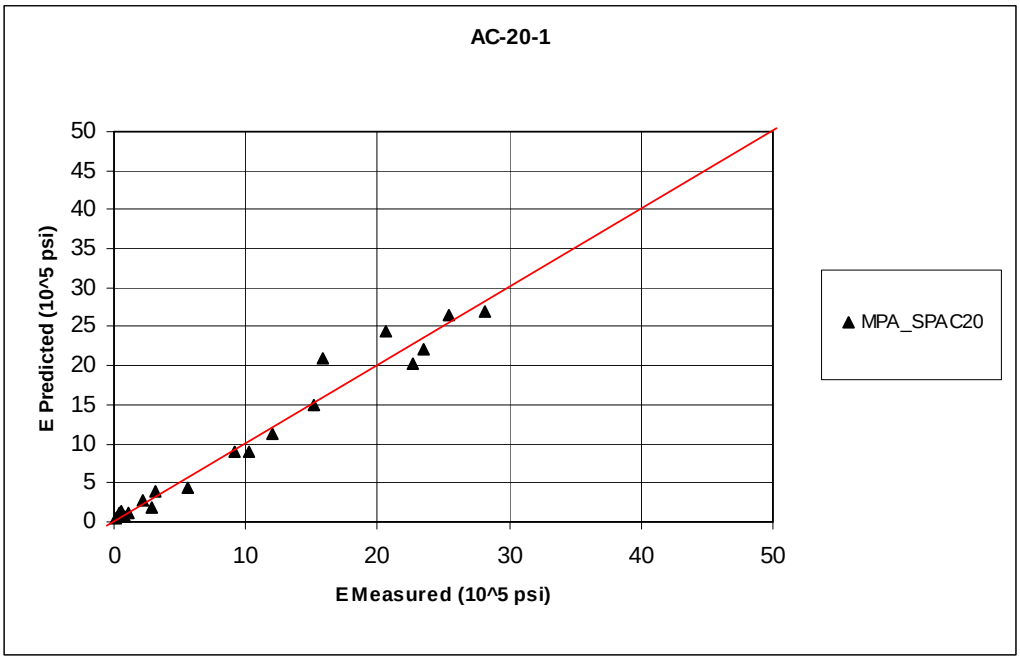
a) Conventional Binder CITGO(1)



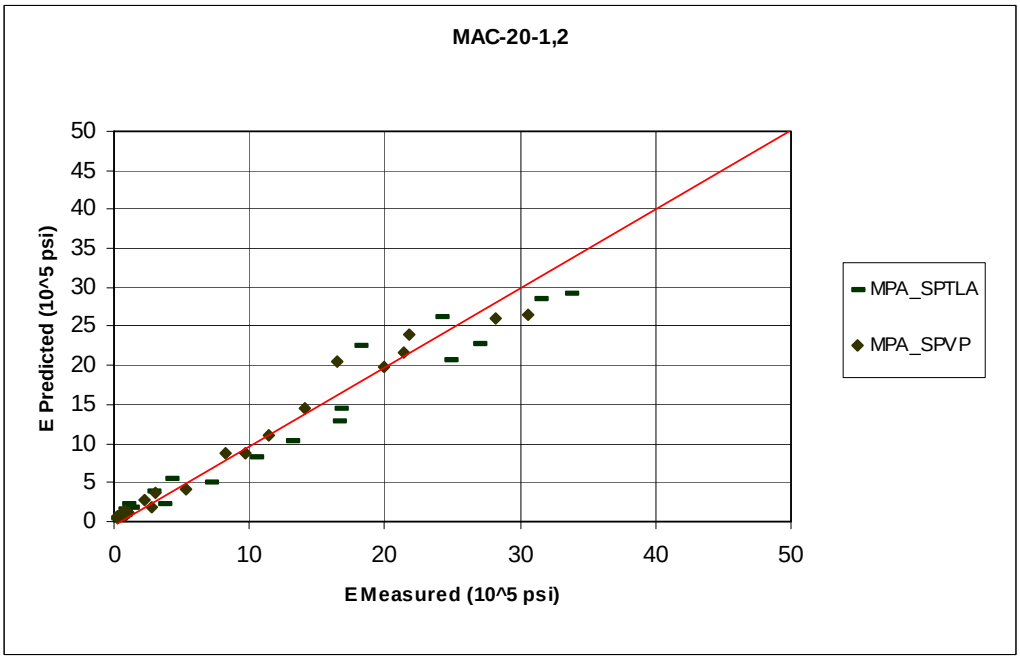
b) Modified Binder (CitgoFlex)

FIGURE 8. Comparison of Predicted and Measured Dynamic Modulus Values for Mixes Using the Same Binder (Original Model on New

Database)



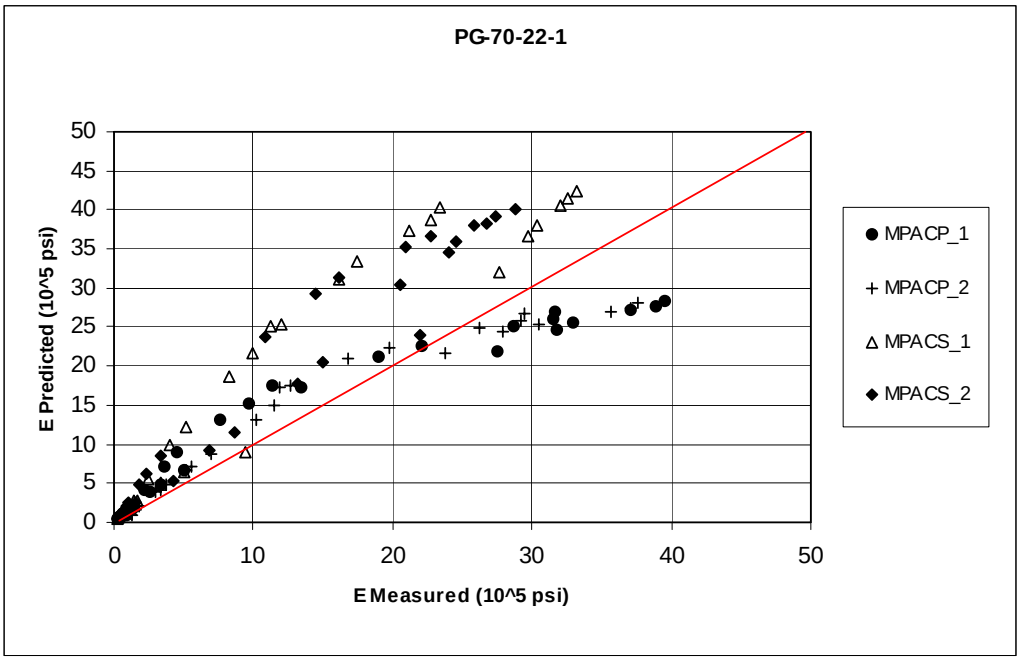
a) Conventional Binder AC-20-1



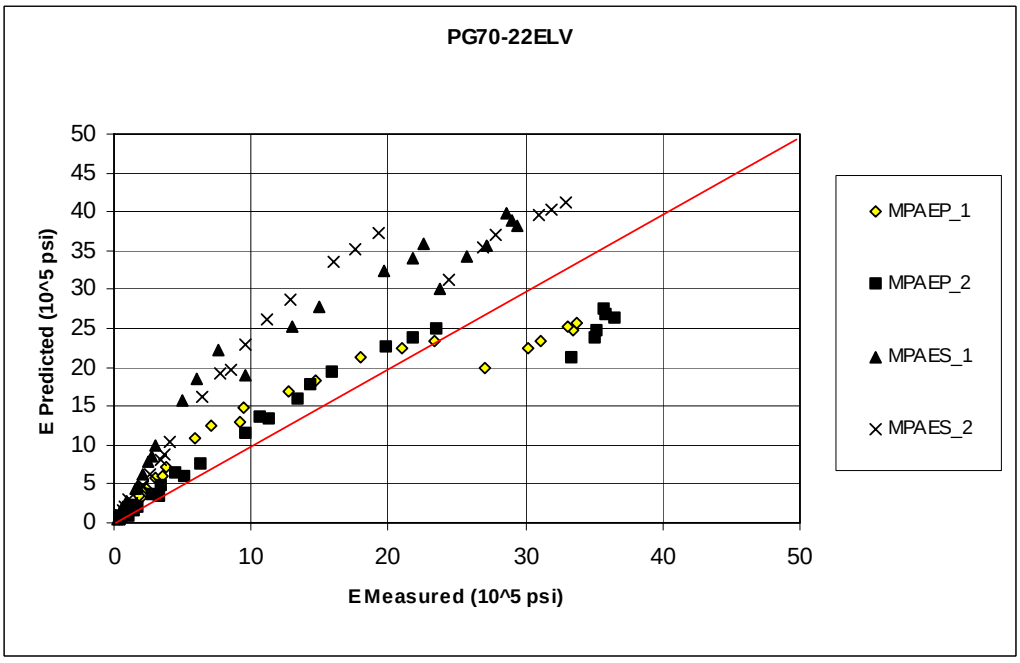
b) Modified Binder (Trinidad Lake Asphalt/Vestoplast
Mixed with Aggregate)

FIGURE 9. Comparison of Predicted and Measured Dynamic Modulus Values for Mixes Using the Same Binder (Original Model on New

Database)



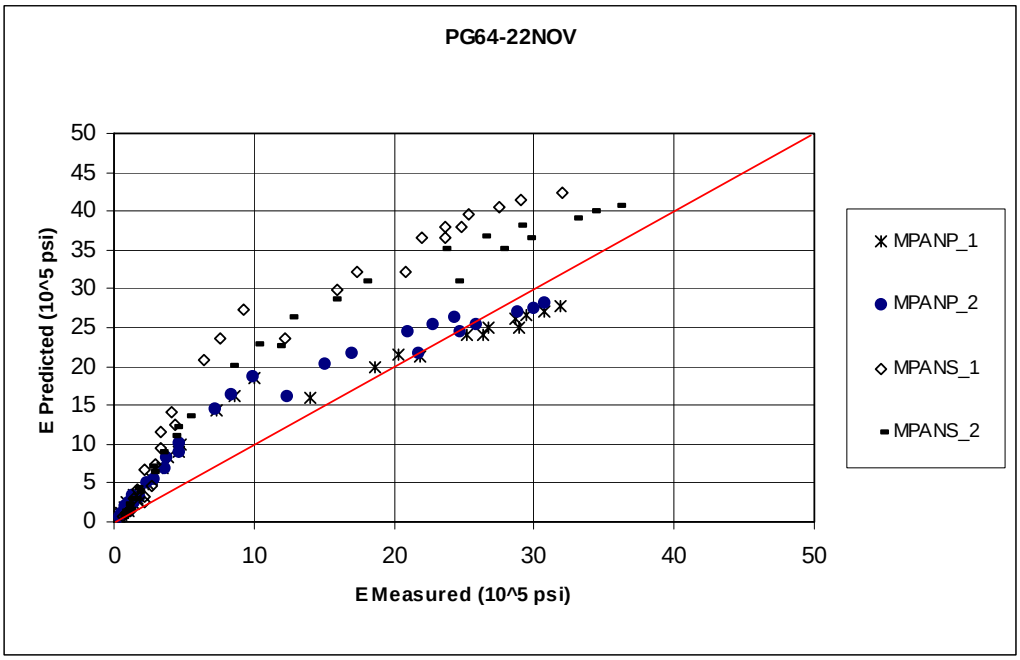
a) Conventional Binder PG70-22_1



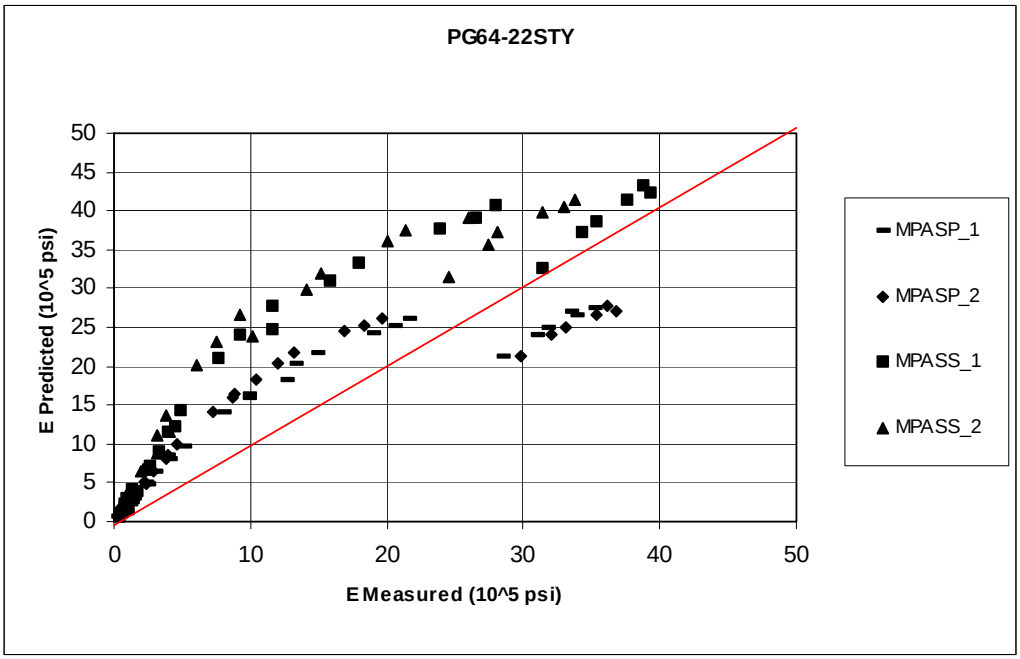
b) Modified Binder (Elvaloy)

FIGURE 10. Comparison of Predicted and Measured Dynamic Modulus Values for Mixes Using the Same Binder (Original Model on New

Database)



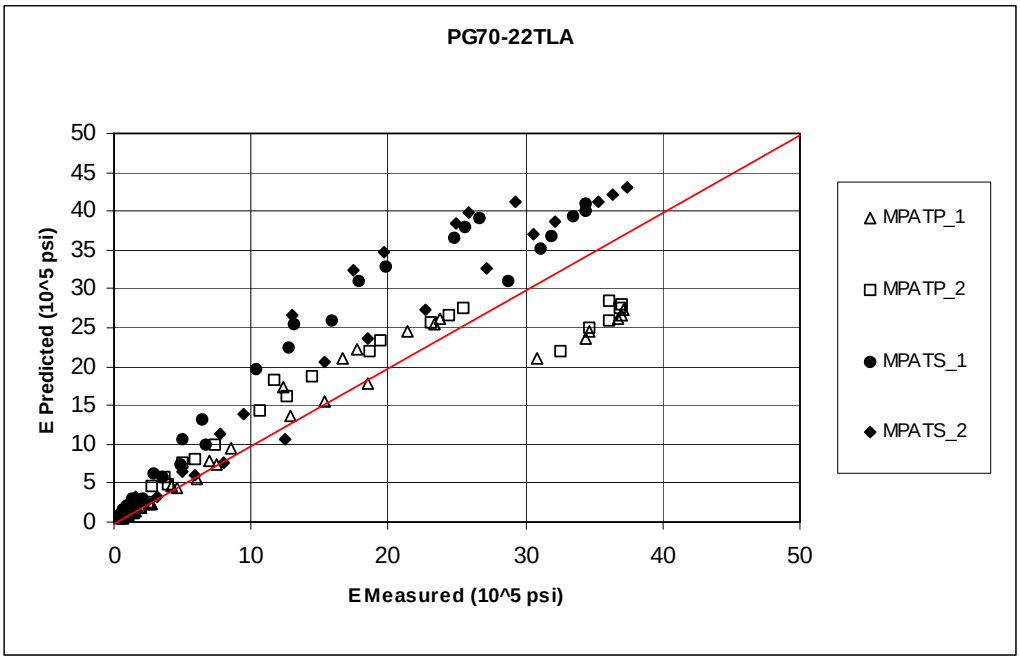
a) Modified Binder (Novaphalt)



b) Modified Binder (Stylink)

FIGURE 11. Comparison of Predicted and Measured Dynamic Modulus Values for Mixes Using the Same Binder (Original Model on New

Database)



Modified Binder (TLA)

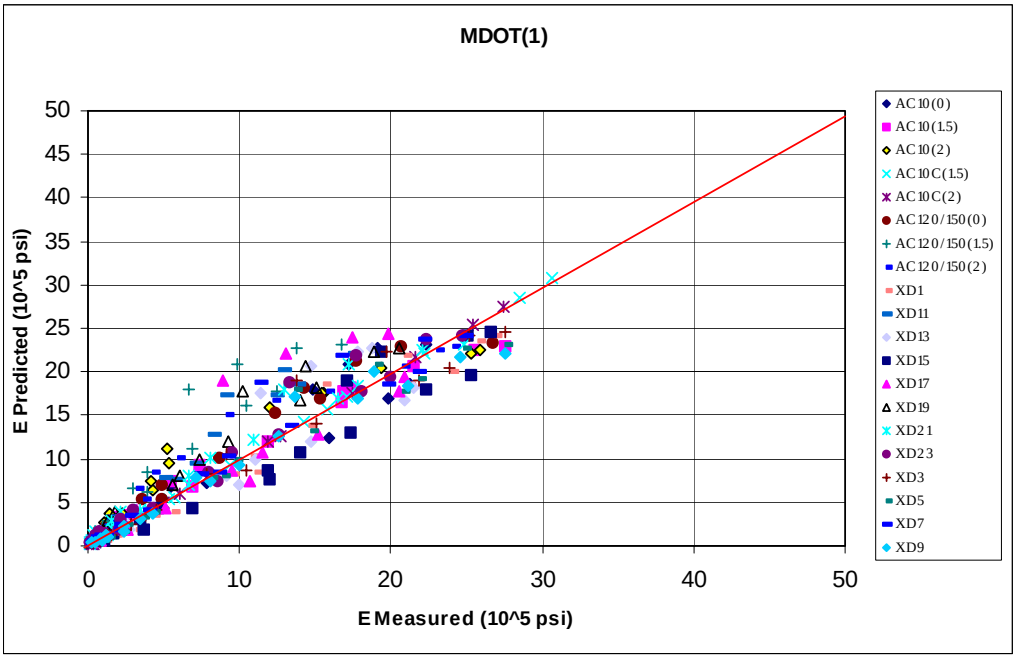
FIGURE 12. Comparison of Predicted and Measured Dynamic Modulus Values for Mixes Using the Same Binder (Original Model on New Database)

binder do not necessarily plot in the same area. Hence, besides the influence of the type of binder (modified or unmodified) another factor causing the bias in estimation was felt to exist.

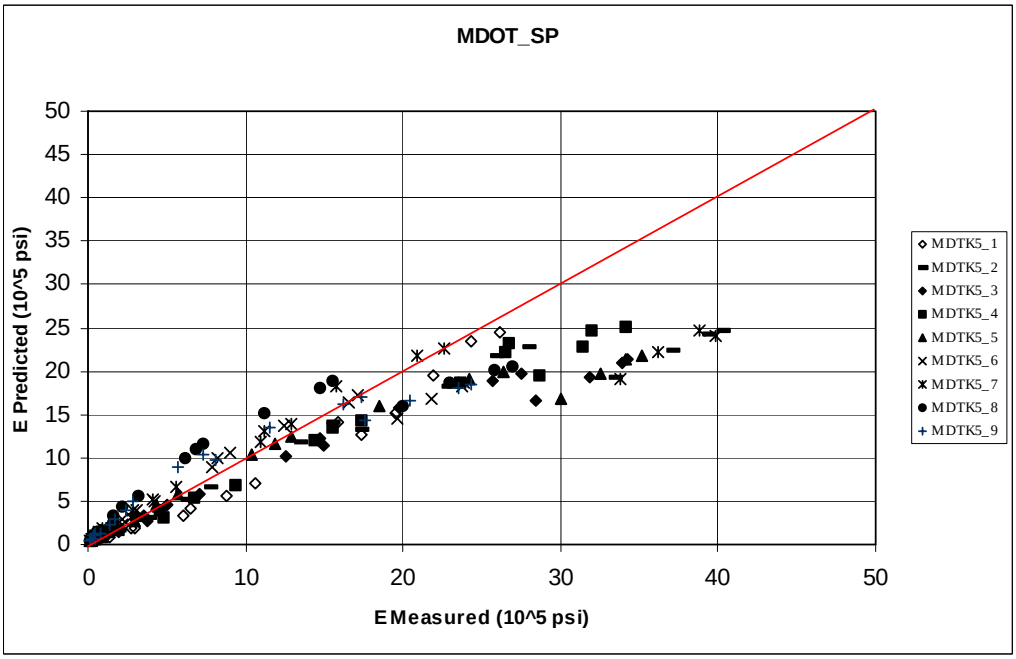
Performing the same graphical analysis for mixes using identical aggregate but different binders, the major effect of the aggregate gradation is evident. As one can see, in the second set of plots (Figures 13 through 15), estimations for mixes using the same type of aggregate always plot in the same area, regardless of the type of binder. The aggregates that give the largest bias in estimation are MPA-P401 and MPA-SP2. These are the aggregates with the largest particle sizes (MPA-SP2 followed by MPA-P401).

In order to further investigate the effect of aggregate size, a graph of all the mixes grouped by the percent passing the ¾ in sieve is presented in Figure 16. The graph clearly shows that the smaller the percent passing the ¾ in sieve, the greater the bias in estimation.

The statistical and graphical analysis previously presented shows that the bias of the current model is due mainly to the use of larger aggregate sizes and to a lesser extent due to the use of modifiers (i.e. range of viscosity values within database). Since aggregates with similar gradations have been used in the original database (see Figures 3 and 4), it is possible that the bias may be caused by the use of the smaller (2.75 in diameter) sample. It is obvious that for the aggregates that exhibit bias the ratio of the specimen diameter to the maximum particle size is less than 3.66. Also, extrapolating for values of the dynamic modulus higher than those used to calibrate the model leads to biased predictions. As observed from all the graphs, for most of the mixes (using either modified or conventional asphalt), the model looses accuracy for values of the measured



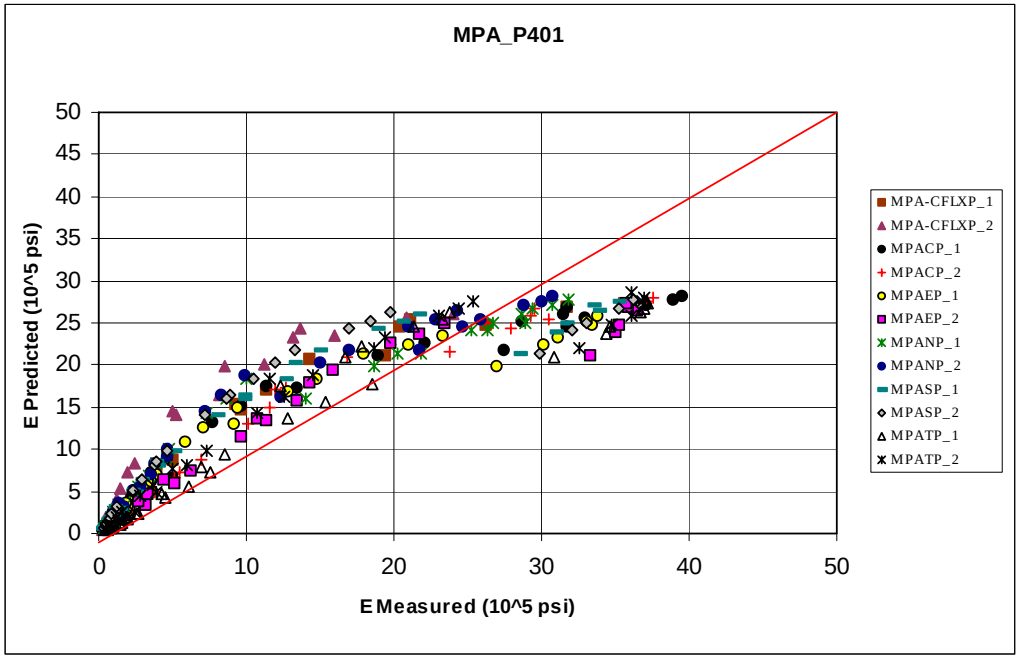
a) MDOT(1)



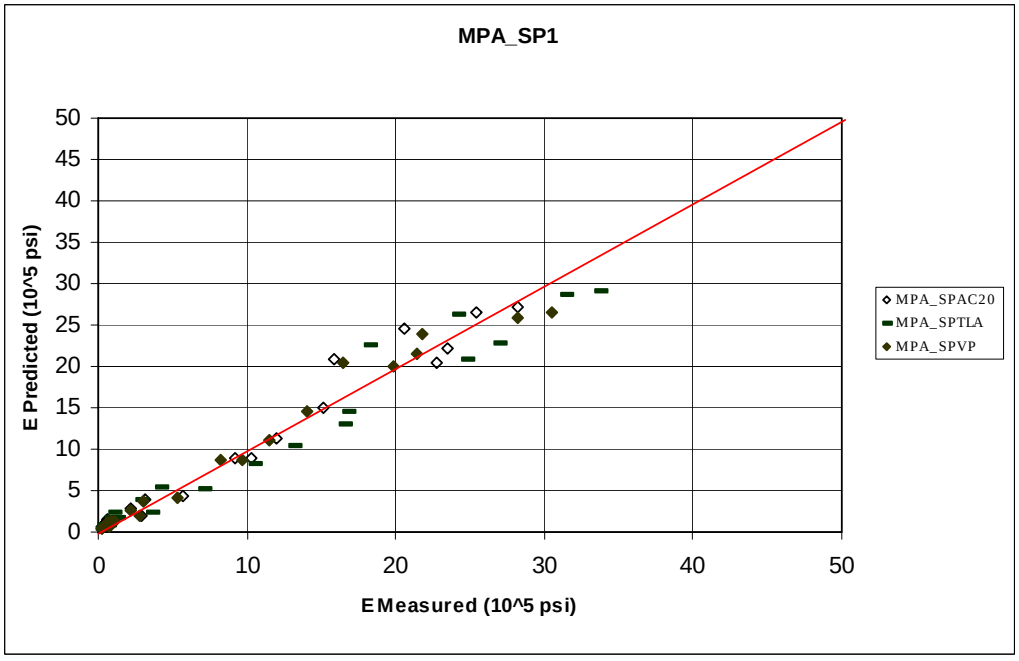
b) MDOT_SP

FIGURE 13. Comparison of Predicted and Measured Dynamic Modulus Values for Mixes Using the Same Aggregate (Original Model on New

Database)



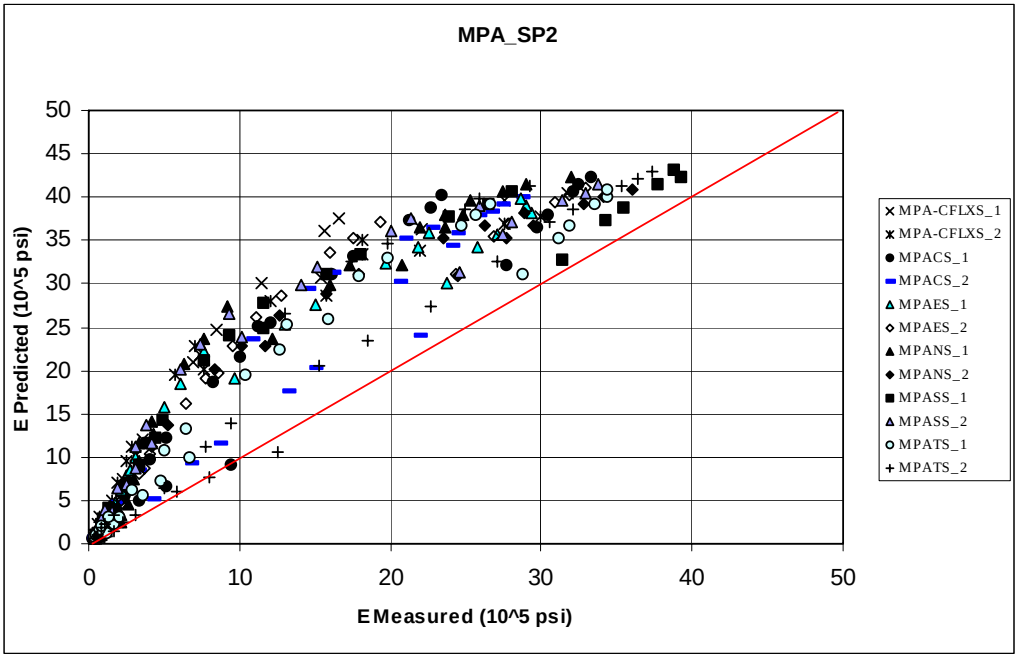
a) MPA_P401



b) MPA_SP1

FIGURE 14. Comparison of Predicted and Measured Dynamic Modulus Values for Mixes Using the Same Aggregate (Original Model on New

Database)



MPA_SP2

FIGURE 15. Comparison of Predicted and Measured Dynamic Modulus Values for Mixes Using the Same Aggregate (Original Model on New Database)

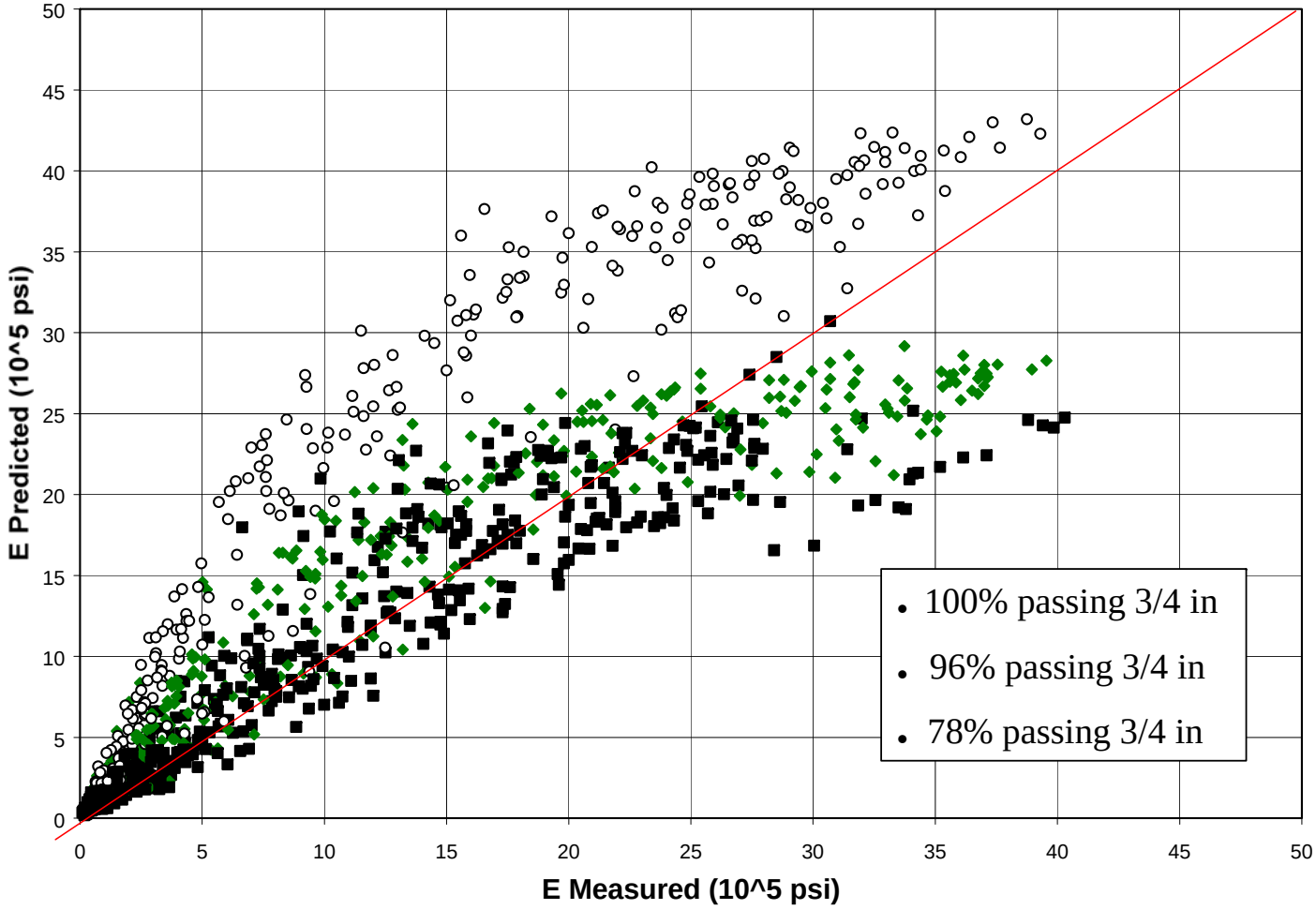


FIGURE 16. Comparison of Predicted and Measured Dynamic Modulus Values for the Original Model on the New Database, Grouped by % Passing the 3/4 in Sieve

dynamic modulus higher than approximately 3 million psi. This implies that the current maximum value in the Witczak-Fonseca relationship may be too low and needs to be adjusted (increased). Indeed, the values of the measured dynamic modulus in the original database are not higher than approximately 3 million psi while in the new database, several mixtures approach 4 million psi. The reason for this is that E* values in the original database were generally tested at a minimum temperature of 40^{o} F. For the new database, E* values were normally measured at temperatures approaching 0^{o} F. This is illustrated in Figure 17 where the predictions of the model for both databases are shown.

Re-calibration of the model

As a solution to the limitations mentioned above, the model was re-calibrated (i.e. new coefficients were developed using the same model form as that developed by Fonseca). The nonlinear optimization of the regression coefficients was performed in the arithmetic space, using "Solver" (MS Excel).

Several distinct solutions, depending on the database used for recalibration and the coefficients chosen for calibration are presented in Table 1. Also, for each solution (i.e. set of coefficients), the goodness of fit statistics (Se/Sy and R^2) of the model evaluated on all three considered databases (original; new; combined) have been computed. This information is also summarized in Table 1. Note that the same model form has been used for all solutions.

Solution "0" (see Table 1) represents the set of coefficients that gives the best goodness of fit statistics on the original database, where the sum of errors squared is

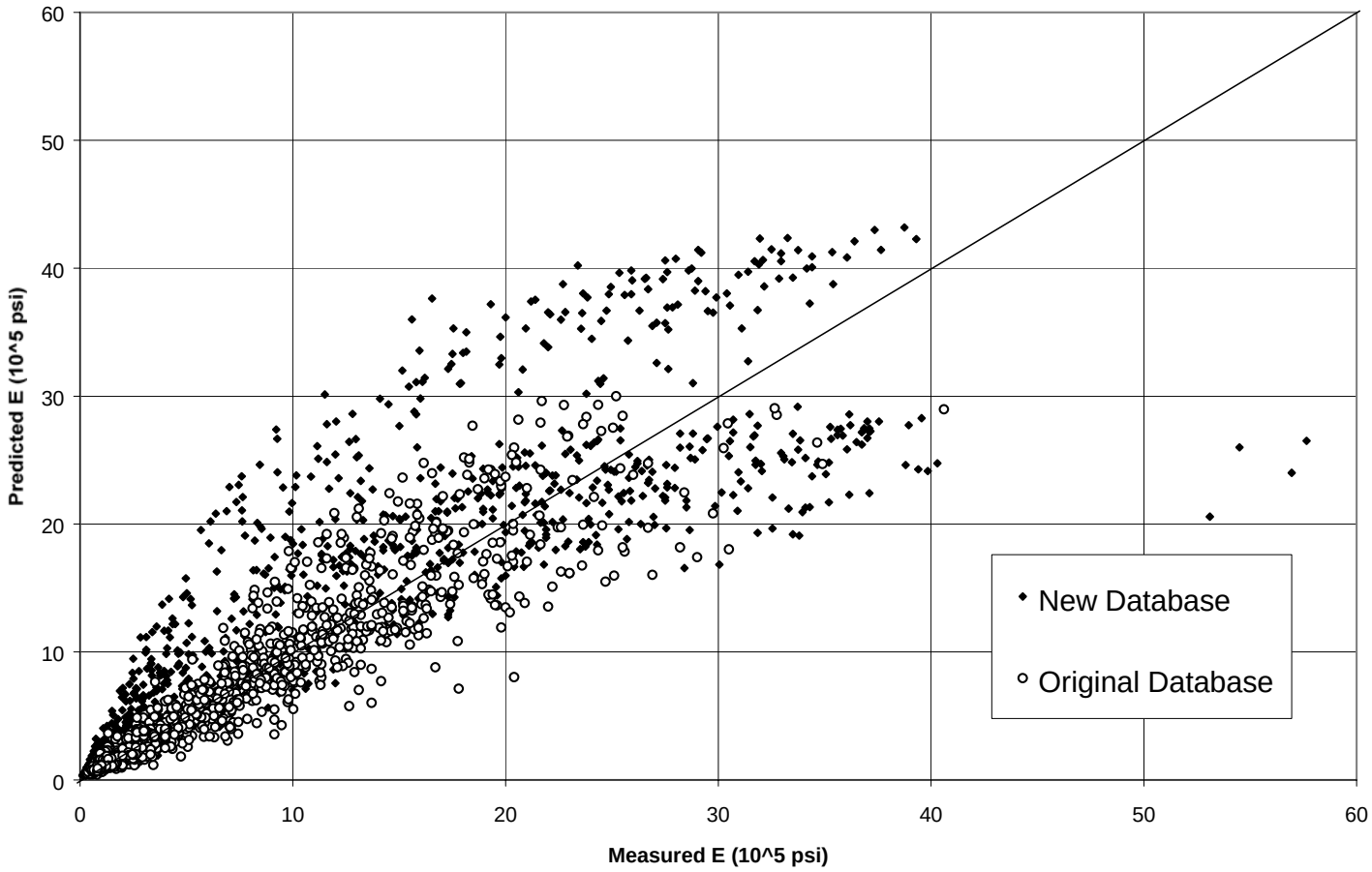


FIGURE 17. Comparison of Predicted and Measured Dynamic Modulus Values for the Original Model on Both Databases

TABLE 1. Optimization Solutions and Statistics for the Witczak-Fonseca Predictive Equation on the Original, the New and the Combined Databases

	Database used for calibration:		Original		New	Combined						
	Solution ID		0*	1**	2	3 all	3a	3b	3c	3d	3e	3f
	Coefficients***	Intercept 1	-0.261000	-0.376040	-0.216831	-0.324864	-0.426840	-0.261000	-0.402357	-0.261000	-0.853917	-0.094838
		p_{200}	0.008225	0.023209	0.059396	0.134984	0.134840	0.085566	0.135042	0.008225	0.008225	0.008225
		p_{200}^2	-0.000001	-0.002042	0.004063	-0.009765	-0.009912	-0.006141	-0.009931	-0.000001	-0.000001	-0.000001
		p_4	0.001960	0.007744	-0.007294	-0.004488	-0.011746	-0.012353	-0.012209	0.001960	0.001960	0.001960
		Va	-0.031570	-0.042529	-0.055755	-0.048092	-0.031570	-0.031570	-0.031570	-0.036767	-0.004625	-0.056184
		Vb_{eff}	-0.415000	-0.516421	-0.734554	-0.569785	-0.415000	-0.415000	-0.415000	-0.196907	0.396136	-0.784194
		Intercept 2	1.870000	2.321413	1.872860	2.263874	1.897651	1.870000	1.870000	1.870000	1.870000	2.578650
		p_4	0.002808	-0.005414	0.013453	0.002856	0.013356	0.013805	0.013871	0.002808	0.002808	-0.004422
		p_{38}	0.000040	-0.005982	0.068150	-0.002036	-0.005519	-0.003248	-0.005544	0.000040	0.000040	0.006089
		p_{38}^2	-0.000179	0.000000	-0.007546	0.000081	0.000087	0.000040	0.000088	-0.000179	-0.000179	-0.000109
		p_{34}	0.016400	0.009671	0.402073	0.003178	0.003604	0.003408	0.003576	0.016400	0.016400	0.002826
		Kf	-0.716000	-0.676959	-0.395149	-0.392632	-0.716000	-0.716000	-0.716000	-0.416713	-0.447930	-0.401951
		Kv	-0.742500	-0.649530	-0.531834	-0.488886	-0.742500	-0.742500	-0.742500	-0.473735	-0.512045	-0.490031
Database on which the model is evaluated	Original	Se/Sy	**0.359**	**0.322**	**86.406**	**0.393**	**0.337**	**0.340**	**0.337**	**0.413**	**0.403**	**0.329**
		R^2	**0.872**	**0.897**	**-7402.233**	**0.847**	**0.887**	**0.885**	**0.887**	**0.830**	**0.838**	**0.892**
	New	Se/Sy	**0.526**	**0.436**	**0.282**	**0.295**	**0.321**	**0.330**	**0.321**	**0.434**	**0.423**	**0.332**
		R^2	**0.725**	**0.811**	**0.921**	**0.913**	**0.898**	**0.892**	**0.898**	**0.814**	**0.823**	**0.891**
	Combined	Se/Sy	**0.473**	**0.397**	**42.518**	**0.313**	**0.414**	**0.406**	**0.414**	**0.406**	**0.397**	**0.363**
		R^2	**0.777**	**0.843**	**-1798.877**	**0.902**	**0.830**	**0.837**	**0.830**	**0.836**	**0.843**	**0.869**

* This solution was obtained through calibration in the log space and represents the original solution given by Witczak and Fonseca

** This solution was obtained through re-calibration in the arithmetic space

*** Gray background = recalibrated coefficients

(All statistics in arithmetic space)

minimized in the logarithmic space. These are the coefficients originally reported by Witczak and Fonseca.

In Solution "1" the coefficients are calibrated also on the original database but in the arithmetic space. This solution gives slightly better statistics in the arithmetic space, compared to the previous one.

In Solution "2" the coefficients are calibrated using the new database, (arithmetic space).

In Solution "3 all", all coefficients are calibrated on the combined database in arithmetic space. The combined database consists of 2750 data points representing dynamic modulus test results for 205 asphalt mixtures. In Solutions "3a, 3b, …, 3f", the combined database has been used. However, only some of the coefficients were re-calibrated (represented on gray background). The coefficients that are not calibrated are assigned the values given in Solution "0".

The Solution that eventually resulted in the best goodness of fit statistics on the combined database is Solution "3 all" (see Table 1), in which all the coefficients are calibrated. These statistics are (in arithmetic scale):

- Adjusted R^2 = 0.902 (0.906 in log space)
- Se/Sy = 0.313 (0.307 in log space)
- Se = 2.903 x 10^5 psi
- Sy = 9.275 x 10^5 psi

Plots of the predicted versus measured dynamic modulus for the re-calibrated model (Solution "3 all") are presented in logarithmic and arithmetic scales in Figures 18 and 19 (all

mixes, combined database). In Figure 20, the predictions of the original and the re-calibrated models are graphically compared.

The improvement achieved through re-calibration is evident. As expected the model looses accuracy on the original database at the expense of better predictions on the new database (see Se/Sy, R^2 values for all three databases and compare for Solutions "3 all" and "1").

Overall, the recalibrated model (Solution "3 all") exhibits excellent goodness of fit statistics. It is accurate for all mixes (using either conventional or modified asphalt cemets) and appears to be applicable for a wide range of asphalt types (including modifiers) and aggregate sizes.

However, for low values of the dynamic modulus, the original Fonseca model form still exhibits local bias (see Figure 19). Since low modulus values correspond to high strains that are very important in permanent deformation modeling, it is critical that the model does not loose accuracy in this range of low modulus values.

One potential way to make the model more accurate for low values and less accurate for high values was to calibrate the model in the logarithmic space and examine if the bias was still present. Figure 21 shows that even calibrated in the log space, the model still exhibits a local bias. Plotting the measured/predicted modulus values versus viscosity for the combined database in logarithmic space (Figure 22), one can observe that the local bias is due to the shape of the sigmoidal function. The measured values of the modulus do not describe a complete sigmoidal function while the model tries to fit a complete sigmoidal function to the measured data.

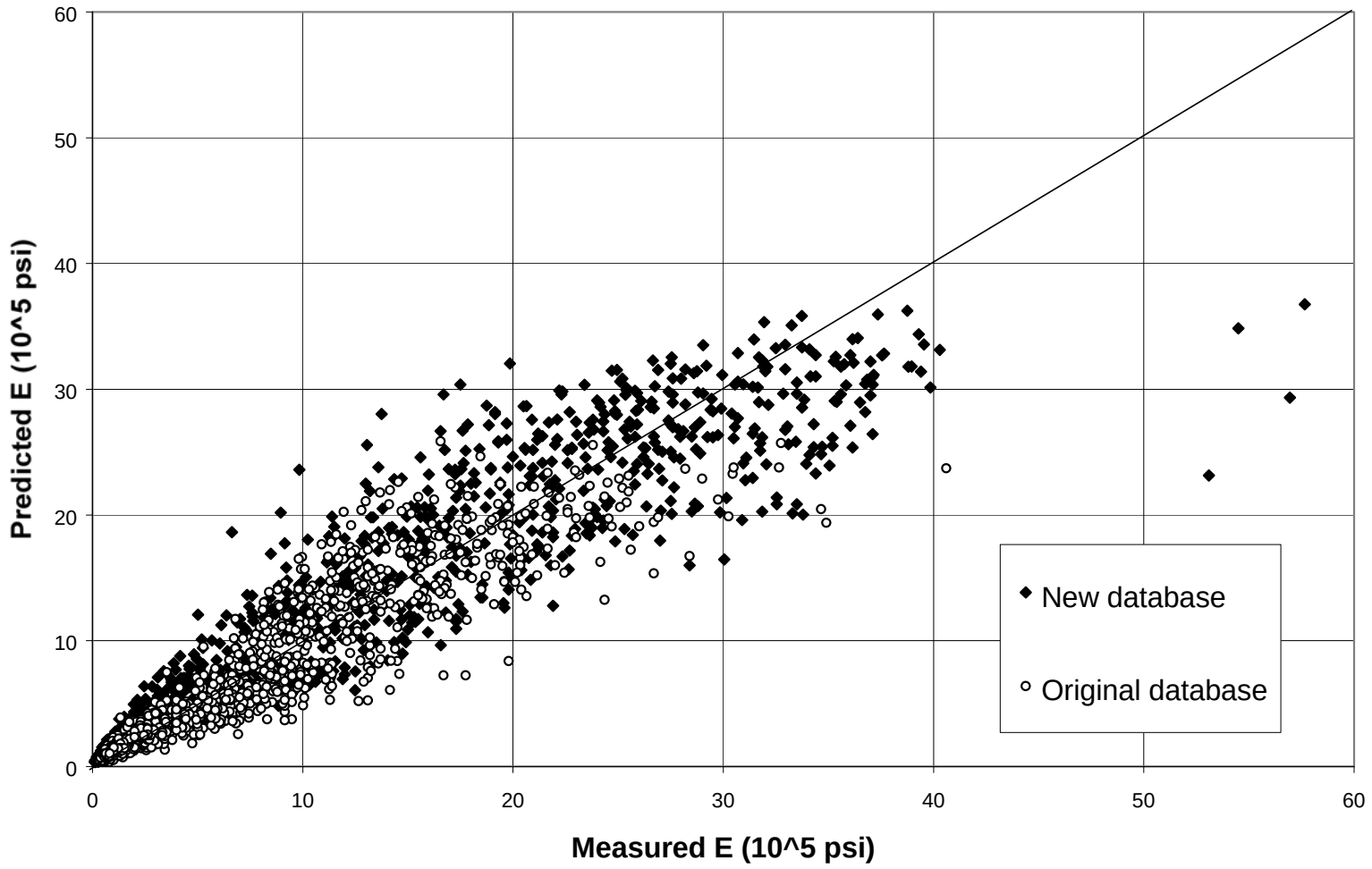
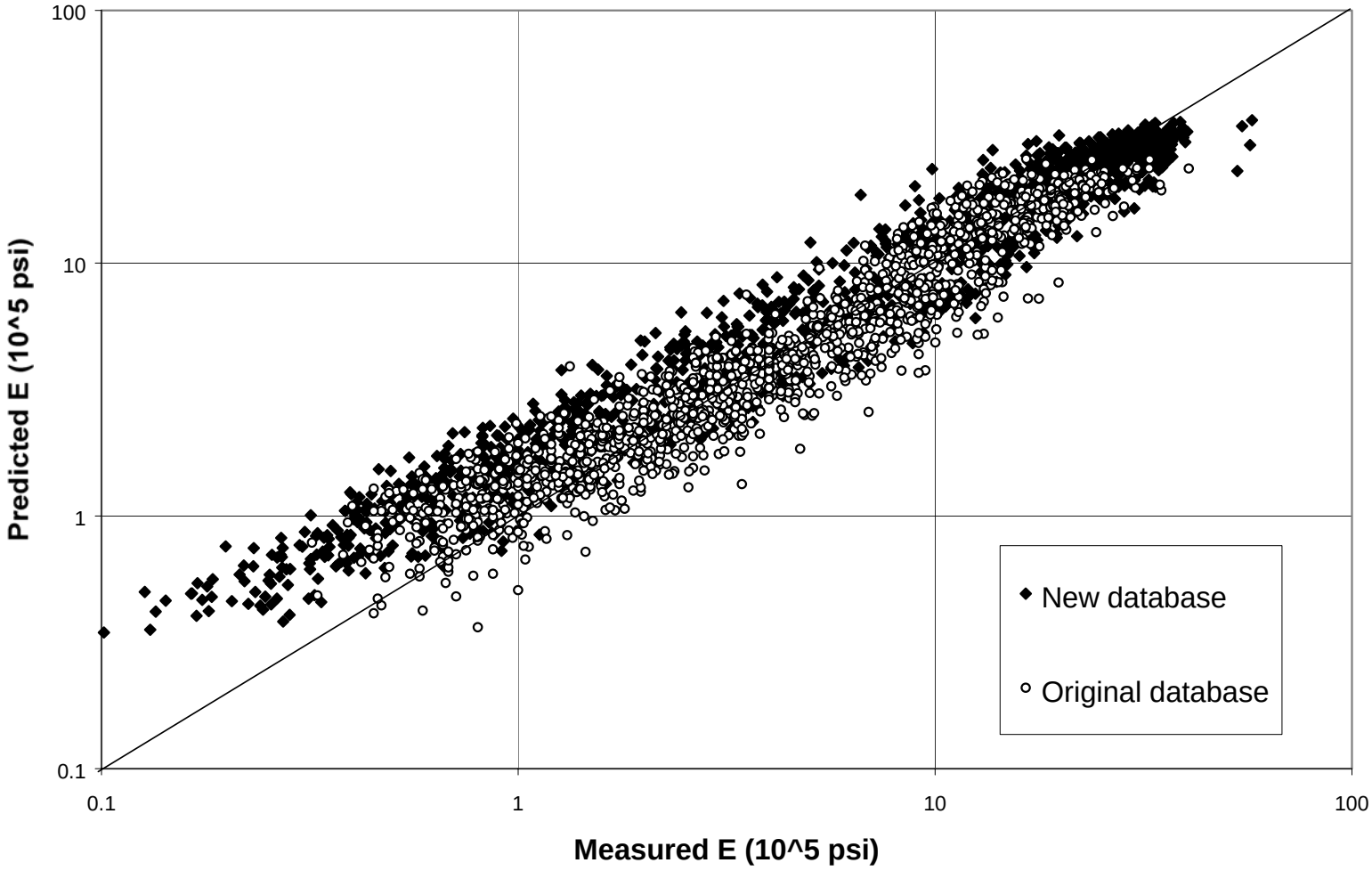

Predicted E (10^5 psi)
Measured E (10^5 psi)
0
10
20
30
40
50
60
New database
Original database

FIGURE 18. Comparison of Predicted and Measured Dynamic Modulus Values for the Recalibrated Model on Both Databases (Arithmetic



Scale)

FIGURE 19. Comparison of Predicted and Measured Dynamic Modulus Values for the Recalibrated Model on Both Databases (Log Scale)

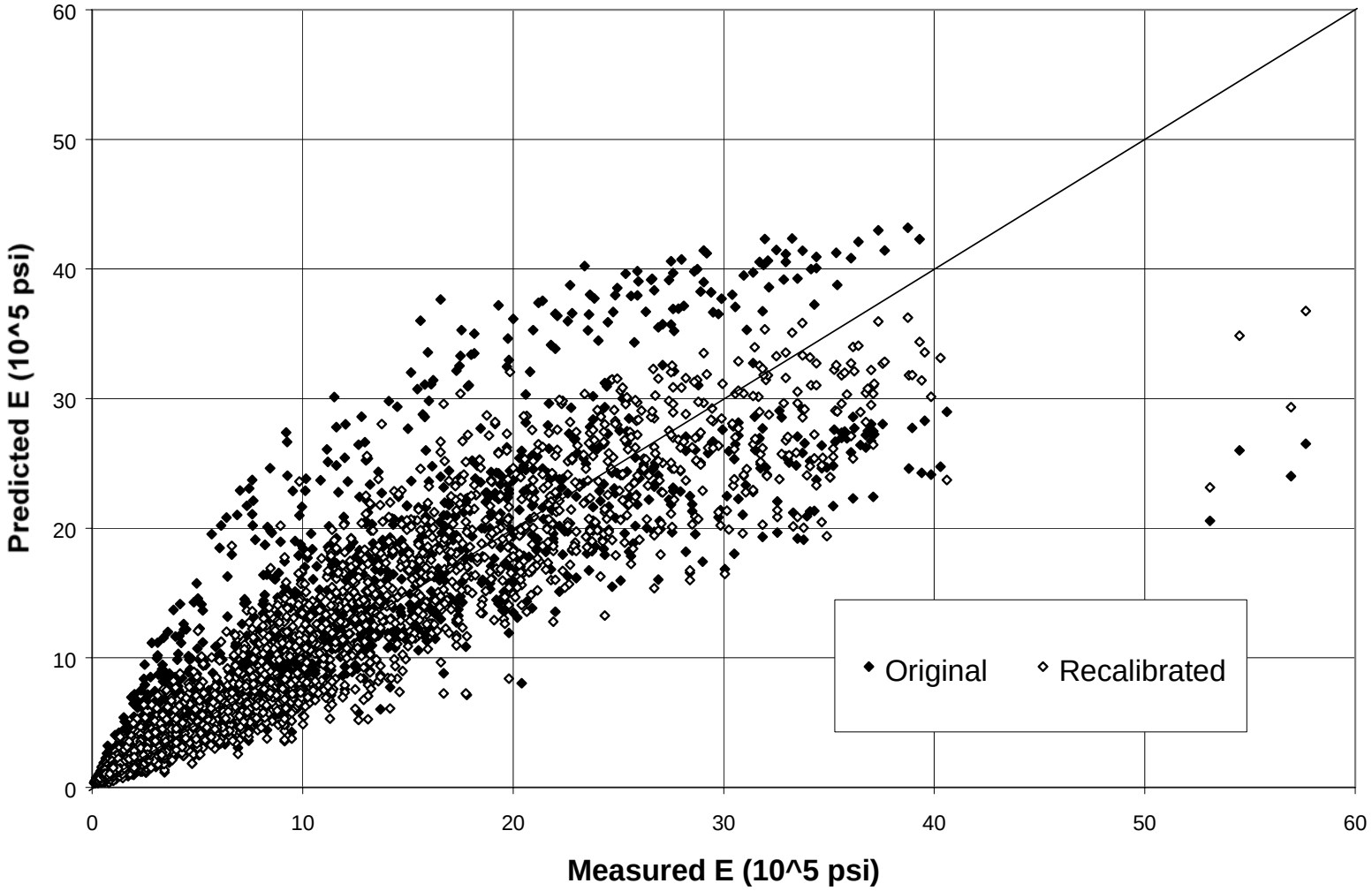


FIGURE 20. Comparison of Predicted and Measured Dynamic Modulus Values for the Recalibrated Model and the Original Model on the Combined

Database

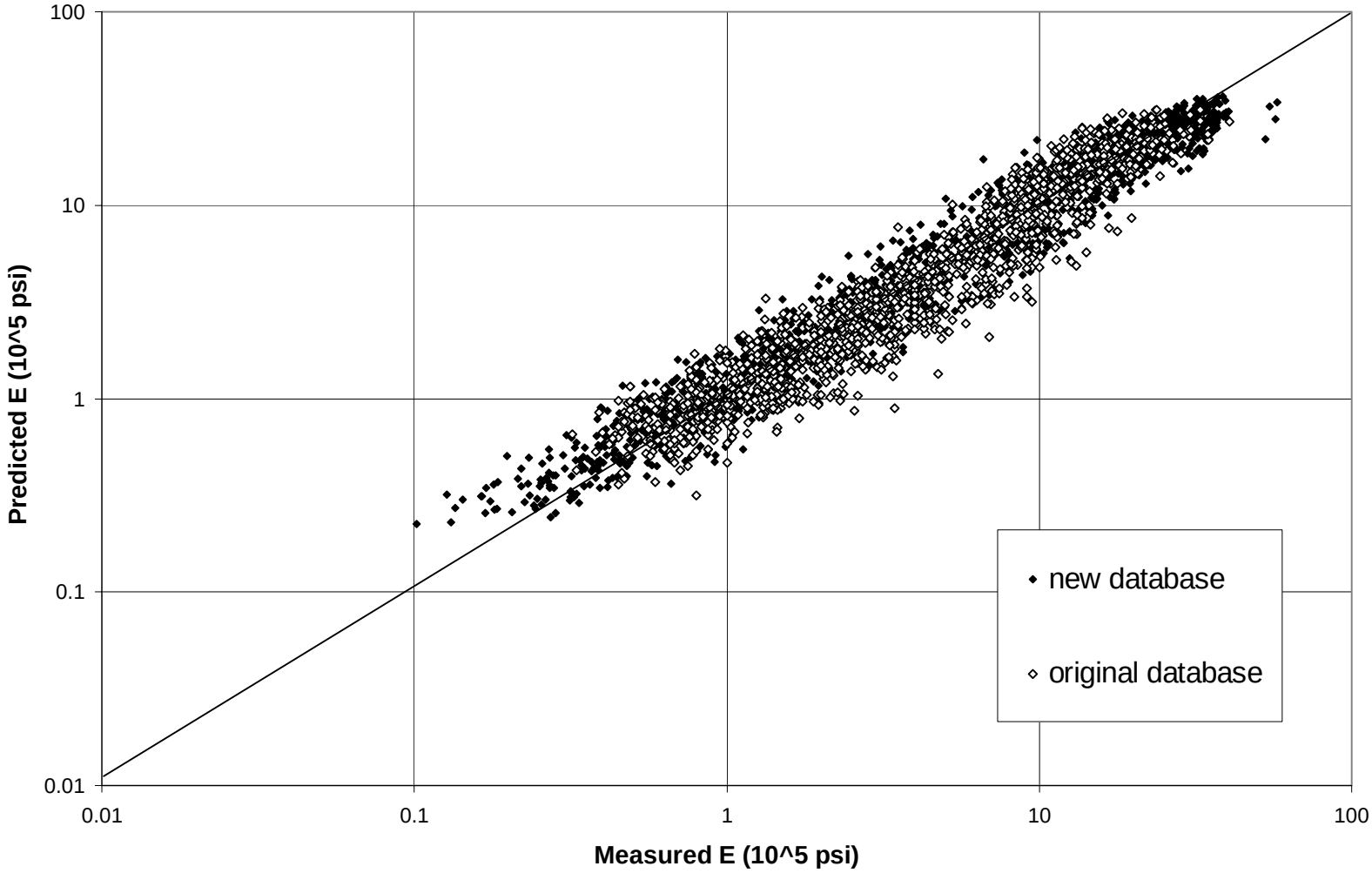

100
10
1
0.1
0.01
Predicted E (10^5 psi)
0.01
0.1
1
10
100
Measured E (10^5 psi)
new database
original database

FIGURE 21. Comparison of Predicted and Measured Dynamic Modulus Values for the Model Recalibrated in Log Space (Combined Database)

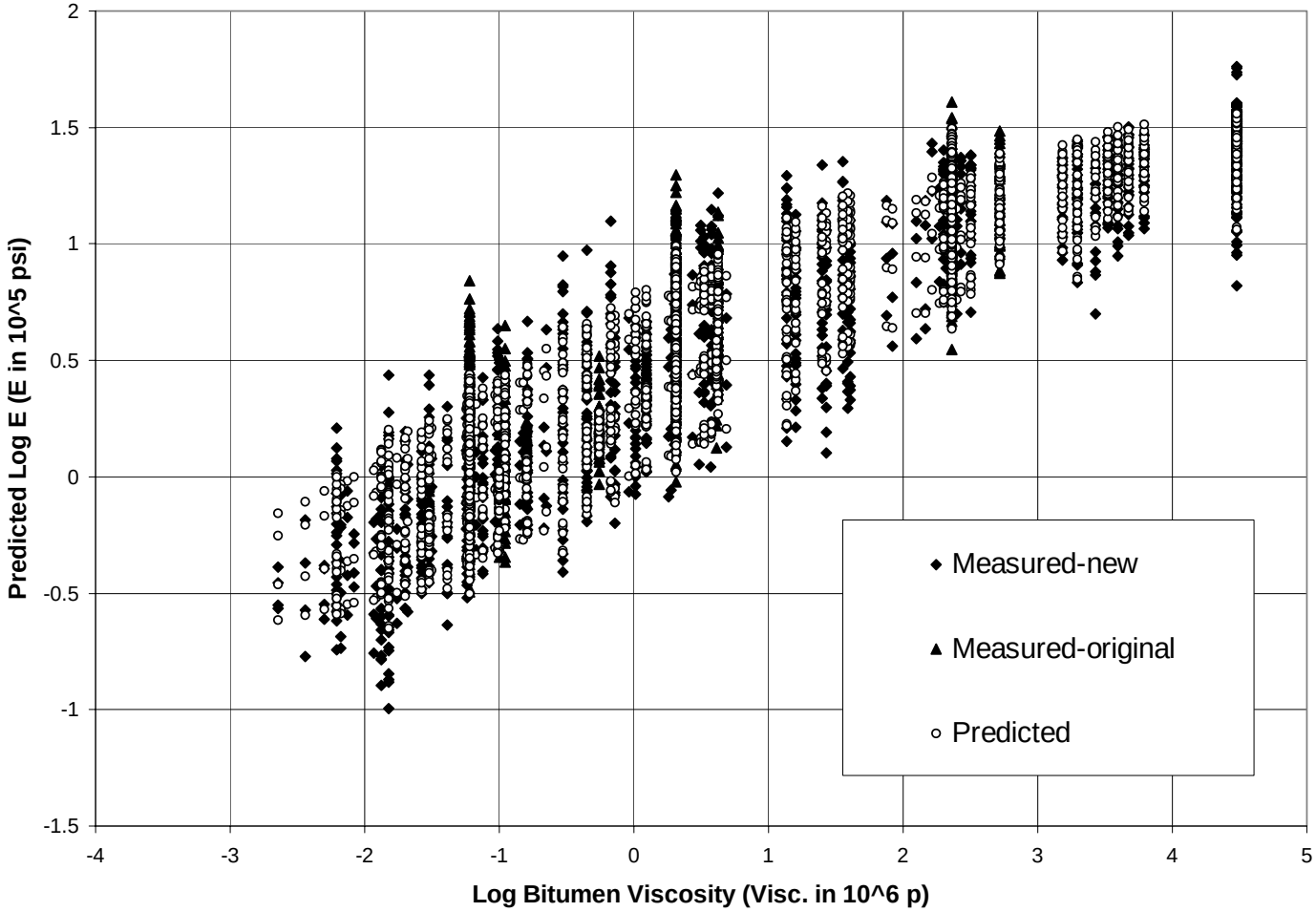


FIGURE 22. Measured/Predicted Dynamic Modulus Values Versus Viscosity

In order to allow the model to use only that part of the sigmoidal curve needed to describe the trend of the measured data, a location parameter β was then introduced in the original sigmoidal model. The modified mathematical formulation is presented in Figure 23.

Using the modified formulation, the model was then re-calibrated again in the logarithmic space. Figure 24 shows that the new model is no longer biased for low values of the modulus. In Figure 25, the effect of β is illustrated: only the upper part of the sigmoidal curve is used to fit the data and the model is no longer biased.

Solution "3 all" represents the set of coefficients that gave the best statistics for the model in his original mathematical formulation (no β) and calibrated in the arithmetic space. In Solution "4", an initial attempt to eliminate the local bias had the model calibrated in the logarithmic space. Finally, in Solution "5", the location parameter β is introduced in the model and the optimization is performed in the logarithmic space. The model is no longer biased and exhibits the best goodness of fit statistics in log space:

- Adjusted R^2 = 0.941 (0.886 in arithmetic space)
- Se/Sy = 0.244 (0.338 in arithmetic space)

The final recommended Dynamic Modulus Predictive Equation (given by Solution "5") is presented in Figure 26.

$$\log E = A(p_{200}, p_4, Va, Vb_{eff}) + \frac{B(p_4, p_{38}, p_{34})}{1 + e^{(\beta - K_f \cdot \log(f) - K_\eta \cdot \log(\eta))}}$$

β = Location Parameter

FIGURE 23. Revised Mathematical

Formulation

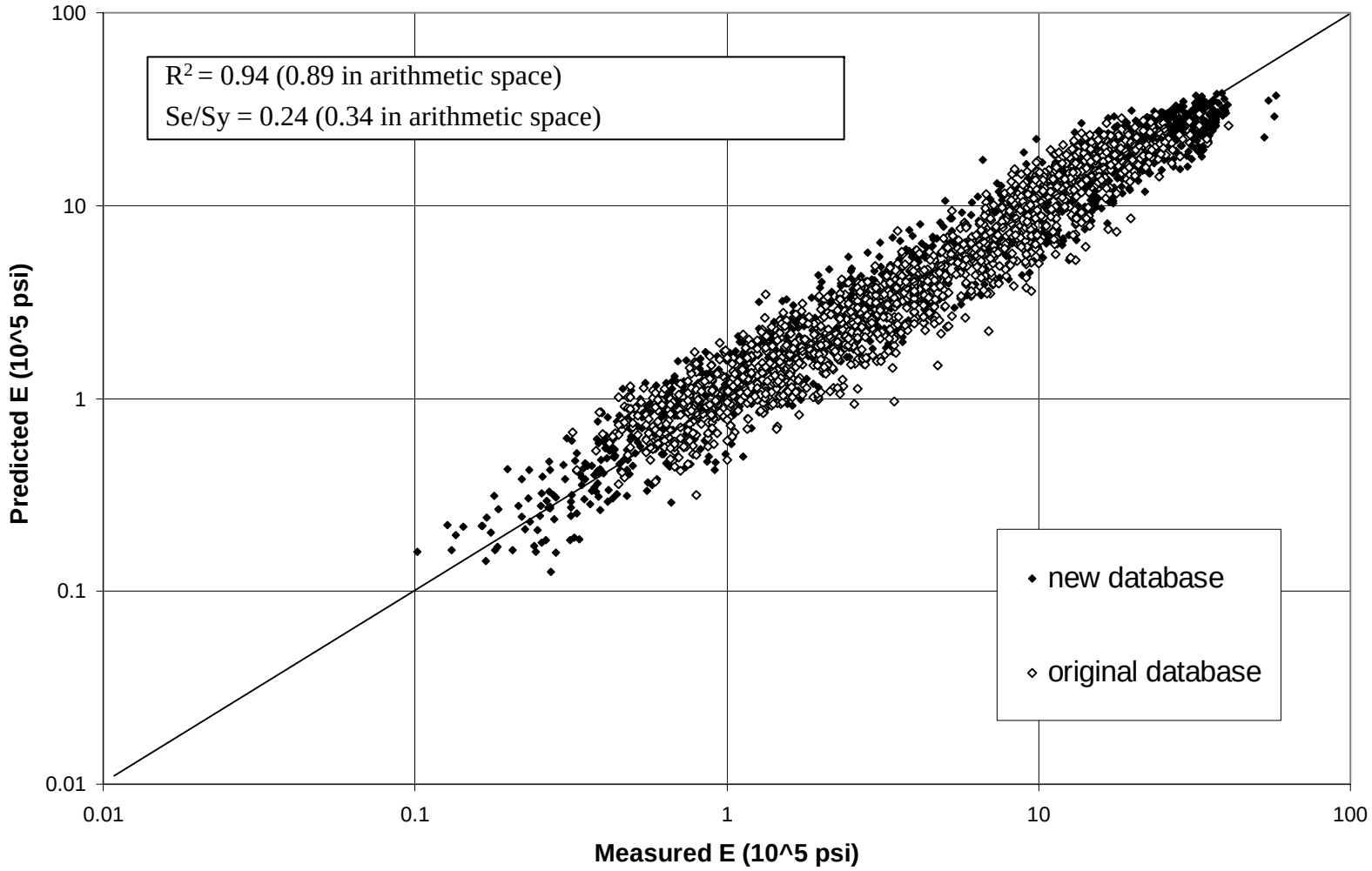


FIGURE 24. Comparison of Predicted and Measured Dynamic Modulus Values for the Revised Model Recalibrated in Log Space (Combined Database)

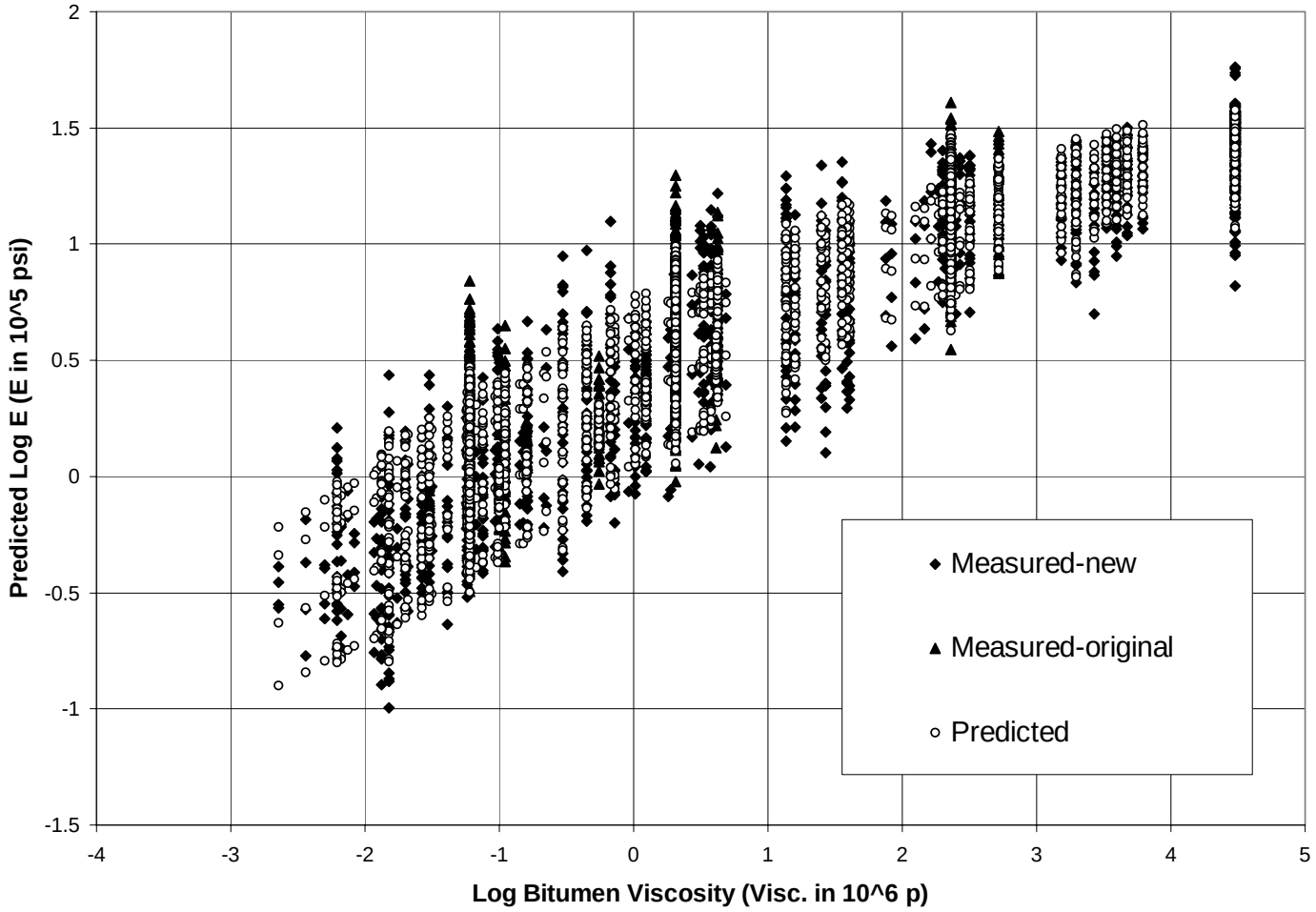


FIGURE 25. Measured/Predicted Dynamic Modulus Values Versus Viscosity for the Revised Model

Table 2 Optimization Solutions and Statistics for the Original and the Revised Dynamic Modulus Predictive Equation on the Combined Database

Solution ID		***3 all***	***4***	***5***
Coefficients	***Intercept 1***	-0.32486	-0.05136	-1.24994
	p200	0.134984	0.018839	0.029232
	p200 ^{2}	-0.00976	-0.00082	-0.00177
	p4	-0.00449	-0.00262	-0.00284
	Va	-0.04809	-0.05686	-0.0581
	Vbeff	-0.56979	-0.77793	-0.80221
	Intercept 2	2.263874	2.488911	3.871977
	p4	0.002856	-0.00164	-0.0021
	p38	-0.00204	0.005571	0.003958
	p38 ^{2}	8.11E-05	-4.6E-05	-1.7E-05
	p34	0.003178	0.004468	0.00547
	Kf	-0.39263	-0.48801	-0.31335
	Kv	-0.48889	-0.56112	-0.39353
	β			-0.60331
Log Space	***Se/Sy***	**0.307**	**0.250**	**0.244**
	R ^{2}	**0.906**	**0.938**	**0.941**
Arithmetic Space	***Se/Sy***	**0.313**	**0.345**	**0.338**
	R ^{2}	**0.902**	**0.881**	**0.886**

$$\log E = -1.249937 + 0.029232 \cdot p_{200} - 0.001767 \cdot (p_{200})^2 - 0.002841 \cdot p_4 - 0.058097 \cdot Va - 0.802208 \cdot \frac{Vb_{eff}}{(Vb_{eff} + Va)} +$$

$$+ \frac{3.871977 - 0.0021 \cdot p_4 + 0.003958 \cdot p_{38} - 0.000017 \cdot (p_{38})^2 + 0.005470 \cdot p_{34}}{1 + e^{(-0.603313 - 0.313351 \cdot \log(f) - 0.393532 \cdot \log(\eta))}}$$

Where the variables represent:

E	Asphalt Mix Dynamic Modulus, in 10^5 psi
η	Bitumen viscosity in 10^6 poise (at any temperature, degree of aging)
f	Load frequency in Hz
Va	% air voids in the mix, by volume
Vb_{eff}	% effective bitumen content, by volume
p_{34}	% retained on the ¾ inch sieve, by total aggregate weight (cumulative)
p_{38}	% retained on the 3/8 inch sieve, by total aggregate weight (cumulative)
p_4	% retained on the No. 4 sieve, by total aggregate weight (cumulative)
p_{200}	% passing the No. 200 sieve, by total aggregate weight

FIGURE 26. Revised Dynamic Modulus Predictive Equation

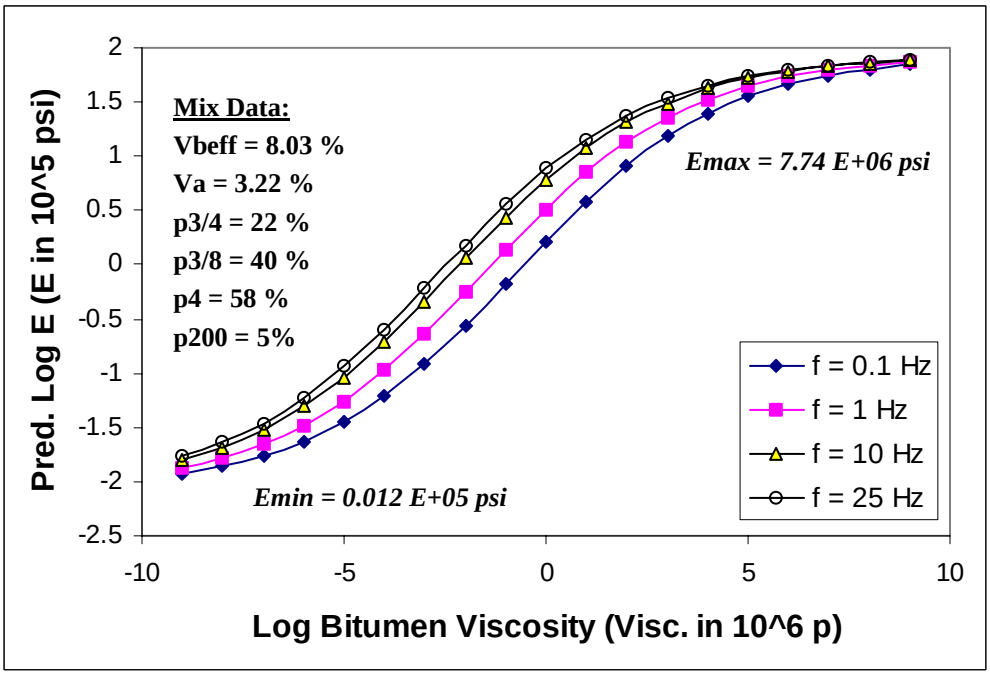
Rationality of the Coefficients

Using the data corresponding to one dense graded mix and one sand-asphalt mix of the original database; the predictions of the model for the two mixes are shown in Figure 27. It is observed that the maximum asymptotic value of the modulus corresponds to the physical limit of bitumen viscosity at about $3x10^{12}$ centipoises. Also, the minimum and maximum values of the modulus of the sand-asphalt mix are lower than the corresponding minimum and maximum limits predicted for the dense-graded mix (i.e. rational). As it can be seen, the influence of the load frequency is rational, with larger predicted dynamic modulus values for larger load frequency values.

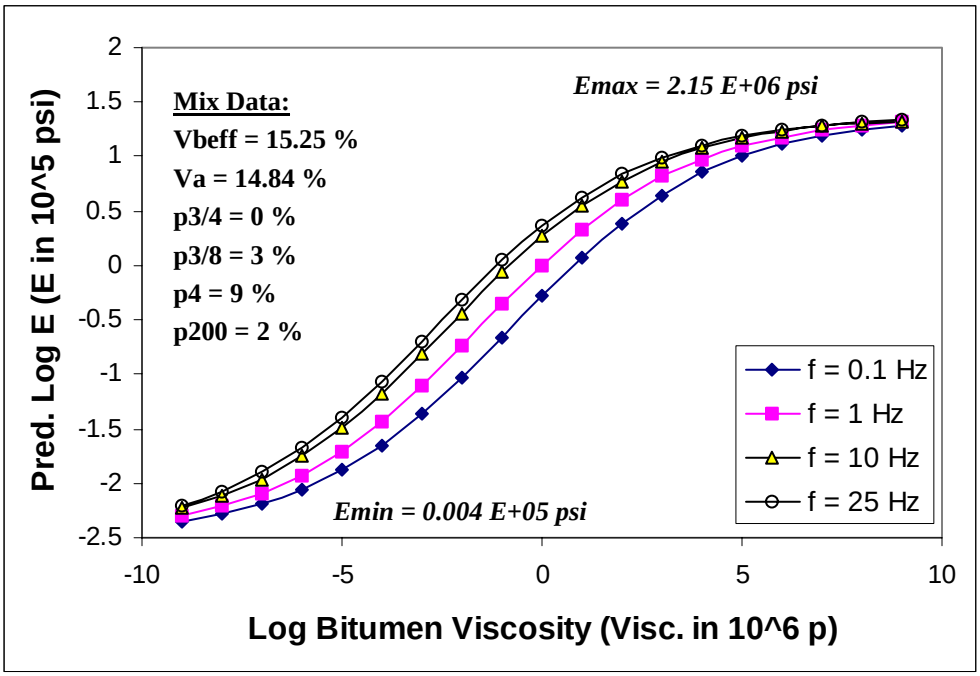
Through re-calibration, all coefficients have changed. Most of them change only in magnitude but some change in sign too. However, only some of the coefficients related to aggregate gradation suffer a sign change or a dramatic change in magnitude. Also, as observed in Solutions "3a, b,, f", allowing or not the intercepts to change has an influence on the sign of the coefficients related to the aggregate gradation.

Conclusions

This paper presents a revised Witczak et al dynamic modulus predictive equation. Introducing the location parameter β enhances the original Witczak-Fonseca formulation of the model. Also, a new set of coefficients is developed by calibrating the revised model on a larger database, made of the original database used by Witczak and Fonseca and a new database that contains a much wider range of binder types including modified binders. The resulting model can accurately predict (R^2 = 0.941, Se/Sy = 0.244) the dynamic modulus of mixtures using both modified and conventional asphalt cements, it



a) Dense-Graded Mix



b) Sand-Asphalt Mix

FIGURE 27. Rationality of the Revised Model Relative to Bitumen Viscosity and Load Frequency for Two Different Asphalt Mixes

considers any degree of aging and does not lose accuracy at extreme temperature/frequency conditions. The model is also applicable to mixes using a wide range of aggregate gradations, from sand-asphalt mixes to dense-graded mixes.

Appendix A

Original Database

(Extracted from “Development of a Time-Dependent Model for the Dynamic Modulus of Asphalt Mixes” – Ph.D. Dissertation by Osvaldo Albuquerque Fonseca, University of Maryland, 1995)

Modified Dynamic Modulus Characterization Data Summary (No Lab Short-Term Hardening Effects)

Obs	Source	Material	%AC	%AC	%AC	%Air	% pass	% ret.	% ret.	% ret.	% abs.	Lab Test/Orig.	Temp.	Load	Dyn.
					eff. @ opt	Voids	sv. No. 200	3/4" sv.	3/8" sv.	sv. No. 4	AC	Viscosity		Freq.	Modulus
			(by wt.)	(by vol.)	(by vol.)	(by vol.)	(by wt.)	(by wt.)	(by wt.)	(by wt.)	(by wt.)	(106 p)	(F)	(Hz)	(106 psi)
1	UMd	1	5.6	12.23	12.23	3.95	5.9	14	23.5	31.3	0.44	231.58	40	1	13.6
2	UMd	1	5.6	12.23	12.23	3.95	5.9	14	23.5	31.3	0.44	231.58	40	4	17.3
3	UMd	1	5.6	12.23	12.23	3.95	5.9	14	23.5	31.3	0.44	231.58	40	16	21
4	UMd	1	5.6	12.23	12.23	3.95	5.9	14	23.5	31.3	0.44	2.05	70	1	3.9
5	UMd	1	5.6	12.23	12.23	3.95	5.9	14	23.5	31.3	0.44	2.05	70	4	6.42
6	UMd	1	5.6	12.23	12.23	3.95	5.9	14	23.5	31.3	0.44	2.05	70	16	8.3
7	UMd	1	5.6	12.23	12.23	3.95	5.9	14	23.5	31.3	0.44	0.06	100	1	0.87
8	UMd	1	5.6	12.23	12.23	3.95	5.9	14	23.5	31.3	0.44	0.06	100	4	1.49
9	UMd	1	5.6	12.23	12.23	3.95	5.9	14	23.5	31.3	0.44	0.06	100	16	2.6
10	UMd	1	5.6	12.38	12.38	2.79	5.9	14	23.5	31.3	0.44	231.58	40	1	13.4
11	UMd	1	5.6	12.38	12.38	2.79	5.9	14	23.5	31.3	0.44	231.58	40	4	18.5
12	UMd	1	5.6	12.38	12.38	2.79	5.9	14	23.5	31.3	0.44	231.58	40	16	23.15
13	UMd	1	5.6	12.38	12.38	2.79	5.9	14	23.5	31.3	0.44	2.05	70	1	3.43
14	UMd	1	5.6	12.38	12.38	2.79	5.9	14	23.5	31.3	0.44	2.05	70	4	5.71
15	UMd	1	5.6	12.38	12.38	2.79	5.9	14	23.5	31.3	0.44	2.05	70	16	8.38
16	UMd	1	5.6	12.38	12.38	2.79	5.9	14	23.5	31.3	0.44	0.06	100	1	0.79
17	UMd	1	5.6	12.38	12.38	2.79	5.9	14	23.5	31.3	0.44	0.06	100	4	1.34
18	UMd	1	5.6	12.38	12.38	2.79	5.9	14	23.5	31.3	0.44	0.06	100	16	2.45
19	UMd	1	5.6	12.03	12.03	5.54	5.9	14	23.5	31.3	0.44	231.58	40	1	8.2
20	UMd	1	5.6	12.03	12.03	5.54	5.9	14	23.5	31.3	0.44	231.58	40	4	11.2
21	UMd	1	5.6	12.03	12.03	5.54	5.9	14	23.5	31.3	0.44	231.58	40	16	14.95
22	UMd	1	5.6	12.03	12.03	5.54	5.9	14	23.5	31.3	0.44	2.05	70	1	2.69
23	UMd	1	5.6	12.03	12.03	5.54	5.9	14	23.5	31.3	0.44	2.05	70	4	4.48
24	UMd	1	5.6	12.03	12.03	5.54	5.9	14	23.5	31.3	0.44	2.05	70	16	6.82
25	UMd	1	5.6	12.03	12.03	5.54	5.9	14	23.5	31.3	0.44	0.06	100	1	0.48
26	UMd	1	5.6	12.03	12.03	5.54	5.9	14	23.5	31.3	0.44	0.06	100	4	0.79
27	UMd	1	5.6	12.03	12.03	5.54	5.9	14	23.5	31.3	0.44	0.06	100	16	1.39

28	UMd	1	5.6	12.13	12.13	4.71	5.9	14	23.5	31.3	0.44	231.58	40	1	10.8
29	UMd	1	5.6	12.13	12.13	4.71	5.9	14	23.5	31.3	0.44	231.58	40	4	14.7
30	UMd	1	5.6	12.13	12.13	4.71	5.9	14	23.5	31.3	0.44	231.58	40	16	17.85
31	UMd	1	5.6	12.13	12.13	4.71	5.9	14	23.5	31.3	0.44	2.05	70	1	3.02
32	UMd	1	5.6	12.13	12.13	4.71	5.9	14	23.5	31.3	0.44	2.05	70	4	5.57
33	UMd	1	5.6	12.13	12.13	4.71	5.9	14	23.5	31.3	0.44	2.05	70	16	8.65
34	UMd	1	5.6	12.13	12.13	4.71	5.9	14	23.5	31.3	0.44	0.06	100	1	0.62
35	UMd	1	5.6	12.13	12.13	4.71	5.9	14	23.5	31.3	0.44	0.06	100	4	1.05
36	UMd	1	5.6	12.13	12.13	4.71	5.9	14	23.5	31.3	0.44	0.06	100	16	1.89
37	UMd	1	5.6	11.81	11.81	7.26	5.9	14	23.5	31.3	0.44	231.58	40	1	9.24
38	UMd	1	5.6	11.81	11.81	7.26	5.9	14	23.5	31.3	0.44	231.58	40	4	12.45
39	UMd	1	5.6	11.81	11.81	7.26	5.9	14	23.5	31.3	0.44	231.58	40	16	15.95
40	UMd	1	5.6	11.81	11.81	7.26	5.9	14	23.5	31.3	0.44	2.05	70	1	2.1
41	UMd	1	5.6	11.81	11.81	7.26	5.9	14	23.5	31.3	0.44	2.05	70	4	3.66
42	UMd	1	5.6	11.81	11.81	7.26	5.9	14	23.5	31.3	0.44	2.05	70	16	7.27
43	UMd	1	5.6	11.81	11.81	7.26	5.9	14	23.5	31.3	0.44	0.06	100	1	0.47
44	UMd	1	5.6	11.81	11.81	7.26	5.9	14	23.5	31.3	0.44	0.06	100	4	0.77
45	UMd	1	5.6	11.81	11.81	7.26	5.9	14	23.5	31.3	0.44	0.06	100	16	1.44
46	UMd	1	5.6	11.78	11.78	7.46	5.9	14	23.5	31.3	0.44	231.58	40	1	8.38
47	UMd	1	5.6	11.78	11.78	7.46	5.9	14	23.5	31.3	0.44	231.58	40	4	11.6
48	UMd	1	5.6	11.78	11.78	7.46	5.9	14	23.5	31.3	0.44	231.58	40	16	14.3
49	UMd	1	5.6	11.78	11.78	7.46	5.9	14	23.5	31.3	0.44	2.05	70	1	1.97
50	UMd	1	5.6	11.78	11.78	7.46	5.9	14	23.5	31.3	0.44	2.05	70	4	3.33
51	UMd	1	5.6	11.78	11.78	7.46	5.9	14	23.5	31.3	0.44	2.05	70	16	6.78
52	UMd	1	5.6	11.78	11.78	7.46	5.9	14	23.5	31.3	0.44	0.06	100	1	0.48
53	UMd	1	5.6	11.78	11.78	7.46	5.9	14	23.5	31.3	0.44	0.06	100	4	0.8
54	UMd	1	5.6	11.78	11.78	7.46	5.9	14	23.5	31.3	0.44	0.06	100	16	1.49
55	UMd	1	3.9	7.81	7.81	3.53	7.9	23.7	42.6	52.8	0.77	231.58	40	1	15.65
56	UMd	1	3.9	7.81	7.81	3.53	7.9	23.7	42.6	52.8	0.77	231.58	40	4	19.3
57	UMd	1	3.9	7.81	7.81	3.53	7.9	23.7	42.6	52.8	0.77	231.58	40	16	23.8
58	UMd	1	3.9	7.81	7.81	3.53	7.9	23.7	42.6	52.8	0.77	2.05	70	1	4.05
59	UMd	1	3.9	7.81	7.81	3.53	7.9	23.7	42.6	52.8	0.77	2.05	70	4	6.1

60	UMd	1	3.9	7.81	7.81	3.53	7.9	23.7	42.6	52.8	0.77	2.05	70	16	8.47
61	UMd	1	3.9	7.81	7.81	3.53	7.9	23.7	42.6	52.8	0.77	0.06	100	1	1.44
62	UMd	1	3.9	7.81	7.81	3.53	7.9	23.7	42.6	52.8	0.77	0.06	100	4	2.56
63	UMd	1	3.9	7.81	7.81	3.53	7.9	23.7	42.6	52.8	0.77	0.06	100	16	3.78
64	UMd	1	3.9	7.85	7.85	2.95	7.9	23.7	42.6	52.8	0.77	231.58	40	1	20.35
65	UMd	1	3.9	7.85	7.85	2.95	7.9	23.7	42.6	52.8	0.77	231.58	40	4	25.4
66	UMd	1	3.9	7.85	7.85	2.95	7.9	23.7	42.6	52.8	0.77	231.58	40	16	32.75
67	UMd	1	3.9	7.85	7.85	2.95	7.9	23.7	42.6	52.8	0.77	2.05	70	1	4.92
68	UMd	1	3.9	7.85	7.85	2.95	7.9	23.7	42.6	52.8	0.77	2.05	70	4	7.89
69	UMd	1	3.9	7.85	7.85	2.95	7.9	23.7	42.6	52.8	0.77	2.05	70	16	12.25
70	UMd	1	3.9	7.85	7.85	2.95	7.9	23.7	42.6	52.8	0.77	0.06	100	1	1.43
71	UMd	1	3.9	7.85	7.85	2.95	7.9	23.7	42.6	52.8	0.77	0.06	100	4	2.6
72	UMd	1	3.9	7.85	7.85	2.95	7.9	23.7	42.6	52.8	0.77	0.06	100	16	4.62
73	UMd	1	3.9	7.61	7.61	5.94	7.9	23.7	42.6	52.8	0.77	231.58	40	1	17.55
74	UMd	1	3.9	7.61	7.61	5.94	7.9	23.7	42.6	52.8	0.77	231.58	40	4	19.8
75	UMd	1	3.9	7.61	7.61	5.94	7.9	23.7	42.6	52.8	0.77	231.58	40	16	22.95
76	UMd	1	3.9	7.61	7.61	5.94	7.9	23.7	42.6	52.8	0.77	2.05	70	1	6.48
77	UMd	1	3.9	7.61	7.61	5.94	7.9	23.7	42.6	52.8	0.77	2.05	70	4	8.59
78	UMd	1	3.9	7.61	7.61	5.94	7.9	23.7	42.6	52.8	0.77	2.05	70	16	11.3
79	UMd	1	3.9	7.61	7.61	5.94	7.9	23.7	42.6	52.8	0.77	0.06	100	1	2.37
80	UMd	1	3.9	7.61	7.61	5.94	7.9	23.7	42.6	52.8	0.77	0.06	100	4	3.38
81	UMd	1	3.9	7.61	7.61	5.94	7.9	23.7	42.6	52.8	0.77	0.06	100	16	4.47
82	UMd	1	3.9	7.7	7.7	4.87	7.9	23.7	42.6	52.8	0.77	231.58	40	1	12.4
83	UMd	1	3.9	7.7	7.7	4.87	7.9	23.7	42.6	52.8	0.77	231.58	40	4	15.16
84	UMd	1	3.9	7.7	7.7	4.87	7.9	23.7	42.6	52.8	0.77	231.58	40	16	18.45
85	UMd	1	3.9	7.7	7.7	4.87	7.9	23.7	42.6	52.8	0.77	2.05	70	1	3.93
86	UMd	1	3.9	7.7	7.7	4.87	7.9	23.7	42.6	52.8	0.77	2.05	70	4	5.54
87	UMd	1	3.9	7.7	7.7	4.87	7.9	23.7	42.6	52.8	0.77	2.05	70	16	7.75
88	UMd	1	3.9	7.7	7.7	4.87	7.9	23.7	42.6	52.8	0.77	0.06	100	1	1.08
89	UMd	1	3.9	7.7	7.7	4.87	7.9	23.7	42.6	52.8	0.77	0.06	100	4	1.66
90	UMd	1	3.9	7.7	7.7	4.87	7.9	23.7	42.6	52.8	0.77	0.06	100	16	2.57
91	UMd	1	3.9	7.39	7.39	8.7	7.9	23.7	42.6	52.8	0.77	231.58	40	1	12.5

92	UMd	1	3.9	7.39	7.39	8.7	7.9	23.7	42.6	52.8	0.77	231.58	40	4	15.85
93	UMd	1	3.9	7.39	7.39	8.7	7.9	23.7	42.6	52.8	0.77	231.58	40	16	19.2
94	UMd	1	3.9	7.39	7.39	8.7	7.9	23.7	42.6	52.8	0.77	2.05	70	1	3.69
95	UMd	1	3.9	7.39	7.39	8.7	7.9	23.7	42.6	52.8	0.77	2.05	70	4	5.71
96	UMd	1	3.9	7.39	7.39	8.7	7.9	23.7	42.6	52.8	0.77	2.05	70	16	8.57
97	UMd	1	3.9	7.39	7.39	8.7	7.9	23.7	42.6	52.8	0.77	0.06	100	1	0.92
98	UMd	1	3.9	7.39	7.39	8.7	7.9	23.7	42.6	52.8	0.77	0.06	100	4	1.41
99	UMd	1	3.9	7.39	7.39	8.7	7.9	23.7	42.6	52.8	0.77	0.06	100	16	2.31
100	UMd	1	3.9	7.53	7.53	6.98	7.9	23.7	42.6	52.8	0.77	231.58	40	1	13.65
101	UMd	1	3.9	7.53	7.53	6.98	7.9	23.7	42.6	52.8	0.77	231.58	40	4	17.05
102	UMd	1	3.9	7.53	7.53	6.98	7.9	23.7	42.6	52.8	0.77	231.58	40	16	20.4
103	UMd	1	3.9	7.53	7.53	6.98	7.9	23.7	42.6	52.8	0.77	2.05	70	1	3.46
104	UMd	1	3.9	7.53	7.53	6.98	7.9	23.7	42.6	52.8	0.77	2.05	70	4	5.08
105	UMd	1	3.9	7.53	7.53	6.98	7.9	23.7	42.6	52.8	0.77	2.05	70	16	7.89
106	UMd	1	3.9	7.53	7.53	6.98	7.9	23.7	42.6	52.8	0.77	0.06	100	1	1.05
107	UMd	1	3.9	7.53	7.53	6.98	7.9	23.7	42.6	52.8	0.77	0.06	100	4	1.66
108	UMd	1	3.9	7.53	7.53	6.98	7.9	23.7	42.6	52.8	0.77	0.06	100	16	2.54
109	UMd	1	4.1	9.45	9.45	3.14	10.6	29.3	51.9	62.3	0.3	231.58	40	1	21.15
110	UMd	1	4.1	9.45	9.45	3.14	10.6	29.3	51.9	62.3	0.3	231.58	40	4	26
111	UMd	1	4.1	9.45	9.45	3.14	10.6	29.3	51.9	62.3	0.3	231.58	40	16	30.45
112	UMd	1	4.1	9.45	9.45	3.14	10.6	29.3	51.9	62.3	0.3	2.05	70	1	7.86
113	UMd	1	4.1	9.45	9.45	3.14	10.6	29.3	51.9	62.3	0.3	2.05	70	4	11.25
114	UMd	1	4.1	9.45	9.45	3.14	10.6	29.3	51.9	62.3	0.3	2.05	70	16	14.5
115	UMd	1	4.1	9.45	9.45	3.14	10.6	29.3	51.9	62.3	0.3	0.06	100	1	2.19
116	UMd	1	4.1	9.45	9.45	3.14	10.6	29.3	51.9	62.3	0.3	0.06	100	4	3.42
117	UMd	1	4.1	9.45	9.45	3.14	10.6	29.3	51.9	62.3	0.3	0.06	100	16	5.27
118	UMd	1	4.1	9.47	9.47	2.94	10.6	29.3	51.9	62.3	0.3	231.58	40	1	16.7
119	UMd	1	4.1	9.47	9.47	2.94	10.6	29.3	51.9	62.3	0.3	231.58	40	4	19.5
120	UMd	1	4.1	9.47	9.47	2.94	10.6	29.3	51.9	62.3	0.3	231.58	40	16	21.65
121	UMd	1	4.1	9.47	9.47	2.94	10.6	29.3	51.9	62.3	0.3	2.05	70	1	6.73
122	UMd	1	4.1	9.47	9.47	2.94	10.6	29.3	51.9	62.3	0.3	2.05	70	4	8.72
123	UMd	1	4.1	9.47	9.47	2.94	10.6	29.3	51.9	62.3	0.3	2.05	70	16	12.75

124	UMd	1	4.1	9.47	9.47	2.94	10.6	29.3	51.9	62.3	0.3	0.06	100	1	2.27
125	UMd	1	4.1	9.47	9.47	2.94	10.6	29.3	51.9	62.3	0.3	0.06	100	4	3.3
126	UMd	1	4.1	9.47	9.47	2.94	10.6	29.3	51.9	62.3	0.3	0.06	100	16	4.68
127	UMd	1	4.1	9.34	9.34	4.28	10.6	29.3	51.9	62.3	0.3	231.58	40	1	16.55
128	UMd	1	4.1	9.34	9.34	4.28	10.6	29.3	51.9	62.3	0.3	231.58	40	4	19.75
129	UMd	1	4.1	9.34	9.34	4.28	10.6	29.3	51.9	62.3	0.3	231.58	40	16	24.5
130	UMd	1	4.1	9.34	9.34	4.28	10.6	29.3	51.9	62.3	0.3	2.05	70	1	4.76
131	UMd	1	4.1	9.34	9.34	4.28	10.6	29.3	51.9	62.3	0.3	2.05	70	4	7.62
132	UMd	1	4.1	9.34	9.34	4.28	10.6	29.3	51.9	62.3	0.3	2.05	70	16	11.4
133	UMd	1	4.1	9.34	9.34	4.28	10.6	29.3	51.9	62.3	0.3	0.06	100	1	1.14
134	UMd	1	4.1	9.34	9.34	4.28	10.6	29.3	51.9	62.3	0.3	0.06	100	4	1.98
135	UMd	1	4.1	9.34	9.34	4.28	10.6	29.3	51.9	62.3	0.3	0.06	100	16	3.36
136	UMd	1	4.1	9.38	9.38	3.86	10.6	29.3	51.9	62.3	0.3	231.58	40	1	15.5
137	UMd	1	4.1	9.38	9.38	3.86	10.6	29.3	51.9	62.3	0.3	231.58	40	4	19
138	UMd	1	4.1	9.38	9.38	3.86	10.6	29.3	51.9	62.3	0.3	231.58	40	16	25.05
139	UMd	1	4.1	9.38	9.38	3.86	10.6	29.3	51.9	62.3	0.3	2.05	70	1	4.46
140	UMd	1	4.1	9.38	9.38	3.86	10.6	29.3	51.9	62.3	0.3	2.05	70	4	7.17
141	UMd	1	4.1	9.38	9.38	3.86	10.6	29.3	51.9	62.3	0.3	2.05	70	16	10.9
142	UMd	1	4.1	9.38	9.38	3.86	10.6	29.3	51.9	62.3	0.3	0.06	100	1	1.1
143	UMd	1	4.1	9.38	9.38	3.86	10.6	29.3	51.9	62.3	0.3	0.06	100	4	1.85
144	UMd	1	4.1	9.38	9.38	3.86	10.6	29.3	51.9	62.3	0.3	0.06	100	16	3.26
145	UMd	1	4.1	9.04	9.04	7.38	10.6	29.3	51.9	62.3	0.3	231.58	40	1	10.67
146	UMd	1	4.1	9.04	9.04	7.38	10.6	29.3	51.9	62.3	0.3	231.58	40	4	13.1
147	UMd	1	4.1	9.04	9.04	7.38	10.6	29.3	51.9	62.3	0.3	231.58	40	16	16.15
148	UMd	1	4.1	9.04	9.04	7.38	10.6	29.3	51.9	62.3	0.3	2.05	70	1	3.36
149	UMd	1	4.1	9.04	9.04	7.38	10.6	29.3	51.9	62.3	0.3	2.05	70	4	5.38
150	UMd	1	4.1	9.04	9.04	7.38	10.6	29.3	51.9	62.3	0.3	2.05	70	16	7.25
151	UMd	1	4.1	9.04	9.04	7.38	10.6	29.3	51.9	62.3	0.3	0.06	100	1	0.94
152	UMd	1	4.1	9.04	9.04	7.38	10.6	29.3	51.9	62.3	0.3	0.06	100	4	1.48
153	UMd	1	4.1	9.04	9.04	7.38	10.6	29.3	51.9	62.3	0.3	0.06	100	16	2.36
154	UMd	1	4.1	9.08	9.08	6.92	10.6	29.3	51.9	62.3	0.3	231.58	40	1	12.5
155	UMd	1	4.1	9.08	9.08	6.92	10.6	29.3	51.9	62.3	0.3	231.58	40	4	15.85

156	UMd	1	4.1	9.08	9.08	6.92	10.6	29.3	51.9	62.3	0.3	231.58	40	16	18.05
157	UMd	1	4.1	9.08	9.08	6.92	10.6	29.3	51.9	62.3	0.3	2.05	70	1	3.72
158	UMd	1	4.1	9.08	9.08	6.92	10.6	29.3	51.9	62.3	0.3	2.05	70	4	5.57
159	UMd	1	4.1	9.08	9.08	6.92	10.6	29.3	51.9	62.3	0.3	2.05	70	16	8.96
160	UMd	1	4.1	9.08	9.08	6.92	10.6	29.3	51.9	62.3	0.3	0.06	100	1	1.02
161	UMd	1	4.1	9.08	9.08	6.92	10.6	29.3	51.9	62.3	0.3	0.06	100	4	1.58
162	UMd	1	4.1	9.08	9.08	6.92	10.6	29.3	51.9	62.3	0.3	0.06	100	16	2.57
163	UMd	2	4.9	9.84	9.84	4.1	5	7	22	35	0.68	231.58	40	1	10.6
164	UMd	2	4.9	9.84	9.84	4.1	5	7	22	35	0.68	231.58	40	4	13.7
165	UMd	2	4.9	9.84	9.84	4.1	5	7	22	35	0.68	231.58	40	16	17.25
166	UMd	2	4.9	9.84	9.84	4.1	5	7	22	35	0.68	2.05	70	1	4.12
167	UMd	2	4.9	9.84	9.84	4.1	5	7	22	35	0.68	2.05	70	4	5.82
168	UMd	2	4.9	9.84	9.84	4.1	5	7	22	35	0.68	2.05	70	16	9.05
169	UMd	2	4.9	9.84	9.84	4.1	5	7	22	35	0.68	0.06	100	1	1.06
170	UMd	2	4.9	9.84	9.84	4.1	5	7	22	35	0.68	0.06	100	4	1.58
171	UMd	2	4.9	9.84	9.84	4.1	5	7	22	35	0.68	0.06	100	16	2.57
172	UMd	2	4.9	9.88	9.88	3.74	5	7	22	35	0.68	231.58	40	1	10.46
173	UMd	2	4.9	9.88	9.88	3.74	5	7	22	35	0.68	231.58	40	4	13.45
174	UMd	2	4.9	9.88	9.88	3.74	5	7	22	35	0.68	231.58	40	16	17.05
175	UMd	2	4.9	9.88	9.88	3.74	5	7	22	35	0.68	2.05	70	1	3.4
176	UMd	2	4.9	9.88	9.88	3.74	5	7	22	35	0.68	2.05	70	4	5.28
177	UMd	2	4.9	9.88	9.88	3.74	5	7	22	35	0.68	2.05	70	16	8.63
178	UMd	2	4.9	9.88	9.88	3.74	5	7	22	35	0.68	0.06	100	1	1.1
179	UMd	2	4.9	9.88	9.88	3.74	5	7	22	35	0.68	0.06	100	4	1.58
180	UMd	2	4.9	9.88	9.88	3.74	5	7	22	35	0.68	0.06	100	16	2.67
181	UMd	2	4.9	9.81	9.81	4.39	5	7	22	35	0.68	231.58	40	1	8.81
182	UMd	2	4.9	9.81	9.81	4.39	5	7	22	35	0.68	231.58	40	4	11.35
183	UMd	2	4.9	9.81	9.81	4.39	5	7	22	35	0.68	231.58	40	16	14.15
184	UMd	2	4.9	9.81	9.81	4.39	5	7	22	35	0.68	2.05	70	1	4.37
185	UMd	2	4.9	9.81	9.81	4.39	5	7	22	35	0.68	2.05	70	4	6.31
186	UMd	2	4.9	9.81	9.81	4.39	5	7	22	35	0.68	2.05	70	16	8.38
187	UMd	2	4.9	9.81	9.81	4.39	5	7	22	35	0.68	0.06	100	1	1.3

188	UMd	2	4.9	9.81	9.81	4.39	5	7	22	35	0.68	0.06	100	4	1.96
189	UMd	2	4.9	9.81	9.81	4.39	5	7	22	35	0.68	0.06	100	16	2.87
190	UMd	2	4.9	9.67	9.67	5.73	5	7	22	35	0.68	231.58	40	1	13.2
191	UMd	2	4.9	9.67	9.67	5.73	5	7	22	35	0.68	231.58	40	4	16.75
192	UMd	2	4.9	9.67	9.67	5.73	5	7	22	35	0.68	231.58	40	16	19.75
193	UMd	2	4.9	9.67	9.67	5.73	5	7	22	35	0.68	2.05	70	1	6.31
194	UMd	2	4.9	9.67	9.67	5.73	5	7	22	35	0.68	2.05	70	4	8.55
195	UMd	2	4.9	9.67	9.67	5.73	5	7	22	35	0.68	2.05	70	16	11.35
196	UMd	2	4.9	9.67	9.67	5.73	5	7	22	35	0.68	0.06	100	1	1.97
197	UMd	2	4.9	9.67	9.67	5.73	5	7	22	35	0.68	0.06	100	4	2.78
198	UMd	2	4.9	9.67	9.67	5.73	5	7	22	35	0.68	0.06	100	16	4.34
199	UMd	2	4.9	9.36	9.36	8.82	5	7	22	35	0.68	231.58	40	1	8.43
200	UMd	2	4.9	9.36	9.36	8.82	5	7	22	35	0.68	231.58	40	4	10.21
201	UMd	2	4.9	9.36	9.36	8.82	5	7	22	35	0.68	231.58	40	16	12.85
202	UMd	2	4.9	9.36	9.36	8.82	5	7	22	35	0.68	2.05	70	1	2.99
203	UMd	2	4.9	9.36	9.36	8.82	5	7	22	35	0.68	2.05	70	4	4.25
204	UMd	2	4.9	9.36	9.36	8.82	5	7	22	35	0.68	2.05	70	16	5.98
205	UMd	2	4.9	9.36	9.36	8.82	5	7	22	35	0.68	0.06	100	1	0.94
206	UMd	2	4.9	9.36	9.36	8.82	5	7	22	35	0.68	0.06	100	4	1.42
207	UMd	2	4.9	9.36	9.36	8.82	5	7	22	35	0.68	0.06	100	16	2.03
208	UMd	2	4.9	9.39	9.39	8.45	5	7	22	35	0.68	231.58	40	1	10.5
209	UMd	2	4.9	9.39	9.39	8.45	5	7	22	35	0.68	231.58	40	4	13
210	UMd	2	4.9	9.39	9.39	8.45	5	7	22	35	0.68	231.58	40	16	15.55
211	UMd	2	4.9	9.39	9.39	8.45	5	7	22	35	0.68	2.05	70	1	5.01
212	UMd	2	4.9	9.39	9.39	8.45	5	7	22	35	0.68	2.05	70	4	6.75
213	UMd	2	4.9	9.39	9.39	8.45	5	7	22	35	0.68	2.05	70	16	8.92
214	UMd	2	4.2	9.39	9.39	8.45	5	7	22	35	0.68	0.06	100	1	1.71
215	UMd	2	4.2	9.39	9.39	8.45	5	7	22	35	0.68	0.06	100	4	2.35
216	UMd	2	4.2	9.39	9.39	8.45	5	7	22	35	0.68	0.06	100	16	3.44
217	UMd	2	4.2	9.9	9.9	2.85	5	12	31	47	0	231.58	40	1	9.16
218	UMd	2	4.2	9.9	9.9	2.85	5	12	31	47	0	231.58	40	4	11.6
219	UMd	2	4.2	9.9	9.9	2.85	5	12	31	47	0	231.58	40	16	14.55

220	UMd	2	4.2	9.9	9.9	2.85	5	12	31	47	0	2.05	70	1	3.73
221	UMd	2	4.2	9.9	9.9	2.85	5	12	31	47	0	2.05	70	4	5.23
222	UMd	2	4.2	9.9	9.9	2.85	5	12	31	47	0	2.05	70	16	7.62
223	UMd	2	4.2	9.9	9.9	2.85	5	12	31	47	0	0.06	100	1	1.08
224	UMd	2	4.2	9.9	9.9	2.85	5	12	31	47	0	0.06	100	4	1.67
225	UMd	2	4.2	9.9	9.9	2.85	5	12	31	47	0	0.06	100	16	2.6
226	UMd	2	4.2	6.61	6.61	3.72	5	12	31	47	0	231.58	40	1	9.97
227	UMd	2	4.2	6.61	6.61	3.72	5	12	31	47	0	231.58	40	4	13
228	UMd	2	4.2	6.61	6.61	3.72	5	12	31	47	0	231.58	40	16	16.55
229	UMd	2	4.2	6.61	6.61	3.72	5	12	31	47	0	2.05	70	1	4.01
230	UMd	2	4.2	6.61	6.61	3.72	5	12	31	47	0	2.05	70	4	5.78
231	UMd	2	4.2	6.61	6.61	3.72	5	12	31	47	0	2.05	70	16	8.03
232	UMd	2	4.2	6.61	6.61	3.72	5	12	31	47	0	0.06	100	1	1.03
233	UMd	2	4.2	6.61	6.61	3.72	5	12	31	47	0	0.06	100	4	1.54
234	UMd	2	4.2	6.61	6.61	3.72	5	12	31	47	0	0.06	100	16	2.46
235	UMd	2	4.2	9.71	9.71	4.7	5	12	31	47	0	231.58	40	1	9.77
236	UMd	2	4.2	9.71	9.71	4.7	5	12	31	47	0	231.58	40	4	12.25
237	UMd	2	4.2	9.71	9.71	4.7	5	12	31	47	0	231.58	40	16	15.5
238	UMd	2	4.2	9.71	9.71	4.7	5	12	31	47	0	2.05	70	1	4.3
239	UMd	2	4.2	9.71	9.71	4.7	5	12	31	47	0	2.05	70	4	5.98
240	UMd	2	4.2	9.71	9.71	4.7	5	12	31	47	0	2.05	70	16	8.55
241	UMd	2	4.2	9.71	9.71	4.7	5	12	31	47	0	0.06	100	1	1.3
242	UMd	2	4.2	9.71	9.71	4.7	5	12	31	47	0	0.06	100	4	2
243	UMd	2	4.2	9.71	9.71	4.7	5	12	31	47	0	0.06	100	16	2.78
244	UMd	2	4.2	9.59	9.59	5.91	5	12	31	47	0	231.58	40	1	8.15
245	UMd	2	4.2	9.59	9.59	5.91	5	12	31	47	0	231.58	40	4	9.81
246	UMd	2	4.2	9.59	9.59	5.91	5	12	31	47	0	231.58	40	16	11.95
247	UMd	2	4.2	9.59	9.59	5.91	5	12	31	47	0	2.05	70	1	3.94
248	UMd	2	4.2	9.59	9.59	5.91	5	12	31	47	0	2.05	70	4	4.98
249	UMd	2	4.2	9.59	9.59	5.91	5	12	31	47	0	2.05	70	16	6.73
250	UMd	2	4.2	9.59	9.59	5.91	5	12	31	47	0	0.06	100	1	1.49
251	UMd	2	4.2	9.59	9.59	5.91	5	12	31	47	0	0.06	100	4	2.06

252	UMd	2	4.2	9.59	9.59	5.91	5	12	31	47	0	0.06	100	16	2.87
253	UMd	2	4.2	9.49	9.49	6.88	5	12	31	47	0	231.58	40	1	10.87
254	UMd	2	4.2	9.49	9.49	6.88	5	12	31	47	0	231.58	40	4	13.6
255	UMd	2	4.2	9.49	9.49	6.88	5	12	31	47	0	231.58	40	16	16.75
256	UMd	2	4.2	9.49	9.49	6.88	5	12	31	47	0	2.05	70	1	4.66
257	UMd	2	4.2	9.49	9.49	6.88	5	12	31	47	0	2.05	70	4	6.58
258	UMd	2	4.2	9.49	9.49	6.88	5	12	31	47	0	2.05	70	16	9.06
259	UMd	2	4.2	9.49	9.49	6.88	5	12	31	47	0	0.06	100	1	1.32
260	UMd	2	4.2	9.49	9.49	6.88	5	12	31	47	0	0.06	100	4	2.04
261	UMd	2	4.2	9.49	9.49	6.88	5	12	31	47	0	0.06	100	16	3.11
262	UMd	2	4.2	9.56	9.56	6.2	5	12	31	47	0	231.58	40	1	13.85
263	UMd	2	4.2	9.56	9.56	6.2	5	12	31	47	0	231.58	40	4	17.75
264	UMd	2	4.2	9.56	9.56	6.2	5	12	31	47	0	231.58	40	16	21.6
265	UMd	2	4.2	9.56	9.56	6.2	5	12	31	47	0	2.05	70	1	5
266	UMd	2	4.2	9.56	9.56	6.2	5	12	31	47	0	2.05	70	4	7.5
267	UMd	2	4.2	9.56	9.56	6.2	5	12	31	47	0	2.05	70	16	10.25
268	UMd	2	4.2	9.56	9.56	6.2	5	12	31	47	0	0.06	100	1	1.39
269	UMd	2	4.2	9.56	9.56	6.2	5	12	31	47	0	0.06	100	4	2.19
270	UMd	2	4.2	9.56	9.56	6.2	5	12	31	47	0	0.06	100	16	3.44
271	UMd	2	3.9	8.05	8.05	2.94	5	22	40	58	0.51	231.58	40	1	22.45
272	UMd	2	3.9	8.05	8.05	2.94	5	22	40	58	0.51	231.58	40	4	26.7
273	UMd	2	3.9	8.05	8.05	2.94	5	22	40	58	0.51	231.58	40	16	32.65
274	UMd	2	3.9	8.05	8.05	2.94	5	22	40	58	0.51	2.05	70	1	6.53
275	UMd	2	3.9	8.05	8.05	2.94	5	22	40	58	0.51	2.05	70	4	9.2
276	UMd	2	3.9	8.05	8.05	2.94	5	22	40	58	0.51	2.05	70	16	14.2
277	UMd	2	3.9	8.05	8.05	2.94	5	22	40	58	0.51	0.06	100	1	1.44
278	UMd	2	3.9	8.05	8.05	2.94	5	22	40	58	0.51	0.06	100	4	2.31
279	UMd	2	3.9	8.05	8.05	2.94	5	22	40	58	0.51	0.06	100	16	4.08
280	UMd	2	3.9	8.03	8.03	3.22	5	22	40	58	0.51	231.58	40	1	26.7
281	UMd	2	3.9	8.03	8.03	3.22	5	22	40	58	0.51	231.58	40	4	34.9
282	UMd	2	3.9	8.03	8.03	3.22	5	22	40	58	0.51	231.58	40	16	40.6
283	UMd	2	3.9	8.03	8.03	3.22	5	22	40	58	0.51	2.05	70	1	9.14

284	UMd	2	3.9	8.03	8.03	3.22	5	22	40	58	0.51	2.05	70	4	14.15
285	UMd	2	3.9	8.03	8.03	3.22	5	22	40	58	0.51	2.05	70	16	19.8
286	UMd	2	3.9	8.03	8.03	3.22	5	22	40	58	0.51	0.06	100	1	2.63
287	UMd	2	3.9	8.03	8.03	3.22	5	22	40	58	0.51	0.06	100	4	3.48
288	UMd	2	3.9	8.03	8.03	3.22	5	22	40	58	0.51	0.06	100	16	5.82
289	UMd	2	3.9	7.93	7.93	4.39	5	22	40	58	0.51	231.58	40	1	18.05
290	UMd	2	3.9	7.93	7.93	4.39	5	22	40	58	0.51	231.58	40	4	21.65
291	UMd	2	3.9	7.93	7.93	4.39	5	22	40	58	0.51	231.58	40	16	25.5
292	UMd	2	3.9	7.93	7.93	4.39	5	22	40	58	0.51	2.05	70	1	7.04
293	UMd	2	3.9	7.93	7.93	4.39	5	22	40	58	0.51	2.05	70	4	9.57
294	UMd	2	3.9	7.93	7.93	4.39	5	22	40	58	0.51	2.05	70	16	13.6
295	UMd	2	3.9	7.93	7.93	4.39	5	22	40	58	0.51	0.06	100	1	2.14
296	UMd	2	3.9	7.93	7.93	4.39	5	22	40	58	0.51	0.06	100	4	3.2
297	UMd	2	3.9	7.93	7.93	4.39	5	22	40	58	0.51	0.06	100	16	4.62
298	UMd	2	3.9	7.85	7.85	5.35	5	22	40	58	0.51	231.58	40	1	16.85
299	UMd	2	3.9	7.85	7.85	5.35	5	22	40	58	0.51	231.58	40	4	20
300	UMd	2	3.9	7.85	7.85	5.35	5	22	40	58	0.51	231.58	40	16	23.65
301	UMd	2	3.9	7.85	7.85	5.35	5	22	40	58	0.51	2.05	70	1	7.2
302	UMd	2	3.9	7.85	7.85	5.35	5	22	40	58	0.51	2.05	70	4	9.48
303	UMd	2	3.9	7.85	7.85	5.35	5	22	40	58	0.51	2.05	70	16	13.1
304	UMd	2	3.9	7.85	7.85	5.35	5	22	40	58	0.51	0.06	100	1	2.3
305	UMd	2	3.9	7.85	7.85	5.35	5	22	40	58	0.51	0.06	100	4	3.1
306	UMd	2	3.9	7.85	7.85	5.35	5	22	40	58	0.51	0.06	100	16	4.62
307	UMd	2	3.9	7.71	7.71	7.01	5	22	40	58	0.51	231.58	40	1	24.35
308	UMd	2	3.9	7.71	7.71	7.01	5	22	40	58	0.51	231.58	40	4	28.4
309	UMd	2	3.9	7.71	7.71	7.01	5	22	40	58	0.51	231.58	40	16	34.65
310	UMd	2	3.9	7.71	7.71	7.01	5	22	40	58	0.51	2.05	70	1	9.48
311	UMd	2	3.9	7.71	7.71	7.01	5	22	40	58	0.51	2.05	70	4	13.1
312	UMd	2	3.9	7.71	7.71	7.01	5	22	40	58	0.51	2.05	70	16	17.75
313	UMd	2	3.9	7.71	7.71	7.01	5	22	40	58	0.51	0.06	100	1	3.44
314	UMd	2	3.9	7.71	7.71	7.01	5	22	40	58	0.51	0.06	100	4	4.75
315	UMd	2	3.9	7.71	7.71	7.01	5	22	40	58	0.51	0.06	100	16	6.93

316	UMd	2	3.9	7.68	7.68	7.45	5	22	40	58	0.51	231.58	40	1	19.1
317	UMd	2	3.9	7.68	7.68	7.45	5	22	40	58	0.51	231.58	40	4	24.15
318	UMd	2	3.9	7.68	7.68	7.45	5	22	40	58	0.51	231.58	40	16	30.25
319	UMd	2	3.9	7.68	7.68	7.45	5	22	40	58	0.51	2.05	70	1	7
320	UMd	2	3.9	7.68	7.68	7.45	5	22	40	58	0.51	2.05	70	4	9.48
321	UMd	2	3.9	7.68	7.68	7.45	5	22	40	58	0.51	2.05	70	16	13.1
322	UMd	2	3.9	7.68	7.68	7.45	5	22	40	58	0.51	0.06	100	1	2.56
323	UMd	2	3.9	7.68	7.68	7.45	5	22	40	58	0.51	0.06	100	4	3.41
324	UMd	2	3.9	7.68	7.68	7.45	5	22	40	58	0.51	0.06	100	16	4.87
325	UMd	3	8.8	18.95	18.95	3.7	2.8	2.6	22.2	30.7	0.05	231.58	40	1	9.25
326	UMd	3	8.8	18.95	18.95	3.7	2.8	2.6	22.2	30.7	0.05	231.58	40	4	12.85
327	UMd	3	8.8	18.95	18.95	3.7	2.8	2.6	22.2	30.7	0.05	231.58	40	16	15.2
328	UMd	3	8.8	18.95	18.95	3.7	2.8	2.6	22.2	30.7	0.05	2.05	70	1	2.57
329	UMd	3	8.8	18.95	18.95	3.7	2.8	2.6	22.2	30.7	0.05	2.05	70	4	4.35
330	UMd	3	8.8	18.95	18.95	3.7	2.8	2.6	22.2	30.7	0.05	2.05	70	16	5.86
331	UMd	3	8.8	18.95	18.95	3.7	2.8	2.6	22.2	30.7	0.05	0.06	100	1	0.76
332	UMd	3	8.8	18.95	18.95	3.7	2.8	2.6	22.2	30.7	0.05	0.06	100	4	1.16
333	UMd	3	8.8	18.95	18.95	3.7	2.8	2.6	22.2	30.7	0.05	0.06	100	16	2
334	UMd	3	8.8	18.72	18.72	4.88	2.8	2.6	22.2	30.7	0.05	231.58	40	1	9.87
335	UMd	3	8.8	18.72	18.72	4.88	2.8	2.6	22.2	30.7	0.05	231.58	40	4	12.8
336	UMd	3	8.8	18.72	18.72	4.88	2.8	2.6	22.2	30.7	0.05	231.58	40	16	15.35
337	UMd	3	8.8	18.72	18.72	4.88	2.8	2.6	22.2	30.7	0.05	2.05	70	1	2.65
338	UMd	3	8.8	18.72	18.72	4.88	2.8	2.6	22.2	30.7	0.05	2.05	70	4	3.94
339	UMd	3	8.8	18.72	18.72	4.88	2.8	2.6	22.2	30.7	0.05	2.05	70	16	6.35
340	UMd	3	8.8	18.72	18.72	4.88	2.8	2.6	22.2	30.7	0.05	0.06	100	1	0.78
341	UMd	3	8.8	18.72	18.72	4.88	2.8	2.6	22.2	30.7	0.05	0.06	100	4	1.3
342	UMd	3	8.8	18.72	18.72	4.88	2.8	2.6	22.2	30.7	0.05	0.06	100	16	2.04
343	UMd	3	8.8	18.87	18.87	4.09	2.8	2.6	22.2	30.7	0.05	231.58	40	1	9.35
344	UMd	3	8.8	18.87	18.87	4.09	2.8	2.6	22.2	30.7	0.05	231.58	40	4	11.75
345	UMd	3	8.8	18.87	18.87	4.09	2.8	2.6	22.2	30.7	0.05	231.58	40	16	15.2
346	UMd	3	8.8	18.87	18.87	4.09	2.8	2.6	22.2	30.7	0.05	2.05	70	1	3.2
347	UMd	3	8.8	18.87	18.87	4.09	2.8	2.6	22.2	30.7	0.05	2.05	70	4	4.71

348	UMd	3	8.8	18.87	18.87	4.09	2.8	2.6	22.2	30.7	0.05	2.05	70	16	7.22
349	UMd	3	8.8	18.87	18.87	4.09	2.8	2.6	22.2	30.7	0.05	0.06	100	1	0.98
350	UMd	3	8.8	18.87	18.87	4.09	2.8	2.6	22.2	30.7	0.05	0.06	100	4	1.49
351	UMd	3	8.8	18.87	18.87	4.09	2.8	2.6	22.2	30.7	0.05	0.06	100	16	2.39
352	UMd	3	7.5	13.71	13.71	4.42	4.5	11.2	24.3	35.1	1.3	231.58	40	1	16.05
353	UMd	3	7.5	13.71	13.71	4.42	4.5	11.2	24.3	35.1	1.3	231.58	40	4	18.95
354	UMd	3	7.5	13.71	13.71	4.42	4.5	11.2	24.3	35.1	1.3	231.58	40	16	23.65
355	UMd	3	7.5	13.71	13.71	4.42	4.5	11.2	24.3	35.1	1.3	2.05	70	1	6.83
356	UMd	3	7.5	13.71	13.71	4.42	4.5	11.2	24.3	35.1	1.3	2.05	70	4	10.02
357	UMd	3	7.5	13.71	13.71	4.42	4.5	11.2	24.3	35.1	1.3	2.05	70	16	12.9
358	UMd	3	7.5	13.71	13.71	4.42	4.5	11.2	24.3	35.1	1.3	0.06	100	1	1.31
359	UMd	3	7.5	13.71	13.71	4.42	4.5	11.2	24.3	35.1	1.3	0.06	100	4	2.18
360	UMd	3	7.5	13.71	13.71	4.42	4.5	11.2	24.3	35.1	1.3	0.06	100	16	3.62
361	UMd	3	7.5	13.94	13.94	2.84	4.5	11.2	24.3	35.1	1.3	231.58	40	1	20.65
362	UMd	3	7.5	13.94	13.94	2.84	4.5	11.2	24.3	35.1	1.3	231.58	40	4	25.6
363	UMd	3	7.5	13.94	13.94	2.84	4.5	11.2	24.3	35.1	1.3	231.58	40	16	29.75
364	UMd	3	7.5	13.94	13.94	2.84	4.5	11.2	24.3	35.1	1.3	2.05	70	1	9.14
365	UMd	3	7.5	13.94	13.94	2.84	4.5	11.2	24.3	35.1	1.3	2.05	70	4	12.65
366	UMd	3	7.5	13.94	13.94	2.84	4.5	11.2	24.3	35.1	1.3	2.05	70	16	16.7
367	UMd	3	7.5	13.94	13.94	2.84	4.5	11.2	24.3	35.1	1.3	0.06	100	1	1.89
368	UMd	3	7.5	13.94	13.94	2.84	4.5	11.2	24.3	35.1	1.3	0.06	100	4	3.03
369	UMd	3	7.5	13.94	13.94	2.84	4.5	11.2	24.3	35.1	1.3	0.06	100	16	5.07
370	UMd	3	7.5	13.7	13.7	4.51	4.5	11.2	24.3	35.1	1.3	231.58	40	1	16.25
371	UMd	3	7.5	13.7	13.7	4.51	4.5	11.2	24.3	35.1	1.3	231.58	40	4	20.35
372	UMd	3	7.5	13.7	13.7	4.51	4.5	11.2	24.3	35.1	1.3	231.58	40	16	24.55
373	UMd	3	7.5	13.7	13.7	4.51	4.5	11.2	24.3	35.1	1.3	2.05	70	1	6.1
374	UMd	3	7.5	13.7	13.7	4.51	4.5	11.2	24.3	35.1	1.3	2.05	70	4	9.14
375	UMd	3	7.5	13.7	13.7	4.51	4.5	11.2	24.3	35.1	1.3	2.05	70	16	11.3
376	UMd	3	7.5	13.7	13.7	4.51	4.5	11.2	24.3	35.1	1.3	0.06	100	1	1.16
377	UMd	3	7.5	13.7	13.7	4.51	4.5	11.2	24.3	35.1	1.3	0.06	100	4	2.02
378	UMd	3	7.5	13.7	13.7	4.51	4.5	11.2	24.3	35.1	1.3	0.06	100	16	3.36
379	UMd	3	7.5	13.72	13.72	4.34	4.5	11.2	24.3	35.1	1.3	231.58	40	1	12.95

380	UMd	3	7.5	13.72	13.72	4.34	4.5	11.2	24.3	35.1	1.3	231.58	40	4	15.2
381	UMd	3	7.5	13.72	13.72	4.34	4.5	11.2	24.3	35.1	1.3	231.58	40	16	20.35
382	UMd	3	7.5	13.72	13.72	4.34	4.5	11.2	24.3	35.1	1.3	2.05	70	1	4.48
383	UMd	3	7.5	13.72	13.72	4.34	4.5	11.2	24.3	35.1	1.3	2.05	70	4	7.14
384	UMd	3	7.5	13.72	13.72	4.34	4.5	11.2	24.3	35.1	1.3	2.05	70	16	9.14
385	UMd	3	7.5	13.72	13.72	4.34	4.5	11.2	24.3	35.1	1.3	0.06	100	1	0.72
386	UMd	3	7.5	13.72	13.72	4.34	4.5	11.2	24.3	35.1	1.3	0.06	100	4	1.26
387	UMd	3	7.5	13.72	13.72	4.34	4.5	11.2	24.3	35.1	1.3	0.06	100	16	2.08
388	UMd	3	7.5	13.38	13.38	6.7	4.5	11.2	24.3	35.1	1.3	231.58	40	1	14.5
389	UMd	3	7.5	13.38	13.38	6.7	4.5	11.2	24.3	35.1	1.3	231.58	40	4	18.5
390	UMd	3	7.5	13.38	13.38	6.7	4.5	11.2	24.3	35.1	1.3	231.58	40	16	21.65
391	UMd	3	7.5	13.38	13.38	6.7	4.5	11.2	24.3	35.1	1.3	2.05	70	1	4.27
392	UMd	3	7.5	13.38	13.38	6.7	4.5	11.2	24.3	35.1	1.3	2.05	70	4	6.27
393	UMd	3	7.5	13.38	13.38	6.7	4.5	11.2	24.3	35.1	1.3	2.05	70	16	8.79
394	UMd	3	7.5	13.38	13.38	6.7	4.5	11.2	24.3	35.1	1.3	0.06	100	1	0.71
395	UMd	3	7.5	13.38	13.38	6.7	4.5	11.2	24.3	35.1	1.3	0.06	100	4	1.16
396	UMd	3	7.5	13.38	13.38	6.7	4.5	11.2	24.3	35.1	1.3	0.06	100	16	2.08
397	UMd	3	7.5	13.04	13.04	9.06	4.5	11.2	24.3	35.1	1.3	231.58	40	1	14.4
398	UMd	3	7.5	13.04	13.04	9.06	4.5	11.2	24.3	35.1	1.3	231.58	40	4	16.95
399	UMd	3	7.5	13.04	13.04	9.06	4.5	11.2	24.3	35.1	1.3	231.58	40	16	20.1
400	UMd	3	7.5	13.04	13.04	9.06	4.5	11.2	24.3	35.1	1.3	2.05	70	1	4.82
401	UMd	3	7.5	13.04	13.04	9.06	4.5	11.2	24.3	35.1	1.3	2.05	70	4	6.67
402	UMd	3	7.5	13.04	13.04	9.06	4.5	11.2	24.3	35.1	1.3	2.05	70	16	9.05
403	UMd	3	7.5	13.04	13.04	9.06	4.5	11.2	24.3	35.1	1.3	0.06	100	1	1.16
404	UMd	3	7.5	13.04	13.04	9.06	4.5	11.2	24.3	35.1	1.3	0.06	100	4	1.69
405	UMd	3	7.5	13.04	13.04	9.06	4.5	11.2	24.3	35.1	1.3	0.06	100	16	2.63
406	UMd	3	7.3	15.47	15.47	0.1	2.3	26.8	37.3	46.4	0.04	231.58	40	1	16.75
407	UMd	3	7.3	15.47	15.47	0.1	2.3	26.8	37.3	46.4	0.04	231.58	40	4	20.3
408	UMd	3	7.3	15.47	15.47	0.1	2.3	26.8	37.3	46.4	0.04	231.58	40	16	25.2
409	UMd	3	7.3	15.47	15.47	0.1	2.3	26.8	37.3	46.4	0.04	2.05	70	1	7.44
410	UMd	3	7.3	15.47	15.47	0.1	2.3	26.8	37.3	46.4	0.04	2.05	70	4	10.07
411	UMd	3	7.3	15.47	15.47	0.1	2.3	26.8	37.3	46.4	0.04	2.05	70	16	13.25

412	UMd	3	7.3	15.47	15.47	0.1	2.3	26.8	37.3	46.4	0.04	0.06	100	1	1.75
413	UMd	3	7.3	15.47	15.47	0.1	2.3	26.8	37.3	46.4	0.04	0.06	100	4	2.73
414	UMd	3	7.3	15.47	15.47	0.1	2.3	26.8	37.3	46.4	0.04	0.06	100	16	4.27
415	UMd	3	7.3	15.54	15.54	1.49	2.3	26.8	37.3	46.4	0.04	231.58	40	1	16.6
416	UMd	3	7.3	15.54	15.54	1.49	2.3	26.8	37.3	46.4	0.04	231.58	40	4	18.3
417	UMd	3	7.3	15.54	15.54	1.49	2.3	26.8	37.3	46.4	0.04	231.58	40	16	22.75
418	UMd	3	7.3	15.54	15.54	1.49	2.3	26.8	37.3	46.4	0.04	2.05	70	1	6.11
419	UMd	3	7.3	15.54	15.54	1.49	2.3	26.8	37.3	46.4	0.04	2.05	70	4	9.14
420	UMd	3	7.3	15.54	15.54	1.49	2.3	26.8	37.3	46.4	0.04	2.05	70	16	11.4
421	UMd	3	7.3	15.54	15.54	1.49	2.3	26.8	37.3	46.4	0.04	0.06	100	1	1.35
422	UMd	3	7.3	15.54	15.54	1.49	2.3	26.8	37.3	46.4	0.04	0.06	100	4	2.08
423	UMd	3	7.3	15.54	15.54	1.49	2.3	26.8	37.3	46.4	0.04	0.06	100	16	3.44
424	UMd	3	7.3	15.28	15.28	3.11	2.3	26.8	37.3	46.4	0.04	231.58	40	1	14.65
425	UMd	3	7.3	15.28	15.28	3.11	2.3	26.8	37.3	46.4	0.04	231.58	40	4	18.2
426	UMd	3	7.3	15.28	15.28	3.11	2.3	26.8	37.3	46.4	0.04	231.58	40	16	20.6
427	UMd	3	7.3	15.28	15.28	3.11	2.3	26.8	37.3	46.4	0.04	2.05	70	1	6.06
428	UMd	3	7.3	15.28	15.28	3.11	2.3	26.8	37.3	46.4	0.04	2.05	70	4	8.27
429	UMd	3	7.3	15.28	15.28	3.11	2.3	26.8	37.3	46.4	0.04	2.05	70	16	11.1
430	UMd	3	7.3	15.28	15.28	3.11	2.3	26.8	37.3	46.4	0.04	0.06	100	1	1.45
431	UMd	3	7.3	15.28	15.28	3.11	2.3	26.8	37.3	46.4	0.04	0.06	100	4	2.09
432	UMd	3	7.3	15.28	15.28	3.11	2.3	26.8	37.3	46.4	0.04	0.06	100	16	3.14
433	UMd	3	7.3	15.55	15.55	1.44	2.3	26.8	37.3	46.4	0.04	231.58	40	1	17.05
434	UMd	3	7.3	15.55	15.55	1.44	2.3	26.8	37.3	46.4	0.04	231.58	40	4	20.5
435	UMd	3	7.3	15.55	15.55	1.44	2.3	26.8	37.3	46.4	0.04	231.58	40	16	24.35
436	UMd	3	7.3	15.55	15.55	1.44	2.3	26.8	37.3	46.4	0.04	2.05	70	1	8.31
437	UMd	3	7.3	15.55	15.55	1.44	2.3	26.8	37.3	46.4	0.04	2.05	70	4	11.3
438	UMd	3	7.3	15.55	15.55	1.44	2.3	26.8	37.3	46.4	0.04	2.05	70	16	14.6
439	UMd	3	7.3	15.55	15.55	1.44	2.3	26.8	37.3	46.4	0.04	0.06	100	1	1.97
440	UMd	3	7.3	15.55	15.55	1.44	2.3	26.8	37.3	46.4	0.04	0.06	100	4	3.12
441	UMd	3	7.3	15.55	15.55	1.44	2.3	26.8	37.3	46.4	0.04	0.06	100	16	5.13
442	UMd	3	7.3	15.04	15.04	4.65	2.3	26.8	37.3	46.4	0.04	231.58	40	1	16.15
443	UMd	3	7.3	15.04	15.04	4.65	2.3	26.8	37.3	46.4	0.04	231.58	40	4	18.7

444	UMd	3	7.3	15.04	15.04	4.65	2.3	26.8	37.3	46.4	0.04	231.58	40	16	22.9
445	UMd	3	7.3	15.04	15.04	4.65	2.3	26.8	37.3	46.4	0.04	2.05	70	1	5.64
446	UMd	3	7.3	15.04	15.04	4.65	2.3	26.8	37.3	46.4	0.04	2.05	70	4	8.03
447	UMd	3	7.3	15.04	15.04	4.65	2.3	26.8	37.3	46.4	0.04	2.05	70	16	11.4
448	UMd	3	7.3	15.04	15.04	4.65	2.3	26.8	37.3	46.4	0.04	0.06	100	1	1.31
449	UMd	3	7.3	15.04	15.04	4.65	2.3	26.8	37.3	46.4	0.04	0.06	100	4	2.08
450	UMd	3	7.3	15.04	15.04	4.65	2.3	26.8	37.3	46.4	0.04	0.06	100	16	3.44
451	UMd	3	7.3	15.08	15.08	1.04	2.3	26.8	37.3	46.4	0.04	231.58	40	1	15.75
452	UMd	3	7.3	15.08	15.08	1.04	2.3	26.8	37.3	46.4	0.04	231.58	40	4	18.3
453	UMd	3	7.3	15.08	15.08	1.04	2.3	26.8	37.3	46.4	0.04	231.58	40	16	21.7
454	UMd	3	7.3	15.08	15.08	1.04	2.3	26.8	37.3	46.4	0.04	2.05	70	1	5.87
455	UMd	3	7.3	15.08	15.08	1.04	2.3	26.8	37.3	46.4	0.04	2.05	70	4	8.2
456	UMd	3	7.3	15.08	15.08	1.04	2.3	26.8	37.3	46.4	0.04	2.05	70	16	10.5
457	UMd	3	7.3	15.08	15.08	1.04	2.3	26.8	37.3	46.4	0.04	0.06	100	1	1.58
458	UMd	3	7.3	15.08	15.08	1.04	2.3	26.8	37.3	46.4	0.04	0.06	100	4	2.28
459	UMd	3	7.3	15.08	15.08	1.04	2.3	26.8	37.3	46.4	0.04	0.06	100	16	3.81
460	UMd	4	6.8	12.59	14.32	5.73	10	0	3	9	1.17	231.58	40	1	10.5
461	UMd	4	6.8	12.59	14.32	5.73	10	0	3	9	1.17	231.58	40	4	13.45
462	UMd	4	6.8	12.59	14.32	5.73	10	0	3	9	1.17	231.58	40	16	16.3
463	UMd	4	6.8	12.59	14.32	5.73	10	0	3	9	1.17	2.05	70	1	2.39
464	UMd	4	6.8	12.59	14.32	5.73	10	0	3	9	1.17	2.05	70	4	3.74
465	UMd	4	6.8	12.59	14.32	5.73	10	0	3	9	1.17	2.05	70	16	5.32
466	UMd	4	6.8	12.59	14.32	5.73	10	0	3	9	1.17	0.06	100	1	0.85
467	UMd	4	6.8	12.59	14.32	5.73	10	0	3	9	1.17	0.06	100	4	1.33
468	UMd	4	6.8	12.59	14.32	5.73	10	0	3	9	1.17	0.06	100	16	2.22
469	UMd	4	6.8	14.41	14.32	7.11	10	0	3	9	1.17	231.58	40	1	10.4
470	UMd	4	6.8	14.41	14.32	7.11	10	0	3	9	1.17	231.58	40	4	13.3
471	UMd	4	6.8	14.41	14.32	7.11	10	0	3	9	1.17	231.58	40	16	16.15
472	UMd	4	6.8	14.41	14.32	7.11	10	0	3	9	1.17	2.05	70	1	2.47
473	UMd	4	6.8	14.41	14.32	7.11	10	0	3	9	1.17	2.05	70	4	4.11
474	UMd	4	6.8	14.41	14.32	7.11	10	0	3	9	1.17	2.05	70	16	5.61
475	UMd	4	6.8	14.41	14.32	7.11	10	0	3	9	1.17	0.06	100	1	0.75

476	UMd	4	6.8	14.41	14.32	7.11	10	0	3	9	1.17	0.06	100	4	1.17
477	UMd	4	6.8	14.41	14.32	7.11	10	0	3	9	1.17	0.06	100	16	1.92
478	UMd	4	6.8	11.95	14.32	10.54	10	0	3	9	1.17	231.58	40	1	9.85
479	UMd	4	6.8	11.95	14.32	10.54	10	0	3	9	1.17	231.58	40	4	12
480	UMd	4	6.8	11.95	14.32	10.54	10	0	3	9	1.17	231.58	40	16	14.4
481	UMd	4	6.8	11.95	14.32	10.54	10	0	3	9	1.17	2.05	70	1	2.39
482	UMd	4	6.8	11.95	14.32	10.54	10	0	3	9	1.17	2.05	70	4	3.54
483	UMd	4	6.8	11.95	14.32	10.54	10	0	3	9	1.17	2.05	70	16	4.79
484	UMd	4	6.8	11.95	14.32	10.54	10	0	3	9	1.17	0.06	100	1	0.87
485	UMd	4	6.8	11.95	14.32	10.54	10	0	3	9	1.17	0.06	100	4	1.37
486	UMd	4	6.8	11.95	14.32	10.54	10	0	3	9	1.17	0.06	100	16	2.1
487	UMd	4	6.8	11.98	14.32	10.28	10	0	3	9	1.17	231.58	40	1	10.03
488	UMd	4	6.8	11.98	14.32	10.28	10	0	3	9	1.17	231.58	40	4	12.5
489	UMd	4	6.8	11.98	14.32	10.28	10	0	3	9	1.17	231.58	40	16	14.15
490	UMd	4	6.8	11.98	14.32	10.28	10	0	3	9	1.17	2.05	70	1	2.81
491	UMd	4	6.8	11.98	14.32	10.28	10	0	3	9	1.17	2.05	70	4	4.11
492	UMd	4	6.8	11.98	14.32	10.28	10	0	3	9	1.17	2.05	70	16	5.67
493	UMd	4	6.8	11.98	14.32	10.28	10	0	3	9	1.17	0.06	100	1	1.06
494	UMd	4	6.8	11.98	14.32	10.28	10	0	3	9	1.17	0.06	100	4	1.62
495	UMd	4	6.8	11.98	14.32	10.28	10	0	3	9	1.17	0.06	100	16	2.57
496	UMd	4	6.8	11.34	14.32	15.09	10	0	3	9	1.17	231.58	40	1	6.56
497	UMd	4	6.8	11.34	14.32	15.09	10	0	3	9	1.17	231.58	40	4	8.15
498	UMd	4	6.8	11.34	14.32	15.09	10	0	3	9	1.17	231.58	40	16	9.64
499	UMd	4	6.8	11.34	14.32	15.09	10	0	3	9	1.17	2.05	70	1	1.75
500	UMd	4	6.8	11.34	14.32	15.09	10	0	3	9	1.17	2.05	70	4	2.59
501	UMd	4	6.8	11.34	14.32	15.09	10	0	3	9	1.17	2.05	70	16	3.47
502	UMd	4	6.8	11.34	14.32	15.09	10	0	3	9	1.17	0.06	100	1	0.71
503	UMd	4	6.8	11.34	14.32	15.09	10	0	3	9	1.17	0.06	100	4	1.04
504	UMd	4	6.8	11.34	14.32	15.09	10	0	3	9	1.17	0.06	100	16	1.51
505	UMd	4	6.8	11.51	14.32	13.84	10	0	3	9	1.17	231.58	40	1	7.71
506	UMd	4	6.8	11.51	14.32	13.84	10	0	3	9	1.17	231.58	40	4	9.5
507	UMd	4	6.8	11.51	14.32	13.84	10	0	3	9	1.17	231.58	40	16	11.35

508	UMd	4	6.8	11.51	14.32	13.84	10	0	3	9	1.17	2.05	70	1	1.91
509	UMd	4	6.8	11.51	14.32	13.84	10	0	3	9	1.17	2.05	70	4	2.86
510	UMd	4	6.8	11.51	14.32	13.84	10	0	3	9	1.17	2.05	70	16	4.46
511	UMd	4	6.8	11.51	14.32	13.84	10	0	3	9	1.17	0.06	100	1	0.67
512	UMd	4	6.8	11.51	14.32	13.84	10	0	3	9	1.17	0.06	100	4	1.03
513	UMd	4	6.8	11.51	14.32	13.84	10	0	3	9	1.17	0.06	100	16	1.66
514	UMd	4	7.8	15.54	15.54	6.19	10	0	3	9	1.17	231.58	40	1	8.81
515	UMd	4	7.8	15.54	15.54	6.19	10	0	3	9	1.17	231.58	40	4	11.5
516	UMd	4	7.8	15.54	15.54	6.19	10	0	3	9	1.17	231.58	40	16	13.95
517	UMd	4	7.8	15.54	15.54	6.19	10	0	3	9	1.17	2.05	70	1	3.23
518	UMd	4	7.8	15.54	15.54	6.19	10	0	3	9	1.17	2.05	70	4	4.68
519	UMd	4	7.8	15.54	15.54	6.19	10	0	3	9	1.17	2.05	70	16	6.23
520	UMd	4	7.8	15.54	15.54	6.19	10	0	3	9	1.17	0.06	100	1	0.79
521	UMd	4	7.8	15.54	15.54	6.19	10	0	3	9	1.17	0.06	100	4	1.32
522	UMd	4	7.8	15.54	15.54	6.19	10	0	3	9	1.17	0.06	100	16	1.99
523	UMd	4	7.8	14.75	14.75	4.88	10	0	3	9	1.17	231.58	40	1	11.2
524	UMd	4	7.8	14.75	14.75	4.88	10	0	3	9	1.17	231.58	40	4	14.05
525	UMd	4	7.8	14.75	14.75	4.88	10	0	3	9	1.17	231.58	40	16	17.4
526	UMd	4	7.8	14.75	14.75	4.88	10	0	3	9	1.17	2.05	70	1	4.06
527	UMd	4	7.8	14.75	14.75	4.88	10	0	3	9	1.17	2.05	70	4	5.74
528	UMd	4	7.8	14.75	14.75	4.88	10	0	3	9	1.17	2.05	70	16	8.09
529	UMd	4	7.8	14.75	14.75	4.88	10	0	3	9	1.17	0.06	100	1	1.05
530	UMd	4	7.8	14.75	14.75	4.88	10	0	3	9	1.17	0.06	100	4	1.71
531	UMd	4	7.8	14.75	14.75	4.88	10	0	3	9	1.17	0.06	100	16	2.68
532	UMd	4	7.8	14.34	14.34	7.51	10	0	3	9	1.17	231.58	40	1	10.6
533	UMd	4	7.8	14.34	14.34	7.51	10	0	3	9	1.17	231.58	40	4	13.05
534	UMd	4	7.8	14.34	14.34	7.51	10	0	3	9	1.17	231.58	40	16	15.35
535	UMd	4	7.8	14.34	14.34	7.51	10	0	3	9	1.17	2.05	70	1	2.44
536	UMd	4	7.8	14.34	14.34	7.51	10	0	3	9	1.17	2.05	70	4	3.67
537	UMd	4	7.8	14.34	14.34	7.51	10	0	3	9	1.17	2.05	70	16	5.5
538	UMd	4	7.8	14.34	14.34	7.51	10	0	3	9	1.17	0.06	100	1	0.8
539	UMd	4	7.8	14.34	14.34	7.51	10	0	3	9	1.17	0.06	100	4	1.21

540	UMd	4	7.8	14.34	14.34	7.51	10	0	3	9	1.17	0.06	100	16	1.88
541	UMd	4	7.8	14.1	14.1	9.07	10	0	3	9	1.17	231.58	40	1	10.09
542	UMd	4	7.8	14.1	14.1	9.07	10	0	3	9	1.17	231.58	40	4	11.8
543	UMd	4	7.8	14.1	14.1	9.07	10	0	3	9	1.17	231.58	40	16	14.25
544	UMd	4	7.8	14.1	14.1	9.07	10	0	3	9	1.17	2.05	70	1	2.67
545	UMd	4	7.8	14.1	14.1	9.07	10	0	3	9	1.17	2.05	70	4	3.67
546	UMd	4	7.8	14.1	14.1	9.07	10	0	3	9	1.17	2.05	70	16	5.22
547	UMd	4	7.8	14.1	14.1	9.07	10	0	3	9	1.17	0.06	100	1	0.87
548	UMd	4	7.8	14.1	14.1	9.07	10	0	3	9	1.17	0.06	100	4	1.33
549	UMd	4	7.8	14.1	14.1	9.07	10	0	3	9	1.17	0.06	100	16	2.04
550	UMd	4	7.8	13.48	13.48	13.06	10	0	3	9	1.17	231.58	40	1	7.32
551	UMd	4	7.8	13.48	13.48	13.06	10	0	3	9	1.17	231.58	40	4	9.14
552	UMd	4	7.8	13.48	13.48	13.06	10	0	3	9	1.17	231.58	40	16	10.8
553	UMd	4	7.8	13.48	13.48	13.06	10	0	3	9	1.17	2.05	70	1	1.86
554	UMd	4	7.8	13.48	13.48	13.06	10	0	3	9	1.17	2.05	70	4	2.81
555	UMd	4	7.8	13.48	13.48	13.06	10	0	3	9	1.17	2.05	70	16	4.02
556	UMd	4	7.8	13.48	13.48	13.06	10	0	3	9	1.17	0.06	100	1	0.68
557	UMd	4	7.8	13.48	13.48	13.06	10	0	3	9	1.17	0.06	100	4	1.02
558	UMd	4	7.8	13.48	13.48	13.06	10	0	3	9	1.17	0.06	100	16	1.61
559	UMd	4	7.8	13.72	13.72	11.49	10	0	3	9	1.17	231.58	40	1	8.46
560	UMd	4	7.8	13.72	13.72	11.49	10	0	3	9	1.17	231.58	40	4	10.2
561	UMd	4	7.8	13.72	13.72	11.49	10	0	3	9	1.17	231.58	40	16	12.2
562	UMd	4	7.8	13.72	13.72	11.49	10	0	3	9	1.17	2.05	70	1	1.48
563	UMd	4	7.8	13.72	13.72	11.49	10	0	3	9	1.17	2.05	70	4	3.13
564	UMd	4	7.8	13.72	13.72	11.49	10	0	3	9	1.17	2.05	70	16	4.46
565	UMd	4	7.8	13.72	13.72	11.49	10	0	3	9	1.17	0.06	100	1	0.66
566	UMd	4	7.8	13.72	13.72	11.49	10	0	3	9	1.17	0.06	100	4	1.01
567	UMd	4	7.8	13.72	13.72	11.49	10	0	3	9	1.17	0.06	100	16	1.6
568	UMd	4	8.8	17.04	14.32	3.14	10	0	3	9	1.17	231.58	40	1	9.86
569	UMd	4	8.8	17.04	14.32	3.14	10	0	3	9	1.17	231.58	40	4	12.5
570	UMd	4	8.8	17.04	14.32	3.14	10	0	3	9	1.17	231.58	40	16	16.25
571	UMd	4	8.8	17.04	14.32	3.14	10	0	3	9	1.17	2.05	70	1	2.8

572	UMd	4	8.8	17.04	14.32	3.14	10	0	3	9	1.17	2.05	70	4	4.46
573	UMd	4	8.8	17.04	14.32	3.14	10	0	3	9	1.17	2.05	70	16	6.46
574	UMd	4	8.8	17.04	14.32	3.14	10	0	3	9	1.17	0.06	100	1	0.63
575	UMd	4	8.8	17.04	14.32	3.14	10	0	3	9	1.17	0.06	100	4	0.99
576	UMd	4	8.8	17.04	14.32	3.14	10	0	3	9	1.17	0.06	100	16	1.48
577	UMd	4	8.8	17.14	14.32	2.54	10	0	3	9	1.17	231.58	40	1	8.4
578	UMd	4	8.8	17.14	14.32	2.54	10	0	3	9	1.17	231.58	40	4	10.9
579	UMd	4	8.8	17.14	14.32	2.54	10	0	3	9	1.17	231.58	40	16	13.68
580	UMd	4	8.8	17.14	14.32	2.54	10	0	3	9	1.17	2.05	70	1	2.34
581	UMd	4	8.8	17.14	14.32	2.54	10	0	3	9	1.17	2.05	70	4	4.07
582	UMd	4	8.8	17.14	14.32	2.54	10	0	3	9	1.17	2.05	70	16	5.77
583	UMd	4	8.8	17.14	14.32	2.54	10	0	3	9	1.17	0.06	100	1	0.49
584	UMd	4	8.8	17.14	14.32	2.54	10	0	3	9	1.17	0.06	100	4	0.79
585	UMd	4	8.8	17.14	14.32	2.54	10	0	3	9	1.17	0.06	100	16	1.32
586	UMd	4	8.8	16.31	14.32	7.27	10	0	3	9	1.17	231.58	40	1	7.78
587	UMd	4	8.8	16.31	14.32	7.27	10	0	3	9	1.17	231.58	40	4	9.91
588	UMd	4	8.8	16.31	14.32	7.27	10	0	3	9	1.17	231.58	40	16	11.95
589	UMd	4	8.8	16.31	14.32	7.27	10	0	3	9	1.17	2.05	70	1	2.37
590	UMd	4	8.8	16.31	14.32	7.27	10	0	3	9	1.17	2.05	70	4	3.6
591	UMd	4	8.8	16.31	14.32	7.27	10	0	3	9	1.17	2.05	70	16	5.2
592	UMd	4	8.8	16.31	14.32	7.27	10	0	3	9	1.17	0.06	100	1	0.6
593	UMd	4	8.8	16.31	14.32	7.27	10	0	3	9	1.17	0.06	100	4	0.97
594	UMd	4	8.8	16.31	14.32	7.27	10	0	3	9	1.17	0.06	100	16	1.66
595	UMd	4	8.8	16.52	14.32	7.53	10	0	3	9	1.17	231.58	40	1	8.13
596	UMd	4	8.8	16.52	14.32	7.53	10	0	3	9	1.17	231.58	40	4	10.3
597	UMd	4	8.8	16.52	14.32	7.53	10	0	3	9	1.17	231.58	40	16	12.65
598	UMd	4	8.8	16.52	14.32	7.53	10	0	3	9	1.17	2.05	70	1	2.55
599	UMd	4	8.8	16.52	14.32	7.53	10	0	3	9	1.17	2.05	70	4	4.68
600	UMd	4	8.8	16.52	14.32	7.53	10	0	3	9	1.17	2.05	70	16	6.26
601	UMd	4	8.8	16.52	14.32	7.53	10	0	3	9	1.17	0.06	100	1	0.39
602	UMd	4	8.8	16.52	14.32	7.53	10	0	3	9	1.17	0.06	100	4	1.05
603	UMd	4	8.8	16.52	14.32	7.53	10	0	3	9	1.17	0.06	100	16	1.65

604	UMd	4	8.8	15.82	14.32	10.07	10	0	3	9	1.17	231.58	40	1	6.78
605	UMd	4	8.8	15.82	14.32	10.07	10	0	3	9	1.17	231.58	40	4	8.63
606	UMd	4	8.8	15.82	14.32	10.07	10	0	3	9	1.17	231.58	40	16	10.38
607	UMd	4	8.8	15.82	14.32	10.07	10	0	3	9	1.17	2.05	70	1	2.49
608	UMd	4	8.8	15.82	14.32	10.07	10	0	3	9	1.17	2.05	70	4	3.75
609	UMd	4	8.8	15.82	14.32	10.07	10	0	3	9	1.17	2.05	70	16	5.02
610	UMd	4	8.8	15.82	14.32	10.07	10	0	3	9	1.17	0.06	100	1	0.66
611	UMd	4	8.8	15.82	14.32	10.07	10	0	3	9	1.17	0.06	100	4	1.03
612	UMd	4	8.8	15.82	14.32	10.07	10	0	3	9	1.17	0.06	100	16	1.58
613	UMd	4	8.8	15.65	14.32	11.05	10	0	3	9	1.17	231.58	40	1	7.03
614	UMd	4	8.8	15.65	14.32	11.05	10	0	3	9	1.17	231.58	40	4	8.66
615	UMd	4	8.8	15.65	14.32	11.05	10	0	3	9	1.17	231.58	40	16	10.4
616	UMd	4	8.8	15.65	14.32	11.05	10	0	3	9	1.17	2.05	70	1	2.46
617	UMd	4	8.8	15.65	14.32	11.05	10	0	3	9	1.17	2.05	70	4	3.66
618	UMd	4	8.8	15.65	14.32	11.05	10	0	3	9	1.17	2.05	70	16	4.68
619	UMd	4	8.8	15.65	14.32	11.05	10	0	3	9	1.17	0.06	100	1	0.71
620	UMd	4	8.8	15.65	14.32	11.05	10	0	3	9	1.17	0.06	100	4	1.05
621	UMd	4	8.8	15.65	14.32	11.05	10	0	3	9	1.17	0.06	100	16	1.45
622	UMd	4	8.2	14.68	15.95	7.23	2	0	3	9	1.44	231.58	40	1	9.58
623	UMd	4	8.2	14.68	15.95	7.23	2	0	3	9	1.44	231.58	40	4	12.6
624	UMd	4	8.2	14.68	15.95	7.23	2	0	3	9	1.44	231.58	40	16	15.5
625	UMd	4	8.2	14.68	15.95	7.23	2	0	3	9	1.44	2.05	70	1	2.42
626	UMd	4	8.2	14.68	15.95	7.23	2	0	3	9	1.44	2.05	70	4	3.7
627	UMd	4	8.2	14.68	15.95	7.23	2	0	3	9	1.44	2.05	70	16	6.2
628	UMd	4	8.2	14.68	15.95	7.23	2	0	3	9	1.44	0.06	100	1	0.58
629	UMd	4	8.2	14.68	15.95	7.23	2	0	3	9	1.44	0.06	100	4	0.92
630	UMd	4	8.2	14.68	15.95	7.23	2	0	3	9	1.44	0.06	100	16	1.55
631	UMd	4	8.2	14.31	15.95	9.57	2	0	3	9	1.44	231.58	40	1	5.82
632	UMd	4	8.2	14.31	15.95	9.57	2	0	3	9	1.44	231.58	40	4	7.62
633	UMd	4	8.2	14.31	15.95	9.57	2	0	3	9	1.44	231.58	40	16	9.83
634	UMd	4	8.2	14.31	15.95	9.57	2	0	3	9	1.44	2.05	70	1	1.34
635	UMd	4	8.2	14.31	15.95	9.57	2	0	3	9	1.44	2.05	70	4	2.05

636	UMd	4	8.2	14.31	15.95	9.57	2	0	3	9	1.44	2.05	70	16	3.84
637	UMd	4	8.2	14.31	15.95	9.57	2	0	3	9	1.44	0.06	100	1	0.42
638	UMd	4	8.2	14.31	15.95	9.57	2	0	3	9	1.44	0.06	100	4	0.65
639	UMd	4	8.2	14.31	15.95	9.57	2	0	3	9	1.44	0.06	100	16	1.49
640	UMd	4	8.2	14.12	15.95	10.8	2	0	3	9	1.44	231.58	40	1	7.39
641	UMd	4	8.2	14.12	15.95	10.8	2	0	3	9	1.44	231.58	40	4	9.63
642	UMd	4	8.2	14.12	15.95	10.8	2	0	3	9	1.44	231.58	40	16	12.35
643	UMd	4	8.2	14.12	15.95	10.8	2	0	3	9	1.44	2.05	70	1	1.94
644	UMd	4	8.2	14.12	15.95	10.8	2	0	3	9	1.44	2.05	70	4	3.09
645	UMd	4	8.2	14.12	15.95	10.8	2	0	3	9	1.44	2.05	70	16	4.63
646	UMd	4	8.2	14.12	15.95	10.8	2	0	3	9	1.44	0.06	100	1	0.55
647	UMd	4	8.2	14.12	15.95	10.8	2	0	3	9	1.44	0.06	100	4	0.81
648	UMd	4	8.2	14.12	15.95	10.8	2	0	3	9	1.44	0.06	100	16	1.27
649	UMd	4	8.2	14.08	15.95	11.02	2	0	3	9	1.44	231.58	40	1	8.28
650	UMd	4	8.2	14.08	15.95	11.02	2	0	3	9	1.44	231.58	40	4	10.38
651	UMd	4	8.2	14.08	15.95	11.02	2	0	3	9	1.44	231.58	40	16	12.1
652	UMd	4	8.2	14.08	15.95	11.02	2	0	3	9	1.44	2.05	70	1	2.47
653	UMd	4	8.2	14.08	15.95	11.02	2	0	3	9	1.44	2.05	70	4	3.44
654	UMd	4	8.2	14.08	15.95	11.02	2	0	3	9	1.44	2.05	70	16	4.98
655	UMd	4	8.2	14.08	15.95	11.02	2	0	3	9	1.44	0.06	100	1	0.78
656	UMd	4	8.2	14.08	15.95	11.02	2	0	3	9	1.44	0.06	100	4	1.17
657	UMd	4	8.2	14.08	15.95	11.02	2	0	3	9	1.44	0.06	100	16	1.77
658	UMd	4	8.2	13.5	15.95	15.9	2	0	3	9	1.44	231.58	40	1	5.16
659	UMd	4	8.2	13.5	15.95	15.9	2	0	3	9	1.44	231.58	40	4	7.19
660	UMd	4	8.2	13.5	15.95	15.9	2	0	3	9	1.44	231.58	40	16	10.12
661	UMd	4	8.2	13.5	15.95	15.9	2	0	3	9	1.44	2.05	70	1	1.8
662	UMd	4	8.2	13.5	15.95	15.9	2	0	3	9	1.44	2.05	70	4	2.8
663	UMd	4	8.2	13.5	15.95	15.9	2	0	3	9	1.44	2.05	70	16	3.8
664	UMd	4	8.2	13.5	15.95	15.9	2	0	3	9	1.44	0.06	100	1	0.8
665	UMd	4	8.2	13.5	15.95	15.9	2	0	3	9	1.44	0.06	100	4	1
666	UMd	4	8.2	13.5	15.95	15.9	2	0	3	9	1.44	0.06	100	16	1.45
667	UMd	4	8.2	13.55	15.95	14.38	2	0	3	9	1.44	231.58	40	1	5.95

668	UMd	4	8.2	13.55	15.95	14.38	2	0	3	9	1.44	231.58	40	4	7.82
669	UMd	4	8.2	13.55	15.95	14.38	2	0	3	9	1.44	231.58	40	16	9.62
670	UMd	4	8.2	13.55	15.95	14.38	2	0	3	9	1.44	2.05	70	1	1.59
671	UMd	4	8.2	13.55	15.95	14.38	2	0	3	9	1.44	2.05	70	4	2.39
672	UMd	4	8.2	13.55	15.95	14.38	2	0	3	9	1.44	2.05	70	16	3.3
673	UMd	4	8.2	13.55	15.95	14.38	2	0	3	9	1.44	0.06	100	1	0.59
674	UMd	4	8.2	13.55	15.95	14.38	2	0	3	9	1.44	0.06	100	4	0.87
675	UMd	4	8.2	13.55	15.95	14.38	2	0	3	9	1.44	0.06	100	16	1.31
676	UMd	4	9.2	16.55	16.55	7.59	2	0	3	9	1.44	231.58	40	1	8.05
677	UMd	4	9.2	16.55	16.55	7.59	2	0	3	9	1.44	231.58	40	4	10.35
678	UMd	4	9.2	16.55	16.55	7.59	2	0	3	9	1.44	231.58	40	16	12.85
679	UMd	4	9.2	16.55	16.55	7.59	2	0	3	9	1.44	2.05	70	1	1.9
680	UMd	4	9.2	16.55	16.55	7.59	2	0	3	9	1.44	2.05	70	4	3.01
681	UMd	4	9.2	16.55	16.55	7.59	2	0	3	9	1.44	2.05	70	16	4.77
682	UMd	4	9.2	16.55	16.55	7.59	2	0	3	9	1.44	0.06	100	1	0.46
683	UMd	4	9.2	16.55	16.55	7.59	2	0	3	9	1.44	0.06	100	4	0.76
684	UMd	4	9.2	16.55	16.55	7.59	2	0	3	9	1.44	0.06	100	16	1.39
685	UMd	4	9.2	16.47	16.47	8.07	2	0	3	9	1.44	231.58	40	1	6.71
686	UMd	4	9.2	16.47	16.47	8.07	2	0	3	9	1.44	231.58	40	4	8.78
687	UMd	4	9.2	16.47	16.47	8.07	2	0	3	9	1.44	231.58	40	16	11.1
688	UMd	4	9.2	16.47	16.47	8.07	2	0	3	9	1.44	2.05	70	1	1.49
689	UMd	4	9.2	16.47	16.47	8.07	2	0	3	9	1.44	2.05	70	4	2.61
690	UMd	4	9.2	16.47	16.47	8.07	2	0	3	9	1.44	2.05	70	16	3.91
691	UMd	4	9.2	16.47	16.47	8.07	2	0	3	9	1.44	0.06	100	1	0.44
692	UMd	4	9.2	16.47	16.47	8.07	2	0	3	9	1.44	0.06	100	4	0.66
693	UMd	4	9.2	16.47	16.47	8.07	2	0	3	9	1.44	0.06	100	16	1.07
694	UMd	4	9.2	16.11	16.11	10.05	2	0	3	9	1.44	231.58	40	1	6.62
695	UMd	4	9.2	16.11	16.11	10.05	2	0	3	9	1.44	231.58	40	4	8.75
696	UMd	4	9.2	16.11	16.11	10.05	2	0	3	9	1.44	231.58	40	16	11.15
697	UMd	4	9.2	16.11	16.11	10.05	2	0	3	9	1.44	2.05	70	1	1.7
698	UMd	4	9.2	16.11	16.11	10.05	2	0	3	9	1.44	2.05	70	4	2.64
699	UMd	4	9.2	16.11	16.11	10.05	2	0	3	9	1.44	2.05	70	16	4.09

700	UMd	4	9.2	16.11	16.11	10.05	2	0	3	9	1.44	0.06	100	1	0.49
701	UMd	4	9.2	16.11	16.11	10.05	2	0	3	9	1.44	0.06	100	4	0.75
702	UMd	4	9.2	16.11	16.11	10.05	2	0	3	9	1.44	0.06	100	16	1.17
703	UMd	4	9.2	15.91	15.91	11.17	2	0	3	9	1.44	231.58	40	1	5.1
704	UMd	4	9.2	15.91	15.91	11.17	2	0	3	9	1.44	231.58	40	4	6.99
705	UMd	4	9.2	15.91	15.91	11.17	2	0	3	9	1.44	231.58	40	16	8.89
706	UMd	4	9.2	15.91	15.91	11.17	2	0	3	9	1.44	2.05	70	1	1.33
707	UMd	4	9.2	15.91	15.91	11.17	2	0	3	9	1.44	2.05	70	4	2.01
708	UMd	4	9.2	15.91	15.91	11.17	2	0	3	9	1.44	2.05	70	16	3.3
709	UMd	4	9.2	15.91	15.91	11.17	2	0	3	9	1.44	0.06	100	1	0.48
710	UMd	4	9.2	15.91	15.91	11.17	2	0	3	9	1.44	0.06	100	4	0.65
711	UMd	4	9.2	15.91	15.91	11.17	2	0	3	9	1.44	0.06	100	16	1.05
712	UMd	4	9.2	15.39	15.39	14.06	2	0	3	9	1.44	231.58	40	1	4.64
713	UMd	4	9.2	15.39	15.39	14.06	2	0	3	9	1.44	231.58	40	4	6.47
714	UMd	4	9.2	15.39	15.39	14.06	2	0	3	9	1.44	231.58	40	16	8.17
715	UMd	4	9.2	15.39	15.39	14.06	2	0	3	9	1.44	2.05	70	1	1.11
716	UMd	4	9.2	15.39	15.39	14.06	2	0	3	9	1.44	2.05	70	4	1.8
717	UMd	4	9.2	15.39	15.39	14.06	2	0	3	9	1.44	2.05	70	16	2.69
718	UMd	4	9.2	15.39	15.39	14.06	2	0	3	9	1.44	0.06	100	1	0.47
719	UMd	4	9.2	15.39	15.39	14.06	2	0	3	9	1.44	0.06	100	4	0.58
720	UMd	4	9.2	15.39	15.39	14.06	2	0	3	9	1.44	0.06	100	16	0.9
721	UMd	4	9.2	15.25	15.25	14.84	2	0	3	9	1.44	231.58	40	1	4.87
722	UMd	4	9.2	15.25	15.25	14.84	2	0	3	9	1.44	231.58	40	4	6.69
723	UMd	4	9.2	15.25	15.25	14.84	2	0	3	9	1.44	231.58	40	16	8.42
724	UMd	4	9.2	15.25	15.25	14.84	2	0	3	9	1.44	2.05	70	1	1.13
725	UMd	4	9.2	15.25	15.25	14.84	2	0	3	9	1.44	2.05	70	4	1.74
726	UMd	4	9.2	15.25	15.25	14.84	2	0	3	9	1.44	2.05	70	16	2.92
727	UMd	4	9.2	15.25	15.25	14.84	2	0	3	9	1.44	0.06	100	1	0.45
728	UMd	4	9.2	15.25	15.25	14.84	2	0	3	9	1.44	0.06	100	4	0.58
729	UMd	4	9.2	15.25	15.25	14.84	2	0	3	9	1.44	0.06	100	16	0.97
730	UMd	4	10.2	18.71	15.95	6.17	2	0	3	9	1.44	231.58	40	1	6.8
731	UMd	4	10.2	18.71	15.95	6.17	2	0	3	9	1.44	231.58	40	4	9.1

732	UMd	4	10.2	18.71	15.95	6.17	2	0	3	9	1.44	231.58	40	16	11.3
733	UMd	4	10.2	18.71	15.95	6.17	2	0	3	9	1.44	2.05	70	1	2.1
734	UMd	4	10.2	18.71	15.95	6.17	2	0	3	9	1.44	2.05	70	4	3.25
735	UMd	4	10.2	18.71	15.95	6.17	2	0	3	9	1.44	2.05	70	16	4.6
736	UMd	4	10.2	18.71	15.95	6.17	2	0	3	9	1.44	0.06	100	1	0.46
737	UMd	4	10.2	18.71	15.95	6.17	2	0	3	9	1.44	0.06	100	4	0.82
738	UMd	4	10.2	18.71	15.95	6.17	2	0	3	9	1.44	0.06	100	16	1.2
739	UMd	4	10.2	18.57	15.95	6.87	2	0	3	9	1.44	231.58	40	1	6.95
740	UMd	4	10.2	18.57	15.95	6.87	2	0	3	9	1.44	231.58	40	4	9
741	UMd	4	10.2	18.57	15.95	6.87	2	0	3	9	1.44	231.58	40	16	11.35
742	UMd	4	10.2	18.57	15.95	6.87	2	0	3	9	1.44	2.05	70	1	2.05
743	UMd	4	10.2	18.57	15.95	6.87	2	0	3	9	1.44	2.05	70	4	3.1
744	UMd	4	10.2	18.57	15.95	6.87	2	0	3	9	1.44	2.05	70	16	4.5
745	UMd	4	10.2	18.57	15.95	6.87	2	0	3	9	1.44	0.06	100	1	0.46
746	UMd	4	10.2	18.57	15.95	6.87	2	0	3	9	1.44	0.06	100	4	0.78
747	UMd	4	10.2	18.57	15.95	6.87	2	0	3	9	1.44	0.06	100	16	1.2
748	UMd	4	10.2	17.91	15.95	10.15	2	0	3	9	1.44	231.58	40	1	6.55
749	UMd	4	10.2	17.91	15.95	10.15	2	0	3	9	1.44	231.58	40	4	8.2
750	UMd	4	10.2	17.91	15.95	10.15	2	0	3	9	1.44	231.58	40	16	10.15
751	UMd	4	10.2	17.91	15.95	10.15	2	0	3	9	1.44	2.05	70	1	2.2
752	UMd	4	10.2	17.91	15.95	10.15	2	0	3	9	1.44	2.05	70	4	3.2
753	UMd	4	10.2	17.91	15.95	10.15	2	0	3	9	1.44	2.05	70	16	4.4
754	UMd	4	10.2	17.91	15.95	10.15	2	0	3	9	1.44	0.06	100	1	0.68
755	UMd	4	10.2	17.91	15.95	10.15	2	0	3	9	1.44	0.06	100	4	0.95
756	UMd	4	10.2	17.91	15.95	10.15	2	0	3	9	1.44	0.06	100	16	1.38
757	UMd	4	10.2	18.34	15.95	9.41	2	0	3	9	1.44	231.58	40	1	6.65
758	UMd	4	10.2	18.34	15.95	9.41	2	0	3	9	1.44	231.58	40	4	8.3
759	UMd	4	10.2	18.34	15.95	9.41	2	0	3	9	1.44	231.58	40	16	10.45
760	UMd	4	10.2	18.34	15.95	9.41	2	0	3	9	1.44	2.05	70	1	2.2
761	UMd	4	10.2	18.34	15.95	9.41	2	0	3	9	1.44	2.05	70	4	3.2
762	UMd	4	10.2	18.34	15.95	9.41	2	0	3	9	1.44	2.05	70	16	4.45
763	UMd	4	10.2	18.34	15.95	9.41	2	0	3	9	1.44	0.06	100	1	0.68

764	UMd	4	10.2	18.34	15.95	9.41	2	0	3	9	1.44	0.06	100	4	1.02
765	UMd	4	10.2	18.34	15.95	9.41	2	0	3	9	1.44	0.06	100	16	1.42
766	UMd	4	10.2	17.36	15.95	12.95	2	0	3	9	1.44	231.58	40	1	5.65
767	UMd	4	10.2	17.36	15.95	12.95	2	0	3	9	1.44	231.58	40	4	7
768	UMd	4	10.2	17.36	15.95	12.95	2	0	3	9	1.44	231.58	40	16	9.25
769	UMd	4	10.2	17.36	15.95	12.95	2	0	3	9	1.44	2.05	70	1	1.3
770	UMd	4	10.2	17.36	15.95	12.95	2	0	3	9	1.44	2.05	70	4	2.2
771	UMd	4	10.2	17.36	15.95	12.95	2	0	3	9	1.44	2.05	70	16	3.2
772	UMd	4	10.2	17.36	15.95	12.95	2	0	3	9	1.44	0.06	100	1	0.33
773	UMd	4	10.2	17.36	15.95	12.95	2	0	3	9	1.44	0.06	100	4	0.45
774	UMd	4	10.2	17.36	15.95	12.95	2	0	3	9	1.44	0.06	100	16	0.77
775	UMd	4	10.2	17.29	15.95	13.26	2	0	3	9	1.44	231.58	40	1	5.05
776	UMd	4	10.2	17.29	15.95	13.26	2	0	3	9	1.44	231.58	40	4	6.3
777	UMd	4	10.2	17.29	15.95	13.26	2	0	3	9	1.44	231.58	40	16	8.5
778	UMd	4	10.2	17.29	15.95	13.26	2	0	3	9	1.44	2.05	70	1	1.5
779	UMd	4	10.2	17.29	15.95	13.26	2	0	3	9	1.44	2.05	70	4	2.2
780	UMd	4	10.2	17.29	15.95	13.26	2	0	3	9	1.44	2.05	70	16	3.1
781	UMd	4	10.2	17.29	15.95	13.26	2	0	3	9	1.44	0.06	100	1	0.46
782	UMd	4	10.2	17.29	15.95	13.26	2	0	3	9	1.44	0.06	100	4	0.65
783	UMd	4	10.2	17.29	15.95	13.26	2	0	3	9	1.44	0.06	100	16	1.03
784	A.I.	1	5.6	12.2	12.2	4.6	4.4	0	25	40	0.6	524.39	40	1	16.3
785	A.I.	1	5.6	12.2	12.2	4.6	4.4	0	25	40	0.6	524.39	40	4	20
786	A.I.	1	5.6	12.2	12.2	4.6	4.4	0	25	40	0.6	524.39	40	16	22.2
787	A.I.	1	5.6	12.2	12.2	4.6	4.4	0	25	40	0.6	4.24	70	1	7.43
788	A.I.	1	5.6	12.2	12.2	4.6	4.4	0	25	40	0.6	4.24	70	4	7.12
789	A.I.	1	5.6	12.2	12.2	4.6	4.4	0	25	40	0.6	4.24	70	16	9.44
790	A.I.	1	5.6	12.2	12.2	4.6	4.4	0	25	40	0.6	0.11	100	1	0.98
791	A.I.	1	5.6	12.2	12.2	4.6	4.4	0	25	40	0.6	0.11	100	4	1.59
792	A.I.	1	5.6	12.2	12.2	4.6	4.4	0	25	40	0.6	0.11	100	16	2.71
793	A.I.	2	5.6	11.9	11.9	3.8	5.2	0	11	35	0.9	524.39	40	1	19.6
794	A.I.	2	5.6	11.9	11.9	3.8	5.2	0	11	35	0.9	524.39	40	4	23
795	A.I.	2	5.6	11.9	11.9	3.8	5.2	0	11	35	0.9	524.39	40	16	25.5

796	A.I.	2	5.6	11.9	11.9	3.8	5.2	0	11	35	0.9	4.24	70	1	5.11
797	A.I.	2	5.6	11.9	11.9	3.8	5.2	0	11	35	0.9	4.24	70	4	7.48
798	A.I.	2	5.6	11.9	11.9	3.8	5.2	0	11	35	0.9	4.24	70	16	10.6
799	A.I.	2	8	11.9	11.9	3.8	5.2	0	11	35	0.9	0.11	100	1	0.81
800	A.I.	2	8	11.9	11.9	3.8	5.2	0	11	35	0.9	0.11	100	4	1.6
801	A.I.	2	8	11.9	11.9	3.8	5.2	0	11	35	0.9	0.11	100	16	2.3
802	A.I.	4	8	16.6	16.6	7	7.8	0	0	3	0.7	524.39	40	1	10.1
803	A.I.	4	8	16.6	16.6	7	7.8	0	0	3	0.7	524.39	40	4	12.6
804	A.I.	4	8	16.6	16.6	7	7.8	0	0	3	0.7	524.39	40	16	14.9
805	A.I.	4	8	16.6	16.6	7	7.8	0	0	3	0.7	4.24	70	1	2.46
806	A.I.	4	8	16.6	16.6	7	7.8	0	0	3	0.7	4.24	70	4	3.66
807	A.I.	4	8	16.6	16.6	7	7.8	0	0	3	0.7	4.24	70	16	5.62
808	A.I.	4	8	16.6	16.6	7	7.8	0	0	3	0.7	0.11	100	1	0.58
809	A.I.	4	8	16.6	16.6	7	7.8	0	0	3	0.7	0.11	100	4	0.88
810	A.I.	4	8	16.6	16.6	7	7.8	0	0	3	0.7	0.11	100	16	1.5
811	A.I.	4	8.6	18.1	18.1	5.4	4.4	0	0	3	0.6	524.39	40	1	9.85
812	A.I.	4	8.6	18.1	18.1	5.4	4.4	0	0	3	0.6	524.39	40	4	12.6
813	A.I.	4	8.6	18.1	18.1	5.4	4.4	0	0	3	0.6	524.39	40	16	14.8
814	A.I.	4	8.6	18.1	18.1	5.4	4.4	0	0	3	0.6	4.24	70	1	2.67
815	A.I.	4	8.6	18.1	18.1	5.4	4.4	0	0	3	0.6	4.24	70	4	3.64
816	A.I.	4	8.6	18.1	18.1	5.4	4.4	0	0	3	0.6	4.24	70	16	5.9
817	A.I.	4	8.6	18.1	18.1	5.4	4.4	0	0	3	0.6	0.11	100	1	0.54
818	A.I.	4	8.6	18.1	18.1	5.4	4.4	0	0	3	0.6	0.11	100	4	0.99
819	A.I.	4	8.6	18.1	18.1	5.4	4.4	0	0	3	0.6	0.11	100	16	1.55
820	A.I.	1	5.7	12.7	12.7	5.3	3	0	12	38	1.2	231.58	40	1	12.6
821	A.I.	1	5.7	12.7	12.7	5.3	3	0	12	38	1.2	231.58	40	4	15.6
822	A.I.	1	5.7	12.7	12.7	5.3	3	0	12	38	1.2	231.58	40	16	18.9
823	A.I.	1	5.7	12.7	12.7	5.3	3	0	12	38	1.2	2.05	70	1	2.3
824	A.I.	1	5.7	12.7	12.7	5.3	3	0	12	38	1.2	2.05	70	4	3.99
825	A.I.	1	5.7	12.7	12.7	5.3	3	0	12	38	1.2	2.05	70	16	6.47
826	A.I.	1	5.7	12.7	12.7	5.3	3	0	12	38	1.2	0.06	100	1	0.48
827	A.I.	1	5.7	12.7	12.7	5.3	3	0	12	38	1.2	0.06	100	4	0.77

828	A.I.	1	5.7	12.7	12.7	5.3	3	0	12	38	1.2	0.06	100	16	1.26
829	A.I.	1	6.2	12.8	12.8	2.8	4	0	24	42	1.7	231.58	40	1	11.7
830	A.I.	1	6.2	12.8	12.8	2.8	4	0	24	42	1.7	231.58	40	4	15.2
831	A.I.	1	6.2	12.8	12.8	2.8	4	0	24	42	1.7	231.58	40	16	17.8
832	A.I.	1	6.2	12.8	12.8	2.8	4	0	24	42	1.7	2.05	70	1	2.26
833	A.I.	1	6.2	12.8	12.8	2.8	4	0	24	42	1.7	2.05	70	4	3.98
834	A.I.	1	6.2	12.8	12.8	2.8	4	0	24	42	1.7	2.05	70	16	6.08
835	A.I.	1	6.2	12.8	12.8	2.8	4	0	24	42	1.7	0.06	100	1	0.51
836	A.I.	1	6.2	12.8	12.8	2.8	4	0	24	42	1.7	0.06	100	4	0.77
837	A.I.	1	6.2	12.8	12.8	2.8	4	0	24	42	1.7	0.06	100	16	1.18
838	A.I.	1	5.8	11.9	11.9	4	4	2	27	43	1.6	231.58	40	1	13
839	A.I.	1	5.8	11.9	11.9	4	4	2	27	43	1.6	231.58	40	4	15.6
840	A.I.	1	5.8	11.9	11.9	4	4	2	27	43	1.6	231.58	40	16	18.9
841	A.I.	1	5.8	11.9	11.9	4	4	2	27	43	1.6	2.05	70	1	2.63
842	A.I.	1	5.8	11.9	11.9	4	4	2	27	43	1.6	2.05	70	4	4.44
843	A.I.	1	5.8	11.9	11.9	4	4	2	27	43	1.6	2.05	70	16	6.54
844	A.I.	1	5.8	11.9	11.9	4	4	2	27	43	1.6	0.06	100	1	0.49
845	A.I.	1	5.8	11.9	11.9	4	4	2	27	43	1.6	0.06	100	4	0.77
846	A.I.	1	5.8	11.9	11.9	4	4	2	27	43	1.6	0.06	100	16	1.25
847	A.I.	1	5.8	12.1	12.1	1.9	4	2	27	43	1.7	231.58	40	1	15.9
848	A.I.	1	5.8	12.1	12.1	1.9	4	2	27	43	1.7	231.58	40	4	20.9
849	A.I.	1	5.8	12.1	12.1	1.9	4	2	27	43	1.7	231.58	40	16	25.1
850	A.I.	1	5.8	12.1	12.1	1.9	4	2	27	43	1.7	2.05	70	1	3.82
851	A.I.	1	5.8	12.1	12.1	1.9	4	2	27	43	1.7	2.05	70	4	5.91
852	A.I.	1	5.8	12.1	12.1	1.9	4	2	27	43	1.7	2.05	70	16	8.53
853	A.I.	1	5.8	12.1	12.1	1.9	4	2	27	43	1.7	0.06	100	1	0.74
854	A.I.	1	5.8	12.1	12.1	1.9	4	2	27	43	1.7	0.06	100	4	1.2
855	A.I.	1	5.8	12.1	12.1	1.9	4	2	27	43	1.7	0.06	100	16	1.9
856	A.I.	1	5.4	9.9	9.9	11.9	5	0	10	40	1.6	524.39	40	1	9.27
857	A.I.	1	5.4	9.9	9.9	11.9	5	0	10	40	1.6	524.39	40	4	12.1
858	A.I.	1	5.4	9.9	9.9	11.9	5	0	10	40	1.6	524.39	40	16	13.8
859	A.I.	1	5.4	9.9	9.9	11.9	5	0	10	40	1.6	4.24	70	1	2.75

860	A.I.	1	5.4	9.9	9.9	11.9	5	0	10	40	1.6	4.24	70	4	4.08
861	A.I.	1	5.4	9.9	9.9	11.9	5	0	10	40	1.6	4.24	70	16	5.82
862	A.I.	1	5.4	9.9	9.9	11.9	5	0	10	40	1.6	0.11	100	1	0.52
863	A.I.	1	5.4	9.9	9.9	11.9	5	0	10	40	1.6	0.11	100	4	0.82
864	A.I.	1	5.4	9.9	9.9	11.9	5	0	10	40	1.6	0.11	100	16	1.31
865	A.I.	1	5.2	9.9	9.9	11.6	4	0	21	47	1.2	524.39	40	1	7.49
866	A.I.	1	5.2	9.9	9.9	11.6	4	0	21	47	1.2	524.39	40	4	9.03
867	A.I.	1	5.2	9.9	9.9	11.6	4	0	21	47	1.2	524.39	40	16	11.1
868	A.I.	1	5.2	9.9	9.9	11.6	4	0	21	47	1.2	4.24	70	1	2.35
869	A.I.	1	5.2	9.9	9.9	11.6	4	0	21	47	1.2	4.24	70	4	3.48
870	A.I.	1	5.2	9.9	9.9	11.6	4	0	21	47	1.2	4.24	70	16	5.01
871	A.I.	1	5.2	9.9	9.9	11.6	4	0	21	47	1.2	0.11	100	1	0.43
872	A.I.	1	5.2	9.9	9.9	11.6	4	0	21	47	1.2	0.11	100	4	0.67
873	A.I.	1	5.2	9.9	9.9	11.6	4	0	21	47	1.2	0.11	100	16	1.12
874	A.I.	1	5.7	9.2	9.2	14.1	10	0	10	23	2.5	524.39	40	1	7.63
875	A.I.	1	5.7	9.2	9.2	14.1	10	0	10	23	2.5	524.39	40	4	9.77
876	A.I.	1	5.7	9.2	9.2	14.1	10	0	10	23	2.5	524.39	40	16	12
877	A.I.	1	5.7	9.2	9.2	14.1	10	0	10	23	2.5	4.24	70	1	2.7
878	A.I.	1	5.7	9.2	9.2	14.1	10	0	10	23	2.5	4.24	70	4	3.8
879	A.I.	1	5.7	9.2	9.2	14.1	10	0	10	23	2.5	4.24	70	16	5.6
880	A.I.	1	5.7	9.2	9.2	14.1	10	0	10	23	2.5	0.11	100	1	0.8
881	A.I.	1	5.7	9.2	9.2	14.1	10	0	10	23	2.5	0.11	100	4	1.11
882	A.I.	1	5.7	9.2	9.2	14.1	10	0	10	23	2.5	0.11	100	16	1.66
883	A.I.	1	5.2	11	11	6.2	3	0	0	42	1.4	231.58	40	1	13.2
884	A.I.	1	5.2	11	11	6.2	3	0	0	42	1.4	231.58	40	4	16.4
885	A.I.	1	5.2	11	11	6.2	3	0	0	42	1.4	231.58	40	16	19.6
886	A.I.	1	5.2	11	11	6.2	3	0	0	42	1.4	2.05	70	1	3.73
887	A.I.	1	5.2	11	11	6.2	3	0	0	42	1.4	2.05	70	4	5.65
888	A.I.	1	5.2	11	11	6.2	3	0	0	42	1.4	2.05	70	16	7.81
889	A.I.	1	5.2	11	11	6.2	3	0	0	42	1.4	0.06	100	1	0.59
890	A.I.	1	5.2	11	11	6.2	3	0	0	42	1.4	0.06	100	4	1.05
891	A.I.	1	5.2	11	11	6.2	3	0	0	42	1.4	0.06	100	16	1.7

892	A.I.	1	3	6.2	6.2	9	5	1	17	50	0.7	524.39	40	1	16.5
893	A.I.	1	3	6.2	6.2	9	5	1	17	50	0.7	524.39	40	4	20.3
894	A.I.	1	3	6.2	6.2	9	5	1	17	50	0.7	524.39	40	16	22.6
895	A.I.	1	3	6.2	6.2	9	5	1	17	50	0.7	4.24	70	1	5.15
896	A.I.	1	3	6.2	6.2	9	5	1	17	50	0.7	4.24	70	4	8.13
897	A.I.	1	3	6.2	6.2	9	5	1	17	50	0.7	4.24	70	16	11.2
898	A.I.	1	3	6.2	6.2	9	5	1	17	50	0.7	0.11	100	1	1.19
899	A.I.	1	3	6.2	6.2	9	5	1	17	50	0.7	0.11	100	4	1.89
900	A.I.	1	3	6.2	6.2	9	5	1	17	50	0.7	0.11	100	16	3
901	A.I.	1	4	7.7	7.7	6.6	5.1	0	15	35	1.8	231.58	40	1	15.3
902	A.I.	1	4	7.7	7.7	6.6	5.1	0	15	35	1.8	231.58	40	4	19.3
903	A.I.	1	4	7.7	7.7	6.6	5.1	0	15	35	1.8	231.58	40	16	12.8
904	A.I.	1	4	7.7	7.7	6.6	5.1	0	15	35	1.8	2.05	70	1	3.85
905	A.I.	1	4	7.7	7.7	6.6	5.1	0	15	35	1.8	2.05	70	4	5.7
906	A.I.	1	4	7.7	7.7	6.6	5.1	0	15	35	1.8	2.05	70	16	8.75
907	A.I.	1	4	7.7	7.7	6.6	5.1	0	15	35	1.8	0.06	100	1	1.4
908	A.I.	1	4	7.7	7.7	6.6	5.1	0	15	35	1.8	0.06	100	4	2.05
909	A.I.	1	4	7.7	7.7	6.6	5.1	0	15	35	1.8	0.06	100	16	3.05
910	A.I.	1	4	7.4	7.4	10.3	5.1	0	15	35	1.7	231.58	40	1	9.2
911	A.I.	1	4	7.4	7.4	10.3	5.1	0	15	35	1.7	231.58	40	4	11.8
912	A.I.	1	4	7.4	7.4	10.3	5.1	0	15	35	1.7	231.58	40	16	13.7
913	A.I.	1	4	7.4	7.4	10.3	5.1	0	15	35	1.7	2.05	70	1	2.55
914	A.I.	1	4	7.4	7.4	10.3	5.1	0	15	35	1.7	2.05	70	4	3.9
915	A.I.	1	4	7.4	7.4	10.3	5.1	0	15	35	1.7	2.05	70	16	5.5
916	A.I.	1	4	7.4	7.4	10.3	5.1	0	15	35	1.7	0.06	100	1	0.55
917	A.I.	1	4	7.4	7.4	10.3	5.1	0	15	35	1.7	0.06	100	4	0.8
918	A.I.	1	4	7.4	7.4	10.3	5.1	0	15	35	1.7	0.06	100	16	1.2
919	A.I.	1	4	7.3	7.3	12.3	5.1	0	15	35	1.6	231.58	40	1	6.5
920	A.I.	1	4	7.3	7.3	12.3	5.1	0	15	35	1.6	231.58	40	4	8.3
921	A.I.	1	4	7.3	7.3	12.3	5.1	0	15	35	1.6	231.58	40	16	11.5
922	A.I.	1	4	7.3	7.3	12.3	5.1	0	15	35	1.6	2.05	70	1	1.6
923	A.I.	1	4	7.3	7.3	12.3	5.1	0	15	35	1.6	2.05	70	4	2.45

924	A.I.	1	4	7.3	7.3	12.3	5.1	0	15	35	1.6	2.05	70	16	3.65
925	A.I.	1	4	7.3	7.3	12.3	5.1	0	15	35	1.6	0.06	100	1	0.55
926	A.I.	1	4	7.3	7.3	12.3	5.1	0	15	35	1.6	0.06	100	4	0.75
927	A.I.	1	4	7.3	7.3	12.3	5.1	0	15	35	1.6	0.06	100	16	1.05
928	A.I.	1	5	10.3	10.3	3.8	5.1	0	15	35	1.7	231.58	40	1	15.7
929	A.I.	1	5	10.3	10.3	3.8	5.1	0	15	35	1.7	231.58	40	4	19.2
930	A.I.	1	5	10.3	10.3	3.8	5.1	0	15	35	1.7	231.58	40	16	23.6
931	A.I.	1	5	10.3	10.3	3.8	5.1	0	15	35	1.7	2.05	70	1	4.35
932	A.I.	1	5	10.3	10.3	3.8	5.1	0	15	35	1.7	2.05	70	4	6.3
933	A.I.	1	5	10.3	10.3	3.8	5.1	0	15	35	1.7	2.05	70	16	9.5
934	A.I.	1	5	10.3	10.3	3.8	5.1	0	15	35	1.7	0.06	100	1	1.25
935	A.I.	1	5	10.3	10.3	3.8	5.1	0	15	35	1.7	0.06	100	4	1.95
936	A.I.	1	5	10.3	10.3	3.8	5.1	0	15	35	1.7	0.06	100	16	2.8
937	A.I.	1	5	9.9	9.9	7.2	5.1	0	15	35	1.7	231.58	40	1	9.85
938	A.I.	1	5	9.9	9.9	7.2	5.1	0	15	35	1.7	231.58	40	4	12.7
939	A.I.	1	5	9.9	9.9	7.2	5.1	0	15	35	1.7	231.58	40	16	16.1
940	A.I.	1	5	9.9	9.9	7.2	5.1	0	15	35	1.7	2.05	70	1	2.55
941	A.I.	1	5	9.9	9.9	7.2	5.1	0	15	35	1.7	2.05	70	4	4
942	A.I.	1	5	9.9	9.9	7.2	5.1	0	15	35	1.7	2.05	70	16	5.65
943	A.I.	1	5	9.9	9.9	7.2	5.1	0	15	35	1.7	0.06	100	1	0.55
944	A.I.	1	5	9.9	9.9	7.2	5.1	0	15	35	1.7	0.06	100	4	0.9
945	A.I.	1	5	9.9	9.9	7.2	5.1	0	15	35	1.7	0.06	100	16	1.4
946	A.I.	1	5	9.7	9.7	9.3	5.1	0	15	35	1.6	231.58	40	1	8.05
947	A.I.	1	5	9.7	9.7	9.3	5.1	0	15	35	1.6	231.58	40	4	10.9
948	A.I.	1	5	9.7	9.7	9.3	5.1	0	15	35	1.6	231.58	40	16	13.1
949	A.I.	1	5	9.7	9.7	9.3	5.1	0	15	35	1.6	2.05	70	1	1.75
950	A.I.	1	5	9.7	9.7	9.3	5.1	0	15	35	1.6	2.05	70	4	2.9
951	A.I.	1	5	9.7	9.7	9.3	5.1	0	15	35	1.6	2.05	70	16	4
952	A.I.	1	5	9.7	9.7	9.3	5.1	0	15	35	1.6	0.06	100	1	0.5
953	A.I.	1	5	9.7	9.7	9.3	5.1	0	15	35	1.6	0.06	100	4	0.75
954	A.I.	1	5	9.7	9.7	9.3	5.1	0	15	35	1.6	0.06	100	16	0.95
955	A.I.	1	6	12.9	12.9	0.6	5.1	0	15	35	1.8	231.58	40	1	13.5

956	A.I.	1	6	12.9	12.9	0.6	5.1	0	15	35	1.8	231.58	40	4	17.5
957	A.I.	1	6	12.9	12.9	0.6	5.1	0	15	35	1.8	231.58	40	16	21
958	A.I.	1	6	12.9	12.9	0.6	5.1	0	15	35	1.8	2.05	70	1	3.7
959	A.I.	1	6	12.9	12.9	0.6	5.1	0	15	35	1.8	2.05	70	4	5.5
960	A.I.	1	6	12.9	12.9	0.6	5.1	0	15	35	1.8	2.05	70	16	8.45
961	A.I.	1	6	12.9	12.9	0.6	5.1	0	15	35	1.8	0.06	100	1	1
962	A.I.	1	6	12.9	12.9	0.6	5.1	0	15	35	1.8	0.06	100	4	1.5
963	A.I.	1	6	12.9	12.9	0.6	5.1	0	15	35	1.8	0.06	100	16	2
964	A.I.	1	6	12.4	12.4	4.5	5.1	0	15	35	1.7	231.58	40	1	10.3
965	A.I.	1	6	12.4	12.4	4.5	5.1	0	15	35	1.7	231.58	40	4	13.3
966	A.I.	1	6	12.4	12.4	4.5	5.1	0	15	35	1.7	231.58	40	16	17.6
967	A.I.	1	6	12.4	12.4	4.5	5.1	0	15	35	1.7	2.05	70	1	2.9
968	A.I.	1	6	12.4	12.4	4.5	5.1	0	15	35	1.7	2.05	70	4	4.25
969	A.I.	1	6	12.4	12.4	4.5	5.1	0	15	35	1.7	2.05	70	16	5.75
970	A.I.	1	6	12.4	12.4	4.5	5.1	0	15	35	1.7	0.06	100	1	0.65
971	A.I.	1	6	12.4	12.4	4.5	5.1	0	15	35	1.7	0.06	100	4	0.95
972	A.I.	1	6	12.4	12.4	4.5	5.1	0	15	35	1.7	0.06	100	16	1.45
973	A.I.	1	6	12.2	12.2	6.1	5.1	0	15	35	1.7	231.58	40	1	7.95
974	A.I.	1	6	12.2	12.2	6.1	5.1	0	15	35	1.7	231.58	40	4	10.3
975	A.I.	1	6	12.2	12.2	6.1	5.1	0	15	35	1.7	231.58	40	16	13.1
976	A.I.	1	6	12.2	12.2	6.1	5.1	0	15	35	1.7	2.05	70	1	2
977	A.I.	1	6	12.2	12.2	6.1	5.1	0	15	35	1.7	2.05	70	4	3.25
978	A.I.	1	6	12.2	12.2	6.1	5.1	0	15	35	1.7	2.05	70	16	4.9
979	A.I.	1	6	12.2	12.2	6.1	5.1	0	15	35	1.7	0.06	100	1	0.5
980	A.I.	1	6	12.2	12.2	6.1	5.1	0	15	35	1.7	0.06	100	4	0.75
981	A.I.	1	6	12.2	12.2	6.1	5.1	0	15	35	1.7	0.06	100	16	1.15
982	A.I.	1	4	7.7	7.7	6.8	5.1	0	15	35	1.8	524.39	40	1	20.2
983	A.I.	1	4	7.7	7.7	6.8	5.1	0	15	35	1.8	524.39	40	4	24.7
984	A.I.	1	4	7.7	7.7	6.8	5.1	0	15	35	1.8	524.39	40	16	29
985	A.I.	1	4	7.7	7.7	6.8	5.1	0	15	35	1.8	4.24	70	1	7.1
986	A.I.	1	4	7.7	7.7	6.8	5.1	0	15	35	1.8	4.24	70	4	9.75
987	A.I.	1	4	7.7	7.7	6.8	5.1	0	15	35	1.8	4.24	70	16	13.7

988	A.I.	1	4	7.7	7.7	6.8	5.1	0	15	35	1.8	0.11	100	1	1.25
989	A.I.	1	4	7.7	7.7	6.8	5.1	0	15	35	1.8	0.11	100	4	2.15
990	A.I.	1	4	7.7	7.7	6.8	5.1	0	15	35	1.8	0.11	100	16	3.55
991	A.I.	1	4	7.2	7.2	12.5	5.1	0	15	35	1.7	524.39	40	1	11
992	A.I.	1	4	7.2	7.2	12.5	5.1	0	15	35	1.7	524.39	40	4	13.7
993	A.I.	1	4	7.2	7.2	12.5	5.1	0	15	35	1.7	524.39	40	16	15.6
994	A.I.	1	4	7.2	7.2	12.5	5.1	0	15	35	1.7	4.24	70	1	3.05
995	A.I.	1	4	7.2	7.2	12.5	5.1	0	15	35	1.7	4.24	70	4	4.85
996	A.I.	1	4	7.2	7.2	12.5	5.1	0	15	35	1.7	4.24	70	16	6.8
997	A.I.	1	4	7.2	7.2	12.5	5.1	0	15	35	1.7	0.11	100	1	0.9
998	A.I.	1	4	7.2	7.2	12.5	5.1	0	15	35	1.7	0.11	100	4	1.25
999	A.I.	1	4	7.2	7.2	12.5	5.1	0	15	35	1.7	0.11	100	16	1.75
1000	A.I.	1	5	10.3	10.3	3.5	5.1	0	15	35	1.8	524.39	40	1	22
1001	A.I.	1	5	10.3	10.3	3.5	5.1	0	15	35	1.8	524.39	40	4	26.9
1002	A.I.	1	5	10.3	10.3	3.5	5.1	0	15	35	1.8	524.39	40	16	30.5
1003	A.I.	1	5	10.3	10.3	3.5	5.1	0	15	35	1.8	4.24	70	1	7.05
1004	A.I.	1	5	10.3	10.3	3.5	5.1	0	15	35	1.8	4.24	70	4	9.8
1005	A.I.	1	5	10.3	10.3	3.5	5.1	0	15	35	1.8	4.24	70	16	13.2
1006	A.I.	1	5	10.3	10.3	3.5	5.1	0	15	35	1.8	0.11	100	1	1.55
1007	A.I.	1	5	10.3	10.3	3.5	5.1	0	15	35	1.8	0.11	100	4	2.55
1008	A.I.	1	5	10.3	10.3	3.5	5.1	0	15	35	1.8	0.11	100	16	4.45
1009	A.I.	1	5	9.9	9.9	7	5.1	0	15	35	1.7	524.39	40	1	15.5
1010	A.I.	1	5	9.9	9.9	7	5.1	0	15	35	1.7	524.39	40	4	19.4
1011	A.I.	1	5	9.9	9.9	7	5.1	0	15	35	1.7	524.39	40	16	22.6
1012	A.I.	1	5	9.9	9.9	7	5.1	0	15	35	1.7	4.24	70	1	4.35
1013	A.I.	1	5	9.9	9.9	7	5.1	0	15	35	1.7	4.24	70	4	7
1014	A.I.	1	5	9.9	9.9	7	5.1	0	15	35	1.7	4.24	70	16	9.9
1015	A.I.	1	5	9.9	9.9	7	5.1	0	15	35	1.7	0.11	100	1	0.7
1016	A.I.	1	5	9.9	9.9	7	5.1	0	15	35	1.7	0.11	100	4	1.1
1017	A.I.	1	5	9.9	9.9	7	5.1	0	15	35	1.7	0.11	100	16	2
1018	A.I.	1	5	9.7	9.7	9.5	5.1	0	15	35	1.6	524.39	40	1	11.9
1019	A.I.	1	5	9.7	9.7	9.5	5.1	0	15	35	1.6	524.39	40	4	14.2

1020	A.I.	1	5	9.7	9.7	9.5	5.1	0	15	35	1.6	524.39	40	16	17
1021	A.I.	1	5	9.7	9.7	9.5	5.1	0	15	35	1.6	4.24	70	1	3.45
1022	A.I.	1	5	9.7	9.7	9.5	5.1	0	15	35	1.6	4.24	70	4	5.45
1023	A.I.	1	5	9.7	9.7	9.5	5.1	0	15	35	1.6	4.24	70	16	7.8
1024	A.I.	1	5	9.7	9.7	9.5	5.1	0	15	35	1.6	0.11	100	1	0.65
1025	A.I.	1	5	9.7	9.7	9.5	5.1	0	15	35	1.6	0.11	100	4	1.25
1026	A.I.	1	5	9.7	9.7	9.5	5.1	0	15	35	1.6	0.11	100	16	1.65
1027	A.I.	1	6	12.9	12.9	0.9	5.1	0	15	35	1.7	524.39	40	1	19.5
1028	A.I.	1	6	12.9	12.9	0.9	5.1	0	15	35	1.7	524.39	40	4	23
1029	A.I.	1	6	12.9	12.9	0.9	5.1	0	15	35	1.7	524.39	40	16	28.2
1030	A.I.	1	6	12.9	12.9	0.9	5.1	0	15	35	1.7	4.24	70	1	4.8
1031	A.I.	1	6	12.9	12.9	0.9	5.1	0	15	35	1.7	4.24	70	4	6.45
1032	A.I.	1	6	12.9	12.9	0.9	5.1	0	15	35	1.7	4.24	70	16	9.75
1033	A.I.	1	6	12.9	12.9	0.9	5.1	0	15	35	1.7	0.11	100	1	1.3
1034	A.I.	1	6	12.9	12.9	0.9	5.1	0	15	35	1.7	0.11	100	4	1.95
1035	A.I.	1	6	12.9	12.9	0.9	5.1	0	15	35	1.7	0.11	100	16	3.15
1036	A.I.	1	6	12.2	12.2	6.1	5.1	0	15	35	1.7	524.39	40	1	13.7
1037	A.I.	1	6	12.2	12.2	6.1	5.1	0	15	35	1.7	524.39	40	4	16.1
1038	A.I.	1	6	12.2	12.2	6.1	5.1	0	15	35	1.7	524.39	40	16	19
1039	A.I.	1	6	12.2	12.2	6.1	5.1	0	15	35	1.7	4.24	70	1	4.15
1040	A.I.	1	6	12.2	12.2	6.1	5.1	0	15	35	1.7	4.24	70	4	6.55
1041	A.I.	1	6	12.2	12.2	6.1	5.1	0	15	35	1.7	4.24	70	16	9.9
1042	A.I.	1	6	12.2	12.2	6.1	5.1	0	15	35	1.7	0.11	100	1	0.45
1043	A.I.	1	6	12.2	12.2	6.1	5.1	0	15	35	1.7	0.11	100	4	0.8
1044	A.I.	1	6	12.2	12.2	6.1	5.1	0	15	35	1.7	0.11	100	16	1.3
1045	A.I.	1	6	12.3	12.3	9.3	4.4	0	0	19	1.1	231.58	40	1	10.2
1046	A.I.	1	6	12.3	12.3	9.3	4.4	0	0	19	1.1	231.58	40	4	13.2
1047	A.I.	1	6	12.3	12.3	9.3	4.4	0	0	19	1.1	231.58	40	16	15.9
1048	A.I.	1	6	12.3	12.3	9.3	4.4	0	0	19	1.1	2.05	70	1	1.54
1049	A.I.	1	6	12.3	12.3	9.3	4.4	0	0	19	1.1	2.05	70	4	2.88
1050	A.I.	1	6	12.3	12.3	9.3	4.4	0	0	19	1.1	2.05	70	16	4.42
1051	A.I.	1	6	12.3	12.3	9.3	4.4	0	0	19	1.1	0.06	100	1	0.32

1052	A.I.	1	6	12.3	12.3	9.3	4.4	0	0	19	1.1	0.06	100	4	0.49
1053	A.I.	1	6	12.3	12.3	9.3	4.4	0	0	19	1.1	0.06	100	16	0.8
1054	A.I.	1	4.5	8.6	8.6	6.6	0.4	5	56	67	1.8	231.58	40	1	13.7
1055	A.I.	1	4.5	8.6	8.6	6.6	0.4	5	56	67	1.8	231.58	40	4	17.8
1056	A.I.	1	4.5	8.6	8.6	6.6	0.4	5	56	67	1.8	231.58	40	16	20.4
1057	A.I.	1	4.5	8.6	8.6	6.6	0.4	5	56	67	1.8	2.05	70	1	2.58
1058	A.I.	1	4.5	8.6	8.6	6.6	0.4	5	56	67	1.8	2.05	70	4	4.3
1059	A.I.	1	4.5	8.6	8.6	6.6	0.4	5	56	67	1.8	2.05	70	16	6.35
1060	A.I.	1	4.5	8.6	8.6	6.6	0.4	5	56	67	1.8	0.06	100	1	0.4
1061	A.I.	1	4.5	8.6	8.6	6.6	0.4	5	56	67	1.8	0.06	100	4	0.58
1062	A.I.	1	4.5	8.6	8.6	6.6	0.4	5	56	67	1.8	0.06	100	16	1.04
1063	A.I.	2	4	7.6	7.6	6	5.7	8	31	43	1.5	231.58	40	1	12.9
1064	A.I.	2	4	7.6	7.6	6	5.7	8	31	43	1.5	231.58	40	4	16.5
1065	A.I.	2	4	7.6	7.6	6	5.7	8	31	43	1.5	231.58	40	16	19.4
1066	A.I.	2	4	7.6	7.6	6	5.7	8	31	43	1.5	2.05	70	1	3.2
1067	A.I.	2	4	7.6	7.6	6	5.7	8	31	43	1.5	2.05	70	4	5.23
1068	A.I.	2	4	7.6	7.6	6	5.7	8	31	43	1.5	2.05	70	16	7.3
1069	A.I.	2	4	7.6	7.6	6	5.7	8	31	43	1.5	0.06	100	1	0.59
1070	A.I.	2	4	7.6	7.6	6	5.7	8	31	43	1.5	0.06	100	4	1
1071	A.I.	2	4	7.6	7.6	6	5.7	8	31	43	1.5	0.06	100	16	1.83
1072	A.I.	1	5.4	11.7	11.7	3	5.7	0	19	37	1.1	231.58	40	1	9.98
1073	A.I.	1	5.4	11.7	11.7	3	5.7	0	19	37	1.1	231.58	40	4	12.3
1074	A.I.	1	5.4	11.7	11.7	3	5.7	0	19	37	1.1	231.58	40	16	14.1
1075	A.I.	1	5.4	11.7	11.7	3	5.7	0	19	37	1.1	2.05	70	1	2.31
1076	A.I.	1	5.4	11.7	11.7	3	5.7	0	19	37	1.1	2.05	70	4	3.53
1077	A.I.	1	5.4	11.7	11.7	3	5.7	0	19	37	1.1	2.05	70	16	5.3
1078	A.I.	1	5.4	11.7	11.7	3	5.7	0	19	37	1.1	0.06	100	1	0.62
1079	A.I.	1	5.4	11.7	11.7	3	5.7	0	19	37	1.1	0.06	100	4	0.89
1080	A.I.	1	5.4	11.7	11.7	3	5.7	0	19	37	1.1	0.06	100	16	1.29
1081	A.I.	1	5.4	11.6	11.6	3.8	5.7	0	19	37	1.1	231.58	40	1	9.58
1082	A.I.	1	5.4	11.6	11.6	3.8	5.7	0	19	37	1.1	231.58	40	4	11.7
1083	A.I.	1	5.4	11.6	11.6	3.8	5.7	0	19	37	1.1	231.58	40	16	14.7

1084	A.I.	1	5.4	11.6	11.6	3.8	5.7	0	19	37	1.1	2.05	70	1	1.98
1085	A.I.	1	5.4	11.6	11.6	3.8	5.7	0	19	37	1.1	2.05	70	4	2.98
1086	A.I.	1	5.4	11.6	11.6	3.8	5.7	0	19	37	1.1	2.05	70	16	4.95
1087	A.I.	1	5.4	11.6	11.6	3.8	5.7	0	19	37	1.1	0.06	100	1	0.53
1088	A.I.	1	5.4	11.6	11.6	3.8	5.7	0	19	37	1.1	0.06	100	4	0.76
1089	A.I.	1	5.4	11.6	11.6	3.8	5.7	0	19	37	1.1	0.06	100	16	1.13
1090	A.I.	1	4.5	10.2	10.2	4.1	4.5	4	43	64	0.7	231.58	40	1	9.25
1091	A.I.	1	4.5	10.2	10.2	4.1	4.5	4	43	64	0.7	231.58	40	4	11.6
1092	A.I.	1	4.5	10.2	10.2	4.1	4.5	4	43	64	0.7	231.58	40	16	14.3
1093	A.I.	1	4.5	10.2	10.2	4.1	4.5	4	43	64	0.7	2.05	70	1	2.08
1094	A.I.	1	4.5	10.2	10.2	4.1	4.5	4	43	64	0.7	2.05	70	4	3.25
1095	A.I.	1	4.5	10.2	10.2	4.1	4.5	4	43	64	0.7	2.05	70	16	5.1
1096	A.I.	1	4.5	10.2	10.2	4.1	4.5	4	43	64	0.7	0.06	100	1	0.66
1097	A.I.	1	4.5	10.2	10.2	4.1	4.5	4	43	64	0.7	0.06	100	4	0.88
1098	A.I.	1	4.5	10.2	10.2	4.1	4.5	4	43	64	0.7	0.06	100	16	1.2
1099	A.I.	1	4.5	10	10	5.6	4.5	4	43	64	0.7	231.58	40	1	8.17
1100	A.I.	1	4.5	10	10	5.6	4.5	4	43	64	0.7	231.58	40	4	9.8
1101	A.I.	1	4.5	10	10	5.6	4.5	4	43	64	0.7	231.58	40	16	11.9
1102	A.I.	1	4.5	10	10	5.6	4.5	4	43	64	0.7	2.05	70	1	1.74
1103	A.I.	1	4.5	10	10	5.6	4.5	4	43	64	0.7	2.05	70	4	2.63
1104	A.I.	1	4.5	10	10	5.6	4.5	4	43	64	0.7	2.05	70	16	4.14
1105	A.I.	1	4.5	10	10	5.6	4.5	4	43	64	0.7	0.06	100	1	0.56
1106	A.I.	1	4.5	10	10	5.6	4.5	4	43	64	0.7	0.06	100	4	0.71
1107	A.I.	1	4.5	10	10	5.6	4.5	4	43	64	0.7	0.06	100	16	0.99
1108	A.I.	1	5.5	12.1	12.1	3.3	8.2	0	3	36.3	1.1	231.58	40	1	8.11
1109	A.I.	1	5.5	12.1	12.1	3.3	8.2	0	3	36.3	1.1	231.58	40	4	9.92
1110	A.I.	1	5.5	12.1	12.1	3.3	8.2	0	3	36.3	1.1	231.58	40	16	12.3
1111	A.I.	1	5.5	12.1	12.1	3.3	8.2	0	3	36.3	1.1	2.05	70	1	2.3
1112	A.I.	1	5.5	12.1	12.1	3.3	8.2	0	3	36.3	1.1	2.05	70	4	4.3
1113	A.I.	1	5.5	12.1	12.1	3.3	8.2	0	3	36.3	1.1	2.05	70	16	6.8
1114	A.I.	1	5.5	12.1	12.1	3.3	8.2	0	3	36.3	1.1	0.06	100	1	0.62
1115	A.I.	1	5.5	12.1	12.1	3.3	8.2	0	3	36.3	1.1	0.06	100	4	1.41

1116	A.I.	1	5.5	12.1	12.1	3.3	8.2	0	3	36.3	1.1	0.06	100	16	2.16
1117	A.I.	1	5.5	11.6	11.6	7.2	8.2	0	3	36.3	1	231.58	40	1	6.73
1118	A.I.	1	5.5	11.6	11.6	7.2	8.2	0	3	36.3	1	231.58	40	4	8.82
1119	A.I.	1	5.5	11.6	11.6	7.2	8.2	0	3	36.3	1	231.58	40	16	10.1
1120	A.I.	1	5.5	11.6	11.6	7.2	8.2	0	3	36.3	1	2.05	70	1	1.84
1121	A.I.	1	5.5	11.6	11.6	7.2	8.2	0	3	36.3	1	2.05	70	4	3.5
1122	A.I.	1	5.5	11.6	11.6	7.2	8.2	0	3	36.3	1	2.05	70	16	5.24
1123	A.I.	1	5.5	11.6	11.6	7.2	8.2	0	3	36.3	1	0.06	100	1	0.47
1124	A.I.	1	5.5	11.6	11.6	7.2	8.2	0	3	36.3	1	0.06	100	4	1.14
1125	A.I.	1	5.5	11.6	11.6	7.2	8.2	0	3	36.3	1	0.06	100	16	1.74
1126	A.I.	1	3.5	8	8	8	2.3	11.6	48.4	65.5	0.2	231.58	40	1	7.17
1127	A.I.	1	3.5	8	8	8	2.3	11.6	48.4	65.5	0.2	231.58	40	4	8.9
1128	A.I.	1	3.5	8	8	8	2.3	11.6	48.4	65.5	0.2	231.58	40	16	11.4
1129	A.I.	1	3.5	8	8	8	2.3	11.6	48.4	65.5	0.2	2.05	70	1	2.28
1130	A.I.	1	3.5	8	8	8	2.3	11.6	48.4	65.5	0.2	2.05	70	4	3.78
1131	A.I.	1	3.5	8	8	8	2.3	11.6	48.4	65.5	0.2	2.05	70	16	5.85
1132	A.I.	1	3.5	8	8	8	2.3	11.6	48.4	65.5	0.2	0.06	100	1	0.71
1133	A.I.	1	3.5	8	8	8	2.3	11.6	48.4	65.5	0.2	0.06	100	4	1.55
1134	A.I.	1	3.5	8	8	8	2.3	11.6	48.4	65.5	0.2	0.06	100	16	2.27
1135	A.I.	1	3.5	7.5	7.5	13.2	2.3	11.6	48.4	65.5	0.2	231.58	40	1	6.65
1136	A.I.	1	3.5	7.5	7.5	13.2	2.3	11.6	48.4	65.5	0.2	231.58	40	4	9.16
1137	A.I.	1	3.5	7.5	7.5	13.2	2.3	11.6	48.4	65.5	0.2	231.58	40	16	9.4
1138	A.I.	1	3.5	7.5	7.5	13.2	2.3	11.6	48.4	65.5	0.2	2.05	70	1	1.98
1139	A.I.	1	3.5	7.5	7.5	13.2	2.3	11.6	48.4	65.5	0.2	2.05	70	4	3.54
1140	A.I.	1	3.5	7.5	7.5	13.2	2.3	11.6	48.4	65.5	0.2	2.05	70	16	4.94
1141	A.I.	1	3.5	7.5	7.5	13.2	2.3	11.6	48.4	65.5	0.2	0.06	100	1	0.75
1142	A.I.	1	3.5	7.5	7.5	13.2	2.3	11.6	48.4	65.5	0.2	0.06	100	4	1.44
1143	A.I.	1	3.5	7.5	7.5	13.2	2.3	11.6	48.4	65.5	0.2	0.06	100	16	1.95
1144	A.I.	1	5.7	9.1	9.1	14.8	10	0	10	23	2.5	524.39	40	1	7.67
1145	A.I.	1	5.7	9.1	9.1	14.8	10	0	10	23	2.5	524.39	40	4	9.9
1146	A.I.	1	5.7	9.1	9.1	14.8	10	0	10	23	2.5	524.39	40	16	11.4
1147	A.I.	1	5.7	9.1	9.1	14.8	10	0	10	23	2.5	4.24	70	1	2.22

1148	A.I.	1	5.7	9.1	9.1	14.8	10	0	10	23	2.5	4.24	70	4	3.27
1149	A.I.	1	5.7	9.1	9.1	14.8	10	0	10	23	2.5	4.24	70	16	4.55
1150	A.I.	1	5.7	9.1	9.1	14.8	10	0	10	23	2.5	0.11	100	1	0.63
1151	A.I.	1	5.7	9.1	9.1	14.8	10	0	10	23	2.5	0.11	100	4	0.86
1152	A.I.	1	5.7	9.1	9.1	14.8	10	0	10	23	2.5	0.11	100	16	1.3
1153	UMd	3	8.8	18.84	18.84	4.27	2.8	2.6	22.2	30.7	0.05	231.58	40	1	9.66
1154	UMd	3	8.8	18.84	18.84	4.27	2.8	2.6	22.2	30.7	0.05	231.58	40	4	12.1
1155	UMd	3	8.8	18.84	18.84	4.27	2.8	2.6	22.2	30.7	0.05	231.58	40	16	14.65
1156	UMd	3	8.8	18.84	18.84	4.27	2.8	2.6	22.2	30.7	0.05	2.05	70	1	3.11
1157	UMd	3	8.8	18.84	18.84	4.27	2.8	2.6	22.2	30.7	0.05	2.05	70	4	4.62
1158	UMd	3	8.8	18.84	18.84	4.27	2.8	2.6	22.2	30.7	0.05	2.05	70	16	7.38
1159	UMd	3	8.8	18.84	18.84	4.27	2.8	2.6	22.2	30.7	0.05	0.06	100	1	0.91
1160	UMd	3	8.8	18.84	18.84	4.27	2.8	2.6	22.2	30.7	0.05	0.06	100	4	1.41
1161	UMd	3	8.8	18.84	18.84	4.27	2.8	2.6	22.2	30.7	0.05	0.06	100	16	2.19
1162	UMd	3	8.8	17.83	17.83	9.36	2.8	2.6	22.2	30.7	0.05	231.58	40	1	3.53
1163	UMd	3	8.8	17.83	17.83	9.36	2.8	2.6	22.2	30.7	0.05	231.58	40	4	5.28
1164	UMd	3	8.8	17.83	17.83	9.36	2.8	2.6	22.2	30.7	0.05	231.58	40	16	6.8
1165	UMd	3	8.8	17.83	17.83	9.36	2.8	2.6	22.2	30.7	0.05	2.05	70	1	0.95
1166	UMd	3	8.8	17.83	17.83	9.36	2.8	2.6	22.2	30.7	0.05	2.05	70	4	1.52
1167	UMd	3	8.8	17.83	17.83	9.36	2.8	2.6	22.2	30.7	0.05	2.05	70	16	2.68
1168	UMd	3	8.8	17.83	17.83	9.36	2.8	2.6	22.2	30.7	0.05	0.06	100	1	0.38
1169	UMd	3	8.8	17.83	17.83	9.36	2.8	2.6	22.2	30.7	0.05	0.06	100	4	0.52
1170	UMd	3	8.8	17.83	17.83	9.36	2.8	2.6	22.2	30.7	0.05	0.06	100	16	0.85
1171	UMd	3	8.8	17.93	17.93	8.88	2.8	2.6	22.2	30.7	0.05	231.58	40	1	5.85
1172	UMd	3	8.8	17.93	17.93	8.88	2.8	2.6	22.2	30.7	0.05	231.58	40	4	7.65
1173	UMd	3	8.8	17.93	17.93	8.88	2.8	2.6	22.2	30.7	0.05	231.58	40	16	10.35
1174	UMd	3	8.8	17.93	17.93	8.88	2.8	2.6	22.2	30.7	0.05	2.05	70	1	1.77
1175	UMd	3	8.8	17.93	17.93	8.88	2.8	2.6	22.2	30.7	0.05	2.05	70	4	2.76
1176	UMd	3	8.8	17.93	17.93	8.88	2.8	2.6	22.2	30.7	0.05	2.05	70	16	4.4
1177	UMd	3	8.8	17.93	17.93	8.88	2.8	2.6	22.2	30.7	0.05	0.06	100	1	0.63
1178	UMd	3	8.8	17.93	17.93	8.88	2.8	2.6	22.2	30.7	0.05	0.06	100	4	0.89
1179	UMd	3	8.8	17.93	17.93	8.88	2.8	2.6	22.2	30.7	0.05	0.06	100	16	1.49

1180	FHA	1	4.8	10.8	10.8	4.97	4	2	30	50	0.08	4.12	65	1	4
1181	FHA	1	4.8	10.95	10.95	3.64	4	2	30	50	0.08	4.12	65	1	4
1182	FHA	1	4.8	10.95	10.95	3.64	4	2	30	50	0.08	4.12	65	1	3.85
1183	FHA	1	4.8	10.95	10.95	3.52	4	2	30	50	0.08	4.12	65	1	5.84
1184	FHA	1	4.8	10.98	10.98	3.35	4	2	30	50	0.08	4.12	65	1	4
1185	FHA	1	4.8	10.95	10.95	3.64	4	2	30	50	0.08	4.12	65	1	2.65
1186	FHA	1	4.8	10.93	10.93	3.68	4	2	30	50	0.08	4.12	65	1	3.33
1187	FHA	1	4.8	10.95	10.95	3.56	4	2	30	50	0.08	4.12	65	1	3.58
1188	FHA	1	4.8	10.98	10.98	3.35	4	2	30	50	0.08	4.12	65	1	3.6
1189	FHA	1	4.8	10.93	10.93	3.84	4	2	30	50	0.08	4.12	65	1	2.7
1190	FHA	1	4.8	10.98	10.98	3.35	4	2	30	50	0.08	4.12	65	1	2.82
1191	FHA	1	4.8	10.95	10.95	3.44	4	2	30	50	0.08	4.12	65	1	3.33
1192	FHA	1	4.8	10.98	10.98	3.27	4	2	30	50	0.08	4.12	65	1	3.76
1193	FHA	1	4.8	10.62	10.62	6.47	4	2	30	50	0.08	4.12	65	1	1.33
1194	FHA	1	4.8	10.6	10.6	6.55	4	2	30	50	0.08	4.12	65	1	4
1195	FHA	1	4.8	10.6	10.6	6.55	4	2	30	50	0.08	4.12	65	1	4
1196	FHA	1	4.8	10.6	10.6	6.63	4	2	30	50	0.08	4.12	65	1	4
1197	FHA	1	4.8	10.53	10.53	7.32	4	2	30	50	0.08	4.12	65	1	2.79
1198	FHA	1	4.8	10.62	10.62	6.43	4	2	30	50	0.08	4.12	65	1	2.92
1199	FHA	1	4.8	10.6	10.6	6.55	4	2	30	50	0.08	4.12	65	1	2.67
1200	FHA	1	4.8	10.62	10.62	6.43	4	2	30	50	0.08	4.12	65	1	3.33
1201	FHA	1	4.8	10.48	10.48	7.64	4	2	30	50	0.08	4.12	65	1	4
1202	FHA	1	4.8	10.77	10.77	5.09	4	2	30	50	0.08	4.12	65	1	3
1203	FHA	1	4.8	10.62	10.62	6.51	4	2	30	50	0.08	4.12	65	1	4
1204	FHA	1	4.8	10.62	10.62	6.47	4	2	30	50	0.08	4.12	65	1	3.2
1205	FHA	1	4.8	10.62	10.62	6.51	4	2	30	50	0.08	4.12	65	1	3
1206	FHA	1	4.8	10.65	10.65	6.27	4	2	30	50	0.08	4.12	65	1	4
1207	FHA	1	4.8	10.48	10.48	7.72	4	2	30	50	0.08	4.12	65	1	2.88
1208	FHA	1	4.8	10.29	10.29	9.42	4	2	30	50	0.08	4.12	65	1	4
1209	FHA	1	4.8	10.29	10.29	9.34	4	2	30	50	0.08	4.12	65	1	4
1210	FHA	1	4.8	10.22	10.22	9.94	4	2	30	50	0.08	4.12	65	1	2.56
1211	FHA	1	4.8	10.18	10.18	10.39	4	2	30	50	0.08	4.12	65	1	4

1212	FHA	1	4.8	10.27	10.27	9.66	4	2	30	50	0.08	4.12	65	1	1.66
1213	FHA	1	4.8	10.29	10.29	9.38	4	2	30	50	0.08	4.12	65	1	2.5
1214	FHA	1	4.8	10.29	10.29	9.3	4	2	30	50	0.08	4.12	65	1	4
1215	FHA	1	3.8	8.32	8.32	8.48	4	2	30	50	0.08	4.12	65	1	4.44
1216	FHA	1	4.8	10.27	10.27	9.66	4	2	30	50	0.08	4.12	65	1	2.16
1217	FHA	1	4.8	10.29	10.29	9.34	4	2	30	50	0.08	4.12	65	1	4
1218	FHA	1	4.8	10.31	10.31	9.09	4	2	30	50	0.08	4.12	65	1	2.27
1219	FHA	1	3.8	8.32	8.32	8.44	4	2	30	50	0.08	4.12	65	1	3.45
1220	FHA	1	3.8	8.25	8.25	9.36	4	2	30	50	0.08	4.12	65	1	4
1221	FHA	1	3.8	8.23	8.23	9.4	4	2	30	50	0.08	4.12	65	1	4
1222	FHA	1	3.8	8.23	8.23	9.4	4	2	30	50	0.08	4.12	65	1	4
1223	FHA	1	3.8	8.25	8.25	9.36	4	2	30	50	0.08	4.12	65	1	1.75
1224	FHA	1	3.8	8.19	8.19	9.96	4	2	30	50	0.08	4.12	65	1	2.63
1225	FHA	1	3.8	8.26	8.26	9.04	4	2	30	50	0.08	4.12	65	1	4
1226	FHA	1	3.8	8.25	8.25	9.32	4	2	30	50	0.08	4.12	65	1	4
1227	FHA	1	3.8	8.28	8.28	8.96	4	2	30	50	0.08	4.12	65	1	4
1228	FHA	1	3.8	8.25	8.25	9.36	4	2	30	50	0.08	4.12	65	1	3.5
1229	FHA	1	3.8	8.25	8.25	9.24	4	2	30	50	0.08	4.12	65	1	3
1230	FHA	1	3.8	8.25	8.25	9.24	4	2	30	50	0.08	4.12	65	1	3
1231	FHA	1	3.8	8.3	8.3	8.6	4	2	30	50	0.08	4.12	65	1	4
1232	FHA	1	5.8	13.08	13.08	3.53	4	2	30	50	0.08	4.12	65	1	2.63
1233	FHA	1	5.8	12.93	12.93	4.68	4	2	30	50	0.08	4.12	65	1	4
1234	FHA	1	5.8	12.93	12.93	4.68	4	2	30	50	0.08	4.12	65	1	4
1235	FHA	1	5.8	13.05	13.05	3.65	4	2	30	50	0.08	4.12	65	1	3.1
1236	FHA	1	5.8	13.05	13.05	3.65	4	2	30	50	0.08	4.12	65	1	3.1
1237	FHA	1	5.8	13.08	13.08	3.57	4	2	30	50	0.08	4.12	65	1	4
1238	FHA	1	5.8	13.02	13.02	3.9	4	2	30	50	0.08	4.12	65	1	3.03
1239	FHA	1	5.8	13.11	13.11	3.28	4	2	30	50	0.08	4.12	65	1	2.92
1240	FHA	1	5.8	13.02	13.02	3.94	4	2	30	50	0.08	4.12	65	1	2.92
1241	FHA	1	5.8	12.93	12.93	4.63	4	2	30	50	0.08	4.12	65	1	2.67
1242	FHA	1	5.8	12.93	12.93	4.63	4	2	30	50	0.08	4.12	65	1	2.67
1243	FHA	1	5.8	13.11	13.11	3.32	4	2	30	50	0.08	4.12	65	1	4

1244	FHA	1	5.8	13.05	13.05	3.77	4	2	30	50	0.08	4.12	65	1	3
1245	FHA	1	5.8	13.05	13.05	3.77	4	2	30	50	0.08	4.12	65	1	3
1246	FHA	1	5.8	13.08	13.08	3.53	4	2	30	50	0.08	4.12	65	1	3
1247	FHA	1	5.8	13.08	13.08	3.53	4	2	30	50	0.08	4.12	65	1	3
1248	FHA	1	4.8	10.8	10.8	4.89	4	2	30	50	0.08	0.55	80	1	2.45
1249	FHA	1	4.8	10.8	10.8	4.89	4	2	30	50	0.08	0.55	80	1	1.55
1250	FHA	1	4.8	11.01	11.01	3.15	4	2	30	50	0.08	0.55	80	1	1.78
1251	FHA	1	4.8	10.93	10.93	3.68	4	2	30	50	0.08	0.55	80	1	2
1252	FHA	1	4.8	10.88	10.88	4.16	4	2	30	50	0.08	0.55	80	1	2.28
1253	FHA	1	4.8	10.5	10.5	7.44	4	2	30	50	0.08	0.55	80	1	1.45
1254	FHA	1	4.8	10.55	10.55	6.99	4	2	30	50	0.08	0.55	80	1	1.53
1255	FHA	1	4.8	10.55	10.55	6.99	4	2	30	50	0.08	0.55	80	1	1.57
1256	FHA	1	4.8	10.58	10.58	6.79	4	2	30	50	0.08	0.55	80	1	1.64
1257	FHA	1	4.8	10.58	10.58	6.79	4	2	30	50	0.08	0.55	80	1	1.76
1258	FHA	1	4.8	10.55	10.55	7.03	4	2	30	50	0.08	0.55	80	1	1.45
1259	FHA	1	4.8	10.5	10.5	7.44	4	2	30	50	0.08	0.55	80	1	1.16
1260	FHA	1	4.8	10.55	10.55	7.03	4	2	30	50	0.08	0.55	80	1	1.62
1261	FHA	1	4.8	10.55	10.55	7.03	4	2	30	50	0.08	0.55	80	1	2.94
1262	FHA	1	4.8	10.58	10.58	6.91	4	2	30	50	0.08	0.55	80	1	1.43
1263	FHA	1	4.8	10.58	10.58	6.91	4	2	30	50	0.08	0.55	80	1	1.47
1264	FHA	1	4.8	10.55	10.55	7.03	4	2	30	50	0.08	0.55	80	1	1.6
1265	FHA	1	4.8	10.48	10.48	7.72	4	2	30	50	0.08	0.55	80	1	2
1266	FHA	1	4.8	10.5	10.5	7.44	4	2	30	50	0.08	0.55	80	1	1.5
1267	FHA	1	4.8	10.55	10.55	7.03	4	2	30	50	0.08	0.55	80	1	1.75
1268	FHA	1	4.8	10.55	10.55	7.07	4	2	30	50	0.08	0.55	80	1	1.41
1269	FHA	1	4.8	10.6	10.6	6.67	4	2	30	50	0.08	0.55	80	1	1.25
1270	FHA	1	4.8	10.58	10.58	6.95	4	2	30	50	0.08	0.55	80	1	1.59
1271	FHA	1	4.8	10.2	10.2	10.27	4	2	30	50	0.08	0.55	80	1	1.43
1272	FHA	1	4.8	10.22	10.22	10.06	4	2	30	50	0.08	0.55	80	1	1.2
1273	FHA	1	4.8	10.22	10.22	9.9	4	2	30	50	0.08	0.55	80	1	1.2
1274	FHA	1	4.8	10.22	10.22	10.02	4	2	30	50	0.08	0.55	80	1	0.93
1275	FHA	1	4.8	10.22	10.22	10.02	4	2	30	50	0.08	0.55	80	1	1.06

1276	FHA	1	4.8	10.22	10.22	9.9	4	2	30	50	0.08	0.55	80	1	1.2
1277	FHA	1	3.8	8.19	8.19	9.92	4	2	30	50	0.08	0.55	80	1	2.5
1278	FHA	1	3.8	8.19	8.19	9.92	4	2	30	50	0.08	0.55	80	1	1.41
1279	FHA	1	3.8	8.21	8.21	9.6	4	2	30	50	0.08	0.55	80	1	1.37
1280	FHA	1	5.8	12.96	12.96	4.47	4	2	30	50	0.08	0.55	80	1	1.84
1281	FHA	1	5.8	12.96	12.96	4.43	4	2	30	50	0.08	0.55	80	1	1.6
1282	FHA	1	5.8	12.96	12.96	4.43	4	2	30	50	0.08	0.55	80	1	1.25
1283	FHA	1	5.8	12.96	12.96	4.43	4	2	30	50	0.08	0.55	80	1	1.63
1284	FHA	1	4.8	11.01	11.01	3.15	4	2	30	50	0.08	0.1	95	1	2
1285	FHA	1	4.8	10.98	10.98	3.4	4	2	30	50	0.08	0.1	95	1	1.16
1286	FHA	1	4.8	11.01	11.01	2.99	4	2	30	50	0.08	0.1	95	1	0.9
1287	FHA	1	4.8	11.03	11.03	2.95	4	2	30	50	0.08	0.1	95	1	0.83
1288	FHA	1	4.8	11.01	11.01	3.07	4	2	30	50	0.08	0.1	95	1	1.1
1289	FHA	1	4.8	11.09	11.09	2.43	4	2	30	50	0.08	0.1	95	1	0.9
1290	FHA	1	4.8	10.65	10.65	6.14	4	2	30	50	0.08	0.1	95	1	0.8
1291	FHA	1	4.8	10.58	10.58	6.83	4	2	30	50	0.08	0.1	95	1	0.59
1292	FHA	1	4.8	10.62	10.62	6.39	4	2	30	50	0.08	0.1	95	1	0.66
1293	FHA	1	4.8	10.65	10.65	6.22	4	2	30	50	0.08	0.1	95	1	0.94
1294	FHA	1	4.8	10.65	10.65	6.22	4	2	30	50	0.08	0.1	95	1	0.94
1295	FHA	1	4.8	10.67	10.67	6.02	4	2	30	50	0.08	0.1	95	1	0.8
1296	FHA	1	4.8	10.67	10.67	6.02	4	2	30	50	0.08	0.1	95	1	0.8
1297	FHA	1	4.8	10.6	10.6	6.63	4	2	30	50	0.08	0.1	95	1	0.73
1298	FHA	1	4.8	10.75	10.75	5.34	4	2	30	50	0.08	0.1	95	1	0.93
1299	FHA	1	4.8	10.67	10.67	6.06	4	2	30	50	0.08	0.1	95	1	0.92
1300	FHA	1	4.8	10.62	10.62	6.39	4	2	30	50	0.08	0.1	95	1	0.88
1301	FHA	1	4.8	10.2	10.2	10.15	4	2	30	50	0.08	0.1	95	1	0.9
1302	FHA	1	4.8	10.27	10.27	9.66	4	2	30	50	0.08	0.1	95	1	0.45
1303	FHA	1	4.8	10.27	10.27	9.54	4	2	30	50	0.08	0.1	95	1	0.76
1304	FHA	1	4.8	10	10	11.96	4	2	30	50	0.08	0.1	95	1	1
1305	FHA	1	4.8	10.27	10.27	9.62	4	2	30	50	0.08	0.1	95	1	0.64
1306	FHA	1	4.8	10.67	10.67	6.06	4	2	30	50	0.08	0.1	95	1	0.73
1307	FHA	1	4.8	10.31	10.31	9.26	4	2	30	50	0.08	0.1	95	1	0.6

1308	FHA	1	4.8	10.27	10.27	9.5	4	2	30	50	0.08	0.1	95	1	0.5
1309	FHA	1	4.8	9.05	9.05	9.64	4	2	30	50	0.07	0.1	95	1	1
1310	FHA	1	3.8	8.23	8.23	9.52	4	2	30	50	0.08	0.1	95	1	0.82
1311	FHA	1	3.8	8.21	8.21	9.6	4	2	30	50	0.08	0.1	95	1	0.9
1312	FHA	1	3.8	8.23	8.23	9.52	4	2	30	50	0.08	0.1	95	1	0.89
1313	FHA	1	3.8	8.23	8.23	9.48	4	2	30	50	0.08	0.1	95	1	0.81
1314	FHA	1	3.8	8.25	8.25	9.36	4	2	30	50	0.08	0.1	95	1	0.84
1315	FHA	1	5.8	13.05	13.05	3.73	4	2	30	50	0.08	0.1	95	1	0.83
1316	FHA	1	5.8	12.96	12.96	4.31	4	2	30	50	0.08	0.1	95	1	0.82
1317	FHA	1	5.8	12.99	12.99	4.18	4	2	30	50	0.08	0.1	95	1	0.92
1318	FHA	1	5.8	12.96	12.96	4.35	4	2	30	50	0.08	0.1	95	1	0.81
1319	FHA	1	5.8	13.02	13.02	3.98	4	2	30	50	0.08	0.1	95	1	0.81
1320	FHA	1	5.8	12.99	12.99	4.18	4	2	30	50	0.08	0.1	95	1	0.75
1321	FHA	1	5.8	13.02	13.02	3.98	4	2	30	50	0.08	0.1	95	1	0.6
1322	FHA	1	4.7	10.78	10.78	4.12	4	2	30	50	0.06	1.24	65	1	2.55
1323	FHA	1	4.7	10.78	10.78	4.12	4	2	30	50	0.06	1.24	65	1	2.55
1324	FHA	1	4.7	10.83	10.83	3.84	4	2	30	50	0.06	1.24	65	1	4.27
1325	FHA	1	4.7	10.83	10.83	3.84	4	2	30	50	0.06	1.24	65	1	4.27
1326	FHA	1	4.7	10.81	10.81	3.88	4	2	30	50	0.06	1.24	65	1	3.18
1327	FHA	1	4.7	10.73	10.73	4.69	4	2	30	50	0.06	1.24	65	1	2.65
1328	FHA	1	4.7	10.48	10.48	6.79	4	2	30	50	0.06	1.24	65	1	3.31
1329	FHA	1	4.7	10.48	10.48	6.79	4	2	30	50	0.06	1.24	65	1	3.33
1330	FHA	1	4.7	10.48	10.48	6.79	4	2	30	50	0.06	1.24	65	1	2.11
1331	FHA	1	4.7	10.43	10.43	7.28	4	2	30	50	0.06	1.24	65	1	2.52
1332	FHA	1	4.7	10.11	10.11	10.23	4	2	30	50	0.06	1.24	65	1	2.63
1333	FHA	1	4.7	10.11	10.11	10.23	4	2	30	50	0.06	1.24	65	1	2.22
1334	FHA	1	4.7	10.11	10.11	10.23	4	2	30	50	0.06	1.24	65	1	2.22
1335	FHA	1	4.7	10.13	10.13	9.98	4	2	30	50	0.06	1.24	65	1	2.7
1336	FHA	1	3.7	8.13	8.13	9.36	4	2	30	50	0.07	1.24	65	1	2.13
1337	FHA	1	3.7	8.13	8.13	9.36	4	2	30	50	0.07	1.24	65	1	2.13
1338	FHA	1	3.7	8.11	8.11	9.47	4	2	30	50	0.07	1.24	65	1	2.77
1339	FHA	1	3.7	8.13	8.13	9.32	4	2	30	50	0.07	1.24	65	1	2.41

1340	FHA	1	5.7	12.92	12.92	4.18	4	2	30	50	0.07	1.24	65	1	4
1341	FHA	1	5.7	12.92	12.92	4.1	4	2	30	50	0.07	1.24	65	1	2.33
1342	FHA	1	5.7	12.98	12.98	3.77	4	2	30	50	0.07	1.24	65	1	2.52
1343	FHA	1	4.7	10.81	10.81	4	4	2	30	50	0.06	0.16	80	1	1.63
1344	FHA	1	4.7	10.81	10.81	4	4	2	30	50	0.06	0.16	80	1	1.63
1345	FHA	1	4.7	10.81	10.81	3.92	4	2	30	50	0.06	0.16	80	1	1.7
1346	FHA	1	4.7	10.81	10.81	3.92	4	2	30	50	0.06	0.16	80	1	1.72
1347	FHA	1	4.7	10.73	10.73	4.73	4	2	30	50	0.06	0.16	80	1	1.55
1348	FHA	1	4.7	10.86	10.86	3.6	4	2	30	50	0.06	0.16	80	1	1.72
1349	FHA	1	4.7	10.73	10.73	4.65	4	2	30	50	0.06	0.16	80	1	1.35
1350	FHA	1	4.7	10.51	10.51	6.67	4	2	30	50	0.06	0.16	80	1	1.36
1351	FHA	1	4.7	10.51	10.51	6.67	4	2	30	50	0.06	0.16	80	1	1.33
1352	FHA	1	4.7	10.48	10.48	6.79	4	2	30	50	0.06	0.16	80	1	1.33
1353	FHA	1	4.7	10.51	10.51	6.71	4	2	30	50	0.06	0.16	80	1	1.29
1354	FHA	1	4.7	10.51	10.51	6.71	4	2	30	50	0.06	0.16	80	1	1.57
1355	FHA	1	4.7	10.48	10.48	6.87	4	2	30	50	0.06	0.16	80	1	1.39
1356	FHA	1	4.7	10.51	10.51	6.71	4	2	30	50	0.06	0.16	80	1	1
1357	FHA	1	4.7	10.48	10.48	6.91	4	2	30	50	0.06	0.16	80	1	1.16
1358	FHA	1	4.7	10.13	10.13	9.9	4	2	30	50	0.06	0.16	80	1	0.77
1359	FHA	1	4.7	10.13	10.13	9.9	4	2	30	50	0.06	0.16	80	1	1.28
1360	FHA	1	4.7	10.13	10.13	9.9	4	2	30	50	0.06	0.16	80	1	1.09
1361	FHA	1	3.7	8.13	8.13	9.28	4	2	30	50	0.07	0.16	80	1	1.32
1362	FHA	1	3.7	8.15	8.15	9.08	4	2	30	50	0.07	0.16	80	1	1.47
1363	FHA	1	3.7	8.15	8.15	9.04	4	2	30	50	0.07	0.16	80	1	1.48
1364	FHA	1	5.7	12.98	12.98	3.77	4	2	30	50	0.07	0.16	80	1	1.5
1365	FHA	1	5.7	13.01	13.01	3.49	4	2	30	50	0.07	0.16	80	1	1.44
1366	FHA	1	5.7	13.01	13.01	3.49	4	2	30	50	0.07	0.16	80	1	1.6
1367	FHA	1	4.7	13.83	13.83	3.76	4	2	30	50	0.06	0.03	95	1	0.87
1368	FHA	1	4.7	10.86	10.86	3.44	4	2	30	50	0.06	0.03	95	1	0.76
1369	FHA	1	4.7	10.81	10.81	4.08	4	2	30	50	0.06	0.03	95	1	0.93
1370	FHA	1	4.7	10.88	10.88	3.23	4	2	30	50	0.06	0.03	95	1	0.75
1371	FHA	1	4.7	10.78	10.78	4.16	4	2	30	50	0.06	0.03	95	1	0.87

1372	FHA	1	4.7	10.51	10.51	6.63	4	2	30	50	0.06	0.03	95	1	0.68
1373	FHA	1	4.7	10.48	10.48	6.95	4	2	30	50	0.06	0.03	95	1	0.78
1374	FHA	1	4.7	10.51	10.51	6.59	4	2	30	50	0.06	0.03	95	1	0.57
1375	FHA	1	4.7	10.43	10.43	7.19	4	2	30	50	0.06	0.03	95	1	0.57
1376	FHA	1	4.7	10.53	10.53	6.51	4	2	30	50	0.06	0.03	95	1	0.6
1377	FHA	1	4.7	10.43	10.43	7.19	4	2	30	50	0.06	0.03	95	1	0.73
1378	FHA	1	4.7	10.11	10.11	10.23	4	2	30	50	0.06	0.03	95	1	0.68
1379	FHA	1	4.7	10.22	10.22	9.14	4	2	30	50	0.06	0.03	95	1	0.66
1380	FHA	1	4.7	10.22	10.22	9.26	4	2	30	50	0.06	0.03	95	1	0.57
1381	FHA	1	4.7	10.27	10.27	8.85	4	2	30	50	0.06	0.03	95	1	0.7
1382	FHA	1	3.7	8.19	8.19	8.8	4	2	30	50	0.07	0.03	95	1	0.66
1383	FHA	1	5.7	13.07	13.07	2.95	4	2	30	50	0.07	0.03	95	1	0.62
1384	FHA	1	3.7	8.21	8.21	8.52	4	2	30	50	0.07	0.03	95	1	0.74
1385	FHA	1	3.7	8.21	8.21	8.56	4	2	30	50	0.07	0.03	95	1	0.73
1386	FHA	1	5.7	13.1	13.1	2.75	4	2	30	50	0.07	0.03	95	1	0.61
1387	FHA	1	5.7	13.13	13.13	2.67	4	2	30	50	0.07	0.03	95	1	0.56
1388	FHA	1	5.8	13.02	13.02	3.94	4	2	30	50	0.08	1.24	65	1	2.92
1389	FHA	2	4.4	9.74	9.74	5.16	4	2	30	50	0.12	1.24	65	1	2.31
1390	FHA	2	4.4	9.74	9.74	5.16	4	2	30	50	0.12	1.24	65	1	2.31
1391	FHA	2	4.4	9.59	9.59	6.72	4	2	30	50	0.12	1.24	65	1	2
1392	FHA	2	3.4	7.24	7.24	9.48	4	2	30	50	0.11	1.24	65	1	2.63
1393	FHA	2	5.4	11.99	11.99	3.95	4	2	30	50	0.12	1.24	65	1	2.63
1394	FHA	2	4.4	9.27	9.27	9.83	4	2	30	50	0.12	1.24	65	1	2.27
1395	FHA	2	4.4	9.74	9.74	5.12	4	2	30	50	0.12	0.16	80	1	1.69
1396	FHA	2	4.4	9.59	9.59	6.63	4	2	30	50	0.12	0.16	80	1	1.61
1397	FHA	2	3.4	7.26	7.26	9.4	4	2	30	50	0.11	0.16	80	1	1.28
1398	FHA	2	5.4	12.01	12.01	3.78	4	2	30	50	0.12	0.16	80	1	1.46
1399	FHA	2	4.4	9.31	9.31	9.38	4	2	30	50	0.12	0.16	80	1	1.41
1400	FHA	2	4.4	9.77	9.77	4.95	4	2	30	50	0.12	0.03	95	1	0.78
1401	FHA	2	4.4	9.61	9.61	6.59	4	2	30	50	0.12	0.03	95	1	0.76
1402	FHA	2	3.4	7.29	7.29	8.84	4	2	30	50	0.11	0.03	95	1	0.91
1403	FHA	2	5.4	12.04	12.04	3.57	4	2	30	50	0.12	0.03	95	1	0.64

1404	FHA	2	4.4	9.36	9.36	9.05	4	2	30	50	0.12	0.03	95	1	0.8
1405	FHA	2	4.2	9.25	9.25	4.93	4	2	30	50	0.13	4.12	65	1	4
1406	FHA	2	4.2	9.27	9.27	4.69	4	2	30	50	0.13	4.12	65	1	4
1407	FHA	2	4.2	9.17	9.17	5.75	4	2	30	50	0.13	4.12	65	1	4
1408	FHA	2	3.2	6.79	6.79	8.64	4	2	30	50	0.13	4.12	65	1	4
1409	FHA	2	5.2	11.65	11.65	2.48	4	2	30	50	0.12	4.12	65	1	4
1410	FHA	2	4.2	8.84	8.84	9.22	4	2	30	50	0.13	4.12	65	1	4
1411	FHA	2	4.2	9.27	9.27	4.81	4	2	30	50	0.13	0.55	80	1	2.63
1412	FHA	2	4.2	9.27	9.27	4.61	4	2	30	50	0.13	0.55	80	1	3.31
1413	FHA	2	4.2	9.32	9.32	4.28	4	2	30	50	0.13	0.55	80	1	2.63
1414	FHA	2	4.2	9.23	9.23	5.22	4	2	30	50	0.13	0.55	80	1	2.5
1415	FHA	2	4.2	9.19	9.19	5.55	4	2	30	50	0.13	0.55	80	1	2.27
1416	FHA	2	4.2	9.02	9.02	7.3	4	2	30	50	0.13	0.55	80	1	1.75
1417	FHA	2	3.2	6.84	6.84	8.08	4	2	30	50	0.13	0.55	80	1	2
1418	FHA	2	5.2	11.65	11.65	2.48	4	2	30	50	0.13	0.55	80	1	2.45
1419	FHA	2	4.2	8.84	8.84	9.09	4	2	30	50	0.13	0.55	80	1	1.48
1420	FHA	2	4.2	8.76	8.76	9.91	4	2	30	50	0.13	0.55	80	1	1.33
1421	FHA	2	4.2	9.27	9.27	4.73	4	2	30	50	0.13	0.1	95	1	1
1422	FHA	2	4.2	9.27	9.27	4.61	4	2	30	50	0.13	0.1	95	1	1
1423	FHA	2	4.2	9.32	9.32	4.2	4	2	30	50	0.13	0.1	95	1	1
1424	FHA	2	4.2	9.21	9.21	5.3	4	2	30	50	0.13	0.1	95	1	1.33
1425	FHA	2	4.2	9.17	9.17	5.7	4	2	30	50	0.13	0.1	95	1	1.52
1426	FHA	2	4.2	9.04	9.04	7.01	4	2	30	50	0.13	0.1	95	1	1
1427	FHA	2	3.2	6.85	6.85	7.84	4	2	30	50	0.13	0.1	95	1	1.23
1428	FHA	2	4.2	8.88	8.88	8.77	4	2	30	50	0.13	0.1	95	1	1
1429	FHA	2	5.2	11.68	11.68	2.28	4	2	30	50	0.12	0.1	95	1	1.01
1430	FHA	2	4.2	8.71	8.71	10.48	4	2	30	50	0.13	0.1	95	1	0.83

Appendix B

New Database

(Developed at the University of Maryland, Department of Civil Engineering)

New Dynamic Modulus Characterization Data Summary

	Mix_ID	Agg Id	A	VTS	VA	Vbeff	AC	P200	P34	P38	P4	Stress_Level	Frequency	Temperature	Avg_Mod
1	AC10(0)	MDOT(1)	11.0996	-3.7373	5.20	10.45	5.20	3.30	100	96.00	58.40	100	0.10	0	1480000
2	AC10(0)	MDOT(1)	11.0996	-3.7373	5.20	10.45	5.20	3.30	100	96.00	58.40	100	1.00	0	1725000
3	AC10(0)	MDOT(1)	11.0996	-3.7373	5.20	10.45	5.20	3.30	100	96.00	58.40	100	10.00	0	1915000
4	AC10(0)	MDOT(1)	11.0996	-3.7373	5.20	10.45	5.20	3.30	100	96.00	58.40	100	25.00	0	2230000
5	AC10(0)	MDOT(1)	11.0996	-3.7373	5.20	10.45	5.20	3.30	100	96.00	58.40	35	0.10	40	785500
6	AC10(0)	MDOT(1)	11.0996	-3.7373	5.20	10.45	5.20	3.30	100	96.00	58.40	35	1.00	40	1595000
7	AC10(0)	MDOT(1)	11.0996	-3.7373	5.20	10.45	5.20	3.30	100	96.00	58.40	35	10.00	40	1980000
8	AC10(0)	MDOT(1)	11.0996	-3.7373	5.20	10.45	5.20	3.30	100	96.00	58.40	35	25.00	40	2125000
9	AC10(0)	MDOT(1)	11.0996	-3.7373	5.20	10.45	5.20	3.30	100	96.00	58.40	35	0.10	70	137000
10	AC10(0)	MDOT(1)	11.0996	-3.7373	5.20	10.45	5.20	3.30	100	96.00	58.40	35	1.00	70	272000
11	AC10(0)	MDOT(1)	11.0996	-3.7373	5.20	10.45	5.20	3.30	100	96.00	58.40	35	10.00	70	552000
12	AC10(0)	MDOT(1)	11.0996	-3.7373	5.20	10.45	5.20	3.30	100	96.00	58.40	35	25.00	70	740500
13	AC10(0)	MDOT(1)	11.0996	-3.7373	5.20	10.45	5.20	3.30	100	96.00	58.40	35	0.10	100	59850
14	AC10(0)	MDOT(1)	11.0996	-3.7373	5.20	10.45	5.20	3.30	100	96.00	58.40	35	1.00	100	76600
15	AC10(0)	MDOT(1)	11.0996	-3.7373	5.20	10.45	5.20	3.30	100	96.00	58.40	35	10.00	100	129500
16	AC10(0)	MDOT(1)	11.0996	-3.7373	5.20	10.45	5.20	3.30	100	96.00	58.40	35	25.00	100	178000
17	AC10(0)	MDOT(1)	11.0996	-3.7373	5.20	10.45	5.20	3.30	100	96.00	58.40	10	0.10	130	16900
18	AC10(0)	MDOT(1)	11.0996	-3.7373	5.20	10.45	5.20	3.30	100	96.00	58.40	10	1.00	130	26750
19	AC10(0)	MDOT(1)	11.0996	-3.7373	5.20	10.45	5.20	3.30	100	96.00	58.40	10	10.00	130	42700
20	AC10(0)	MDOT(1)	11.0996	-3.7373	5.20	10.45	5.20	3.30	100	96.00	58.40	10	25.00	130	65100
21	AC10(1.5)	MDOT(1)	10.1233	-3.3763	5.40	10.75	5.40	3.30	100	96.00	58.40	100	0.10	0	1690000
22	AC10(1.5)	MDOT(1)	10.1233	-3.3763	5.40	10.75	5.40	3.30	100	96.00	58.40	100	1.00	0	2145000
23	AC10(1.5)	MDOT(1)	10.1233	-3.3763	5.40	10.75	5.40	3.30	100	96.00	58.40	100	10.00	0	2555000

24	AC10(1.5)	MDOT(1)	10.1233	-3.3763	5.40	10.75	5.40	3.30	100	96.00	58.40	100	25.00	0	2760000
25	AC10(1.5)	MDOT(1)	10.1233	-3.3763	5.40	10.75	5.40	3.30	100	96.00	58.40	35	0.10	40	686500
26	AC10(1.5)	MDOT(1)	10.1233	-3.3763	5.40	10.75	5.40	3.30	100	96.00	58.40	35	1.00	40	1190000
27	AC10(1.5)	MDOT(1)	10.1233	-3.3763	5.40	10.75	5.40	3.30	100	96.00	58.40	35	10.00	40	1680000
28	AC10(1.5)	MDOT(1)	10.1233	-3.3763	5.40	10.75	5.40	3.30	100	96.00	58.40	35	25.00	40	1730000
29	AC10(1.5)	MDOT(1)	10.1233	-3.3763	5.40	10.75	5.40	3.30	100	96.00	58.40	35	0.10	70	148500
30	AC10(1.5)	MDOT(1)	10.1233	-3.3763	5.40	10.75	5.40	3.30	100	96.00	58.40	35	1.00	70	276000
31	AC10(1.5)	MDOT(1)	10.1233	-3.3763	5.40	10.75	5.40	3.30	100	96.00	58.40	35	10.00	70	548500
32	AC10(1.5)	MDOT(1)	10.1233	-3.3763	5.40	10.75	5.40	3.30	100	96.00	58.40	35	25.00	70	734500
33	AC10(1.5)	MDOT(1)	10.1233	-3.3763	5.40	10.75	5.40	3.30	100	96.00	58.40	35	0.10	100	63950
34	AC10(1.5)	MDOT(1)	10.1233	-3.3763	5.40	10.75	5.40	3.30	100	96.00	58.40	35	1.00	100	87950
35	AC10(1.5)	MDOT(1)	10.1233	-3.3763	5.40	10.75	5.40	3.30	100	96.00	58.40	35	10.00	100	150500
36	AC10(1.5)	MDOT(1)	10.1233	-3.3763	5.40	10.75	5.40	3.30	100	96.00	58.40	35	25.00	100	200000
37	AC10(1.5)	MDOT(1)	10.1233	-3.3763	5.40	10.75	5.40	3.30	100	96.00	58.40	10	0.10	130	25550
38	AC10(1.5)	MDOT(1)	10.1233	-3.3763	5.40	10.75	5.40	3.30	100	96.00	58.40	10	1.00	130	37650
39	AC10(1.5)	MDOT(1)	10.1233	-3.3763	5.40	10.75	5.40	3.30	100	96.00	58.40	10	10.00	130	67000
40	AC10(1.5)	MDOT(1)	10.1233	-3.3763	5.40	10.75	5.40	3.30	100	96.00	58.40	10	25.00	130	87250
41	AC10(2)	MDOT(1)	9.3688	-3.0984	5.60	11.05	5.60	3.30	100	96.00	58.40	100	0.10	0	1560000
42	AC10(2)	MDOT(1)	9.3688	-3.0984	5.60	11.05	5.60	3.30	100	96.00	58.40	100	1.00	0	1940000
43	AC10(2)	MDOT(1)	9.3688	-3.0984	5.60	11.05	5.60	3.30	100	96.00	58.40	100	10.00	0	2530000
44	AC10(2)	MDOT(1)	9.3688	-3.0984	5.60	11.05	5.60	3.30	100	96.00	58.40	100	25.00	0	2585000
45	AC10(2)	MDOT(1)	9.3688	-3.0984	5.60	11.05	5.60	3.30	100	96.00	58.40	35	0.10	40	431500
46	AC10(2)	MDOT(1)	9.3688	-3.0984	5.60	11.05	5.60	3.30	100	96.00	58.40	35	1.00	40	526000
47	AC10(2)	MDOT(1)	9.3688	-3.0984	5.60	11.05	5.60	3.30	100	96.00	58.40	35	10.00	40	1205000
48	AC10(2)	MDOT(1)	9.3688	-3.0984	5.60	11.05	5.60	3.30	100	96.00	58.40	35	25.00	40	1540000
49	AC10(2)	MDOT(1)	9.3688	-3.0984	5.60	11.05	5.60	3.30	100	96.00	58.40	35	0.10	70	113000

50	AC10(2)	MDOT(1)	9.3688	-3.0984	5.60	11.05	5.60	3.30	100	96.00	58.40	35	1.00	70	230500
51	AC10(2)	MDOT(1)	9.3688	-3.0984	5.60	11.05	5.60	3.30	100	96.00	58.40	35	10.00	70	411500
52	AC10(2)	MDOT(1)	9.3688	-3.0984	5.60	11.05	5.60	3.30	100	96.00	58.40	35	25.00	70	539000
53	AC10(2)	MDOT(1)	9.3688	-3.0984	5.60	11.05	5.60	3.30	100	96.00	58.40	35	0.10	100	62000
54	AC10(2)	MDOT(1)	9.3688	-3.0984	5.60	11.05	5.60	3.30	100	96.00	58.40	35	1.00	100	76000
55	AC10(2)	MDOT(1)	9.3688	-3.0984	5.60	11.05	5.60	3.30	100	96.00	58.40	35	10.00	100	112000
56	AC10(2)	MDOT(1)	9.3688	-3.0984	5.60	11.05	5.60	3.30	100	96.00	58.40	35	25.00	100	141500
57	AC10(2)	MDOT(1)	9.3688	-3.0984	5.60	11.05	5.60	3.30	100	96.00	58.40	10	0.10	130	24700
58	AC10(2)	MDOT(1)	9.3688	-3.0984	5.60	11.05	5.60	3.30	100	96.00	58.40	10	1.00	130	33950
59	AC10(2)	MDOT(1)	9.3688	-3.0984	5.60	11.05	5.60	3.30	100	96.00	58.40	10	10.00	130	54200
60	AC10(2)	MDOT(1)	9.3688	-3.0984	5.60	11.05	5.60	3.30	100	96.00	58.40	10	25.00	130	65600
61	AC10C(1.5)	MDOT(1)	9.6872	-3.2137	6.20	10.67	5.40	3.30	100	96.00	58.40	100	0.10	0	1710000
62	AC10C(1.5)	MDOT(1)	9.6872	-3.2137	6.20	10.67	5.40	3.30	100	96.00	58.40	100	1.00	0	2220000
63	AC10C(1.5)	MDOT(1)	9.6872	-3.2137	6.20	10.67	5.40	3.30	100	96.00	58.40	100	10.00	0	2850000
64	AC10C(1.5)	MDOT(1)	9.6872	-3.2137	6.20	10.67	5.40	3.30	100	96.00	58.40	100	25.00	0	3070000
65	AC10C(1.5)	MDOT(1)	9.6872	-3.2137	6.20	10.67	5.40	3.30	100	96.00	58.40	35	0.10	40	567000
66	AC10C(1.5)	MDOT(1)	9.6872	-3.2137	6.20	10.67	5.40	3.30	100	96.00	58.40	35	1.00	40	933500
67	AC10C(1.5)	MDOT(1)	9.6872	-3.2137	6.20	10.67	5.40	3.30	100	96.00	58.40	35	10.00	40	1430000
68	AC10C(1.5)	MDOT(1)	9.6872	-3.2137	6.20	10.67	5.40	3.30	100	96.00	58.40	35	25.00	40	1575000
69	AC10C(1.5)	MDOT(1)	9.6872	-3.2137	6.20	10.67	5.40	3.30	100	96.00	58.40	35	0.10	70	110500
70	AC10C(1.5)	MDOT(1)	9.6872	-3.2137	6.20	10.67	5.40	3.30	100	96.00	58.40	35	1.00	70	201500
71	AC10C(1.5)	MDOT(1)	9.6872	-3.2137	6.20	10.67	5.40	3.30	100	96.00	58.40	35	10.00	70	409000
72	AC10C(1.5)	MDOT(1)	9.6872	-3.2137	6.20	10.67	5.40	3.30	100	96.00	58.40	35	25.00	70	530500
73	AC10C(1.5)	MDOT(1)	9.6872	-3.2137	6.20	10.67	5.40	3.30	100	96.00	58.40	35	0.10	100	62950
74	AC10C(1.5)	MDOT(1)	9.6872	-3.2137	6.20	10.67	5.40	3.30	100	96.00	58.40	35	1.00	100	76500
75	AC10C(1.5)	MDOT(1)	9.6872	-3.2137	6.20	10.67	5.40	3.30	100	96.00	58.40	35	10.00	100	127500

76	AC10C(1.5)	MDOT(1)	9.6872	-3.2137	6.20	10.67	5.40	3.30	100	96.00	58.40	35	25.00	100	154000
77	AC10C(1.5)	MDOT(1)	9.6872	-3.2137	6.20	10.67	5.40	3.30	100	96.00	58.40	10	0.10	130	17450
78	AC10C(1.5)	MDOT(1)	9.6872	-3.2137	6.20	10.67	5.40	3.30	100	96.00	58.40	10	1.00	130	25650
79	AC10C(1.5)	MDOT(1)	9.6872	-3.2137	6.20	10.67	5.40	3.30	100	96.00	58.40	10	10.00	130	47200
80	AC10C(1.5)	MDOT(1)	9.6872	-3.2137	6.20	10.67	5.40	3.30	100	96.00	58.40	10	25.00	130	63450
81	AC10C(2)	MDOT(1)	9.3336	-3.0817	6.10	11.00	5.60	3.30	100	96.00	58.40	100	0.10	0	1750000
82	AC10C(2)	MDOT(1)	9.3336	-3.0817	6.10	11.00	5.60	3.30	100	96.00	58.40	100	1.00	0	2165000
83	AC10C(2)	MDOT(1)	9.3336	-3.0817	6.10	11.00	5.60	3.30	100	96.00	58.40	100	10.00	0	2545000
84	AC10C(2)	MDOT(1)	9.3336	-3.0817	6.10	11.00	5.60	3.30	100	96.00	58.40	100	25.00	0	2740000
85	AC10C(2)	MDOT(1)	9.3336	-3.0817	6.10	11.00	5.60	3.30	100	96.00	58.40	35	0.10	40	501000
86	AC10C(2)	MDOT(1)	9.3336	-3.0817	6.10	11.00	5.60	3.30	100	96.00	58.40	35	1.00	40	796000
87	AC10C(2)	MDOT(1)	9.3336	-3.0817	6.10	11.00	5.60	3.30	100	96.00	58.40	35	10.00	40	1190000
88	AC10C(2)	MDOT(1)	9.3336	-3.0817	6.10	11.00	5.60	3.30	100	96.00	58.40	35	25.00	40	1270000
89	AC10C(2)	MDOT(1)	9.3336	-3.0817	6.10	11.00	5.60	3.30	100	96.00	58.40	35	0.10	70	134500
90	AC10C(2)	MDOT(1)	9.3336	-3.0817	6.10	11.00	5.60	3.30	100	96.00	58.40	35	1.00	70	248000
91	AC10C(2)	MDOT(1)	9.3336	-3.0817	6.10	11.00	5.60	3.30	100	96.00	58.40	35	10.00	70	482500
92	AC10C(2)	MDOT(1)	9.3336	-3.0817	6.10	11.00	5.60	3.30	100	96.00	58.40	35	25.00	70	607500
93	AC10C(2)	MDOT(1)	9.3336	-3.0817	6.10	11.00	5.60	3.30	100	96.00	58.40	35	0.10	100	60100
94	AC10C(2)	MDOT(1)	9.3336	-3.0817	6.10	11.00	5.60	3.30	100	96.00	58.40	35	1.00	100	81000
95	AC10C(2)	MDOT(1)	9.3336	-3.0817	6.10	11.00	5.60	3.30	100	96.00	58.40	35	10.00	100	136000
96	AC10C(2)	MDOT(1)	9.3336	-3.0817	6.10	11.00	5.60	3.30	100	96.00	58.40	35	25.00	100	163000
97	AC10C(2)	MDOT(1)	9.3336	-3.0817	6.10	11.00	5.60	3.30	100	96.00	58.40	10	0.10	130	23400
98	AC10C(2)	MDOT(1)	9.3336	-3.0817	6.10	11.00	5.60	3.30	100	96.00	58.40	10	1.00	130	29900
99	AC10C(2)	MDOT(1)	9.3336	-3.0817	6.10	11.00	5.60	3.30	100	96.00	58.40	10	10.00	130	49400
100	AC10C(2)	MDOT(1)	9.3336	-3.0817	6.10	11.00	5.60	3.30	100	96.00	58.40	10	25.00	130	59550
101	AC120/150(0)	MDOT(1)	10.9718	-3.6970	5.00	10.15	5.00	3.30	100	96.00	58.40	100	0.10	0	1425000

102	AC120/150(0)	MDOT(1)	10.9718	-3.6970	5.00	10.15	5.00	3.30	100	96.00	58.40	100	1.00	0	1765000
103	AC120/150(0)	MDOT(1)	10.9718	-3.6970	5.00	10.15	5.00	3.30	100	96.00	58.40	100	10.00	0	2065000
104	AC120/150(0)	MDOT(1)	10.9718	-3.6970	5.00	10.15	5.00	3.30	100	96.00	58.40	100	25.00	0	2675000
105	AC120/150(0)	MDOT(1)	10.9718	-3.6970	5.00	10.15	5.00	3.30	100	96.00	58.40	35	0.10	40	490500
106	AC120/150(0)	MDOT(1)	10.9718	-3.6970	5.00	10.15	5.00	3.30	100	96.00	58.40	35	1.00	40	864000
107	AC120/150(0)	MDOT(1)	10.9718	-3.6970	5.00	10.15	5.00	3.30	100	96.00	58.40	35	10.00	40	1240000
108	AC120/150(0)	MDOT(1)	10.9718	-3.6970	5.00	10.15	5.00	3.30	100	96.00	58.40	35	25.00	40	1535000
109	AC120/150(0)	MDOT(1)	10.9718	-3.6970	5.00	10.15	5.00	3.30	100	96.00	58.40	35	0.10	70	86150
110	AC120/150(0)	MDOT(1)	10.9718	-3.6970	5.00	10.15	5.00	3.30	100	96.00	58.40	35	1.00	70	170500
111	AC120/150(0)	MDOT(1)	10.9718	-3.6970	5.00	10.15	5.00	3.30	100	96.00	58.40	35	10.00	70	353000
112	AC120/150(0)	MDOT(1)	10.9718	-3.6970	5.00	10.15	5.00	3.30	100	96.00	58.40	35	25.00	70	481000
113	AC120/150(0)	MDOT(1)	10.9718	-3.6970	5.00	10.15	5.00	3.30	100	96.00	58.40	35	0.10	100	47800
114	AC120/150(0)	MDOT(1)	10.9718	-3.6970	5.00	10.15	5.00	3.30	100	96.00	58.40	35	1.00	100	55300
115	AC120/150(0)	MDOT(1)	10.9718	-3.6970	5.00	10.15	5.00	3.30	100	96.00	58.40	35	10.00	100	90300
116	AC120/150(0)	MDOT(1)	10.9718	-3.6970	5.00	10.15	5.00	3.30	100	96.00	58.40	35	25.00	100	120000
117	AC120/150(0)	MDOT(1)	10.9718	-3.6970	5.00	10.15	5.00	3.30	100	96.00	58.40	10	0.10	130	27300
118	AC120/150(0)	MDOT(1)	10.9718	-3.6970	5.00	10.15	5.00	3.30	100	96.00	58.40	10	1.00	130	28000
119	AC120/150(0)	MDOT(1)	10.9718	-3.6970	5.00	10.15	5.00	3.30	100	96.00	58.40	10	10.00	130	35100
120	AC120/150(0)	MDOT(1)	10.9718	-3.6970	5.00	10.15	5.00	3.30	100	96.00	58.40	10	25.00	130	41100
121	AC120/150(1.5)	MDOT(1)	10.3194	-3.4517	5.20	10.45	5.20	3.30	100	96.00	58.40	100	0.10	0	663500
122	AC120/150(1.5)	MDOT(1)	10.3194	-3.4517	5.20	10.45	5.20	3.30	100	96.00	58.40	100	1.00	0	984000
123	AC120/150(1.5)	MDOT(1)	10.3194	-3.4517	5.20	10.45	5.20	3.30	100	96.00	58.40	100	10.00	0	1375000
124	AC120/150(1.5)	MDOT(1)	10.3194	-3.4517	5.20	10.45	5.20	3.30	100	96.00	58.40	100	25.00	0	1670000
125	AC120/150(1.5)	MDOT(1)	10.3194	-3.4517	5.20	10.45	5.20	3.30	100	96.00	58.40	35	0.10	40	392500
126	AC120/150(1.5)	MDOT(1)	10.3194	-3.4517	5.20	10.45	5.20	3.30	100	96.00	58.40	35	1.00	40	683500
127	AC120/150(1.5)	MDOT(1)	10.3194	-3.4517	5.20	10.45	5.20	3.30	100	96.00	58.40	35	10.00	40	1050000

128	AC120/150(1.5)	MDOT(1)	10.3194	-3.4517	5.20	10.45	5.20	3.30	100	96.00	58.40	35	25.00	40	1250000
129	AC120/150(1.5)	MDOT(1)	10.3194	-3.4517	5.20	10.45	5.20	3.30	100	96.00	58.40	35	0.10	70	82050
130	AC120/150(1.5)	MDOT(1)	10.3194	-3.4517	5.20	10.45	5.20	3.30	100	96.00	58.40	35	1.00	70	149000
131	AC120/150(1.5)	MDOT(1)	10.3194	-3.4517	5.20	10.45	5.20	3.30	100	96.00	58.40	35	10.00	70	296500
132	AC120/150(1.5)	MDOT(1)	10.3194	-3.4517	5.20	10.45	5.20	3.30	100	96.00	58.40	35	25.00	70	394500
133	AC120/150(1.5)	MDOT(1)	10.3194	-3.4517	5.20	10.45	5.20	3.30	100	96.00	58.40	35	0.10	100	48800
134	AC120/150(1.5)	MDOT(1)	10.3194	-3.4517	5.20	10.45	5.20	3.30	100	96.00	58.40	35	1.00	100	61900
135	AC120/150(1.5)	MDOT(1)	10.3194	-3.4517	5.20	10.45	5.20	3.30	100	96.00	58.40	35	10.00	100	99850
136	AC120/150(1.5)	MDOT(1)	10.3194	-3.4517	5.20	10.45	5.20	3.30	100	96.00	58.40	35	25.00	100	128000
137	AC120/150(1.5)	MDOT(1)	10.3194	-3.4517	5.20	10.45	5.20	3.30	100	96.00	58.40	10	0.10	130	24400
138	AC120/150(1.5)	MDOT(1)	10.3194	-3.4517	5.20	10.45	5.20	3.30	100	96.00	58.40	10	1.00	130	28350
139	AC120/150(1.5)	MDOT(1)	10.3194	-3.4517	5.20	10.45	5.20	3.30	100	96.00	58.40	10	10.00	130	40300
140	AC120/150(1.5)	MDOT(1)	10.3194	-3.4517	5.20	10.45	5.20	3.30	100	96.00	58.40	10	25.00	130	41550
141	AC120/150(2)	MDOT(1)	9.4112	-3.1180	5.40	10.75	5.40	3.30	100	96.00	58.40	100	0.10	0	1580000
142	AC120/150(2)	MDOT(1)	9.4112	-3.1180	5.40	10.75	5.40	3.30	100	96.00	58.40	100	1.00	0	2080000
143	AC120/150(2)	MDOT(1)	9.4112	-3.1180	5.40	10.75	5.40	3.30	100	96.00	58.40	100	10.00	0	2300000
144	AC120/150(2)	MDOT(1)	9.4112	-3.1180	5.40	10.75	5.40	3.30	100	96.00	58.40	100	25.00	0	2410000
145	AC120/150(2)	MDOT(1)	9.4112	-3.1180	5.40	10.75	5.40	3.30	100	96.00	58.40	35	0.10	40	363500
146	AC120/150(2)	MDOT(1)	9.4112	-3.1180	5.40	10.75	5.40	3.30	100	96.00	58.40	35	1.00	40	590500
147	AC120/150(2)	MDOT(1)	9.4112	-3.1180	5.40	10.75	5.40	3.30	100	96.00	58.40	35	10.00	40	913000
148	AC120/150(2)	MDOT(1)	9.4112	-3.1180	5.40	10.75	5.40	3.30	100	96.00	58.40	35	25.00	40	1219000
149	AC120/150(2)	MDOT(1)	9.4112	-3.1180	5.40	10.75	5.40	3.30	100	96.00	58.40	35	0.10	70	87900
150	AC120/150(2)	MDOT(1)	9.4112	-3.1180	5.40	10.75	5.40	3.30	100	96.00	58.40	35	1.00	70	160000
151	AC120/150(2)	MDOT(1)	9.4112	-3.1180	5.40	10.75	5.40	3.30	100	96.00	58.40	35	10.00	70	324500
152	AC120/150(2)	MDOT(1)	9.4112	-3.1180	5.40	10.75	5.40	3.30	100	96.00	58.40	35	25.00	70	427000
153	AC120/150(2)	MDOT(1)	9.4112	-3.1180	5.40	10.75	5.40	3.30	100	96.00	58.40	35	0.10	100	50000

154	AC120/150(2)	MDOT(1)	9.4112	-3.1180	5.40	10.75	5.40	3.30	100	96.00	58.40	35	1.00	100	64200
155	AC120/150(2)	MDOT(1)	9.4112	-3.1180	5.40	10.75	5.40	3.30	100	96.00	58.40	35	10.00	100	102450
156	AC120/150(2)	MDOT(1)	9.4112	-3.1180	5.40	10.75	5.40	3.30	100	96.00	58.40	35	25.00	100	129500
157	AC120/150(2)	MDOT(1)	9.4112	-3.1180	5.40	10.75	5.40	3.30	100	96.00	58.40	10	0.10	130	33700
158	AC120/150(2)	MDOT(1)	9.4112	-3.1180	5.40	10.75	5.40	3.30	100	96.00	58.40	10	1.00	130	38600
159	AC120/150(2)	MDOT(1)	9.4112	-3.1180	5.40	10.75	5.40	3.30	100	96.00	58.40	10	10.00	130	51900
160	AC120/150(2)	MDOT(1)	9.4112	-3.1180	5.40	10.75	5.40	3.30	100	96.00	58.40	10	25.00	130	56650
161	MDTK5_1	MDOT_SP	10.8852	-3.6433	2.95	7.95	3.80	5.70	100	97.40	60.10	60	0.10	12	5310000
162	MDTK5_1	MDOT_SP	10.8852	-3.6433	2.95	7.95	3.80	5.70	100	97.40	60.10	60	1.00	12	5695000
163	MDTK5_1	MDOT_SP	10.8852	-3.6433	2.95	7.95	3.80	5.70	100	97.40	60.10	60	10.00	12	5450000
164	MDTK5_1	MDOT_SP	10.8852	-3.6433	2.95	7.95	3.80	5.70	100	97.40	60.10	60	25.00	12	5765000
165	MDTK5_1	MDOT_SP	10.8852	-3.6433	2.70	8.00	3.80	5.70	100	97.40	60.10	35	0.10	40	1590000
166	MDTK5_1	MDOT_SP	10.8852	-3.6433	2.70	8.00	3.80	5.70	100	97.40	60.10	35	1.00	40	2190000
167	MDTK5_1	MDOT_SP	10.8852	-3.6433	2.70	8.00	3.80	5.70	100	97.40	60.10	35	10.00	40	2430000
168	MDTK5_1	MDOT_SP	10.8852	-3.6433	2.70	8.00	3.80	5.70	100	97.40	60.10	35	25.00	40	2610000
169	MDTK5_1	MDOT_SP	10.8852	-3.6433	2.95	7.95	3.80	5.70	100	97.40	60.10	20	0.10	70	604500
170	MDTK5_1	MDOT_SP	10.8852	-3.6433	2.95	7.95	3.80	5.70	100	97.40	60.10	20	1.00	70	1060000
171	MDTK5_1	MDOT_SP	10.8852	-3.6433	2.95	7.95	3.80	5.70	100	97.40	60.10	20	10.00	70	1730000
172	MDTK5_1	MDOT_SP	10.8852	-3.6433	2.95	7.95	3.80	5.70	100	97.40	60.10	20	25.00	70	1955000
173	MDTK5_1	MDOT_SP	10.8852	-3.6433	2.95	7.95	3.80	5.70	100	97.40	60.10	10	0.10	100	140000
174	MDTK5_1	MDOT_SP	10.8852	-3.6433	2.95	7.95	3.80	5.70	100	97.40	60.10	10	1.00	100	293500
175	MDTK5_1	MDOT_SP	10.8852	-3.6433	2.95	7.95	3.80	5.70	100	97.40	60.10	10	10.00	100	655500
176	MDTK5_1	MDOT_SP	10.8852	-3.6433	2.95	7.95	3.80	5.70	100	97.40	60.10	10	25.00	100	884500
177	MDTK5_1	MDOT_SP	10.8852	-3.6433	2.95	7.95	3.80	5.70	100	97.40	60.10	5	0.10	130	38700
178	MDTK5_1	MDOT_SP	10.8852	-3.6433	2.95	7.95	3.80	5.70	100	97.40	60.10	5	1.00	130	75950
179	MDTK5_1	MDOT_SP	10.8852	-3.6433	2.95	7.95	3.80	5.70	100	97.40	60.10	5	10.00	130	189000

180	MDTK5_1	MDOT_SP	10.8852	-3.6433	2.95	7.95	3.80	5.70	100	97.40	60.10	5	25.00	130	273500
181	MDTK5_2	MDOT_SP	10.8852	-3.6433	6.20	7.70	3.80	5.70	100	97.40	60.10	60	0.10	12	3350000
182	MDTK5_2	MDOT_SP	10.8852	-3.6433	6.20	7.70	3.80	5.70	100	97.40	60.10	60	1.00	12	3710000
183	MDTK5_2	MDOT_SP	10.8852	-3.6433	6.20	7.70	3.80	5.70	100	97.40	60.10	60	10.00	12	3940000
184	MDTK5_2	MDOT_SP	10.8852	-3.6433	6.20	7.70	3.80	5.70	100	97.40	60.10	60	25.00	12	4030000
185	MDTK5_2	MDOT_SP	10.8852	-3.6433	6.20	7.70	3.80	5.70	100	97.40	60.10	35	0.10	40	1740000
186	MDTK5_2	MDOT_SP	10.8852	-3.6433	6.20	7.70	3.80	5.70	100	97.40	60.10	35	1.00	40	2280000
187	MDTK5_2	MDOT_SP	10.8852	-3.6433	6.20	7.70	3.80	5.70	100	97.40	60.10	35	10.00	40	2590000
188	MDTK5_2	MDOT_SP	10.8852	-3.6433	6.20	7.70	3.80	5.70	100	97.40	60.10	35	25.00	40	2795000
189	MDTK5_2	MDOT_SP	10.8852	-3.6433	6.20	7.70	3.80	5.70	100	97.40	60.10	20	0.10	70	388500
190	MDTK5_2	MDOT_SP	10.8852	-3.6433	6.20	7.70	3.80	5.70	100	97.40	60.10	20	1.00	70	772000
191	MDTK5_2	MDOT_SP	10.8852	-3.6433	6.20	7.70	3.80	5.70	100	97.40	60.10	20	10.00	70	1350000
192	MDTK5_2	MDOT_SP	10.8852	-3.6433	6.20	7.70	3.80	5.70	100	97.40	60.10	20	25.00	70	1550000
193	MDTK5_2	MDOT_SP	10.8852	-3.6433	6.20	7.70	3.80	5.70	100	97.40	60.10	10	0.10	100	96900
194	MDTK5_2	MDOT_SP	10.8852	-3.6433	6.20	7.70	3.80	5.70	100	97.40	60.10	10	1.00	100	188500
195	MDTK5_2	MDOT_SP	10.8852	-3.6433	6.20	7.70	3.80	5.70	100	97.40	60.10	10	10.00	100	442000
196	MDTK5_2	MDOT_SP	10.8852	-3.6433	6.20	7.70	3.80	5.70	100	97.40	60.10	10	25.00	100	625500
197	MDTK5_2	MDOT_SP	10.8852	-3.6433	6.20	7.70	3.80	5.70	100	97.40	60.10	5	0.10	130	25350
198	MDTK5_2	MDOT_SP	10.8852	-3.6433	6.20	7.70	3.80	5.70	100	97.40	60.10	5	1.00	130	43600
199	MDTK5_2	MDOT_SP	10.8852	-3.6433	6.20	7.70	3.80	5.70	100	97.40	60.10	5	10.00	130	100100
200	MDTK5_2	MDOT_SP	10.8852	-3.6433	6.20	7.70	3.80	5.70	100	97.40	60.10	5	25.00	130	150000
201	MDTK5_3	MDOT_SP	10.8852	-3.6433	7.95	10.80	3.80	5.70	100	97.40	60.10	60	0.10	12	2840000
202	MDTK5_3	MDOT_SP	10.8852	-3.6433	7.95	10.80	3.80	5.70	100	97.40	60.10	60	1.00	12	3185000
203	MDTK5_3	MDOT_SP	10.8852	-3.6433	7.95	10.80	3.80	5.70	100	97.40	60.10	60	10.00	12	3395000
204	MDTK5_3	MDOT_SP	10.8852	-3.6433	7.95	10.80	3.80	5.70	100	97.40	60.10	60	25.00	12	3430000
205	MDTK5_3	MDOT_SP	10.8852	-3.6433	7.95	10.80	3.80	5.70	100	97.40	60.10	35	0.10	40	1490000

206	MDTK5_3	MDOT_SP	10.8852	-3.6433	7.95	10.80	3.80	5.70	100	97.40	60.10	35	1.00	40	1980000
207	MDTK5_3	MDOT_SP	10.8852	-3.6433	7.95	10.80	3.80	5.70	100	97.40	60.10	35	10.00	40	2570000
208	MDTK5_3	MDOT_SP	10.8852	-3.6433	7.95	10.80	3.80	5.70	100	97.40	60.10	35	25.00	40	2755000
209	MDTK5_3	MDOT_SP	10.8852	-3.6433	7.95	10.80	3.80	5.70	100	97.40	60.10	20	0.10	70	373500
210	MDTK5_3	MDOT_SP	10.8852	-3.6433	7.95	10.80	3.80	5.70	100	97.40	60.10	20	1.00	70	703000
211	MDTK5_3	MDOT_SP	10.8852	-3.6433	7.95	10.80	3.80	5.70	100	97.40	60.10	20	10.00	70	1250000
212	MDTK5_3	MDOT_SP	10.8852	-3.6433	7.95	10.80	3.80	5.70	100	97.40	60.10	20	25.00	70	1475000
213	MDTK5_3	MDOT_SP	10.8852	-3.6433	7.95	10.80	3.80	5.70	100	97.40	60.10	10	0.10	100	79100
214	MDTK5_3	MDOT_SP	10.8852	-3.6433	7.95	10.80	3.80	5.70	100	97.40	60.10	10	1.00	100	152000
215	MDTK5_3	MDOT_SP	10.8852	-3.6433	7.95	10.80	3.80	5.70	100	97.40	60.10	10	10.00	100	356000
216	MDTK5_3	MDOT_SP	10.8852	-3.6433	7.95	10.80	3.80	5.70	100	97.40	60.10	10	25.00	100	500000
217	MDTK5_3	MDOT_SP	10.8852	-3.6433	7.95	10.80	3.80	5.70	100	97.40	60.10	5	0.10	130	22500
218	MDTK5_3	MDOT_SP	10.8852	-3.6433	7.95	10.80	3.80	5.70	100	97.40	60.10	5	1.00	130	40350
219	MDTK5_3	MDOT_SP	10.8852	-3.6433	7.95	10.80	3.80	5.70	100	97.40	60.10	5	10.00	130	97150
220	MDTK5_3	MDOT_SP	10.8852	-3.6433	7.95	10.80	3.80	5.70	100	97.40	60.10	5	25.00	130	155000
221	MDTK5_4	MDOT_SP	10.8852	-3.6433	2.35	11.40	5.30	5.70	100	97.40	60.10	60	0.10	12	2865000
222	MDTK5_4	MDOT_SP	10.8852	-3.6433	2.35	11.40	5.30	5.70	100	97.40	60.10	60	1.00	12	3140000
223	MDTK5_4	MDOT_SP	10.8852	-3.6433	2.35	11.40	5.30	5.70	100	97.40	60.10	60	10.00	12	3200000
224	MDTK5_4	MDOT_SP	10.8852	-3.6433	2.35	11.40	5.30	5.70	100	97.40	60.10	60	25.00	12	3410000
225	MDTK5_4	MDOT_SP	10.8852	-3.6433	2.35	11.40	5.30	5.70	100	97.40	60.10	35	0.10	40	1555000
226	MDTK5_4	MDOT_SP	10.8852	-3.6433	2.35	11.40	5.30	5.70	100	97.40	60.10	35	1.00	40	2365000
227	MDTK5_4	MDOT_SP	10.8852	-3.6433	2.35	11.40	5.30	5.70	100	97.40	60.10	35	10.00	40	2645000
228	MDTK5_4	MDOT_SP	10.8852	-3.6433	2.35	11.40	5.30	5.70	100	97.40	60.10	35	25.00	40	2670000
229	MDTK5_4	MDOT_SP	10.8852	-3.6433	2.35	11.40	5.30	5.70	100	97.40	60.10	20	0.10	70	481500
230	MDTK5_4	MDOT_SP	10.8852	-3.6433	2.35	11.40	5.30	5.70	100	97.40	60.10	20	1.00	70	936500
231	MDTK5_4	MDOT_SP	10.8852	-3.6433	2.35	11.40	5.30	5.70	100	97.40	60.10	20	10.00	70	1435000

232	MDTK5_4	MDOT_SP	10.8852	-3.6433	2.35	11.40	5.30	5.70	100	97.40	60.10	20	25.00	70	1730000
233	MDTK5_4	MDOT_SP	10.8852	-3.6433	2.35	11.40	5.30	5.70	100	97.40	60.10	10	0.10	100	85800
234	MDTK5_4	MDOT_SP	10.8852	-3.6433	2.35	11.40	5.30	5.70	100	97.40	60.10	10	1.00	100	197000
235	MDTK5_4	MDOT_SP	10.8852	-3.6433	2.35	11.40	5.30	5.70	100	97.40	60.10	10	10.00	100	462000
236	MDTK5_4	MDOT_SP	10.8852	-3.6433	2.35	11.40	5.30	5.70	100	97.40	60.10	10	25.00	100	669000
237	MDTK5_4	MDOT_SP	10.8852	-3.6433	2.35	11.40	5.30	5.70	100	97.40	60.10	5	0.10	130	21450
238	MDTK5_4	MDOT_SP	10.8852	-3.6433	2.35	11.40	5.30	5.70	100	97.40	60.10	5	1.00	130	43500
239	MDTK5_4	MDOT_SP	10.8852	-3.6433	2.35	11.40	5.30	5.70	100	97.40	60.10	5	10.00	130	98450
240	MDTK5_4	MDOT_SP	10.8852	-3.6433	2.35	11.40	5.30	5.70	100	97.40	60.10	5	25.00	130	145000
241	MDTK5_5	MDOT_SP	10.8852	-3.6433	7.55	10.80	5.30	5.70	100	97.40	60.10	60	0.10	12	3005000
242	MDTK5_5	MDOT_SP	10.8852	-3.6433	7.55	10.80	5.30	5.70	100	97.40	60.10	60	1.00	12	3255000
243	MDTK5_5	MDOT_SP	10.8852	-3.6433	7.55	10.80	5.30	5.70	100	97.40	60.10	60	10.00	12	3410000
244	MDTK5_5	MDOT_SP	10.8852	-3.6433	7.55	10.80	5.30	5.70	100	97.40	60.10	60	25.00	12	3520000
245	MDTK5_5	MDOT_SP	10.8852	-3.6433	7.55	10.80	5.30	5.70	100	97.40	60.10	35	0.10	40	1190000
246	MDTK5_5	MDOT_SP	10.8852	-3.6433	7.55	10.80	5.30	5.70	100	97.40	60.10	35	1.00	40	1855000
247	MDTK5_5	MDOT_SP	10.8852	-3.6433	7.55	10.80	5.30	5.70	100	97.40	60.10	35	10.00	40	2425000
248	MDTK5_5	MDOT_SP	10.8852	-3.6433	7.55	10.80	5.30	5.70	100	97.40	60.10	35	25.00	40	2635000
249	MDTK5_5	MDOT_SP	10.8852	-3.6433	7.55	10.80	5.30	5.70	100	97.40	60.10	20	0.10	70	298500
250	MDTK5_5	MDOT_SP	10.8852	-3.6433	7.55	10.80	5.30	5.70	100	97.40	60.10	20	1.00	70	576000
251	MDTK5_5	MDOT_SP	10.8852	-3.6433	7.55	10.80	5.30	5.70	100	97.40	60.10	20	10.00	70	1034500
252	MDTK5_5	MDOT_SP	10.8852	-3.6433	7.55	10.80	5.30	5.70	100	97.40	60.10	20	25.00	70	1290000
253	MDTK5_5	MDOT_SP	10.8852	-3.6433	7.55	10.80	5.30	5.70	100	97.40	60.10	10	0.10	100	58850
254	MDTK5_5	MDOT_SP	10.8852	-3.6433	7.55	10.80	5.30	5.70	100	97.40	60.10	10	1.00	100	128000
255	MDTK5_5	MDOT_SP	10.8852	-3.6433	7.55	10.80	5.30	5.70	100	97.40	60.10	10	10.00	100	303500
256	MDTK5_5	MDOT_SP	10.8852	-3.6433	7.55	10.80	5.30	5.70	100	97.40	60.10	10	25.00	100	429500
257	MDTK5_5	MDOT_SP	10.8852	-3.6433	7.55	10.80	5.30	5.70	100	97.40	60.10	5	0.10	130	14250

258	MDTK5_5	MDOT_SP	10.8852	-3.6433	7.55	10.80	5.30	5.70	100	97.40	60.10	5	1.00	130	32850
259	MDTK5_5	MDOT_SP	10.8852	-3.6433	7.55	10.80	5.30	5.70	100	97.40	60.10	5	10.00	130	63200
260	MDTK5_5	MDOT_SP	10.8852	-3.6433	7.55	10.80	5.30	5.70	100	97.40	60.10	5	25.00	130	91750
261	MDTK5_6	MDOT_SP	10.8852	-3.6433	11.05	10.40	5.30	5.70	100	97.40	60.10	60	0.10	12	1960000
262	MDTK5_6	MDOT_SP	10.8852	-3.6433	11.05	10.40	5.30	5.70	100	97.40	60.10	60	1.00	12	2180000
263	MDTK5_6	MDOT_SP	10.8852	-3.6433	11.05	10.40	5.30	5.70	100	97.40	60.10	60	10.00	12	2375000
264	MDTK5_6	MDOT_SP	10.8852	-3.6433	11.05	10.40	5.30	5.70	100	97.40	60.10	60	25.00	12	2390000
265	MDTK5_6	MDOT_SP	10.8852	-3.6433	11.05	10.40	5.30	5.70	100	97.40	60.10	35	0.10	40	823500
266	MDTK5_6	MDOT_SP	10.8852	-3.6433	11.05	10.40	5.30	5.70	100	97.40	60.10	35	1.00	40	1245000
267	MDTK5_6	MDOT_SP	10.8852	-3.6433	11.05	10.40	5.30	5.70	100	97.40	60.10	35	10.00	40	1650000
268	MDTK5_6	MDOT_SP	10.8852	-3.6433	11.05	10.40	5.30	5.70	100	97.40	60.10	35	25.00	40	1710000
269	MDTK5_6	MDOT_SP	10.8852	-3.6433	11.05	10.40	5.30	5.70	100	97.40	60.10	20	0.10	70	215000
270	MDTK5_6	MDOT_SP	10.8852	-3.6433	11.05	10.40	5.30	5.70	100	97.40	60.10	20	1.00	70	427500
271	MDTK5_6	MDOT_SP	10.8852	-3.6433	11.05	10.40	5.30	5.70	100	97.40	60.10	20	10.00	70	785500
272	MDTK5_6	MDOT_SP	10.8852	-3.6433	11.05	10.40	5.30	5.70	100	97.40	60.10	20	25.00	70	900500
273	MDTK5_6	MDOT_SP	10.8852	-3.6433	11.05	10.40	5.30	5.70	100	97.40	60.10	10	0.10	100	43700
274	MDTK5_6	MDOT_SP	10.8852	-3.6433	11.05	10.40	5.30	5.70	100	97.40	60.10	10	1.00	100	93100
275	MDTK5_6	MDOT_SP	10.8852	-3.6433	11.05	10.40	5.30	5.70	100	97.40	60.10	10	10.00	100	217000
276	MDTK5_6	MDOT_SP	10.8852	-3.6433	11.05	10.40	5.30	5.70	100	97.40	60.10	10	25.00	100	311000
277	MDTK5_6	MDOT_SP	10.8852	-3.6433	11.05	10.40	5.30	5.70	100	97.40	60.10	5	0.10	130	13100
278	MDTK5_6	MDOT_SP	10.8852	-3.6433	11.05	10.40	5.30	5.70	100	97.40	60.10	5	1.00	130	25500
279	MDTK5_6	MDOT_SP	10.8852	-3.6433	11.05	10.40	5.30	5.70	100	97.40	60.10	5	10.00	130	49200
280	MDTK5_6	MDOT_SP	10.8852	-3.6433	11.05	10.40	5.30	5.70	100	97.40	60.10	5	25.00	130	71200
281	MDTK5_7	MDOT_SP	10.8852	-3.6433	2.35	13.60	6.30	5.70	100	97.40	60.10	60	0.10	12	3380000
282	MDTK5_7	MDOT_SP	10.8852	-3.6433	2.35	13.60	6.30	5.70	100	97.40	60.10	60	1.00	12	3615000
283	MDTK5_7	MDOT_SP	10.8852	-3.6433	2.35	13.60	6.30	5.70	100	97.40	60.10	60	10.00	12	3985000

284	MDTK5_7	MDOT_SP	10.8852	-3.6433	2.35	13.60	6.30	5.70	100	97.40	60.10	60	25.00	12	3880000
285	MDTK5_7	MDOT_SP	10.8852	-3.6433	2.35	13.60	6.30	5.70	100	97.40	60.10	35	0.10	40	1115000
286	MDTK5_7	MDOT_SP	10.8852	-3.6433	2.35	13.60	6.30	5.70	100	97.40	60.10	35	1.00	40	1580000
287	MDTK5_7	MDOT_SP	10.8852	-3.6433	2.35	13.60	6.30	5.70	100	97.40	60.10	35	10.00	40	2090000
288	MDTK5_7	MDOT_SP	10.8852	-3.6433	2.35	13.60	6.30	5.70	100	97.40	60.10	35	25.00	40	2260000
289	MDTK5_7	MDOT_SP	10.8852	-3.6433	2.35	13.60	6.30	5.70	100	97.40	60.10	20	0.10	70	268500
290	MDTK5_7	MDOT_SP	10.8852	-3.6433	2.35	13.60	6.30	5.70	100	97.40	60.10	20	1.00	70	564000
291	MDTK5_7	MDOT_SP	10.8852	-3.6433	2.35	13.60	6.30	5.70	100	97.40	60.10	20	10.00	70	1097000
292	MDTK5_7	MDOT_SP	10.8852	-3.6433	2.35	13.60	6.30	5.70	100	97.40	60.10	20	25.00	70	1295000
293	MDTK5_7	MDOT_SP	10.8852	-3.6433	2.35	13.60	6.30	5.70	100	97.40	60.10	10	0.10	100	53500
294	MDTK5_7	MDOT_SP	10.8852	-3.6433	2.35	13.60	6.30	5.70	100	97.40	60.10	10	1.00	100	115000
295	MDTK5_7	MDOT_SP	10.8852	-3.6433	2.35	13.60	6.30	5.70	100	97.40	60.10	10	10.00	100	286000
296	MDTK5_7	MDOT_SP	10.8852	-3.6433	2.35	13.60	6.30	5.70	100	97.40	60.10	10	25.00	100	412500
297	MDTK5_7	MDOT_SP	10.8852	-3.6433	2.35	13.60	6.30	5.70	100	97.40	60.10	5	0.10	130	18500
298	MDTK5_7	MDOT_SP	10.8852	-3.6433	2.35	13.60	6.30	5.70	100	97.40	60.10	5	1.00	130	33000
299	MDTK5_7	MDOT_SP	10.8852	-3.6433	2.35	13.60	6.30	5.70	100	97.40	60.10	5	10.00	130	64500
300	MDTK5_7	MDOT_SP	10.8852	-3.6433	2.35	13.60	6.30	5.70	100	97.40	60.10	5	25.00	130	92000
301	MDTK5_8	MDOT_SP	10.8852	-3.6433	7.90	12.80	6.30	5.70	100	97.40	60.10	60	0.10	12	2000000
302	MDTK5_8	MDOT_SP	10.8852	-3.6433	7.90	12.80	6.30	5.70	100	97.40	60.10	60	1.00	12	2295000
303	MDTK5_8	MDOT_SP	10.8852	-3.6433	7.90	12.80	6.30	5.70	100	97.40	60.10	60	10.00	12	2580000
304	MDTK5_8	MDOT_SP	10.8852	-3.6433	7.90	12.80	6.30	5.70	100	97.40	60.10	60	25.00	12	2695000
305	MDTK5_8	MDOT_SP	10.8852	-3.6433	7.90	12.80	6.30	5.70	100	97.40	60.10	35	0.10	40	684500
306	MDTK5_8	MDOT_SP	10.8852	-3.6433	7.90	12.80	6.30	5.70	100	97.40	60.10	35	1.00	40	1115000
307	MDTK5_8	MDOT_SP	10.8852	-3.6433	7.90	12.80	6.30	5.70	100	97.40	60.10	35	10.00	40	1475000
308	MDTK5_8	MDOT_SP	10.8852	-3.6433	7.90	12.80	6.30	5.70	100	97.40	60.10	35	25.00	40	1550000
309	MDTK5_8	MDOT_SP	10.8852	-3.6433	7.90	12.80	6.30	5.70	100	97.40	60.10	20	0.10	70	162000

310	MDTK5_8	MDOT_SP	10.8852	-3.6433	7.90	12.80	6.30	5.70	100	97.40	60.10	20	1.00	70	322500
311	MDTK5_8	MDOT_SP	10.8852	-3.6433	7.90	12.80	6.30	5.70	100	97.40	60.10	20	10.00	70	619000
312	MDTK5_8	MDOT_SP	10.8852	-3.6433	7.90	12.80	6.30	5.70	100	97.40	60.10	20	25.00	70	735000
313	MDTK5_8	MDOT_SP	10.8852	-3.6433	7.90	12.80	6.30	5.70	100	97.40	60.10	10	0.10	100	38850
314	MDTK5_8	MDOT_SP	10.8852	-3.6433	7.90	12.80	6.30	5.70	100	97.40	60.10	10	1.00	100	72400
315	MDTK5_8	MDOT_SP	10.8852	-3.6433	7.90	12.80	6.30	5.70	100	97.40	60.10	10	10.00	100	158000
316	MDTK5_8	MDOT_SP	10.8852	-3.6433	7.90	12.80	6.30	5.70	100	97.40	60.10	10	25.00	100	218500
317	MDTK5_8	MDOT_SP	10.8852	-3.6433	7.90	12.80	6.30	5.70	100	97.40	60.10	5	0.10	130	13500
318	MDTK5_8	MDOT_SP	10.8852	-3.6433	7.90	12.80	6.30	5.70	100	97.40	60.10	5	1.00	130	21950
319	MDTK5_8	MDOT_SP	10.8852	-3.6433	7.90	12.80	6.30	5.70	100	97.40	60.10	5	10.00	130	38500
320	MDTK5_8	MDOT_SP	10.8852	-3.6433	7.90	12.80	6.30	5.70	100	97.40	60.10	5	25.00	130	52850
321	MDTK5_9	MDOT_SP	10.8852	-3.6433	10.40	12.45	6.30	5.70	100	97.40	60.10	60	0.10	12	1760000
322	MDTK5_9	MDOT_SP	10.8852	-3.6433	10.40	12.45	6.30	5.70	100	97.40	60.10	60	1.00	12	2040000
323	MDTK5_9	MDOT_SP	10.8852	-3.6433	10.40	12.45	6.30	5.70	100	97.40	60.10	60	10.00	12	2350000
324	MDTK5_9	MDOT_SP	10.8852	-3.6433	10.40	12.45	6.30	5.70	100	97.40	60.10	60	25.00	12	2430000
325	MDTK5_9	MDOT_SP	10.8852	-3.6433	10.40	12.45	6.30	5.70	100	97.40	60.10	35	0.10	40	810000
326	MDTK5_9	MDOT_SP	10.8852	-3.6433	10.40	12.45	6.30	5.70	100	97.40	60.10	35	1.00	40	1155000
327	MDTK5_9	MDOT_SP	10.8852	-3.6433	10.40	12.45	6.30	5.70	100	97.40	60.10	35	10.00	40	1625000
328	MDTK5_9	MDOT_SP	10.8852	-3.6433	10.40	12.45	6.30	5.70	100	97.40	60.10	35	25.00	40	1730000
329	MDTK5_9	MDOT_SP	10.8852	-3.6433	10.40	12.45	6.30	5.70	100	97.40	60.10	20	0.10	70	141500
330	MDTK5_9	MDOT_SP	10.8852	-3.6433	10.40	12.45	6.30	5.70	100	97.40	60.10	20	1.00	70	285500
331	MDTK5_9	MDOT_SP	10.8852	-3.6433	10.40	12.45	6.30	5.70	100	97.40	60.10	20	10.00	70	573000
332	MDTK5_9	MDOT_SP	10.8852	-3.6433	10.40	12.45	6.30	5.70	100	97.40	60.10	20	25.00	70	730500
333	MDTK5_9	MDOT_SP	10.8852	-3.6433	10.40	12.45	6.30	5.70	100	97.40	60.10	10	0.10	100	46700
334	MDTK5_9	MDOT_SP	10.8852	-3.6433	10.40	12.45	6.30	5.70	100	97.40	60.10	10	1.00	100	77800
335	MDTK5_9	MDOT_SP	10.8852	-3.6433	10.40	12.45	6.30	5.70	100	97.40	60.10	10	10.00	100	167000

336	MDTK5_9	MDOT_SP	10.8852	-3.6433	10.40	12.45	6.30	5.70	100	97.40	60.10	10	25.00	100	235500
337	MDTK5_9	MDOT_SP	10.8852	-3.6433	10.40	12.45	6.30	5.70	100	97.40	60.10	5	0.10	130	10145
338	MDTK5_9	MDOT_SP	10.8852	-3.6433	10.40	12.45	6.30	5.70	100	97.40	60.10	5	1.00	130	17950
339	MDTK5_9	MDOT_SP	10.8852	-3.6433	10.40	12.45	6.30	5.70	100	97.40	60.10	5	10.00	130	30750
340	MDTK5_9	MDOT_SP	10.8852	-3.6433	10.40	12.45	6.30	5.70	100	97.40	60.10	5	25.00	130	45200
341	MPA_SPAC20	MPA_SP1	10.5141	-3.5187	7.45	8.90	3.90	7.10	97	81.00	44.00	100	0.10	0	1585000
342	MPA_SPAC20	MPA_SP1	10.5141	-3.5187	7.45	8.90	3.90	7.10	97	81.00	44.00	100	1.00	0	2060000
343	MPA_SPAC20	MPA_SP1	10.5141	-3.5187	7.45	8.90	3.90	7.10	97	81.00	44.00	100	10.00	0	2540000
344	MPA_SPAC20	MPA_SP1	10.5141	-3.5187	7.45	8.90	3.90	7.10	97	81.00	44.00	100	25.00	0	2820000
345	MPA_SPAC20	MPA_SP1	10.5141	-3.5187	7.45	8.90	3.90	7.10	97	81.00	44.00	35	0.10	40	915000
346	MPA_SPAC20	MPA_SP1	10.5141	-3.5187	7.45	8.90	3.90	7.10	97	81.00	44.00	35	1.00	40	1510000
347	MPA_SPAC20	MPA_SP1	10.5141	-3.5187	7.45	8.90	3.90	7.10	97	81.00	44.00	35	10.00	40	2270000
348	MPA_SPAC20	MPA_SP1	10.5141	-3.5187	7.45	8.90	3.90	7.10	97	81.00	44.00	35	25.00	40	2345000
349	MPA_SPAC20	MPA_SP1	10.5141	-3.5187	7.45	8.90	3.90	7.10	97	81.00	44.00	35	0.10	70	285000
350	MPA_SPAC20	MPA_SP1	10.5141	-3.5187	7.45	8.90	3.90	7.10	97	81.00	44.00	35	1.00	70	564000
351	MPA_SPAC20	MPA_SP1	10.5141	-3.5187	7.45	8.90	3.90	7.10	97	81.00	44.00	35	10.00	70	1031000
352	MPA_SPAC20	MPA_SP1	10.5141	-3.5187	7.45	8.90	3.90	7.10	97	81.00	44.00	35	25.00	70	1200000
353	MPA_SPAC20	MPA_SP1	10.5141	-3.5187	7.45	8.90	3.90	7.10	97	81.00	44.00	35	0.10	100	76600
354	MPA_SPAC20	MPA_SP1	10.5141	-3.5187	7.45	8.90	3.90	7.10	97	81.00	44.00	35	1.00	100	110000
355	MPA_SPAC20	MPA_SP1	10.5141	-3.5187	7.45	8.90	3.90	7.10	97	81.00	44.00	35	10.00	100	223500
356	MPA_SPAC20	MPA_SP1	10.5141	-3.5187	7.45	8.90	3.90	7.10	97	81.00	44.00	35	25.00	100	320000
357	MPA_SPAC20	MPA_SP1	10.5141	-3.5187	7.45	8.90	3.90	7.10	97	81.00	44.00	10	0.10	130	18400
358	MPA_SPAC20	MPA_SP1	10.5141	-3.5187	7.45	8.90	3.90	7.10	97	81.00	44.00	10	1.00	130	26900
359	MPA_SPAC20	MPA_SP1	10.5141	-3.5187	7.45	8.90	3.90	7.10	97	81.00	44.00	10	10.00	130	43300
360	MPA_SPAC20	MPA_SP1	10.5141	-3.5187	7.45	8.90	3.90	7.10	97	81.00	44.00	10	25.00	130	60700
361	MPA_SPTLA	MPA_SP1	8.8325	-2.8989	5.67	8.57	4.20	7.10	97	81.00	44.00	100	0.10	0	1823333.333

362	MPA_SPTLA	MPA_SP1	8.8325	-2.8989	5.67	8.57	4.20	7.10	97	81.00	44.00	100	1.00	0	2416666.667
363	MPA_SPTLA	MPA_SP1	8.8325	-2.8989	5.67	8.57	4.20	7.10	97	81.00	44.00	100	10.00	0	3146666.667
364	MPA_SPTLA	MPA_SP1	8.8325	-2.8989	5.67	8.57	4.20	7.10	97	81.00	44.00	100	25.00	0	3373333.333
365	MPA_SPTLA	MPA_SP1	8.8325	-2.8989	5.67	8.57	4.20	7.10	97	81.00	44.00	35	0.10	40	1053333.333
366	MPA_SPTLA	MPA_SP1	8.8325	-2.8989	5.67	8.57	4.20	7.10	97	81.00	44.00	35	1.00	40	1680000
367	MPA_SPTLA	MPA_SP1	8.8325	-2.8989	5.67	8.57	4.20	7.10	97	81.00	44.00	35	10.00	40	2486666.667
368	MPA_SPTLA	MPA_SP1	8.8325	-2.8989	5.67	8.57	4.20	7.10	97	81.00	44.00	35	25.00	40	2703333.333
369	MPA_SPTLA	MPA_SP1	8.8325	-2.8989	5.67	8.57	4.20	7.10	97	81.00	44.00	35	0.10	70	366333.3333
370	MPA_SPTLA	MPA_SP1	8.8325	-2.8989	5.67	8.57	4.20	7.10	97	81.00	44.00	35	1.00	70	712666.6667
371	MPA_SPTLA	MPA_SP1	8.8325	-2.8989	5.67	8.57	4.20	7.10	97	81.00	44.00	35	10.00	70	1320333.333
372	MPA_SPTLA	MPA_SP1	8.8325	-2.8989	5.67	8.57	4.20	7.10	97	81.00	44.00	35	25.00	70	1656666.667
373	MPA_SPTLA	MPA_SP1	8.8325	-2.8989	5.67	8.57	4.20	7.10	97	81.00	44.00	35	0.10	100	74933.33333
374	MPA_SPTLA	MPA_SP1	8.8325	-2.8989	5.67	8.57	4.20	7.10	97	81.00	44.00	35	1.00	100	128333.3333
375	MPA_SPTLA	MPA_SP1	8.8325	-2.8989	5.67	8.57	4.20	7.10	97	81.00	44.00	35	10.00	100	293666.6667
376	MPA_SPTLA	MPA_SP1	8.8325	-2.8989	5.67	8.57	4.20	7.10	97	81.00	44.00	35	25.00	100	428333.3333
377	MPA_SPTLA	MPA_SP1	8.8325	-2.8989	5.45	8.60	4.20	7.10	97	81.00	44.00	10	0.10	130	26400
378	MPA_SPTLA	MPA_SP1	8.8325	-2.8989	5.45	8.60	4.20	7.10	97	81.00	44.00	10	1.00	130	41050
379	MPA_SPTLA	MPA_SP1	8.8325	-2.8989	5.45	8.60	4.20	7.10	97	81.00	44.00	10	10.00	130	80300
380	MPA_SPTLA	MPA_SP1	8.8325	-2.8989	5.45	8.60	4.20	7.10	97	81.00	44.00	10	25.00	130	112800
381	MPA_SPVP	MPA_SP1	10.5141	-3.5187	7.85	9.10	3.90	7.10	97	81.00	44.00	100	0.10	0	1650000
382	MPA_SPVP	MPA_SP1	10.5141	-3.5187	7.85	9.10	3.90	7.10	97	81.00	44.00	100	1.00	0	2185000
383	MPA_SPVP	MPA_SP1	10.5141	-3.5187	7.85	9.10	3.90	7.10	97	81.00	44.00	100	10.00	0	2820000
384	MPA_SPVP	MPA_SP1	10.5141	-3.5187	7.85	9.10	3.90	7.10	97	81.00	44.00	100	25.00	0	3055000
385	MPA_SPVP	MPA_SP1	10.5141	-3.5187	7.85	9.10	3.90	7.10	97	81.00	44.00	35	0.10	40	820000
386	MPA_SPVP	MPA_SP1	10.5141	-3.5187	7.85	9.10	3.90	7.10	97	81.00	44.00	35	1.00	40	1410000
387	MPA_SPVP	MPA_SP1	10.5141	-3.5187	7.85	9.10	3.90	7.10	97	81.00	44.00	35	10.00	40	1990000

388	MPA_SPVP	MPA_SP1	10.5141	-3.5187	7.85	9.10	3.90	7.10	97	81.00	44.00	35	25.00	40	2140000
389	MPA_SPVP	MPA_SP1	10.5141	-3.5187	7.85	9.10	3.90	7.10	97	81.00	44.00	35	0.10	70	279500
390	MPA_SPVP	MPA_SP1	10.5141	-3.5187	7.85	9.10	3.90	7.10	97	81.00	44.00	35	1.00	70	536000
391	MPA_SPVP	MPA_SP1	10.5141	-3.5187	7.85	9.10	3.90	7.10	97	81.00	44.00	35	10.00	70	965500
392	MPA_SPVP	MPA_SP1	10.5141	-3.5187	7.85	9.10	3.90	7.10	97	81.00	44.00	35	25.00	70	1145000
393	MPA_SPVP	MPA_SP1	10.5141	-3.5187	7.85	9.10	3.90	7.10	97	81.00	44.00	35	0.10	100	73650
394	MPA_SPVP	MPA_SP1	10.5141	-3.5187	7.85	9.10	3.90	7.10	97	81.00	44.00	35	1.00	100	109500
395	MPA_SPVP	MPA_SP1	10.5141	-3.5187	7.85	9.10	3.90	7.10	97	81.00	44.00	35	10.00	100	220500
396	MPA_SPVP	MPA_SP1	10.5141	-3.5187	7.85	9.10	3.90	7.10	97	81.00	44.00	35	25.00	100	308000
397	MPA_SPVP	MPA_SP1	10.5141	-3.5187	7.85	9.10	3.90	7.10	97	81.00	44.00	10	0.10	130	20550
398	MPA_SPVP	MPA_SP1	10.5141	-3.5187	7.85	9.10	3.90	7.10	97	81.00	44.00	10	1.00	130	31800
399	MPA_SPVP	MPA_SP1	10.5141	-3.5187	7.85	9.10	3.90	7.10	97	81.00	44.00	10	10.00	130	62200
400	MPA_SPVP	MPA_SP1	10.5141	-3.5187	7.85	9.10	3.90	7.10	97	81.00	44.00	10	25.00	130	83600
401	MPA-CFLXP_1	MPA_P401	9.9766	-3.3047	7.30	8.75	4.30	6.00	96	80.00	44.00	90	0.10	0	1940000
402	MPA-CFLXP_1	MPA_P401	9.9766	-3.3047	7.30	8.75	4.30	6.00	96	80.00	44.00	90	1.00	0	2620000
403	MPA-CFLXP_1	MPA_P401	9.9766	-3.3047	7.30	8.75	4.30	6.00	96	80.00	44.00	90	10.00	0	3165000
404	MPA-CFLXP_1	MPA_P401	9.9766	-3.3047	7.30	8.75	4.30	6.00	96	80.00	44.00	90	25.00	0	3560000
405	MPA-CFLXP_1	MPA_P401	9.9766	-3.3047	7.30	8.75	4.30	6.00	96	80.00	44.00	30	0.10	40	924500
406	MPA-CFLXP_1	MPA_P401	9.9766	-3.3047	7.30	8.75	4.30	6.00	96	80.00	44.00	30	1.00	40	1425000
407	MPA-CFLXP_1	MPA_P401	9.9766	-3.3047	7.30	8.75	4.30	6.00	96	80.00	44.00	30	10.00	40	2035000
408	MPA-CFLXP_1	MPA_P401	9.9766	-3.3047	7.30	8.75	4.30	6.00	96	80.00	44.00	30	25.00	40	2115000
409	MPA-CFLXP_1	MPA_P401	9.9766	-3.3047	7.30	8.75	4.30	6.00	96	80.00	44.00	30	0.10	70	251500
410	MPA-CFLXP_1	MPA_P401	9.9766	-3.3047	7.30	8.75	4.30	6.00	96	80.00	44.00	30	1.00	70	497500
411	MPA-CFLXP_1	MPA_P401	9.9766	-3.3047	7.30	8.75	4.30	6.00	96	80.00	44.00	30	10.00	70	962500
412	MPA-CFLXP_1	MPA_P401	9.9766	-3.3047	7.30	8.75	4.30	6.00	96	80.00	44.00	30	25.00	70	1140000
413	MPA-CFLXP_1	MPA_P401	9.9766	-3.3047	7.30	8.75	4.30	6.00	96	80.00	44.00	30	0.10	100	106100

414	MPA-CFLXP_1	MPA_P401	9.9766	-3.3047	7.30	8.75	4.30	6.00	96	80.00	44.00	30	1.00	100	159000
415	MPA-CFLXP_1	MPA_P401	9.9766	-3.3047	7.30	8.75	4.30	6.00	96	80.00	44.00	30	10.00	100	297500
416	MPA-CFLXP_1	MPA_P401	9.9766	-3.3047	7.30	8.75	4.30	6.00	96	80.00	44.00	30	25.00	100	394000
417	MPA-CFLXP_1	MPA_P401	9.9766	-3.3047	7.30	8.75	4.30	6.00	96	80.00	44.00	8	0.10	130	55350
418	MPA-CFLXP_1	MPA_P401	9.9766	-3.3047	7.30	8.75	4.30	6.00	96	80.00	44.00	8	1.00	130	79050
419	MPA-CFLXP_1	MPA_P401	9.9766	-3.3047	7.30	8.75	4.30	6.00	96	80.00	44.00	8	10.00	130	146500
420	MPA-CFLXP_1	MPA_P401	9.9766	-3.3047	7.30	8.75	4.30	6.00	96	80.00	44.00	8	25.00	130	199500
421	MPA-CFLXP_2	MPA_P401	9.9766	-3.3047	7.35	10.60	5.20	6.00	96	80.00	44.00	90	0.10	0	1125000
422	MPA-CFLXP_2	MPA_P401	9.9766	-3.3047	7.35	10.60	5.20	6.00	96	80.00	44.00	90	1.00	0	1600000
423	MPA-CFLXP_2	MPA_P401	9.9766	-3.3047	7.35	10.60	5.20	6.00	96	80.00	44.00	90	10.00	0	2090000
424	MPA-CFLXP_2	MPA_P401	9.9766	-3.3047	7.35	10.60	5.20	6.00	96	80.00	44.00	90	25.00	0	2400000
425	MPA-CFLXP_2	MPA_P401	9.9766	-3.3047	7.35	10.60	5.20	6.00	96	80.00	44.00	30	0.10	40	502000
426	MPA-CFLXP_2	MPA_P401	9.9766	-3.3047	7.35	10.60	5.20	6.00	96	80.00	44.00	30	1.00	40	848000
427	MPA-CFLXP_2	MPA_P401	9.9766	-3.3047	7.35	10.60	5.20	6.00	96	80.00	44.00	30	10.00	40	1320000
428	MPA-CFLXP_2	MPA_P401	9.9766	-3.3047	7.35	10.60	5.20	6.00	96	80.00	44.00	30	25.00	40	1360000
429	MPA-CFLXP_2	MPA_P401	9.9766	-3.3047	7.35	10.60	5.20	6.00	96	80.00	44.00	30	0.10	70	127000
430	MPA-CFLXP_2	MPA_P401	9.9766	-3.3047	7.35	10.60	5.20	6.00	96	80.00	44.00	30	1.00	70	246000
431	MPA-CFLXP_2	MPA_P401	9.9766	-3.3047	7.35	10.60	5.20	6.00	96	80.00	44.00	30	10.00	70	520000
432	MPA-CFLXP_2	MPA_P401	9.9766	-3.3047	7.35	10.60	5.20	6.00	96	80.00	44.00	30	25.00	70	814000
433	MPA-CFLXP_2	MPA_P401	9.9766	-3.3047	7.35	10.60	5.20	6.00	96	80.00	44.00	30	0.10	100	63400
434	MPA-CFLXP_2	MPA_P401	9.9766	-3.3047	7.35	10.60	5.20	6.00	96	80.00	44.00	30	1.00	100	85550
435	MPA-CFLXP_2	MPA_P401	9.9766	-3.3047	7.35	10.60	5.20	6.00	96	80.00	44.00	30	10.00	100	150500
436	MPA-CFLXP_2	MPA_P401	9.9766	-3.3047	7.35	10.60	5.20	6.00	96	80.00	44.00	30	25.00	100	201000
437	MPA-CFLXP_2	MPA_P401	9.9766	-3.3047	7.35	10.60	5.20	6.00	96	80.00	44.00	8	0.10	130	23150
438	MPA-CFLXP_2	MPA_P401	9.9766	-3.3047	7.35	10.60	5.20	6.00	96	80.00	44.00	8	1.00	130	31800
439	MPA-CFLXP_2	MPA_P401	9.9766	-3.3047	7.35	10.60	5.20	6.00	96	80.00	44.00	8	10.00	130	54700

440	MPA-CFLXP_2	MPA_P401	9.9766	-3.3047	7.35	10.60	5.20	6.00	96	80.00	44.00	8	25.00	130	69650
441	MPA-CFLXS_1	MPA_SP2	9.9766	-3.3047	7.05	8.10	3.60	4.00	78	61.00	27.00	90	0.10	0	1545000
442	MPA-CFLXS_1	MPA_SP2	9.9766	-3.3047	7.05	8.10	3.60	4.00	78	61.00	27.00	90	1.00	0	2210000
443	MPA-CFLXS_1	MPA_SP2	9.9766	-3.3047	7.05	8.10	3.60	4.00	78	61.00	27.00	90	10.00	0	2760000
444	MPA-CFLXS_1	MPA_SP2	9.9766	-3.3047	7.05	8.10	3.60	4.00	78	61.00	27.00	90	25.00	0	3170000
445	MPA-CFLXS_1	MPA_SP2	9.9766	-3.3047	7.05	8.10	3.60	4.00	78	61.00	27.00	30	0.10	40	735500
446	MPA-CFLXS_1	MPA_SP2	9.9766	-3.3047	7.05	8.10	3.60	4.00	78	61.00	27.00	30	1.00	40	1150000
447	MPA-CFLXS_1	MPA_SP2	9.9766	-3.3047	7.05	8.10	3.60	4.00	78	61.00	27.00	30	10.00	40	1560000
448	MPA-CFLXS_1	MPA_SP2	9.9766	-3.3047	7.05	8.10	3.60	4.00	78	61.00	27.00	30	25.00	40	1655000
449	MPA-CFLXS_1	MPA_SP2	9.9766	-3.3047	7.05	8.10	3.60	4.00	78	61.00	27.00	30	0.10	70	198500
450	MPA-CFLXS_1	MPA_SP2	9.9766	-3.3047	7.05	8.10	3.60	4.00	78	61.00	27.00	30	1.00	70	359500
451	MPA-CFLXS_1	MPA_SP2	9.9766	-3.3047	7.05	8.10	3.60	4.00	78	61.00	27.00	30	10.00	70	689000
452	MPA-CFLXS_1	MPA_SP2	9.9766	-3.3047	7.05	8.10	3.60	4.00	78	61.00	27.00	30	25.00	70	845500
453	MPA-CFLXS_1	MPA_SP2	9.9766	-3.3047	7.05	8.10	3.60	4.00	78	61.00	27.00	30	0.10	100	92900
454	MPA-CFLXS_1	MPA_SP2	9.9766	-3.3047	7.05	8.10	3.60	4.00	78	61.00	27.00	30	1.00	100	131000
455	MPA-CFLXS_1	MPA_SP2	9.9766	-3.3047	7.05	8.10	3.60	4.00	78	61.00	27.00	30	10.00	100	232000
456	MPA-CFLXS_1	MPA_SP2	9.9766	-3.3047	7.05	8.10	3.60	4.00	78	61.00	27.00	30	25.00	100	311500
457	MPA-CFLXS_1	MPA_SP2	9.9766	-3.3047	7.05	8.10	3.60	4.00	78	61.00	27.00	8	0.10	130	41800
458	MPA-CFLXS_1	MPA_SP2	9.9766	-3.3047	7.05	8.10	3.60	4.00	78	61.00	27.00	8	1.00	130	60400
459	MPA-CFLXS_1	MPA_SP2	9.9766	-3.3047	7.05	8.10	3.60	4.00	78	61.00	27.00	8	10.00	130	111650
460	MPA-CFLXS_1	MPA_SP2	9.9766	-3.3047	7.05	8.10	3.60	4.00	78	61.00	27.00	8	25.00	130	143000
461	MPA-CFLXS_2	MPA_SP2	9.9766	-3.3047	7.45	10.30	4.60	4.00	78	61.00	27.00	90	0.10	0	1580000
462	MPA-CFLXS_2	MPA_SP2	9.9766	-3.3047	7.45	10.30	4.60	4.00	78	61.00	27.00	90	1.00	0	2200000
463	MPA-CFLXS_2	MPA_SP2	9.9766	-3.3047	7.45	10.30	4.60	4.00	78	61.00	27.00	90	10.00	0	2760000
464	MPA-CFLXS_2	MPA_SP2	9.9766	-3.3047	7.45	10.30	4.60	4.00	78	61.00	27.00	90	25.00	0	2990000
465	MPA-CFLXS_2	MPA_SP2	9.9766	-3.3047	7.45	10.30	4.60	4.00	78	61.00	27.00	30	0.10	40	762500

466	MPA-CFLXS_2	MPA_SP2	9.9766	-3.3047	7.45	10.30	4.60	4.00	78	61.00	27.00	30	1.00	40	1204000
467	MPA-CFLXS_2	MPA_SP2	9.9766	-3.3047	7.45	10.30	4.60	4.00	78	61.00	27.00	30	10.00	40	1815000
468	MPA-CFLXS_2	MPA_SP2	9.9766	-3.3047	7.45	10.30	4.60	4.00	78	61.00	27.00	30	25.00	40	1815000
469	MPA-CFLXS_2	MPA_SP2	9.9766	-3.3047	7.45	10.30	4.60	4.00	78	61.00	27.00	30	0.10	70	155500
470	MPA-CFLXS_2	MPA_SP2	9.9766	-3.3047	7.45	10.30	4.60	4.00	78	61.00	27.00	30	1.00	70	283500
471	MPA-CFLXS_2	MPA_SP2	9.9766	-3.3047	7.45	10.30	4.60	4.00	78	61.00	27.00	30	10.00	70	568000
472	MPA-CFLXS_2	MPA_SP2	9.9766	-3.3047	7.45	10.30	4.60	4.00	78	61.00	27.00	30	25.00	70	702000
473	MPA-CFLXS_2	MPA_SP2	9.9766	-3.3047	7.45	10.30	4.60	4.00	78	61.00	27.00	30	0.10	100	83300
474	MPA-CFLXS_2	MPA_SP2	9.9766	-3.3047	7.45	10.30	4.60	4.00	78	61.00	27.00	30	1.00	100	106800
475	MPA-CFLXS_2	MPA_SP2	9.9766	-3.3047	7.45	10.30	4.60	4.00	78	61.00	27.00	30	10.00	100	186500
476	MPA-CFLXS_2	MPA_SP2	9.9766	-3.3047	7.45	10.30	4.60	4.00	78	61.00	27.00	30	25.00	100	249500
477	MPA-CFLXS_2	MPA_SP2	9.9766	-3.3047	7.45	10.30	4.60	4.00	78	61.00	27.00	8	0.10	130	31550
478	MPA-CFLXS_2	MPA_SP2	9.9766	-3.3047	7.45	10.30	4.60	4.00	78	61.00	27.00	8	1.00	130	40500
479	MPA-CFLXS_2	MPA_SP2	9.9766	-3.3047	7.45	10.30	4.60	4.00	78	61.00	27.00	8	10.00	130	63850
480	MPA-CFLXS_2	MPA_SP2	9.9766	-3.3047	7.45	10.30	4.60	4.00	78	61.00	27.00	8	25.00	130	74350
481	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	90	0.10	0	2750000
482	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	90	0.50	0	3175000
483	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	90	1.00	0	3295000
484	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	90	5.00	0	3710000
485	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	90	10.00	0	3895000
486	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	90	25.00	0	3955000
487	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	30	0.10	40	1340000
488	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	30	0.50	40	1895000
489	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	30	1.00	40	2205000
490	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	30	5.00	40	2870000
491	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	30	10.00	40	3150000

492	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	30	25.00	40	3170000
493	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	30	0.10	70	216500
494	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	30	0.50	70	358500
495	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	30	1.00	70	458000
496	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	30	5.00	70	768500
497	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	30	10.00	70	963500
498	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	30	25.00	70	1135000
499	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	30	0.10	100	87900
500	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	30	0.50	100	117000
501	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	30	1.00	100	146000
502	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	30	5.00	100	256500
503	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	30	10.00	100	340500
504	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	30	25.00	100	505500
505	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	8	0.10	130	27150
506	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	8	0.50	130	34800
507	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	8	1.00	130	41950
508	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	8	5.00	130	66900
509	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	8	10.00	130	89700
510	MPACP_1	MPA_P401	11.1165	-3.7237	6.30	8.95	4.30	6.00	96	80.00	44.00	8	25.00	130	142500
511	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	90	0.10	0	2380000
512	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	90	0.50	0	2795000
513	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	90	1.00	0	3050000
514	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	90	5.00	0	3560000
515	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	90	10.00	0	3710000
516	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	90	25.00	0	3755000
517	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	30	0.10	40	1190000

518	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	30	0.50	40	1685000
519	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	30	1.00	40	1975000
520	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	30	5.00	40	2620000
521	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	30	10.00	40	2925000
522	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	30	25.00	40	2950000
523	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	30	0.10	70	329500
524	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	30	0.50	70	554500
525	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	30	1.00	70	693500
526	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	30	5.00	70	1015500
527	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	30	10.00	70	1155000
528	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	30	25.00	70	1265000
529	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	30	0.10	100	127150
530	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	30	0.50	100	161300
531	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	30	1.00	100	182000
532	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	30	5.00	100	296000
533	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	30	10.00	100	378000
534	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	30	25.00	100	514000
535	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	8	0.10	130	39200
536	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	8	0.50	130	45600
537	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	8	1.00	130	51000
538	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	8	5.00	130	72700
539	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	8	10.00	130	86200
540	MPACP_2	MPA_P401	11.1165	-3.7237	5.20	11.05	5.20	6.00	96	80.00	44.00	8	25.00	130	117700
541	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	90	0.10	0	2765000
542	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	90	0.50	0	2975000
543	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	90	1.00	0	3040000

544	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	90	5.00	0	3210000
545	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	90	10.00	0	3250000
546	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	90	25.00	0	3325000
547	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	30	0.10	40	1120000
548	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	30	0.50	40	1610000
549	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	30	1.00	40	1750000
550	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	30	5.00	40	2120000
551	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	30	10.00	40	2270000
552	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	30	25.00	40	2340000
553	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	30	0.10	70	240500
554	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	30	0.50	70	405000
555	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	30	1.00	70	510500
556	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	30	5.00	70	821000
557	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	30	10.00	70	996500
558	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	30	25.00	70	1200000
559	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	30	0.10	100	94400
560	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	30	0.50	100	134500
561	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	30	1.00	100	167500
562	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	30	5.00	100	336500
563	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	30	10.00	100	510000
564	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	30	25.00	100	938000
565	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	8	0.10	130	27100
566	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	8	0.50	130	35900
567	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	8	1.00	130	42800
568	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	8	5.00	130	68700
569	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	8	10.00	130	89600

570	MPACS_1	MPA_SP2	11.1165	-3.7237	6.10	7.80	3.60	4.00	78	61.00	27.00	8	25.00	130	143000
571	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	90	0.10	0	2060000
572	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	90	0.50	0	2405000
573	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	90	1.00	0	2450000
574	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	90	5.00	0	2670000
575	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	90	10.00	0	2740000
576	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	90	25.00	0	2875000
577	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	30	0.10	40	1085000
578	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	30	0.50	40	1450000
579	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	30	1.00	40	1620000
580	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	30	5.00	40	2095000
581	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	30	10.00	40	2280000
582	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	30	25.00	40	2590000
583	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	30	0.10	70	428000
584	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	30	0.50	70	680000
585	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	30	1.00	70	872000
586	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	30	5.00	70	1320000
587	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	30	10.00	70	1500000
588	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	30	25.00	70	2190000
589	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	30	0.10	100	64350
590	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	30	0.50	100	86000
591	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	30	1.00	100	105500
592	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	30	5.00	100	177000
593	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	30	10.00	100	234500
594	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	30	25.00	100	336500
595	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	8	0.10	130	31650

596	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	8	0.50	130	37600
597	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	8	1.00	130	43250
598	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	8	5.00	130	69000
599	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	8	10.00	130	97100
600	MPACS_2	MPA_SP2	11.1165	-3.7237	6.05	10.10	4.60	4.00	78	61.00	27.00	8	25.00	130	156500
601	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	90	0.10	0	2700000
602	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	90	0.50	0	3015000
603	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	90	1.00	0	3105000
604	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	90	5.00	0	3345000
605	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	90	10.00	0	3305000
606	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	90	25.00	0	3375000
607	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	30	0.10	40	919500
608	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	30	0.50	40	1275000
609	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	30	1.00	40	1470000
610	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	30	5.00	40	1795000
611	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	30	10.00	40	2095000
612	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	30	25.00	40	2335000
613	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	30	0.10	70	192000
614	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	30	0.50	70	302000
615	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	30	1.00	70	386000
616	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	30	5.00	70	586000
617	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	30	10.00	70	712000
618	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	30	25.00	70	942000
619	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	30	0.10	100	74800
620	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	30	0.50	100	98750
621	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	30	1.00	100	116500

622	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	30	5.00	100	188000
623	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	30	10.00	100	240000
624	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	30	25.00	100	351500
625	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	8	0.10	130	33100
626	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	8	0.50	130	39100
627	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	8	1.00	130	44000
628	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	8	5.00	130	62650
629	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	8	10.00	130	75600
630	MPAEP_1	MPA_P401	10.0817	-3.3472	7.60	10.65	5.20	6.00	96	80.00	44.00	8	25.00	130	99700
631	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	90	0.10	0	3330000
632	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	90	0.50	0	3505000
633	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	90	1.00	0	3520000
634	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	90	5.00	0	3650000
635	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	90	10.00	0	3585000
636	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	90	25.00	0	3575000
637	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	30	0.10	40	1069000
638	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	30	0.50	40	1425000
639	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	30	1.00	40	1585000
640	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	30	5.00	40	1980000
641	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	30	10.00	40	2175000
642	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	30	25.00	40	2345000
643	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	30	0.10	70	322500
644	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	30	0.50	70	507500
645	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	30	1.00	70	624000
646	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	30	5.00	70	963000
647	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	30	10.00	70	1130000

648	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	30	25.00	70	1340000
649	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	30	0.10	100	105650
650	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	30	0.50	100	143000
651	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	30	1.00	100	169000
652	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	30	5.00	100	270000
653	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	30	10.00	100	335000
654	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	30	25.00	100	442500
655	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	8	0.10	130	36550
656	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	8	0.50	130	45150
657	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	8	1.00	130	52700
658	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	8	5.00	130	78750
659	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	8	10.00	130	97550
660	MPAEP_2	MPA_P401	10.0817	-3.3472	7.25	8.70	4.30	6.00	96	80.00	44.00	8	25.00	130	128500
661	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	90	0.10	0	2380000
662	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	90	0.50	0	2575000
663	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	90	1.00	0	2710000
664	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	90	5.00	0	2940000
665	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	90	10.00	0	2905000
666	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	90	25.00	0	2860000
667	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	30	0.10	40	964000
668	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	30	0.50	40	1300000
669	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	30	1.00	40	1500000
670	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	30	5.00	40	1970000
671	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	30	10.00	40	2180000
672	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	30	25.00	40	2260000
673	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	30	0.10	70	163000

674	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	30	0.50	70	250500
675	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	30	1.00	70	308000
676	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	30	5.00	70	496500
677	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	30	10.00	70	606000
678	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	30	25.00	70	765000
679	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	30	0.10	100	67950
680	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	30	0.50	100	90550
681	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	30	1.00	100	106500
682	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	30	5.00	100	177000
683	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	30	10.00	100	215500
684	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	30	25.00	100	277000
685	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	8	0.10	130	31600
686	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	8	0.50	130	36900
687	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	8	1.00	130	40650
688	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	8	5.00	130	55550
689	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	8	10.00	130	66650
690	MPAES_1	MPA_SP2	10.0817	-3.3472	6.45	9.65	4.60	4.00	78	61.00	27.00	8	25.00	130	88900
691	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	90	0.10	0	2435000
692	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	90	0.50	0	2690000
693	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	90	1.00	0	2785000
694	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	90	5.00	0	3095000
695	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	90	10.00	0	3190000
696	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	90	25.00	0	3295000
697	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	30	0.10	40	853500
698	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	30	0.50	40	1115000
699	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	30	1.00	40	1280000

700	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	30	5.00	40	1595000
701	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	30	10.00	40	1755000
702	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	30	25.00	40	1930000
703	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	30	0.10	70	214500
704	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	30	0.50	70	337000
705	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	30	1.00	70	409000
706	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	30	5.00	70	642500
707	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	30	10.00	70	775500
708	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	30	25.00	70	953500
709	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	30	0.10	100	87900
710	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	30	0.50	100	112500
711	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	30	1.00	100	134000
712	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	30	5.00	100	213000
713	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	30	10.00	100	264000
714	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	30	25.00	100	367000
715	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	8	0.10	130	41450
716	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	8	0.50	130	48100
717	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	8	1.00	130	52000
718	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	8	5.00	130	68850
719	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	8	10.00	130	80650
720	MPAES_2	MPA_SP2	10.0817	-3.3472	7.30	7.30	3.60	4.00	78	61.00	27.00	8	25.00	130	100900
721	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	90	0.10	0	2185000
722	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	90	0.50	0	2520000
723	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	90	1.00	0	2675000
724	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	90	5.00	0	2945000
725	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	90	10.00	0	3070000

726	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	90	25.00	0	3185000
727	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	30	0.10	40	1400000
728	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	30	0.50	40	1865000
729	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	30	1.00	40	2030000
730	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	30	5.00	40	2640000
731	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	30	10.00	40	2890000
732	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	30	25.00	40	2865000
733	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	30	0.10	70	246500
734	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	30	0.50	70	385000
735	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	30	1.00	70	471500
736	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	30	5.00	70	732000
737	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	30	10.00	70	863000
738	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	30	25.00	70	1001500
739	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	30	0.10	100	105000
740	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	30	0.50	100	139500
741	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	30	1.00	100	169000
742	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	30	5.00	100	274000
743	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	30	10.00	100	345000
744	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	30	25.00	100	461500
745	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	8	0.10	130	38450
746	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	8	0.50	130	49250
747	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	8	1.00	130	56850
748	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	8	5.00	130	83350
749	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	8	10.00	130	92900
750	MPANP_1	MPA_P401	9.4761	-3.1180	6.50	9.50	4.30	6.00	96	80.00	44.00	8	25.00	130	136000
751	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	90	0.10	0	2170000

752	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	90	0.50	0	2465000
753	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	90	1.00	0	2580000
754	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	90	5.00	0	2880000
755	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	90	10.00	0	2995000
756	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	90	25.00	0	3070000
757	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	30	0.10	40	1235000
758	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	30	0.50	40	1505000
759	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	30	1.00	40	1695000
760	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	30	5.00	40	2095000
761	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	30	10.00	40	2280000
762	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	30	25.00	40	2430000
763	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	30	0.10	70	236000
764	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	30	0.50	70	375000
765	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	30	1.00	70	458000
766	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	30	5.00	70	724000
767	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	30	10.00	70	830000
768	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	30	25.00	70	990500
769	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	30	0.10	100	104500
770	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	30	0.50	100	144500
771	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	30	1.00	100	176500
772	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	30	5.00	100	286500
773	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	30	10.00	100	359500
774	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	30	25.00	100	464500
775	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	8	0.10	130	39200
776	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	8	0.50	130	48800
777	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	8	1.00	130	55300

778	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	8	5.00	130	81500
779	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	8	10.00	130	99300
780	MPANP_2	MPA_P401	9.4761	-3.1180	4.75	11.60	5.20	6.00	96	80.00	44.00	8	25.00	130	129500
781	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	90	0.10	0	2080000
782	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	90	0.50	0	2360000
783	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	90	1.00	0	2485000
784	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	90	5.00	0	2750000
785	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	90	10.00	0	2905000
786	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	90	25.00	0	3195000
787	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	30	0.10	40	1215000
788	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	30	0.50	40	1600000
789	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	30	1.00	40	1730000
790	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	30	5.00	40	2200000
791	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	30	10.00	40	2365000
792	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	30	25.00	40	2535000
793	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	30	0.10	70	213500
794	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	30	0.50	70	339500
795	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	30	1.00	70	417500
796	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	30	5.00	70	638000
797	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	30	10.00	70	760000
798	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	30	25.00	70	922000
799	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	30	0.10	100	110000
800	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	30	0.50	100	146500
801	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	30	1.00	100	172500
802	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	30	5.00	100	297500
803	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	30	10.00	100	334500

804	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	30	25.00	100	434500
805	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	8	0.10	130	66600
806	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	8	0.50	130	88950
807	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	8	1.00	130	120000
808	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	8	5.00	130	213500
809	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	8	10.00	130	214000
810	MPANS_1	MPA_SP2	9.4761	-3.1180	7.30	6.50	3.60	4.00	78	61.00	27.00	8	25.00	130	267000
811	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	90	0.10	0	2445000
812	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	90	0.50	0	2765000
813	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	90	1.00	0	2950000
814	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	90	5.00	0	3285000
815	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	90	10.00	0	3415000
816	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	90	25.00	0	3605000
817	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	30	0.10	40	1170000
818	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	30	0.50	40	1570000
819	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	30	1.00	40	1790000
820	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	30	5.00	40	2355000
821	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	30	10.00	40	2630000
822	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	30	25.00	40	2890000
823	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	30	0.10	70	268500
824	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	30	0.50	70	422000
825	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	30	1.00	70	526000
826	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	30	5.00	70	833500
827	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	30	10.00	70	1012000
828	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	30	25.00	70	1265000
829	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	30	0.10	100	105500

830	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	30	0.50	100	139500
831	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	30	1.00	100	166000
832	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	30	5.00	100	263000
833	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	30	10.00	100	332000
834	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	30	25.00	100	436000
835	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	8	0.10	130	47950
836	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	8	0.50	130	58700
837	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	8	1.00	130	65650
838	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	8	5.00	130	94150
839	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	8	10.00	130	113500
840	MPANS_2	MPA_SP2	9.4761	-3.1180	6.05	9.20	4.60	4.00	78	61.00	27.00	8	25.00	130	149000
841	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	90	0.10	0	2850000
842	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	90	0.50	0	3095000
843	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	90	1.00	0	3175000
844	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	90	5.00	0	3385000
845	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	90	10.00	0	3350000
846	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	90	25.00	0	3525000
847	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	30	0.10	40	983000
848	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	30	0.50	40	1330000
849	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	30	1.00	40	1495000
850	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	30	5.00	40	1895000
851	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	30	10.00	40	2055000
852	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	30	25.00	40	2170000
853	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	30	0.10	70	255500
854	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	30	0.50	70	405000
855	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	30	1.00	70	510500

856	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	30	5.00	70	809500
857	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	30	10.00	70	993000
858	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	30	25.00	70	1270000
859	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	30	0.10	100	91000
860	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	30	0.50	100	123000
861	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	30	1.00	100	148000
862	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	30	5.00	100	236500
863	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	30	10.00	100	298500
864	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	30	25.00	100	396000
865	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	8	0.10	130	30350
866	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	8	0.50	130	38400
867	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	8	1.00	130	44450
868	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	8	5.00	130	66600
869	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	8	10.00	130	81950
870	MPASP_1	MPA_P401	9.8616	-3.2598	6.95	8.95	4.30	6.00	96	80.00	44.00	8	25.00	130	109950
871	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	90	0.10	0	2985000
872	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	90	0.50	0	3205000
873	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	90	1.00	0	3310000
874	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	90	5.00	0	3530000
875	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	90	10.00	0	3675000
876	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	90	25.00	0	3620000
877	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	30	0.10	40	886000
878	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	30	0.50	40	1200000
879	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	30	1.00	40	1325000
880	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	30	5.00	40	1695000
881	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	30	10.00	40	1840000

882	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	30	25.00	40	1970000
883	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	30	0.10	70	231500
884	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	30	0.50	70	376000
885	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	30	1.00	70	461500
886	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	30	5.00	70	723000
887	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	30	10.00	70	869500
888	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	30	25.00	70	1046500
889	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	30	0.10	100	83950
890	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	30	0.50	100	114950
891	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	30	1.00	100	139000
892	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	30	5.00	100	229500
893	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	30	10.00	100	292500
894	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	30	25.00	100	395000
895	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	8	0.10	130	35250
896	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	8	0.50	130	43400
897	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	8	1.00	130	49750
898	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	8	5.00	130	72800
899	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	8	10.00	130	89800
900	MPASP_2	MPA_P401	9.8616	-3.2598	5.50	11.10	5.20	6.00	96	80.00	44.00	8	25.00	130	125000
901	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	90	0.10	0	3140000
902	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	90	0.50	0	3430000
903	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	90	1.00	0	3540000
904	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	90	5.00	0	3765000
905	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	90	10.00	0	3930000
906	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	90	25.00	0	3875000
907	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	30	0.10	40	1160000

908	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	30	0.50	40	1580000
909	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	30	1.00	40	1800000
910	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	30	5.00	40	2385000
911	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	30	10.00	40	2655000
912	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	30	25.00	40	2800000
913	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	30	0.10	70	252000
914	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	30	0.50	70	395500
915	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	30	1.00	70	483500
916	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	30	5.00	70	760500
917	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	30	10.00	70	927500
918	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	30	25.00	70	1160000
919	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	30	0.10	100	110500
920	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	30	0.50	100	146500
921	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	30	1.00	100	172000
922	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	30	5.00	100	267500
923	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	30	10.00	100	335500
924	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	30	25.00	100	447000
925	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	8	0.10	130	45500
926	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	8	0.50	130	53350
927	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	8	1.00	130	60000
928	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	8	5.00	130	81950
929	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	8	10.00	130	97300
930	MPASS_1	MPA_SP2	9.8616	-3.2598	5.60	7.70	3.60	4.00	78	61.00	27.00	8	25.00	130	127000
931	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	90	0.10	0	2460000
932	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	90	0.50	0	2750000
933	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	90	1.00	0	2810000

934	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	90	5.00	0	3140000
935	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	90	10.00	0	3295000
936	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	90	25.00	0	3375000
937	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	30	0.10	40	1016000
938	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	30	0.50	40	1410000
939	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	30	1.00	40	1515000
940	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	30	5.00	40	2000000
941	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	30	10.00	40	2140000
942	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	30	25.00	40	2595000
943	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	30	0.10	70	196500
944	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	30	0.50	70	311000
945	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	30	1.00	70	386000
946	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	30	5.00	70	613000
947	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	30	10.00	70	745500
948	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	30	25.00	70	926500
949	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	30	0.10	100	100150
950	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	30	0.50	100	132000
951	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	30	1.00	100	158500
952	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	30	5.00	100	253000
953	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	30	10.00	100	315000
954	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	30	25.00	100	414000
955	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	8	0.10	130	34200
956	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	8	0.50	130	40950
957	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	8	1.00	130	48350
958	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	8	5.00	130	68000
959	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	8	10.00	130	82200

960	MPASS_2	MPA_SP2	9.8616	-3.2598	5.10	9.95	4.60	4.00	78	61.00	27.00	8	25.00	130	108500
961	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	90	0.10	0	3090000
962	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	90	0.50	0	3440000
963	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	90	1.00	0	3465000
964	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	90	5.00	0	3675000
965	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	90	10.00	0	3700000
966	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	90	25.00	0	3715000
967	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	30	0.10	40	1230000
968	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	30	0.50	40	1670000
969	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	30	1.00	40	1775000
970	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	30	5.00	40	2140000
971	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	30	10.00	40	2335000
972	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	30	25.00	40	2380000
973	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	30	0.10	70	423500
974	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	30	0.50	70	696000
975	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	30	1.00	70	851000
976	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	30	5.00	70	1280000
977	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	30	10.00	70	1535000
978	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	30	25.00	70	1855000
979	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	30	0.10	100	140900
980	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	30	0.50	100	194500
981	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	30	1.00	100	259000
982	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	30	5.00	100	454000
983	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	30	10.00	100	606500
984	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	30	25.00	100	751500
985	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	8	0.10	130	66200

986	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	8	0.50	130	86400
987	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	8	1.00	130	103200
988	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	8	5.00	130	156500
989	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	8	10.00	130	196000
990	MPATP_1	MPA_P401	10.8338	-3.6174	5.70	11.65	5.20	6.00	96	80.00	44.00	8	25.00	130	273500
991	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	90	0.10	0	3255000
992	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	90	0.50	0	3470000
993	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	90	1.00	0	3605000
994	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	90	5.00	0	3685000
995	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	90	10.00	0	3700000
996	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	90	25.00	0	3615000
997	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	30	0.10	40	1163500
998	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	30	0.50	40	1870000
999	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	30	1.00	40	1940000
1000	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	30	5.00	40	2305000
1001	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	30	10.00	40	2435000
1002	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	30	25.00	40	2540000
1003	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	30	0.10	70	387500
1004	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	30	0.50	70	594000
1005	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	30	1.00	70	734500
1006	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	30	5.00	70	1068500
1007	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	30	10.00	70	1255000
1008	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	30	25.00	70	1450000
1009	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	30	0.10	100	82000
1010	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	30	0.50	100	122500
1011	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	30	1.00	100	156500

1012	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	30	5.00	100	280500
1013	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	30	10.00	100	368500
1014	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	30	25.00	100	499000
1015	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	8	0.10	130	44400
1016	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	8	0.50	130	61850
1017	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	8	1.00	130	78300
1018	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	8	5.00	130	133650
1019	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	8	10.00	130	180000
1020	MPATP_2	MPA_P401	10.8338	-3.6174	5.35	9.85	4.30	6.00	96	80.00	44.00	8	25.00	130	247500
1021	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	90	0.10	0	2880000
1022	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	90	0.50	0	3110000
1023	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	90	1.00	0	3185000
1024	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	90	5.00	0	3350000
1025	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	90	10.00	0	3440000
1026	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	90	25.00	0	3440000
1027	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	30	0.10	40	1310000
1028	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	30	0.50	40	1785000
1029	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	30	1.00	40	1980000
1030	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	30	5.00	40	2475000
1031	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	30	10.00	40	2560000
1032	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	30	25.00	40	2660000
1033	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	30	0.10	70	291500
1034	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	30	0.50	70	500500
1035	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	30	1.00	70	643500
1036	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	30	5.00	70	1040500
1037	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	30	10.00	70	1270000

1038	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	30	25.00	70	1585000
1039	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	30	0.10	100	121000
1040	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	30	0.50	100	164750
1041	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	30	1.00	100	203500
1042	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	30	5.00	100	356500
1043	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	30	10.00	100	479500
1044	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	30	25.00	100	674000
1045	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	8	0.10	130	35000
1046	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	8	0.50	130	41150
1047	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	8	1.00	130	48950
1048	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	8	5.00	130	66450
1049	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	8	10.00	130	87350
1050	MPATS_1	MPA_SP2	10.8338	-3.6174	5.50	9.90	4.60	4.00	78	61.00	27.00	8	25.00	130	135500
1051	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	90	0.10	0	2710000
1052	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	90	0.50	0	3055000
1053	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	90	1.00	0	3215000
1054	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	90	5.00	0	3535000
1055	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	90	10.00	0	3640000
1056	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	90	25.00	0	3735000
1057	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	30	0.10	40	1295500
1058	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	30	0.50	40	1745000
1059	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	30	1.00	40	1975000
1060	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	30	5.00	40	2495000
1061	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	30	10.00	40	2590000
1062	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	30	25.00	40	2920000
1063	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	30	0.10	70	499500

1064	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	30	0.50	70	771500
1065	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	30	1.00	70	942000
1066	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	30	5.00	70	1530000
1067	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	30	10.00	70	1845000
1068	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	30	25.00	70	2265000
1069	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	30	0.10	100	169200
1070	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	30	0.50	100	230000
1071	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	30	1.00	100	314000
1072	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	30	5.00	100	589500
1073	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	30	10.00	100	801500
1074	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	30	25.00	100	1249500
1075	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	8	0.10	130	38150
1076	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	8	0.50	130	47950
1077	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	8	1.00	130	56250
1078	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	8	5.00	130	89400
1079	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	8	10.00	130	113100
1080	MPATS_2	MPA_SP2	10.8338	-3.6174	5.65	7.80	3.60	4.00	78	61.00	27.00	8	25.00	130	163500
1081	XD1	MODT(1)	10.7260	-3.5960	3.95	10.24	5.00	3.30	100	96.00	58.40	100	0.10	0	1560000
1082	XD1	MODT(1)	10.7260	-3.5960	3.95	10.24	5.00	3.30	100	96.00	58.40	100	1.00	0	2095000
1083	XD1	MODT(1)	10.7260	-3.5960	3.95	10.24	5.00	3.30	100	96.00	58.40	100	10.00	0	2580000
1084	XD1	MODT(1)	10.7260	-3.5960	3.95	10.24	5.00	3.30	100	96.00	58.40	100	25.00	0	2690000
1085	XD1	MODT(1)	10.7260	-3.5960	3.95	10.24	5.00	3.30	100	96.00	58.40	35	0.10	40	1110000
1086	XD1	MODT(1)	10.7260	-3.5960	3.95	10.24	5.00	3.30	100	96.00	58.40	35	1.00	40	1465000
1087	XD1	MODT(1)	10.7260	-3.5960	3.95	10.24	5.00	3.30	100	96.00	58.40	35	10.00	40	2115000
1088	XD1	MODT(1)	10.7260	-3.5960	3.95	10.24	5.00	3.30	100	96.00	58.40	35	25.00	40	2400000
1089	XD1	MODT(1)	10.7260	-3.5960	3.95	10.24	5.00	3.30	100	96.00	58.40	35	0.10	70	324500

1090	XD1	MODT(1)	10.7260	-3.5960	3.95	10.24	5.00	3.30	100	96.00	58.40	35	1.00	70	563500
1091	XD1	MODT(1)	10.7260	-3.5960	3.95	10.24	5.00	3.30	100	96.00	58.40	35	10.00	70	945500
1092	XD1	MODT(1)	10.7260	-3.5960	3.95	10.24	5.00	3.30	100	96.00	58.40	35	25.00	70	1075000
1093	XD1	MODT(1)	10.7260	-3.5960	3.95	10.24	5.00	3.30	100	96.00	58.40	35	0.10	100	112500
1094	XD1	MODT(1)	10.7260	-3.5960	3.95	10.24	5.00	3.30	100	96.00	58.40	35	1.00	100	173000
1095	XD1	MODT(1)	10.7260	-3.5960	3.95	10.24	5.00	3.30	100	96.00	58.40	35	10.00	100	329000
1096	XD1	MODT(1)	10.7260	-3.5960	3.95	10.24	5.00	3.30	100	96.00	58.40	35	25.00	100	432000
1097	XD1	MODT(1)	10.7260	-3.5960	3.95	10.24	5.00	3.30	100	96.00	58.40	10	0.10	130	31400
1098	XD1	MODT(1)	10.7260	-3.5960	3.95	10.24	5.00	3.30	100	96.00	58.40	10	1.00	130	57500
1099	XD1	MODT(1)	10.7260	-3.5960	3.95	10.24	5.00	3.30	100	96.00	58.40	10	10.00	130	120000
1100	XD1	MODT(1)	10.7260	-3.5960	3.95	10.24	5.00	3.30	100	96.00	58.40	10	25.00	130	162500
1101	XD11	MODT(1)	10.7260	-3.5960	6.35	10.02	5.00	3.30	100	96.00	58.40	100	0.10	0	914500
1102	XD11	MODT(1)	10.7260	-3.5960	6.35	10.02	5.00	3.30	100	96.00	58.40	100	1.00	0	1300000
1103	XD11	MODT(1)	10.7260	-3.5960	6.35	10.02	5.00	3.30	100	96.00	58.40	100	10.00	0	1760000
1104	XD11	MODT(1)	10.7260	-3.5960	6.35	10.02	5.00	3.30	100	96.00	58.40	100	25.00	0	1915000
1105	XD11	MODT(1)	10.7260	-3.5960	6.35	10.02	5.00	3.30	100	96.00	58.40	35	0.10	40	510500
1106	XD11	MODT(1)	10.7260	-3.5960	6.35	10.02	5.00	3.30	100	96.00	58.40	35	1.00	40	830500
1107	XD11	MODT(1)	10.7260	-3.5960	6.35	10.02	5.00	3.30	100	96.00	58.40	35	10.00	40	1250000
1108	XD11	MODT(1)	10.7260	-3.5960	6.35	10.02	5.00	3.30	100	96.00	58.40	35	25.00	40	1385000
1109	XD11	MODT(1)	10.7260	-3.5960	6.35	10.02	5.00	3.30	100	96.00	58.40	35	0.10	70	162000
1110	XD11	MODT(1)	10.7260	-3.5960	6.35	10.02	5.00	3.30	100	96.00	58.40	35	1.00	70	311500
1111	XD11	MODT(1)	10.7260	-3.5960	6.35	10.02	5.00	3.30	100	96.00	58.40	35	10.00	70	586500
1112	XD11	MODT(1)	10.7260	-3.5960	6.35	10.02	5.00	3.30	100	96.00	58.40	35	25.00	70	710000
1113	XD11	MODT(1)	10.7260	-3.5960	6.35	10.02	5.00	3.30	100	96.00	58.40	35	0.10	100	65400
1114	XD11	MODT(1)	10.7260	-3.5960	6.35	10.02	5.00	3.30	100	96.00	58.40	35	1.00	100	87350
1115	XD11	MODT(1)	10.7260	-3.5960	6.35	10.02	5.00	3.30	100	96.00	58.40	35	10.00	100	152000

1116	XD11	MODT(1)	10.7260	-3.5960	6.35	10.02	5.00	3.30	100	96.00	58.40	35	25.00	100	201000
1117	XD11	MODT(1)	10.7260	-3.5960	6.35	10.02	5.00	3.30	100	96.00	58.40	10	0.10	130	18100
1118	XD11	MODT(1)	10.7260	-3.5960	6.35	10.02	5.00	3.30	100	96.00	58.40	10	1.00	130	27800
1119	XD11	MODT(1)	10.7260	-3.5960	6.35	10.02	5.00	3.30	100	96.00	58.40	10	10.00	130	51150
1120	XD11	MODT(1)	10.7260	-3.5960	6.35	10.02	5.00	3.30	100	96.00	58.40	10	25.00	130	69850
1121	XD13	MODT(1)	9.4932	-3.1424	5.55	10.73	5.40	3.30	100	96.00	58.40	100	0.10	0	1135000
1122	XD13	MODT(1)	9.4932	-3.1424	5.55	10.73	5.40	3.30	100	96.00	58.40	100	1.00	0	1470000
1123	XD13	MODT(1)	9.4932	-3.1424	5.55	10.73	5.40	3.30	100	96.00	58.40	100	10.00	0	1785000
1124	XD13	MODT(1)	9.4932	-3.1424	5.55	10.73	5.40	3.30	100	96.00	58.40	100	25.00	0	1875000
1125	XD13	MODT(1)	9.4932	-3.1424	5.55	10.73	5.40	3.30	100	96.00	58.40	35	0.10	40	999000
1126	XD13	MODT(1)	9.4932	-3.1424	5.55	10.73	5.40	3.30	100	96.00	58.40	35	1.00	40	1475000
1127	XD13	MODT(1)	9.4932	-3.1424	5.55	10.73	5.40	3.30	100	96.00	58.40	35	10.00	40	2085000
1128	XD13	MODT(1)	9.4932	-3.1424	5.55	10.73	5.40	3.30	100	96.00	58.40	35	25.00	40	2155000
1129	XD13	MODT(1)	9.4932	-3.1424	5.55	10.73	5.40	3.30	100	96.00	58.40	35	0.10	70	267500
1130	XD13	MODT(1)	9.4932	-3.1424	5.55	10.73	5.40	3.30	100	96.00	58.40	35	1.00	70	427500
1131	XD13	MODT(1)	9.4932	-3.1424	5.55	10.73	5.40	3.30	100	96.00	58.40	35	10.00	70	912000
1132	XD13	MODT(1)	9.4932	-3.1424	5.55	10.73	5.40	3.30	100	96.00	58.40	35	25.00	70	1101000
1133	XD13	MODT(1)	9.4932	-3.1424	5.55	10.73	5.40	3.30	100	96.00	58.40	35	0.10	100	82350
1134	XD13	MODT(1)	9.4932	-3.1424	5.55	10.73	5.40	3.30	100	96.00	58.40	35	1.00	100	122500
1135	XD13	MODT(1)	9.4932	-3.1424	5.55	10.73	5.40	3.30	100	96.00	58.40	35	10.00	100	237500
1136	XD13	MODT(1)	9.4932	-3.1424	5.55	10.73	5.40	3.30	100	96.00	58.40	35	25.00	100	321000
1137	XD13	MODT(1)	9.4932	-3.1424	5.55	10.73	5.40	3.30	100	96.00	58.40	10	0.10	130	16500
1138	XD13	MODT(1)	9.4932	-3.1424	5.55	10.73	5.40	3.30	100	96.00	58.40	10	1.00	130	27200
1139	XD13	MODT(1)	9.4932	-3.1424	5.55	10.73	5.40	3.30	100	96.00	58.40	10	10.00	130	53800
1140	XD13	MODT(1)	9.4932	-3.1424	5.55	10.73	5.40	3.30	100	96.00	58.40	10	25.00	130	72850
1141	XD15	MODT(1)	9.4932	-3.1424	2.20	11.05	5.40	3.30	100	96.00	58.40	100	0.10	0	1715000

1142	XD15	MODT(1)	9.4932	-3.1424	2.20	11.05	5.40	3.30	100	96.00	58.40	100	1.00	0	1930000
1143	XD15	MODT(1)	9.4932	-3.1424	2.20	11.05	5.40	3.30	100	96.00	58.40	100	10.00	0	2510000
1144	XD15	MODT(1)	9.4932	-3.1424	2.20	11.05	5.40	3.30	100	96.00	58.40	100	25.00	0	2665000
1145	XD15	MODT(1)	9.4932	-3.1424	2.20	11.05	5.40	3.30	100	96.00	58.40	35	0.10	40	1200000
1146	XD15	MODT(1)	9.4932	-3.1424	2.20	11.05	5.40	3.30	100	96.00	58.40	35	1.00	40	1730000
1147	XD15	MODT(1)	9.4932	-3.1424	2.20	11.05	5.40	3.30	100	96.00	58.40	35	10.00	40	2235000
1148	XD15	MODT(1)	9.4932	-3.1424	2.20	11.05	5.40	3.30	100	96.00	58.40	35	25.00	40	2530000
1149	XD15	MODT(1)	9.4932	-3.1424	2.20	11.05	5.40	3.30	100	96.00	58.40	35	0.10	70	365500
1150	XD15	MODT(1)	9.4932	-3.1424	2.20	11.05	5.40	3.30	100	96.00	58.40	35	1.00	70	691500
1151	XD15	MODT(1)	9.4932	-3.1424	2.20	11.05	5.40	3.30	100	96.00	58.40	35	10.00	70	1190000
1152	XD15	MODT(1)	9.4932	-3.1424	2.20	11.05	5.40	3.30	100	96.00	58.40	35	25.00	70	1405000
1153	XD15	MODT(1)	9.4932	-3.1424	2.20	11.05	5.40	3.30	100	96.00	58.40	35	0.10	100	104250
1154	XD15	MODT(1)	9.4932	-3.1424	2.20	11.05	5.40	3.30	100	96.00	58.40	35	1.00	100	166500
1155	XD15	MODT(1)	9.4932	-3.1424	2.20	11.05	5.40	3.30	100	96.00	58.40	35	10.00	100	340000
1156	XD15	MODT(1)	9.4932	-3.1424	2.20	11.05	5.40	3.30	100	96.00	58.40	35	25.00	100	465000
1157	XD15	MODT(1)	9.4932	-3.1424	2.20	11.05	5.40	3.30	100	96.00	58.40	10	0.10	130	25150
1158	XD15	MODT(1)	9.4932	-3.1424	2.20	11.05	5.40	3.30	100	96.00	58.40	10	1.00	130	39600
1159	XD15	MODT(1)	9.4932	-3.1424	2.20	11.05	5.40	3.30	100	96.00	58.40	10	10.00	130	81600
1160	XD15	MODT(1)	9.4932	-3.1424	2.20	11.05	5.40	3.30	100	96.00	58.40	10	25.00	130	111500
1161	XD17	MODT(1)	9.4932	-3.1424	2.65	11.01	5.40	3.30	100	96.00	58.40	100	0.10	0	895000
1162	XD17	MODT(1)	9.4932	-3.1424	2.65	11.01	5.40	3.30	100	96.00	58.40	100	1.00	0	1305000
1163	XD17	MODT(1)	9.4932	-3.1424	2.65	11.01	5.40	3.30	100	96.00	58.40	100	10.00	0	1750000
1164	XD17	MODT(1)	9.4932	-3.1424	2.65	11.01	5.40	3.30	100	96.00	58.40	100	25.00	0	1985000
1165	XD17	MODT(1)	9.4932	-3.1424	2.65	11.01	5.40	3.30	100	96.00	58.40	35	0.10	40	1073500
1166	XD17	MODT(1)	9.4932	-3.1424	2.65	11.01	5.40	3.30	100	96.00	58.40	35	1.00	40	1520000
1167	XD17	MODT(1)	9.4932	-3.1424	2.65	11.01	5.40	3.30	100	96.00	58.40	35	10.00	40	2050000

1168	XD17	MODT(1)	9.4932	-3.1424	2.65	11.01	5.40	3.30	100	96.00	58.40	35	25.00	40	2090000
1169	XD17	MODT(1)	9.4932	-3.1424	2.65	11.01	5.40	3.30	100	96.00	58.40	35	0.10	70	257000
1170	XD17	MODT(1)	9.4932	-3.1424	2.65	11.01	5.40	3.30	100	96.00	58.40	35	1.00	70	515000
1171	XD17	MODT(1)	9.4932	-3.1424	2.65	11.01	5.40	3.30	100	96.00	58.40	35	10.00	70	955000
1172	XD17	MODT(1)	9.4932	-3.1424	2.65	11.01	5.40	3.30	100	96.00	58.40	35	25.00	70	1155000
1173	XD17	MODT(1)	9.4932	-3.1424	2.65	11.01	5.40	3.30	100	96.00	58.40	35	0.10	100	79100
1174	XD17	MODT(1)	9.4932	-3.1424	2.65	11.01	5.40	3.30	100	96.00	58.40	35	1.00	100	114500
1175	XD17	MODT(1)	9.4932	-3.1424	2.65	11.01	5.40	3.30	100	96.00	58.40	35	10.00	100	225000
1176	XD17	MODT(1)	9.4932	-3.1424	2.65	11.01	5.40	3.30	100	96.00	58.40	35	25.00	100	318500
1177	XD17	MODT(1)	9.4932	-3.1424	2.65	11.01	5.40	3.30	100	96.00	58.40	10	0.10	130	22050
1178	XD17	MODT(1)	9.4932	-3.1424	2.65	11.01	5.40	3.30	100	96.00	58.40	10	1.00	130	32700
1179	XD17	MODT(1)	9.4932	-3.1424	2.65	11.01	5.40	3.30	100	96.00	58.40	10	10.00	130	63850
1180	XD17	MODT(1)	9.4932	-3.1424	2.65	11.01	5.40	3.30	100	96.00	58.40	10	25.00	130	83150
1181	XD19	MODT(1)	9.4932	-3.1424	4.55	12.43	6.40	3.30	100	96.00	58.40	100	0.10	0	1023500
1182	XD19	MODT(1)	9.4932	-3.1424	4.55	12.43	6.40	3.30	100	96.00	58.40	100	1.00	0	1435000
1183	XD19	MODT(1)	9.4932	-3.1424	4.55	12.43	6.40	3.30	100	96.00	58.40	100	10.00	0	1885000
1184	XD19	MODT(1)	9.4932	-3.1424	4.55	12.43	6.40	3.30	100	96.00	58.40	100	25.00	0	2050000
1185	XD19	MODT(1)	9.4932	-3.1424	4.55	12.43	6.40	3.30	100	96.00	58.40	35	0.10	40	560500
1186	XD19	MODT(1)	9.4932	-3.1424	4.55	12.43	6.40	3.30	100	96.00	58.40	35	1.00	40	927500
1187	XD19	MODT(1)	9.4932	-3.1424	4.55	12.43	6.40	3.30	100	96.00	58.40	35	10.00	40	1400000
1188	XD19	MODT(1)	9.4932	-3.1424	4.55	12.43	6.40	3.30	100	96.00	58.40	35	25.00	40	1505000
1189	XD19	MODT(1)	9.4932	-3.1424	4.55	12.43	6.40	3.30	100	96.00	58.40	35	0.10	70	159000
1190	XD19	MODT(1)	9.4932	-3.1424	4.55	12.43	6.40	3.30	100	96.00	58.40	35	1.00	70	311000
1191	XD19	MODT(1)	9.4932	-3.1424	4.55	12.43	6.40	3.30	100	96.00	58.40	35	10.00	70	601000
1192	XD19	MODT(1)	9.4932	-3.1424	4.55	12.43	6.40	3.30	100	96.00	58.40	35	25.00	70	734000
1193	XD19	MODT(1)	9.4932	-3.1424	4.55	12.43	6.40	3.30	100	96.00	58.40	35	0.10	100	59050

1194	XD19	MODT(1)	9.4932	-3.1424	4.55	12.43	6.40	3.30	100	96.00	58.40	35	1.00	100	78050
1195	XD19	MODT(1)	9.4932	-3.1424	4.55	12.43	6.40	3.30	100	96.00	58.40	35	10.00	100	136000
1196	XD19	MODT(1)	9.4932	-3.1424	4.55	12.43	6.40	3.30	100	96.00	58.40	35	25.00	100	182000
1197	XD19	MODT(1)	9.4932	-3.1424	4.55	12.43	6.40	3.30	100	96.00	58.40	10	0.10	130	16400
1198	XD19	MODT(1)	9.4932	-3.1424	4.55	12.43	6.40	3.30	100	96.00	58.40	10	1.00	130	23200
1199	XD19	MODT(1)	9.4932	-3.1424	4.55	12.43	6.40	3.30	100	96.00	58.40	10	10.00	130	39800
1200	XD19	MODT(1)	9.4932	-3.1424	4.55	12.43	6.40	3.30	100	96.00	58.40	10	25.00	130	49400
1201	XD21	MODT(1)	9.4932	-3.1424	4.20	12.46	6.40	3.30	100	96.00	58.40	100	0.10	0	1295000
1202	XD21	MODT(1)	9.4932	-3.1424	4.20	12.46	6.40	3.30	100	96.00	58.40	100	1.00	0	1725000
1203	XD21	MODT(1)	9.4932	-3.1424	4.20	12.46	6.40	3.30	100	96.00	58.40	100	10.00	0	2210000
1204	XD21	MODT(1)	9.4932	-3.1424	4.20	12.46	6.40	3.30	100	96.00	58.40	100	25.00	0	2480000
1205	XD21	MODT(1)	9.4932	-3.1424	4.20	12.46	6.40	3.30	100	96.00	58.40	35	0.10	40	670500
1206	XD21	MODT(1)	9.4932	-3.1424	4.20	12.46	6.40	3.30	100	96.00	58.40	35	1.00	40	1095000
1207	XD21	MODT(1)	9.4932	-3.1424	4.20	12.46	6.40	3.30	100	96.00	58.40	35	10.00	40	1645000
1208	XD21	MODT(1)	9.4932	-3.1424	4.20	12.46	6.40	3.30	100	96.00	58.40	35	25.00	40	1780000
1209	XD21	MODT(1)	9.4932	-3.1424	4.20	12.46	6.40	3.30	100	96.00	58.40	35	0.10	70	171500
1210	XD21	MODT(1)	9.4932	-3.1424	4.20	12.46	6.40	3.30	100	96.00	58.40	35	1.00	70	342000
1211	XD21	MODT(1)	9.4932	-3.1424	4.20	12.46	6.40	3.30	100	96.00	58.40	35	10.00	70	660000
1212	XD21	MODT(1)	9.4932	-3.1424	4.20	12.46	6.40	3.30	100	96.00	58.40	35	25.00	70	812000
1213	XD21	MODT(1)	9.4932	-3.1424	4.20	12.46	6.40	3.30	100	96.00	58.40	35	0.10	100	62250
1214	XD21	MODT(1)	9.4932	-3.1424	4.20	12.46	6.40	3.30	100	96.00	58.40	35	1.00	100	85650
1215	XD21	MODT(1)	9.4932	-3.1424	4.20	12.46	6.40	3.30	100	96.00	58.40	35	10.00	100	156500
1216	XD21	MODT(1)	9.4932	-3.1424	4.20	12.46	6.40	3.30	100	96.00	58.40	35	25.00	100	214500
1217	XD21	MODT(1)	9.4932	-3.1424	4.20	12.46	6.40	3.30	100	96.00	58.40	10	0.10	130	12700
1218	XD21	MODT(1)	9.4932	-3.1424	4.20	12.46	6.40	3.30	100	96.00	58.40	10	1.00	130	19850
1219	XD21	MODT(1)	9.4932	-3.1424	4.20	12.46	6.40	3.30	100	96.00	58.40	10	10.00	130	39500

1220	XD21	MODT(1)	9.4932	-3.1424	4.20	12.46	6.40	3.30	100	96.00	58.40	10	25.00	130	46250
1221	XD23	MODT(1)	9.4932	-3.1424	1.90	12.68	6.40	3.30	100	96.00	58.40	100	0.10	0	1335000
1222	XD23	MODT(1)	9.4932	-3.1424	1.90	12.68	6.40	3.30	100	96.00	58.40	100	1.00	0	1775000
1223	XD23	MODT(1)	9.4932	-3.1424	1.90	12.68	6.40	3.30	100	96.00	58.40	100	10.00	0	2235000
1224	XD23	MODT(1)	9.4932	-3.1424	1.90	12.68	6.40	3.30	100	96.00	58.40	100	25.00	0	2470000
1225	XD23	MODT(1)	9.4932	-3.1424	1.90	12.68	6.40	3.30	100	96.00	58.40	35	0.10	40	856000
1226	XD23	MODT(1)	9.4932	-3.1424	1.90	12.68	6.40	3.30	100	96.00	58.40	35	1.00	40	1260000
1227	XD23	MODT(1)	9.4932	-3.1424	1.90	12.68	6.40	3.30	100	96.00	58.40	35	10.00	40	1800000
1228	XD23	MODT(1)	9.4932	-3.1424	1.90	12.68	6.40	3.30	100	96.00	58.40	35	25.00	40	2000000
1229	XD23	MODT(1)	9.4932	-3.1424	1.90	12.68	6.40	3.30	100	96.00	58.40	35	0.10	70	207000
1230	XD23	MODT(1)	9.4932	-3.1424	1.90	12.68	6.40	3.30	100	96.00	58.40	35	1.00	70	423000
1231	XD23	MODT(1)	9.4932	-3.1424	1.90	12.68	6.40	3.30	100	96.00	58.40	35	10.00	70	791000
1232	XD23	MODT(1)	9.4932	-3.1424	1.90	12.68	6.40	3.30	100	96.00	58.40	35	25.00	70	950500
1233	XD23	MODT(1)	9.4932	-3.1424	1.90	12.68	6.40	3.30	100	96.00	58.40	35	0.10	100	72600
1234	XD23	MODT(1)	9.4932	-3.1424	1.90	12.68	6.40	3.30	100	96.00	58.40	35	1.00	100	106250
1235	XD23	MODT(1)	9.4932	-3.1424	1.90	12.68	6.40	3.30	100	96.00	58.40	35	10.00	100	211500
1236	XD23	MODT(1)	9.4932	-3.1424	1.90	12.68	6.40	3.30	100	96.00	58.40	35	25.00	100	294000
1237	XD23	MODT(1)	9.4932	-3.1424	1.90	12.68	6.40	3.30	100	96.00	58.40	10	0.10	130	17000
1238	XD23	MODT(1)	9.4932	-3.1424	1.90	12.68	6.40	3.30	100	96.00	58.40	10	1.00	130	27000
1239	XD23	MODT(1)	9.4932	-3.1424	1.90	12.68	6.40	3.30	100	96.00	58.40	10	10.00	130	51700
1240	XD23	MODT(1)	9.4932	-3.1424	1.90	12.68	6.40	3.30	100	96.00	58.40	10	25.00	130	69100
1241	XD3	MODT(1)	10.7260	-3.5960	2.75	10.36	5.00	3.30	100	96.00	58.40	100	0.10	0	1380000
1242	XD3	MODT(1)	10.7260	-3.5960	2.75	10.36	5.00	3.30	100	96.00	58.40	100	1.00	0	1970000
1243	XD3	MODT(1)	10.7260	-3.5960	2.75	10.36	5.00	3.30	100	96.00	58.40	100	10.00	0	2520000
1244	XD3	MODT(1)	10.7260	-3.5960	2.75	10.36	5.00	3.30	100	96.00	58.40	100	25.00	0	2755000
1245	XD3	MODT(1)	10.7260	-3.5960	2.75	10.36	5.00	3.30	100	96.00	58.40	35	0.10	40	1040000

1246	XD3	MODT(1)	10.7260	-3.5960	2.75	10.36	5.00	3.30	100	96.00	58.40	35	1.00	40	1510000
1247	XD3	MODT(1)	10.7260	-3.5960	2.75	10.36	5.00	3.30	100	96.00	58.40	35	10.00	40	2190000
1248	XD3	MODT(1)	10.7260	-3.5960	2.75	10.36	5.00	3.30	100	96.00	58.40	35	25.00	40	2390000
1249	XD3	MODT(1)	10.7260	-3.5960	2.75	10.36	5.00	3.30	100	96.00	58.40	35	0.10	70	250500
1250	XD3	MODT(1)	10.7260	-3.5960	2.75	10.36	5.00	3.30	100	96.00	58.40	35	1.00	70	447500
1251	XD3	MODT(1)	10.7260	-3.5960	2.75	10.36	5.00	3.30	100	96.00	58.40	35	10.00	70	786500
1252	XD3	MODT(1)	10.7260	-3.5960	2.75	10.36	5.00	3.30	100	96.00	58.40	35	25.00	70	917000
1253	XD3	MODT(1)	10.7260	-3.5960	2.75	10.36	5.00	3.30	100	96.00	58.40	35	0.10	100	98900
1254	XD3	MODT(1)	10.7260	-3.5960	2.75	10.36	5.00	3.30	100	96.00	58.40	35	1.00	100	151500
1255	XD3	MODT(1)	10.7260	-3.5960	2.75	10.36	5.00	3.30	100	96.00	58.40	35	10.00	100	288000
1256	XD3	MODT(1)	10.7260	-3.5960	2.75	10.36	5.00	3.30	100	96.00	58.40	35	25.00	100	383000
1257	XD3	MODT(1)	10.7260	-3.5960	2.75	10.36	5.00	3.30	100	96.00	58.40	10	0.10	130	32450
1258	XD3	MODT(1)	10.7260	-3.5960	2.75	10.36	5.00	3.30	100	96.00	58.40	10	1.00	130	55750
1259	XD3	MODT(1)	10.7260	-3.5960	2.75	10.36	5.00	3.30	100	96.00	58.40	10	10.00	130	103150
1260	XD3	MODT(1)	10.7260	-3.5960	2.75	10.36	5.00	3.30	100	96.00	58.40	10	25.00	130	133500
1261	XD5	MODT(1)	10.7260	-3.5960	5.45	10.10	5.00	3.30	100	96.00	58.40	100	0.10	0	1360000
1262	XD5	MODT(1)	10.7260	-3.5960	5.45	10.10	5.00	3.30	100	96.00	58.40	100	1.00	0	1895000
1263	XD5	MODT(1)	10.7260	-3.5960	5.45	10.10	5.00	3.30	100	96.00	58.40	100	10.00	0	2485000
1264	XD5	MODT(1)	10.7260	-3.5960	5.45	10.10	5.00	3.30	100	96.00	58.40	100	25.00	0	2760000
1265	XD5	MODT(1)	10.7260	-3.5960	5.45	10.10	5.00	3.30	100	96.00	58.40	35	0.10	40	895500
1266	XD5	MODT(1)	10.7260	-3.5960	5.45	10.10	5.00	3.30	100	96.00	58.40	35	1.00	40	1470000
1267	XD5	MODT(1)	10.7260	-3.5960	5.45	10.10	5.00	3.30	100	96.00	58.40	35	10.00	40	2075000
1268	XD5	MODT(1)	10.7260	-3.5960	5.45	10.10	5.00	3.30	100	96.00	58.40	35	25.00	40	2190000
1269	XD5	MODT(1)	10.7260	-3.5960	5.45	10.10	5.00	3.30	100	96.00	58.40	35	0.10	70	228500
1270	XD5	MODT(1)	10.7260	-3.5960	5.45	10.10	5.00	3.30	100	96.00	58.40	35	1.00	70	432000
1271	XD5	MODT(1)	10.7260	-3.5960	5.45	10.10	5.00	3.30	100	96.00	58.40	35	10.00	70	803000

1272	XD5	MODT(1)	10.7260	-3.5960	5.45	10.10	5.00	3.30	100	96.00	58.40	35	25.00	70	969000
1273	XD5	MODT(1)	10.7260	-3.5960	5.45	10.10	5.00	3.30	100	96.00	58.40	35	0.10	100	92100
1274	XD5	MODT(1)	10.7260	-3.5960	5.45	10.10	5.00	3.30	100	96.00	58.40	35	1.00	100	134500
1275	XD5	MODT(1)	10.7260	-3.5960	5.45	10.10	5.00	3.30	100	96.00	58.40	35	10.00	100	254000
1276	XD5	MODT(1)	10.7260	-3.5960	5.45	10.10	5.00	3.30	100	96.00	58.40	35	25.00	100	351000
1277	XD5	MODT(1)	10.7260	-3.5960	5.45	10.10	5.00	3.30	100	96.00	58.40	10	0.10	130	24050
1278	XD5	MODT(1)	10.7260	-3.5960	5.45	10.10	5.00	3.30	100	96.00	58.40	10	1.00	130	37000
1279	XD5	MODT(1)	10.7260	-3.5960	5.45	10.10	5.00	3.30	100	96.00	58.40	10	10.00	130	74250
1280	XD5	MODT(1)	10.7260	-3.5960	5.45	10.10	5.00	3.30	100	96.00	58.40	10	25.00	130	106500
1281	XD7	MODT(1)	10.7260	-3.5960	2.35	11.99	6.00	3.30	100	96.00	58.40	100	0.10	0	1140000
1282	XD7	MODT(1)	10.7260	-3.5960	2.35	11.99	6.00	3.30	100	96.00	58.40	100	1.00	0	1675000
1283	XD7	MODT(1)	10.7260	-3.5960	2.35	11.99	6.00	3.30	100	96.00	58.40	100	10.00	0	2220000
1284	XD7	MODT(1)	10.7260	-3.5960	2.35	11.99	6.00	3.30	100	96.00	58.40	100	25.00	0	2495000
1285	XD7	MODT(1)	10.7260	-3.5960	2.35	11.99	6.00	3.30	100	96.00	58.40	35	0.10	40	866000
1286	XD7	MODT(1)	10.7260	-3.5960	2.35	11.99	6.00	3.30	100	96.00	58.40	35	1.00	40	1340000
1287	XD7	MODT(1)	10.7260	-3.5960	2.35	11.99	6.00	3.30	100	96.00	58.40	35	10.00	40	1985000
1288	XD7	MODT(1)	10.7260	-3.5960	2.35	11.99	6.00	3.30	100	96.00	58.40	35	25.00	40	2180000
1289	XD7	MODT(1)	10.7260	-3.5960	2.35	11.99	6.00	3.30	100	96.00	58.40	35	0.10	70	209000
1290	XD7	MODT(1)	10.7260	-3.5960	2.35	11.99	6.00	3.30	100	96.00	58.40	35	1.00	70	398500
1291	XD7	MODT(1)	10.7260	-3.5960	2.35	11.99	6.00	3.30	100	96.00	58.40	35	10.00	70	752000
1292	XD7	MODT(1)	10.7260	-3.5960	2.35	11.99	6.00	3.30	100	96.00	58.40	35	25.00	70	928000
1293	XD7	MODT(1)	10.7260	-3.5960	2.35	11.99	6.00	3.30	100	96.00	58.40	35	0.10	100	87750
1294	XD7	MODT(1)	10.7260	-3.5960	2.35	11.99	6.00	3.30	100	96.00	58.40	35	1.00	100	119000
1295	XD7	MODT(1)	10.7260	-3.5960	2.35	11.99	6.00	3.30	100	96.00	58.40	35	10.00	100	214500
1296	XD7	MODT(1)	10.7260	-3.5960	2.35	11.99	6.00	3.30	100	96.00	58.40	35	25.00	100	290500
1297	XD7	MODT(1)	10.7260	-3.5960	2.35	11.99	6.00	3.30	100	96.00	58.40	10	0.10	130	26350

1298	XD7	MODT(1)	10.7260	-3.5960	2.35	11.99	6.00	3.30	100	96.00	58.40	10	1.00	130	34350
1299	XD7	MODT(1)	10.7260	-3.5960	2.35	11.99	6.00	3.30	100	96.00	58.40	10	10.00	130	62800
1300	XD7	MODT(1)	10.7260	-3.5960	2.35	11.99	6.00	3.30	100	96.00	58.40	10	25.00	130	84600
1301	XD9	MODT(1)	10.7260	-3.5960	5.90	11.66	6.00	3.30	100	96.00	58.40	100	0.10	0	1360000
1302	XD9	MODT(1)	10.7260	-3.5960	5.90	11.66	6.00	3.30	100	96.00	58.40	100	1.00	0	1890000
1303	XD9	MODT(1)	10.7260	-3.5960	5.90	11.66	6.00	3.30	100	96.00	58.40	100	10.00	0	2455000
1304	XD9	MODT(1)	10.7260	-3.5960	5.90	11.66	6.00	3.30	100	96.00	58.40	100	25.00	0	2750000
1305	XD9	MODT(1)	10.7260	-3.5960	5.90	11.66	6.00	3.30	100	96.00	58.40	35	0.10	40	713500
1306	XD9	MODT(1)	10.7260	-3.5960	5.90	11.66	6.00	3.30	100	96.00	58.40	35	1.00	40	1255000
1307	XD9	MODT(1)	10.7260	-3.5960	5.90	11.66	6.00	3.30	100	96.00	58.40	35	10.00	40	1785000
1308	XD9	MODT(1)	10.7260	-3.5960	5.90	11.66	6.00	3.30	100	96.00	58.40	35	25.00	40	2110000
1309	XD9	MODT(1)	10.7260	-3.5960	5.90	11.66	6.00	3.30	100	96.00	58.40	35	0.10	70	232000
1310	XD9	MODT(1)	10.7260	-3.5960	5.90	11.66	6.00	3.30	100	96.00	58.40	35	1.00	70	429000
1311	XD9	MODT(1)	10.7260	-3.5960	5.90	11.66	6.00	3.30	100	96.00	58.40	35	10.00	70	803500
1312	XD9	MODT(1)	10.7260	-3.5960	5.90	11.66	6.00	3.30	100	96.00	58.40	35	25.00	70	992500
1313	XD9	MODT(1)	10.7260	-3.5960	5.90	11.66	6.00	3.30	100	96.00	58.40	35	0.10	100	91200
1314	XD9	MODT(1)	10.7260	-3.5960	5.90	11.66	6.00	3.30	100	96.00	58.40	35	1.00	100	132500
1315	XD9	MODT(1)	10.7260	-3.5960	5.90	11.66	6.00	3.30	100	96.00	58.40	35	10.00	100	242500
1316	XD9	MODT(1)	10.7260	-3.5960	5.90	11.66	6.00	3.30	100	96.00	58.40	35	25.00	100	340500
1317	XD9	MODT(1)	10.7260	-3.5960	5.90	11.66	6.00	3.30	100	96.00	58.40	10	0.10	130	28300
1318	XD9	MODT(1)	10.7260	-3.5960	5.90	11.66	6.00	3.30	100	96.00	58.40	10	1.00	130	43050
1319	XD9	MODT(1)	10.7260	-3.5960	5.90	11.66	6.00	3.30	100	96.00	58.40	10	10.00	130	85150
1320	XD9	MODT(1)	10.7260	-3.5960	5.90	11.66	6.00	3.30	100	96.00	58.40	10	25.00	130	116500