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STATISTICAL ANALYSIS OF GROUNDWATER MONITORING DATA AT RCRA FACILITIES

UNIFIED GUIDANCE APPENDICES MARCH 2009

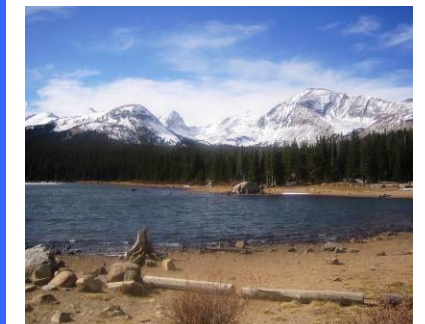
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Table 19-1 κ -Multipliers for 1-of-2 Interwell Prediction Limits

w/n	4	6	8	10
8	2.93	2.35	2.12	2.00
12	3.16	2.52	2.28	2.15
16	3.33	2.65	2.39	2.24
20	3.45	2.74	2.47	2.32
30	3.67	2.91	2.61	2.46
40	3.82	3.02	2.71	2.55
50	3.93	3.11	2.79	2.62
60	4.03	3.18	2.85	2.68
75	4.14	3.26	2.93	2.75



ENVIRONMENTAL PROTECTION AGENCY
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UNIFIED GUIDANCE

APPENDICES

OFFICE OF RESOURCE CONSERVATION AND RECOVERY
PROGRAM IMPLEMENTATION AND INFORMATION DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

MARCH 2009

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A.2 GLOSSARY

Alpha (α) level	Decimal level of significance or false positive error of a statistical test
1-of-m Plan	Retesting plan consisting of an initial sample followed by up to $(m-1)$ resamples; resamples are collected only if initial sample exhibits a statistical difference
Accuracy	Closeness of a measured or computed value to its “true” value, where the true value is obtained with perfect information.
ACL	<u>A</u> lternate <u>C</u> oncentration <u>L</u> imit; a fixed standard or clean-up action level alternative to prescribed RCRA regulatory health- or background limits
Aliquot replicates	Physical splits of a single water quality sample for multiple analyses
ANOVA	<u>A</u> nalysis of <u>V</u> ariance; a statistical method for identifying differences among several population means or medians
Appendix I	40 CFR Part 258 chemical parameter list for Subtitle D detection monitoring programs
Appendix II	40 Part 258 CFR chemical parameter list for Subtitle D compliance or assessment monitoring programs
Autocorrelation	Correlation of values of a single variable data set over successive time intervals
Background	Natural or baseline groundwater quality at a site; can be characterized by upgradient, historical, or sometimes sidegradient water quality
Beta (β) level	Decimal value representing a false negative error rate in a statistical test
Bias	Systematic deviation between a measured (i.e., observed) or computed value and its true value. Bias is affected by faulty instrument calibration and other measurement errors, systematic errors during data collection, and sampling errors such as incomplete spatial randomization during the design of sampling programs.
Box Plot	Plot of selected descriptive statistics at a monitoring point (e.g., mean, median, upper and lower quartiles)
Calibration	Comparison of a measurement standard, instrument, or item with a standard or instrument of higher precision and lower bias to detect and quantify inaccuracies and to report or eliminate those inaccuracies by adjustments. Also used to quantify instrument measurements of a given concentration in a given sample.
CERCLA	<u>C</u> omprehensive <u>E</u> nvironmental <u>R</u> esponse, <u>C</u> ompensation and <u>L</u> iability <u>A</u> ct (or Superfund); statute for non-active hazardous waste site management and remediation
Confidence Interval	Statistical interval designed to bound the true value of a population parameter such as the mean or an upper percentile
Confidence Level	Degree of confidence associated with a statistical estimate or test, denoted as $(1 - \alpha)$

Coverage	Fraction of a population expected to be contained within a tolerance interval
Critical value	Predetermined decision level for a test of statistical hypotheses
Degrees of freedom	The number of ways which members of a data set or sets can be independently varied
Descriptive Statistics	Statistics used to organize and summarize sample data
Effective Power	In a groundwater network of statistical tests, the power of the test method to identify a single well contaminated by a single constituent
EPA Reference Power Curves (ERPC)	Recommended standards for comparing performance of RCRA statistical methods in detection monitoring; based on individual prediction limit using $n = 10$ background samples and $\alpha = .01$
False Negative	Finding of no statistically significant difference when there is, in fact, a physical difference in the underlying populations or between a single population and a fixed compliance standard; also known as beta (β) or Type II error
False Positive	Finding a statistically significant difference when there is, in fact, no physical difference in the underlying populations or between a single population and a fixed compliance standard; also known as alpha (α), significance level, or Type I error
GWPS	(<u>G</u> round <u>W</u> ater <u>P</u> rotection <u>S</u> tandards) Concentration limits set by the regulatory agency as a standard to be attained in groundwater monitoring. These may be fixed health- or risk-based limits (e.g. MCLs) or a background level.
Heterogeneous	Non-uniform in structure or composition throughout
Histogram	Graphical representation of frequency with data values grouped into specified numerical ranges
Homogeneous	Uniform in structure and composition throughout
Homoscedasticity	Equality of variance among sets of data
Hypothesis	One of two statements made about potential outcomes of a statistical test. The null and alternative hypothesis statements refer to the condition of a population parameter. The null hypothesis is favored, unless the statistical test demonstrates the greater likelihood of the alternative hypothesis.
Independent & Identically Distributed (i.i.d)	Groundwater measurements having the same statistical distribution and exhibiting no statistical dependence or correlation
Indicator Parameters	Chemical parameters whose presence or elevation is possibly indicative of a facility release
Interwell	Comparisons between distinct monitoring wells
Intrawell	Comparisons over time at a given monitoring well between early and later measurements
Mann-Kendall Test	Non-parametric test of trend

MCL	<u>Maximum Contaminant Level</u> ; a fixed water quality standard defined under the Safe Drinking Water Act and used in 40 CFR 258.40(e)(3)
MDL	<u>Method Detection Limit</u> —the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero in a specific matrix.
Modified California Plan	Retesting plan consisting of an initial sample followed by three resamples; if initial value exhibits a statistical difference, two of three resamples must <i>not</i> exhibit a difference for the test to ‘pass’
Non-detects (NDs)	Observations below the MDL, RL, or QL
Non-parametric Test	Statistical test that does not depend on knowledge of the distribution of the sampled population
Normal distribution	A family of symmetric continuous probability distributions defined by two finite parameters, the mean and variance
Outlier	Value unusually discrepant from rest of a series of observations
Parametric Test	Statistical test that depends upon or assumes observations from a particular probability distribution or distributions
Percentile	The specific value of a distribution that divides the distribution such that p percent of the distribution is equal to or below that value. If the 95th percentile is X, it means that 95 percent of the values in the statistical sample are less than or equal to X.
Population	All possible measurements/values over a period of time at a given location, series of locations, or over a spatial or volumetric extent
PQL or QL	<u>Practical Quantification Limit</u> —lowest concentration level for an analytical method which can be reliably achieved within specified limits of precision and accuracy under routine laboratory operating conditions
Precision	A measure of mutual agreement among individual measurements of the same property, usually under prescribed similar conditions, expressed generally in terms of the sample standard deviation.
Prediction Interval	Statistical interval constructed from background data on the next ‘future’ sample or samples arising from the same population
Prediction Limit	Upper or lower limit of a prediction interval
Probability	Quantitative measure of uncertainty about the occurrence of a random or uncertain event
Probability Distribution	Numerical statistical pattern associated with a population of measurements; many common patterns can be described using mathematical formulas
Proportion	A population proportion (p) is the ratio of the number of units of a population that have the specified characteristic or attribute (M) to the total number of units in the population (N).
Random sample	Collected data which are based only on their probability of occurrence in random fashion

Ranking	Assignment of numbers to an ordered data set indicating their relative position, generally integer values from 1 to n for the smallest to largest values in a sample of size n (unless specified in reverse rank order)
RCRA	<u>R</u> esource <u>C</u> onservation and <u>R</u> ecovery <u>A</u> ct; statutory provisions for active facility hazardous (Subtitle C) and non-hazardous waste (Subtitle D) definition, storage, treatment and disposal
Reporting Limit	<u>R</u> eporting <u>L</u> imit—lowest concentration level for an analytical method which can be reliably measured by a laboratory
Residual	Typically, the difference of a value in a data set from its mean
ROS	<u>R</u> egression on <u>o</u> rd <u>e</u> r <u>s</u> tatistics, either parametric or robust; techniques for fitting non-detect data to a single distribution
Sample	Set of measurements from a population (can be as few as one)
SDWA	<u>S</u> afe <u>D</u> rinking <u>W</u> ater <u>A</u> ct; statute under which drinking water standards are promulgated and water treatment sites regulated
Seasonality	The presence of seasonal effects on ground water quality observations; effects may be natural or man-made.
Sen's Slope Estimator	Non-parametric method to estimate the rate of change of concentration levels over time
SWFPR	<u>S</u> ite <u>W</u> ide <u>F</u> alse <u>P</u> ositive <u>R</u> ate; design probability of at least one statistically significant finding among a network of statistical test comparisons at a group of uncontaminated wells
Spearman's Test	Non-parametric test of trend using data ranks
Statistical Parameter	A numerical characteristic of a statistical population or probability distribution
Statistical Power	Strength of a test to identify an actual release of contaminated groundwater or difference from a compliance standard
Statistically Significant Difference (or Increase)	Statistical difference exceeding a test limit large enough to account for data variability and chance
Time Series Plot	Graphical plot of individual concentration values over time
Tolerance Interval	Statistical interval constructed to 'cover' a specified proportion of the underlying population of measurements
Tolerance Limit	The upper or lower limit of a tolerance interval
Trace Value	Measured value close to, but above the limit of detection; may lie between the MDL and the QL
Random Variable	A numerical value or characteristic that can assume different values on different sampling events or at different locations
Variance	A measure of spread or dispersion calculated as the average of squared differences from the mean in a set of data or a population
Verification Resampling or Retesting Plan	A plan to collect an additional resample or resamples to confirm or disconfirm an initial statistically significant finding

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B.1 PAST GUIDANCE FOR CHECKING NORMALITY

The 1989 *Interim Final Guidance* [IFG] outlined three different methods for checking normality: the coefficient of variation [CV] test, probability plots, and the chi-square test. Of these three, only probability plots are recommended within the Unified Guidance. The coefficient-of-variation and chi-square tests each have potential problems or are inferior to alternate methods. These alternatives include the coefficient of skewness, the Shapiro-Wilk or Shapiro-Francia tests, and Filliben's probability plot correlation coefficient.

The coefficient of variation [CV] test in the original 1982 RCRA Part 264 groundwater monitoring regulations was recommended within the IFG because it is easy to calculate and amenable to small sample sizes. To ensure that a normal model with a significant fraction of negative concentration values was not fit to positive data, the IFG recommended that a sample CV be less than one to indicate 'normality.' The test was inexact since the distribution of sample CV's from a truly normal population itself is a function of both sample size and the true coefficient of variation. Truly normal populations of positive-valued data are likely to have a CV of 0.3 or lower, although individual sample CV's will occasionally exceed one, depending on the sample size. It was also possible to incorrectly reject normality using this criterion even when the population was really normal.

While the coefficient of variation indirectly offers an estimate of skewness and hence normality/non-normality, there are better formal tests to accomplish both goals. The Unified Guidance recommends estimating skewness of a data set using the coefficient of skewness (**Section 10.4**), along with other tests of normality in **Chapter 10**. Nevertheless, the coefficient of variation provides a measure of intrinsic variability in positive-valued data sets. Although approximate, the coefficient of variation can indicate the relative variability of certain data, especially with small sample sizes and in the absence of other formal tests.

The CV is also a valid measure of the multiplicative relationship between the mean and the standard deviation for positively-valued random variables. The estimator $CV\hat{V} = s/\bar{x}$ reasonably approximates the true CV for non-negative normal populations. In lognormal populations, the coefficient of variation can also be used in evaluations of statistical power. For the lognormal distribution, the population coefficient of variation works out to be:

$$CV = \sqrt{\exp(\sigma_y^2) - 1}$$

where σ_y is the population log-standard deviation. Because of this, instead of a ratio between the standard deviation and the mean, the lognormal coefficient of variation is usually estimated by

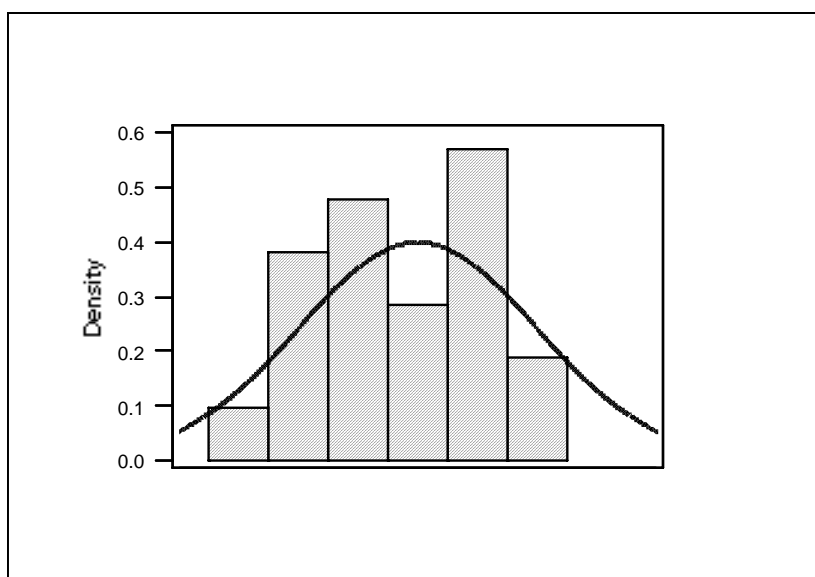
$$CV = \sqrt{\exp(s_y^2) - 1}$$

where s_y is the log-standard deviation. This last estimate is usually more accurate than the simple ratio of standard deviation-to-mean, especially when the underlying population coefficient of variation is high. However, neither coefficient of variation estimator is a satisfactory test as to whether a data set is truly normal or lognormal.

The chi-square test was also recommended within the IFG. Though an acceptable goodness-of-fit test, it is not considered the most sensitive or powerful test of normality (Gan and Koehler, 1990). The downside to the chi-square test can be explained by considering the behavior of parametric tests based on the normal distribution. Most tests, like the *t*-test or parametric prediction limits, which assume that the underlying data are normal, give fairly robust results when the normality assumption fails over the middle ranges of the data distribution. That is, if the extreme tails are approximately normal in shape even if the middle part of the density is not, these parametric tests will still tend to produce valid results. However, if the extreme tails are non-normal in shape (*e.g.*, highly skewed), normal-based tests can lead to false conclusions, meaning that either a data transformation or a non-parametric technique should be used instead.

The chi-square test entails a division of the sample data into ‘bins’ or ‘cells’ representing distinct, non-overlapping ranges of the data (**Figure B-1**). In each bin, an expected value is computed based on the number of data points that would be found if the normal distribution provided an appropriate model. The squared difference between the expected number and observed number is then computed and summed over all the bins to calculate the chi-square test statistic.

Figure B-1. How the Chi-Square Goodness-of-Fit Test Works



If the chi-square test indicates that the data are not normal, it may not be clear what ranges of the data most violate the normality assumption. Departures from normality in the middle bins are given nearly the same weight as departures in bins representing the extreme tails, and all the departures are summed together to form the test statistic. As such, the chi-square test is not as powerful for detecting departures from normality in the extreme tails of the distribution, the areas most crucial to the validity of parametric tests like the *t*-test or ANOVA (Miller, 1986). This implies that if there are departures in the tails, but the middle portion of the data distribution is approximately normal, the chi-square test may not register as statistically significant even when better tests of normality would.

The IFG also suggested that the original data should be presumed to be normal prior to testing the distributional assumption. If a statistical test rejected the model of normality, the data could be checked instead for lognormality by evaluating their natural logarithms. The 1992 *Addendum to Interim Final Guidance* [Addendum] noted that many data sets in environmental monitoring are better fit by a lognormal than by a normal distributional model. Primarily on that basis, it was recommended that the lognormal distribution replace the normal as the default model for groundwater analysis, especially since for small data sets, the available tests of normality have limited statistical power to reject the null hypothesis of normality, even if the data arise from a lognormal distribution. The Unified Guidance brings this argument around almost full circle by arguing that the normal model is a slightly better default for small samples, but that distributional testing is recommended in any case in order to establish the most appropriate model (**Section 10.3**).

B.2 THE CABF PROCEDURE

Facilities operating under a RCRA permit specifying Cochran's Approximation to the Behrens-Fisher Student's *t*-test [CABF] may change this method to a more appropriate procedure at the time of State or Regional permit review and update. Owners and operators may also apply for a permit modification under §270.41(a)(3). This change is considered a Class 1 permit modification, which must be made with prior approval from the Director.¹ Depending on the nature of the permit conditions, it may also be appropriate, on a facility-specific basis, for an oversight agency to approve a change of method without a formal permit modification.

Under appropriate circumstances, an owner or operator may wish to continue using a *t*-test type procedure. However, instead of the CABF method, it is recommended that either a pooled variance Student's *t*-test or a variant of this test due to Welch (1937) be employed (**Chapter 16**). Not only is Welch's test a more standard type of *t*-test than the CABF procedure, but research has shown it to be equivalent or preferable to other varieties of the *t*-test (Moser and Stevens, 1992).

Circumstances appropriate for the use of a *t*-test procedure might include facilities with very few monitoring wells (*e.g.*, three or less) and that monitor for a very limited number of constituents (*e.g.*, one or two). As long as no more than 5 to 10 statistical comparisons are being made each year, running a *t*-test at the 0.01 level of significance in each case should result in at most a 10% annual probability of any comparison registering as a false positive when there is no actual contamination.

One of the problems with the CABF procedure in practice was the use of aliquot replicate samples to bolster the total sample size (**Section 2.2.4**). Both the pooled variance *t*-test and Welch's *t*-test make the assumption that the sample observations are statistically independent. Though aliquot replicate sampling increases the number of available measurements, aliquot replicate samples mostly provide information about *analytical* variability and accuracy, and tend to be highly correlated. Since the goal of a RCRA groundwater statistical program is to provide data about hydro-geochemical variability in the (uppermost) aquifer below the facility, aliquot replicate sampling (like the CABF procedure itself) should be avoided unless a more sophisticated components of variance model is used to account for the separate effects of analytical variability and natural groundwater variance.

¹ See 53 FR 37912, September 28, 1988 for more details about the permit modification process.

B.3 PAST GUIDANCE FOR NON-DETECTS

Guidance for handling non-detect measurements was first offered in the 1989 *Interim Final Guidance* [IFG]. There the basic recommendations included the following: 1) if less than 15% of all samples are non-detect, replace each non-detect by half its detection or quantitation limit [QL] and proceed with a parametric analysis, such as ANOVA, tolerance limits, or prediction limits; 2) if the percentage of non-detects is between 15 and 50, either use Cohen's adjustment to the sample mean and variance in order to proceed with a parametric analysis, or employ a non-parametric procedure by using the ranks of the observations and treating all non-detects as tied values; 3) if the percentage of non-detects is greater than 50, use the test of proportions.

In the 1992 *Addendum to Interim Final Guidance* [Addendum], the recommendation for data sets with small fractions of non-detects (*i.e.*, $\leq 15\%$) was left unchanged; however, for cases with moderate detection rates (*i.e.*, non-detects comprising 15% to 50% of the data), Cohen's adjustment was supplemented by Aitchison's method for data sets in which non-detects could be regarded as zero concentrations. In addition, the *test of proportions* was deleted from the Addendum. Instead, for large fractions of non-detects, three options were suggested: 1) for two sample comparisons, the Wilcoxon rank-sum test was recommended over the test of proportions; 2) for moderately large background samples, the Addendum recommended non-parametric prediction and tolerance limits; and 3) for extremely low detection rates (*e.g.*, $\geq 90\%$ non-detects) and small background samples, the Addendum recommended the use of Poisson prediction and tolerance limits.

The test of proportions was not recommended in the Addendum, even for detection rates under 50%, for the following reason. Although acceptable as a statistical procedure, the test of proportions does not account for potentially different magnitudes among the concentrations of detected values. Rather, each sample is treated essentially as a '0' or '1' depending on whether the measured concentration is below or above the QL. The test of proportions ignores information about concentration magnitudes, and hence is often less powerful than a non-parametric rank-based test like the Wilcoxon rank-sum, even after adjusting for a large fraction of tied observations (*e.g.*, non-detects). In part, this is because the ranks of a data set preserve additional information about the relative magnitudes of the concentration values, information which is lost when all observations are scored as 0's and 1's.

Furthermore, small-scale Monte Carlo simulations comparing the test of proportions to the Wilcoxon rank-sum test showed that for small to moderately large proportions of non-detects (say 0% to 60%), the Wilcoxon rank-sum procedure adjusted for ties was more powerful in identifying real concentration differences than the test of proportions. When the percentage of non-detects was quite high (at least 70% to 75%), the test of proportions was occasionally more powerful than the Wilcoxon for extremely small group sample sizes (*e.g.*, no more than 4 to 6 measurements per group), but the results of the two tests usually led to the same conclusion. Consequently, the Wilcoxon rank-sum test was recommended in all cases where non-detects constituted more than 15 percent of the samples.

The revised Unified Guidance also places less emphasis on Cohen's method. The reason is that it could only accommodate a single censoring limit (*e.g.*, reporting limit [RL]) in its original formulation and assumed that all quantified values were necessarily greater than this limit. Because many environmental data sets include multiple reporting and/or detection limits and an intermixing of detects and non-detects, two other methods are now recommended that are designed to handle more complex data configurations (**Chapter 15**). Cohen's and the parametric ROS method may have limited

applicability when both detect and non-detect data are expected to stem from a single parametric distribution and a single censoring limit can be used.

B.4 TREND TESTS

The Unified Guidance recommends trend testing as an alternative to prediction limits or control charts when those methods are not suitable. To understand the basis for this recommendation, it may help to consider how intrawell comparisons initially supplemented, and then came in many cases to supplant, interwell comparisons.

In the 1989 IFG and the 1992 Addendum, the recommended statistical methods closely followed the 1988 and 1991 Final Rules published in the Federal Register. Although these methods replaced historical use of the CABF Student's *t*-test, there was still an emphasis on interwell comparisons between background and downgradient wells through the use of *t*-tests and ANOVA. Indeed, where justified, interwell comparisons provide undeniable conceptual advantages over other kinds of tests. When (upgradient) background measurements can be used to establish a reasonable baseline concentration level, such data offer invaluable information about site-specific conditions at uncontaminated locations and the level of variability one should expect to encounter in the absence of events that precipitate groundwater contamination.

Unfortunately, ANOVA and *t*-tests all involve a comparison of population means under the key assumption that the populations *have not changed over time*. The underlying distributions in each group or well are assumed to be stable over the period of monitoring, so that concentration measurements fluctuate randomly around a constant mean level. Stability, of course, is not guaranteed. Several factors can impact the statistical characteristics of the underlying aquifer at either upgradient or downgradient wells, including natural fluctuations in aquifer parameters, migration of contaminants from off-site sources, changes in the mixture of deposited waste and its geochemical interaction with the subsurface environment, and alterations in geochemistry from 'percolation' effects due to past waste disposal practices or land usage.

EPA's hope in the 1989 IFG was that ANOVA-type comparisons would be done quickly enough (*e.g.*, every six months) that the underlying populations could be considered essentially static during each testing period. At some sites, this may be a reasonable assumption. However, in practice, sampling is now done on a quarterly, semi-annual, or annual basis. In order to gather the four to five samples needed— at a minimum — to run a *t*-test or ANOVA, at least one to four years of sampling is necessary. Over this length of time, the statistical characteristics of groundwater may or may not change.

Furthermore, interwell comparisons between upgradient and downgradient well locations are not always appropriate, either due to natural spatial variability, screening of background and downgradient wells in different hydrostratigraphic positions, effects of groundwater mounding, *etc.* In such cases, the appropriate statistical approach is to use an *intrawell* test at each compliance location. Intrawell tests involve a comparison only of data collected at that specific well location, thus eliminating spurious differences that might arise due to natural spatial variability or other background-to-downgradient differences not attributable to the presence of contaminated groundwater.

Two basic intrawell techniques are described in the Unified Guidance: intrawell prediction limits and control charts. Both designate some portion of the historical sampling record as intrawell 'background' for that well. Ideally, this intrawell background should consist of measurements known to

be uncontaminated. Furthermore, both methods assume (unless special adjustments are made) that the intrawell background represents a random sample from a stable population, just as with the t -test and ANOVA. If the population mean and/or standard deviation *change* while intrawell background is being compiled, results of either prediction limit or control chart tests against more recent data from the well can be severely biased or altogether inaccurate.

For these reasons, neither prediction limits nor control charts are appropriate for every circumstance where an intrawell test is warranted. The Unified Guidance recommends trend testing as an alternative to prediction limits or control charts when those methods are not suitable as intrawell techniques (**Chapter 17**). Tests for trend are specifically designed to identify groundwater populations whose mean concentration levels are not stable over time, but rather are significantly increasing (or decreasing).

B.5 PREDICTION LIMITS AND RETESTING

B.5.1 RETESTING SCHEMES

Since roughly 1987, several different retesting schemes have been suggested in regulatory documents or published in scientific literature. Classification of these schemes shows that they fall into three basic types: 1-of- m , California, and tolerance screens. The 1-of- m approach was initially suggested by Davis and McNichols (1987) as part of a broader method termed ' p -of- m .' Essentially the p -of- m approach assumed that as many as m observations would be collected for a particular constituent at a given well, including the initial groundwater measurement and up to $(m-1)$ resamples. As long as at least p of these observations were below a predetermined upper prediction limit, the constituent would 'pass' the test at that well, allowing detection monitoring to continue.

Davis and McNichols determined how to calculate the necessary prediction limits so that the overall false positive rate would remain below a fixed value (say 5%, as targeted in the 1992 Addendum), even when the same testing procedure was applied over many different testing periods (r in their terminology). By applying the same technique to r different well-constituent pairs (and assuming mutual statistical independence among constituents and compliance wells) instead of to r different testing or evaluation periods, one then has a retesting scheme that can be applied at a large variety of monitoring networks while ensuring that the site-wide false positive rate [SWFPR] is kept to a minimum.

In practice, though the p -of- m strategy provides a great deal of flexibility in designing a retesting scheme, only those schemes known as 1-of- m are typically useful in the current regulatory context of groundwater monitoring. Consider, for example, a 2-of-3 strategy. By definition, if at least two of three groundwater samples are below the upper prediction limit (*i.e.*, are 'in-bounds'), the constituent passes and is not flagged as exceeding background. Since at least two samples must be 'in-bounds,' it is not enough to collect one initial groundwater measurement and show that it is below the prediction limit. At least one additional resample must *always* be collected and measured. 1-of- m strategies, by contrast, only require a single groundwater observation to pass. If the initial measurement is below the prediction limit, the constituent passes the overall test and no resamples need be collected.

The second retesting scheme, known as California-style plans, was suggested partly in response to perceived problems with the 1-of- m plans. California regulators noted, for instance, that a 1-of-3 retesting scheme would allow a constituent in a given well to pass even if *both* the initial groundwater

measurement *and* one of the two retests exceeded the predetermined prediction limit. The only way for that well-constituent pair to fail would be if all three measurements — the initial and the two resamples — exceeded the prediction limit. To many regulators (and not just those in California) the 1-of-*m* scheme appeared to practically guarantee that contaminated wells would go unidentified, ‘passing’ the test each time and undermining protection of human health and the environment.

In 1991, California received explicit approval from EPA to use an alternate retesting scheme constructed as follows. For each well-constituent pair, collect an initial groundwater observation. If this initial measurement is in-bounds (*i.e.*, below the prediction limit), the test for that pair passes and no resamples need be collected. If the initial measurement exceeds the prediction limit, two or possibly three resamples must be collected and *each* must be in-bounds for the test to pass. If any of the resamples exceeds the prediction limit (*i.e.*, is ‘out-of-bounds’), the test fails and possible groundwater contamination is indicated.

The California strategy was seen as a more environmentally ‘conservative’ approach to retesting. An initially high groundwater measurement would only be deemed ‘spurious’ if all the subsequent resamples were below the target prediction limit, providing at least double reconfirmation that the well was ‘clean’ for that constituent. Unfortunately, the more stringent requirements of the California plans came with unexpected consequences. A California retesting plan typically requires a *larger* target prediction limit (or ‘trigger level’) than a 1-of-*m* plan with a comparable number of resamples, in order to achieve the same overall SWFPR. Since a larger trigger level corresponds to a *less* statistically powerful test, a given California plan may or may not have adequate effective power even if a similar 1-of-*m* plan does.

The net result is that 1-of-*m* retesting schemes often provide greater statistical power for detecting real groundwater contamination, particularly in large networks, even though not every resample need be below the prediction limit. If the trigger level is low enough, at least one of the resamples may exceed the prediction limit even when there is no contamination. So these cases should not automatically be classified as verified contamination. Conversely, a lower prediction limit increase the odds (*i.e.*, power) that truly contaminated groundwater will be identified, since both the initial observation and any resamples will be more likely to exceed a lower trigger level than one set to a higher benchmark.

B.5.2 TOLERANCE SCREENS

A final type of retesting scheme might be termed the *tolerance screen* approach. First suggested by Gibbons (1991b), this approach was modified and recommended by EPA in the 1992 Addendum, but — for reasons discussed below — is *not* recommended within the Unified Guidance. In contrast to the 1-of-*m* and California-style plans, which make use of repeated *prediction* limits as the trigger levels, the tolerance screen involves a two-stage testing procedure as follows. An initial groundwater measurement is collected from each well in the network and compared to an upper *tolerance* limit with specified coverage and confidence levels. If any measurement exceeds the tolerance limit, one or more resamples are collected from that well and these measurements are compared against an upper *prediction* limit.

Other than the use of a tolerance limit instead of a prediction limit as the ‘screen’ for the initial groundwater measurement, the rules for passing the test are the same as a modified California approach described in **Section 19.1**. Either the first observation must be below the tolerance limit (*i.e.*, ‘in-bounds’) or *q*-of- $(m-1)$ resamples must be below the prediction limit. If both of these conditions are violated, possible groundwater contamination is indicated.

The use of two separate trigger levels (*i.e.*, tolerance limit and prediction limit) for the initial observation versus the resamples may seem an unnecessary complication in developing a retesting procedure. However, there are two advantages to this approach. For one, the tolerance and prediction limits are computed on the same background data and both these calculations are done prior to any data comparisons. Secondly, by allowing two different trigger levels, greater flexibility is gained in designing — for a given sized network of comparisons — a retesting scheme that meets a target SWFPR.

Gibbons' (1991b) original tolerance screen approach advocated constructing a 95% confidence tolerance limit with a degree of coverage that would vary depending on the network size. For 100 tests, Gibbons reasoned that a tolerance limit with 95% coverage would result in as many as 5 exceedances of the initial trigger just by chance (*i.e.*, even when no contamination was present). Any such exceedance would then require that a resample be collected at that well and compared to a prediction limit with 95% confidence for the next 5 future samples ($m = 5$), in order to maintain an overall 5% SWFPR. The same type of false positive rate control could be achieved by setting the degree of coverage to 99%, so that only 1 exceedance would be expected in 100 tests against the tolerance limit. In this case, the prediction limit would be computed with 95% confidence but $m = 1$ instead. In all cases, the number of future measurements (m) being predicted would equal the number of measurements possibly expected to exceed the tolerance limit just by chance.

To offer even greater flexibility, EPA recommended a modification to Gibbons' tolerance screen within the 1992 Addendum. To understand why a modified version was adopted, note that the formula for an upper prediction limit on the next m future samples with $(1 - \alpha)$ confidence may be expressed as follows:

$$PL_{1-\alpha} = \bar{x} + t_{n-1, 1-\alpha/m} s \sqrt{1 + \frac{1}{n}}$$

Careful examination of this formula shows that the effect of changing the number of future samples m for a given confidence level is equivalent to changing the *confidence level* associated with a prediction limit for a *single* future observation ($m = 1$).

Because of this, EPA suggested three alterations to Gibbons' original scheme: 1) instead of fixing the level of confidence and varying the number of future samples m , fix $m = 1$ and allow the confidence level of the prediction limit to vary; 2) allow more than one resample per comparison up to a practical maximum of three; and 3) use a tolerance limit with *average* coverage instead of *minimum* coverage. While Gibbons offered power comparisons with his scheme against either a single tolerance limit or a single prediction limit, the Addendum offered recommended choices of degrees of coverage and confidence levels that would simultaneously limit the SWFPR to approximately 5% and generate effective power at least as high as the EPA reference power curve.

Unfortunately, as Davis and McNichols (1994) noted, the Monte Carlo simulations used in the Addendum to generate recommended retesting plans based on the tolerance screen approach were partly flawed. Two criticisms were particularly relevant. First, Davis and McNichols noted that the Appendix to the Addendum spoke of networks in terms of number of *wells* rather than the number of *tests*. Since the total number of tests is a product of the number of wells and the number of constituents being

monitored in each well, they suggested that the Addendum recommendations for retesting plans might elevate the SWFPR above 5% (the recommended per-evaluation rate in 1992).

The reason is that if a particular plan in the Addendum was only applicable to a single constituent (albeit across a large number of wells), a similar but separate plan would be needed for each constituent. This in turn would imply that the target overall false positive rate of 5% would only apply *per constituent*, meaning that tests for many constituents in the same network would lead to a sharply elevated SWFPR. Of course, the *text* of the Addendum clearly spoke of tests as a combination of wells and constituents. Still, Davis and McNichols were correct to note that some may have misunderstood the contextual meaning of the phrase ‘wells’ in the Appendix and also in the table on non-parametric retesting strategies, which was naively used as a simple shorthand for the more awkward ‘well-constituent pairs.’

A second criticism related to the algorithm used to simulate the effective power of the tolerance screen plans. Davis and McNichols correctly observed that while effective power was defined in terms of a single well contaminated by a single constituent, the power curves illustrated in the Addendum Appendix mistakenly added those cases where the contaminated well failed the overall testing procedure to those where *uncontaminated* wells failed the procedure (*i.e.*, instances of false positives). The net effect was to slightly raise the stated power above the actual power, especially at lower standard deviation shifts in the mean level above background (*e.g.*, $0 < \Delta < 2$). As a result of this criticism, all calculations in the Unified Guidance with respect to retesting plans have been divided into two components: 1) computation of the SWFPR based on the total number of tests, taken as a product of wells times constituents, and 2) computation of the effective power based on a single contaminated well-constituent pair.

A third criticism can now be added to those offered by Davis and McNichols. Given a fixed background sample, one drawback to both 1-of-*m* and California-style plans is that they have limited flexibility when it comes to controlling the SWFPR below a target level (*e.g.*, 10%) over a variety of network sizes. In some cases, sufficient false positive rate control and adequate power can only be achieved by switching, say, from a 1-of-2 plan to a 1-of-3 plan, or from a California plan to a 1-of-*m* scheme, or by increasing the background sample size. The problem is that using the same trigger level — here a prediction limit — to test both the initial measurement and any resamples restricts the number of simultaneous tests that can be accommodated. The EPA tolerance screen approach uses different trigger levels at each stage, allowing greater manipulation of the statistical parameters used to construct the tolerance and prediction limits and ultimately more flexibility in designing a retesting scheme that can meet a target SWFPR for a fixed background size over a wide variety of networks.

Despite this advantage, new research done in preparing the Unified Guidance indicates that the effective power of any tolerance screen retesting procedure is always *less* than a comparable scheme based on a single repeated trigger value. The gain in flexibility in controlling false positive rates is real, but the most powerful retesting procedures will be of the 1-of-*m* or modified California-style varieties. Because of this loss in effective power, the Unified Guidance recommends an appropriate 1-of-*m* or modified California-style plan (**Chapter 19**).

B.5.3 NON-PARAMETRIC RETESTING SCHEMES

In the Addendum, two basic approaches to non-parametric retesting were described, each suggested by Gibbons (1990; 1991a). Both of these strategies defined the upper prediction limit as the

maximum observed background value. Once in hand, one new observation was collected from each downgradient well and compared against the non-parametric prediction limit. Measurements that exceeded the prediction limit were then retested. In his 1990 article, Gibbons presented tables of approximate network-wide significance levels for the case of 1-of- m retesting plans. Gibbons' 1991 article detailed the more stringent non-parametric California plans, giving exact false positive rates, but only in the case where the prediction limit was defined as the maximum of background.

Both of these efforts were superseded by Davis and McNichols (1994), who give exact false positive rates are given for both 1-of- m and strict California retesting strategies. In addition, Davis and McNichols compute these false positive rates when the non-parametric prediction limit is taken as either the maximum background value or the second-largest background concentration. The latter calculation is helpful in two ways. First, if a particular background concentration is unusually high and possibly an outlier, one could choose to fix the non-parametric prediction limit as the second-highest (and presumably more representative) background concentration. The statistical characteristics of the retesting scheme would still be assured without having to 'throw out' the suspected background outlier. Secondly, the statistical power of prediction limits based on the second-largest background value is greater than for those prediction limits based on the maximum. For large background samples (n), use of this alternate prediction limit may be the only option at some sites to achieve both the targeted false positive rate and sufficient effective power.

While the tables in the Davis and McNichols article are extremely useful, they do not include results for the modified California retesting scheme with $m = 4$, in which either the initial measurement or two of three resamples must be in-bounds. To complete the tables needed for the Unified Guidance, a variation of the Davis and McNichols algorithm was initially used to calculate the significance levels of the modified California retesting scheme with $m = 4$. Since that time, Davis and McNichols (1999) published an exact algorithm not only for the 1-of- m and strict California plans, but also for the modified California plan first suggested in an earlier draft of the Unified Guidance. Following their algorithm with some minor computational adjustments, the Unified Guidance tables have been recomputed, covering first the non-parametric 1-of- m plans and then the non-parametric modified California plan (**Chapter 19**). In each case, results are provided for non-parametric prediction limits taken either as the maximum value in background or as the second-largest concentration.

To measure the statistical power of these non-parametric retesting strategies, Davis and McNichols estimated power using Monte Carlo simulation with normally-distributed random variates. They then offered a new measure of power labeled the *Modified Addendum Criterion* or MAC, which rated schemes against an EPA reference power curve with $n = 8$ background samples. Recognizing that a particular power curve might only exceed the EPA reference power curve at large mean concentration shifts (Δ) above background, the MAC evaluated at what percentage power a proposed scheme did in fact begin to exceed the EPA reference power curve (*e.g.*, starting at 30% power, or 50% power, *etc.*).

In the Unified Guidance, effective power of non-parametric retesting schemes is measured in a similar, though not identical, manner. One difference is that the recommended EPA reference power curves are based on 10 rather than 8 background samples. With $n = 8$, there is less than a 50% probability of identifying a mean concentration increase above background of 3 standard deviations and less than an 80% chance of identifying an increase of 4 standard deviations. Another mostly semantic difference is that the schemes in the Unified Guidance are evaluated on whether or not they exceed the EPA reference power curve for concentrations exceeding background by a given number of standard

deviation units (*e.g.*, 3 or 4 standard deviations), instead of at a particular power percentage (*e.g.*, 30%, 70%, *etc.*).

To actually compute effective power, Monte Carlo simulations were not utilized in the Unified Guidance. Rather, since the underlying data were assumed to be normal, a simple modification to the numerical integration algorithms presented in Davis and McNichols (1987) was used to compute the power directly. Of course, if the data are normal in the first place, a parametric retesting scheme would be more appropriate. Non-parametric strategies should only be considered when the data appear to be distinctly non-normal or exhibit too many non-detects to judge normality. Nevertheless, since the true underlying distribution is unknown, the usual method of attack is to measure the statistical power that results when the underlying distribution is taken to be normal.

APPENDIX C. TECHNICAL APPENDIX

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C.1 SPECIAL STUDY: NORMAL VS. LOGNORMAL PREDICTION LIMITS

Section 10.3 outlines the strategy for distributional testing in the Unified Guidance. Among these recommendations is that the normal distribution should be treated as a default model until specific testing indicates otherwise. To establish this recommendation, a special study was conducted for the Unified Guidance to answer two key questions: 1) what are the consequences of incorrectly applying statistical techniques based on one distributional assumption (normal or lognormal), when the underlying distribution is, in fact, the other? and 2) what is the impact on statistical power and accuracy of assuming the wrong underlying distribution? These questions were tested for prediction limit tests in detection monitoring (and, by extension, for control charts).

The general effects of violating test assumptions can be measured in terms of false positive and negative error rates (and therefore power). A series of Monte Carlo simulations was generated for the Unified Guidance to evaluate the impacts on prediction limit false positive error rates and statistical power of using normal and lognormal distributions when applied either correctly or incorrectly to the underlying ‘true’ distributions. For varying inputs of background sample size, population coefficients of variation and confidence levels, sample data sets were generated and prediction limits computed for a single future observation using either a normal prediction limit [*NorPL*] or a lognormal prediction limit [*LgnPL*], as given in the equations below. \bar{x} and s_x are the mean and standard deviation respectively of the original measurements, while \bar{y} and s_y represent the log-mean and log-standard deviation:

$$NorPL_{1-\alpha} = \bar{x} + t_{n-1,1-\alpha} s_x \sqrt{1 + \frac{1}{n}}$$

$$LgnPL_{1-\alpha} = \exp \left[\bar{y} + t_{n-1,1-\alpha} s_y \sqrt{1 + \frac{1}{n}} \right]$$

To evaluate prediction limit performance, for each choice of inputs and statistical parameters, one million ($N = 1,000,000$) simulated normal background data sets and one million lognormal background data sets were generated and tested against each limit. When the underlying distribution was normal, a fixed unit standard deviation was coupled with a series of increasing mean levels to vary the population coefficient of variation. Then, to measure power in each case, new measurements were generated from similar normal models with mean levels incremented by k standard deviation units above the background mean, for k ranging from 0 to 5. A parallel evaluation was also conducted when a retest was added to the procedure. In this case, the prediction limits were constructed using the κ multiples for a 1-of-2 retesting scheme as described in **Chapter 19**. A summary of these results is given in **Figure C-1**.

C.1.1 RESULTS FOR NORMAL DATA

If the underlying population is truly normal, *treating the sample data as lognormal* in constructing a prediction limit can have significant consequences. **Figure C-1** presents key results, either averaged over all the statistical input parameters or broken down by sample size, confidence level, and coefficient of variation. These statistics include the average ratio between the normal prediction limit [*NorPL*] and the lognormal prediction limit [*LgnPL*], the average difference between the *nominal* (*i.e.*, expected) false positive rate (α) of the test and the *observed* false positive rate, and the average percentage of cases

where two statistical power targets were met, those being 50% power at 3 standard deviations above the background mean and 80% power at 4 standard deviations above the background mean.

With no retesting and truly normal data, the lognormal prediction limits were in every case considerably longer and thus less powerful than the normal prediction limits. The discrepancies in performance were smallest for larger sample sizes, lower confidence levels, and smaller coefficients of variation. However, in only one of the category breakdowns ($1-\alpha = 0.995$) did the normal prediction limits fail to meet *both* power targets at least half the time, while the lognormal limits jointly met both power targets less than half the time in all cases except one ($1-\alpha = 0.90$). As to false positives, the lognormal limits consistently exhibited *less* than the expected (nominal) false positive rate. The normal prediction limits tended to have slightly higher than nominal error rates.

When retesting was added to the procedure, the performance of both limits improved. The false positive rates of both were closer to the nominal rates, though the normal prediction limits were relatively closer to the expected rates. While power improved across the board compared to *not* using a retest, the normal limits were on average about 13% shorter than the lognormal limits, leading again to a measurable loss of statistical power for the lognormal prediction limits. Particularly noticeable was the significant difference in power at higher confidence levels, the very kinds of confidence levels needed when designing retesting strategies for multiple tests against a prediction limit.

On balance, *misapplication* of logarithmic prediction limits to normal data consistently resulted in lower power (often considerably) and false positive rates that were lower than expected, unless the population coefficient of variation was quite small, the background sample size was larger, and the confidence level more moderate. Since a lognormal prediction limit will be applied only if the underlying population is thought or assumed to be lognormal, it is helpful to gauge how these factors work in practice. On one hand, the higher confidence levels and consequently lower α values needed for retesting strategies with simultaneous tests (**Chapter 19**) would argue *against* presuming the underlying data to be lognormal without specific goodness-of-fit testing. In other words, if the data are actually normal but the lognormal prediction limit is misapplied, a high price in statistical power may be paid.

In terms of sample size, the greatest penalties from misapplying lognormal prediction limits occur for smaller background sizes. Since goodness-of-fit tests are least able to distinguish between normal and lognormal data with small samples, small background samples be not be presumed to be lognormal *as a default* unless other site-specific evidence suggests otherwise. For larger sample sizes, goodness-of-fit tests have much better discriminatory power, enabling a better indication of which model to use.

With regard to coefficient of variation [CV], the guidelines are less clear cut. Given that groundwater data are generally positive in value, truly normal populations are likely to have population coefficients of variation of 0.3 or lower. Larger coefficients of variation would result in a significant fraction of negative measurements. In addition, the probability of observing a large sample coefficient of variation from a normal population with population coefficient of variation of 0.3 or less is rather small.

However, the measurement and *censoring* of small concentration values complicates the picture. Such values are measured below a reporting limit [RL] and are generally listed as ‘less thans.’ A measurement process that is normal with high coefficient of variation and mean close to the RL can generate a mixture of left-censored and detected values with fairly high coefficient of variation yet not be lognormal. In fact, the cases in **Figure C-1** with higher coefficients of variation were analyzed in essentially this fashion, with negative values imputed to a small, positive reporting limit prior to

calculation of the prediction limits. The results indicate a substantial loss of performance when lognormal limits are misapplied to these left-censored normal data sets, *with or without retesting*. Therefore, the observed CV should not be used as the sole criterion of whether to presume an underlying normal or lognormal data model. Rather, if large fractions of censored data are present, censored probability plots (**Chapter 15**) should be constructed to aid in choosing an appropriate distribution.

C.1.2 RESULTS FOR LOGNORMAL DATA

Do normal-based prediction limits suffer in a similar comparison when the underlying population is really lognormal? The results from applying normal and lognormal prediction limits to underlying lognormal data are presented in **Figure C-2**. There, the summaries are similar to **Figure C-1** with one important exception. As explained in **Chapter 10** and **Appendix Section C.2**, the lognormal distribution is not an additive model. Because of this fact, the distributional alternatives used in assessing the statistical power of a lognormal-based prediction limit usually involve setting the alternative mean to a *multiple* of the background mean while keeping a *constant* lognormal coefficient of variation.

The net effect is that the power of lognormal-based tests depends greatly on the actual level of the coefficient of variation. This is different from normal-based power analyses, where the coefficient of variation only plays a role in terms of the degree of censoring in the data (thus affecting power through the handling of left-censored values, *i.e.*, non-detects). Because the achievable power varies over such a large range — depending on the level of skewness of the specific lognormal distribution — reference statistical power for lognormal models must be tied to the observed background coefficient of variation. However, since a performance comparison *across* coefficient of variation levels was needed for the results of **Figure C-2**, a *single benchmark* was used to assess the comparative power of the normal and lognormal prediction limits. While imperfect for practical use, this benchmark was set at 25% power for alternatives of three times the background mean and 50% power at five times the background mean.

For an underlying lognormal model with no retesting, **Figure C-2** indicates that while the false positive rates of lognormal-based prediction limits are essentially as advertised (*i.e.*, a 95% confidence prediction limit has close to the nominal 5% false positive rate), the false positive rates of normal-based limits are higher than expected, often substantially, especially for higher confidence levels and higher coefficients of variation. The most significant drawback to *misapplying* normal prediction limits to lognormal data would then be an excessive site-wide false positive rate from using such limits on multiple well-constituent pairs.

However, the situation changes dramatically with the addition of even a single retest. In this case, the lognormal prediction limits are still more accurate than the normal limits, in terms of having false positive rates closer to the nominal targets. Nevertheless, with the added retest, the achieved false positive rates for the normal limits tend to be *less* than the expected rates, especially for moderate to larger sample sizes. In addition, except for very skewed lognormal distributions, the power of the normal limits is comparable or greater than the power of the lognormal limits.

Figure C-1. Accuracy and Power of Normal vs. Lognormal Prediction Limits When Underlying Data Are Normal

No Retesting, 1-of-1 Scheme

Category	Assumed Model	Length Ratio	α -Error	Power-50%	Power-80%	Power-Both
ALL	normal	0.6599	0.00611	0.759	0.741	0.741
	lognormal		-0.01965	0.348	0.277	0.277
N	4	0.5729	0.00643	0.500	0.500	0.500
	lognormal		-0.01590	0.286	0.107	0.107
8	normal	0.6713	0.00607	0.679	0.607	0.607
	lognormal		-0.01962	0.357	0.321	0.321
12	normal	0.6935	0.00599	0.857	0.857	0.857
	lognormal		-0.02107	0.357	0.321	0.321
16	normal	0.7020	0.00596	1.000	1.000	1.000
	lognormal		-0.02201	0.393	0.357	0.357
(1- α)	0.900	0.8437	0.00898	1.000	1.000	1.000
	lognormal		-0.03843	1.000	0.857	0.857
0.950	normal	0.7436	0.00857	1.000	1.000	1.000
	lognormal		-0.02884	0.393	0.250	0.250
0.990	normal	0.5583	0.00416	0.643	0.607	0.607
	lognormal		-0.00749	0.000	0.000	0.000
0.995	normal	0.4940	0.00274	0.393	0.357	0.357
	lognormal		-0.00385	0.000	0.000	0.000
CV	0.125	0.9504	-0.00005	0.688	0.688	0.688
	lognormal		-0.00740	0.500	0.438	0.438
0.250	normal	0.8401	-0.00009	0.688	0.688	0.688
	lognormal		-0.01486	0.438	0.438	0.438
0.333	normal	0.7439	0.00015	0.688	0.688	0.688
	lognormal		-0.01959	0.438	0.313	0.313
0.500	normal	0.5794	0.00266	0.750	0.688	0.688
	lognormal		-0.02614	0.250	0.188	0.188
0.667	normal	0.5112	0.00830	0.813	0.813	0.813
	lognormal		-0.02611	0.250	0.188	0.188
0.752	normal	0.4989	0.01160	0.813	0.813	0.813
	lognormal		-0.02458	0.250	0.188	0.188
1.000	normal	0.4954	0.02021	0.875	0.813	0.813
	lognormal		-0.01887	0.313	0.188	0.188

Legend. **Category:** N = Sample size; (1- α) = Nominal confidence level; CV = Coefficient of variation of underlying normal distribution. For each case, results for all simulations with that characteristic were averaged to derive that line of the figure.

Assumed Model: Whether normal or lognormal formulas were used to compute the prediction limits.

Length Ratio: Ratio of the normal prediction limit to the lognormal prediction limit.

α -error: Achieved false positive rate minus nominal false positive rate.

Power-50%: Fraction of simulations in which 50% power target at 3 standard deviations above background was met by the prediction limit.

Power-80%: Fraction of simulations in which 80% power target at 4 standard deviations above background was met by the prediction limit.

Power-Both: Fraction of simulations in which both the 50% and 80% power targets were met.

Retesting, 1-of-2 Scheme

Category	Assumed Model	Length Ratio	α -Error	Power-50%	Power-80%	Power-Both
ALL	normal	0.8712	0.00134	0.911	0.884	0.884
	lognormal		0.00052	0.670	0.625	0.625
n	4	0.7870	0.00254	0.643	0.536	0.536
	lognormal		-0.00302	0.500	0.500	0.500
	8	0.8815	0.00130	1.000	1.000	1.000
	lognormal		0.00070	0.643	0.607	0.607
	12	0.9034	0.00066	1.000	1.000	1.000
	lognormal		0.00157	0.714	0.679	0.679
	16	0.9129	0.00087	1.000	1.000	1.000
	lognormal		0.00283	0.821	0.714	0.714
(1- α)	0.900	1.0370	-0.00134	1.000	1.000	1.000
	lognormal		0.01496	1.000	1.000	1.000
	0.950	0.9543	0.00235	1.000	1.000	1.000
	lognormal		-0.00485	1.000	1.000	1.000
	0.990	0.7807	0.00252	0.893	0.786	0.786
	lognormal		-0.00510	0.500	0.321	0.321
	0.995	0.7129	0.00185	0.750	0.750	0.750
	lognormal		-0.00295	0.179	0.179	0.179
CV	0.125	0.9867	0.00009	0.875	0.875	0.875
	lognormal		0.00023	0.875	0.875	0.875
	0.250	0.9486	0.00003	0.875	0.875	0.875
	lognormal		-0.00048	0.813	0.813	0.813
	0.333	0.9065	0.00016	0.875	0.875	0.875
	lognormal		-0.00164	0.688	0.625	0.625
	0.500	0.8289	0.00095	0.938	0.875	0.875
	lognormal		-0.00190	0.563	0.500	0.500
	0.667	0.8051	0.00242	0.938	0.875	0.875
	lognormal		0.00132	0.563	0.500	0.500
	0.752	0.8048	0.00270	0.938	0.875	0.875
	lognormal		0.00241	0.563	0.500	0.500
	1.000	0.8178	0.00306	0.938	0.938	0.938
	lognormal		0.00371	0.625	0.563	0.563

Legend. **Category:** N = Sample size; (1- α) = Nominal confidence level; CV = Coefficient of variation of underlying normal distribution. For each case, results for all simulations with that characteristic were averaged to derive that line of the figure.

Assumed Model: Whether normal or lognormal formulas were used to compute the prediction limits.

Length Ratio: Ratio of the normal prediction limit to the lognormal prediction limit.

α -error: Achieved false positive rate minus nominal false positive rate.

Power-50%: Fraction of simulations in which 50% power target at 3 standard deviations above background was met by the prediction limit.

Power-80%: Fraction of simulations in which 80% power target at 4 standard deviations above background was met by the prediction limit.

Power-Both: Fraction of simulations in which both the 50% and 80% power targets were met.

Figure C-2. Accuracy and Power of Normal vs. Lognormal Prediction Limits When Underlying Data Are Lognormal

No Retesting, 1-of-1 Scheme

Category	Assumed Model	Length Ratio	α -Error	Power-25%	Power-50%	Power-Both
ALL	normal	0.6082	0.03557	0.806	0.581	0.581
	lognormal		-0.00001	0.500	0.412	0.412
n	normal	0.4444	0.04682	0.775	0.550	0.550
	lognormal		0.00000	0.400	0.325	0.325
	normal	0.6006	0.03782	0.825	0.600	0.600
	lognormal		-0.00002	0.500	0.425	0.425
	normal	0.6723	0.03102	0.825	0.600	0.600
	lognormal		0.00001	0.550	0.450	0.450
	normal	0.7153	0.02660	0.800	0.575	0.575
	lognormal		-0.00003	0.550	0.450	0.450
(1- α)	normal	0.8985	0.02509	1.000	0.750	0.750
	lognormal		-0.00001	0.950	0.650	0.650
	normal	0.7108	0.04175	0.975	0.675	0.675
	lognormal		-0.00002	0.525	0.475	0.475
	normal	0.4472	0.04037	0.700	0.475	0.475
	lognormal		0.00000	0.275	0.275	0.275
	normal	0.3762	0.03505	0.550	0.425	0.425
	lognormal		0.00000	0.250	0.250	0.250
CV	normal	0.9549	0.00733	1.000	1.000	1.000
	lognormal		-0.00003	1.000	1.000	1.000
	normal	0.8749	0.01419	1.000	1.000	1.000
	lognormal		-0.00004	1.000	1.000	1.000
	normal	0.7282	0.02535	1.000	1.000	1.000
	lognormal		-0.00004	0.813	0.813	0.813
	normal	0.6278	0.03315	1.000	0.938	0.938
	lognormal		0.00006	0.500	0.500	0.500
	normal	0.5629	0.03829	0.938	0.813	0.813
	lognormal		-0.00008	0.438	0.438	0.438
	normal	0.5204	0.04216	0.938	0.500	0.500
	lognormal		0.00009	0.375	0.188	0.188
	normal	0.4915	0.04479	0.750	0.438	0.438
	lognormal		-0.00002	0.250	0.188	0.188
	normal	0.4566	0.04815	0.500	0.125	0.125
	lognormal		0.00003	0.250	0.000	0.000
	normal	0.4378	0.05037	0.500	0.000	0.000
	lognormal		-0.00004	0.188	0.000	0.000
	normal	0.4266	0.05189	0.438	0.000	0.000
	lognormal		-0.00002	0.188	0.000	0.000

Legend. **Category:** N = Sample size; (1- α) = Nominal confidence level; CV = Coefficient of variation of underlying lognormal distribution. For each case, results for all simulations with that characteristic were averaged to derive that line of the figure.

Assumed Model: Whether normal or lognormal formulas were used to compute the prediction limits.

Length Ratio: Ratio of the normal prediction limit to the lognormal prediction limit.

α -error: Achieved false positive rate minus nominal false positive rate.

Power-25%: Fraction of simulations in which 25% power target at 3 times the background mean was met by the prediction limit.

Power-50%: Fraction of simulations in which 50% power target at 5 times the background mean was met by the prediction limit.

Power-Both: Fraction of simulations where both 25% and 50% power targets were met.

Retesting, 1-of-2 Scheme

Category	Assumed Model	Length Ratio	α -Error	Power-25%	Power-50%	Power-Both
ALL	normal	0.9920	-0.00405	0.587	0.544	0.537
	lognormal		0.00009	0.600	0.544	0.531
n	normal	0.7334	0.00804	0.625	0.525	0.500
	lognormal		0.00022	0.550	0.425	0.425
	normal	0.9830	-0.00354	0.600	0.550	0.550
	lognormal		0.00016	0.600	0.550	0.550
	normal	1.0931	-0.00897	0.575	0.550	0.550
	lognormal		-0.00020	0.625	0.600	0.575
	normal	1.1586	-0.01175	0.550	0.550	0.550
	lognormal		0.00018	0.625	0.600	0.575
(1- α)	normal	1.3532	-0.02895	0.800	0.700	0.700
	lognormal		0.00027	1.000	0.850	0.850
	normal	1.1500	-0.00478	0.700	0.600	0.600
	lognormal		0.00009	0.750	0.625	0.625
	normal	0.7890	0.00892	0.475	0.475	0.475
	lognormal		0.00000	0.375	0.375	0.375
	normal	0.6759	0.00860	0.375	0.400	0.375
	lognormal		0.00000	0.275	0.325	0.275
CV	normal	0.9889	-0.00035	1.000	1.000	1.000
	lognormal		0.00011	1.000	1.000	1.000
	normal	0.9684	-0.00099	1.000	1.000	1.000
	lognormal		0.00008	1.000	1.000	1.000
	normal	0.9332	-0.00214	1.000	1.000	1.000
	lognormal		0.00008	0.938	0.938	0.938
	normal	0.9199	-0.00317	0.938	1.000	0.938
	lognormal		0.00018	0.688	0.813	0.688
	normal	0.9253	-0.00416	0.688	0.688	0.688
	lognormal		0.00008	0.500	0.500	0.500
	normal	0.9428	-0.00481	0.500	0.500	0.500
	lognormal		0.00014	0.500	0.438	0.438
	normal	0.9673	-0.00527	0.438	0.250	0.250
	lognormal		0.00011	0.500	0.375	0.375
	normal	1.0266	-0.00606	0.188	0.000	0.000
	lognormal		0.00004	0.375	0.188	0.188
	normal	1.0913	-0.00662	0.063	0.000	0.000
	lognormal		0.00003	0.250	0.188	0.188
	normal	1.1566	-0.00696	0.063	0.000	0.000
	lognormal		0.00004	0.250	0.000	0.000

Legend. **Category:** N = Sample size; (1- α) = Nominal confidence level; CV = Coefficient of variation of underlying lognormal distribution. For each case, results for all simulations with that characteristic were averaged to derive that line of the figure.

Assumed Model: Whether normal or lognormal formulas were used to compute the prediction limits.

Length Ratio: Ratio of the normal prediction limit to the lognormal prediction limit.

α -error: Achieved false positive rate minus nominal false positive rate.

Power-25%: Fraction of simulations in which 25% power target at 3 times the background mean was met by the prediction limit.

Power-50%: Fraction of simulations in which 50% power target at 5 times the background mean was met by the prediction limit.

Power-Both: Fraction of simulations in which both the 25% and 50% power targets were met.

On balance, adding a retest to the testing procedure significantly minimizes the penalty of misapplying normal prediction limits to lognormal data, as long one uses a sample size of at least 8 and the coefficient of variation is not too large. Consequently, for most situations, there is *less* penalty associated with making a default assumption of *normality* than in making a default assumption of *lognormality*. With highly skewed data, say with large coefficients of variation of 1.5 or more, goodness-of-fit tests tend to better discriminate between the normal and lognormal models. Again such diagnostic testing should be done *explicitly*, rather than simply assuming the data are normal or lognormal.

The most problematic cases occur for very small background sample sizes, where a misapplication of prediction limits in either direction can result in poorer statistical performance, even with retesting. In some situations, testing may have to be done on an interim or ad-hoc basis until more data is collected. Still, the Unified Guidance does not recommend an automatic *default* assumption of lognormality.

C.2 CALCULATING STATISTICAL POWER

C.2.1 STATISTICAL POWER OF WELCH'S T-TEST

The statistical power of any test represents the probability that the alternative hypothesis, H_A , will be accepted, given that the null hypothesis, H_0 , is actually false. In groundwater monitoring, power usually represents the probability that the compliance point concentrations will be identified as significantly higher than background, when in fact they *are* higher. Of course, statistical power is not a single number, but rather a *function* of the increase in the compliance population mean above the background average. This fact makes the exact power of many tests difficult to calculate, especially since many test statistics have a complicated distributional behavior under the alternative hypothesis.

The critical points or percentage points of any test are computed under the assumption that the null hypothesis is true. In the case of Welch's t -test, the t -statistic approximately follows a Student's t -distribution under H_0 . That is not the case, however, when the alternative hypothesis is true; then the t -statistic follows what is known as a *non-central* t -distribution with non-centrality parameter δ . Essentially, the non-centrality parameter δ governs the average or expected value of the t -statistic.

When the null hypothesis is true, so that the two population means are equal, the t -statistic should tend to be close to zero. The distribution of the t -statistic is in fact centered at zero in this case, meaning that the usual Student's t -distribution can be regarded as a non-central t -distribution with non-centrality parameter equal to zero.

When H_A is true instead, and the compliance point population mean is larger than the background mean, Welch's t -statistic will tend to be positive rather than centered at zero. The actual center of the distribution will depend on precisely how much larger the compliance point mean is compared to background. However, if σ_x represents the standard deviation of the first population and σ_y represents the standard deviation of the second population, it can be shown that the two-sample Welch's t -statistic approximately follows a non-central t -distribution with degrees of freedom equal to

$$df = \left[\frac{\sigma_x^2}{n_x} + \frac{\sigma_y^2}{n_y} \right]^2 \bigg/ \left[\frac{\sigma_x^4}{n_x^2(n_x - 1)} + \frac{\sigma_y^4}{n_y^2(n_y - 1)} \right] \quad [C.1]$$

and non-centrality parameter equal to

$$\delta = \Delta \bigg/ \sqrt{\frac{\sigma_x^2}{n_x} + \frac{\sigma_y^2}{n_y}} \quad [C.2]$$

where Δ is the concentration difference separating the background and compliance point population means.

Clearly, the distribution of the t -statistic under H_A depends in a complex manner not only on the sample sizes and the true difference between the population means, but also the respective population variances. Since statistical power is the probability that the Welch's t -statistic exceeds the original critical point, t_{cp} , yet the population variances are almost always unknown, computation of an exact

power is essentially impossible. Instead, an *approximate power* can be computed by substituting the sample variances for their population counterparts into equations [C.1] and [C.2]. By letting $f = \sigma_y^2 / \sigma_x^2$, the non-centrality parameter becomes

$$\delta = \frac{\Delta}{\sigma_x} \sqrt{\frac{n_x n_y}{n_y + f n_x}} = k \sqrt{\frac{n_x n_y}{n_y + f n_x}} \quad [\text{C.3}]$$

where k represents the increase in standard deviation units above the background mean. The non-centrality parameter can be approximated by substituting $\hat{f} = s_y^2 / s_x^2$ for f in [C.3].

Using this formulation, the approximate statistical power of Welch's t -test can be computed by repeatedly increasing k (e.g., in half units starting with 0.5) and determining the probability of exceeding the original critical point, t_{cp} , under the non-central t -distribution. A concise summary of the non-central t -distribution can be found in Evans, Hastings, and Peacock (1993). Percentage points of this distribution can be computed in selected standard statistical packages, including the free, open-source statistical software **R** (www.r-project.org).

► EXAMPLE C-1

Determine the approximate power of the t -test on benzene data used in **Example 16-1**.

SOLUTION

Step 1. Since Welch's t -test was run on the logged benzene measurements, power should also be computed using the logged values. In that case, the degrees of freedom was approximated at $df = 11$ and the critical point at $\alpha = .05$ was found to be $t_{cp} = 1.796$ from the Student's t -distribution in **Table 16-1**.

Step 2. Determine the non-centrality parameter δ from equation [C.3], substituting $\hat{f} = s_y^2 / s_x^2$ for f . Since $n_x = n_y = 8$, the sample downgradient log-standard deviation is $s_y = 1.9849$, and the sample background log-standard deviation is $s_x = 1.0826$. Plugging these values into \hat{f} gives $\hat{f} = (1.9849)^2 / (1.0826)^2 = 3.362$. The approximate non-centrality parameter becomes

$$\delta = k \sqrt{\frac{8 \times 8}{8 + 3.362 \times 8}} = k(1.354)$$

where k represents the increase above the benzene background log-scale mean in log-standard deviation units.

Step 3. Systematically increase k from 0.5 to 5 in steps of 0.5 to determine the non-centrality parameter δ at each point to be computed on the power curve (presented in the table below). Then determine each power value by calculating from the non-central t -distribution, with non-centrality parameter δ and $df = 11$, the probability of exceeding the original critical point of $t_{cp} = 1.796$.

k	δ	power
0.5	0.677	0.1565
1.0	1.354	0.3541
1.5	2.031	0.6022
2.0	2.708	0.8135
2.5	3.385	0.9360
3.0	4.062	0.9843
3.5	4.739	0.9973
4.0	5.416	0.9997
4.5	6.093	1.0000
5.0	6.770	1.0000

Step 4. Interpret the power results. The table in **Step 3** shows an approximate probability of 81% for detecting a two log-standard deviation increase above the background mean benzene level. If the data had been analyzed in the original units, a two standard deviation increase would translate into almost 11 ppb (using the sample background standard deviation of 5.31 ppb from **Example 16-1** as an estimate of the true standard deviation).

However, in the logarithmic domain, the interpretation is a bit different. As discussed in **Section C.2.3**, adding $k\sigma$ to the log-scale mean is equivalent to *multiplying* the arithmetic mean by $\exp(k\sigma)$. Therefore, a two log-standard deviation increase in the log-scale background mean is roughly equivalent to multiplying the *original* background mean by a factor of $\exp(2 \times 1.0826) = 8.7$, taking the sample log-scale background standard deviation of 1.0826 as an estimate for the true log-scale standard deviation.

Consequently, if the true background mean for benzene is close to the sample value of 3 ppb, the test will have more than 80% power for detecting a downgradient benzene mean of at least $3 \times 8.7 \approx 26$ ppb or larger. ◀

C.2.2 POWER OF PREDICTION LIMITS FOR FUTURE MEAN VS. OBSERVATIONS

The Unified Guidance discusses two basic kinds of parametric prediction limits: those for individual future observations and those for future means. Analytical expressions for the statistical power of each can be written and compared using the same sample size (n), the same false positive rate (α), and the same number of future measurements ($p = m$).

The power of a prediction limit for a future mean of order p (that is, a mean of p individual future values) with normally-distributed data can be expressed in the equation

$$1 - \beta = \Pr \left\{ T_{n-1} \left(\delta = \Delta / \sqrt{\frac{1}{p} + \frac{1}{n}} \right) > t_{1-\alpha, n-1} \right\} \quad [\text{C.4}]$$

where $(1-\beta)$ is a notation for power, Δ is the true difference (in standard deviation units) between the background and compliance point population means, and

$$T_{n-1} \left(\delta = \Delta / \sqrt{\frac{1}{p} + \frac{1}{n}} \right) \quad [C.5]$$

denotes a random variable distributed according to the non-central t -distribution with non-centrality parameter δ and $(n-1)$ degrees of freedom.

By contrast, the power of a prediction limit for p individual future values can be derived using the formulation in Davis and McNichols (1987), leading to the expression

$$1 - \beta = 1 - \int_0^1 \Pr \left\{ T_{n-1} \left(\delta = \sqrt{n} [\Phi^{-1}(u) + \Delta] \right) \leq t_{1-\alpha/p, n-1} \sqrt{n+1} \right\} p u^{p-1} du \quad [C.6]$$

where in this case $\Phi^{-1}(u)$ denotes the inverse standard normal transformation. The non-central t -distribution is required in each case, with further integration of the non-central t cumulative distribution function [CDF] needed for the case of p individual future measurements. These formulas are utilized in **Chapter 18** to provide graphical power comparisons between prediction limits for future means versus prediction limits for individual values.

C.2.3 COMPUTING POWER WITH LOGNORMAL DATA

The special Monte Carlo study presented in **Section C.1** involved a computation of statistical power when the underlying data are lognormal in distribution rather than normal. In the case of normal data, effective power is computed by adding an upward ‘shift’ in the mean of the baseline distribution, in order to simulate an increasing compliance point concentration. Adding such a shift does not increase the variance (σ^2) of the shifted distribution, only the mean (μ).

With lognormal data, both the mean and variance depend on the two distributional parameters, μ and σ . Adding a shift to the log-mean μ on the log-scale thus increases *both* the variance and the mean in the concentration domain, confusing the usual interpretation of power as the ability to detect upward changes in the mean level when all other factors (including the variance) are held constant.

In fact, if computations are conducted on the log-scale and a shift (Δ) is added to the log-mean parameter (μ), the effect is to *multiply* the lognormal mean in the arithmetic domain by a factor of $\exp(\Delta)$. To see this, note that the lognormal mean is written as

$$M = \exp(\mu + .5\sigma^2) \quad [C.7]$$

An additive shift to the log-mean results in a change to the (arithmetic) lognormal mean of

$$M_A = \exp(\mu + \Delta + .5\sigma^2) = \exp(\Delta) \exp(\mu + .5\sigma^2) = \exp(\Delta) M \quad [C.8]$$

To compute statistical power, one must assess test performance both under background conditions and under increasing levels of contamination. But the power that can be expected with lognormal data varies depending on the lognormal coefficient of variation [CV]. For a fixed coefficient of variation, as lognormal concentrations increase, the lognormal standard deviation increases proportionally to the

lognormal mean. Because of this — and in contrast to the case of normal data — a different lognormal power curve could be associated with each unique value of the *CV*.

To sidestep this problem, the Unified Guidance assumes that if background is lognormal, the *same* coefficient of variation [*CV*] will apply to both the background and compliance point populations. This assumption has two important consequences: 1) compliance point data with mean levels higher than background will tend to also be more variable than the background measurements, a common empirical truth in environmental data sets; and 2) on the log-scale, the log-variance parameter (σ^2) will be the *same* in both populations. The reason that this second consequence holds is that the log-standard deviation parameter is solely a function of the coefficient of variation, as expressed in the following equation:

$$\sigma = \sqrt{\log(1 + CV^2)} \quad [C.9]$$

Thus if the *CV* is held constant, so will the log-standard deviation parameter (σ).

The upshot of the second consequence is that all power computations for lognormal data can be done in the log-domain, using the fact that the transformed data will be normally distributed and that the background and compliance point populations will have a common standard deviation. Consequently, the computational framework for simulating statistical power of lognormal data is almost precisely the same as the framework for the normal case.

In particular, the power curve for a given test can always be generated — without loss of generality — by assuming that the background data follow (perhaps in the log-domain) a standard normal distribution, and that the compliance point data follow (again in the log-domain for lognormal populations) a normal distribution with unit variance and shifted mean equal to $k\sigma = k$, since σ is assumed for computational purposes equal to 1. Then the multiplier k is typically allowed to range from 0 to 5, as this adequately sketches out the normal power curve in most situations.

The only aspect of the lognormal case that differs from the normal is the scaling of the horizontal axis of the power curve. In the log-domain, the curve documents power at increasing multiples of k log-standard deviations (σ) above the background log-mean (μ). To interpret these values in terms of the original concentrations, the background mean has to be reconstructed using the formula

$$M_{BG} = \exp(\mu + 0.5\sigma^2) \quad [C.10]$$

while the compliance point (arithmetic) mean corresponding to the $k\sigma$ log-scale increase becomes

$$M_{CW} = \exp(\mu + k\sigma + 0.5\sigma^2) = M_{BG} \exp(k\sigma) \quad [C.11]$$

or equivalently, a multiple of $\exp(k\sigma)$ times the mean background level.

► EXAMPLE C-2

Suppose that background data are fit best by a lognormal distribution with $CV = 0.5$. What steps must be taken to simulate the statistical performance of a lognormal prediction limit on observations with a single verification resample?

SOLUTION

Step 1. Compute the background log-standard deviation parameter as:

$$\sigma = \sqrt{\log(1 + CV^2)} = \sqrt{\log(1 + .25)} = 0.4724$$

taking multiplier $k = 0$ to represent the background population.

Step 2. Generate simulated random values from a standard normal distribution with zero mean and unit standard deviation. These values represent simulated and standardized log-domain background measurements.

Step 3. Compute the background prediction limit for lognormal data with a single resample using the formula:

$$PL = \exp(\bar{y} + \kappa s_y) \quad [C.12]$$

where \bar{y} and s_y are respectively the log-mean and log-standard deviation, and κ is taken from the **Chapter 19** tables in the **Appendix**, depending on the background sample size, the number of tests to be run, and the type of 1-of-2 retesting plan (interwell or intrawell). Note that the simulated background values do not need to be exponentiated prior to computing the background prediction limit, due to the construction of formula [C.12].

Step 4. For any specific k in the range from 0 to 5 (with increasing steps of 0.5), set the compliance point log-mean equal to $\mu_A = k$. Use this result to generate two normal measurements with shifted mean μ_A and unit standard deviation. The two simulated values represent an original sample and a possible resample from the contaminated compliance point. Exponentiate these two values to get simulated lognormal measurements from the desired (alternative) distribution.

Step 5. Compare the simulated values against the background prediction limit. If both exceed the limit, increment the count of cases associated with k in which a difference from background has been identified. If only one or none exceeds the limit, do not increment the count.

Step 6. Repeat **Steps 2** through **5** a large number of iterations (say 10,000 or more) and determine the fraction of cases for given k at which an exceedance of background is found. This fraction represents the estimated power of the lognormal prediction limit in the log-domain of a $k\sigma$ increase above the background log-mean. Equivalently, with a population $CV = 0.5$, this represents a compliance point mean level of $\exp(k\sigma) = \exp(k \times .4724)$ times the (arithmetic) background mean. Repeat this entire process for each k in the range of 0 to 5 to estimate the full lognormal power curve for that prediction limit. ◀

C.3 R SCRIPTS

Certain calculations in the Unified Guidance cannot easily be done either by hand, with a spreadsheet, or even within many common statistical packages. In some cases, proprietary software tailored to groundwater statistics can be consulted. Barring that, an alternate solution is to download and install the free-of-charge, open source, statistical analysis and programming environment **R** software. It can be utilized to perform or program almost any kind of statistical test or calculation. However, with its power and flexibility comes a somewhat steeper learning curve for new programming language.

One of **R**'s advantages is the ability to run 'scripts,' short pre-written programs that can be run repeatedly to perform specific statistical calculations. Scripts can be easily tailored to data- or site-specific configurations using a simple text editor. Because users of the Unified Guidance may occasionally need calculations not covered in the **Appendix** tables or which are unavailable in standard statistical software, a small number of **R** scripts are listed below. These scripts can be modified as necessary and then run in **R**, once the **R** environment is installed on a personal computer. They are provided as a courtesy to users of the Unified Guidance and are provided without any guarantees or implied warranties.

The scripts provided in the Unified Guidance below cover two specific topics: 1) calculation of parametric intrawell prediction limit κ -multipliers used with retesting, especially in cases where a pooled standard deviation estimate might be used in place of the usual sample standard deviation (**Section 13.3**); and 2) computation of a bootstrapped non-parametric confidence band around a Theil-Sen trend line (**Section 21.3.2**).

It is first necessary to install the R-software. As of this date, the latest version is 2.7.2. The program can be downloaded from the website: <http://cran.r-project.org>. Versions are available for most current Windows operating systems, as well as other types. Once the program has been downloaded (approximately 30 mb), it can be accessed through a self-installed desktop icon.

The R-scripts should first be transferred to a working directory; copies are provided with the distribution CD. If copied directly from the guidance Acrobat pdf using a text editor such as Notepad, it will be necessary to copy each page of the script separately and combine (avoiding unnecessary margin, header and footer information). Each file should be named and saved with the extension changed to a *xxx.r* format. It may be necessary to add a number of additional comment codes (#) at the beginning of the scripts using the text editor, so that each line of narrative text is first identified by a comment code. To run the scripts:

- 1) Open the R-software from the desktop icon; you will be in the R-console window;
- 2) Click File on the toolbar, select Change_dir and hit [Enter]; set the working directory to the one with your scripts; hit [Enter];
- 3) Then click File and select Open Script [Enter]; Click on the desired R-script file and hit Enter;
- 4) In the R-console window; change script inputs as desired; Click Edit on the toolbar and select Run All.

5) The program will run behind the console window. Outputs can be read by minimizing the R-editor. Using the side scrollbar, check the R-script text run to determine if any errors occurred. As noted above, it may be necessary to add the comment code (#) where line length has been exceeded. To run additional inputs within a script, simply modify the inputs in the R-console window and then follow steps 4) and 5). To run other scripts, minimize R, select the new script, adjust as appropriate and follow steps 3) to 5).

6) If an effect size power level is desired for the two prediction limit scripts, change one of the two values in parentheses on the line $del = c(3,4)$ and run again.

C.3.1 PARAMETRIC INTRAWELL PREDICTION LIMIT MULTIPLIERS

1-of-m Retesting Plans

```
# R Script for 1-of-m retesting plans
# Compute multiplier for intrawell prediction limit using either regular or pooled SD estimate
# and 1-of-m retesting for either observations or means of order p
# Solve for kappa given an SWFPR adjusted for nbr of constituents and wells;
# then rate by effective power
# ne = number of yearly evaluations
# Note: ne=4 (quarterly eval), ne=2 (semi-annual), ne=1 (annual)
# n = intrawell BG sample size; w = # wells; coc = # constituents
# df = degrees of freedom associated with variance estimate of prediction limit formula
# Note: if the usual std deviation for a single well is used, set df = (n-1);
#       if using a pooled SD estimate across w equal sized wells, set df= w*(n-1) or
#       df = (sum of well n's) - w, if w pooled wells are of different sizes
# alph = per-test false positive rate
# m = type of 1-of-m retesting scheme (usually m= 1,2,3,or 4)
# ord = order of the mean to be predicted (for tests on observations, set ord=1)
# swfpr is the targeted network-wide false positive rate, by default set to 10%
# Rate power at 3 and 4 SD units above BG;
# use ERPC power values as the reference power
# user supplied values of n, w, coc, df, evaluation frequency, m, and ord
n= 4
w= 10
coc= 5
df= w*(n-1)
ne= 1
m= 3
ord= 2

swfpr= .1
alph= 1 - (1-swfpr)^(1/(coc*w))
ref= c()
if (ne==1) ref= c(.54,.81)
if (ne==2) ref= c(.59,.85)
if (ne==4) ref= c(.60,.86)

# default tolerance values for convergence
tol= .000001
tol2= .0001

# default lower and upper limits on range for desired multiplier
ll= 0
ul= 15

# recursive function to compute correct multiplier within limits (lo,hi)
```

```

kfind= function(lo,hi,n,alph,ne,tol) {
  if (abs(hi-lo)<tol2) return(lo)
  nc= function(x) sqrt(n)*qnorm(x)/sqrt(ord)
  tt= sqrt(n)*lo
  g= function(x) ne*m*(1-(1-x)^m)^(ne-1)*(1-x)^(m-1)*pt(tt,df,nc(x))
  klo = 1 - alph - integrate(g,0,1)$value
  if (abs(klo)<=tol) return(lo)
  tt= sqrt(n)*hi
  khi = 1 - alph - integrate(g,0,1)$value
  if (abs(khi)<=tol) return(hi)
  tt= sqrt(n)*(mean(c(lo,hi)))
  kmid= 1 - alph - integrate(g,0,1)$value
  if (abs(kmid)<=tol) return(mean(c(lo,hi)))
  if (sign(klo)!=sign(khi)) {
    if (sign(klo)!=sign(kmid)) {
      kfind(lo,mean(c(lo,hi)),n,alph,ne,tol) }
    else {
      kfind(mean(c(lo,hi)),hi,n,alph,ne,tol) } }
  else {
    stop("bad limits") }
  }
}

del= c(3,4)
pow= c()
powrate= c()

kap= kfind(ll,ul,n,alph,ne,tol)

for (jj in 1:length(del)) {
  dc= del[jj]
  tt= sqrt(n)*kap
  nc= function(x) {sqrt(n)*(qnorm(x)/sqrt(ord) + del[jj])}
  h= function(x) {
    if (ne==1) {
      m*((1-x)^(m-1))*pt(tt,df,nc(x))
    }
    else {
      ne*m*((1-(1-x)^m)^(ne-1))*((1-x)^(m-1))*pt(tt,df,nc(x))
    }
  }
  pow[jj]= 1 - integrate(h,0,1,stop.on.error=F)$value
}

if ((pow[1] >= ref[1]) && (pow[2] >= ref[2])) powrate= 'GOOD'
if ((pow[1] < ref[1]) && (pow[2] >= ref[2])) powrate= 'ACCEPTABLE'
if ((pow[1] >= ref[1]) && (pow[2] < ref[2])) powrate= 'ACCEPTABLE'
if ((pow[1] < ref[1]) && (pow[2] < ref[2])) powrate= 'LOW'

print(paste('inrawell 1ofm'),quote=F)
print(paste('n,w,coc,ne= ',n,w,coc,ne),quote=F)
print(paste('m,ord=',m,ord),quote=F)
print(paste('ref power from ERPC at 3 and 4 SDs'),quote=F)
print(ref)
print(paste('kappa=',round(kap,2)),quote=F)
print(paste('calculated power at 3 and 4 SDs'),quote=F)
print(round(pow,3))
print(paste('power rating=',powrate),quote=F)

```

Modified California Retesting Plans

```

# R Script for modified California plan
# Compute multiplier for intrawell prediction limit using regular
# or pooled SD estimate and modified Calif retesting for observations
# Solve for kappa given an SWFPR adjusted for number of constituents and wells;
# then rate by effective power
# ne = number of yearly evaluations
# Note: ne=4 (quarterly eval), ne=2 (semi-annual), ne=1 (annual)
# n = intrawell BG sample size; w = # wells; coc = # constituents
# df = degrees of freedom associated with variance estimate of prediction limit formula
# Note: if the usual std deviation is used, set df = (n-1);
#       if using a pooled SD estimate across w wells, set df= w*(n-1)
# alph = per-test false positive rate
# swfpr is the targeted network-wide false positive rate, by default set to 10%
# Rate power at 3 and 4 SD units above BG; use ERPC power values as the reference power
# user supplied values of n, w, coc, df, and evaluation frequency
n= 4
w= 10
coc= 5
df= w*(n-1)
ne= 1

swfpr= .1
alph= 1 - (1-swfpr)^(1/(coc*w))

ref= c()

if (ne==1) ref= c(.54,.81)
if (ne==2) ref= c(.59,.85)
if (ne==4) ref= c(.60,.86)

# default tolerance values for convergence
tol= .000001
tol2= .0001

# default lower and upper limits on range for desired multiplier
ll= 0
ul= 15

# recursive function to compute correct multiplier within limits (lo,hi)
kfind= function(lo,hi,n,alph,ne,tol) {
  if (abs(hi-lo)<tol2) return(lo)
  nc= function(x) sqrt(n)*qnorm(x)
  tt= sqrt(n)*lo
  g= function(x) ne*(x*(1 + 3*x - 5*x^2 + 2*x^3))^(ne-1)*(1 + 6*x - 15*x^2 +
8*x^3)*pt(tt,df,nc(x))
  klo = 1 - alph - integrate(g,0,1)$value
  if (abs(klo)<=tol) return(lo)
  tt= sqrt(n)*hi
  khi = 1 - alph - integrate(g,0,1)$value
  if (abs(khi)<=tol) return(hi)
  tt= sqrt(n)*(mean(c(lo,hi)))
  kmid= 1 - alph - integrate(g,0,1)$value
  if (abs(kmid)<=tol) return(mean(c(lo,hi)))
  if (sign(klo)!=sign(khi)) {
    if (sign(klo)!=sign(kmid)) {
      kfind(lo,mean(c(lo,hi)),n,alph,ne,tol) }
    else {
      kfind(mean(c(lo,hi)),hi,n,alph,ne,tol) } } }

```

```

else {
  stop('bad limits' )
}

del= c(3,4)
pow= c()
powrate= c()

kap= kfind(ll,ul,n,alph,ne,tol)

for (jj in 1:length(del)) {
  dc= del[jj]
  tt= sqrt(n)*kap
  nc= function(x) {sqrt(n)*(qnorm(x) + del[jj])}
  h= function(x) {
    if (ne==1) {
      (1 + 6*x - 15*x^2 + 8*x^3)*pt(tt,df,nc(x))
    }
    else {
      ne*(x*(1 + 3*x - 5*x^2 + 2*x^3))^(ne-1)*(1 + 6*x - 15*x^2 +
8*x^3)*pt(tt,df,nc(x))
    }
  }
  pow[jj]= 1 - integrate(h,0,1,stop.on.error=F)$value
}

if ((pow[1] >= ref[1]) && (pow[2] >= ref[2])) powrate= 'GOOD'
if ((pow[1] < ref[1]) && (pow[2] >= ref[2])) powrate= 'ACCEPTABLE'
if ((pow[1] >= ref[1]) && (pow[2] < ref[2])) powrate= 'ACCEPTABLE'
if ((pow[1] < ref[1]) && (pow[2] < ref[2])) powrate= 'LOW'

print(paste('inrawell modCal'),quote=F)
print(paste('n,w,coc,ne= ',n,w,coc,ne),quote=F)
print(paste('ref power from ERPC at 3 and 4 SDs'),quote=F)
print(ref)
print(paste('kappa=',round(kap,2)),quote=F)
print(paste('calculated power at 3 and 4 SDs'),quote=F)
print(round(pow,3))
print(paste('power rating=',powrate),quote=F)

```

C.3.2 THEIL-SEN CONFIDENCE BAND

```

# R script for Theil-Sen Confidence band
# Compute bootstrapped confidence band around Theil-Sen trend line
# user inputs: list of x-values, list of y-values, desired confidence level
# Note: replace numbers in parentheses below with specific x and y values
#           corresponding to data-specific ordered pairs
# x-values should be numeric values representing sampling dates or events
# y-values should be concentration values corresponding to these dates or events
# Script produces a plot of the Theil-Sen trend line, the confidence band around the trend,
# and an overlay of the actual data values

```

```

x= c(89.6,90.1,90.8,91.1,92.1,93.1,94.1,95.6,96.1,96.3)
y= c(56,53,51,55,52,60,62,59,61,63)
conf = .90

```

```

elimna= function(m){
#
# remove any rows of data having missing values
m= as.matrix(m)

```



```

ikeep= c(1:nrow(m))
for(i in 1:nrow(m)) if (sum(is.na(m[i,])>=1)) ikeep[i]= 0
elimna= m[ikeep[ikeep>=1],]
elimna
}

theilsen2= function(x,y){
#
# Compute the Theil-Sen regression estimator
# Do not compute residuals in this version
# Assumes missing pairs already removed
#
ord= order(x)
xs= x[ord]
ys= y[ord]
vec1= outer(ys,ys,"-")
vec2= outer(xs,xs,"-")
v1= vec1[vec2>0]
v2= vec2[vec2>0]
slope= median(v1/v2)
coef= 0
coef[1]= median(y)-slope*median(x)
coef[2]= slope
list(coef=coef)
}

nb= 1000
temp= matrix(c(x,y),ncol=2)
temp= elimna(temp) #remove any pairs with missing values
x= temp[,1]
y= temp[,2]
n= length(x)
ord= order(x)
cut= min(x) + (0:100)*(max(x)-min(x))/100 #compute 101 cut pts
t0= theilsen2(x,y) #compute trend line on original data
tmp= matrix(nrow=nb,ncol=101)

for (i in 1:nb) {
  idx= sample(ord,n,rep=T)
  xboot= x[idx]
  yboot= y[idx]
  tboot= theilsen2(xboot,yboot)
  tmp[i,]= tboot$coef[1] + cut*tboot$coef[2]
}

lb= 0; ub= 0
for (i in 1:101){
  lb[i]= quantile(tmp[,i],c((1-conf)/2))
  ub[i]= quantile(tmp[,i],c((1+conf)/2))
}

tband= list(xcut=cut,lo=lb,hi=ub,ths0=t0)
yt= tband$ths0$coef[1] + tband$ths0$coef[2]*tband$xcut
plot(yt~tband$xcut,type='l',xlim=range(x),ylim=c(min(tband$lo),max(tband$hi)),xlab='Date',ylab='Conc')
points(x,y,pch=16)
lines(tband$hi~tband$xcut,type='l',lty=2)
lines(tband$lo~tband$xcut,type='l',lty=2)

```

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APPENDIX D: STATISTICAL TABLES

D STATISTICAL TABLES

D.1 TABLES FROM CHAPTERS 10 THROUGH 18

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Table 10-1. Percentiles of Standard Normal Distribution

P	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
0.50	0.0000	0.0025	0.0050	0.0075	0.0100	0.0125	0.0150	0.0175	0.0201	0.0226
0.51	0.0251	0.0276	0.0301	0.0326	0.0351	0.0376	0.0401	0.0426	0.0451	0.0476
0.52	0.0502	0.0527	0.0552	0.0577	0.0602	0.0627	0.0652	0.0677	0.0702	0.0728
0.53	0.0753	0.0778	0.0803	0.0828	0.0853	0.0878	0.0904	0.0929	0.0954	0.0979
0.54	0.1004	0.1030	0.1055	0.1080	0.1105	0.1130	0.1156	0.1181	0.1206	0.1231
0.55	0.1257	0.1282	0.1307	0.1332	0.1358	0.1383	0.1408	0.1434	0.1459	0.1484
0.56	0.1510	0.1535	0.1560	0.1586	0.1611	0.1637	0.1662	0.1687	0.1713	0.1738
0.57	0.1764	0.1789	0.1815	0.1840	0.1866	0.1891	0.1917	0.1942	0.1968	0.1993
0.58	0.2019	0.2045	0.2070	0.2096	0.2121	0.2147	0.2173	0.2198	0.2224	0.2250
0.59	0.2275	0.2301	0.2327	0.2353	0.2378	0.2404	0.2430	0.2456	0.2482	0.2508
0.60	0.2533	0.2559	0.2585	0.2611	0.2637	0.2663	0.2689	0.2715	0.2741	0.2767
0.61	0.2793	0.2819	0.2845	0.2871	0.2898	0.2924	0.2950	0.2976	0.3002	0.3029
0.62	0.3055	0.3081	0.3107	0.3134	0.3160	0.3186	0.3213	0.3239	0.3266	0.3292
0.63	0.3319	0.3345	0.3372	0.3398	0.3425	0.3451	0.3478	0.3505	0.3531	0.3558
0.64	0.3585	0.3611	0.3638	0.3665	0.3692	0.3719	0.3745	0.3772	0.3799	0.3826
0.65	0.3853	0.3880	0.3907	0.3934	0.3961	0.3989	0.4016	0.4043	0.4070	0.4097
0.66	0.4125	0.4152	0.4179	0.4207	0.4234	0.4261	0.4289	0.4316	0.4344	0.4372
0.67	0.4399	0.4427	0.4454	0.4482	0.4510	0.4538	0.4565	0.4593	0.4621	0.4649
0.68	0.4677	0.4705	0.4733	0.4761	0.4789	0.4817	0.4845	0.4874	0.4902	0.4930
0.69	0.4959	0.4987	0.5015	0.5044	0.5072	0.5101	0.5129	0.5158	0.5187	0.5215
0.70	0.5244	0.5273	0.5302	0.5330	0.5359	0.5388	0.5417	0.5446	0.5476	0.5505
0.71	0.5534	0.5563	0.5592	0.5622	0.5651	0.5681	0.5710	0.5740	0.5769	0.5799
0.72	0.5828	0.5858	0.5888	0.5918	0.5948	0.5978	0.6008	0.6038	0.6068	0.6098
0.73	0.6128	0.6158	0.6189	0.6219	0.6250	0.6280	0.6311	0.6341	0.6372	0.6403
0.74	0.6433	0.6464	0.6495	0.6526	0.6557	0.6588	0.6620	0.6651	0.6682	0.6713
0.75	0.6745	0.6776	0.6808	0.6840	0.6871	0.6903	0.6935	0.6967	0.6999	0.7031

Table 10-1. Percentiles of Standard Normal Distribution

P	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
0.76	0.7063	0.7095	0.7128	0.7160	0.7192	0.7225	0.7257	0.7290	0.7323	0.7356
0.77	0.7388	0.7421	0.7454	0.7488	0.7521	0.7554	0.7588	0.7621	0.7655	0.7688
0.78	0.7722	0.7756	0.7790	0.7824	0.7858	0.7892	0.7926	0.7961	0.7995	0.8030
0.79	0.8064	0.8099	0.8134	0.8169	0.8204	0.8239	0.8274	0.8310	0.8345	0.8381
0.80	0.8416	0.8452	0.8488	0.8524	0.8560	0.8596	0.8633	0.8669	0.8705	0.8742
0.81	0.8779	0.8816	0.8853	0.8890	0.8927	0.8965	0.9002	0.9040	0.9078	0.9116
0.82	0.9154	0.9192	0.9230	0.9269	0.9307	0.9346	0.9385	0.9424	0.9463	0.9502
0.83	0.9542	0.9581	0.9621	0.9661	0.9701	0.9741	0.9782	0.9822	0.9863	0.9904
0.84	0.9945	0.9986	1.0027	1.0069	1.0110	1.0152	1.0194	1.0237	1.0279	1.0322
0.85	1.0364	1.0407	1.0450	1.0494	1.0537	1.0581	1.0625	1.0669	1.0714	1.0758
0.86	1.0803	1.0848	1.0893	1.0939	1.0985	1.1031	1.1077	1.1123	1.1170	1.1217
0.87	1.1264	1.1311	1.1359	1.1407	1.1455	1.1503	1.1552	1.1601	1.1650	1.1700
0.88	1.1750	1.1800	1.1850	1.1901	1.1952	1.2004	1.2055	1.2107	1.2160	1.2212
0.89	1.2265	1.2319	1.2372	1.2426	1.2481	1.2536	1.2591	1.2646	1.2702	1.2759
0.90	1.2816	1.2873	1.2930	1.2988	1.3047	1.3106	1.3165	1.3225	1.3285	1.3346
0.91	1.3408	1.3469	1.3532	1.3595	1.3658	1.3722	1.3787	1.3852	1.3917	1.3984
0.92	1.4051	1.4118	1.4187	1.4255	1.4325	1.4395	1.4466	1.4538	1.4611	1.4684
0.93	1.4758	1.4833	1.4909	1.4985	1.5063	1.5141	1.5220	1.5301	1.5382	1.5464
0.94	1.5548	1.5632	1.5718	1.5805	1.5893	1.5982	1.6072	1.6164	1.6258	1.6352
0.95	1.6449	1.6546	1.6646	1.6747	1.6849	1.6954	1.7060	1.7169	1.7279	1.7392
0.96	1.7507	1.7624	1.7744	1.7866	1.7991	1.8119	1.8250	1.8384	1.8522	1.8663
0.97	1.8808	1.8957	1.9110	1.9268	1.9431	1.9600	1.9774	1.9954	2.0141	2.0335
0.98	2.0537	2.0749	2.0969	2.1201	2.1444	2.1701	2.1973	2.2262	2.2571	2.2904
0.99	2.3263	2.3656	2.4089	2.4573	2.5121	2.5758	2.6521	2.7478	2.8782	3.0902

Table 10-2. Coefficients $[a_{n-i+1}]$ for Shapiro-Wilk Test of Normality, $n = 2(1)50$

i/n	2	3	4	5	6	7	8	9	10	
1	0.7071	0.7071	0.6872	0.6646	0.6431	0.6233	0.6052	0.5888	0.5739	
2	----	.0000	.1677	.2413	.2806	.3031	.3164	.3244	.3291	
3	----	----	----	.0000	.0875	.1401	.1743	.1976	.2141	
4	----	----	----	----	----	.0000	.0561	.0947	.1224	
5	----	----	----	----	----	----	----	.0000	.0399	
i/n	11	12	13	14	15	16	17	18	19	20
1	0.5601	0.5475	0.5359	0.5251	0.5150	0.5056	0.4968	0.4886	0.4808	0.4734
2	.3315	.3325	.3325	.3318	.3306	.3290	.3273	.3253	.3232	.3211
3	.2260	.2347	.2412	.2460	.2495	.2521	.2540	.2553	.2561	.2565
4	.1429	.1586	.1707	.1802	.1878	.1939	.1988	.2027	.2059	.2085
5	.0695	.0922	.1099	.1240	.1353	.1447	.1524	.1587	.1641	.1686
6	0.0000	0.0303	0.0539	0.0727	0.0880	0.1005	0.1109	0.1197	0.1271	0.1334
7	----	----	.0000	.0240	.0433	.0593	.0725	.0837	.0932	.1013
8	----	----	----	----	.0000	.0196	.0359	.0496	.0612	.0711
9	----	----	----	----	----	----	.0000	.0163	.0303	.0422
10	----	----	----	----	----	----	----	----	.0000	.0140
i/n	21	22	23	24	25	26	27	28	29	30
1	0.4643	0.4590	0.4542	0.4493	0.4450	0.4407	0.4366	0.4328	0.4291	0.4254
2	.3185	.3156	.3126	.3098	.3069	.3043	.3018	.2992	.2968	.2944
3	.2578	.2571	.2563	.2554	.2543	.2533	.2522	.2510	.2499	.2487
4	.2119	.2131	.2139	.2145	.2148	.2151	.2152	.2151	.2150	.2148
5	.1736	.1764	.1787	.1807	.1822	.1836	.1848	.1857	.1864	.1870
6	0.1399	0.1443	0.1480	0.1512	0.1539	0.1563	0.1584	0.1601	0.1616	0.1630
7	.1092	.1150	.1201	.1245	.1283	.1316	.1346	.1372	.1395	.1415
8	.0804	.0878	.0941	.0997	.1046	.1089	.1128	.1162	.1192	.1219
9	.0530	.0618	.0696	.0764	.0823	.0876	.0923	.0965	.1002	.1036
10	.0263	.0368	.0459	.0539	.0610	.0672	.0728	.0778	.0822	.0862
11	0.0000	0.0122	0.0228	0.0321	0.0403	0.0476	0.0540	0.0598	0.0650	0.0697
12	----	----	.0000	.0107	.0200	.0284	.0358	.0424	.0483	.0537
13	----	----	----	----	.0000	.0094	.0178	.0253	.0320	.0381
14	----	----	----	----	----	----	.0000	.0084	.0159	.0227
15	----	----	----	----	----	----	----	----	.0000	.0076
i/n	31	32	33	34	35	36	37	38	39	40
1	0.4220	0.4188	0.4156	0.4127	0.4096	0.4068	0.4040	0.4015	0.3989	0.3964
2	.2921	.2898	.2876	.2854	.2834	.2813	.2794	.2774	.2755	.2737
3	.2475	.2463	.2451	.2439	.2427	.2415	.2403	.2391	.2380	.2368
4	.2145	.2141	.2137	.2132	.2127	.2121	.2116	.2110	.2104	.2098
5	.1874	.1878	.1880	.1882	.1883	.1883	.1883	.1883	.1880	.1878
6	0.1641	0.1651	0.1660	0.1667	0.1673	0.1678	0.1683	0.1686	0.1689	0.1691
7	.1433	.1449	.1463	.1475	.1487	.1496	.1503	.1513	.1520	.1526
8	.1243	.1265	.1284	.1301	.1317	.1331	.1344	.1356	.1366	.1376
9	.1066	.1093	.1118	.1140	.1160	.1179	.1196	.1211	.1225	.1237
10	.0899	.0931	.0961	.0988	.1013	.1036	.1056	.1075	.1092	.1108

Source: Madansky (1988)

Footnote. The notation $n = 2(1)50$ is shorthand for n from 2 to 50 in unit steps

Table 10-2. Coefficients [a_{n-i+1}] for Shapiro-Wilk Test of Normality, $n = 2(1)50$

i/n	31	32	33	34	35	36	37	38	39	40
11	0.0739	0.0777	0.0812	0.0844	0.0873	0.0900	0.0924	0.0947	0.0967	0.0986
12	.0585	.0629	.0669	.0706	.0739	.0770	.0798	.0824	.0848	.0870
13	.0435	.0485	.0530	.0572	.0610	.0645	.0677	.0706	.0733	.0759
14	.0289	.0344	.0395	.0441	.0484	.0523	.0559	.0592	.0622	.0651
15	.0144	.0206	.0262	.0314	.0361	.0404	.0444	.0481	.0515	.0546
16	0.0000	0.0068	0.0131	0.0187	0.0239	0.0287	0.0331	0.0372	0.0409	0.0444
17	----	----	.0000	.0062	.0119	.0172	.0220	.0264	.0305	.0343
18	----	----	----	----	.0000	.0057	.0110	.0158	.0203	.0244
19	----	----	----	----	----	----	.0000	.0053	.0101	.0146
20	----	----	----	----	----	----	----	----	.0000	.0049
i/n	41	42	43	44	45	46	47	48	49	50
1	0.3940	0.3917	0.3894	0.3872	0.3850	0.3830	0.3808	0.3789	0.3770	0.3751
2	.2719	.2701	.2684	.2667	.2651	.2635	.2620	.2604	.2589	.2574
3	.2357	.2345	.2334	.2323	.2313	.2302	.2291	.2281	.2271	.2260
4	.2091	.2085	.2078	.2072	.2065	.2058	.2052	.2045	.2038	.2032
5	.1876	.1874	.1871	.1868	.1865	.1862	.1859	.1855	.1851	.1847
6	0.1693	0.1694	0.1695	0.1695	0.1695	0.1695	0.1695	0.1693	0.1692	0.1691
7	.1531	.1535	.1539	.1542	.1545	.1548	.1550	.1551	.1553	.1554
8	.1384	.1392	.1398	.1405	.1410	.1415	.1420	.1423	.1427	.1430
9	.1249	.1259	.1269	.1278	.1286	.1293	.1300	.1306	.1312	.1317
10	.1123	.1136	.1149	.1160	.1170	.1180	.1189	.1197	.1205	.1212
11	0.1004	0.1020	0.1035	0.1049	0.1062	0.1073	0.1085	0.1095	0.1105	0.1113
12	.0891	.0909	.0927	.0943	.0959	.0972	.0986	.0998	.1010	.1020
13	.0782	.0804	.0824	.0842	.0860	.0876	.0892	.0906	.0919	.0932
14	.0677	.0701	.0724	.0745	.0775	.0785	.0801	.0817	.0832	.0846
15	.0575	.0602	.0628	.0651	.0673	.0694	.0713	.0731	.0748	.0764
16	0.0476	0.0506	0.0534	0.0560	0.0584	0.0607	0.0628	0.0648	0.0667	0.0685
17	.0379	.0411	.0442	.0471	.0497	.0522	.0546	.0568	.0588	.0608
18	.0283	.0318	.0352	.0383	.0412	.0439	.0465	.0489	.0511	.0532
19	.0188	.0227	.0263	.0296	.0328	.0357	.0385	.0411	.0436	.0459
20	.0094	.0136	.0175	.0211	.0245	.0277	.0307	.0335	.0361	.0386
21	0.0000	0.0045	0.0087	0.0126	0.0163	0.0197	0.0229	0.0259	0.0288	0.0314
22	----	----	.0000	.0042	.0081	.0118	.0153	.0185	.0215	.0244
23	----	----	----	----	.0000	.0039	.0076	.0111	.0143	.0174
24	----	----	----	----	----	----	.0000	.0037	.0071	.0104
25	----	----	----	----	----	----	----	----	.0000	.0035

Source: Madansky (1988)

Footnote. The notation $n = 2(1)50$ is shorthand for n from 2 to 50 in unit steps

Table 10-3. α -Level Critical Points for Shapiro-Wilk Test, $n = 3(1)50$

$n \backslash \alpha$	0.01	0.05	0.10
3	0.753	0.767	0.789
4	0.687	0.748	0.792
5	0.686	0.762	0.806
6	0.713	0.788	0.826
7	0.730	0.803	0.838
8	0.749	0.818	0.851
9	0.764	0.829	0.859
10	0.781	0.842	0.869
11	0.792	0.850	0.876
12	0.805	0.859	0.883
13	0.814	0.866	0.889
14	0.825	0.874	0.895
15	0.835	0.881	0.901
16	0.844	0.887	0.906
17	0.851	0.892	0.910
18	0.858	0.897	0.914
19	0.863	0.901	0.917
20	0.868	0.905	0.920
21	0.873	0.908	0.923
22	0.878	0.911	0.926
23	0.881	0.914	0.928
24	0.884	0.916	0.930
25	0.888	0.918	0.931
26	0.891	0.920	0.933
27	0.894	0.923	0.935
28	0.896	0.924	0.936
29	0.898	0.926	0.937
30	0.900	0.927	0.939
31	0.902	0.929	0.940
32	0.904	0.930	0.941
33	0.906	0.931	0.942
34	0.908	0.933	0.943
35	0.910	0.934	0.944
36	0.912	0.935	0.945
37	0.914	0.936	0.946
38	0.916	0.938	0.947
39	0.917	0.939	0.948
40	0.919	0.940	0.949
41	0.920	0.941	0.950
42	0.922	0.942	0.951
43	0.923	0.943	0.951
44	0.924	0.944	0.952
45	0.926	0.945	0.953
46	0.927	0.945	0.953
47	0.928	0.946	0.954
48	0.929	0.947	0.954
49	0.929	0.947	0.955
50	0.930	0.947	0.955

Source: Madansky (1988)

Footnote. The notation $n = 3(1)50$ is shorthand for n from 3 to 50 in unit steps

Table 10-4. α -Level Critical Points for Shapiro-Francia Test, $n = 50(1)99$

$n \backslash \alpha$	0.01	0.05	0.10
50	0.935	0.953	0.963
51	0.935	0.954	0.964
53	0.938	0.957	0.964
55	0.940	0.958	0.965
57	0.944	0.961	0.966
59	0.945	0.962	0.967
61	0.947	0.963	0.968
63	0.947	0.964	0.970
65	0.948	0.965	0.971
67	0.950	0.966	0.971
69	0.951	0.966	0.972
71	0.953	0.967	0.972
73	0.956	0.968	0.973
75	0.956	0.969	0.973
77	0.957	0.969	0.974
79	0.957	0.970	0.975
81	0.958	0.970	0.975
83	0.960	0.971	0.976
85	0.961	0.972	0.977
87	0.961	0.972	0.977
89	0.961	0.972	0.977
91	0.962	0.973	0.978
93	0.963	0.973	0.979
95	0.965	0.974	0.979
97	0.965	0.975	0.979
99	0.967	0.976	0.980

Source: Shapiro & Francia (1972)

Footnote. The notation $n = 50(1)99$ is shorthand for n from 50 to 99 in unit steps

Table 10-5. α -Critical Pts., Prob. Plot Correlation Coeff. Test, $n = 3(1)50(5)100$

$n \backslash \alpha$	0.01	0.025	0.05	0.10
3	0.869	0.872	0.879	0.891
4	0.822	0.845	0.868	0.894
5	0.822	0.855	0.879	0.902
6	0.835	0.868	0.890	0.911
7	0.847	0.876	0.899	0.916
8	0.859	0.886	0.905	0.924
9	0.868	0.893	0.912	0.929
10	0.876	0.900	0.917	0.934
11	0.883	0.906	0.922	0.938
12	0.889	0.912	0.926	0.941
13	0.895	0.917	0.931	0.944
14	0.901	0.921	0.934	0.947
15	0.907	0.925	0.937	0.950
16	0.912	0.928	0.940	0.952
17	0.912	0.931	0.942	0.954
18	0.919	0.934	0.945	0.956
19	0.923	0.937	0.947	0.958
20	0.925	0.939	0.950	0.960
21	0.928	0.942	0.952	0.961
22	0.930	0.944	0.954	0.962
23	0.933	0.947	0.955	0.964
24	0.936	0.949	0.957	0.965
25	0.937	0.950	0.958	0.966
26	0.939	0.952	0.959	0.967
27	0.941	0.953	0.960	0.968
28	0.943	0.955	0.962	0.969
29	0.945	0.956	0.962	0.969
30	0.947	0.957	0.964	0.970
31	0.948	0.958	0.965	0.971
32	0.949	0.959	0.966	0.972
33	0.950	0.960	0.967	0.973
34	0.951	0.960	0.967	0.973
35	0.952	0.961	0.968	0.974
36	0.953	0.962	0.968	0.974
37	0.955	0.962	0.969	0.975
38	0.956	0.964	0.970	0.975
39	0.957	0.965	0.971	0.976
40	0.958	0.966	0.972	0.977
41	0.958	0.967	0.973	0.977
42	0.959	0.967	0.973	0.978
43	0.959	0.967	0.973	0.978
44	0.960	0.968	0.974	0.978
45	0.961	0.969	0.974	0.978
46	0.962	0.969	0.974	0.979
47	0.963	0.970	0.975	0.979
48	0.963	0.970	0.975	0.980
49	0.964	0.971	0.977	0.980
50	0.965	0.972	0.978	0.981
55	0.967	0.974	0.980	0.982
60	0.970	0.976	0.981	0.983
65	0.972	0.977	0.982	0.984
70	0.974	0.978	0.983	0.985
75	0.975	0.979	0.984	0.986
80	0.976	0.980	0.985	0.987
85	0.977	0.981	0.985	0.987
90	0.978	0.982	0.985	0.988
95	0.979	0.983	0.986	0.989
100	0.981	0.984	0.987	0.989

Source: Filliben (1975)

Table 10-6. Shapiro-Wilk Multiple Group Test: Values to Compute G_i for $n = 7(1)50$

n	γ	δ	ε	n	γ	δ	ε
7	-2.356	1.245	.4533	31	-6.248	1.965	.1840
8	-2.696	1.333	.4186	32	-6.324	1.976	.1811
9	-2.968	1.400	.3900	33	-6.402	1.988	.1781
10	-3.262	1.471	.3660	34	-6.480	2.000	.1755
11	-3.485	1.515	.3451	35	-6.559	2.012	.1727
12	-3.731	1.571	.3270	36	-6.640	2.024	.1702
13	-3.936	1.613	.3111	37	-6.721	2.037	.1677
14	-4.155	1.655	.2969	38	-6.803	2.049	.1656
15	-4.373	1.695	.2842	39	-6.887	2.062	.1633
16	-4.567	1.724	.2727	40	-6.961	2.075	.1612
17	-4.713	1.739	.2622	41	-7.035	2.088	.1591
18	-4.885	1.770	.2528	42	-7.111	2.101	.1572
19	-5.018	1.786	.2440	43	-7.188	2.114	.1552
20	-5.153	1.802	.2359	44	-7.266	2.128	.1534
21	-5.291	1.818	.2264	45	-7.345	2.141	.1516
22	-5.413	1.835	.2207	46	-7.414	2.155	.1499
23	-5.508	1.848	.2157	47	-7.484	2.169	.1482
24	-5.605	1.862	.2106	48	-7.555	2.183	.1466
25	-5.704	1.876	.2063	49	-7.615	2.198	.1451
26	-5.803	1.890	.2020	50	-7.677	2.212	.1436
27	-5.905	1.905	.1980				
28	-5.988	1.919	.1943				
29	-6.074	1.934	.1907				
30	-6.150	1.949	.1872				

Source: Gibbons (1994)

Footnote. The notation $n = 7(1)50$ is shorthand for n from 7 to 50 in unit steps

Table 10-7. Shapiro-Wilk Multiple Group Test: Values of G_i for $n = 3(1)6$

n = 3 ($\epsilon = .7500$)			n = 4 ($\epsilon = .6297$)		n = 5 ($\epsilon = .5521$)		n = 6 ($\epsilon = .4963$)	
u	W	G_i	W	G_i	W	G_i	W	G_i
-7.0	.7502	-3.291						
-5.4	.7511	-2.810						
-5.0	.7517	-2.678						
-4.6	.7525	-2.543						
-4.2	.7537	-2.400						
-3.8	.7555	-2.254	.6378	-3.497				
-3.4	.7581	-2.099	.6417	-3.270				
-3.0	.7619	-1.937	.6473	-3.043	.5733	-4.013		
-2.6	.7673	-1.767	.6553	-2.839	.5831	-3.698		
-2.2	.7749	-1.589	.6666	-2.642	.5968	-3.383		
-1.8	.7855	-1.404	.6822	-2.441	.6156	-3.113		
-1.4	.7995	-1.210	.7030	-2.222	.6407	-2.874		
-1.0	.8172	-1.010	.7293	-1.964	.6726	-2.558	.6318	-3.719
-0.6	.8386	-0.805	.7609	-1.664	.7108	-2.181	.6748	-2.878
-0.2	.8625	-0.599	.7964	-1.309	.7537	-1.815	.7230	-2.273
0.0	.8750	-0.496	.8149	-1.122	.7761	-1.635	.7482	-2.068
0.2	.8875	-0.395	.8333	-0.944	.7984	-1.418	.7733	-1.858
0.4	.8997	-0.294	.8514	-0.766	.8203	-1.200	.7979	-1.614
0.6	.9114	-0.195	.8688	-0.573	.8413	-0.970	.8215	-1.383
1.0	.9328	-0.003	.9004	-0.192	.8795	-0.513	.8645	-0.842
1.4	.9505	0.181	.9267	0.148	.9114	-0.057	.9004	-0.349
1.6	.9580	0.268	.9378	0.298	.9248	0.174	.9154	-0.075
1.8	.9645	0.354	.9475	0.451	.9365	0.374	.9285	0.182
2.2	.9751	0.516	.9631	0.739	.9553	0.745	.9498	0.653
2.6	.9827	0.669	.9744	0.998	.9690	1.087	.9652	1.045
3.0	.9881	0.812	.9824	1.202	.9788	1.403	.9761	1.440
3.4	.9919	0.947	.9880	1.426	.9855	1.673	.9837	1.838
3.8	.9945	1.074	.9919	1.660	.9902	1.907	.9890	2.170
4.2	.9963	1.195	.9945	1.847	.9934	2.136	.9926	2.512
4.6	.9975	1.309	.9963	2.028	.9955	2.455	.9950	2.748
5.0	.9983	1.418	.9975	2.193	.9970	2.850	.9966	3.090
5.4	.9989	1.522	.9983	2.341	.9980	3.245	.9977	3.540
5.8	.99925	1.621	.9989	2.483	.9986	3.640		
6.2	.99949	1.717	.9993	2.628				
6.6	.99966	1.809	.9995	2.754				
7.0	.99977	1.899	.9997	2.869				
7.4	.99985	1.985	.9998	2.971				
7.8	.99990	2.068	.9998	3.084				
8.2	.99993	2.149	.9999	3.224				
8.6	.99995	2.226	.9999	3.359				

Source: Wilk & Shapiro (1968)

Footnote. The notation $n = 3(1)6$ is shorthand for n from 3 to 6 in unit steps

Table 12-1. α -Level Critical Points for Dixon's Outlier Test, $n = 3(1)25$

$n \backslash \alpha$.01	.05	.10
3	0.988	0.941	0.886
4	0.889	0.765	0.679
5	0.780	0.642	0.557
6	0.698	0.560	0.482
7	0.637	0.507	0.434
8	0.683	0.554	0.479
9	0.635	0.512	0.441
10	0.597	0.477	0.409
11	0.679	0.576	0.517
12	0.642	0.546	0.490
13	0.615	0.521	0.467
14	0.641	0.546	0.492
15	0.616	0.525	0.472
16	0.595	0.507	0.454
17	0.577	0.490	0.438
18	0.561	0.475	0.424
19	0.547	0.462	0.412
20	0.535	0.450	0.401
21	0.524	0.440	0.391
22	0.514	0.430	0.382
23	0.505	0.421	0.374
24	0.497	0.413	0.367
25	0.489	0.406	0.360

Source: USEPA (1998)

Footnote. The notation $n = 3(1)25$ is shorthand for n from 3 to 25 in unit steps

Table 12-2. α -Level Critical Points for Rosner's Outlier Test

$n \backslash \alpha$	$k = 2$		$k = 3$	
	.05	.01	.05	.01
20	2.83	3.09	2.88	3.13
	2.52	2.76	2.60	2.83
			2.45	2.68
30	3.05	3.35	3.12	3.41
	2.67	2.92	2.73	3.01
			2.56	2.75
40	3.17	3.52	3.22	3.58
	2.77	2.98	2.81	3.03
			2.62	2.82
50	3.27	3.61	3.34	3.68
	2.85	3.08	2.89	3.15
			2.68	2.89
60	3.34	3.70	3.42	3.75
	2.90	3.17	2.95	3.20
			2.73	2.95
80	3.45	3.80	3.49	3.85
	2.97	3.23	3.03	3.27
			2.81	3.01
100	3.52	3.87	3.60	3.97
	3.03	3.28	3.10	3.34
			2.86	3.06

Source: Barnett & Lewis (1994)

Footnote. k = number of suspected outliers. Since k critical points are needed for each test, there are 2 values under each $k = 2$ entry, 3 under each $k = 3$ entry, etc.

Table 12-2. α -Level Critical Points for Rosner's Outlier Test (cont.)

$n \backslash \alpha$	$k = 4$		$k = 5$	
	.05	.01	.05	.01
20	2.95	3.20	2.97	3.18
	2.63	2.83	2.65	2.89
	2.49	2.68	2.51	2.69
	2.39	2.58	2.42	2.61
			2.37	2.57
30	3.16	3.48	3.19	3.48
	2.77	3.02	2.78	3.03
	2.59	2.79	2.60	2.80
	2.49	2.70	2.51	2.74
			2.45	2.62
40	3.32	3.64	3.31	3.63
	2.86	3.10	2.88	3.13
	2.67	2.87	2.69	2.89
	2.55	2.74	2.55	2.74
			2.47	2.65
50	3.40	3.74	3.45	3.77
	2.93	3.18	2.96	3.21
	2.72	2.92	2.74	2.94
	2.59	2.78	2.61	2.79
			2.52	2.70
60	3.48	3.82	3.51	3.81
	2.98	3.20	3.01	3.24
	2.77	2.97	2.77	2.96
	2.63	2.82	2.65	2.83
			2.56	2.72
80	3.57	3.91	3.61	3.93
	3.05	3.31	3.11	3.36
	2.84	3.04	2.86	3.08
	2.69	2.87	2.72	2.89
			2.62	2.76
100	3.64	3.96	3.70	4.01
	3.13	3.34	3.16	3.42
	2.89	3.06	2.91	3.10
	2.74	2.90	2.77	2.93
			2.67	2.84

Table 14-1. Approximate α -Level Critical Points for Rank von Neumann Ratio Test
for $n = 4(1)30(2)50(5)100$

$n \backslash \alpha$.005	.01	.025	.05	.10
4	---	---	---	---	0.60
5	---	---	0.40	0.70	---
6	0.29	0.46	0.63	0.80	0.97
7	0.50	0.54	0.64	0.86	1.11
8	0.55	0.62	0.76	0.93	1.14
9	0.57	0.67	0.82	0.98	1.18
10	0.62	0.72	0.89	1.04	1.23
11	0.67	0.77	0.93	1.08	1.26
12	0.71	0.81	0.96	1.11	1.29
13	0.74	0.84	1.00	1.14	1.32
14	0.78	0.87	1.03	1.17	1.34
15	0.81	0.90	1.05	1.19	1.36
16	0.84	0.93	1.08	1.21	1.38
17	0.87	0.96	1.10	1.24	1.40
18	0.89	0.98	1.13	1.26	1.41
19	0.92	1.01	1.15	1.27	1.43
20	0.94	1.03	1.17	1.29	1.44
21	0.96	1.05	1.18	1.31	1.45
22	0.98	1.07	1.20	1.32	1.46
23	1.00	1.09	1.22	1.33	1.48
24	1.02	1.10	1.23	1.35	1.49
25	1.04	1.12	1.25	1.36	1.50
26	1.05	1.13	1.26	1.37	1.51
27	1.07	1.15	1.27	1.38	1.51
28	1.08	1.16	1.28	1.39	1.52
29	1.10	1.18	1.30	1.40	1.53
30	1.11	1.19	1.31	1.41	1.54
32	1.13	1.21	1.33	1.43	1.55
34	1.16	1.23	1.35	1.45	1.57
36	1.18	1.25	1.36	1.46	1.58
38	1.20	1.27	1.38	1.48	1.59
40	1.22	1.29	1.39	1.49	1.60
42	1.24	1.30	1.41	1.50	1.61
44	1.25	1.32	1.42	1.51	1.62
46	1.27	1.33	1.43	1.52	1.63
48	1.28	1.35	1.45	1.53	1.63
50	1.29	1.36	1.46	1.54	1.64
55	1.33	1.39	1.48	1.56	1.66
60	1.35	1.41	1.50	1.58	1.67
65	1.38	1.43	1.52	1.60	1.68
70	1.40	1.45	1.54	1.61	1.70
75	1.42	1.47	1.55	1.62	1.71
80	1.44	1.49	1.57	1.64	1.71
85	1.45	1.50	1.58	1.65	1.72
90	1.47	1.52	1.59	1.66	1.73
95	1.48	1.53	1.60	1.66	1.74
100	1.49	1.54	1.61	1.67	1.74

Sources: Bartels (1982), Madansky (1988)

Footnote. The notation $n = 4(1)30(2)50(5)100$ is shorthand for n from 4 to 30 in unit steps, then from 30 to 50 by 2's, then from 50 to 100 by 5's

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Table 16-1. Percentiles of Student's *t*-Distribution

df\p	.75	.80	.85	.90	.95	.96	.97	.975	.98	.9833	.9875	.99	.995	.999
1	1.000	1.376	1.963	3.078	6.314	7.916	10.579	12.706	15.895	19.043	25.452	31.821	63.657	318.309
2	0.816	1.061	1.386	1.886	2.920	3.320	3.896	4.303	4.849	5.334	6.205	6.965	9.925	22.327
3	0.765	0.978	1.250	1.638	2.353	2.605	2.951	3.182	3.482	3.738	4.177	4.541	5.841	10.215
4	0.741	0.941	1.190	1.533	2.132	2.333	2.601	2.776	2.999	3.184	3.495	3.747	4.604	7.173
5	0.727	0.920	1.156	1.476	2.015	2.191	2.422	2.571	2.757	2.910	3.163	3.365	4.032	5.893
6	0.718	0.906	1.134	1.440	1.943	2.104	2.313	2.447	2.612	2.748	2.969	3.143	3.707	5.208
7	0.711	0.896	1.119	1.415	1.895	2.046	2.241	2.365	2.517	2.640	2.841	2.998	3.499	4.785
8	0.706	0.889	1.108	1.397	1.860	2.004	2.189	2.306	2.449	2.565	2.752	2.896	3.355	4.501
9	0.703	0.883	1.100	1.383	1.833	1.973	2.150	2.262	2.398	2.508	2.685	2.821	3.250	4.297
10	0.700	0.879	1.093	1.372	1.812	1.948	2.120	2.228	2.359	2.465	2.634	2.764	3.169	4.144
11	0.697	0.876	1.088	1.363	1.796	1.928	2.096	2.201	2.328	2.430	2.593	2.718	3.106	4.025
12	0.695	0.873	1.083	1.356	1.782	1.912	2.076	2.179	2.303	2.402	2.560	2.681	3.055	3.930
13	0.694	0.870	1.079	1.350	1.771	1.899	2.060	2.160	2.282	2.379	2.533	2.650	3.012	3.852
14	0.692	0.868	1.076	1.345	1.761	1.887	2.046	2.145	2.264	2.359	2.510	2.624	2.977	3.787
15	0.691	0.866	1.074	1.341	1.753	1.878	2.034	2.131	2.249	2.342	2.490	2.602	2.947	3.733
16	0.690	0.865	1.071	1.337	1.746	1.869	2.024	2.120	2.235	2.327	2.473	2.583	2.921	3.686
17	0.689	0.863	1.069	1.333	1.740	1.862	2.015	2.110	2.224	2.315	2.458	2.567	2.898	3.646
18	0.688	0.862	1.067	1.330	1.734	1.855	2.007	2.101	2.214	2.303	2.445	2.552	2.878	3.610
19	0.688	0.861	1.066	1.328	1.729	1.850	2.000	2.093	2.205	2.293	2.433	2.539	2.861	3.579
20	0.687	0.860	1.064	1.325	1.725	1.844	1.994	2.086	2.197	2.285	2.423	2.528	2.845	3.552
21	0.686	0.859	1.063	1.323	1.721	1.840	1.988	2.080	2.189	2.277	2.414	2.518	2.831	3.527
22	0.686	0.858	1.061	1.321	1.717	1.835	1.983	2.074	2.183	2.269	2.405	2.508	2.819	3.505
23	0.685	0.858	1.060	1.319	1.714	1.832	1.978	2.069	2.177	2.263	2.398	2.500	2.807	3.485
24	0.685	0.857	1.059	1.318	1.711	1.828	1.974	2.064	2.172	2.257	2.391	2.492	2.797	3.467
25	0.684	0.856	1.058	1.316	1.708	1.825	1.970	2.060	2.167	2.251	2.385	2.485	2.787	3.450
26	0.684	0.856	1.058	1.315	1.706	1.822	1.967	2.056	2.162	2.246	2.379	2.479	2.779	3.435
27	0.684	0.855	1.057	1.314	1.703	1.819	1.963	2.052	2.158	2.242	2.373	2.473	2.771	3.421
28	0.683	0.855	1.056	1.313	1.701	1.817	1.960	2.048	2.154	2.237	2.368	2.467	2.763	3.408
29	0.683	0.854	1.055	1.311	1.699	1.814	1.957	2.045	2.150	2.233	2.364	2.462	2.756	3.396
30	0.683	0.854	1.055	1.310	1.697	1.812	1.955	2.042	2.147	2.230	2.360	2.457	2.750	3.385

Table 16-1. Percentiles of Student's *t*-Distribution (cont.)

df\p	.75	.80	.85	.90	.95	.96	.97	.975	.98	.9833	.9875	.99	.995	.999
31	0.682	0.853	1.054	1.309	1.696	1.810	1.952	2.040	2.144	2.226	2.356	2.453	2.744	3.375
32	0.682	0.853	1.054	1.309	1.694	1.808	1.950	2.037	2.141	2.223	2.352	2.449	2.738	3.365
33	0.682	0.853	1.053	1.308	1.692	1.806	1.948	2.035	2.138	2.220	2.348	2.445	2.733	3.356
34	0.682	0.852	1.052	1.307	1.691	1.805	1.946	2.032	2.136	2.217	2.345	2.441	2.728	3.348
35	0.682	0.852	1.052	1.306	1.690	1.803	1.944	2.030	2.133	2.215	2.342	2.438	2.724	3.340
36	0.681	0.852	1.052	1.306	1.688	1.802	1.942	2.028	2.131	2.212	2.339	2.434	2.719	3.333
37	0.681	0.851	1.051	1.305	1.687	1.800	1.940	2.026	2.129	2.210	2.336	2.431	2.715	3.326
38	0.681	0.851	1.051	1.304	1.686	1.799	1.939	2.024	2.127	2.207	2.334	2.429	2.712	3.319
39	0.681	0.851	1.050	1.304	1.685	1.798	1.937	2.023	2.125	2.205	2.331	2.426	2.708	3.313
40	0.681	0.851	1.050	1.303	1.684	1.796	1.936	2.021	2.123	2.203	2.329	2.423	2.704	3.307
41	0.681	0.850	1.050	1.303	1.683	1.795	1.934	2.020	2.121	2.201	2.327	2.421	2.701	3.301
42	0.680	0.850	1.049	1.302	1.682	1.794	1.933	2.018	2.120	2.199	2.325	2.418	2.698	3.296
43	0.680	0.850	1.049	1.302	1.681	1.793	1.932	2.017	2.118	2.198	2.323	2.416	2.695	3.291
44	0.680	0.850	1.049	1.301	1.680	1.792	1.931	2.015	2.116	2.196	2.321	2.414	2.692	3.286
45	0.680	0.850	1.049	1.301	1.679	1.791	1.929	2.014	2.115	2.195	2.319	2.412	2.690	3.281
46	0.680	0.850	1.048	1.300	1.679	1.790	1.928	2.013	2.114	2.193	2.317	2.410	2.687	3.277
47	0.680	0.849	1.048	1.300	1.678	1.789	1.927	2.012	2.112	2.192	2.315	2.408	2.685	3.273
48	0.680	0.849	1.048	1.299	1.677	1.789	1.926	2.011	2.111	2.190	2.314	2.407	2.682	3.269
49	0.680	0.849	1.048	1.299	1.677	1.788	1.925	2.010	2.110	2.189	2.312	2.405	2.680	3.265
50	0.679	0.849	1.047	1.299	1.676	1.787	1.924	2.009	2.109	2.188	2.311	2.403	2.678	3.261
51	0.679	0.849	1.047	1.298	1.675	1.786	1.924	2.008	2.108	2.186	2.310	2.402	2.676	3.258
52	0.679	0.849	1.047	1.298	1.675	1.786	1.923	2.007	2.107	2.185	2.308	2.400	2.674	3.255
53	0.679	0.848	1.047	1.298	1.674	1.785	1.922	2.006	2.106	2.184	2.307	2.399	2.672	3.251
54	0.679	0.848	1.046	1.297	1.674	1.784	1.921	2.005	2.105	2.183	2.306	2.397	2.670	3.248
55	0.679	0.848	1.046	1.297	1.673	1.784	1.920	2.004	2.104	2.182	2.304	2.396	2.668	3.245
56	0.679	0.848	1.046	1.297	1.673	1.783	1.920	2.003	2.103	2.181	2.303	2.395	2.667	3.242
57	0.679	0.848	1.046	1.297	1.672	1.782	1.919	2.002	2.102	2.180	2.302	2.394	2.665	3.239
58	0.679	0.848	1.046	1.296	1.672	1.782	1.918	2.002	2.101	2.179	2.301	2.392	2.663	3.237
59	0.679	0.848	1.046	1.296	1.671	1.781	1.918	2.001	2.100	2.178	2.300	2.391	2.662	3.234
60	0.679	0.848	1.045	1.296	1.671	1.781	1.917	2.000	2.099	2.177	2.299	2.390	2.660	3.232
70	0.678	0.847	1.044	1.294	1.667	1.776	1.912	1.994	2.093	2.170	2.291	2.381	2.648	3.211
80	0.678	0.846	1.043	1.292	1.664	1.773	1.908	1.990	2.088	2.165	2.284	2.374	2.639	3.195
90	0.677	0.846	1.042	1.291	1.662	1.771	1.905	1.987	2.084	2.160	2.280	2.368	2.632	3.183
100	0.677	0.845	1.042	1.290	1.660	1.769	1.902	1.984	2.081	2.157	2.276	2.364	2.626	3.174
110	0.677	0.845	1.041	1.289	1.659	1.767	1.900	1.982	2.078	2.154	2.272	2.361	2.621	3.166
120	0.677	0.845	1.041	1.289	1.658	1.766	1.899	1.980	2.076	2.152	2.270	2.358	2.617	3.160

Table 17-1. Percentiles of F -Distribution for $(1-\alpha) = .80$

$v_2 \backslash v_1$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	9.47	12.00	13.06	13.64	14.01	14.26	14.44	14.58	14.68	14.77	14.84	14.90	14.95	15.00	15.04
2	3.56	4.00	4.16	4.24	4.28	4.32	4.34	4.36	4.37	4.38	4.39	4.40	4.40	4.41	4.42
3	2.68	2.89	2.94	2.96	2.97	2.97	2.97	2.98	2.98	2.98	2.98	2.98	2.98	2.98	2.98
4	2.35	2.47	2.48	2.48	2.48	2.47	2.47	2.47	2.46	2.46	2.46	2.46	2.45	2.45	2.45
5	2.18	2.26	2.25	2.24	2.23	2.22	2.21	2.20	2.20	2.19	2.19	2.18	2.18	2.18	2.18
6	2.07	2.13	2.11	2.09	2.08	2.06	2.05	2.04	2.03	2.03	2.02	2.02	2.01	2.01	2.01
7	2.00	2.04	2.02	1.99	1.97	1.96	1.94	1.93	1.93	1.92	1.91	1.91	1.90	1.90	1.89
8	1.95	1.98	1.95	1.92	1.90	1.88	1.87	1.86	1.85	1.84	1.83	1.83	1.82	1.82	1.81
9	1.91	1.93	1.90	1.87	1.85	1.83	1.81	1.80	1.79	1.78	1.77	1.76	1.76	1.75	1.75
10	1.88	1.90	1.86	1.83	1.80	1.78	1.77	1.75	1.74	1.73	1.72	1.72	1.71	1.70	1.70
11	1.86	1.87	1.83	1.80	1.77	1.75	1.73	1.72	1.70	1.69	1.69	1.68	1.67	1.67	1.66
12	1.84	1.85	1.80	1.77	1.74	1.72	1.70	1.69	1.67	1.66	1.65	1.65	1.64	1.63	1.63
13	1.82	1.83	1.78	1.75	1.72	1.69	1.68	1.66	1.65	1.64	1.63	1.62	1.61	1.61	1.60
14	1.81	1.81	1.76	1.73	1.70	1.67	1.65	1.64	1.63	1.62	1.61	1.60	1.59	1.58	1.58
15	1.80	1.80	1.75	1.71	1.68	1.66	1.64	1.62	1.61	1.60	1.59	1.58	1.57	1.56	1.56
16	1.79	1.78	1.74	1.70	1.67	1.64	1.62	1.61	1.59	1.58	1.57	1.56	1.55	1.55	1.54
17	1.78	1.77	1.72	1.68	1.65	1.63	1.61	1.59	1.58	1.57	1.56	1.55	1.54	1.53	1.53
18	1.77	1.76	1.71	1.67	1.64	1.62	1.60	1.58	1.56	1.55	1.54	1.53	1.53	1.52	1.51
19	1.76	1.75	1.70	1.66	1.63	1.61	1.58	1.57	1.55	1.54	1.53	1.52	1.51	1.51	1.50
20	1.76	1.75	1.70	1.65	1.62	1.60	1.58	1.56	1.54	1.53	1.52	1.51	1.50	1.50	1.49
21	1.75	1.74	1.69	1.65	1.61	1.59	1.57	1.55	1.53	1.52	1.51	1.50	1.49	1.49	1.48
22	1.75	1.73	1.68	1.64	1.61	1.58	1.56	1.54	1.53	1.51	1.50	1.49	1.49	1.48	1.47
23	1.74	1.73	1.68	1.63	1.60	1.57	1.55	1.53	1.52	1.51	1.50	1.49	1.48	1.47	1.46
24	1.74	1.72	1.67	1.63	1.59	1.57	1.55	1.53	1.51	1.50	1.49	1.48	1.47	1.46	1.46
25	1.73	1.72	1.66	1.62	1.59	1.56	1.54	1.52	1.51	1.49	1.48	1.47	1.46	1.46	1.45
26	1.73	1.71	1.66	1.62	1.58	1.56	1.53	1.52	1.50	1.49	1.48	1.47	1.46	1.45	1.44
27	1.73	1.71	1.66	1.61	1.58	1.55	1.53	1.51	1.49	1.48	1.47	1.46	1.45	1.44	1.44
28	1.72	1.71	1.65	1.61	1.57	1.55	1.52	1.51	1.49	1.48	1.47	1.46	1.45	1.44	1.43
29	1.72	1.70	1.65	1.60	1.57	1.54	1.52	1.50	1.49	1.47	1.46	1.45	1.44	1.43	1.43
30	1.72	1.70	1.64	1.60	1.57	1.54	1.52	1.50	1.48	1.47	1.46	1.45	1.44	1.43	1.42
35	1.71	1.69	1.63	1.58	1.55	1.52	1.50	1.48	1.46	1.45	1.44	1.43	1.42	1.41	1.40
40	1.70	1.68	1.62	1.57	1.54	1.51	1.49	1.47	1.45	1.44	1.42	1.41	1.40	1.40	1.39
45	1.69	1.67	1.61	1.57	1.53	1.50	1.48	1.46	1.44	1.43	1.41	1.40	1.39	1.38	1.38
50	1.69	1.66	1.60	1.56	1.52	1.49	1.47	1.45	1.43	1.42	1.41	1.39	1.38	1.38	1.37
55	1.68	1.66	1.60	1.55	1.52	1.49	1.46	1.44	1.43	1.41	1.40	1.39	1.38	1.37	1.36
60	1.68	1.65	1.60	1.55	1.51	1.48	1.46	1.44	1.42	1.41	1.39	1.38	1.37	1.36	1.35
70	1.67	1.65	1.59	1.54	1.50	1.47	1.45	1.43	1.41	1.40	1.38	1.37	1.36	1.35	1.35
80	1.67	1.64	1.58	1.53	1.50	1.47	1.44	1.42	1.41	1.39	1.38	1.37	1.36	1.35	1.34
90	1.67	1.64	1.58	1.53	1.49	1.46	1.44	1.42	1.40	1.38	1.37	1.36	1.35	1.34	1.33
100	1.66	1.64	1.58	1.53	1.49	1.46	1.43	1.41	1.40	1.38	1.37	1.36	1.35	1.34	1.33
110	1.66	1.63	1.57	1.52	1.49	1.46	1.43	1.41	1.39	1.38	1.36	1.35	1.34	1.33	1.32
120	1.66	1.63	1.57	1.52	1.48	1.45	1.43	1.41	1.39	1.37	1.36	1.35	1.34	1.33	1.32

Table 17-1. Percentiles of F -Distribution for $(1-\alpha) = .90$

$v_2 \backslash v_1$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	39.86	49.50	53.59	55.83	57.24	58.20	58.91	59.44	59.86	60.19	60.47	60.71	60.90	61.07	61.22
2	8.53	9.00	9.16	9.24	9.29	9.33	9.35	9.37	9.38	9.39	9.40	9.41	9.41	9.42	9.42
3	5.54	5.46	5.39	5.34	5.31	5.28	5.27	5.25	5.24	5.23	5.22	5.22	5.21	5.20	5.20
4	4.54	4.32	4.19	4.11	4.05	4.01	3.98	3.95	3.94	3.92	3.91	3.90	3.89	3.88	3.87
5	4.06	3.78	3.62	3.52	3.45	3.40	3.37	3.34	3.32	3.30	3.28	3.27	3.26	3.25	3.24
6	3.78	3.46	3.29	3.18	3.11	3.05	3.01	2.98	2.96	2.94	2.92	2.90	2.89	2.88	2.87
7	3.59	3.26	3.07	2.96	2.88	2.83	2.78	2.75	2.72	2.70	2.68	2.67	2.65	2.64	2.63
8	3.46	3.11	2.92	2.81	2.73	2.67	2.62	2.59	2.56	2.54	2.52	2.50	2.49	2.48	2.46
9	3.36	3.01	2.81	2.69	2.61	2.55	2.51	2.47	2.44	2.42	2.40	2.38	2.36	2.35	2.34
10	3.29	2.92	2.73	2.61	2.52	2.46	2.41	2.38	2.35	2.32	2.30	2.28	2.27	2.26	2.24
11	3.23	2.86	2.66	2.54	2.45	2.39	2.34	2.30	2.27	2.25	2.23	2.21	2.19	2.18	2.17
12	3.18	2.81	2.61	2.48	2.39	2.33	2.28	2.24	2.21	2.19	2.17	2.15	2.13	2.12	2.10
13	3.14	2.76	2.56	2.43	2.35	2.28	2.23	2.20	2.16	2.14	2.12	2.10	2.08	2.07	2.05
14	3.10	2.73	2.52	2.39	2.31	2.24	2.19	2.15	2.12	2.10	2.07	2.05	2.04	2.02	2.01
15	3.07	2.70	2.49	2.36	2.27	2.21	2.16	2.12	2.09	2.06	2.04	2.02	2.00	1.99	1.97
16	3.05	2.67	2.46	2.33	2.24	2.18	2.13	2.09	2.06	2.03	2.01	1.99	1.97	1.95	1.94
17	3.03	2.64	2.44	2.31	2.22	2.15	2.10	2.06	2.03	2.00	1.98	1.96	1.94	1.93	1.91
18	3.01	2.62	2.42	2.29	2.20	2.13	2.08	2.04	2.00	1.98	1.95	1.93	1.92	1.90	1.89
19	2.99	2.61	2.40	2.27	2.18	2.11	2.06	2.02	1.98	1.96	1.93	1.91	1.89	1.88	1.86
20	2.97	2.59	2.38	2.25	2.16	2.09	2.04	2.00	1.96	1.94	1.91	1.89	1.87	1.86	1.84
21	2.96	2.57	2.36	2.23	2.14	2.08	2.02	1.98	1.95	1.92	1.90	1.87	1.86	1.84	1.83
22	2.95	2.56	2.35	2.22	2.13	2.06	2.01	1.97	1.93	1.90	1.88	1.86	1.84	1.83	1.81
23	2.94	2.55	2.34	2.21	2.11	2.05	1.99	1.95	1.92	1.89	1.87	1.84	1.83	1.81	1.80
24	2.93	2.54	2.33	2.19	2.10	2.04	1.98	1.94	1.91	1.88	1.85	1.83	1.81	1.80	1.78
25	2.92	2.53	2.32	2.18	2.09	2.02	1.97	1.93	1.89	1.87	1.84	1.82	1.80	1.79	1.77
26	2.91	2.52	2.31	2.17	2.08	2.01	1.96	1.92	1.88	1.86	1.83	1.81	1.79	1.77	1.76
27	2.90	2.51	2.30	2.17	2.07	2.00	1.95	1.91	1.87	1.85	1.82	1.80	1.78	1.76	1.75
28	2.89	2.50	2.29	2.16	2.06	2.00	1.94	1.90	1.87	1.84	1.81	1.79	1.77	1.75	1.74
29	2.89	2.50	2.28	2.15	2.06	1.99	1.93	1.89	1.86	1.83	1.80	1.78	1.76	1.75	1.73
30	2.88	2.49	2.28	2.14	2.05	1.98	1.93	1.88	1.85	1.82	1.79	1.77	1.75	1.74	1.72
35	2.85	2.46	2.25	2.11	2.02	1.95	1.90	1.85	1.82	1.79	1.76	1.74	1.72	1.70	1.69
40	2.84	2.44	2.23	2.09	2.00	1.93	1.87	1.83	1.79	1.76	1.74	1.71	1.70	1.68	1.66
45	2.82	2.42	2.21	2.07	1.98	1.91	1.85	1.81	1.77	1.74	1.72	1.70	1.68	1.66	1.64
50	2.81	2.41	2.20	2.06	1.97	1.90	1.84	1.80	1.76	1.73	1.70	1.68	1.66	1.64	1.63
55	2.80	2.40	2.19	2.05	1.95	1.88	1.83	1.78	1.75	1.72	1.69	1.67	1.65	1.63	1.61
60	2.79	2.39	2.18	2.04	1.95	1.87	1.82	1.77	1.74	1.71	1.68	1.66	1.64	1.62	1.60
70	2.78	2.38	2.16	2.03	1.93	1.86	1.80	1.76	1.72	1.69	1.66	1.64	1.62	1.60	1.59
80	2.77	2.37	2.15	2.02	1.92	1.85	1.79	1.75	1.71	1.68	1.65	1.63	1.61	1.59	1.57
90	2.76	2.36	2.15	2.01	1.91	1.84	1.78	1.74	1.70	1.67	1.64	1.62	1.60	1.58	1.56
100	2.76	2.36	2.14	2.00	1.91	1.83	1.78	1.73	1.69	1.66	1.64	1.61	1.59	1.57	1.56
110	2.75	2.35	2.13	2.00	1.90	1.83	1.77	1.73	1.69	1.66	1.63	1.61	1.59	1.57	1.55
120	2.75	2.35	2.13	1.99	1.90	1.82	1.77	1.72	1.68	1.65	1.63	1.60	1.58	1.56	1.55

Table 17-1. Percentiles of F -Distribution for $(1-\alpha) = .95$

$v_2 \backslash v_1$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	161.45	199.50	215.71	224.58	230.16	233.99	236.77	238.88	240.54	241.88	242.98	243.91	244.69	245.36	245.95
2	18.51	19.00	19.16	19.25	19.30	19.33	19.35	19.37	19.38	19.40	19.40	19.41	19.42	19.42	19.43
3	10.13	9.55	9.28	9.12	9.01	8.94	8.89	8.85	8.81	8.79	8.76	8.74	8.73	8.71	8.70
4	7.71	6.94	6.59	6.39	6.26	6.16	6.09	6.04	6.00	5.96	5.94	5.91	5.89	5.87	5.86
5	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.77	4.74	4.70	4.68	4.66	4.64	4.62
6	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.10	4.06	4.03	4.00	3.98	3.96	3.94
7	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.68	3.64	3.60	3.57	3.55	3.53	3.51
8	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.39	3.35	3.31	3.28	3.26	3.24	3.22
9	5.12	4.26	3.86	3.63	3.48	3.37	3.29	3.23	3.18	3.14	3.10	3.07	3.05	3.03	3.01
10	4.96	4.10	3.71	3.48	3.33	3.22	3.14	3.07	3.02	2.98	2.94	2.91	2.89	2.86	2.85
11	4.84	3.98	3.59	3.36	3.20	3.09	3.01	2.95	2.90	2.85	2.82	2.79	2.76	2.74	2.72
12	4.75	3.89	3.49	3.26	3.11	3.00	2.91	2.85	2.80	2.75	2.72	2.69	2.66	2.64	2.62
13	4.67	3.81	3.41	3.18	3.03	2.92	2.83	2.77	2.71	2.67	2.63	2.60	2.58	2.55	2.53
14	4.60	3.74	3.34	3.11	2.96	2.85	2.76	2.70	2.65	2.60	2.57	2.53	2.51	2.48	2.46
15	4.54	3.68	3.29	3.06	2.90	2.79	2.71	2.64	2.59	2.54	2.51	2.48	2.45	2.42	2.40
16	4.49	3.63	3.24	3.01	2.85	2.74	2.66	2.59	2.54	2.49	2.46	2.42	2.40	2.37	2.35
17	4.45	3.59	3.20	2.96	2.81	2.70	2.61	2.55	2.49	2.45	2.41	2.38	2.35	2.33	2.31
18	4.41	3.55	3.16	2.93	2.77	2.66	2.58	2.51	2.46	2.41	2.37	2.34	2.31	2.29	2.27
19	4.38	3.52	3.13	2.90	2.74	2.63	2.54	2.48	2.42	2.38	2.34	2.31	2.28	2.26	2.23
20	4.35	3.49	3.10	2.87	2.71	2.60	2.51	2.45	2.39	2.35	2.31	2.28	2.25	2.22	2.20
21	4.32	3.47	3.07	2.84	2.68	2.57	2.49	2.42	2.37	2.32	2.28	2.25	2.22	2.20	2.18
22	4.30	3.44	3.05	2.82	2.66	2.55	2.46	2.40	2.34	2.30	2.26	2.23	2.20	2.17	2.15
23	4.28	3.42	3.03	2.80	2.64	2.53	2.44	2.37	2.32	2.27	2.24	2.20	2.18	2.15	2.13
24	4.26	3.40	3.01	2.78	2.62	2.51	2.42	2.36	2.30	2.25	2.22	2.18	2.15	2.13	2.11
25	4.24	3.39	2.99	2.76	2.60	2.49	2.40	2.34	2.28	2.24	2.20	2.16	2.14	2.11	2.09
26	4.23	3.37	2.98	2.74	2.59	2.47	2.39	2.32	2.27	2.22	2.18	2.15	2.12	2.09	2.07
27	4.21	3.35	2.96	2.73	2.57	2.46	2.37	2.31	2.25	2.20	2.17	2.13	2.10	2.08	2.06
28	4.20	3.34	2.95	2.71	2.56	2.45	2.36	2.29	2.24	2.19	2.15	2.12	2.09	2.06	2.04
29	4.18	3.33	2.93	2.70	2.55	2.43	2.35	2.28	2.22	2.18	2.14	2.10	2.08	2.05	2.03
30	4.17	3.32	2.92	2.69	2.53	2.42	2.33	2.27	2.21	2.16	2.13	2.09	2.06	2.04	2.01
35	4.12	3.27	2.87	2.64	2.49	2.37	2.29	2.22	2.16	2.11	2.07	2.04	2.01	1.99	1.96
40	4.08	3.23	2.84	2.61	2.45	2.34	2.25	2.18	2.12	2.08	2.04	2.00	1.97	1.95	1.92
45	4.06	3.20	2.81	2.58	2.42	2.31	2.22	2.15	2.10	2.05	2.01	1.97	1.94	1.92	1.89
50	4.03	3.18	2.79	2.56	2.40	2.29	2.20	2.13	2.07	2.03	1.99	1.95	1.92	1.89	1.87
55	4.02	3.16	2.77	2.54	2.38	2.27	2.18	2.11	2.06	2.01	1.97	1.93	1.90	1.88	1.85
60	4.00	3.15	2.76	2.53	2.37	2.25	2.17	2.10	2.04	1.99	1.95	1.92	1.89	1.86	1.84
70	3.98	3.13	2.74	2.50	2.35	2.23	2.14	2.07	2.02	1.97	1.93	1.89	1.86	1.84	1.81
80	3.96	3.11	2.72	2.49	2.33	2.21	2.13	2.06	2.00	1.95	1.91	1.88	1.84	1.82	1.79
90	3.95	3.10	2.71	2.47	2.32	2.20	2.11	2.04	1.99	1.94	1.90	1.86	1.83	1.80	1.78
100	3.94	3.09	2.70	2.46	2.31	2.19	2.10	2.03	1.97	1.93	1.89	1.85	1.82	1.79	1.77
110	3.93	3.08	2.69	2.45	2.30	2.18	2.09	2.02	1.97	1.92	1.88	1.84	1.81	1.78	1.76
120	3.92	3.07	2.68	2.45	2.29	2.18	2.09	2.02	1.96	1.91	1.87	1.83	1.80	1.78	1.75

Table 17-1. Percentiles of F -Distribution for $(1-\alpha) = .98$

$v_2 \setminus v_1$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	1012.55	1249.50	1350.50	1405.83	1440.61	1464.45	1481.80	1494.99	1505.34	1513.69	1520.56	1526.31	1531.20	1535.40	1539.05
2	48.51	49.00	49.17	49.25	49.30	49.33	49.36	49.37	49.39	49.40	49.41	49.42	49.42	49.43	49.43
3	20.62	18.86	18.11	17.69	17.43	17.25	17.11	17.01	16.93	16.86	16.81	16.76	16.72	16.69	16.66
4	14.04	12.14	11.34	10.90	10.62	10.42	10.27	10.16	10.07	10.00	9.94	9.89	9.85	9.81	9.78
5	11.32	9.45	8.67	8.23	7.95	7.76	7.61	7.50	7.42	7.34	7.28	7.23	7.19	7.16	7.12
6	9.88	8.05	7.29	6.86	6.58	6.39	6.25	6.14	6.05	5.98	5.93	5.88	5.83	5.80	5.76
7	8.99	7.20	6.45	6.03	5.76	5.58	5.44	5.33	5.24	5.17	5.11	5.06	5.02	4.98	4.95
8	8.39	6.64	5.90	5.49	5.22	5.04	4.90	4.79	4.70	4.63	4.58	4.53	4.49	4.45	4.42
9	7.96	6.23	5.51	5.10	4.84	4.65	4.52	4.41	4.33	4.26	4.20	4.15	4.11	4.07	4.04
10	7.64	5.93	5.22	4.82	4.55	4.37	4.23	4.13	4.04	3.97	3.92	3.87	3.83	3.79	3.76
11	7.39	5.70	4.99	4.59	4.34	4.15	4.02	3.91	3.83	3.76	3.70	3.65	3.61	3.57	3.54
12	7.19	5.52	4.81	4.42	4.16	3.98	3.85	3.74	3.66	3.59	3.53	3.48	3.44	3.40	3.37
13	7.02	5.37	4.67	4.28	4.02	3.84	3.71	3.60	3.52	3.45	3.39	3.34	3.30	3.26	3.23
14	6.89	5.24	4.55	4.16	3.90	3.72	3.59	3.48	3.40	3.33	3.27	3.23	3.18	3.15	3.11
15	6.77	5.14	4.45	4.06	3.81	3.63	3.49	3.39	3.30	3.23	3.18	3.13	3.09	3.05	3.02
16	6.67	5.05	4.36	3.97	3.72	3.54	3.41	3.30	3.22	3.15	3.09	3.05	3.00	2.97	2.93
17	6.59	4.97	4.29	3.90	3.65	3.47	3.34	3.23	3.15	3.08	3.02	2.97	2.93	2.89	2.86
18	6.51	4.90	4.22	3.84	3.59	3.41	3.27	3.17	3.09	3.02	2.96	2.91	2.87	2.83	2.80
19	6.45	4.84	4.16	3.78	3.53	3.35	3.22	3.12	3.03	2.96	2.91	2.86	2.81	2.78	2.74
20	6.39	4.79	4.11	3.73	3.48	3.30	3.17	3.07	2.98	2.91	2.86	2.81	2.77	2.73	2.70
21	6.34	4.74	4.07	3.69	3.44	3.26	3.13	3.02	2.94	2.87	2.81	2.76	2.72	2.68	2.65
22	6.29	4.70	4.03	3.65	3.40	3.22	3.09	2.99	2.90	2.83	2.77	2.73	2.68	2.65	2.61
23	6.25	4.66	3.99	3.61	3.36	3.19	3.05	2.95	2.87	2.80	2.74	2.69	2.65	2.61	2.58
24	6.21	4.63	3.96	3.58	3.33	3.15	3.02	2.92	2.83	2.77	2.71	2.66	2.62	2.58	2.55
25	6.18	4.59	3.93	3.55	3.30	3.13	2.99	2.89	2.81	2.74	2.68	2.63	2.59	2.55	2.52
26	6.14	4.56	3.90	3.52	3.28	3.10	2.97	2.86	2.78	2.71	2.65	2.60	2.56	2.52	2.49
27	6.11	4.54	3.87	3.50	3.25	3.07	2.94	2.84	2.76	2.69	2.63	2.58	2.54	2.50	2.46
28	6.09	4.51	3.85	3.47	3.23	3.05	2.92	2.82	2.73	2.66	2.61	2.56	2.51	2.48	2.44
29	6.06	4.49	3.83	3.45	3.21	3.03	2.90	2.80	2.71	2.64	2.58	2.54	2.49	2.45	2.42
30	6.04	4.47	3.81	3.43	3.19	3.01	2.88	2.78	2.69	2.62	2.57	2.52	2.47	2.44	2.40
35	5.94	4.38	3.73	3.35	3.11	2.93	2.80	2.70	2.61	2.55	2.49	2.44	2.39	2.36	2.32
40	5.87	4.32	3.67	3.30	3.05	2.88	2.74	2.64	2.56	2.49	2.43	2.38	2.34	2.30	2.26
45	5.82	4.27	3.62	3.25	3.01	2.83	2.70	2.60	2.51	2.44	2.39	2.34	2.29	2.25	2.22
50	5.78	4.23	3.59	3.22	2.97	2.80	2.67	2.56	2.48	2.41	2.35	2.30	2.26	2.22	2.18
55	5.74	4.20	3.56	3.19	2.94	2.77	2.64	2.54	2.45	2.38	2.32	2.27	2.23	2.19	2.16
60	5.71	4.18	3.53	3.16	2.92	2.75	2.62	2.51	2.43	2.36	2.30	2.25	2.21	2.17	2.13
70	5.67	4.14	3.49	3.13	2.88	2.71	2.58	2.48	2.39	2.32	2.26	2.21	2.17	2.13	2.10
80	5.64	4.11	3.47	3.10	2.86	2.68	2.55	2.45	2.37	2.30	2.24	2.19	2.14	2.10	2.07
90	5.61	4.09	3.45	3.08	2.84	2.66	2.53	2.43	2.35	2.28	2.22	2.17	2.12	2.08	2.05
100	5.59	4.07	3.43	3.06	2.82	2.65	2.52	2.41	2.33	2.26	2.20	2.15	2.10	2.07	2.03
110	5.57	4.05	3.41	3.05	2.81	2.63	2.50	2.40	2.32	2.25	2.19	2.14	2.09	2.05	2.02
120	5.56	4.04	3.40	3.04	2.80	2.62	2.49	2.39	2.30	2.23	2.18	2.12	2.08	2.04	2.01

Table 17-1. Percentiles of F -Distribution for $(1-\alpha) = .99$

$v_2 \setminus v_1$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	4052.18	4999.50	5403.35	5624.58	5763.65	5858.99	5928.36	5981.07	6022.47	6055.85	6083.32	6106.32	6125.86	6142.67	6157.28
2	98.50	99.00	99.17	99.25	99.30	99.33	99.36	99.37	99.39	99.40	99.41	99.42	99.42	99.43	99.43
3	34.12	30.82	29.46	28.71	28.24	27.91	27.67	27.49	27.35	27.23	27.13	27.05	26.98	26.92	26.87
4	21.20	18.00	16.69	15.98	15.52	15.21	14.98	14.80	14.66	14.55	14.45	14.37	14.31	14.25	14.20
5	16.26	13.27	12.06	11.39	10.97	10.67	10.46	10.29	10.16	10.05	9.96	9.89	9.82	9.77	9.72
6	13.75	10.92	9.78	9.15	8.75	8.47	8.26	8.10	7.98	7.87	7.79	7.72	7.66	7.60	7.56
7	12.25	9.55	8.45	7.85	7.46	7.19	6.99	6.84	6.72	6.62	6.54	6.47	6.41	6.36	6.31
8	11.26	8.65	7.59	7.01	6.63	6.37	6.18	6.03	5.91	5.81	5.73	5.67	5.61	5.56	5.52
9	10.56	8.02	6.99	6.42	6.06	5.80	5.61	5.47	5.35	5.26	5.18	5.11	5.05	5.01	4.96
10	10.04	7.56	6.55	5.99	5.64	5.39	5.20	5.06	4.94	4.85	4.77	4.71	4.65	4.60	4.56
11	9.65	7.21	6.22	5.67	5.32	5.07	4.89	4.74	4.63	4.54	4.46	4.40	4.34	4.29	4.25
12	9.33	6.93	5.95	5.41	5.06	4.82	4.64	4.50	4.39	4.30	4.22	4.16	4.10	4.05	4.01
13	9.07	6.70	5.74	5.21	4.86	4.62	4.44	4.30	4.19	4.10	4.02	3.96	3.91	3.86	3.82
14	8.86	6.51	5.56	5.04	4.69	4.46	4.28	4.14	4.03	3.94	3.86	3.80	3.75	3.70	3.66
15	8.68	6.36	5.42	4.89	4.56	4.32	4.14	4.00	3.89	3.80	3.73	3.67	3.61	3.56	3.52
16	8.53	6.23	5.29	4.77	4.44	4.20	4.03	3.89	3.78	3.69	3.62	3.55	3.50	3.45	3.41
17	8.40	6.11	5.18	4.67	4.34	4.10	3.93	3.79	3.68	3.59	3.52	3.46	3.40	3.35	3.31
18	8.29	6.01	5.09	4.58	4.25	4.01	3.84	3.71	3.60	3.51	3.43	3.37	3.32	3.27	3.23
19	8.18	5.93	5.01	4.50	4.17	3.94	3.77	3.63	3.52	3.43	3.36	3.30	3.24	3.19	3.15
20	8.10	5.85	4.94	4.43	4.10	3.87	3.70	3.56	3.46	3.37	3.29	3.23	3.18	3.13	3.09
21	8.02	5.78	4.87	4.37	4.04	3.81	3.64	3.51	3.40	3.31	3.24	3.17	3.12	3.07	3.03
22	7.95	5.72	4.82	4.31	3.99	3.76	3.59	3.45	3.35	3.26	3.18	3.12	3.07	3.02	2.98
23	7.88	5.66	4.76	4.26	3.94	3.71	3.54	3.41	3.30	3.21	3.14	3.07	3.02	2.97	2.93
24	7.82	5.61	4.72	4.22	3.90	3.67	3.50	3.36	3.26	3.17	3.09	3.03	2.98	2.93	2.89
25	7.77	5.57	4.68	4.18	3.85	3.63	3.46	3.32	3.22	3.13	3.06	2.99	2.94	2.89	2.85
26	7.72	5.53	4.64	4.14	3.82	3.59	3.42	3.29	3.18	3.09	3.02	2.96	2.90	2.86	2.81
27	7.68	5.49	4.60	4.11	3.78	3.56	3.39	3.26	3.15	3.06	2.99	2.93	2.87	2.82	2.78
28	7.64	5.45	4.57	4.07	3.75	3.53	3.36	3.23	3.12	3.03	2.96	2.90	2.84	2.79	2.75
29	7.60	5.42	4.54	4.04	3.73	3.50	3.33	3.20	3.09	3.00	2.93	2.87	2.81	2.77	2.73
30	7.56	5.39	4.51	4.02	3.70	3.47	3.30	3.17	3.07	2.98	2.91	2.84	2.79	2.74	2.70
35	7.42	5.27	4.40	3.91	3.59	3.37	3.20	3.07	2.96	2.88	2.80	2.74	2.69	2.64	2.60
40	7.31	5.18	4.31	3.83	3.51	3.29	3.12	2.99	2.89	2.80	2.73	2.66	2.61	2.56	2.52
45	7.23	5.11	4.25	3.77	3.45	3.23	3.07	2.94	2.83	2.74	2.67	2.61	2.55	2.51	2.46
50	7.17	5.06	4.20	3.72	3.41	3.19	3.02	2.89	2.78	2.70	2.63	2.56	2.51	2.46	2.42
55	7.12	5.01	4.16	3.68	3.37	3.15	2.98	2.85	2.75	2.66	2.59	2.53	2.47	2.42	2.38
60	7.08	4.98	4.13	3.65	3.34	3.12	2.95	2.82	2.72	2.63	2.56	2.50	2.44	2.39	2.35
70	7.01	4.92	4.07	3.60	3.29	3.07	2.91	2.78	2.67	2.59	2.51	2.45	2.40	2.35	2.31
80	6.96	4.88	4.04	3.56	3.26	3.04	2.87	2.74	2.64	2.55	2.48	2.42	2.36	2.31	2.27
90	6.93	4.85	4.01	3.53	3.23	3.01	2.84	2.72	2.61	2.52	2.45	2.39	2.33	2.29	2.24
100	6.90	4.82	3.98	3.51	3.21	2.99	2.82	2.69	2.59	2.50	2.43	2.37	2.31	2.27	2.22
110	6.87	4.80	3.96	3.49	3.19	2.97	2.81	2.68	2.57	2.49	2.41	2.35	2.30	2.25	2.21
120	6.85	4.79	3.95	3.48	3.17	2.96	2.79	2.66	2.56	2.47	2.40	2.34	2.28	2.23	2.19

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Table 17-2. Percentiles of Chi-Square Distribution for $df = 1(1)30(5)100$

df \ (1- α)	0.90	0.95	0.975	0.98	0.99
1	2.706	3.841	5.024	5.412	6.635
2	4.605	5.991	7.378	7.824	9.210
3	6.251	7.815	9.348	9.837	11.345
4	7.779	9.488	11.143	11.668	13.277
5	9.236	11.070	12.833	13.388	15.086
6	10.645	12.592	14.449	15.033	16.812
7	12.017	14.067	16.013	16.622	18.475
8	13.362	15.507	17.535	18.168	20.090
9	14.684	16.919	19.023	19.679	21.666
10	15.987	18.307	20.483	21.161	23.209
11	17.275	19.675	21.920	22.618	24.725
12	18.549	21.026	23.337	24.054	26.217
13	19.812	22.362	24.736	25.472	27.688
14	21.064	23.685	26.119	26.873	29.141
15	22.307	24.996	27.488	28.259	30.578
16	23.542	26.296	28.845	29.633	32.000
17	24.769	27.587	30.191	30.995	33.409
18	25.989	28.869	31.526	32.346	34.805
19	27.204	30.144	32.852	33.687	36.191
20	28.412	31.410	34.170	35.020	37.566
21	29.615	32.671	35.479	36.343	38.932
22	30.813	33.924	36.781	37.659	40.289
23	32.007	35.172	38.076	38.968	41.638
24	33.196	36.415	39.364	40.270	42.980
25	34.382	37.652	40.646	41.566	44.314
26	35.563	38.885	41.923	42.856	45.642
27	36.741	40.113	43.195	44.140	46.963
28	37.916	41.337	44.461	45.419	48.278
29	39.087	42.557	45.722	46.693	49.588
30	40.256	43.773	46.979	47.962	50.892
35	46.059	49.802	53.203	54.244	57.342
40	51.805	55.758	59.342	60.436	63.691
45	57.505	61.656	65.410	66.555	69.957
50	63.167	67.505	71.420	72.613	76.154
55	68.796	73.311	77.380	78.619	82.292
60	74.397	79.082	83.298	84.580	88.379
65	79.973	84.821	89.177	90.501	94.422
70	85.527	90.531	95.023	96.388	100.425
75	91.061	96.217	100.839	102.243	106.393
80	96.578	101.879	106.629	108.069	112.329
85	102.079	107.522	112.393	113.871	118.236
90	107.565	113.145	118.136	119.648	124.116
95	113.038	118.752	123.858	125.405	129.973
100	118.498	124.342	129.561	131.142	135.807

Footnote. The notation $df = 1(1)30(5)100$ is a shorthand for df from 1 to 30 by unit steps, then from 35 to 100 by 5's

Table 17-3. Upper Tolerance Limit Factors With γ Coverage for $n = 4(1)30(5)100$

$n \backslash \gamma$	95% Confidence			99% Confidence		
	0.90	0.95	0.99	0.90	0.95	0.99
4	4.162	5.144	7.042	7.380	9.083	12.387
5	3.407	4.203	5.741	5.362	6.578	8.939
6	3.006	3.708	5.062	4.411	5.406	7.335
7	2.755	3.399	4.642	3.859	4.728	6.412
8	2.582	3.187	4.354	3.497	4.285	5.812
9	2.454	3.031	4.143	3.240	3.972	5.389
10	2.355	2.911	3.981	3.048	3.738	5.074
11	2.275	2.815	3.852	2.898	3.556	4.829
12	2.210	2.736	3.747	2.777	3.410	4.633
13	2.155	2.671	3.659	2.677	3.290	4.472
14	2.109	2.614	3.585	2.593	3.189	4.337
15	2.068	2.566	3.520	2.521	3.102	4.222
16	2.033	2.524	3.464	2.459	3.028	4.123
17	2.002	2.486	3.414	2.405	2.963	4.037
18	1.974	2.453	3.370	2.357	2.905	3.960
19	1.949	2.423	3.331	2.314	2.854	3.892
20	1.926	2.396	3.295	2.276	2.808	3.832
21	1.905	2.371	3.263	2.241	2.766	3.777
22	1.886	2.349	3.233	2.209	2.729	3.727
23	1.869	2.328	3.206	2.180	2.694	3.681
24	1.853	2.309	3.181	2.154	2.662	3.640
25	1.838	2.292	3.158	2.129	2.633	3.601
26	1.824	2.275	3.136	2.106	2.606	3.566
27	1.811	2.260	3.116	2.085	2.581	3.533
28	1.799	2.246	3.098	2.065	2.558	3.502
29	1.788	2.232	3.080	2.047	2.536	3.473
30	1.777	2.220	3.064	2.030	2.515	3.447
35	1.732	2.167	2.995	1.957	2.430	3.334
40	1.697	2.125	2.941	1.902	2.364	3.249
45	1.669	2.092	2.898	1.857	2.312	3.180
50	1.646	2.065	2.862	1.821	2.269	3.125
55	1.626	2.042	2.833	1.790	2.233	3.078
60	1.609	2.022	2.807	1.764	2.202	3.038
65	1.594	2.005	2.785	1.741	2.176	3.004
70	1.581	1.990	2.765	1.722	2.153	2.974
75	1.570	1.976	2.748	1.704	2.132	2.947
80	1.559	1.964	2.733	1.688	2.114	2.924
85	1.550	1.954	2.719	1.674	2.097	2.902
90	1.542	1.944	2.706	1.661	2.082	2.883
95	1.534	1.935	2.695	1.650	2.069	2.866
100	1.527	1.927	2.684	1.639	2.056	2.850

Source of algorithm used to compute table: Odeh & Owen (1980)

Footnote. The notation $n = 4(1)30(5)100$ is a shorthand for n from 4 to 30 by unit steps, then from 35 to 100 by 5's

Table 17-4. Minimum Coverage of Non-Parametric Upper Tolerance Limit for $n = 4(1)30(5)100$

$n \setminus (1-\alpha)$	Maximum		2nd Largest	
	0.95	0.99	0.95	0.99
4	0.473	0.316	0.248	0.140
5	0.549	0.398	0.342	0.222
6	0.607	0.464	0.418	0.294
7	0.652	0.518	0.479	0.356
8	0.688	0.562	0.529	0.410
9	0.717	0.599	0.570	0.455
10	0.741	0.631	0.605	0.495
11	0.762	0.658	0.635	0.530
12	0.779	0.681	0.661	0.560
13	0.794	0.702	0.683	0.587
14	0.807	0.720	0.703	0.610
15	0.819	0.736	0.720	0.632
16	0.829	0.750	0.736	0.651
17	0.838	0.763	0.749	0.668
18	0.847	0.774	0.762	0.683
19	0.854	0.785	0.773	0.698
20	0.861	0.794	0.783	0.711
21	0.867	0.803	0.793	0.723
22	0.873	0.811	0.801	0.734
23	0.878	0.819	0.809	0.744
24	0.883	0.825	0.817	0.753
25	0.887	0.832	0.823	0.762
26	0.891	0.838	0.830	0.770
27	0.895	0.843	0.836	0.778
28	0.899	0.848	0.841	0.785
29	0.902	0.853	0.846	0.792
30	0.905	0.858	0.851	0.798
35	0.918	0.877	0.871	0.824
40	0.928	0.891	0.886	0.845
45	0.936	0.903	0.898	0.861
50	0.942	0.912	0.908	0.874
55	0.947	0.920	0.916	0.885
60	0.951	0.926	0.923	0.894
65	0.955	0.932	0.929	0.902
70	0.958	0.936	0.934	0.908
75	0.961	0.940	0.938	0.914
80	0.963	0.944	0.942	0.919
85	0.965	0.947	0.945	0.924
90	0.967	0.950	0.948	0.928
95	0.969	0.953	0.951	0.932
100	0.970	0.955	0.953	0.935

Footnotes. Maximum, 2nd Largest refer to Largest and next largest sample values
The notation $n = 4(1)30(5)100$ is a shorthand for n from 4 to 30 by unit steps, then from 35 to 100 by 5's

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Table 17-5. Significance Levels (α) for Mann-Kendall Trend Test for $n = 4(1)10$

n = 4		n = 5		n = 6		n = 7		n = 8		n = 9		n = 10	
S	α	S	α	S	α	S	α	S	α	S	α	S	α
0	0.6250	0	0.5920	1	0.5000	1	0.5000	0	0.5480	0	0.5400	1	0.5000
2	0.3750	2	0.4080	3	0.3600	3	0.3860	2	0.4520	2	0.4600	3	0.4310
4	0.1670	4	0.2420	5	0.2350	5	0.2810	4	0.3600	4	0.3810	5	0.3640
6	0.0420	6	0.1170	7	0.1360	7	0.1910	6	0.2740	6	0.3060	7	0.3000
		8	0.0420	9	0.0680	9	0.1190	8	0.1990	8	0.2380	9	0.2420
		10	0.0083	11	0.0280	11	0.0680	10	0.1380	10	0.1790	11	0.1900
				13	0.0083	13	0.0350	12	0.0890	12	0.1300	13	0.1460
				15	0.0014	15	0.0150	14	0.0540	14	0.0900	15	0.1080
						17	0.0054	16	0.0310	16	0.0600	17	0.0780
						19	0.0014	18	0.0160	18	0.0380	19	0.0540
						21	0.0002	20	0.0071	20	0.0220	21	0.0360
								22	0.0028	22	0.0120	23	0.0230
								24	0.0009	24	0.0063	25	0.0140
								26	0.0002	26	0.0029	27	0.0083
								28	0.0000	28	0.0012	29	0.0046
										30	0.0004	31	0.0023
										32	0.0001	33	0.0011
										34	0.0000	35	0.0005
										36	0.0000	37	0.0002
												39	0.0001
												41	0.0000
												43	0.0000
												45	0.0000

Source: Gilbert (1987)

Footnote: Notation $n = 4(1)10$ is shorthand for n from 4 to 10 by unit steps

Table 18-1. Confidence Levels of Non-Parametric Prediction Limits for Next m Values (PL = j th Order Statistic) for $n = 4(1)60$

n	j = n				j = n-1				j = n-2			
	m = 1	m = 2	m = 3	m = 4	m = 1	m = 2	m = 3	m = 4	m = 1	m = 2	m = 3	m = 4
4	0.800	0.667	0.571	0.500	0.600	0.400	0.286	0.214	0.400	0.200	0.114	0.071
5	0.833	0.714	0.625	0.556	0.667	0.476	0.357	0.278	0.500	0.286	0.179	0.119
6	0.857	0.750	0.667	0.600	0.714	0.536	0.417	0.333	0.571	0.357	0.238	0.167
7	0.875	0.778	0.700	0.636	0.750	0.583	0.467	0.382	0.625	0.417	0.292	0.212
8	0.889	0.800	0.727	0.667	0.778	0.622	0.509	0.424	0.667	0.467	0.339	0.255
9	0.900	0.818	0.750	0.692	0.800	0.655	0.545	0.462	0.700	0.509	0.382	0.294
10	0.909	0.833	0.769	0.714	0.818	0.682	0.577	0.495	0.727	0.545	0.420	0.330
11	0.917	0.846	0.786	0.733	0.833	0.705	0.604	0.524	0.750	0.577	0.453	0.363
12	0.923	0.857	0.800	0.750	0.846	0.725	0.629	0.550	0.769	0.604	0.484	0.393
13	0.929	0.867	0.812	0.765	0.857	0.743	0.650	0.574	0.786	0.629	0.511	0.421
14	0.933	0.875	0.824	0.778	0.867	0.758	0.669	0.595	0.800	0.650	0.535	0.446
15	0.938	0.882	0.833	0.789	0.875	0.772	0.686	0.614	0.812	0.669	0.558	0.470
16	0.941	0.889	0.842	0.800	0.882	0.784	0.702	0.632	0.824	0.686	0.578	0.491
17	0.944	0.895	0.850	0.810	0.889	0.795	0.716	0.648	0.833	0.702	0.596	0.511
18	0.947	0.900	0.857	0.818	0.895	0.805	0.729	0.662	0.842	0.716	0.614	0.530
19	0.950	0.905	0.864	0.826	0.900	0.814	0.740	0.676	0.850	0.729	0.629	0.547
20	0.952	0.909	0.870	0.833	0.905	0.823	0.751	0.688	0.857	0.740	0.644	0.563
21	0.955	0.913	0.875	0.840	0.909	0.830	0.761	0.700	0.864	0.751	0.657	0.578
22	0.957	0.917	0.880	0.846	0.913	0.837	0.770	0.711	0.870	0.761	0.670	0.592
23	0.958	0.920	0.885	0.852	0.917	0.843	0.778	0.721	0.875	0.770	0.681	0.605
24	0.960	0.923	0.889	0.857	0.920	0.849	0.786	0.730	0.880	0.778	0.692	0.618
25	0.962	0.926	0.893	0.862	0.923	0.855	0.794	0.739	0.885	0.786	0.702	0.629
26	0.963	0.929	0.897	0.867	0.926	0.860	0.800	0.747	0.889	0.794	0.712	0.640
27	0.964	0.931	0.900	0.871	0.929	0.865	0.807	0.755	0.893	0.800	0.720	0.651
28	0.966	0.933	0.903	0.875	0.931	0.869	0.813	0.762	0.897	0.807	0.729	0.660
29	0.967	0.935	0.906	0.879	0.933	0.873	0.819	0.769	0.900	0.813	0.737	0.670

Footnotes: Notation $n = 4(1)60$ is shorthand for n from 4 to 60 by unit steps
 PL = Prediction Limit

Table 18-1. Confidence Levels of Non-Parametric Prediction Limits for Next m Values (PL = j th Order Statistic) for $n = 4(1)60$

n	j = n				j = n-1				j = n-2			
	m = 1	m = 2	m = 3	m = 4	m = 1	m = 2	m = 3	m = 4	m = 1	m = 2	m = 3	m = 4
30	0.968	0.938	0.909	0.882	0.935	0.877	0.824	0.775	0.903	0.819	0.744	0.678
31	0.969	0.939	0.912	0.886	0.938	0.881	0.829	0.782	0.906	0.824	0.751	0.687
32	0.970	0.941	0.914	0.889	0.939	0.884	0.834	0.787	0.909	0.829	0.758	0.695
33	0.971	0.943	0.917	0.892	0.941	0.887	0.838	0.793	0.912	0.834	0.764	0.702
34	0.971	0.944	0.919	0.895	0.943	0.890	0.842	0.798	0.914	0.838	0.770	0.709
35	0.972	0.946	0.921	0.897	0.944	0.893	0.846	0.803	0.917	0.842	0.776	0.716
36	0.973	0.947	0.923	0.900	0.946	0.896	0.850	0.808	0.919	0.846	0.781	0.723
37	0.974	0.949	0.925	0.902	0.947	0.899	0.854	0.812	0.921	0.850	0.786	0.729
38	0.974	0.950	0.927	0.905	0.949	0.901	0.857	0.816	0.923	0.854	0.791	0.735
39	0.975	0.951	0.929	0.907	0.950	0.904	0.861	0.821	0.925	0.857	0.796	0.741
40	0.976	0.952	0.930	0.909	0.951	0.906	0.864	0.825	0.927	0.861	0.801	0.746
41	0.976	0.953	0.932	0.911	0.952	0.908	0.867	0.828	0.929	0.864	0.805	0.751
42	0.977	0.955	0.933	0.913	0.953	0.910	0.870	0.832	0.930	0.867	0.809	0.756
43	0.977	0.956	0.935	0.915	0.955	0.912	0.872	0.835	0.932	0.870	0.813	0.761
44	0.978	0.957	0.936	0.917	0.956	0.914	0.875	0.839	0.933	0.872	0.817	0.766
45	0.978	0.957	0.938	0.918	0.957	0.916	0.878	0.842	0.935	0.875	0.820	0.770
46	0.979	0.958	0.939	0.920	0.957	0.918	0.880	0.845	0.936	0.878	0.824	0.774
47	0.979	0.959	0.940	0.922	0.958	0.919	0.882	0.848	0.938	0.880	0.827	0.779
48	0.980	0.960	0.941	0.923	0.959	0.921	0.885	0.851	0.939	0.882	0.831	0.783
49	0.980	0.961	0.942	0.925	0.960	0.922	0.887	0.853	0.940	0.885	0.834	0.786
50	0.980	0.962	0.943	0.926	0.961	0.924	0.889	0.856	0.941	0.887	0.837	0.790
51	0.981	0.962	0.944	0.927	0.962	0.925	0.891	0.859	0.942	0.889	0.840	0.794
52	0.981	0.963	0.945	0.929	0.962	0.927	0.893	0.861	0.943	0.891	0.842	0.797
53	0.981	0.964	0.946	0.930	0.963	0.928	0.895	0.863	0.944	0.893	0.845	0.801
54	0.982	0.964	0.947	0.931	0.964	0.929	0.897	0.866	0.945	0.895	0.848	0.804
55	0.982	0.965	0.948	0.932	0.964	0.930	0.898	0.868	0.946	0.897	0.850	0.807
56	0.982	0.966	0.949	0.933	0.965	0.932	0.900	0.870	0.947	0.898	0.853	0.810
57	0.983	0.966	0.950	0.934	0.966	0.933	0.902	0.872	0.948	0.900	0.855	0.813
58	0.983	0.967	0.951	0.935	0.966	0.934	0.903	0.874	0.949	0.902	0.857	0.816
59	0.983	0.967	0.952	0.937	0.967	0.935	0.905	0.876	0.950	0.903	0.860	0.819
60	0.984	0.968	0.952	0.938	0.967	0.936	0.906	0.878	0.951	0.905	0.862	0.821

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Table 18-2. Confidence Levels for Non-Parametric Prediction Limit on Future Median of Order 3 (PL = j th Order Statistic) for $n = 4(1)60$

n	$j = n$	$j = n-1$	$j = n-2$
4	0.857	0.629	0.371
5	0.893	0.714	0.500
6	0.917	0.774	0.595
7	0.933	0.817	0.667
8	0.945	0.848	0.721
9	0.955	0.873	0.764
10	0.962	0.892	0.797
11	0.967	0.907	0.824
12	0.971	0.919	0.846
13	0.975	0.929	0.864
14	0.978	0.937	0.879
15	0.980	0.944	0.892
16	0.982	0.949	0.903
17	0.984	0.954	0.912
18	0.986	0.959	0.920
19	0.987	0.962	0.927
20	0.988	0.966	0.933
21	0.989	0.968	0.939
22	0.990	0.971	0.943
23	0.991	0.973	0.948
24	0.991	0.975	0.951
25	0.992	0.977	0.955
26	0.993	0.978	0.958
27	0.993	0.980	0.961
28	0.994	0.981	0.963
29	0.994	0.982	0.965
30	0.994	0.983	0.967
31	0.995	0.984	0.969
32	0.995	0.985	0.971
33	0.995	0.986	0.973
34	0.995	0.987	0.974
35	0.996	0.987	0.975
36	0.996	0.988	0.977
37	0.996	0.989	0.978
38	0.996	0.989	0.979
39	0.997	0.990	0.980
40	0.997	0.990	0.981
41	0.997	0.991	0.982
42	0.997	0.991	0.982
43	0.997	0.991	0.983
44	0.997	0.992	0.984
45	0.997	0.992	0.985
46	0.997	0.992	0.985
47	0.998	0.993	0.986
48	0.998	0.993	0.986
49	0.998	0.993	0.987
50	0.998	0.994	0.987
51	0.998	0.994	0.988
52	0.998	0.994	0.988
53	0.998	0.994	0.989
54	0.998	0.994	0.989
55	0.998	0.995	0.989
56	0.998	0.995	0.990
57	0.998	0.995	0.990
58	0.998	0.995	0.990
59	0.998	0.995	0.991
60	0.998	0.995	0.991

Footnotes: Notation $n = 4(1)60$ is shorthand for n from 4 to 60 by unit steps; PL = Prediction Limit

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D STATISTICAL TABLES

D.2 TABLES FROM CHAPTER 19: INTERWELL PREDICTION LIMITS FOR FUTURE VALUES

TABLE 19-1 κ -Multipliers for 1-of-2 Interwell Prediction Limits on Observations.....D-34

TABLE 19-2 κ -Multipliers for 1-of-3 Interwell Prediction Limits on Observations.....D-43

TABLE 19-3 κ -Multipliers for 1-of-4 Interwell Prediction Limits on Observations.....D-52

TABLE 19-4 κ -Multipliers for Mod. Cal. Interwell Prediction Limits on Observations.....D-61

Table 19-1. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Observations (1 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.78	0.67	0.61	0.59	0.57	0.54	0.53	0.52	0.51	0.51	0.50	0.50	0.50	0.50	0.49	0.49	0.49	0.49	0.49	0.49
2	1.21	1.03	0.95	0.90	0.88	0.84	0.82	0.81	0.80	0.79	0.79	0.78	0.78	0.77	0.77	0.77	0.77	0.76	0.76	0.76
3	1.47	1.23	1.13	1.08	1.05	1.01	0.98	0.96	0.95	0.94	0.94	0.93	0.93	0.92	0.92	0.92	0.91	0.91	0.91	0.91
4	1.65	1.37	1.26	1.20	1.16	1.12	1.09	1.07	1.06	1.05	1.04	1.03	1.03	1.02	1.02	1.01	1.01	1.01	1.00	1.00
5	1.79	1.48	1.36	1.29	1.25	1.20	1.17	1.15	1.13	1.12	1.11	1.11	1.10	1.10	1.09	1.09	1.08	1.08	1.08	1.07
8	2.09	1.71	1.56	1.48	1.43	1.37	1.34	1.31	1.29	1.28	1.27	1.26	1.25	1.25	1.24	1.24	1.23	1.23	1.22	1.22
12	2.34	1.90	1.73	1.64	1.58	1.51	1.47	1.44	1.42	1.40	1.39	1.39	1.38	1.37	1.36	1.36	1.35	1.35	1.34	1.34
16	2.52	2.03	1.85	1.75	1.68	1.61	1.56	1.53	1.51	1.49	1.48	1.47	1.46	1.45	1.44	1.44	1.43	1.43	1.42	1.42
20	2.65	2.14	1.94	1.83	1.76	1.68	1.64	1.60	1.57	1.56	1.54	1.53	1.53	1.52	1.51	1.50	1.50	1.49	1.49	1.48
30	2.89	2.32	2.10	1.98	1.90	1.81	1.76	1.72	1.69	1.67	1.66	1.65	1.64	1.63	1.62	1.61	1.60	1.60	1.59	1.59
40	3.06	2.45	2.21	2.08	2.00	1.90	1.85	1.80	1.78	1.75	1.74	1.73	1.72	1.70	1.69	1.69	1.68	1.67	1.67	1.66
50	3.19	2.54	2.29	2.16	2.08	1.97	1.91	1.87	1.84	1.82	1.80	1.79	1.78	1.76	1.75	1.74	1.74	1.73	1.72	1.72
60	3.29	2.62	2.36	2.22	2.13	2.03	1.97	1.92	1.89	1.86	1.85	1.83	1.82	1.81	1.80	1.79	1.78	1.78	1.77	1.76
75	3.41	2.71	2.44	2.30	2.21	2.10	2.03	1.98	1.95	1.92	1.91	1.89	1.88	1.86	1.85	1.84	1.84	1.83	1.82	1.81
100	3.57	2.83	2.55	2.40	2.30	2.18	2.11	2.06	2.02	2.00	1.98	1.96	1.95	1.94	1.92	1.91	1.91	1.90	1.89	1.88
125	3.69	2.92	2.63	2.47	2.37	2.25	2.18	2.12	2.08	2.06	2.04	2.02	2.01	1.99	1.98	1.97	1.96	1.95	1.94	1.93
150	3.79	3.00	2.69	2.53	2.42	2.30	2.23	2.17	2.13	2.10	2.08	2.07	2.05	2.03	2.02	2.01	2.00	1.99	1.98	1.97
175	3.87	3.06	2.75	2.58	2.47	2.34	2.27	2.21	2.17	2.14	2.12	2.10	2.09	2.07	2.05	2.04	2.04	2.03	2.02	2.01
200	3.93	3.11	2.79	2.62	2.51	2.38	2.30	2.24	2.20	2.17	2.15	2.13	2.12	2.10	2.09	2.07	2.07	2.06	2.05	2.04

Table 19-1. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Observations (1 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.21	1.03	0.95	0.90	0.88	0.84	0.82	0.81	0.80	0.79	0.79	0.78	0.78	0.77	0.77	0.77	0.77	0.76	0.76	0.76
2	1.65	1.37	1.26	1.20	1.16	1.12	1.09	1.07	1.06	1.05	1.04	1.03	1.03	1.02	1.02	1.01	1.01	1.01	1.00	1.00
3	1.91	1.57	1.44	1.37	1.32	1.27	1.24	1.21	1.19	1.18	1.18	1.17	1.16	1.16	1.15	1.15	1.14	1.14	1.14	1.13
4	2.09	1.71	1.56	1.48	1.43	1.37	1.34	1.31	1.29	1.28	1.27	1.26	1.25	1.25	1.24	1.24	1.23	1.23	1.22	1.22
5	2.23	1.82	1.65	1.57	1.51	1.45	1.41	1.38	1.36	1.35	1.34	1.33	1.32	1.31	1.31	1.30	1.30	1.29	1.29	1.29
8	2.52	2.03	1.85	1.75	1.68	1.61	1.56	1.53	1.51	1.49	1.48	1.47	1.46	1.45	1.44	1.44	1.43	1.43	1.42	1.42
12	2.76	2.22	2.01	1.90	1.83	1.74	1.69	1.65	1.63	1.61	1.60	1.59	1.58	1.57	1.56	1.55	1.55	1.54	1.53	1.53
16	2.93	2.35	2.12	2.00	1.93	1.83	1.78	1.74	1.71	1.69	1.68	1.67	1.66	1.64	1.63	1.63	1.62	1.62	1.61	1.60
20	3.06	2.45	2.21	2.08	2.00	1.90	1.85	1.80	1.78	1.75	1.74	1.73	1.72	1.70	1.69	1.69	1.68	1.67	1.67	1.66
30	3.29	2.62	2.36	2.22	2.13	2.03	1.97	1.92	1.89	1.86	1.85	1.83	1.82	1.81	1.80	1.79	1.78	1.78	1.77	1.76
40	3.45	2.74	2.47	2.32	2.23	2.12	2.05	2.00	1.97	1.94	1.92	1.91	1.90	1.88	1.87	1.86	1.85	1.85	1.84	1.83
50	3.57	2.83	2.55	2.40	2.30	2.18	2.11	2.06	2.02	2.00	1.98	1.96	1.95	1.94	1.92	1.91	1.91	1.90	1.89	1.88
60	3.67	2.91	2.61	2.46	2.36	2.24	2.16	2.11	2.07	2.05	2.03	2.01	2.00	1.98	1.97	1.96	1.95	1.94	1.93	1.92
75	3.79	3.00	2.69	2.53	2.42	2.30	2.23	2.17	2.13	2.10	2.08	2.07	2.05	2.03	2.02	2.01	2.00	1.99	1.98	1.97
100	3.93	3.11	2.79	2.62	2.51	2.38	2.30	2.24	2.20	2.17	2.15	2.13	2.12	2.10	2.09	2.07	2.07	2.06	2.05	2.04
125	4.05	3.19	2.87	2.69	2.58	2.44	2.36	2.30	2.26	2.23	2.21	2.19	2.17	2.15	2.14	2.12	2.12	2.11	2.10	2.09
150	4.14	3.26	2.93	2.75	2.63	2.49	2.41	2.35	2.30	2.27	2.25	2.23	2.22	2.19	2.18	2.17	2.16	2.15	2.14	2.13
175	4.21	3.32	2.98	2.79	2.68	2.54	2.45	2.39	2.34	2.31	2.28	2.27	2.25	2.23	2.21	2.20	2.19	2.18	2.17	2.16
200	4.28	3.37	3.02	2.84	2.72	2.57	2.49	2.42	2.37	2.34	2.32	2.30	2.28	2.26	2.24	2.23	2.22	2.21	2.20	2.19

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Table 19-1. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Observations (1 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.65	1.37	1.26	1.20	1.16	1.12	1.09	1.07	1.06	1.05	1.04	1.03	1.03	1.02	1.02	1.01	1.01	1.01	1.00	1.00
2	2.09	1.71	1.56	1.48	1.43	1.37	1.34	1.31	1.29	1.28	1.27	1.26	1.25	1.25	1.24	1.24	1.23	1.23	1.22	1.22
3	2.34	1.90	1.73	1.64	1.58	1.51	1.47	1.44	1.42	1.40	1.39	1.39	1.38	1.37	1.36	1.36	1.35	1.35	1.34	1.34
4	2.52	2.03	1.85	1.75	1.68	1.61	1.56	1.53	1.51	1.49	1.48	1.47	1.46	1.45	1.44	1.44	1.43	1.43	1.42	1.42
5	2.65	2.14	1.94	1.83	1.76	1.68	1.64	1.60	1.57	1.56	1.54	1.53	1.52	1.51	1.50	1.50	1.49	1.49	1.49	1.48
8	2.93	2.35	2.12	2.00	1.93	1.83	1.78	1.74	1.71	1.69	1.68	1.67	1.66	1.64	1.63	1.63	1.62	1.62	1.61	1.60
12	3.16	2.52	2.28	2.15	2.06	1.96	1.90	1.86	1.83	1.80	1.79	1.78	1.77	1.75	1.74	1.73	1.73	1.72	1.71	1.71
16	3.33	2.65	2.39	2.24	2.16	2.05	1.99	1.94	1.90	1.88	1.86	1.85	1.84	1.82	1.81	1.80	1.80	1.79	1.78	1.78
20	3.45	2.74	2.47	2.32	2.23	2.12	2.05	2.00	1.97	1.94	1.92	1.91	1.90	1.88	1.87	1.86	1.85	1.85	1.84	1.83
30	3.67	2.91	2.61	2.46	2.36	2.24	2.16	2.11	2.07	2.05	2.03	2.01	2.00	1.98	1.97	1.96	1.95	1.94	1.93	1.92
40	3.82	3.02	2.71	2.55	2.44	2.32	2.24	2.19	2.15	2.12	2.10	2.08	2.07	2.05	2.03	2.02	2.02	2.01	2.00	1.99
50	3.93	3.11	2.79	2.62	2.51	2.38	2.30	2.24	2.20	2.17	2.15	2.13	2.12	2.10	2.09	2.07	2.07	2.06	2.05	2.04
60	4.03	3.18	2.85	2.68	2.57	2.43	2.35	2.29	2.25	2.22	2.20	2.18	2.16	2.14	2.13	2.12	2.11	2.10	2.09	2.08
75	4.14	3.26	2.93	2.75	2.63	2.49	2.41	2.35	2.30	2.27	2.25	2.23	2.22	2.19	2.18	2.17	2.16	2.15	2.14	2.13
100	4.28	3.37	3.02	2.84	2.72	2.57	2.49	2.42	2.37	2.34	2.32	2.30	2.28	2.26	2.24	2.23	2.22	2.21	2.20	2.19
125	4.39	3.45	3.10	2.90	2.78	2.63	2.54	2.47	2.43	2.39	2.37	2.35	2.33	2.31	2.29	2.28	2.27	2.26	2.24	2.23
150	4.47	3.52	3.15	2.96	2.83	2.68	2.59	2.52	2.47	2.44	2.41	2.39	2.37	2.35	2.33	2.32	2.31	2.30	2.28	2.27
175	4.54	3.57	3.20	3.00	2.87	2.72	2.63	2.56	2.51	2.47	2.44	2.42	2.41	2.38	2.36	2.35	2.34	2.33	2.31	2.30
200	4.61	3.62	3.24	3.04	2.91	2.75	2.66	2.59	2.54	2.50	2.47	2.45	2.44	2.41	2.39	2.38	2.37	2.36	2.34	2.33

Table 19-1. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Observations (2 COCs, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.27	1.05	0.97	0.92	0.89	0.85	0.83	0.81	0.80	0.79	0.79	0.78	0.78	0.78	0.77	0.77	0.77	0.77	0.76	0.76
2	1.76	1.42	1.29	1.22	1.18	1.13	1.10	1.08	1.06	1.05	1.04	1.04	1.03	1.02	1.02	1.01	1.01	1.01	1.01	1.00
3	2.05	1.63	1.48	1.39	1.34	1.28	1.25	1.22	1.20	1.19	1.18	1.17	1.17	1.16	1.15	1.15	1.14	1.14	1.14	1.13
4	2.27	1.78	1.61	1.51	1.45	1.39	1.35	1.32	1.30	1.28	1.27	1.26	1.26	1.25	1.24	1.24	1.23	1.23	1.23	1.22
5	2.43	1.90	1.71	1.60	1.54	1.47	1.42	1.39	1.37	1.35	1.34	1.33	1.33	1.32	1.31	1.30	1.30	1.30	1.29	1.29
8	2.79	2.15	1.91	1.79	1.72	1.63	1.58	1.54	1.52	1.50	1.49	1.48	1.47	1.46	1.45	1.44	1.44	1.43	1.43	1.42
12	3.10	2.36	2.09	1.95	1.87	1.77	1.71	1.67	1.64	1.62	1.60	1.59	1.58	1.57	1.56	1.55	1.55	1.54	1.54	1.53
16	3.32	2.51	2.22	2.07	1.97	1.86	1.80	1.76	1.72	1.70	1.69	1.67	1.66	1.65	1.64	1.63	1.62	1.62	1.61	1.61
20	3.48	2.62	2.31	2.15	2.05	1.94	1.87	1.82	1.79	1.77	1.75	1.73	1.72	1.71	1.70	1.69	1.68	1.68	1.67	1.66
30	3.78	2.83	2.48	2.31	2.20	2.07	2.00	1.94	1.90	1.88	1.86	1.84	1.83	1.81	1.80	1.79	1.79	1.78	1.77	1.76
40	3.99	2.97	2.60	2.41	2.30	2.16	2.08	2.02	1.98	1.96	1.93	1.92	1.91	1.89	1.87	1.86	1.86	1.85	1.84	1.83
50	4.15	3.08	2.70	2.50	2.37	2.23	2.15	2.09	2.04	2.01	1.99	1.98	1.96	1.94	1.93	1.92	1.91	1.90	1.89	1.88
60	4.28	3.17	2.77	2.56	2.44	2.29	2.20	2.14	2.09	2.06	2.04	2.02	2.01	1.99	1.97	1.96	1.95	1.95	1.93	1.93
75	4.43	3.27	2.86	2.65	2.51	2.36	2.27	2.20	2.15	2.12	2.10	2.08	2.06	2.04	2.03	2.01	2.01	2.00	1.99	1.98
100	4.63	3.41	2.97	2.75	2.61	2.44	2.35	2.28	2.23	2.19	2.17	2.15	2.13	2.11	2.09	2.08	2.07	2.06	2.05	2.04
125	4.78	3.51	3.06	2.83	2.68	2.51	2.41	2.34	2.28	2.25	2.22	2.20	2.19	2.16	2.14	2.13	2.12	2.11	2.10	2.09
150	4.90	3.60	3.13	2.89	2.74	2.56	2.46	2.38	2.33	2.29	2.27	2.25	2.23	2.20	2.19	2.17	2.16	2.15	2.14	2.13
175	5.00	3.67	3.19	2.94	2.79	2.61	2.51	2.42	2.37	2.33	2.30	2.28	2.27	2.24	2.22	2.21	2.20	2.19	2.17	2.16
200	5.08	3.73	3.24	2.99	2.83	2.65	2.54	2.46	2.40	2.37	2.34	2.31	2.30	2.27	2.25	2.24	2.23	2.22	2.20	2.19

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Table 19-1. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Observations (2 COCs, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.76	1.42	1.29	1.22	1.18	1.13	1.10	1.08	1.06	1.05	1.04	1.04	1.03	1.02	1.02	1.02	1.01	1.01	1.01	1.00
2	2.27	1.78	1.61	1.51	1.45	1.39	1.35	1.32	1.30	1.28	1.27	1.26	1.26	1.25	1.24	1.24	1.23	1.23	1.23	1.22
3	2.57	2.00	1.79	1.68	1.61	1.53	1.48	1.45	1.43	1.41	1.40	1.39	1.38	1.37	1.36	1.36	1.35	1.35	1.34	1.34
4	2.79	2.15	1.91	1.79	1.72	1.63	1.58	1.54	1.52	1.50	1.49	1.48	1.47	1.46	1.45	1.44	1.44	1.43	1.43	1.42
5	2.96	2.27	2.01	1.88	1.80	1.71	1.65	1.61	1.58	1.57	1.55	1.54	1.53	1.52	1.51	1.50	1.50	1.49	1.49	1.48
8	3.32	2.51	2.22	2.07	1.97	1.86	1.80	1.76	1.72	1.70	1.69	1.67	1.66	1.65	1.64	1.63	1.62	1.62	1.61	1.61
12	3.62	2.71	2.39	2.22	2.12	2.00	1.93	1.88	1.84	1.82	1.80	1.78	1.77	1.76	1.74	1.74	1.73	1.72	1.71	1.71
16	3.83	2.86	2.51	2.33	2.22	2.09	2.02	1.96	1.92	1.89	1.88	1.86	1.85	1.83	1.82	1.81	1.80	1.80	1.79	1.78
20	3.99	2.97	2.60	2.41	2.30	2.16	2.08	2.02	1.98	1.96	1.93	1.92	1.91	1.89	1.87	1.86	1.86	1.85	1.84	1.83
30	4.28	3.17	2.77	2.56	2.44	2.29	2.20	2.14	2.09	2.06	2.04	2.02	2.01	1.99	1.97	1.96	1.95	1.95	1.93	1.93
40	4.48	3.30	2.89	2.67	2.53	2.38	2.29	2.21	2.17	2.14	2.11	2.09	2.08	2.06	2.04	2.03	2.02	2.01	2.00	1.99
50	4.63	3.41	2.97	2.75	2.61	2.44	2.35	2.28	2.23	2.19	2.17	2.15	2.13	2.11	2.09	2.08	2.07	2.06	2.05	2.04
60	4.75	3.49	3.05	2.81	2.67	2.50	2.40	2.32	2.27	2.24	2.21	2.19	2.18	2.15	2.14	2.12	2.11	2.10	2.09	2.08
75	4.90	3.60	3.13	2.89	2.74	2.56	2.46	2.38	2.33	2.29	2.27	2.25	2.23	2.20	2.19	2.17	2.16	2.15	2.14	2.13
100	5.08	3.73	3.24	2.99	2.83	2.65	2.54	2.46	2.40	2.37	2.34	2.31	2.30	2.27	2.25	2.24	2.23	2.22	2.20	2.19
125	5.23	3.82	3.33	3.06	2.90	2.71	2.60	2.52	2.46	2.42	2.39	2.37	2.35	2.32	2.30	2.29	2.27	2.26	2.25	2.24
150	5.34	3.90	3.39	3.13	2.96	2.76	2.65	2.56	2.50	2.46	2.43	2.41	2.39	2.36	2.34	2.32	2.31	2.30	2.29	2.27
175	5.43	3.97	3.45	3.18	3.01	2.81	2.69	2.60	2.54	2.50	2.47	2.44	2.42	2.39	2.37	2.36	2.35	2.34	2.32	2.31
200	5.52	4.03	3.50	3.22	3.05	2.85	2.73	2.64	2.57	2.53	2.50	2.47	2.45	2.42	2.40	2.39	2.37	2.36	2.35	2.33

Table 19-1. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Observations (2 COCs, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.27	1.79	1.61	1.51	1.45	1.39	1.35	1.32	1.30	1.28	1.27	1.26	1.26	1.25	1.24	1.24	1.23	1.23	1.23	1.22
2	2.79	2.15	1.91	1.79	1.72	1.63	1.58	1.54	1.52	1.50	1.49	1.48	1.47	1.46	1.45	1.44	1.44	1.43	1.43	1.42
3	3.10	2.36	2.09	1.95	1.87	1.77	1.71	1.67	1.64	1.62	1.60	1.59	1.58	1.57	1.56	1.55	1.55	1.54	1.54	1.53
4	3.32	2.51	2.22	2.07	1.97	1.86	1.80	1.75	1.72	1.70	1.69	1.67	1.66	1.65	1.64	1.63	1.62	1.62	1.61	1.61
5	3.48	2.62	2.31	2.15	2.05	1.94	1.87	1.82	1.79	1.77	1.75	1.73	1.72	1.71	1.70	1.69	1.68	1.68	1.67	1.66
8	3.83	2.86	2.51	2.33	2.22	2.09	2.02	1.96	1.92	1.89	1.88	1.86	1.85	1.83	1.82	1.81	1.80	1.80	1.79	1.78
12	4.12	3.06	2.68	2.48	2.36	2.22	2.14	2.07	2.03	2.00	1.98	1.97	1.95	1.93	1.92	1.91	1.90	1.89	1.88	1.87
16	4.32	3.20	2.80	2.59	2.46	2.31	2.22	2.15	2.11	2.08	2.06	2.04	2.02	2.00	1.99	1.98	1.97	1.96	1.95	1.94
20	4.48	3.30	2.89	2.67	2.53	2.38	2.29	2.22	2.17	2.14	2.11	2.09	2.08	2.06	2.04	2.03	2.02	2.01	2.00	1.99
30	4.75	3.49	3.05	2.81	2.67	2.50	2.40	2.32	2.27	2.24	2.21	2.19	2.18	2.15	2.14	2.12	2.11	2.10	2.09	2.08
40	4.94	3.63	3.16	2.91	2.76	2.58	2.48	2.40	2.35	2.31	2.28	2.26	2.24	2.22	2.20	2.19	2.18	2.17	2.15	2.14
50	5.08	3.72	3.24	2.99	2.83	2.65	2.54	2.46	2.40	2.37	2.34	2.31	2.30	2.27	2.25	2.24	2.23	2.22	2.20	2.19
60	5.20	3.81	3.31	3.05	2.89	2.70	2.59	2.51	2.45	2.41	2.38	2.36	2.34	2.31	2.29	2.28	2.26	2.26	2.24	2.23
75	5.34	3.91	3.39	3.13	2.96	2.76	2.65	2.56	2.50	2.46	2.43	2.41	2.39	2.36	2.34	2.32	2.31	2.30	2.29	2.28
100	5.52	4.03	3.50	3.22	3.05	2.85	2.73	2.64	2.57	2.53	2.50	2.47	2.45	2.42	2.40	2.39	2.37	2.36	2.35	2.33
125	5.65	4.12	3.58	3.29	3.12	2.91	2.79	2.69	2.63	2.58	2.55	2.52	2.50	2.47	2.45	2.43	2.42	2.41	2.39	2.38
150	5.76	4.20	3.64	3.35	3.17	2.96	2.83	2.74	2.67	2.63	2.59	2.56	2.54	2.51	2.49	2.47	2.46	2.45	2.43	2.41
175	5.85	4.26	3.70	3.40	3.22	3.00	2.87	2.77	2.71	2.66	2.63	2.60	2.58	2.54	2.52	2.50	2.49	2.48	2.46	2.45
200	5.93	4.32	3.74	3.45	3.26	3.04	2.91	2.81	2.74	2.69	2.66	2.63	2.61	2.57	2.55	2.53	2.52	2.50	2.48	2.47

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Table 19-1. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Observations (5 COCs, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.02	1.58	1.42	1.33	1.28	1.22	1.18	1.16	1.14	1.13	1.12	1.11	1.11	1.10	1.09	1.09	1.09	1.08	1.08	1.08
2	2.62	1.97	1.74	1.63	1.56	1.48	1.43	1.40	1.37	1.36	1.35	1.34	1.33	1.32	1.31	1.31	1.30	1.30	1.29	1.29
3	3.00	2.20	1.93	1.80	1.72	1.62	1.57	1.53	1.50	1.48	1.47	1.46	1.45	1.44	1.43	1.42	1.42	1.42	1.41	1.40
4	3.27	2.37	2.07	1.92	1.83	1.72	1.66	1.62	1.59	1.57	1.56	1.54	1.54	1.52	1.51	1.51	1.50	1.50	1.49	1.48
5	3.49	2.51	2.18	2.01	1.91	1.80	1.74	1.69	1.66	1.64	1.62	1.61	1.60	1.59	1.57	1.57	1.56	1.56	1.55	1.54
8	3.96	2.79	2.40	2.21	2.09	1.96	1.89	1.83	1.80	1.77	1.75	1.74	1.73	1.71	1.70	1.69	1.69	1.68	1.67	1.66
12	4.37	3.03	2.59	2.38	2.25	2.10	2.02	1.95	1.91	1.89	1.86	1.85	1.84	1.82	1.80	1.80	1.79	1.78	1.77	1.76
16	4.66	3.20	2.73	2.49	2.35	2.19	2.11	2.04	1.99	1.96	1.94	1.92	1.91	1.89	1.88	1.87	1.86	1.85	1.84	1.83
20	4.88	3.34	2.84	2.59	2.44	2.27	2.17	2.10	2.06	2.02	2.00	1.98	1.97	1.95	1.93	1.92	1.91	1.91	1.89	1.89
30	5.28	3.58	3.03	2.75	2.59	2.40	2.30	2.22	2.17	2.13	2.11	2.09	2.07	2.05	2.03	2.02	2.01	2.00	1.99	1.98
40	5.56	3.75	3.16	2.87	2.69	2.49	2.38	2.30	2.24	2.21	2.18	2.16	2.14	2.12	2.10	2.09	2.08	2.07	2.05	2.04
50	5.77	3.88	3.26	2.96	2.77	2.57	2.45	2.36	2.30	2.26	2.23	2.21	2.19	2.17	2.15	2.14	2.13	2.12	2.10	2.09
60	5.94	3.98	3.35	3.03	2.84	2.62	2.50	2.41	2.35	2.31	2.28	2.26	2.24	2.21	2.19	2.18	2.17	2.16	2.14	2.13
75	6.15	4.11	3.45	3.12	2.92	2.69	2.57	2.47	2.41	2.37	2.34	2.31	2.29	2.26	2.24	2.23	2.22	2.21	2.19	2.18
100	6.42	4.27	3.58	3.23	3.02	2.78	2.65	2.55	2.48	2.44	2.40	2.38	2.36	2.33	2.31	2.29	2.28	2.27	2.25	2.24
125	6.62	4.40	3.68	3.32	3.10	2.85	2.71	2.61	2.54	2.49	2.46	2.43	2.41	2.38	2.36	2.34	2.33	2.32	2.30	2.29
150	6.79	4.50	3.75	3.39	3.16	2.91	2.77	2.66	2.59	2.54	2.50	2.47	2.45	2.42	2.40	2.38	2.37	2.35	2.34	2.32
175	6.92	4.58	3.82	3.45	3.22	2.96	2.81	2.70	2.63	2.58	2.54	2.51	2.49	2.45	2.43	2.41	2.40	2.39	2.37	2.35
200	7.04	4.65	3.88	3.49	3.26	3.00	2.85	2.73	2.66	2.61	2.57	2.54	2.52	2.48	2.46	2.44	2.43	2.41	2.39	2.38

Table 19-1. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Observations (5 COCs, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.62	1.97	1.74	1.63	1.56	1.48	1.43	1.40	1.37	1.36	1.35	1.34	1.33	1.32	1.31	1.31	1.30	1.30	1.29	1.29
2	3.27	2.37	2.07	1.92	1.83	1.72	1.66	1.62	1.59	1.57	1.56	1.54	1.54	1.52	1.51	1.51	1.50	1.50	1.49	1.48
3	3.67	2.62	2.26	2.09	1.98	1.86	1.80	1.75	1.71	1.69	1.67	1.66	1.65	1.63	1.62	1.62	1.61	1.60	1.60	1.59
4	3.96	2.79	2.40	2.21	2.09	1.96	1.89	1.83	1.80	1.77	1.75	1.74	1.73	1.71	1.70	1.69	1.69	1.68	1.67	1.66
5	4.18	2.92	2.51	2.30	2.18	2.04	1.96	1.90	1.86	1.83	1.82	1.80	1.79	1.77	1.76	1.75	1.74	1.74	1.73	1.72
8	4.66	3.20	2.73	2.49	2.35	2.19	2.11	2.04	1.99	1.96	1.94	1.92	1.91	1.89	1.88	1.87	1.86	1.85	1.84	1.83
12	5.06	3.45	2.92	2.66	2.51	2.33	2.23	2.15	2.11	2.07	2.05	2.03	2.01	1.99	1.98	1.97	1.96	1.95	1.94	1.93
16	5.34	3.62	3.06	2.78	2.61	2.42	2.32	2.24	2.19	2.15	2.12	2.10	2.09	2.06	2.05	2.03	2.02	2.02	2.00	1.99
20	5.56	3.75	3.16	2.87	2.69	2.49	2.38	2.30	2.24	2.21	2.18	2.16	2.14	2.12	2.10	2.09	2.08	2.07	2.05	2.04
30	5.94	3.98	3.35	3.03	2.84	2.62	2.50	2.41	2.35	2.31	2.28	2.26	2.24	2.21	2.19	2.18	2.17	2.16	2.14	2.13
40	6.21	4.15	3.48	3.14	2.94	2.71	2.59	2.49	2.43	2.38	2.35	2.33	2.31	2.28	2.26	2.24	2.23	2.22	2.20	2.19
50	6.42	4.27	3.58	3.23	3.02	2.78	2.65	2.55	2.48	2.44	2.40	2.38	2.36	2.33	2.31	2.29	2.28	2.27	2.25	2.24
60	6.59	4.37	3.66	3.30	3.09	2.84	2.70	2.60	2.53	2.48	2.45	2.42	2.40	2.37	2.35	2.33	2.32	2.31	2.29	2.28
75	6.79	4.50	3.75	3.39	3.16	2.91	2.77	2.66	2.59	2.54	2.50	2.47	2.45	2.42	2.40	2.38	2.37	2.35	2.34	2.32
100	7.04	4.65	3.88	3.49	3.26	3.00	2.85	2.73	2.66	2.61	2.57	2.54	2.52	2.48	2.46	2.44	2.43	2.41	2.39	2.38
125	7.23	4.77	3.98	3.58	3.34	3.06	2.91	2.79	2.72	2.66	2.62	2.59	2.57	2.53	2.51	2.49	2.47	2.46	2.44	2.43
150	7.38	4.87	4.05	3.65	3.40	3.12	2.96	2.84	2.76	2.70	2.66	2.63	2.61	2.57	2.54	2.52	2.51	2.50	2.48	2.46
175	7.52	4.95	4.12	3.70	3.45	3.17	3.00	2.88	2.80	2.74	2.70	2.67	2.64	2.60	2.58	2.56	2.54	2.53	2.51	2.49
200	7.62	5.02	4.17	3.75	3.50	3.20	3.04	2.91	2.83	2.77	2.73	2.70	2.67	2.63	2.60	2.58	2.57	2.55	2.53	2.52

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Table 19-1. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Observations (5 COCs, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.27	2.37	2.07	1.92	1.83	1.72	1.66	1.62	1.59	1.57	1.56	1.54	1.54	1.52	1.51	1.51	1.50	1.50	1.49	1.48
2	3.96	2.79	2.40	2.21	2.09	1.96	1.89	1.83	1.80	1.77	1.75	1.74	1.73	1.71	1.70	1.69	1.69	1.68	1.67	1.66
3	4.37	3.03	2.59	2.38	2.25	2.10	2.02	1.95	1.91	1.89	1.86	1.85	1.84	1.82	1.80	1.80	1.79	1.78	1.77	1.76
4	4.66	3.20	2.73	2.49	2.35	2.19	2.11	2.04	1.99	1.96	1.94	1.92	1.91	1.89	1.88	1.87	1.86	1.85	1.84	1.83
5	4.88	3.34	2.84	2.59	2.44	2.27	2.17	2.10	2.06	2.02	2.00	1.98	1.97	1.95	1.93	1.92	1.91	1.91	1.89	1.89
8	5.34	3.62	3.06	2.78	2.61	2.42	2.32	2.24	2.19	2.15	2.12	2.10	2.09	2.06	2.05	2.03	2.02	2.02	2.00	1.99
12	5.74	3.86	3.24	2.94	2.76	2.55	2.44	2.35	2.29	2.25	2.22	2.20	2.19	2.16	2.14	2.13	2.12	2.11	2.09	2.08
16	6.01	4.02	3.37	3.06	2.86	2.64	2.52	2.43	2.37	2.33	2.30	2.27	2.25	2.23	2.21	2.19	2.18	2.17	2.16	2.15
20	6.21	4.15	3.48	3.14	2.94	2.71	2.59	2.49	2.43	2.38	2.35	2.33	2.31	2.28	2.26	2.24	2.23	2.22	2.20	2.19
30	6.59	4.37	3.66	3.30	3.09	2.84	2.70	2.60	2.53	2.48	2.45	2.42	2.40	2.37	2.35	2.33	2.32	2.31	2.29	2.28
40	6.84	4.53	3.78	3.41	3.19	2.93	2.79	2.68	2.60	2.55	2.52	2.49	2.47	2.43	2.41	2.39	2.38	2.37	2.35	2.34
50	7.04	4.65	3.88	3.49	3.26	3.00	2.85	2.73	2.66	2.61	2.57	2.54	2.52	2.48	2.46	2.44	2.43	2.41	2.39	2.38
60	7.20	4.75	3.96	3.56	3.32	3.05	2.90	2.78	2.71	2.65	2.61	2.58	2.56	2.52	2.50	2.48	2.46	2.45	2.43	2.42
75	7.38	4.87	4.05	3.65	3.40	3.12	2.96	2.84	2.76	2.70	2.66	2.63	2.61	2.57	2.54	2.52	2.51	2.50	2.48	2.46
100	7.62	5.02	4.17	3.75	3.50	3.20	3.04	2.91	2.83	2.77	2.73	2.70	2.67	2.63	2.60	2.58	2.57	2.55	2.53	2.52
125	7.81	5.13	4.26	3.83	3.57	3.27	3.10	2.97	2.88	2.82	2.78	2.75	2.72	2.68	2.65	2.63	2.61	2.60	2.58	2.56
150	7.96	5.23	4.34	3.90	3.63	3.32	3.15	3.02	2.93	2.87	2.82	2.79	2.76	2.72	2.69	2.67	2.65	2.63	2.61	2.59
175	8.09	5.30	4.40	3.95	3.68	3.37	3.19	3.05	2.96	2.90	2.86	2.82	2.79	2.75	2.72	2.70	2.68	2.66	2.64	2.62
200	8.19	5.37	4.45	4.00	3.72	3.41	3.23	3.09	3.00	2.93	2.89	2.85	2.82	2.78	2.75	2.72	2.70	2.69	2.67	2.65

Table 19-1. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Observations (10 COCs, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.69	1.99	1.76	1.64	1.56	1.48	1.43	1.40	1.37	1.36	1.35	1.34	1.33	1.32	1.31	1.31	1.30	1.30	1.29	1.29
2	3.43	2.42	2.09	1.93	1.84	1.73	1.67	1.62	1.59	1.57	1.56	1.55	1.54	1.52	1.51	1.51	1.50	1.50	1.49	1.48
3	3.88	2.68	2.29	2.11	2.00	1.87	1.80	1.75	1.71	1.69	1.68	1.66	1.65	1.64	1.63	1.62	1.61	1.60	1.60	1.59
4	4.24	2.86	2.44	2.23	2.11	1.97	1.89	1.84	1.80	1.77	1.76	1.74	1.73	1.71	1.70	1.69	1.69	1.68	1.67	1.66
5	4.51	3.01	2.55	2.33	2.20	2.05	1.97	1.91	1.86	1.84	1.82	1.80	1.79	1.77	1.76	1.75	1.74	1.74	1.73	1.72
8	5.09	3.33	2.79	2.53	2.38	2.21	2.11	2.04	2.00	1.97	1.94	1.93	1.91	1.89	1.88	1.87	1.86	1.85	1.84	1.83
12	5.60	3.60	3.00	2.71	2.54	2.34	2.24	2.16	2.11	2.08	2.05	2.03	2.02	1.99	1.98	1.97	1.96	1.95	1.94	1.93
16	5.95	3.80	3.14	2.83	2.65	2.44	2.33	2.25	2.19	2.15	2.12	2.11	2.09	2.06	2.05	2.03	2.02	2.02	2.00	1.99
20	6.23	3.96	3.26	2.93	2.73	2.51	2.40	2.31	2.25	2.21	2.18	2.16	2.14	2.12	2.10	2.09	2.08	2.07	2.05	2.04
30	6.73	4.22	3.47	3.10	2.89	2.65	2.52	2.42	2.36	2.32	2.28	2.26	2.24	2.21	2.19	2.18	2.17	2.16	2.14	2.13
40	7.08	4.42	3.61	3.23	3.00	2.74	2.61	2.50	2.44	2.39	2.35	2.33	2.31	2.28	2.26	2.24	2.23	2.22	2.20	2.19
50	7.35	4.56	3.72	3.32	3.08	2.82	2.67	2.56	2.49	2.45	2.41	2.38	2.36	2.33	2.31	2.29	2.28	2.27	2.25	2.24
60	7.58	4.69	3.81	3.40	3.15	2.88	2.73	2.61	2.54	2.49	2.45	2.43	2.40	2.37	2.35	2.33	2.32	2.31	2.29	2.28
75	7.83	4.83	3.93	3.49	3.23	2.95	2.79	2.67	2.60	2.55	2.51	2.48	2.46	2.42	2.40	2.38	2.37	2.36	2.34	2.32
100	8.17	5.02	4.07	3.61	3.34	3.04	2.88	2.75	2.67	2.62	2.58	2.55	2.52	2.49	2.46	2.44	2.43	2.42	2.40	2.38
125	8.43	5.16	4.17	3.70	3.42	3.11	2.94	2.81	2.73	2.67	2.63	2.60	2.57	2.54	2.51	2.49	2.47	2.46	2.44	2.43
150	8.63	5.27	4.27	3.78	3.49	3.17	2.99	2.86	2.77	2.72	2.67	2.64	2.61	2.57	2.55	2.53	2.51	2.50	2.48	2.46
175	8.80	5.37	4.34	3.84	3.55	3.22	3.04	2.90	2.81	2.75	2.71	2.67	2.65	2.61	2.58	2.56	2.54	2.53	2.51	2.49
200	8.94	5.46	4.40	3.89	3.60	3.26	3.08	2.94	2.85	2.79	2.74	2.70	2.68	2.64	2.61	2.59	2.57	2.56	2.53	2.52

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Table 19-1. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Observations (10 COCs, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.43	2.42	2.09	1.93	1.84	1.73	1.67	1.62	1.59	1.57	1.56	1.55	1.54	1.52	1.51	1.51	1.50	1.50	1.49	1.48
2	4.24	2.86	2.44	2.23	2.11	1.97	1.89	1.84	1.80	1.77	1.76	1.74	1.73	1.71	1.70	1.69	1.69	1.68	1.67	1.66
3	4.72	3.13	2.65	2.40	2.27	2.11	2.02	1.96	1.92	1.89	1.87	1.85	1.84	1.82	1.81	1.80	1.79	1.78	1.77	1.76
4	5.09	3.33	2.79	2.53	2.38	2.21	2.11	2.04	2.00	1.97	1.94	1.93	1.91	1.89	1.88	1.87	1.86	1.85	1.84	1.83
5	5.37	3.48	2.90	2.63	2.46	2.28	2.18	2.11	2.06	2.03	2.00	1.99	1.97	1.95	1.93	1.92	1.91	1.91	1.89	1.89
8	5.95	3.80	3.14	2.83	2.65	2.44	2.33	2.25	2.19	2.15	2.12	2.11	2.09	2.06	2.05	2.03	2.02	2.02	2.00	1.99
12	6.46	4.08	3.35	3.01	2.80	2.57	2.45	2.36	2.30	2.26	2.23	2.21	2.19	2.16	2.14	2.13	2.12	2.11	2.09	2.08
16	6.82	4.27	3.49	3.13	2.91	2.67	2.54	2.44	2.38	2.33	2.30	2.28	2.26	2.23	2.21	2.19	2.18	2.17	2.16	2.15
20	7.08	4.42	3.61	3.23	3.00	2.74	2.61	2.50	2.44	2.39	2.35	2.33	2.31	2.28	2.26	2.24	2.23	2.22	2.20	2.19
30	7.58	4.69	3.81	3.40	3.15	2.88	2.73	2.61	2.54	2.49	2.45	2.43	2.40	2.37	2.35	2.33	2.32	2.31	2.29	2.28
40	7.92	4.88	3.96	3.52	3.26	2.97	2.81	2.69	2.62	2.56	2.52	2.49	2.47	2.44	2.41	2.39	2.38	2.37	2.35	2.34
50	8.17	5.02	4.07	3.61	3.34	3.04	2.88	2.75	2.67	2.62	2.58	2.55	2.52	2.49	2.46	2.44	2.43	2.42	2.40	2.38
60	8.37	5.13	4.15	3.69	3.41	3.10	2.93	2.80	2.72	2.66	2.62	2.59	2.56	2.52	2.50	2.48	2.46	2.45	2.43	2.42
75	8.63	5.27	4.27	3.78	3.49	3.17	2.99	2.86	2.77	2.72	2.67	2.64	2.61	2.57	2.55	2.53	2.51	2.50	2.48	2.46
100	8.94	5.46	4.40	3.89	3.60	3.26	3.08	2.94	2.85	2.79	2.74	2.70	2.68	2.64	2.61	2.59	2.57	2.56	2.53	2.52
125	9.19	5.60	4.51	3.98	3.68	3.33	3.14	3.00	2.90	2.84	2.79	2.76	2.73	2.68	2.65	2.63	2.62	2.60	2.58	2.56
150	9.39	5.70	4.59	4.06	3.74	3.39	3.19	3.04	2.95	2.88	2.83	2.79	2.77	2.72	2.69	2.67	2.65	2.64	2.61	2.60
175	9.56	5.80	4.66	4.12	3.80	3.43	3.24	3.08	2.99	2.92	2.87	2.83	2.80	2.76	2.72	2.70	2.68	2.67	2.64	2.63
200	9.70	5.88	4.73	4.17	3.85	3.48	3.27	3.12	3.02	2.95	2.90	2.86	2.83	2.78	2.75	2.73	2.71	2.69	2.67	2.65

Table 19-1. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Observations (10 COCs, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.24	2.86	2.44	2.23	2.11	1.97	1.89	1.84	1.80	1.77	1.76	1.74	1.73	1.71	1.70	1.69	1.69	1.68	1.67	1.66
2	5.09	3.33	2.79	2.53	2.38	2.21	2.11	2.04	2.00	1.97	1.94	1.93	1.91	1.89	1.88	1.87	1.86	1.85	1.84	1.83
3	5.60	3.60	2.99	2.71	2.54	2.34	2.24	2.16	2.11	2.08	2.05	2.03	2.02	1.99	1.98	1.97	1.96	1.95	1.94	1.93
4	5.94	3.80	3.15	2.83	2.65	2.44	2.33	2.24	2.19	2.15	2.12	2.11	2.09	2.06	2.05	2.04	2.03	2.02	2.00	1.99
5	6.22	3.96	3.26	2.93	2.73	2.52	2.40	2.31	2.25	2.21	2.19	2.16	2.14	2.12	2.10	2.09	2.08	2.07	2.05	2.04
8	6.82	4.27	3.50	3.13	2.91	2.67	2.54	2.44	2.38	2.33	2.30	2.28	2.26	2.23	2.21	2.19	2.18	2.17	2.16	2.15
12	7.30	4.55	3.70	3.30	3.06	2.80	2.66	2.55	2.48	2.44	2.40	2.37	2.35	2.32	2.30	2.28	2.27	2.26	2.24	2.23
16	7.64	4.72	3.84	3.42	3.18	2.90	2.74	2.63	2.56	2.51	2.47	2.44	2.42	2.39	2.36	2.35	2.33	2.32	2.31	2.29
20	7.92	4.88	3.96	3.52	3.26	2.97	2.81	2.69	2.62	2.56	2.52	2.49	2.47	2.44	2.41	2.39	2.38	2.37	2.35	2.34
30	8.37	5.14	4.15	3.69	3.41	3.10	2.93	2.80	2.72	2.66	2.62	2.59	2.56	2.52	2.50	2.48	2.46	2.45	2.43	2.42
40	8.71	5.31	4.29	3.80	3.52	3.19	3.01	2.88	2.79	2.73	2.69	2.65	2.63	2.59	2.56	2.54	2.52	2.51	2.49	2.48
50	8.94	5.46	4.41	3.90	3.60	3.26	3.08	2.94	2.85	2.79	2.74	2.71	2.68	2.63	2.61	2.59	2.57	2.56	2.53	2.52
60	9.17	5.57	4.49	3.97	3.66	3.32	3.13	2.99	2.89	2.83	2.78	2.74	2.72	2.67	2.65	2.62	2.61	2.59	2.57	2.55
75	9.39	5.71	4.59	4.05	3.74	3.39	3.19	3.04	2.95	2.88	2.83	2.79	2.77	2.72	2.69	2.67	2.65	2.64	2.61	2.60
100	9.68	5.88	4.72	4.17	3.84	3.47	3.28	3.12	3.02	2.95	2.90	2.86	2.83	2.78	2.75	2.73	2.71	2.69	2.67	2.65
125	9.90	6.01	4.83	4.26	3.93	3.54	3.33	3.18	3.07	3.00	2.95	2.91	2.88	2.83	2.79	2.77	2.75	2.74	2.71	2.69
150	10.13	6.11	4.92	4.33	3.98	3.60	3.39	3.22	3.12	3.04	2.99	2.95	2.91	2.86	2.83	2.81	2.79	2.77	2.74	2.73
175	10.24	6.19	4.97	4.39	4.04	3.64	3.43	3.26	3.16	3.08	3.02	2.98	2.95	2.90	2.86	2.84	2.82	2.80	2.77	2.76
200	10.41	6.28	5.03	4.44	4.08	3.69	3.47	3.30	3.18	3.11	3.05	3.01	2.97	2.92	2.89	2.86	2.84	2.83	2.80	2.78

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Table 19-1. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Observations (20 COCs, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.53	2.44	2.11	1.94	1.85	1.73	1.67	1.63	1.59	1.58	1.56	1.55	1.54	1.52	1.51	1.51	1.50	1.50	1.49	1.48
2	4.41	2.91	2.46	2.24	2.11	1.97	1.89	1.84	1.80	1.77	1.76	1.74	1.73	1.71	1.70	1.69	1.69	1.68	1.67	1.66
3	5.00	3.20	2.67	2.43	2.28	2.11	2.03	1.96	1.92	1.89	1.87	1.85	1.84	1.82	1.81	1.80	1.79	1.78	1.77	1.76
4	5.43	3.42	2.82	2.55	2.39	2.21	2.12	2.05	2.00	1.97	1.94	1.93	1.92	1.89	1.88	1.87	1.86	1.85	1.84	1.83
5	5.77	3.57	2.95	2.65	2.48	2.29	2.19	2.11	2.06	2.03	2.00	1.99	1.97	1.95	1.93	1.92	1.92	1.91	1.89	1.89
8	6.50	3.93	3.20	2.86	2.67	2.45	2.33	2.25	2.19	2.16	2.13	2.11	2.09	2.06	2.05	2.04	2.03	2.02	2.00	1.99
12	7.13	4.24	3.43	3.05	2.83	2.59	2.46	2.36	2.31	2.26	2.23	2.21	2.19	2.16	2.14	2.13	2.12	2.11	2.09	2.09
16	7.58	4.46	3.59	3.18	2.94	2.69	2.55	2.45	2.38	2.33	2.31	2.28	2.26	2.23	2.21	2.20	2.18	2.17	2.16	2.15
20	7.92	4.63	3.71	3.28	3.03	2.76	2.62	2.51	2.44	2.39	2.36	2.33	2.31	2.28	2.26	2.25	2.23	2.22	2.21	2.19
30	8.54	4.95	3.94	3.47	3.20	2.90	2.74	2.62	2.55	2.50	2.46	2.43	2.41	2.37	2.35	2.33	2.32	2.31	2.29	2.28
40	9.00	5.17	4.10	3.59	3.31	2.99	2.83	2.70	2.62	2.57	2.53	2.50	2.48	2.44	2.41	2.40	2.38	2.37	2.35	2.34
50	9.34	5.34	4.22	3.70	3.40	3.07	2.89	2.76	2.68	2.62	2.58	2.55	2.52	2.49	2.46	2.44	2.43	2.42	2.40	2.38
60	9.62	5.48	4.32	3.78	3.47	3.13	2.95	2.81	2.73	2.67	2.62	2.59	2.57	2.53	2.50	2.48	2.47	2.45	2.43	2.42
75	9.96	5.65	4.44	3.88	3.56	3.20	3.01	2.87	2.78	2.72	2.68	2.64	2.62	2.57	2.55	2.53	2.51	2.50	2.48	2.46
100	10.36	5.85	4.59	4.01	3.67	3.30	3.10	2.95	2.86	2.79	2.74	2.71	2.68	2.64	2.61	2.59	2.57	2.56	2.54	2.52
125	10.70	6.02	4.72	4.11	3.76	3.37	3.17	3.01	2.91	2.84	2.80	2.76	2.73	2.69	2.66	2.63	2.62	2.60	2.58	2.56
150	10.92	6.16	4.80	4.19	3.83	3.43	3.22	3.06	2.96	2.89	2.84	2.80	2.77	2.72	2.69	2.67	2.65	2.64	2.61	2.60
175	11.15	6.28	4.89	4.25	3.89	3.48	3.26	3.10	3.00	2.92	2.87	2.84	2.80	2.76	2.72	2.70	2.68	2.67	2.64	2.62
200	11.38	6.36	4.96	4.31	3.94	3.53	3.30	3.13	3.03	2.96	2.90	2.86	2.83	2.79	2.75	2.73	2.71	2.69	2.67	2.65

Table 19-1. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Observations (20 COCs, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.41	2.91	2.46	2.24	2.11	1.97	1.89	1.84	1.80	1.77	1.76	1.74	1.73	1.71	1.70	1.69	1.69	1.68	1.67	1.66
2	5.43	3.42	2.82	2.55	2.39	2.21	2.12	2.05	2.00	1.97	1.94	1.93	1.92	1.89	1.88	1.87	1.86	1.85	1.84	1.83
3	6.05	3.71	3.05	2.73	2.55	2.35	2.25	2.16	2.11	2.08	2.05	2.03	2.02	1.99	1.98	1.97	1.96	1.95	1.94	1.93
4	6.50	3.93	3.20	2.86	2.67	2.45	2.33	2.25	2.19	2.16	2.13	2.11	2.09	2.06	2.05	2.04	2.03	2.02	2.00	1.99
5	6.84	4.10	3.32	2.96	2.76	2.52	2.40	2.31	2.26	2.21	2.19	2.16	2.14	2.12	2.10	2.09	2.08	2.07	2.05	2.04
8	7.58	4.46	3.59	3.18	2.94	2.69	2.55	2.45	2.38	2.33	2.31	2.28	2.26	2.23	2.21	2.20	2.18	2.17	2.16	2.15
12	8.20	4.78	3.81	3.36	3.11	2.82	2.67	2.56	2.49	2.44	2.40	2.38	2.35	2.32	2.30	2.28	2.27	2.26	2.25	2.23
16	8.66	5.00	3.97	3.49	3.22	2.92	2.76	2.64	2.56	2.51	2.48	2.44	2.42	2.39	2.37	2.35	2.33	2.32	2.31	2.29
20	9.00	5.17	4.10	3.59	3.31	2.99	2.83	2.70	2.62	2.57	2.53	2.50	2.48	2.44	2.41	2.40	2.38	2.37	2.35	2.34
30	9.62	5.48	4.32	3.78	3.47	3.13	2.95	2.81	2.73	2.67	2.62	2.59	2.57	2.53	2.50	2.48	2.47	2.45	2.43	2.42
40	10.02	5.70	4.48	3.91	3.59	3.23	3.03	2.89	2.80	2.74	2.69	2.66	2.63	2.59	2.56	2.54	2.52	2.51	2.49	2.48
50	10.36	5.85	4.59	4.01	3.67	3.30	3.10	2.95	2.86	2.79	2.74	2.71	2.68	2.64	2.61	2.59	2.57	2.56	2.54	2.52
60	10.64	5.99	4.69	4.09	3.74	3.36	3.16	3.00	2.90	2.84	2.79	2.75	2.72	2.68	2.65	2.62	2.61	2.60	2.57	2.55
75	10.92	6.16	4.80	4.19	3.83	3.43	3.22	3.06	2.96	2.89	2.84	2.80	2.77	2.72	2.69	2.67	2.65	2.64	2.61	2.60
100	11.38	6.36	4.96	4.31	3.94	3.53	3.30	3.13	3.03	2.96	2.90	2.86	2.83	2.79	2.75	2.73	2.71	2.69	2.67	2.65
125	11.66	6.53	5.09	4.41	4.03	3.60	3.37	3.20	3.08	3.01	2.96	2.91	2.88	2.83	2.80	2.77	2.75	2.74	2.71	2.69
150	11.88	6.65	5.17	4.49	4.10	3.66	3.42	3.24	3.13	3.05	3.00	2.95	2.92	2.87	2.83	2.81	2.79	2.77	2.74	2.73
175	12.11	6.76	5.26	4.56	4.15	3.71	3.47	3.28	3.17	3.09	3.03	2.99	2.95	2.90	2.86	2.84	2.82	2.80	2.77	2.76
200	12.28	6.84	5.31	4.61	4.20	3.75	3.50	3.32	3.20	3.12	3.06	3.02	2.98	2.93	2.89	2.86	2.84	2.83	2.80	2.78

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Table 19-1. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Observations (20 COCs, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	5.43	3.42	2.82	2.55	2.40	2.21	2.11	2.04	2.00	1.97	1.94	1.93	1.92	1.89	1.88	1.87	1.86	1.85	1.85	1.83
2	6.50	3.93	3.20	2.86	2.67	2.45	2.34	2.25	2.19	2.16	2.13	2.11	2.09	2.06	2.04	2.04	2.03	2.02	2.00	1.99
3	7.13	4.24	3.42	3.05	2.82	2.60	2.45	2.37	2.30	2.26	2.23	2.21	2.19	2.16	2.14	2.13	2.11	2.11	2.09	2.09
4	7.58	4.46	3.59	3.18	2.95	2.68	2.55	2.45	2.38	2.33	2.31	2.28	2.26	2.23	2.21	2.19	2.19	2.17	2.16	2.14
5	7.92	4.63	3.70	3.28	3.03	2.77	2.62	2.51	2.44	2.40	2.35	2.33	2.31	2.28	2.26	2.24	2.23	2.22	2.21	2.19
8	8.66	5.00	3.98	3.50	3.22	2.92	2.76	2.64	2.57	2.51	2.48	2.45	2.43	2.39	2.36	2.35	2.33	2.33	2.31	2.29
12	9.22	5.31	4.18	3.67	3.39	3.06	2.88	2.75	2.67	2.61	2.57	2.54	2.51	2.48	2.45	2.43	2.42	2.41	2.39	2.38
16	9.68	5.54	4.35	3.81	3.50	3.15	2.96	2.83	2.74	2.68	2.64	2.61	2.58	2.54	2.52	2.50	2.48	2.47	2.45	2.43
20	10.02	5.71	4.46	3.90	3.59	3.23	3.03	2.89	2.80	2.74	2.69	2.66	2.63	2.59	2.56	2.54	2.52	2.51	2.49	2.48
30	10.58	5.99	4.69	4.10	3.74	3.36	3.15	3.00	2.91	2.84	2.79	2.75	2.72	2.68	2.65	2.62	2.61	2.60	2.57	2.55
40	11.04	6.22	4.86	4.21	3.86	3.46	3.23	3.08	2.98	2.91	2.85	2.82	2.78	2.74	2.71	2.68	2.67	2.65	2.62	2.61
50	11.38	6.36	4.97	4.32	3.94	3.53	3.30	3.13	3.03	2.96	2.91	2.86	2.83	2.79	2.75	2.73	2.71	2.69	2.67	2.65
60	11.60	6.50	5.06	4.39	4.01	3.59	3.36	3.18	3.08	3.00	2.95	2.91	2.87	2.82	2.79	2.77	2.74	2.73	2.70	2.69
75	11.83	6.67	5.17	4.49	4.10	3.66	3.42	3.25	3.13	3.06	3.00	2.95	2.92	2.87	2.84	2.81	2.79	2.77	2.74	2.72
100	12.28	6.84	5.31	4.61	4.21	3.76	3.50	3.32	3.20	3.12	3.06	3.02	2.98	2.93	2.89	2.86	2.84	2.83	2.80	2.78
125	12.51	7.01	5.43	4.72	4.29	3.83	3.57	3.37	3.26	3.18	3.11	3.06	3.03	2.97	2.94	2.91	2.89	2.87	2.84	2.82
150	12.73	7.13	5.54	4.78	4.35	3.88	3.62	3.42	3.30	3.22	3.15	3.11	3.06	3.01	2.97	2.94	2.92	2.90	2.87	2.85
175	12.96	7.24	5.60	4.86	4.41	3.93	3.66	3.46	3.34	3.25	3.19	3.13	3.10	3.04	3.00	2.97	2.95	2.93	2.90	2.88
200	13.19	7.30	5.65	4.90	4.46	3.97	3.70	3.50	3.37	3.28	3.22	3.16	3.13	3.07	3.03	3.00	2.98	2.96	2.92	2.90

Table 19-1. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Observations (40 COCs, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.56	2.92	2.48	2.24	2.12	1.98	1.89	1.84	1.80	1.77	1.75	1.75	1.73	1.71	1.70	1.69	1.68	1.68	1.67	1.67
2	5.69	3.48	2.85	2.57	2.41	2.22	2.12	2.05	2.01	1.97	1.95	1.93	1.91	1.89	1.88	1.87	1.87	1.86	1.84	1.83
3	6.34	3.81	3.06	2.73	2.57	2.36	2.24	2.17	2.11	2.08	2.05	2.03	2.02	2.00	1.98	1.96	1.96	1.95	1.94	1.93
4	6.91	4.00	3.25	2.88	2.69	2.45	2.34	2.24	2.20	2.16	2.12	2.10	2.09	2.07	2.05	2.03	2.03	2.02	2.01	2.00
5	7.38	4.19	3.37	2.99	2.78	2.52	2.41	2.31	2.25	2.22	2.18	2.16	2.15	2.12	2.10	2.09	2.08	2.07	2.05	2.04
8	8.31	4.61	3.62	3.20	2.97	2.69	2.55	2.45	2.38	2.34	2.30	2.28	2.27	2.23	2.21	2.20	2.18	2.17	2.16	2.15
12	9.06	4.94	3.91	3.39	3.13	2.83	2.69	2.57	2.49	2.44	2.41	2.38	2.36	2.32	2.30	2.29	2.28	2.27	2.24	2.23
16	9.62	5.22	4.05	3.53	3.25	2.93	2.76	2.64	2.57	2.51	2.48	2.45	2.43	2.38	2.36	2.35	2.34	2.32	2.30	2.29
20	10.00	5.41	4.19	3.65	3.34	3.02	2.83	2.71	2.62	2.57	2.52	2.50	2.48	2.44	2.42	2.39	2.38	2.37	2.35	2.34
30	10.75	5.78	4.42	3.86	3.51	3.16	2.96	2.82	2.73	2.66	2.63	2.59	2.57	2.52	2.50	2.48	2.46	2.45	2.43	2.42
40	11.50	6.06	4.61	4.00	3.62	3.25	3.04	2.90	2.80	2.73	2.69	2.66	2.63	2.59	2.56	2.55	2.52	2.51	2.49	2.48
50	11.88	6.25	4.75	4.09	3.72	3.32	3.11	2.96	2.86	2.79	2.75	2.71	2.69	2.64	2.61	2.59	2.57	2.56	2.54	2.52
60	12.25	6.34	4.84	4.19	3.81	3.39	3.17	3.02	2.91	2.84	2.79	2.76	2.72	2.68	2.65	2.63	2.61	2.59	2.57	2.56
75	12.62	6.53	4.98	4.28	3.91	3.46	3.24	3.06	2.97	2.90	2.84	2.80	2.77	2.72	2.70	2.68	2.65	2.64	2.62	2.59
100	13.00	6.81	5.17	4.42	4.00	3.55	3.32	3.16	3.04	2.97	2.91	2.86	2.83	2.78	2.76	2.73	2.71	2.70	2.66	2.65
125	13.38	7.00	5.31	4.54	4.09	3.65	3.39	3.20	3.10	3.02	2.96	2.92	2.89	2.83	2.80	2.77	2.76	2.73	2.71	2.69
150	13.75	7.19	5.41	4.61	4.19	3.70	3.44	3.25	3.13	3.06	3.00	2.96	2.92	2.88	2.84	2.80	2.79	2.77	2.75	2.72
175	14.12	7.28	5.50	4.70	4.23	3.74	3.48	3.30	3.18	3.10	3.04	2.99	2.96	2.90	2.86	2.84	2.82	2.80	2.77	2.76
200	14.31	7.38	5.59	4.75	4.30	3.79	3.53	3.34	3.21	3.13	3.06	3.02	2.98	2.93	2.90	2.86	2.84	2.82	2.79	2.78

Table 19-1. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Observations (40 COCs, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	5.69	3.48	2.85	2.57	2.41	2.22	2.12	2.05	2.01	1.97	1.95	1.93	1.91	1.89	1.88	1.87	1.87	1.86	1.84	1.83
2	6.91	4.00	3.25	2.88	2.69	2.45	2.34	2.24	2.20	2.16	2.12	2.10	2.09	2.07	2.05	2.03	2.03	2.02	2.01	2.00
3	7.66	4.38	3.48	3.06	2.85	2.59	2.46	2.36	2.31	2.27	2.23	2.21	2.20	2.16	2.15	2.12	2.12	2.11	2.09	2.08
4	8.31	4.61	3.62	3.20	2.97	2.69	2.55	2.45	2.38	2.34	2.30	2.28	2.27	2.23	2.21	2.20	2.18	2.17	2.16	2.15
5	8.69	4.80	3.77	3.32	3.06	2.78	2.62	2.51	2.44	2.39	2.36	2.34	2.31	2.29	2.27	2.24	2.23	2.22	2.21	2.20
8	9.62	5.22	4.05	3.53	3.25	2.93	2.76	2.64	2.57	2.51	2.48	2.45	2.43	2.38	2.36	2.35	2.34	2.32	2.30	2.29
12	10.38	5.59	4.33	3.74	3.41	3.06	2.90	2.76	2.68	2.62	2.57	2.55	2.51	2.48	2.45	2.43	2.42	2.41	2.38	2.37
16	10.94	5.83	4.47	3.88	3.53	3.18	2.98	2.83	2.75	2.69	2.64	2.61	2.58	2.55	2.51	2.50	2.48	2.46	2.44	2.43
20	11.50	6.06	4.61	4.00	3.62	3.25	3.04	2.90	2.80	2.73	2.69	2.66	2.63	2.59	2.56	2.55	2.52	2.51	2.49	2.48
30	12.25	6.34	4.84	4.19	3.81	3.39	3.17	3.02	2.91	2.84	2.79	2.76	2.72	2.68	2.65	2.63	2.61	2.59	2.57	2.56
40	12.62	6.62	5.03	4.33	3.91	3.48	3.25	3.09	2.98	2.91	2.85	2.82	2.78	2.73	2.71	2.69	2.66	2.65	2.63	2.61
50	13.00	6.81	5.17	4.42	4.00	3.55	3.32	3.16	3.04	2.97	2.91	2.86	2.83	2.78	2.76	2.73	2.71	2.70	2.66	2.65
60	13.38	7.00	5.27	4.52	4.09	3.62	3.38	3.20	3.09	3.00	2.95	2.91	2.88	2.83	2.79	2.77	2.75	2.73	2.70	2.69
75	13.75	7.19	5.41	4.61	4.19	3.70	3.44	3.25	3.13	3.06	3.00	2.96	2.92	2.88	2.84	2.80	2.79	2.77	2.75	2.72
100	14.31	7.38	5.59	4.75	4.30	3.79	3.53	3.34	3.21	3.13	3.06	3.02	2.98	2.93	2.90	2.86	2.84	2.82	2.79	2.78
125	14.88	7.56	5.69	4.84	4.38	3.88	3.60	3.39	3.27	3.18	3.12	3.06	3.03	2.98	2.93	2.91	2.89	2.88	2.84	2.82
150	15.06	7.75	5.78	4.94	4.47	3.93	3.65	3.44	3.32	3.23	3.16	3.11	3.07	3.02	2.97	2.95	2.92	2.90	2.87	2.85
175	15.25	7.84	5.88	5.03	4.52	3.98	3.70	3.48	3.34	3.26	3.19	3.14	3.10	3.04	3.00	2.97	2.95	2.93	2.90	2.88
200	15.62	7.94	5.97	5.08	4.56	4.02	3.74	3.52	3.39	3.30	3.23	3.17	3.13	3.07	3.03	3.00	2.98	2.96	2.92	2.90

Table 19-1. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Observations (40 COCs, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	6.91	4.00	3.25	2.88	2.69	2.45	2.34	2.24	2.20	2.16	2.12	2.10	2.09	2.07	2.05	2.03	2.03	2.02	2.01	2.00
2	8.31	4.61	3.62	3.20	2.97	2.69	2.55	2.45	2.38	2.34	2.30	2.28	2.27	2.23	2.21	2.20	2.18	2.17	2.16	2.15
3	9.06	4.94	3.91	3.39	3.13	2.83	2.69	2.57	2.49	2.44	2.41	2.38	2.36	2.32	2.30	2.29	2.28	2.27	2.24	2.23
4	9.62	5.22	4.05	3.53	3.25	2.93	2.76	2.64	2.57	2.51	2.48	2.45	2.43	2.38	2.36	2.35	2.34	2.32	2.30	2.29
5	10.00	5.41	4.19	3.65	3.34	3.02	2.83	2.71	2.62	2.57	2.52	2.50	2.48	2.44	2.42	2.39	2.38	2.37	2.35	2.34
8	10.94	5.83	4.47	3.88	3.53	3.18	2.98	2.83	2.75	2.69	2.64	2.61	2.58	2.55	2.51	2.50	2.48	2.46	2.44	2.43
12	11.69	6.16	4.75	4.07	3.72	3.32	3.11	2.95	2.85	2.78	2.73	2.70	2.68	2.63	2.61	2.58	2.56	2.55	2.50	2.51
16	12.25	6.44	4.89	4.21	3.84	3.41	3.18	3.03	2.92	2.85	2.80	2.77	2.73	2.69	2.66	2.64	2.62	2.61	2.58	2.57
20	12.62	6.62	5.03	4.33	3.91	3.48	3.25	3.09	2.98	2.91	2.85	2.82	2.78	2.73	2.71	2.69	2.66	2.65	2.63	2.61
30	13.38	7.00	5.27	4.52	4.09	3.62	3.38	3.20	3.09	3.00	2.95	2.91	2.88	2.83	2.79	2.77	2.75	2.73	2.70	2.69
40	13.94	7.19	5.45	4.66	4.21	3.72	3.46	3.27	3.16	3.07	3.02	2.97	2.93	2.89	2.85	2.83	2.80	2.78	2.76	2.73
50	14.31	7.38	5.59	4.75	4.30	3.79	3.53	3.34	3.21	3.13	3.06	3.02	2.98	2.93	2.90	2.86	2.84	2.82	2.79	2.78
60	14.69	7.56	5.69	4.84	4.38	3.86	3.58	3.39	3.25	3.18	3.11	3.06	3.03	2.97	2.92	2.90	2.88	2.86	2.83	2.82
75	15.06	7.75	5.78	4.94	4.47	3.93	3.65	3.44	3.32	3.23	3.16	3.11	3.07	3.02	2.97	2.95	2.92	2.90	2.87	2.85
100	15.62	7.94	5.97	5.08	4.56	4.02	3.74	3.52	3.39	3.30	3.23	3.17	3.13	3.07	3.03	3.00	2.98	2.96	2.92	2.90
125	16.00	8.12	6.11	5.17	4.66	4.09	3.81	3.58	3.44	3.34	3.27	3.21	3.18	3.12	3.07	3.04	3.02	3.00	2.97	2.95
150	16.19	8.31	6.20	5.27	4.75	4.16	3.86	3.62	3.48	3.39	3.31	3.26	3.21	3.16	3.11	3.07	3.05	3.03	2.99	2.97
175	16.38	8.41	6.25	5.34	4.80	4.21	3.91	3.67	3.52	3.41	3.34	3.30	3.25	3.18	3.13	3.11	3.07	3.06	3.03	3.00
200	16.75	8.50	6.34	5.41	4.84	4.26	3.93	3.70	3.55	3.45	3.38	3.32	3.27	3.21	3.17	3.13	3.11	3.09	3.05	3.03

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Table 19-2. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Observations (1 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.33	0.25	0.21	0.18	0.17	0.15	0.14	0.13	0.12	0.12	0.11	0.11	0.11	0.11	0.10	0.10	0.10	0.10	0.10	0.10
2	0.67	0.54	0.49	0.45	0.43	0.41	0.39	0.38	0.37	0.36	0.36	0.36	0.35	0.35	0.35	0.34	0.34	0.34	0.34	0.34
3	0.87	0.71	0.64	0.60	0.58	0.54	0.53	0.51	0.50	0.49	0.49	0.48	0.48	0.48	0.47	0.47	0.47	0.47	0.46	0.46
4	1.01	0.82	0.75	0.70	0.67	0.64	0.62	0.60	0.59	0.58	0.58	0.57	0.57	0.56	0.56	0.56	0.55	0.55	0.55	0.55
5	1.12	0.91	0.83	0.78	0.75	0.71	0.69	0.67	0.66	0.65	0.64	0.64	0.63	0.63	0.62	0.62	0.62	0.61	0.61	0.61
8	1.34	1.09	0.99	0.93	0.90	0.85	0.82	0.80	0.79	0.78	0.77	0.77	0.76	0.75	0.75	0.75	0.74	0.74	0.74	0.73
12	1.54	1.25	1.13	1.06	1.02	0.97	0.94	0.91	0.90	0.89	0.88	0.87	0.87	0.86	0.85	0.85	0.85	0.84	0.84	0.84
16	1.68	1.36	1.22	1.15	1.11	1.05	1.02	0.99	0.97	0.96	0.95	0.94	0.94	0.93	0.92	0.92	0.92	0.91	0.91	0.91
20	1.78	1.44	1.30	1.22	1.17	1.11	1.08	1.05	1.03	1.02	1.01	1.00	0.99	0.98	0.98	0.97	0.97	0.97	0.96	0.96
30	1.97	1.58	1.43	1.34	1.29	1.22	1.18	1.15	1.13	1.12	1.10	1.10	1.09	1.08	1.07	1.07	1.06	1.06	1.05	1.05
40	2.10	1.69	1.52	1.43	1.37	1.30	1.25	1.22	1.20	1.18	1.17	1.16	1.16	1.14	1.14	1.13	1.13	1.12	1.12	1.11
50	2.21	1.76	1.59	1.49	1.43	1.35	1.31	1.27	1.25	1.23	1.22	1.21	1.20	1.19	1.18	1.18	1.17	1.17	1.16	1.16
60	2.29	1.83	1.64	1.54	1.48	1.40	1.35	1.32	1.29	1.28	1.26	1.25	1.24	1.23	1.22	1.22	1.21	1.21	1.20	1.20
75	2.39	1.90	1.71	1.60	1.54	1.46	1.41	1.37	1.34	1.33	1.31	1.30	1.29	1.28	1.27	1.26	1.26	1.25	1.25	1.24
100	2.51	2.00	1.80	1.68	1.61	1.53	1.48	1.44	1.41	1.39	1.37	1.36	1.35	1.34	1.33	1.32	1.32	1.31	1.30	1.30
125	2.61	2.07	1.86	1.74	1.67	1.58	1.53	1.49	1.46	1.44	1.42	1.41	1.40	1.39	1.38	1.37	1.36	1.36	1.35	1.34
150	2.68	2.13	1.91	1.79	1.72	1.62	1.57	1.53	1.50	1.48	1.46	1.45	1.44	1.42	1.41	1.40	1.40	1.39	1.38	1.38
175	2.75	2.18	1.96	1.83	1.76	1.66	1.60	1.56	1.53	1.51	1.49	1.48	1.47	1.45	1.44	1.43	1.43	1.42	1.41	1.41
200	2.80	2.22	1.99	1.87	1.79	1.69	1.63	1.59	1.56	1.54	1.52	1.51	1.50	1.48	1.47	1.46	1.45	1.45	1.44	1.43

Table 19-2. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Observations (1 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.67	0.54	0.49	0.45	0.43	0.41	0.39	0.38	0.37	0.36	0.36	0.36	0.35	0.35	0.35	0.34	0.34	0.34	0.34	0.34
2	1.01	0.82	0.75	0.70	0.67	0.64	0.62	0.60	0.59	0.58	0.58	0.57	0.57	0.56	0.56	0.56	0.55	0.55	0.55	0.55
3	1.21	0.98	0.89	0.84	0.80	0.76	0.74	0.72	0.71	0.70	0.69	0.69	0.68	0.68	0.67	0.67	0.66	0.66	0.66	0.66
4	1.34	1.09	0.99	0.93	0.90	0.85	0.82	0.80	0.79	0.78	0.77	0.77	0.76	0.75	0.75	0.75	0.74	0.74	0.74	0.73
5	1.45	1.18	1.07	1.00	0.96	0.92	0.89	0.87	0.85	0.84	0.83	0.83	0.82	0.81	0.81	0.80	0.80	0.80	0.79	0.79
8	1.68	1.36	1.22	1.15	1.11	1.05	1.02	0.99	0.97	0.96	0.95	0.94	0.94	0.93	0.92	0.92	0.92	0.91	0.91	0.91
12	1.87	1.50	1.36	1.28	1.22	1.16	1.12	1.09	1.08	1.06	1.05	1.04	1.04	1.03	1.02	1.02	1.01	1.01	1.00	1.00
16	2.00	1.61	1.45	1.36	1.31	1.24	1.20	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.09	1.08	1.08	1.07	1.07	1.06
20	2.10	1.69	1.52	1.43	1.37	1.30	1.25	1.22	1.20	1.18	1.17	1.16	1.16	1.14	1.14	1.13	1.13	1.12	1.12	1.11
30	2.29	1.83	1.64	1.54	1.48	1.40	1.35	1.32	1.29	1.28	1.26	1.25	1.24	1.23	1.22	1.22	1.21	1.21	1.20	1.20
40	2.41	1.92	1.73	1.62	1.55	1.47	1.42	1.38	1.36	1.34	1.33	1.32	1.31	1.29	1.28	1.28	1.27	1.27	1.26	1.25
50	2.51	2.00	1.80	1.68	1.61	1.53	1.48	1.44	1.41	1.39	1.37	1.36	1.35	1.34	1.33	1.32	1.32	1.31	1.30	1.30
60	2.59	2.06	1.85	1.73	1.66	1.57	1.52	1.48	1.45	1.43	1.41	1.40	1.39	1.38	1.37	1.36	1.35	1.35	1.34	1.33
75	2.68	2.13	1.91	1.79	1.72	1.62	1.57	1.53	1.50	1.48	1.46	1.45	1.44	1.42	1.41	1.40	1.40	1.39	1.38	1.38
100	2.80	2.22	1.99	1.87	1.79	1.69	1.63	1.59	1.56	1.54	1.52	1.51	1.50	1.48	1.47	1.46	1.45	1.45	1.44	1.43
125	2.90	2.29	2.06	1.93	1.84	1.74	1.68	1.64	1.60	1.58	1.56	1.55	1.54	1.52	1.51	1.50	1.50	1.49	1.48	1.47
150	2.97	2.35	2.11	1.97	1.89	1.79	1.72	1.67	1.64	1.62	1.60	1.59	1.57	1.56	1.55	1.54	1.53	1.52	1.51	1.51
175	3.03	2.40	2.15	2.01	1.93	1.82	1.76	1.71	1.67	1.65	1.63	1.62	1.60	1.59	1.57	1.57	1.56	1.55	1.54	1.53
200	3.08	2.44	2.18	2.05	1.96	1.85	1.79	1.73	1.70	1.68	1.66	1.64	1.63	1.61	1.60	1.59	1.58	1.58	1.57	1.56

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Table 19-2. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Observations (1 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.01	0.82	0.75	0.70	0.67	0.64	0.62	0.60	0.59	0.58	0.58	0.57	0.57	0.56	0.56	0.56	0.55	0.55	0.55	0.55
2	1.34	1.09	0.99	0.93	0.90	0.85	0.82	0.80	0.79	0.78	0.77	0.77	0.76	0.75	0.75	0.75	0.74	0.74	0.74	0.73
3	1.54	1.25	1.13	1.06	1.02	0.97	0.94	0.91	0.90	0.89	0.88	0.87	0.87	0.86	0.85	0.85	0.85	0.84	0.84	0.84
4	1.68	1.36	1.22	1.15	1.11	1.05	1.02	0.99	0.97	0.96	0.95	0.94	0.94	0.93	0.92	0.92	0.92	0.91	0.91	0.91
5	1.78	1.44	1.30	1.22	1.17	1.11	1.08	1.05	1.03	1.02	1.01	1.00	0.99	0.98	0.98	0.97	0.97	0.97	0.96	0.96
8	2.00	1.61	1.45	1.36	1.31	1.24	1.20	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.09	1.08	1.08	1.07	1.07	1.06
12	2.19	1.75	1.57	1.48	1.42	1.34	1.30	1.26	1.24	1.23	1.21	1.20	1.20	1.18	1.18	1.17	1.17	1.16	1.15	1.15
16	2.32	1.85	1.66	1.56	1.50	1.42	1.37	1.33	1.31	1.29	1.28	1.27	1.26	1.25	1.24	1.23	1.23	1.22	1.21	1.21
20	2.41	1.92	1.73	1.62	1.55	1.47	1.42	1.38	1.36	1.34	1.33	1.32	1.31	1.29	1.28	1.28	1.27	1.27	1.26	1.25
30	2.59	2.06	1.85	1.73	1.66	1.57	1.52	1.48	1.45	1.43	1.41	1.40	1.39	1.38	1.37	1.36	1.35	1.35	1.34	1.33
40	2.71	2.15	1.93	1.81	1.73	1.64	1.58	1.54	1.51	1.49	1.47	1.46	1.45	1.44	1.42	1.42	1.41	1.41	1.40	1.39
50	2.80	2.22	1.99	1.87	1.79	1.69	1.63	1.59	1.56	1.54	1.52	1.51	1.50	1.48	1.47	1.46	1.45	1.45	1.44	1.43
60	2.88	2.28	2.04	1.92	1.83	1.73	1.67	1.63	1.60	1.57	1.56	1.54	1.53	1.52	1.50	1.49	1.49	1.48	1.47	1.47
75	2.97	2.35	2.11	1.97	1.89	1.79	1.72	1.67	1.64	1.62	1.60	1.59	1.57	1.56	1.55	1.54	1.53	1.52	1.51	1.51
100	3.08	2.44	2.18	2.05	1.96	1.85	1.79	1.73	1.70	1.68	1.66	1.64	1.63	1.61	1.60	1.59	1.58	1.58	1.57	1.56
125	3.17	2.50	2.24	2.10	2.01	1.90	1.83	1.78	1.74	1.72	1.70	1.68	1.67	1.65	1.64	1.63	1.62	1.62	1.61	1.60
150	3.24	2.56	2.29	2.15	2.05	1.94	1.87	1.82	1.78	1.75	1.73	1.72	1.71	1.69	1.67	1.66	1.66	1.65	1.64	1.63
175	3.30	2.60	2.33	2.18	2.09	1.97	1.90	1.85	1.81	1.78	1.76	1.75	1.73	1.72	1.70	1.69	1.68	1.68	1.66	1.66
200	3.35	2.64	2.37	2.22	2.12	2.00	1.93	1.87	1.84	1.81	1.79	1.77	1.76	1.74	1.73	1.71	1.71	1.70	1.69	1.68

Table 19-2. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Observations (2 COCs, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.71	0.57	0.50	0.46	0.44	0.41	0.39	0.38	0.37	0.37	0.36	0.36	0.35	0.35	0.35	0.34	0.34	0.34	0.34	0.34
2	1.08	0.86	0.77	0.72	0.69	0.65	0.62	0.61	0.59	0.59	0.58	0.57	0.57	0.56	0.56	0.56	0.55	0.55	0.55	0.55
3	1.30	1.03	0.92	0.86	0.82	0.77	0.75	0.73	0.71	0.70	0.70	0.69	0.69	0.68	0.67	0.67	0.67	0.67	0.66	0.66
4	1.47	1.15	1.02	0.96	0.91	0.86	0.83	0.81	0.79	0.78	0.78	0.77	0.76	0.76	0.75	0.75	0.74	0.74	0.74	0.74
5	1.59	1.24	1.11	1.03	0.99	0.93	0.90	0.87	0.86	0.84	0.84	0.83	0.82	0.82	0.81	0.81	0.80	0.80	0.79	0.79
8	1.86	1.44	1.27	1.19	1.13	1.07	1.03	1.00	0.98	0.97	0.96	0.95	0.94	0.93	0.93	0.92	0.92	0.92	0.91	0.91
12	2.09	1.60	1.42	1.32	1.25	1.18	1.14	1.11	1.08	1.07	1.06	1.05	1.04	1.03	1.02	1.02	1.01	1.01	1.00	1.00
16	2.26	1.72	1.52	1.41	1.34	1.26	1.21	1.18	1.16	1.14	1.13	1.12	1.11	1.10	1.09	1.08	1.08	1.08	1.07	1.06
20	2.39	1.81	1.59	1.48	1.41	1.32	1.27	1.23	1.21	1.19	1.18	1.17	1.16	1.15	1.14	1.13	1.13	1.12	1.12	1.11
30	2.62	1.97	1.73	1.60	1.52	1.43	1.38	1.33	1.31	1.29	1.27	1.26	1.25	1.24	1.23	1.22	1.22	1.21	1.20	1.20
40	2.78	2.08	1.83	1.69	1.61	1.50	1.45	1.40	1.37	1.35	1.34	1.32	1.31	1.30	1.29	1.28	1.28	1.27	1.26	1.26
50	2.91	2.17	1.90	1.76	1.67	1.56	1.50	1.45	1.42	1.40	1.38	1.37	1.36	1.35	1.34	1.33	1.32	1.32	1.31	1.30
60	3.01	2.24	1.96	1.81	1.72	1.61	1.55	1.50	1.46	1.44	1.42	1.41	1.40	1.38	1.37	1.36	1.36	1.35	1.34	1.34
75	3.13	2.33	2.03	1.88	1.78	1.67	1.60	1.55	1.51	1.49	1.47	1.46	1.45	1.43	1.42	1.41	1.40	1.40	1.39	1.38
100	3.29	2.44	2.13	1.96	1.86	1.74	1.67	1.61	1.58	1.55	1.53	1.52	1.50	1.49	1.47	1.46	1.46	1.45	1.44	1.43
125	3.41	2.52	2.20	2.03	1.92	1.79	1.72	1.66	1.62	1.60	1.58	1.56	1.55	1.53	1.52	1.51	1.50	1.49	1.48	1.48
150	3.50	2.59	2.25	2.08	1.97	1.84	1.76	1.70	1.66	1.63	1.61	1.60	1.59	1.57	1.55	1.54	1.53	1.53	1.52	1.51
175	3.58	2.64	2.30	2.12	2.01	1.87	1.80	1.74	1.69	1.67	1.64	1.63	1.62	1.60	1.58	1.57	1.56	1.56	1.54	1.54
200	3.65	2.69	2.34	2.16	2.04	1.91	1.83	1.76	1.72	1.69	1.67	1.65	1.64	1.62	1.61	1.60	1.59	1.58	1.57	1.56

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Table 19-2. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Observations (2 COCs, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.08	0.86	0.77	0.72	0.69	0.65	0.62	0.61	0.59	0.59	0.58	0.57	0.57	0.56	0.56	0.56	0.55	0.55	0.55	0.55
2	1.47	1.15	1.02	0.96	0.91	0.86	0.83	0.81	0.79	0.78	0.78	0.77	0.76	0.76	0.75	0.75	0.74	0.74	0.74	0.74
3	1.70	1.32	1.17	1.09	1.04	0.98	0.95	0.92	0.91	0.89	0.88	0.88	0.87	0.86	0.86	0.85	0.85	0.85	0.84	0.84
4	1.86	1.44	1.27	1.19	1.13	1.07	1.03	1.00	0.98	0.97	0.96	0.95	0.94	0.93	0.93	0.92	0.92	0.92	0.91	0.91
5	1.99	1.53	1.35	1.26	1.20	1.13	1.09	1.06	1.04	1.02	1.01	1.00	1.00	0.99	0.98	0.98	0.97	0.97	0.96	0.96
8	2.26	1.72	1.52	1.41	1.34	1.26	1.21	1.18	1.16	1.14	1.13	1.12	1.11	1.10	1.09	1.08	1.08	1.08	1.07	1.06
12	2.49	1.88	1.65	1.53	1.46	1.37	1.32	1.28	1.25	1.23	1.22	1.21	1.20	1.19	1.18	1.17	1.17	1.16	1.16	1.15
16	2.66	2.00	1.75	1.62	1.54	1.45	1.39	1.35	1.32	1.30	1.29	1.27	1.27	1.25	1.24	1.23	1.23	1.22	1.22	1.21
20	2.78	2.08	1.83	1.69	1.61	1.50	1.45	1.40	1.37	1.35	1.34	1.32	1.31	1.30	1.29	1.28	1.28	1.27	1.26	1.26
30	3.01	2.24	1.96	1.81	1.72	1.61	1.55	1.50	1.46	1.44	1.42	1.41	1.40	1.38	1.37	1.36	1.36	1.35	1.34	1.34
40	3.17	2.35	2.05	1.90	1.80	1.68	1.61	1.56	1.53	1.50	1.48	1.47	1.46	1.44	1.43	1.42	1.41	1.41	1.40	1.39
50	3.29	2.44	2.13	1.96	1.86	1.74	1.67	1.61	1.58	1.55	1.53	1.52	1.50	1.49	1.47	1.46	1.46	1.45	1.44	1.43
60	3.38	2.50	2.18	2.01	1.91	1.78	1.71	1.65	1.61	1.59	1.57	1.55	1.54	1.52	1.51	1.50	1.49	1.49	1.48	1.47
75	3.50	2.59	2.25	2.08	1.97	1.84	1.76	1.70	1.66	1.63	1.61	1.60	1.59	1.57	1.55	1.54	1.53	1.53	1.52	1.51
100	3.65	2.69	2.34	2.16	2.04	1.91	1.83	1.76	1.72	1.69	1.67	1.65	1.64	1.62	1.61	1.60	1.59	1.58	1.57	1.56
125	3.77	2.77	2.41	2.22	2.10	1.96	1.88	1.81	1.77	1.74	1.72	1.70	1.68	1.66	1.65	1.64	1.63	1.62	1.61	1.60
150	3.86	2.84	2.47	2.27	2.15	2.00	1.92	1.85	1.81	1.77	1.75	1.73	1.72	1.70	1.68	1.67	1.66	1.65	1.64	1.63
175	3.94	2.89	2.51	2.31	2.19	2.04	1.95	1.88	1.84	1.81	1.78	1.76	1.75	1.73	1.71	1.70	1.69	1.68	1.67	1.66
200	4.00	2.94	2.55	2.35	2.22	2.07	1.98	1.91	1.86	1.83	1.81	1.79	1.77	1.75	1.73	1.72	1.71	1.70	1.69	1.68

Table 19-2. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Observations (2 COCs, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.47	1.15	1.02	0.96	0.91	0.86	0.83	0.81	0.79	0.78	0.78	0.77	0.76	0.76	0.75	0.75	0.74	0.74	0.74	0.74
2	1.86	1.44	1.27	1.19	1.13	1.07	1.03	1.00	0.98	0.97	0.96	0.95	0.94	0.93	0.93	0.92	0.92	0.92	0.91	0.91
3	2.09	1.60	1.42	1.32	1.25	1.18	1.14	1.11	1.08	1.07	1.06	1.05	1.04	1.03	1.02	1.02	1.01	1.01	1.00	1.00
4	2.26	1.72	1.52	1.41	1.34	1.26	1.21	1.18	1.16	1.14	1.13	1.12	1.11	1.10	1.09	1.08	1.08	1.08	1.07	1.06
5	2.39	1.81	1.59	1.48	1.41	1.32	1.27	1.23	1.21	1.19	1.18	1.17	1.16	1.15	1.14	1.13	1.13	1.12	1.12	1.11
8	2.66	2.00	1.75	1.62	1.54	1.45	1.39	1.35	1.32	1.30	1.29	1.27	1.27	1.25	1.24	1.23	1.23	1.22	1.22	1.21
12	2.88	2.16	1.89	1.75	1.66	1.55	1.49	1.44	1.41	1.39	1.38	1.36	1.35	1.34	1.33	1.32	1.31	1.31	1.30	1.29
16	3.04	2.27	1.98	1.83	1.74	1.63	1.56	1.51	1.48	1.45	1.44	1.42	1.41	1.40	1.39	1.38	1.37	1.37	1.36	1.35
20	3.17	2.35	2.05	1.90	1.80	1.68	1.61	1.56	1.53	1.50	1.48	1.47	1.46	1.44	1.43	1.42	1.41	1.41	1.40	1.39
30	3.38	2.50	2.18	2.01	1.91	1.78	1.71	1.65	1.61	1.59	1.57	1.55	1.54	1.52	1.51	1.50	1.49	1.49	1.48	1.47
40	3.54	2.61	2.27	2.10	1.98	1.85	1.78	1.72	1.68	1.65	1.63	1.61	1.60	1.58	1.56	1.55	1.55	1.54	1.53	1.52
50	3.65	2.69	2.34	2.16	2.04	1.91	1.83	1.76	1.72	1.69	1.67	1.65	1.64	1.62	1.61	1.60	1.59	1.58	1.57	1.56
60	3.75	2.76	2.40	2.21	2.09	1.95	1.87	1.80	1.76	1.73	1.71	1.69	1.68	1.66	1.64	1.63	1.62	1.61	1.60	1.59
75	3.86	2.84	2.47	2.27	2.15	2.00	1.92	1.85	1.81	1.77	1.75	1.73	1.72	1.70	1.68	1.67	1.66	1.65	1.64	1.63
100	4.00	2.94	2.55	2.35	2.22	2.07	1.98	1.91	1.86	1.83	1.81	1.79	1.77	1.75	1.73	1.72	1.71	1.70	1.69	1.68
125	4.11	3.02	2.62	2.41	2.28	2.12	2.03	1.96	1.91	1.88	1.85	1.83	1.81	1.79	1.77	1.76	1.75	1.74	1.73	1.72
150	4.20	3.08	2.67	2.46	2.32	2.16	2.07	1.99	1.95	1.91	1.88	1.86	1.85	1.82	1.81	1.79	1.78	1.77	1.76	1.75
175	4.28	3.13	2.71	2.50	2.36	2.20	2.10	2.03	1.98	1.94	1.91	1.89	1.88	1.85	1.83	1.82	1.81	1.80	1.79	1.78
200	4.34	3.17	2.75	2.53	2.39	2.23	2.13	2.05	2.00	1.97	1.94	1.92	1.90	1.87	1.86	1.84	1.83	1.82	1.81	1.80

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Table 19-2. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Observations (5 COCs, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.27	0.98	0.87	0.81	0.77	0.72	0.70	0.68	0.66	0.65	0.65	0.64	0.64	0.63	0.62	0.62	0.62	0.62	0.61	0.61
2	1.71	1.29	1.13	1.05	1.00	0.94	0.90	0.88	0.86	0.85	0.84	0.83	0.83	0.82	0.81	0.81	0.80	0.80	0.80	0.79
3	1.99	1.47	1.28	1.19	1.13	1.06	1.02	0.99	0.97	0.95	0.94	0.94	0.93	0.92	0.91	0.91	0.90	0.90	0.90	0.89
4	2.19	1.60	1.39	1.29	1.22	1.14	1.10	1.07	1.04	1.03	1.02	1.01	1.00	0.99	0.98	0.98	0.97	0.97	0.96	0.96
5	2.35	1.70	1.48	1.36	1.29	1.21	1.16	1.12	1.10	1.08	1.07	1.06	1.05	1.04	1.04	1.03	1.02	1.02	1.01	1.01
8	2.70	1.92	1.65	1.52	1.43	1.34	1.28	1.24	1.22	1.20	1.18	1.17	1.16	1.15	1.14	1.14	1.13	1.13	1.12	1.11
12	3.00	2.11	1.81	1.65	1.56	1.45	1.39	1.34	1.31	1.29	1.28	1.26	1.25	1.24	1.23	1.22	1.22	1.21	1.20	1.20
16	3.22	2.24	1.91	1.75	1.65	1.53	1.46	1.41	1.38	1.36	1.34	1.33	1.32	1.30	1.29	1.28	1.28	1.27	1.26	1.26
20	3.39	2.35	2.00	1.82	1.71	1.59	1.52	1.47	1.43	1.41	1.39	1.38	1.37	1.35	1.34	1.33	1.32	1.32	1.31	1.30
30	3.70	2.54	2.15	1.95	1.83	1.70	1.62	1.56	1.52	1.50	1.48	1.46	1.45	1.43	1.42	1.41	1.40	1.40	1.39	1.38
40	3.92	2.67	2.25	2.05	1.92	1.77	1.69	1.63	1.59	1.56	1.54	1.52	1.51	1.49	1.48	1.47	1.46	1.45	1.44	1.44
50	4.08	2.77	2.34	2.12	1.98	1.83	1.75	1.68	1.64	1.61	1.59	1.57	1.56	1.54	1.52	1.51	1.50	1.50	1.48	1.48
60	4.22	2.86	2.40	2.18	2.04	1.88	1.79	1.72	1.68	1.65	1.62	1.61	1.59	1.57	1.56	1.55	1.54	1.53	1.52	1.51
75	4.38	2.96	2.48	2.25	2.10	1.94	1.84	1.77	1.73	1.69	1.67	1.65	1.64	1.61	1.60	1.59	1.58	1.57	1.56	1.55
100	4.59	3.09	2.59	2.34	2.18	2.01	1.91	1.84	1.79	1.75	1.73	1.71	1.69	1.67	1.65	1.64	1.63	1.62	1.61	1.60
125	4.75	3.19	2.67	2.41	2.25	2.07	1.96	1.88	1.83	1.80	1.77	1.75	1.73	1.71	1.69	1.68	1.67	1.66	1.65	1.64
150	4.88	3.27	2.73	2.46	2.30	2.11	2.01	1.92	1.87	1.83	1.81	1.79	1.77	1.74	1.73	1.71	1.70	1.70	1.68	1.67
175	4.99	3.33	2.79	2.51	2.34	2.15	2.04	1.96	1.90	1.87	1.84	1.82	1.80	1.77	1.76	1.74	1.73	1.72	1.71	1.70
200	5.09	3.39	2.83	2.55	2.38	2.18	2.07	1.99	1.93	1.89	1.86	1.84	1.82	1.80	1.78	1.77	1.76	1.75	1.73	1.72

Table 19-2. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Observations (5 COCs, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.71	1.29	1.13	1.05	1.00	0.94	0.90	0.88	0.86	0.85	0.84	0.83	0.83	0.82	0.81	0.81	0.80	0.80	0.80	0.79
2	2.19	1.60	1.39	1.29	1.22	1.14	1.10	1.06	1.04	1.03	1.02	1.01	1.00	0.99	0.98	0.98	0.97	0.97	0.96	0.96
3	2.49	1.79	1.55	1.42	1.35	1.26	1.21	1.17	1.15	1.13	1.11	1.10	1.10	1.09	1.08	1.07	1.07	1.06	1.06	1.05
4	2.70	1.92	1.65	1.52	1.43	1.34	1.28	1.24	1.22	1.20	1.18	1.17	1.16	1.15	1.14	1.14	1.13	1.13	1.12	1.11
5	2.87	2.03	1.74	1.59	1.50	1.40	1.34	1.30	1.27	1.25	1.23	1.22	1.21	1.20	1.19	1.18	1.18	1.17	1.17	1.16
8	3.22	2.25	1.91	1.75	1.65	1.53	1.46	1.41	1.38	1.36	1.34	1.33	1.32	1.30	1.29	1.28	1.28	1.27	1.26	1.26
12	3.53	2.43	2.07	1.88	1.77	1.64	1.56	1.51	1.47	1.45	1.43	1.42	1.40	1.39	1.38	1.37	1.36	1.35	1.34	1.34
16	3.75	2.57	2.17	1.97	1.85	1.71	1.64	1.58	1.54	1.51	1.49	1.48	1.46	1.45	1.43	1.42	1.42	1.41	1.40	1.39
20	3.92	2.67	2.25	2.05	1.92	1.77	1.69	1.63	1.59	1.56	1.54	1.52	1.51	1.49	1.48	1.47	1.46	1.45	1.44	1.44
30	4.22	2.86	2.40	2.18	2.04	1.88	1.79	1.72	1.68	1.65	1.62	1.61	1.59	1.57	1.56	1.55	1.54	1.53	1.52	1.51
40	4.43	2.99	2.51	2.27	2.12	1.95	1.86	1.79	1.74	1.71	1.68	1.66	1.65	1.63	1.61	1.60	1.59	1.58	1.57	1.56
50	4.59	3.09	2.59	2.34	2.19	2.01	1.91	1.84	1.79	1.75	1.73	1.71	1.69	1.67	1.65	1.64	1.63	1.62	1.61	1.60
60	4.73	3.17	2.65	2.39	2.24	2.06	1.95	1.88	1.82	1.79	1.76	1.74	1.73	1.70	1.69	1.67	1.66	1.66	1.64	1.63
75	4.88	3.27	2.73	2.46	2.30	2.11	2.01	1.92	1.87	1.83	1.81	1.79	1.77	1.74	1.73	1.71	1.70	1.70	1.68	1.67
100	5.09	3.39	2.83	2.55	2.38	2.18	2.07	1.99	1.93	1.89	1.86	1.84	1.82	1.80	1.78	1.77	1.76	1.75	1.73	1.72
125	5.24	3.49	2.91	2.62	2.44	2.24	2.12	2.03	1.98	1.94	1.91	1.88	1.87	1.84	1.82	1.80	1.79	1.79	1.77	1.76
150	5.37	3.56	2.97	2.67	2.49	2.28	2.16	2.07	2.01	1.97	1.94	1.92	1.90	1.87	1.85	1.84	1.82	1.82	1.80	1.79
175	5.47	3.63	3.02	2.72	2.53	2.32	2.20	2.11	2.05	2.00	1.97	1.95	1.93	1.90	1.88	1.86	1.85	1.84	1.83	1.81
200	5.56	3.69	3.07	2.76	2.57	2.35	2.23	2.13	2.07	2.03	2.00	1.97	1.95	1.92	1.90	1.89	1.87	1.86	1.85	1.84

Table 19-2. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Observations (5 COCs, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.19	1.60	1.39	1.29	1.22	1.14	1.10	1.06	1.04	1.03	1.02	1.01	1.00	0.99	0.98	0.98	0.97	0.97	0.96	0.96
2	2.70	1.92	1.65	1.52	1.43	1.34	1.28	1.24	1.22	1.20	1.18	1.17	1.16	1.15	1.14	1.14	1.13	1.13	1.12	1.11
3	3.00	2.11	1.81	1.65	1.56	1.45	1.39	1.34	1.31	1.29	1.28	1.26	1.25	1.24	1.23	1.22	1.22	1.21	1.20	1.20
4	3.22	2.25	1.91	1.75	1.65	1.53	1.46	1.41	1.38	1.36	1.34	1.33	1.32	1.30	1.29	1.28	1.28	1.27	1.26	1.26
5	3.39	2.35	2.00	1.82	1.71	1.59	1.52	1.47	1.43	1.41	1.39	1.38	1.37	1.35	1.34	1.33	1.32	1.32	1.31	1.30
8	3.75	2.57	2.17	1.97	1.85	1.71	1.64	1.58	1.54	1.51	1.49	1.48	1.46	1.45	1.43	1.42	1.42	1.41	1.40	1.39
12	4.05	2.75	2.32	2.10	1.97	1.82	1.74	1.67	1.63	1.60	1.58	1.56	1.55	1.53	1.51	1.50	1.50	1.49	1.48	1.47
16	4.27	2.89	2.43	2.20	2.06	1.90	1.81	1.74	1.69	1.66	1.64	1.62	1.60	1.58	1.57	1.56	1.55	1.54	1.53	1.52
20	4.43	2.99	2.51	2.27	2.12	1.95	1.86	1.79	1.74	1.71	1.68	1.66	1.65	1.63	1.61	1.60	1.59	1.58	1.57	1.56
30	4.73	3.17	2.65	2.39	2.24	2.06	1.95	1.88	1.82	1.79	1.76	1.74	1.73	1.70	1.69	1.67	1.66	1.66	1.64	1.63
40	4.93	3.30	2.75	2.48	2.32	2.13	2.02	1.94	1.89	1.85	1.82	1.80	1.78	1.76	1.74	1.73	1.72	1.71	1.69	1.68
50	5.09	3.39	2.83	2.55	2.38	2.18	2.07	1.99	1.93	1.89	1.86	1.84	1.82	1.80	1.78	1.77	1.76	1.75	1.73	1.72
60	5.21	3.47	2.90	2.61	2.43	2.23	2.11	2.03	1.97	1.93	1.90	1.88	1.86	1.83	1.81	1.80	1.79	1.78	1.76	1.75
75	5.37	3.56	2.97	2.67	2.49	2.28	2.16	2.07	2.01	1.97	1.94	1.92	1.90	1.87	1.85	1.84	1.82	1.82	1.80	1.79
100	5.56	3.69	3.07	2.76	2.57	2.35	2.23	2.13	2.07	2.03	2.00	1.97	1.95	1.92	1.90	1.89	1.87	1.86	1.85	1.84
125	5.71	3.78	3.14	2.82	2.63	2.41	2.28	2.18	2.12	2.07	2.04	2.01	1.99	1.96	1.94	1.92	1.91	1.90	1.88	1.87
150	5.83	3.85	3.20	2.88	2.68	2.45	2.32	2.22	2.15	2.11	2.07	2.05	2.03	1.99	1.97	1.95	1.94	1.93	1.91	1.90
175	5.93	3.92	3.25	2.92	2.72	2.49	2.35	2.25	2.18	2.14	2.10	2.07	2.05	2.02	2.00	1.98	1.97	1.96	1.94	1.93
200	6.02	3.97	3.30	2.96	2.76	2.52	2.38	2.28	2.21	2.16	2.13	2.10	2.08	2.04	2.02	2.00	1.99	1.98	1.96	1.95

Table 19-2. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Observations (10 COCs, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.76	1.31	1.14	1.06	1.00	0.94	0.91	0.88	0.86	0.85	0.84	0.83	0.83	0.82	0.81	0.81	0.80	0.80	0.80	0.79
2	2.29	1.63	1.41	1.30	1.23	1.15	1.10	1.07	1.04	1.03	1.02	1.01	1.00	0.99	0.98	0.98	0.97	0.97	0.96	0.96
3	2.62	1.83	1.57	1.44	1.35	1.26	1.21	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07	1.07	1.06	1.06	1.05
4	2.87	1.97	1.68	1.53	1.45	1.35	1.29	1.25	1.22	1.20	1.18	1.17	1.16	1.15	1.14	1.14	1.13	1.13	1.12	1.11
5	3.07	2.08	1.77	1.61	1.52	1.41	1.35	1.30	1.27	1.25	1.24	1.22	1.22	1.20	1.19	1.18	1.18	1.17	1.17	1.16
8	3.50	2.33	1.95	1.77	1.66	1.54	1.47	1.42	1.38	1.36	1.34	1.33	1.32	1.30	1.29	1.28	1.28	1.27	1.26	1.26
12	3.88	2.54	2.12	1.91	1.79	1.65	1.57	1.51	1.48	1.45	1.43	1.42	1.41	1.39	1.38	1.37	1.36	1.35	1.35	1.34
16	4.15	2.69	2.23	2.01	1.88	1.73	1.65	1.58	1.54	1.51	1.49	1.48	1.47	1.45	1.43	1.42	1.42	1.41	1.40	1.39
20	4.36	2.81	2.32	2.08	1.95	1.79	1.70	1.63	1.59	1.56	1.54	1.52	1.51	1.49	1.48	1.47	1.46	1.46	1.44	1.44
30	4.75	3.02	2.49	2.22	2.07	1.90	1.80	1.73	1.68	1.65	1.63	1.61	1.59	1.57	1.56	1.55	1.54	1.53	1.52	1.51
40	5.02	3.17	2.60	2.32	2.16	1.97	1.87	1.79	1.75	1.71	1.69	1.67	1.65	1.63	1.61	1.60	1.59	1.58	1.57	1.56
50	5.22	3.29	2.69	2.40	2.23	2.03	1.93	1.84	1.79	1.76	1.73	1.71	1.69	1.67	1.65	1.64	1.63	1.62	1.61	1.60
60	5.39	3.38	2.76	2.46	2.28	2.08	1.97	1.89	1.83	1.79	1.77	1.75	1.73	1.71	1.69	1.68	1.67	1.66	1.64	1.63
75	5.61	3.50	2.85	2.53	2.35	2.14	2.02	1.94	1.88	1.84	1.81	1.79	1.77	1.75	1.73	1.72	1.71	1.70	1.68	1.67
100	5.86	3.64	2.96	2.63	2.44	2.21	2.09	2.00	1.94	1.90	1.87	1.85	1.83	1.80	1.78	1.77	1.76	1.75	1.73	1.72
125	6.06	3.76	3.05	2.71	2.50	2.27	2.14	2.05	1.99	1.94	1.91	1.89	1.87	1.84	1.82	1.81	1.80	1.79	1.77	1.76
150	6.23	3.85	3.12	2.77	2.56	2.32	2.19	2.09	2.03	1.98	1.95	1.92	1.90	1.87	1.85	1.84	1.83	1.82	1.80	1.79
175	6.37	3.93	3.18	2.82	2.60	2.36	2.22	2.12	2.06	2.01	1.98	1.95	1.93	1.90	1.88	1.87	1.85	1.84	1.83	1.82
200	6.48	3.99	3.23	2.86	2.64	2.39	2.26	2.15	2.08	2.04	2.00	1.98	1.96	1.93	1.90	1.89	1.88	1.87	1.85	1.84

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Table 19-2. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Observations (10 COCs, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.29	1.63	1.41	1.29	1.23	1.15	1.10	1.07	1.04	1.03	1.02	1.01	1.00	0.99	0.98	0.98	0.97	0.97	0.96	0.96
2	2.87	1.97	1.68	1.53	1.45	1.35	1.29	1.25	1.22	1.20	1.18	1.17	1.16	1.15	1.14	1.14	1.13	1.13	1.12	1.11
3	3.23	2.18	1.84	1.67	1.57	1.46	1.39	1.35	1.32	1.29	1.28	1.27	1.26	1.24	1.23	1.22	1.22	1.21	1.20	1.20
4	3.50	2.32	1.95	1.77	1.66	1.54	1.47	1.42	1.38	1.36	1.34	1.33	1.32	1.30	1.29	1.28	1.28	1.27	1.26	1.26
5	3.70	2.44	2.04	1.85	1.73	1.60	1.53	1.47	1.44	1.41	1.39	1.38	1.37	1.35	1.34	1.33	1.32	1.32	1.31	1.30
8	4.14	2.69	2.23	2.01	1.88	1.73	1.65	1.58	1.54	1.51	1.49	1.48	1.47	1.45	1.44	1.43	1.42	1.41	1.40	1.39
12	4.53	2.90	2.39	2.15	2.00	1.84	1.75	1.68	1.63	1.60	1.58	1.56	1.55	1.53	1.51	1.50	1.50	1.49	1.48	1.47
16	4.80	3.06	2.51	2.25	2.09	1.91	1.82	1.74	1.70	1.66	1.64	1.62	1.61	1.58	1.57	1.56	1.55	1.54	1.53	1.52
20	5.02	3.17	2.60	2.32	2.16	1.97	1.87	1.79	1.75	1.71	1.69	1.67	1.65	1.63	1.61	1.60	1.59	1.58	1.57	1.56
30	5.39	3.38	2.76	2.46	2.28	2.08	1.97	1.88	1.83	1.79	1.77	1.75	1.73	1.71	1.69	1.67	1.67	1.66	1.64	1.63
40	5.66	3.53	2.88	2.56	2.37	2.16	2.04	1.95	1.89	1.85	1.82	1.80	1.78	1.76	1.74	1.73	1.72	1.71	1.69	1.68
50	5.86	3.64	2.96	2.63	2.44	2.21	2.09	2.00	1.94	1.90	1.87	1.85	1.83	1.80	1.78	1.77	1.76	1.75	1.73	1.72
60	6.04	3.74	3.03	2.69	2.49	2.26	2.14	2.04	1.98	1.94	1.90	1.88	1.86	1.83	1.81	1.80	1.79	1.78	1.76	1.75
75	6.23	3.85	3.12	2.76	2.56	2.32	2.19	2.09	2.02	1.98	1.95	1.92	1.90	1.88	1.85	1.84	1.83	1.82	1.80	1.79
100	6.48	3.99	3.23	2.86	2.64	2.39	2.26	2.15	2.08	2.04	2.00	1.98	1.96	1.93	1.90	1.89	1.88	1.87	1.85	1.84
125	6.68	4.10	3.32	2.93	2.71	2.45	2.31	2.20	2.13	2.08	2.05	2.02	2.00	1.97	1.94	1.93	1.91	1.90	1.88	1.87
150	6.84	4.19	3.38	2.99	2.76	2.50	2.35	2.24	2.17	2.12	2.08	2.05	2.03	2.00	1.97	1.96	1.94	1.93	1.91	1.90
175	6.97	4.27	3.44	3.04	2.80	2.53	2.39	2.27	2.20	2.15	2.11	2.08	2.06	2.02	2.00	1.98	1.97	1.96	1.94	1.93
200	7.07	4.34	3.49	3.08	2.84	2.57	2.41	2.30	2.22	2.17	2.13	2.10	2.08	2.05	2.02	2.00	1.99	1.98	1.96	1.95

Table 19-2. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Observations (10 COCs, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.87	1.97	1.68	1.53	1.45	1.35	1.29	1.25	1.22	1.20	1.18	1.17	1.16	1.15	1.14	1.14	1.13	1.13	1.12	1.11
2	3.50	2.32	1.95	1.77	1.66	1.54	1.47	1.42	1.38	1.36	1.34	1.33	1.32	1.30	1.29	1.28	1.28	1.27	1.26	1.26
3	3.88	2.54	2.11	1.91	1.79	1.65	1.57	1.51	1.48	1.45	1.43	1.42	1.41	1.39	1.38	1.37	1.36	1.35	1.35	1.34
4	4.14	2.69	2.23	2.01	1.88	1.73	1.65	1.58	1.54	1.51	1.49	1.48	1.47	1.45	1.44	1.43	1.42	1.41	1.40	1.39
5	4.36	2.81	2.32	2.08	1.95	1.79	1.70	1.64	1.59	1.56	1.54	1.53	1.51	1.49	1.48	1.47	1.46	1.46	1.44	1.44
8	4.80	3.06	2.51	2.25	2.09	1.91	1.82	1.74	1.70	1.66	1.64	1.62	1.61	1.58	1.57	1.56	1.55	1.54	1.53	1.52
12	5.19	3.27	2.67	2.38	2.21	2.02	1.92	1.84	1.78	1.75	1.72	1.70	1.69	1.66	1.65	1.63	1.63	1.62	1.60	1.60
16	5.45	3.42	2.79	2.48	2.30	2.10	1.98	1.90	1.85	1.81	1.78	1.76	1.74	1.72	1.70	1.69	1.68	1.67	1.66	1.65
20	5.66	3.53	2.88	2.56	2.37	2.16	2.04	1.95	1.89	1.85	1.82	1.80	1.78	1.76	1.74	1.73	1.72	1.71	1.69	1.68
30	6.04	3.74	3.03	2.69	2.49	2.26	2.14	2.04	1.98	1.94	1.90	1.88	1.86	1.83	1.81	1.80	1.79	1.78	1.76	1.75
40	6.29	3.88	3.14	2.79	2.58	2.34	2.20	2.10	2.04	1.99	1.96	1.94	1.92	1.89	1.87	1.85	1.84	1.83	1.81	1.80
50	6.48	3.99	3.23	2.86	2.64	2.39	2.26	2.15	2.08	2.04	2.00	1.98	1.96	1.93	1.90	1.89	1.88	1.87	1.85	1.84
60	6.64	4.08	3.30	2.92	2.70	2.44	2.30	2.19	2.12	2.07	2.04	2.01	1.99	1.96	1.94	1.92	1.91	1.90	1.88	1.87
75	6.84	4.19	3.38	2.99	2.76	2.50	2.35	2.24	2.17	2.12	2.08	2.05	2.03	2.00	1.97	1.96	1.94	1.93	1.91	1.90
100	7.07	4.34	3.49	3.08	2.84	2.57	2.41	2.30	2.22	2.17	2.13	2.10	2.08	2.05	2.02	2.00	1.99	1.98	1.96	1.95
125	7.27	4.44	3.57	3.15	2.91	2.62	2.47	2.35	2.27	2.22	2.18	2.15	2.12	2.08	2.06	2.04	2.03	2.02	2.00	1.98
150	7.42	4.52	3.64	3.21	2.96	2.67	2.51	2.39	2.30	2.25	2.21	2.18	2.15	2.12	2.09	2.07	2.06	2.05	2.02	2.01
175	7.54	4.60	3.70	3.26	3.00	2.71	2.54	2.42	2.34	2.28	2.24	2.21	2.18	2.14	2.12	2.10	2.08	2.07	2.05	2.03
200	7.66	4.66	3.75	3.30	3.04	2.74	2.57	2.44	2.36	2.30	2.26	2.23	2.20	2.17	2.14	2.12	2.10	2.09	2.07	2.05

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Table 19-2. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Observations (20 COCs, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.34	1.65	1.42	1.30	1.23	1.15	1.10	1.07	1.04	1.03	1.02	1.01	1.00	0.99	0.98	0.98	0.97	0.97	0.96	0.96
2	2.99	2.00	1.69	1.54	1.45	1.35	1.29	1.25	1.22	1.20	1.19	1.17	1.16	1.15	1.14	1.14	1.13	1.13	1.12	1.11
3	3.40	2.22	1.86	1.68	1.58	1.46	1.40	1.35	1.32	1.29	1.28	1.27	1.26	1.24	1.23	1.22	1.22	1.21	1.21	1.20
4	3.71	2.38	1.98	1.78	1.67	1.54	1.47	1.42	1.38	1.36	1.34	1.33	1.32	1.30	1.29	1.28	1.28	1.27	1.26	1.26
5	3.95	2.50	2.07	1.87	1.74	1.61	1.53	1.47	1.44	1.41	1.39	1.38	1.37	1.35	1.34	1.33	1.32	1.32	1.31	1.30
8	4.48	2.77	2.27	2.03	1.89	1.73	1.65	1.59	1.55	1.52	1.50	1.48	1.47	1.45	1.44	1.43	1.42	1.41	1.40	1.39
12	4.96	3.01	2.44	2.18	2.02	1.85	1.75	1.68	1.64	1.60	1.58	1.56	1.55	1.53	1.52	1.50	1.50	1.49	1.48	1.47
16	5.29	3.18	2.57	2.28	2.11	1.92	1.82	1.75	1.70	1.67	1.64	1.62	1.61	1.59	1.57	1.56	1.55	1.54	1.53	1.52
20	5.57	3.32	2.67	2.36	2.18	1.98	1.88	1.80	1.75	1.71	1.69	1.67	1.65	1.63	1.61	1.60	1.59	1.58	1.57	1.56
30	6.04	3.55	2.84	2.50	2.37	2.09	1.98	1.89	1.84	1.80	1.77	1.75	1.73	1.71	1.69	1.68	1.67	1.66	1.64	1.64
40	6.39	3.73	2.97	2.61	2.40	2.17	2.05	1.96	1.90	1.86	1.83	1.80	1.79	1.76	1.74	1.73	1.72	1.71	1.69	1.68
50	6.64	3.87	3.07	2.69	2.47	2.23	2.10	2.01	1.95	1.90	1.87	1.85	1.83	1.80	1.78	1.77	1.76	1.75	1.73	1.72
60	6.86	3.97	3.14	2.75	2.53	2.28	2.15	2.05	1.98	1.94	1.91	1.88	1.86	1.84	1.82	1.80	1.79	1.78	1.76	1.75
75	7.11	4.10	3.24	2.84	2.60	2.34	2.20	2.10	2.03	1.98	1.95	1.93	1.91	1.88	1.86	1.84	1.83	1.82	1.80	1.79
100	7.46	4.27	3.36	2.94	2.69	2.42	2.27	2.16	2.09	2.04	2.01	1.98	1.96	1.93	1.91	1.89	1.88	1.87	1.85	1.84
125	7.70	4.40	3.46	3.02	2.76	2.48	2.32	2.21	2.14	2.09	2.05	2.02	2.00	1.97	1.94	1.93	1.91	1.90	1.88	1.87
150	7.91	4.51	3.54	3.08	2.82	2.53	2.37	2.25	2.18	2.12	2.08	2.06	2.03	2.00	1.98	1.96	1.94	1.93	1.92	1.90
175	8.09	4.59	3.60	3.13	2.87	2.57	2.40	2.28	2.21	2.15	2.11	2.08	2.06	2.03	2.00	1.98	1.97	1.96	1.94	1.93
200	8.24	4.67	3.66	3.18	2.91	2.60	2.44	2.31	2.23	2.18	2.14	2.11	2.08	2.05	2.02	2.01	1.99	1.98	1.96	1.95

Table 19-2. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Observations (20 COCs, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.99	2.00	1.69	1.54	1.45	1.35	1.29	1.25	1.22	1.20	1.19	1.17	1.16	1.15	1.14	1.14	1.13	1.13	1.12	1.11
2	3.71	2.38	1.98	1.78	1.67	1.54	1.47	1.42	1.38	1.36	1.34	1.33	1.32	1.30	1.29	1.28	1.28	1.27	1.26	1.26
3	4.16	2.61	2.15	1.93	1.80	1.66	1.58	1.52	1.48	1.45	1.43	1.42	1.41	1.39	1.38	1.37	1.36	1.35	1.35	1.34
4	4.48	2.77	2.27	2.03	1.89	1.73	1.65	1.59	1.55	1.52	1.50	1.48	1.47	1.45	1.44	1.43	1.42	1.41	1.40	1.39
5	4.75	2.91	2.36	2.11	1.96	1.80	1.71	1.64	1.59	1.56	1.54	1.53	1.51	1.49	1.48	1.47	1.46	1.46	1.44	1.44
8	5.29	3.18	2.57	2.28	2.11	1.92	1.82	1.75	1.70	1.67	1.64	1.62	1.61	1.59	1.57	1.56	1.55	1.54	1.53	1.52
12	5.78	3.43	2.74	2.43	2.24	2.04	1.92	1.84	1.79	1.75	1.72	1.70	1.69	1.67	1.65	1.64	1.63	1.62	1.60	1.60
16	6.11	3.59	2.87	2.53	2.33	2.11	1.99	1.91	1.85	1.81	1.78	1.76	1.74	1.72	1.70	1.69	1.68	1.67	1.66	1.65
20	6.39	3.73	2.97	2.61	2.40	2.17	2.05	1.96	1.90	1.86	1.83	1.80	1.79	1.76	1.74	1.73	1.72	1.71	1.69	1.68
30	6.86	3.97	3.14	2.75	2.53	2.28	2.15	2.05	1.98	1.94	1.91	1.88	1.86	1.84	1.82	1.80	1.79	1.78	1.76	1.75
40	7.19	4.14	3.27	2.86	2.62	2.36	2.22	2.11	2.04	2.00	1.96	1.94	1.92	1.89	1.87	1.85	1.84	1.83	1.81	1.80
50	7.46	4.27	3.36	2.94	2.69	2.42	2.27	2.16	2.09	2.04	2.01	1.98	1.96	1.93	1.91	1.89	1.88	1.87	1.85	1.84
60	7.66	4.38	3.44	3.00	2.75	2.47	2.31	2.20	2.13	2.08	2.04	2.01	1.99	1.96	1.94	1.92	1.91	1.90	1.88	1.87
75	7.91	4.51	3.54	3.08	2.82	2.53	2.37	2.25	2.18	2.12	2.08	2.06	2.03	2.00	1.98	1.96	1.94	1.93	1.92	1.90
100	8.24	4.67	3.66	3.18	2.91	2.60	2.44	2.31	2.23	2.18	2.14	2.11	2.08	2.05	2.02	2.01	1.99	1.98	1.96	1.95
125	8.48	4.79	3.75	3.26	2.98	2.66	2.49	2.36	2.28	2.22	2.18	2.15	2.12	2.09	2.06	2.04	2.03	2.02	2.00	1.98
150	8.67	4.90	3.83	3.33	3.03	2.71	2.53	2.40	2.32	2.26	2.21	2.18	2.16	2.12	2.09	2.07	2.06	2.05	2.03	2.01
175	8.83	4.98	3.89	3.38	3.08	2.75	2.57	2.43	2.35	2.29	2.24	2.21	2.19	2.15	2.12	2.10	2.08	2.07	2.05	2.03
200	8.98	5.06	3.95	3.42	3.12	2.78	2.60	2.46	2.37	2.31	2.27	2.23	2.21	2.17	2.14	2.12	2.10	2.09	2.07	2.06

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Table 19-2. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Observations (20 COCs, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.71	2.38	1.98	1.78	1.67	1.54	1.47	1.42	1.38	1.36	1.34	1.33	1.32	1.30	1.29	1.28	1.28	1.27	1.26	1.26
2	4.48	2.77	2.27	2.03	1.89	1.73	1.65	1.59	1.55	1.52	1.50	1.48	1.47	1.45	1.44	1.43	1.42	1.41	1.40	1.39
3	4.96	3.01	2.44	2.18	2.02	1.85	1.75	1.68	1.64	1.60	1.58	1.56	1.55	1.53	1.52	1.50	1.50	1.49	1.48	1.47
4	5.29	3.18	2.57	2.28	2.11	1.92	1.82	1.75	1.70	1.67	1.64	1.62	1.61	1.59	1.57	1.56	1.55	1.54	1.53	1.52
5	5.57	3.32	2.67	2.36	2.18	1.98	1.88	1.80	1.75	1.71	1.69	1.67	1.65	1.63	1.61	1.60	1.59	1.58	1.57	1.56
8	6.11	3.59	2.87	2.53	2.33	2.11	1.99	1.91	1.85	1.81	1.78	1.76	1.74	1.72	1.70	1.69	1.68	1.67	1.66	1.65
12	6.60	3.84	3.05	2.68	2.46	2.22	2.09	2.00	1.94	1.89	1.86	1.84	1.82	1.79	1.77	1.76	1.75	1.74	1.73	1.72
16	6.93	4.00	3.17	2.78	2.55	2.30	2.16	2.06	2.00	1.95	1.92	1.89	1.88	1.85	1.83	1.81	1.80	1.79	1.77	1.76
20	7.19	4.14	3.27	2.86	2.62	2.36	2.22	2.11	2.04	2.00	1.96	1.94	1.92	1.89	1.87	1.85	1.84	1.83	1.81	1.80
30	7.66	4.38	3.44	3.00	2.75	2.47	2.31	2.20	2.13	2.08	2.04	2.01	1.99	1.96	1.94	1.92	1.91	1.90	1.88	1.87
40	7.97	4.54	3.56	3.11	2.84	2.54	2.38	2.26	2.19	2.14	2.10	2.07	2.04	2.01	1.99	1.97	1.96	1.94	1.93	1.91
50	8.24	4.67	3.66	3.18	2.91	2.60	2.44	2.31	2.23	2.18	2.14	2.11	2.08	2.05	2.02	2.01	1.99	1.98	1.96	1.95
60	8.44	4.78	3.73	3.25	2.96	2.65	2.48	2.35	2.27	2.21	2.17	2.14	2.12	2.08	2.06	2.04	2.02	2.01	1.99	1.98
75	8.67	4.90	3.83	3.33	3.03	2.71	2.53	2.40	2.32	2.26	2.21	2.18	2.16	2.12	2.09	2.07	2.06	2.05	2.03	2.01
100	8.98	5.06	3.95	3.42	3.12	2.78	2.60	2.46	2.37	2.31	2.27	2.23	2.21	2.17	2.14	2.12	2.10	2.09	2.07	2.06
125	9.22	5.18	4.03	3.50	3.19	2.84	2.65	2.51	2.42	2.36	2.31	2.28	2.25	2.21	2.18	2.16	2.14	2.13	2.10	2.09
150	9.41	5.28	4.11	3.56	3.24	2.89	2.70	2.55	2.45	2.39	2.34	2.31	2.28	2.24	2.21	2.19	2.17	2.16	2.13	2.12
175	9.57	5.37	4.17	3.61	3.29	2.93	2.73	2.58	2.49	2.42	2.37	2.33	2.30	2.26	2.23	2.21	2.19	2.18	2.16	2.14
200	9.69	5.44	4.23	3.66	3.33	2.96	2.76	2.61	2.51	2.44	2.40	2.36	2.33	2.29	2.25	2.23	2.21	2.20	2.18	2.16

Table 19-2. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Observations (40 COCs, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.05	2.03	1.70	1.55	1.45	1.35	1.29	1.25	1.22	1.20	1.18	1.17	1.16	1.15	1.14	1.14	1.13	1.13	1.12	1.12
2	3.84	2.41	1.99	1.79	1.68	1.55	1.47	1.42	1.39	1.36	1.34	1.33	1.32	1.30	1.29	1.29	1.28	1.27	1.27	1.26
3	4.36	2.65	2.16	1.94	1.81	1.66	1.58	1.52	1.48	1.45	1.43	1.42	1.41	1.39	1.38	1.37	1.36	1.36	1.35	1.34
4	4.72	2.83	2.29	2.04	1.90	1.74	1.65	1.59	1.55	1.52	1.50	1.48	1.47	1.45	1.44	1.42	1.42	1.41	1.40	1.40
5	5.05	2.97	2.39	2.12	1.97	1.80	1.71	1.64	1.59	1.57	1.54	1.53	1.51	1.49	1.48	1.47	1.46	1.45	1.44	1.44
8	5.70	3.27	2.61	2.30	2.12	1.93	1.83	1.75	1.70	1.67	1.64	1.62	1.61	1.59	1.57	1.56	1.55	1.54	1.53	1.52
12	6.30	3.54	2.79	2.45	2.26	2.04	1.93	1.84	1.79	1.75	1.72	1.70	1.69	1.66	1.65	1.64	1.63	1.62	1.60	1.59
16	6.74	3.73	2.93	2.56	2.35	2.12	2.00	1.91	1.85	1.81	1.79	1.76	1.75	1.72	1.70	1.69	1.68	1.67	1.66	1.65
20	7.07	3.90	3.04	2.64	2.42	2.18	2.05	1.96	1.90	1.86	1.83	1.81	1.79	1.76	1.74	1.73	1.72	1.71	1.69	1.68
30	7.67	4.17	3.23	2.80	2.56	2.29	2.16	2.05	1.98	1.94	1.91	1.89	1.86	1.83	1.82	1.80	1.79	1.78	1.77	1.75
40	8.11	4.36	3.37	2.91	2.65	2.37	2.22	2.11	2.05	2.00	1.96	1.94	1.92	1.89	1.87	1.85	1.84	1.83	1.81	1.80
50	8.44	4.51	3.46	3.00	2.72	2.44	2.28	2.17	2.09	2.05	2.01	1.98	1.96	1.93	1.91	1.89	1.88	1.87	1.85	1.84
60	8.71	4.64	3.56	3.06	2.79	2.48	2.33	2.21	2.13	2.08	2.05	2.02	1.99	1.96	1.94	1.92	1.91	1.90	1.88	1.87
75	8.98	4.79	3.65	3.15	2.86	2.54	2.38	2.26	2.18	2.12	2.09	2.06	2.03	2.00	1.98	1.96	1.95	1.93	1.92	1.90
100	9.42	4.98	3.79	3.26	2.96	2.63	2.45	2.32	2.24	2.18	2.14	2.11	2.09	2.05	2.03	2.01	1.99	1.98	1.96	1.95
125	9.75	5.13	3.90	3.34	3.03	2.69	2.50	2.37	2.29	2.23	2.18	2.15	2.13	2.09	2.06	2.05	2.03	2.02	2.00	1.98
150	10.02	5.24	3.98	3.41	3.09	2.74	2.55	2.41	2.32	2.26	2.22	2.19	2.16	2.12	2.09	2.07	2.06	2.05	2.03	2.01
175	10.24	5.35	4.06	3.47	3.14	2.78	2.59	2.44	2.35	2.29	2.25	2.21	2.19	2.15	2.12	2.10	2.08	2.07	2.05	2.04
200	10.41	5.43	4.12	3.52	3.19	2.81	2.62	2.47	2.38	2.32	2.27	2.24	2.21	2.17	2.14	2.12	2.10	2.09	2.07	2.06

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Table 19-2. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Observations (40 COCs, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.84	2.41	1.99	1.79	1.68	1.55	1.47	1.42	1.39	1.36	1.34	1.33	1.32	1.30	1.29	1.29	1.28	1.27	1.27	1.26
2	4.72	2.83	2.29	2.04	1.90	1.74	1.65	1.59	1.55	1.52	1.50	1.48	1.47	1.45	1.44	1.42	1.42	1.41	1.40	1.40
3	5.29	3.09	2.48	2.19	2.03	1.85	1.75	1.68	1.64	1.60	1.58	1.56	1.55	1.53	1.52	1.51	1.50	1.49	1.48	1.47
4	5.70	3.27	2.61	2.30	2.12	1.93	1.83	1.75	1.70	1.67	1.64	1.62	1.61	1.59	1.57	1.56	1.55	1.54	1.53	1.52
5	6.03	3.42	2.71	2.38	2.20	1.99	1.88	1.80	1.75	1.71	1.69	1.67	1.65	1.63	1.62	1.60	1.59	1.58	1.57	1.56
8	6.74	3.73	2.93	2.56	2.35	2.12	2.00	1.91	1.85	1.81	1.79	1.76	1.75	1.72	1.70	1.69	1.68	1.67	1.66	1.65
12	7.34	4.01	3.12	2.71	2.48	2.23	2.10	2.00	1.94	1.90	1.86	1.84	1.82	1.79	1.78	1.76	1.75	1.74	1.72	1.72
16	7.78	4.20	3.26	2.83	2.58	2.31	2.17	2.07	2.00	1.96	1.92	1.90	1.88	1.85	1.83	1.81	1.80	1.79	1.78	1.77
20	8.11	4.36	3.37	2.91	2.65	2.37	2.22	2.11	2.05	2.00	1.96	1.94	1.92	1.89	1.87	1.85	1.84	1.83	1.81	1.80
30	8.71	4.64	3.56	3.06	2.79	2.48	2.33	2.21	2.13	2.08	2.05	2.02	1.99	1.96	1.94	1.92	1.91	1.90	1.88	1.87
40	9.09	4.83	3.69	3.17	2.89	2.57	2.39	2.27	2.19	2.14	2.10	2.07	2.05	2.01	1.99	1.97	1.96	1.94	1.93	1.91
50	9.42	4.98	3.79	3.26	2.96	2.63	2.45	2.32	2.24	2.18	2.14	2.11	2.09	2.05	2.03	2.01	1.99	1.98	1.96	1.95
60	9.70	5.10	3.88	3.32	3.02	2.67	2.50	2.36	2.28	2.22	2.18	2.15	2.12	2.08	2.06	2.04	2.02	2.01	1.99	1.98
75	10.02	5.24	3.98	3.41	3.09	2.74	2.55	2.41	2.32	2.26	2.22	2.19	2.16	2.12	2.09	2.07	2.06	2.05	2.03	2.01
100	10.41	5.43	4.12	3.52	3.19	2.81	2.62	2.47	2.38	2.32	2.27	2.24	2.21	2.17	2.14	2.12	2.10	2.09	2.07	2.06
125	10.73	5.59	4.23	3.61	3.26	2.87	2.67	2.52	2.43	2.36	2.31	2.28	2.25	2.21	2.18	2.16	2.14	2.13	2.10	2.09
150	10.95	5.70	4.31	3.68	3.32	2.93	2.72	2.56	2.46	2.39	2.35	2.31	2.28	2.24	2.21	2.19	2.17	2.16	2.13	2.12
175	11.17	5.81	4.38	3.73	3.37	2.97	2.75	2.59	2.49	2.43	2.37	2.34	2.31	2.26	2.23	2.21	2.19	2.18	2.16	2.14
200	11.39	5.89	4.43	3.78	3.41	3.00	2.78	2.62	2.52	2.45	2.40	2.36	2.33	2.29	2.25	2.23	2.21	2.20	2.18	2.16

Table 19-2. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Observations (40 COCs, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.72	2.83	2.29	2.04	1.90	1.74	1.65	1.59	1.55	1.52	1.50	1.48	1.47	1.45	1.44	1.42	1.42	1.41	1.40	1.40
2	5.70	3.27	2.61	2.30	2.12	1.93	1.83	1.75	1.70	1.67	1.64	1.62	1.61	1.59	1.57	1.56	1.55	1.54	1.53	1.52
3	6.30	3.54	2.79	2.45	2.26	2.04	1.93	1.84	1.79	1.75	1.72	1.70	1.69	1.66	1.65	1.64	1.63	1.62	1.60	1.59
4	6.74	3.73	2.93	2.56	2.35	2.12	2.00	1.91	1.85	1.81	1.79	1.76	1.75	1.72	1.70	1.69	1.68	1.67	1.66	1.65
5	7.07	3.90	3.04	2.64	2.42	2.18	2.05	1.96	1.90	1.86	1.83	1.81	1.79	1.76	1.74	1.73	1.72	1.71	1.69	1.68
8	7.78	4.20	3.26	2.83	2.58	2.31	2.17	2.07	2.00	1.96	1.92	1.90	1.88	1.85	1.83	1.81	1.80	1.79	1.78	1.77
12	8.38	4.49	3.45	2.98	2.72	2.42	2.27	2.16	2.09	2.04	2.00	1.97	1.95	1.92	1.90	1.88	1.87	1.86	1.84	1.83
16	8.77	4.68	3.58	3.09	2.80	2.50	2.34	2.22	2.15	2.09	2.06	2.03	2.00	1.97	1.95	1.93	1.92	1.91	1.89	1.88
20	9.09	4.83	3.69	3.17	2.89	2.57	2.39	2.27	2.19	2.14	2.10	2.07	2.05	2.01	1.99	1.97	1.96	1.94	1.93	1.91
30	9.70	5.10	3.88	3.32	3.02	2.67	2.50	2.36	2.28	2.22	2.18	2.15	2.12	2.08	2.06	2.04	2.02	2.01	1.99	1.98
40	10.08	5.29	4.01	3.43	3.11	2.76	2.57	2.42	2.33	2.27	2.23	2.20	2.17	2.13	2.10	2.08	2.07	2.06	2.04	2.02
50	10.41	5.43	4.12	3.52	3.19	2.81	2.62	2.47	2.38	2.32	2.27	2.24	2.21	2.17	2.14	2.12	2.10	2.09	2.07	2.06
60	10.68	5.57	4.20	3.59	3.24	2.87	2.66	2.51	2.42	2.35	2.31	2.27	2.24	2.20	2.17	2.15	2.13	2.12	2.10	2.08
75	10.95	5.70	4.31	3.68	3.32	2.93	2.72	2.56	2.46	2.39	2.35	2.31	2.28	2.24	2.21	2.19	2.17	2.16	2.13	2.12
100	11.39	5.89	4.43	3.78	3.41	3.00	2.78	2.62	2.52	2.45	2.40	2.36	2.33	2.29	2.25	2.23	2.21	2.20	2.18	2.16
125	11.66	6.03	4.54	3.86	3.48	3.06	2.84	2.67	2.57	2.49	2.44	2.40	2.37	2.32	2.29	2.27	2.25	2.23	2.21	2.19
150	11.94	6.14	4.61	3.93	3.54	3.11	2.88	2.71	2.60	2.53	2.47	2.43	2.40	2.35	2.32	2.30	2.28	2.26	2.24	2.22
175	12.10	6.25	4.69	3.98	3.58	3.15	2.91	2.74	2.63	2.56	2.50	2.46	2.43	2.38	2.35	2.32	2.30	2.29	2.26	2.24
200	12.27	6.30	4.75	4.04	3.63	3.19	2.95	2.77	2.66	2.58	2.52	2.48	2.45	2.40	2.37	2.34	2.32	2.31	2.28	2.26

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Table 19-3. κ -Multipliers for 1-of-4 Interwell Prediction Limits on Observations (1 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.06	-0.01	-0.04	-0.07	-0.08	-0.10	-0.11	-0.12	-0.13	-0.13	-0.13	-0.14	-0.14	-0.14	-0.14	-0.15	-0.15	-0.15	-0.15	-0.15
2	0.36	0.25	0.21	0.18	0.16	0.13	0.12	0.11	0.10	0.09	0.09	0.09	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07
3	0.52	0.40	0.34	0.31	0.29	0.26	0.24	0.23	0.22	0.21	0.21	0.20	0.20	0.20	0.19	0.19	0.19	0.19	0.18	0.18
4	0.64	0.50	0.44	0.40	0.37	0.34	0.32	0.31	0.30	0.29	0.29	0.28	0.28	0.27	0.27	0.27	0.27	0.26	0.26	0.26
5	0.73	0.58	0.51	0.47	0.44	0.41	0.39	0.37	0.36	0.35	0.35	0.34	0.34	0.33	0.33	0.33	0.32	0.32	0.32	0.32
8	0.92	0.73	0.65	0.60	0.57	0.53	0.51	0.49	0.48	0.47	0.46	0.46	0.45	0.45	0.44	0.44	0.44	0.44	0.43	0.43
12	1.08	0.86	0.77	0.72	0.68	0.64	0.61	0.59	0.58	0.57	0.56	0.55	0.55	0.54	0.54	0.53	0.53	0.53	0.52	0.52
16	1.19	0.95	0.85	0.79	0.76	0.71	0.68	0.66	0.64	0.63	0.63	0.62	0.61	0.61	0.60	0.60	0.59	0.59	0.59	0.58
20	1.28	1.02	0.91	0.85	0.81	0.76	0.73	0.71	0.69	0.68	0.67	0.67	0.66	0.66	0.65	0.65	0.64	0.64	0.63	0.63
30	1.44	1.15	1.03	0.96	0.91	0.86	0.83	0.80	0.78	0.77	0.76	0.75	0.75	0.74	0.73	0.73	0.73	0.72	0.72	0.71
40	1.55	1.23	1.10	1.03	0.98	0.93	0.89	0.86	0.84	0.83	0.82	0.81	0.81	0.80	0.79	0.79	0.78	0.78	0.77	0.77
50	1.63	1.30	1.16	1.09	1.04	0.98	0.94	0.91	0.89	0.88	0.87	0.86	0.85	0.84	0.83	0.83	0.83	0.82	0.82	0.81
60	1.70	1.35	1.21	1.13	1.08	1.02	0.98	0.95	0.93	0.91	0.90	0.89	0.89	0.88	0.87	0.86	0.86	0.86	0.85	0.85
75	1.78	1.42	1.27	1.19	1.13	1.07	1.03	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.91	0.91	0.90	0.90	0.89	0.89
100	1.89	1.50	1.34	1.26	1.20	1.13	1.09	1.05	1.03	1.01	1.00	0.99	0.98	0.97	0.96	0.96	0.95	0.95	0.94	0.94
125	1.97	1.56	1.40	1.31	1.25	1.18	1.13	1.10	1.07	1.06	1.04	1.03	1.03	1.01	1.01	1.00	0.99	0.99	0.98	0.98
150	2.03	1.61	1.44	1.35	1.29	1.21	1.17	1.13	1.11	1.09	1.08	1.07	1.06	1.05	1.04	1.03	1.03	1.02	1.01	1.01
175	2.09	1.66	1.48	1.39	1.32	1.25	1.20	1.16	1.14	1.12	1.11	1.10	1.09	1.07	1.06	1.06	1.05	1.05	1.04	1.03
200	2.14	1.69	1.51	1.42	1.35	1.27	1.23	1.19	1.16	1.14	1.13	1.12	1.11	1.10	1.09	1.08	1.08	1.07	1.06	1.06

Table 19-3. κ -Multipliers for 1-of-4 Interwell Prediction Limits on Observations (1 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.36	0.25	0.21	0.18	0.16	0.13	0.12	0.11	0.10	0.09	0.09	0.09	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07
2	0.64	0.50	0.44	0.40	0.37	0.34	0.32	0.31	0.30	0.29	0.29	0.28	0.28	0.27	0.27	0.27	0.27	0.26	0.26	0.26
3	0.80	0.64	0.56	0.52	0.49	0.46	0.43	0.42	0.41	0.40	0.39	0.39	0.38	0.38	0.37	0.37	0.37	0.37	0.36	0.36
4	0.92	0.73	0.65	0.60	0.57	0.53	0.51	0.49	0.48	0.47	0.46	0.46	0.45	0.45	0.44	0.44	0.44	0.44	0.43	0.43
5	1.01	0.80	0.72	0.66	0.63	0.59	0.57	0.55	0.53	0.52	0.52	0.51	0.51	0.50	0.50	0.49	0.49	0.49	0.48	0.48
8	1.19	0.95	0.85	0.79	0.76	0.71	0.68	0.66	0.64	0.63	0.63	0.62	0.61	0.61	0.60	0.60	0.59	0.59	0.59	0.58
12	1.35	1.08	0.97	0.90	0.86	0.81	0.78	0.75	0.74	0.72	0.71	0.71	0.70	0.69	0.69	0.68	0.68	0.68	0.67	0.67
16	1.46	1.17	1.04	0.98	0.93	0.87	0.84	0.82	0.80	0.78	0.78	0.77	0.76	0.75	0.75	0.74	0.74	0.74	0.73	0.73
20	1.55	1.23	1.10	1.03	0.98	0.93	0.89	0.86	0.84	0.83	0.82	0.81	0.81	0.80	0.79	0.79	0.78	0.78	0.77	0.77
30	1.70	1.35	1.21	1.13	1.08	1.02	0.98	0.95	0.93	0.91	0.90	0.89	0.89	0.88	0.87	0.86	0.86	0.86	0.85	0.85
40	1.81	1.44	1.29	1.20	1.15	1.08	1.04	1.01	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90	0.90
50	1.89	1.50	1.34	1.26	1.20	1.13	1.09	1.05	1.03	1.01	1.00	0.99	0.98	0.97	0.96	0.96	0.95	0.95	0.94	0.94
60	1.95	1.55	1.39	1.30	1.24	1.17	1.12	1.09	1.07	1.05	1.04	1.03	1.02	1.01	1.00	0.99	0.99	0.98	0.98	0.97
75	2.03	1.61	1.44	1.35	1.29	1.21	1.17	1.13	1.11	1.09	1.08	1.07	1.06	1.05	1.04	1.03	1.03	1.02	1.01	1.01
100	2.14	1.69	1.51	1.42	1.35	1.27	1.23	1.19	1.16	1.14	1.13	1.12	1.11	1.10	1.09	1.08	1.08	1.07	1.06	1.06
125	2.21	1.75	1.57	1.47	1.40	1.32	1.27	1.23	1.20	1.18	1.17	1.16	1.15	1.14	1.13	1.12	1.11	1.11	1.10	1.09
150	2.28	1.80	1.61	1.51	1.44	1.35	1.30	1.26	1.24	1.22	1.20	1.19	1.18	1.17	1.16	1.15	1.14	1.14	1.13	1.12
175	2.33	1.84	1.65	1.54	1.47	1.38	1.33	1.29	1.26	1.24	1.23	1.22	1.21	1.19	1.18	1.17	1.17	1.16	1.15	1.15
200	2.37	1.88	1.68	1.57	1.50	1.41	1.36	1.32	1.29	1.27	1.25	1.24	1.23	1.22	1.20	1.20	1.19	1.19	1.18	1.17

Table 19-3. κ -Multipliers for 1-of-4 Interwell Prediction Limits on Observations (1 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.64	0.50	0.44	0.40	0.37	0.34	0.32	0.31	0.30	0.29	0.29	0.28	0.28	0.27	0.27	0.27	0.27	0.26	0.26	0.26
2	0.92	0.73	0.65	0.60	0.57	0.53	0.51	0.49	0.48	0.47	0.46	0.46	0.45	0.45	0.44	0.44	0.44	0.44	0.43	0.43
3	1.08	0.86	0.77	0.72	0.68	0.64	0.61	0.59	0.58	0.57	0.56	0.55	0.55	0.54	0.54	0.53	0.53	0.53	0.52	0.52
4	1.19	0.95	0.85	0.79	0.76	0.71	0.68	0.66	0.64	0.63	0.63	0.62	0.61	0.61	0.60	0.60	0.59	0.59	0.59	0.58
5	1.28	1.02	0.91	0.85	0.81	0.76	0.73	0.71	0.69	0.68	0.67	0.67	0.66	0.66	0.65	0.65	0.64	0.64	0.63	0.63
8	1.46	1.17	1.04	0.98	0.93	0.87	0.84	0.82	0.80	0.78	0.78	0.77	0.76	0.75	0.75	0.74	0.74	0.74	0.73	0.73
12	1.62	1.29	1.15	1.08	1.03	0.97	0.93	0.90	0.88	0.87	0.86	0.85	0.84	0.83	0.83	0.82	0.82	0.81	0.81	0.80
16	1.72	1.37	1.23	1.15	1.10	1.03	0.99	0.96	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.88	0.87	0.87	0.86	0.86
20	1.81	1.44	1.29	1.20	1.15	1.08	1.04	1.01	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90	0.90
30	1.95	1.55	1.39	1.30	1.24	1.17	1.12	1.09	1.07	1.05	1.04	1.03	1.02	1.01	1.00	0.99	0.99	0.98	0.98	0.97
40	2.06	1.63	1.46	1.36	1.30	1.23	1.18	1.14	1.12	1.10	1.09	1.08	1.07	1.06	1.05	1.04	1.04	1.03	1.02	1.02
50	2.14	1.69	1.51	1.42	1.35	1.27	1.23	1.19	1.16	1.14	1.13	1.12	1.11	1.10	1.09	1.08	1.08	1.07	1.06	1.06
60	2.20	1.74	1.56	1.46	1.39	1.31	1.26	1.22	1.20	1.18	1.16	1.15	1.14	1.13	1.12	1.11	1.11	1.10	1.09	1.09
75	2.28	1.80	1.61	1.51	1.44	1.35	1.30	1.26	1.24	1.22	1.20	1.19	1.18	1.17	1.16	1.15	1.14	1.14	1.13	1.12
100	2.37	1.88	1.68	1.57	1.50	1.41	1.36	1.32	1.29	1.27	1.25	1.24	1.23	1.22	1.20	1.20	1.19	1.19	1.18	1.17
125	2.45	1.94	1.73	1.62	1.54	1.45	1.40	1.36	1.33	1.31	1.29	1.28	1.27	1.25	1.24	1.23	1.23	1.22	1.21	1.20
150	2.51	1.98	1.77	1.66	1.58	1.49	1.43	1.39	1.36	1.34	1.32	1.31	1.30	1.28	1.27	1.26	1.26	1.25	1.24	1.23
175	2.56	2.02	1.81	1.69	1.61	1.52	1.46	1.42	1.39	1.36	1.35	1.33	1.32	1.31	1.30	1.29	1.28	1.27	1.26	1.26
200	2.60	2.06	1.84	1.72	1.64	1.54	1.49	1.44	1.41	1.39	1.37	1.36	1.34	1.33	1.32	1.31	1.30	1.29	1.28	1.28

Table 19-3. κ -Multipliers for 1-of-4 Interwell Prediction Limits on Observations (2 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.39	0.28	0.22	0.19	0.17	0.14	0.12	0.11	0.10	0.10	0.09	0.09	0.09	0.08	0.08	0.08	0.07	0.07	0.07	0.07
2	0.70	0.53	0.46	0.41	0.39	0.35	0.33	0.31	0.30	0.30	0.29	0.29	0.28	0.28	0.27	0.27	0.27	0.27	0.26	0.26
3	0.88	0.67	0.59	0.54	0.50	0.47	0.44	0.42	0.41	0.40	0.40	0.39	0.39	0.38	0.38	0.37	0.37	0.37	0.36	0.36
4	1.01	0.78	0.68	0.62	0.59	0.54	0.52	0.50	0.48	0.47	0.47	0.46	0.46	0.45	0.45	0.44	0.44	0.44	0.43	0.43
5	1.12	0.85	0.75	0.69	0.65	0.60	0.58	0.55	0.54	0.53	0.52	0.52	0.51	0.50	0.50	0.49	0.49	0.49	0.48	0.48
8	1.33	1.02	0.89	0.82	0.78	0.72	0.69	0.67	0.65	0.64	0.63	0.62	0.62	0.61	0.60	0.60	0.60	0.59	0.59	0.59
12	1.52	1.16	1.01	0.93	0.88	0.82	0.79	0.76	0.74	0.73	0.72	0.71	0.71	0.70	0.69	0.69	0.68	0.68	0.67	0.67
16	1.66	1.26	1.10	1.01	0.96	0.89	0.86	0.83	0.81	0.79	0.78	0.77	0.77	0.76	0.75	0.74	0.74	0.74	0.73	0.73
20	1.76	1.33	1.16	1.07	1.02	0.95	0.91	0.87	0.85	0.84	0.83	0.82	0.81	0.80	0.79	0.79	0.78	0.78	0.77	0.77
30	1.95	1.47	1.28	1.18	1.12	1.04	1.00	0.96	0.94	0.92	0.91	0.90	0.89	0.88	0.87	0.87	0.86	0.86	0.85	0.85
40	2.09	1.56	1.36	1.26	1.19	1.11	1.06	1.02	1.00	0.98	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.90	0.90
50	2.19	1.64	1.43	1.31	1.24	1.16	1.11	1.07	1.04	1.02	1.01	1.00	0.99	0.98	0.97	0.96	0.96	0.95	0.95	0.94
60	2.27	1.70	1.48	1.36	1.29	1.20	1.15	1.11	1.08	1.06	1.04	1.03	1.02	1.01	1.00	1.00	0.99	0.99	0.98	0.97
75	2.37	1.77	1.54	1.42	1.34	1.25	1.19	1.15	1.12	1.10	1.09	1.08	1.07	1.05	1.04	1.03	1.03	1.02	1.02	1.01
100	2.50	1.86	1.62	1.49	1.41	1.31	1.25	1.21	1.18	1.16	1.14	1.13	1.12	1.10	1.09	1.08	1.08	1.07	1.07	1.06
125	2.60	1.93	1.68	1.54	1.46	1.36	1.30	1.25	1.22	1.20	1.18	1.17	1.16	1.14	1.13	1.12	1.12	1.11	1.10	1.10
150	2.68	1.99	1.73	1.59	1.50	1.40	1.33	1.29	1.25	1.23	1.21	1.20	1.19	1.17	1.16	1.15	1.15	1.14	1.13	1.13
175	2.75	2.04	1.77	1.63	1.54	1.43	1.37	1.32	1.28	1.26	1.24	1.23	1.22	1.20	1.19	1.18	1.17	1.17	1.16	1.15
200	2.81	2.08	1.81	1.66	1.57	1.46	1.39	1.34	1.31	1.28	1.26	1.25	1.24	1.22	1.21	1.20	1.19	1.19	1.18	1.17

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Table 19-3. κ -Multipliers for 1-of-4 Interwell Prediction Limits on Observations (2 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.70	0.53	0.46	0.41	0.39	0.35	0.33	0.31	0.30	0.30	0.29	0.29	0.28	0.28	0.27	0.27	0.27	0.27	0.26	0.26
2	1.01	0.78	0.68	0.62	0.59	0.54	0.52	0.50	0.48	0.47	0.47	0.46	0.46	0.45	0.45	0.44	0.44	0.44	0.43	0.43
3	1.20	0.92	0.80	0.74	0.70	0.65	0.62	0.60	0.58	0.57	0.56	0.56	0.55	0.55	0.54	0.54	0.53	0.53	0.53	0.52
4	1.33	1.02	0.89	0.82	0.78	0.72	0.69	0.67	0.65	0.64	0.63	0.62	0.62	0.61	0.60	0.60	0.60	0.59	0.59	0.59
5	1.44	1.10	0.96	0.88	0.84	0.78	0.75	0.72	0.70	0.69	0.68	0.67	0.67	0.66	0.65	0.65	0.64	0.64	0.64	0.63
8	1.66	1.26	1.10	1.01	0.96	0.89	0.86	0.83	0.81	0.79	0.78	0.77	0.77	0.76	0.75	0.74	0.74	0.74	0.73	0.73
12	1.85	1.39	1.22	1.12	1.06	0.99	0.95	0.91	0.89	0.88	0.86	0.86	0.85	0.84	0.83	0.82	0.82	0.82	0.81	0.81
16	1.98	1.49	1.30	1.20	1.13	1.06	1.01	0.98	0.95	0.94	0.92	0.91	0.91	0.89	0.89	0.88	0.87	0.87	0.86	0.86
20	2.09	1.56	1.36	1.26	1.19	1.11	1.06	1.02	1.00	0.98	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.90	0.90
30	2.27	1.70	1.48	1.36	1.29	1.20	1.15	1.11	1.08	1.06	1.04	1.03	1.02	1.01	1.00	1.00	0.99	0.99	0.98	0.97
40	2.40	1.79	1.56	1.43	1.36	1.26	1.21	1.16	1.13	1.11	1.10	1.09	1.08	1.06	1.05	1.05	1.04	1.04	1.03	1.02
50	2.50	1.86	1.62	1.49	1.41	1.31	1.25	1.21	1.18	1.16	1.14	1.13	1.12	1.10	1.09	1.08	1.08	1.07	1.07	1.06
60	2.59	1.92	1.67	1.53	1.45	1.35	1.29	1.24	1.21	1.19	1.17	1.16	1.15	1.14	1.12	1.12	1.11	1.10	1.10	1.09
75	2.68	1.99	1.73	1.59	1.50	1.40	1.33	1.29	1.25	1.23	1.21	1.20	1.19	1.17	1.16	1.15	1.15	1.14	1.13	1.13
100	2.81	2.08	1.81	1.66	1.57	1.46	1.39	1.34	1.31	1.28	1.26	1.25	1.24	1.22	1.21	1.20	1.19	1.19	1.18	1.17
125	2.91	2.15	1.86	1.71	1.62	1.50	1.44	1.38	1.35	1.32	1.30	1.29	1.28	1.26	1.25	1.24	1.23	1.22	1.21	1.21
150	2.99	2.20	1.91	1.76	1.66	1.54	1.47	1.42	1.38	1.35	1.34	1.32	1.31	1.29	1.28	1.27	1.26	1.25	1.24	1.24
175	3.05	2.25	1.95	1.79	1.69	1.57	1.50	1.44	1.41	1.38	1.36	1.35	1.33	1.32	1.30	1.29	1.28	1.28	1.27	1.26
200	3.11	2.29	1.98	1.82	1.72	1.60	1.53	1.47	1.43	1.40	1.38	1.37	1.36	1.34	1.32	1.31	1.31	1.30	1.29	1.28

Table 19-3. κ -Multipliers for 1-of-4 Interwell Prediction Limits on Observations (2 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.01	0.78	0.68	0.62	0.59	0.54	0.52	0.50	0.48	0.47	0.47	0.46	0.46	0.45	0.45	0.44	0.44	0.44	0.43	0.43
2	1.33	1.02	0.89	0.82	0.78	0.72	0.69	0.67	0.65	0.64	0.63	0.62	0.62	0.61	0.60	0.60	0.60	0.59	0.59	0.59
3	1.52	1.16	1.01	0.93	0.88	0.82	0.79	0.76	0.74	0.73	0.72	0.71	0.71	0.70	0.69	0.69	0.68	0.68	0.67	0.67
4	1.66	1.26	1.10	1.01	0.96	0.89	0.86	0.83	0.81	0.79	0.78	0.77	0.77	0.76	0.75	0.74	0.74	0.74	0.73	0.73
5	1.76	1.33	1.16	1.07	1.02	0.95	0.91	0.87	0.85	0.84	0.83	0.82	0.81	0.80	0.79	0.79	0.78	0.78	0.77	0.77
8	1.98	1.49	1.30	1.20	1.13	1.06	1.01	0.98	0.95	0.94	0.92	0.91	0.91	0.89	0.89	0.88	0.87	0.87	0.86	0.86
12	2.17	1.62	1.42	1.30	1.23	1.15	1.10	1.06	1.03	1.02	1.00	0.99	0.98	0.97	0.96	0.95	0.95	0.94	0.93	0.93
16	2.30	1.72	1.50	1.38	1.30	1.21	1.16	1.12	1.09	1.07	1.06	1.05	1.04	1.02	1.01	1.01	1.00	1.00	0.99	0.98
20	2.40	1.79	1.56	1.43	1.36	1.26	1.21	1.16	1.13	1.11	1.10	1.09	1.08	1.06	1.05	1.05	1.04	1.04	1.03	1.02
30	2.59	1.92	1.67	1.53	1.45	1.35	1.29	1.24	1.21	1.19	1.17	1.16	1.15	1.14	1.12	1.12	1.11	1.10	1.10	1.09
40	2.71	2.01	1.75	1.61	1.52	1.41	1.35	1.30	1.27	1.24	1.23	1.21	1.20	1.18	1.17	1.16	1.16	1.15	1.14	1.14
50	2.81	2.08	1.81	1.66	1.57	1.46	1.39	1.34	1.31	1.28	1.26	1.25	1.24	1.22	1.21	1.20	1.19	1.19	1.18	1.17
60	2.89	2.13	1.85	1.70	1.61	1.49	1.43	1.37	1.34	1.32	1.30	1.28	1.27	1.25	1.24	1.23	1.22	1.22	1.21	1.20
75	2.99	2.20	1.91	1.76	1.66	1.54	1.47	1.42	1.38	1.35	1.34	1.32	1.31	1.29	1.28	1.27	1.26	1.25	1.24	1.24
100	3.11	2.29	1.98	1.82	1.72	1.60	1.53	1.47	1.43	1.40	1.38	1.37	1.36	1.34	1.32	1.31	1.31	1.30	1.29	1.28
125	3.20	2.35	2.04	1.87	1.77	1.64	1.57	1.51	1.47	1.44	1.42	1.41	1.39	1.37	1.36	1.35	1.34	1.33	1.32	1.31
150	3.28	2.41	2.09	1.92	1.81	1.68	1.60	1.54	1.50	1.47	1.45	1.44	1.42	1.40	1.39	1.38	1.37	1.36	1.35	1.34
175	3.34	2.45	2.13	1.95	1.84	1.71	1.63	1.57	1.53	1.50	1.48	1.46	1.45	1.43	1.41	1.40	1.39	1.38	1.37	1.36
200	3.39	2.49	2.16	1.98	1.87	1.74	1.66	1.59	1.55	1.52	1.50	1.48	1.47	1.45	1.43	1.42	1.41	1.40	1.39	1.38

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Table 19-3. κ -Multipliers for 1-of-4 Interwell Prediction Limits on Observations (5 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.85	0.63	0.54	0.49	0.46	0.42	0.40	0.38	0.37	0.36	0.35	0.35	0.34	0.34	0.33	0.33	0.33	0.32	0.32	0.32
2	1.21	0.89	0.77	0.70	0.66	0.61	0.58	0.56	0.54	0.53	0.52	0.52	0.51	0.50	0.50	0.50	0.49	0.49	0.49	0.48
3	1.43	1.04	0.90	0.82	0.77	0.72	0.68	0.66	0.64	0.63	0.62	0.61	0.61	0.60	0.59	0.59	0.58	0.58	0.58	0.57
4	1.59	1.15	0.99	0.91	0.85	0.79	0.75	0.72	0.71	0.69	0.68	0.68	0.67	0.66	0.65	0.65	0.64	0.64	0.64	0.63
5	1.71	1.24	1.06	0.97	0.91	0.85	0.81	0.78	0.76	0.74	0.73	0.72	0.72	0.71	0.70	0.70	0.69	0.69	0.68	0.68
8	1.99	1.42	1.21	1.11	1.04	0.96	0.92	0.88	0.86	0.84	0.83	0.82	0.81	0.80	0.80	0.79	0.79	0.78	0.78	0.77
12	2.24	1.58	1.34	1.22	1.15	1.06	1.01	0.97	0.95	0.93	0.91	0.90	0.90	0.88	0.88	0.87	0.86	0.86	0.85	0.85
16	2.41	1.69	1.43	1.30	1.22	1.13	1.07	1.03	1.00	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90
20	2.55	1.77	1.50	1.36	1.28	1.18	1.12	1.08	1.05	1.03	1.02	1.00	0.99	0.98	0.97	0.96	0.96	0.95	0.95	0.94
30	2.80	1.93	1.63	1.48	1.38	1.27	1.21	1.16	1.13	1.11	1.09	1.08	1.07	1.06	1.04	1.04	1.03	1.03	1.02	1.01
40	2.97	2.04	1.72	1.56	1.46	1.34	1.27	1.22	1.19	1.16	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.08	1.07	1.06
50	3.11	2.13	1.79	1.62	1.51	1.39	1.32	1.27	1.23	1.21	1.19	1.17	1.16	1.15	1.13	1.13	1.12	1.11	1.10	1.10
60	3.22	2.20	1.85	1.67	1.56	1.43	1.36	1.30	1.27	1.24	1.22	1.21	1.20	1.18	1.17	1.16	1.15	1.14	1.13	1.13
75	3.36	2.28	1.91	1.73	1.61	1.48	1.40	1.35	1.31	1.28	1.26	1.25	1.23	1.22	1.20	1.19	1.19	1.18	1.17	1.16
100	3.53	2.39	2.00	1.80	1.68	1.54	1.46	1.40	1.36	1.33	1.31	1.30	1.28	1.26	1.25	1.24	1.23	1.23	1.22	1.21
125	3.67	2.47	2.07	1.86	1.74	1.59	1.51	1.44	1.40	1.37	1.35	1.33	1.32	1.30	1.29	1.28	1.27	1.26	1.25	1.24
150	3.77	2.54	2.12	1.91	1.78	1.63	1.55	1.48	1.44	1.41	1.38	1.37	1.35	1.33	1.32	1.31	1.30	1.29	1.28	1.27
175	3.86	2.60	2.17	1.95	1.82	1.66	1.58	1.51	1.46	1.43	1.41	1.39	1.38	1.36	1.34	1.33	1.32	1.32	1.30	1.30
200	3.94	2.65	2.21	1.99	1.85	1.69	1.60	1.53	1.49	1.46	1.43	1.41	1.40	1.38	1.36	1.35	1.34	1.34	1.32	1.32

Table 19-3. κ -Multipliers for 1-of-4 Interwell Prediction Limits on Observations (5 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.21	0.89	0.77	0.70	0.66	0.61	0.58	0.56	0.54	0.53	0.52	0.52	0.51	0.50	0.50	0.50	0.49	0.49	0.49	0.48
2	1.59	1.15	0.99	0.91	0.85	0.79	0.75	0.72	0.71	0.69	0.68	0.68	0.67	0.66	0.65	0.65	0.64	0.64	0.64	0.63
3	1.82	1.31	1.12	1.02	0.96	0.89	0.85	0.82	0.80	0.78	0.77	0.76	0.76	0.75	0.74	0.73	0.73	0.73	0.72	0.72
4	1.99	1.42	1.21	1.11	1.04	0.96	0.92	0.88	0.86	0.84	0.83	0.82	0.81	0.80	0.80	0.79	0.79	0.78	0.78	0.77
5	2.13	1.50	1.28	1.17	1.10	1.02	0.97	0.93	0.91	0.89	0.88	0.87	0.86	0.85	0.84	0.83	0.83	0.83	0.82	0.81
8	2.41	1.69	1.43	1.30	1.22	1.13	1.07	1.03	1.00	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90
12	2.66	1.84	1.56	1.41	1.33	1.22	1.16	1.12	1.09	1.07	1.05	1.04	1.03	1.01	1.00	1.00	0.99	0.99	0.98	0.97
16	2.84	1.95	1.65	1.49	1.40	1.29	1.22	1.18	1.14	1.12	1.11	1.09	1.08	1.07	1.06	1.05	1.04	1.04	1.03	1.02
20	2.97	2.04	1.72	1.56	1.46	1.34	1.27	1.22	1.19	1.16	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.08	1.07	1.06
30	3.22	2.20	1.85	1.67	1.56	1.43	1.36	1.30	1.27	1.24	1.22	1.21	1.20	1.18	1.17	1.16	1.15	1.14	1.13	1.13
40	3.40	2.30	1.93	1.74	1.63	1.49	1.42	1.36	1.32	1.29	1.27	1.26	1.25	1.23	1.21	1.20	1.20	1.19	1.18	1.17
50	3.53	2.39	2.00	1.80	1.68	1.54	1.46	1.40	1.36	1.33	1.31	1.30	1.28	1.26	1.25	1.24	1.23	1.23	1.22	1.21
60	3.64	2.46	2.06	1.85	1.73	1.58	1.50	1.44	1.40	1.37	1.34	1.33	1.31	1.30	1.28	1.27	1.26	1.26	1.24	1.24
75	3.77	2.54	2.12	1.91	1.78	1.63	1.55	1.48	1.44	1.41	1.38	1.37	1.35	1.33	1.32	1.31	1.30	1.29	1.28	1.27
100	3.94	2.65	2.21	1.99	1.85	1.69	1.60	1.53	1.49	1.46	1.43	1.41	1.40	1.38	1.36	1.35	1.34	1.34	1.32	1.32
125	4.07	2.73	2.27	2.04	1.90	1.74	1.65	1.58	1.53	1.50	1.47	1.45	1.44	1.41	1.40	1.39	1.38	1.37	1.36	1.35
150	4.18	2.79	2.33	2.09	1.95	1.78	1.68	1.61	1.56	1.53	1.50	1.48	1.47	1.44	1.43	1.41	1.41	1.40	1.38	1.38
175	4.27	2.85	2.37	2.13	1.98	1.81	1.71	1.64	1.59	1.55	1.53	1.51	1.49	1.47	1.45	1.44	1.43	1.42	1.41	1.40
200	4.34	2.90	2.41	2.17	2.02	1.84	1.74	1.66	1.61	1.58	1.55	1.53	1.51	1.49	1.47	1.46	1.45	1.44	1.43	1.42

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Table 19-3. κ -Multipliers for 1-of-4 Interwell Prediction Limits on Observations (5 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.59	1.15	0.99	0.91	0.85	0.79	0.75	0.72	0.71	0.69	0.68	0.68	0.67	0.66	0.65	0.65	0.64	0.64	0.64	0.63
2	1.99	1.42	1.21	1.11	1.04	0.96	0.92	0.88	0.86	0.84	0.83	0.82	0.81	0.80	0.80	0.79	0.79	0.78	0.78	0.77
3	2.24	1.58	1.34	1.22	1.15	1.06	1.01	0.97	0.95	0.93	0.91	0.90	0.90	0.88	0.88	0.87	0.86	0.86	0.85	0.85
4	2.41	1.69	1.43	1.30	1.22	1.13	1.07	1.03	1.00	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90
5	2.55	1.77	1.50	1.36	1.28	1.18	1.12	1.08	1.05	1.03	1.02	1.00	0.99	0.98	0.97	0.96	0.96	0.95	0.95	0.94
8	2.84	1.95	1.65	1.49	1.40	1.29	1.22	1.18	1.14	1.12	1.11	1.09	1.08	1.07	1.06	1.05	1.04	1.04	1.03	1.02
12	3.09	2.11	1.78	1.61	1.50	1.38	1.31	1.26	1.22	1.20	1.18	1.17	1.16	1.14	1.13	1.12	1.11	1.11	1.10	1.09
16	3.26	2.22	1.87	1.68	1.57	1.44	1.37	1.31	1.28	1.25	1.23	1.22	1.21	1.19	1.18	1.17	1.16	1.15	1.14	1.14
20	3.40	2.30	1.93	1.74	1.63	1.49	1.42	1.36	1.32	1.29	1.27	1.26	1.25	1.23	1.21	1.20	1.20	1.19	1.18	1.17
30	3.64	2.46	2.06	1.85	1.73	1.58	1.50	1.44	1.40	1.37	1.34	1.33	1.31	1.30	1.28	1.27	1.26	1.26	1.24	1.24
40	3.81	2.56	2.14	1.93	1.80	1.65	1.56	1.49	1.45	1.42	1.39	1.38	1.36	1.34	1.33	1.32	1.31	1.30	1.29	1.28
50	3.94	2.65	2.21	1.99	1.85	1.69	1.60	1.53	1.49	1.46	1.43	1.41	1.40	1.38	1.36	1.35	1.34	1.34	1.32	1.32
60	4.05	2.71	2.26	2.03	1.89	1.73	1.64	1.57	1.52	1.49	1.46	1.45	1.43	1.41	1.39	1.38	1.37	1.36	1.35	1.34
75	4.18	2.79	2.33	2.09	1.95	1.78	1.68	1.61	1.56	1.53	1.50	1.48	1.47	1.44	1.43	1.41	1.41	1.40	1.38	1.38
100	4.34	2.90	2.41	2.17	2.02	1.84	1.74	1.66	1.61	1.58	1.55	1.53	1.51	1.49	1.47	1.46	1.45	1.44	1.43	1.42
125	4.47	2.97	2.48	2.22	2.07	1.89	1.78	1.70	1.65	1.61	1.59	1.57	1.55	1.52	1.51	1.49	1.48	1.47	1.46	1.45
150	4.57	3.04	2.53	2.27	2.11	1.92	1.82	1.74	1.68	1.64	1.62	1.59	1.58	1.55	1.53	1.52	1.51	1.50	1.49	1.48
175	4.66	3.09	2.57	2.31	2.14	1.96	1.85	1.76	1.71	1.67	1.64	1.62	1.60	1.57	1.56	1.54	1.53	1.52	1.51	1.50
200	4.73	3.14	2.61	2.34	2.17	1.98	1.87	1.79	1.73	1.69	1.66	1.64	1.62	1.60	1.58	1.56	1.55	1.54	1.53	1.52

Table 19-3. κ -Multipliers for 1-of-4 Interwell Prediction Limits on Observations (10 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.24	0.91	0.78	0.71	0.67	0.61	0.58	0.56	0.54	0.53	0.52	0.52	0.51	0.51	0.50	0.50	0.49	0.49	0.49	0.48
2	1.66	1.18	1.01	0.91	0.86	0.79	0.76	0.73	0.71	0.69	0.68	0.68	0.67	0.66	0.65	0.65	0.64	0.64	0.64	0.63
3	1.92	1.34	1.14	1.03	0.97	0.90	0.85	0.82	0.80	0.78	0.77	0.76	0.76	0.75	0.74	0.73	0.73	0.73	0.72	0.72
4	2.11	1.46	1.23	1.12	1.05	0.97	0.92	0.88	0.86	0.84	0.83	0.82	0.82	0.80	0.80	0.79	0.79	0.78	0.78	0.77
5	2.27	1.55	1.31	1.18	1.11	1.02	0.97	0.93	0.91	0.89	0.88	0.87	0.86	0.85	0.84	0.83	0.83	0.83	0.82	0.81
8	2.61	1.75	1.46	1.32	1.23	1.13	1.08	1.04	1.01	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90
12	2.91	1.92	1.60	1.44	1.34	1.23	1.17	1.12	1.09	1.07	1.05	1.04	1.03	1.02	1.01	1.00	0.99	0.99	0.98	0.97
16	3.13	2.05	1.70	1.52	1.42	1.30	1.23	1.18	1.15	1.12	1.11	1.09	1.08	1.07	1.06	1.05	1.04	1.04	1.03	1.02
20	3.30	2.14	1.77	1.59	1.48	1.35	1.28	1.23	1.19	1.17	1.15	1.14	1.12	1.11	1.10	1.09	1.08	1.08	1.07	1.06
30	3.61	2.32	1.91	1.70	1.58	1.44	1.37	1.31	1.27	1.24	1.22	1.21	1.20	1.18	1.17	1.16	1.15	1.14	1.13	1.13
40	3.83	2.44	2.00	1.79	1.66	1.51	1.43	1.37	1.32	1.30	1.28	1.26	1.25	1.23	1.22	1.21	1.20	1.19	1.18	1.17
50	4.00	2.54	2.08	1.85	1.72	1.56	1.47	1.41	1.37	1.34	1.32	1.30	1.29	1.27	1.25	1.24	1.23	1.23	1.22	1.21
60	4.14	2.62	2.14	1.90	1.76	1.60	1.51	1.44	1.40	1.37	1.35	1.33	1.32	1.30	1.28	1.27	1.26	1.26	1.25	1.24
75	4.31	2.71	2.21	1.97	1.82	1.65	1.56	1.49	1.44	1.41	1.39	1.37	1.35	1.33	1.32	1.31	1.30	1.29	1.28	1.27
100	4.52	2.84	2.31	2.05	1.89	1.72	1.62	1.54	1.50	1.46	1.44	1.42	1.40	1.38	1.37	1.35	1.34	1.34	1.32	1.32
125	4.69	2.93	2.38	2.11	1.95	1.77	1.66	1.59	1.54	1.50	1.48	1.46	1.44	1.42	1.40	1.39	1.38	1.37	1.36	1.35
150	4.83	3.01	2.44	2.16	2.00	1.81	1.70	1.62	1.57	1.53	1.51	1.49	1.47	1.45	1.43	1.42	1.41	1.40	1.39	1.38
175	4.94	3.07	2.49	2.21	2.04	1.84	1.73	1.65	1.60	1.56	1.53	1.51	1.49	1.47	1.45	1.44	1.43	1.42	1.41	1.40
200	5.04	3.13	2.54	2.24	2.07	1.87	1.76	1.68	1.62	1.58	1.55	1.53	1.52	1.49	1.47	1.46	1.45	1.44	1.43	1.42

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Table 19-3. κ -Multipliers for 1-of-4 Interwell Prediction Limits on Observations (10 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.66	1.18	1.01	0.91	0.86	0.79	0.76	0.73	0.71	0.69	0.68	0.68	0.67	0.66	0.65	0.65	0.65	0.64	0.64	0.63
2	2.11	1.46	1.23	1.12	1.05	0.97	0.92	0.88	0.86	0.84	0.83	0.82	0.82	0.80	0.80	0.79	0.79	0.78	0.78	0.77
3	2.40	1.63	1.37	1.24	1.16	1.07	1.01	0.97	0.95	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.86	0.86	0.85	0.85
4	2.61	1.75	1.46	1.32	1.23	1.13	1.08	1.04	1.01	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90
5	2.77	1.84	1.54	1.39	1.29	1.19	1.13	1.08	1.05	1.03	1.02	1.01	1.00	0.98	0.97	0.96	0.96	0.95	0.95	0.94
8	3.13	2.05	1.70	1.52	1.42	1.30	1.23	1.18	1.15	1.12	1.11	1.09	1.08	1.07	1.06	1.05	1.04	1.04	1.03	1.02
12	3.44	2.22	1.83	1.64	1.52	1.39	1.32	1.26	1.23	1.20	1.18	1.17	1.16	1.14	1.13	1.12	1.11	1.11	1.10	1.09
16	3.66	2.35	1.93	1.72	1.60	1.46	1.38	1.32	1.28	1.26	1.24	1.22	1.21	1.19	1.18	1.17	1.16	1.16	1.15	1.14
20	3.83	2.44	2.00	1.79	1.66	1.51	1.43	1.37	1.32	1.30	1.28	1.26	1.25	1.23	1.22	1.21	1.20	1.19	1.18	1.17
30	4.14	2.62	2.14	1.90	1.76	1.60	1.51	1.44	1.40	1.37	1.35	1.33	1.32	1.30	1.28	1.27	1.26	1.26	1.25	1.24
40	4.36	2.74	2.24	1.99	1.84	1.67	1.57	1.50	1.45	1.42	1.40	1.38	1.37	1.34	1.33	1.32	1.31	1.30	1.29	1.28
50	4.52	2.84	2.31	2.05	1.89	1.72	1.62	1.54	1.50	1.46	1.44	1.42	1.40	1.38	1.37	1.35	1.34	1.34	1.32	1.32
60	4.66	2.92	2.37	2.10	1.94	1.76	1.66	1.58	1.53	1.49	1.47	1.45	1.43	1.41	1.39	1.38	1.37	1.37	1.35	1.34
75	4.83	3.01	2.44	2.16	2.00	1.81	1.70	1.62	1.57	1.53	1.51	1.49	1.47	1.45	1.43	1.42	1.41	1.40	1.39	1.38
100	5.04	3.13	2.54	2.24	2.07	1.87	1.76	1.68	1.62	1.58	1.55	1.53	1.52	1.49	1.47	1.46	1.45	1.44	1.43	1.42
125	5.20	3.22	2.61	2.31	2.13	1.92	1.80	1.72	1.66	1.62	1.59	1.57	1.55	1.53	1.51	1.49	1.48	1.47	1.46	1.45
150	5.34	3.30	2.67	2.36	2.17	1.96	1.84	1.75	1.69	1.65	1.62	1.60	1.58	1.55	1.54	1.52	1.51	1.50	1.49	1.48
175	5.45	3.36	2.71	2.40	2.21	1.99	1.87	1.78	1.72	1.68	1.65	1.62	1.61	1.58	1.56	1.54	1.53	1.52	1.51	1.50
200	5.54	3.42	2.76	2.43	2.24	2.02	1.90	1.80	1.74	1.70	1.67	1.65	1.63	1.60	1.58	1.56	1.55	1.54	1.53	1.52

Table 19-3. κ -Multipliers for 1-of-4 Interwell Prediction Limits on Observations (10 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.11	1.46	1.23	1.12	1.05	0.97	0.92	0.88	0.86	0.84	0.83	0.82	0.82	0.80	0.80	0.79	0.79	0.78	0.78	0.77
2	2.61	1.75	1.46	1.32	1.23	1.13	1.08	1.04	1.01	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90
3	2.91	1.92	1.60	1.44	1.34	1.23	1.17	1.12	1.09	1.07	1.05	1.04	1.03	1.02	1.01	1.00	0.99	0.99	0.98	0.97
4	3.13	2.05	1.70	1.52	1.42	1.30	1.23	1.18	1.15	1.12	1.11	1.09	1.08	1.07	1.06	1.05	1.04	1.04	1.03	1.02
5	3.30	2.14	1.77	1.59	1.48	1.35	1.28	1.23	1.19	1.17	1.15	1.14	1.12	1.11	1.10	1.09	1.08	1.08	1.07	1.06
8	3.66	2.35	1.93	1.72	1.60	1.46	1.38	1.32	1.28	1.26	1.24	1.22	1.21	1.19	1.18	1.17	1.16	1.16	1.15	1.14
12	3.97	2.52	2.06	1.84	1.71	1.55	1.47	1.40	1.36	1.33	1.31	1.29	1.28	1.26	1.25	1.24	1.23	1.22	1.21	1.20
16	4.19	2.65	2.16	1.92	1.78	1.62	1.53	1.46	1.41	1.38	1.36	1.34	1.33	1.31	1.29	1.28	1.27	1.27	1.26	1.25
20	4.36	2.74	2.24	1.99	1.84	1.67	1.57	1.50	1.45	1.42	1.40	1.38	1.37	1.34	1.33	1.32	1.31	1.30	1.29	1.28
30	4.66	2.92	2.37	2.10	1.94	1.76	1.66	1.58	1.53	1.49	1.47	1.45	1.43	1.41	1.39	1.38	1.37	1.37	1.35	1.34
40	4.88	3.04	2.46	2.18	2.01	1.82	1.71	1.63	1.58	1.54	1.52	1.50	1.48	1.46	1.44	1.43	1.42	1.41	1.39	1.39
50	5.04	3.13	2.54	2.24	2.07	1.87	1.76	1.68	1.62	1.58	1.55	1.53	1.52	1.49	1.47	1.46	1.45	1.44	1.43	1.42
60	5.17	3.21	2.59	2.29	2.11	1.91	1.80	1.71	1.65	1.61	1.59	1.56	1.55	1.52	1.50	1.49	1.48	1.47	1.45	1.44
75	5.34	3.30	2.67	2.36	2.17	1.96	1.84	1.75	1.69	1.65	1.62	1.60	1.58	1.55	1.54	1.52	1.51	1.50	1.49	1.48
100	5.54	3.42	2.76	2.43	2.24	2.02	1.90	1.80	1.74	1.70	1.67	1.65	1.63	1.60	1.58	1.56	1.55	1.54	1.53	1.52
125	5.70	3.51	2.83	2.50	2.30	2.07	1.94	1.85	1.78	1.74	1.71	1.68	1.66	1.63	1.61	1.60	1.58	1.58	1.56	1.55
150	5.83	3.58	2.88	2.54	2.34	2.11	1.98	1.88	1.81	1.77	1.74	1.71	1.69	1.66	1.64	1.62	1.61	1.60	1.58	1.57
175	5.94	3.64	2.93	2.59	2.38	2.14	2.01	1.91	1.84	1.79	1.76	1.73	1.71	1.68	1.66	1.64	1.63	1.62	1.60	1.59
200	6.03	3.70	2.97	2.62	2.41	2.17	2.03	1.93	1.86	1.82	1.78	1.75	1.73	1.70	1.68	1.66	1.65	1.64	1.62	1.61

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Table 19-3. κ -Multipliers for 1-of-4 Interwell Prediction Limits on Observations (20 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.70	1.19	1.01	0.92	0.86	0.80	0.76	0.73	0.71	0.69	0.68	0.68	0.67	0.66	0.65	0.65	0.65	0.64	0.64	0.63
2	2.20	1.48	1.25	1.13	1.05	0.97	0.92	0.89	0.86	0.85	0.83	0.82	0.82	0.81	0.80	0.79	0.79	0.78	0.78	0.77
3	2.51	1.66	1.38	1.25	1.16	1.07	1.02	0.98	0.95	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.86	0.86	0.85	0.85
4	2.75	1.79	1.48	1.33	1.24	1.14	1.08	1.04	1.01	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90
5	2.94	1.89	1.56	1.40	1.30	1.19	1.13	1.08	1.05	1.03	1.02	1.01	1.00	0.98	0.97	0.97	0.96	0.96	0.95	0.94
8	3.36	2.11	1.72	1.54	1.43	1.30	1.24	1.18	1.15	1.13	1.11	1.09	1.08	1.07	1.06	1.05	1.04	1.04	1.03	1.02
12	3.74	2.30	1.87	1.66	1.54	1.40	1.32	1.27	1.23	1.20	1.18	1.17	1.16	1.14	1.13	1.12	1.11	1.11	1.10	1.09
16	4.01	2.44	1.97	1.75	1.62	1.47	1.39	1.32	1.28	1.26	1.24	1.22	1.21	1.19	1.18	1.17	1.16	1.16	1.15	1.14
20	4.22	2.55	2.05	1.82	1.68	1.52	1.43	1.37	1.33	1.30	1.28	1.26	1.25	1.23	1.22	1.21	1.20	1.19	1.18	1.17
30	4.61	2.75	2.20	1.94	1.78	1.61	1.52	1.45	1.40	1.37	1.35	1.33	1.32	1.30	1.28	1.27	1.26	1.26	1.25	1.24
40	4.88	2.89	2.30	2.03	1.86	1.68	1.58	1.51	1.46	1.42	1.40	1.38	1.37	1.35	1.33	1.32	1.31	1.30	1.29	1.28
50	5.10	3.00	2.39	2.09	1.92	1.73	1.63	1.55	1.50	1.46	1.44	1.42	1.40	1.38	1.37	1.35	1.34	1.34	1.32	1.32
60	5.27	3.09	2.45	2.15	1.97	1.77	1.67	1.58	1.53	1.50	1.47	1.45	1.43	1.41	1.39	1.38	1.37	1.37	1.35	1.34
75	5.49	3.20	2.53	2.22	2.03	1.82	1.71	1.63	1.57	1.54	1.51	1.49	1.47	1.45	1.43	1.42	1.41	1.40	1.39	1.38
100	5.76	3.34	2.64	2.30	2.11	1.89	1.77	1.68	1.63	1.59	1.56	1.54	1.52	1.49	1.47	1.46	1.45	1.44	1.43	1.42
125	5.97	3.45	2.72	2.37	2.17	1.94	1.82	1.73	1.67	1.63	1.60	1.57	1.55	1.53	1.51	1.49	1.48	1.48	1.46	1.45
150	6.14	3.54	2.78	2.42	2.22	1.98	1.86	1.76	1.70	1.66	1.63	1.60	1.58	1.56	1.54	1.52	1.51	1.50	1.49	1.48
175	6.28	3.61	2.84	2.47	2.26	2.02	1.89	1.79	1.73	1.68	1.65	1.63	1.61	1.58	1.56	1.54	1.53	1.52	1.51	1.50
200	6.41	3.68	2.88	2.51	2.29	2.05	1.91	1.81	1.75	1.71	1.67	1.65	1.63	1.60	1.58	1.56	1.55	1.54	1.53	1.52

Table 19-3. κ -Multipliers for 1-of-4 Interwell Prediction Limits on Observations (20 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.20	1.48	1.25	1.13	1.05	0.97	0.92	0.89	0.86	0.85	0.83	0.82	0.82	0.81	0.80	0.79	0.79	0.78	0.78	0.77
2	2.75	1.79	1.48	1.33	1.24	1.14	1.08	1.04	1.01	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90
3	3.11	1.98	1.62	1.45	1.35	1.24	1.17	1.12	1.09	1.07	1.05	1.04	1.03	1.02	1.01	1.00	0.99	0.99	0.98	0.97
4	3.36	2.11	1.72	1.54	1.43	1.30	1.24	1.18	1.15	1.13	1.11	1.09	1.08	1.07	1.06	1.05	1.04	1.04	1.03	1.02
5	3.57	2.21	1.80	1.61	1.49	1.36	1.28	1.23	1.19	1.17	1.15	1.14	1.13	1.11	1.10	1.09	1.08	1.08	1.07	1.06
8	4.01	2.44	1.97	1.75	1.62	1.47	1.39	1.32	1.28	1.26	1.24	1.22	1.21	1.19	1.18	1.17	1.16	1.16	1.15	1.14
12	4.39	2.64	2.12	1.87	1.72	1.56	1.47	1.41	1.36	1.33	1.31	1.29	1.28	1.26	1.25	1.24	1.23	1.22	1.21	1.20
16	4.67	2.78	2.22	1.96	1.80	1.63	1.53	1.46	1.42	1.38	1.36	1.34	1.33	1.31	1.29	1.28	1.27	1.27	1.26	1.25
20	4.88	2.89	2.30	2.03	1.86	1.68	1.58	1.51	1.46	1.42	1.40	1.38	1.37	1.35	1.33	1.32	1.31	1.30	1.29	1.28
30	5.27	3.09	2.45	2.15	1.97	1.77	1.67	1.58	1.53	1.50	1.47	1.45	1.43	1.41	1.39	1.38	1.37	1.37	1.35	1.34
40	5.55	3.23	2.56	2.24	2.05	1.84	1.73	1.64	1.59	1.55	1.52	1.50	1.48	1.46	1.44	1.43	1.42	1.41	1.40	1.39
50	5.76	3.34	2.64	2.30	2.11	1.89	1.77	1.68	1.63	1.59	1.56	1.54	1.52	1.49	1.47	1.46	1.45	1.44	1.43	1.42
60	5.93	3.43	2.70	2.36	2.16	1.93	1.81	1.72	1.66	1.62	1.59	1.57	1.55	1.52	1.50	1.49	1.48	1.47	1.45	1.44
75	6.14	3.54	2.78	2.42	2.22	1.98	1.86	1.76	1.70	1.66	1.63	1.60	1.58	1.56	1.54	1.52	1.51	1.50	1.49	1.48
100	6.41	3.68	2.88	2.51	2.29	2.05	1.91	1.81	1.75	1.71	1.67	1.65	1.63	1.60	1.58	1.56	1.55	1.54	1.53	1.52
125	6.61	3.78	2.96	2.58	2.35	2.10	1.96	1.86	1.79	1.74	1.71	1.68	1.66	1.63	1.61	1.60	1.59	1.58	1.56	1.55
150	6.78	3.87	3.03	2.63	2.40	2.14	2.00	1.89	1.82	1.77	1.74	1.71	1.69	1.66	1.64	1.62	1.61	1.60	1.58	1.57
175	6.92	3.94	3.08	2.68	2.44	2.17	2.03	1.92	1.85	1.80	1.76	1.74	1.72	1.68	1.66	1.65	1.63	1.62	1.61	1.59
200	7.04	4.00	3.13	2.71	2.47	2.20	2.06	1.94	1.87	1.82	1.79	1.76	1.74	1.70	1.68	1.67	1.65	1.64	1.62	1.61

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Table 19-3. κ -Multipliers for 1-of-4 Interwell Prediction Limits on Observations (20 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.75	1.79	1.48	1.33	1.24	1.14	1.08	1.04	1.01	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90
2	3.36	2.11	1.72	1.54	1.43	1.30	1.24	1.18	1.15	1.13	1.11	1.09	1.08	1.07	1.06	1.05	1.04	1.04	1.03	1.02
3	3.74	2.30	1.87	1.66	1.54	1.40	1.32	1.27	1.23	1.20	1.18	1.17	1.16	1.14	1.13	1.12	1.11	1.11	1.10	1.09
4	4.01	2.44	1.97	1.75	1.62	1.47	1.39	1.32	1.28	1.26	1.24	1.22	1.21	1.19	1.18	1.17	1.16	1.16	1.15	1.14
5	4.22	2.55	2.05	1.82	1.68	1.52	1.43	1.37	1.33	1.30	1.28	1.26	1.25	1.23	1.22	1.21	1.20	1.19	1.18	1.17
8	4.67	2.78	2.22	1.96	1.80	1.63	1.53	1.46	1.42	1.38	1.36	1.34	1.33	1.31	1.29	1.28	1.27	1.27	1.26	1.25
12	5.06	2.98	2.37	2.08	1.91	1.72	1.62	1.54	1.49	1.46	1.43	1.41	1.40	1.38	1.36	1.35	1.34	1.33	1.32	1.31
16	5.34	3.12	2.47	2.17	1.99	1.79	1.68	1.60	1.54	1.51	1.48	1.46	1.45	1.42	1.41	1.39	1.38	1.38	1.36	1.35
20	5.55	3.23	2.56	2.24	2.05	1.84	1.73	1.64	1.59	1.55	1.52	1.50	1.48	1.46	1.44	1.43	1.42	1.41	1.40	1.39
30	5.93	3.43	2.70	2.36	2.16	1.93	1.81	1.72	1.66	1.62	1.59	1.57	1.55	1.52	1.50	1.49	1.48	1.47	1.45	1.44
40	6.20	3.57	2.81	2.44	2.23	2.00	1.87	1.77	1.71	1.67	1.64	1.61	1.59	1.57	1.55	1.53	1.52	1.51	1.50	1.49
50	6.41	3.68	2.88	2.51	2.29	2.05	1.91	1.81	1.75	1.71	1.67	1.65	1.63	1.60	1.58	1.56	1.55	1.54	1.53	1.52
60	6.57	3.76	2.95	2.56	2.34	2.09	1.95	1.85	1.78	1.74	1.70	1.68	1.66	1.63	1.61	1.59	1.58	1.57	1.55	1.54
75	6.78	3.87	3.03	2.63	2.40	2.14	2.00	1.89	1.82	1.77	1.74	1.71	1.69	1.66	1.64	1.62	1.61	1.60	1.58	1.57
100	7.04	4.00	3.13	2.71	2.47	2.20	2.06	1.94	1.87	1.82	1.79	1.76	1.74	1.70	1.68	1.67	1.65	1.64	1.62	1.61
125	7.24	4.11	3.21	2.78	2.53	2.25	2.10	1.98	1.91	1.86	1.82	1.79	1.77	1.74	1.71	1.70	1.68	1.67	1.65	1.64
150	7.40	4.19	3.27	2.83	2.58	2.29	2.14	2.02	1.94	1.89	1.85	1.82	1.80	1.76	1.74	1.72	1.71	1.70	1.68	1.67
175	7.54	4.26	3.32	2.88	2.62	2.33	2.17	2.05	1.97	1.92	1.88	1.85	1.82	1.79	1.76	1.74	1.73	1.72	1.70	1.69
200	7.66	4.32	3.37	2.92	2.65	2.36	2.19	2.07	1.99	1.94	1.90	1.87	1.84	1.81	1.78	1.76	1.75	1.74	1.72	1.70

Table 19-3. κ -Multipliers for 1-of-4 Interwell Prediction Limits on Observations (40 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.25	1.49	1.25	1.13	1.05	0.97	0.92	0.89	0.86	0.85	0.83	0.82	0.82	0.81	0.80	0.79	0.79	0.78	0.78	0.77
2	2.85	1.81	1.49	1.34	1.25	1.14	1.08	1.04	1.01	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90
3	3.25	2.01	1.64	1.46	1.35	1.24	1.17	1.12	1.09	1.07	1.05	1.04	1.03	1.02	1.01	1.00	0.99	0.99	0.98	0.97
4	3.54	2.15	1.74	1.55	1.44	1.31	1.24	1.18	1.15	1.13	1.11	1.10	1.09	1.07	1.06	1.05	1.04	1.04	1.03	1.02
5	3.78	2.27	1.82	1.62	1.50	1.36	1.29	1.23	1.19	1.17	1.15	1.14	1.13	1.11	1.10	1.09	1.08	1.08	1.07	1.06
8	4.30	2.51	2.00	1.76	1.62	1.47	1.39	1.33	1.29	1.26	1.24	1.22	1.21	1.19	1.18	1.17	1.16	1.16	1.15	1.14
12	4.77	2.73	2.16	1.89	1.74	1.57	1.48	1.41	1.36	1.33	1.31	1.29	1.28	1.26	1.25	1.24	1.23	1.22	1.21	1.20
16	5.11	2.89	2.27	1.98	1.82	1.64	1.54	1.46	1.42	1.39	1.36	1.34	1.33	1.31	1.29	1.28	1.27	1.27	1.26	1.25
20	5.37	3.01	2.35	2.05	1.88	1.69	1.58	1.51	1.46	1.43	1.40	1.38	1.37	1.35	1.33	1.32	1.31	1.30	1.29	1.28
30	5.86	3.23	2.51	2.18	1.99	1.78	1.67	1.59	1.54	1.50	1.47	1.45	1.44	1.41	1.40	1.38	1.37	1.37	1.35	1.34
40	6.21	3.39	2.63	2.27	2.07	1.85	1.73	1.64	1.59	1.55	1.52	1.50	1.48	1.46	1.44	1.43	1.42	1.41	1.40	1.39
50	6.47	3.52	2.71	2.34	2.13	1.90	1.78	1.69	1.63	1.59	1.56	1.54	1.52	1.49	1.47	1.46	1.45	1.44	1.43	1.42
60	6.70	3.62	2.79	2.40	2.19	1.95	1.82	1.72	1.66	1.62	1.59	1.57	1.55	1.52	1.50	1.49	1.48	1.47	1.46	1.44
75	6.95	3.75	2.87	2.48	2.25	2.00	1.87	1.77	1.70	1.66	1.63	1.60	1.58	1.56	1.54	1.52	1.51	1.50	1.49	1.48
100	7.30	3.91	2.99	2.57	2.33	2.07	1.92	1.82	1.75	1.71	1.67	1.65	1.63	1.60	1.58	1.56	1.55	1.54	1.53	1.52
125	7.58	4.03	3.08	2.64	2.39	2.12	1.97	1.86	1.79	1.75	1.71	1.69	1.67	1.63	1.61	1.60	1.59	1.58	1.56	1.55
150	7.79	4.13	3.15	2.70	2.44	2.16	2.01	1.90	1.83	1.78	1.74	1.72	1.69	1.66	1.64	1.62	1.61	1.60	1.58	1.57
175	7.97	4.22	3.21	2.75	2.48	2.19	2.04	1.93	1.85	1.80	1.77	1.74	1.72	1.69	1.66	1.65	1.63	1.62	1.61	1.59
200	8.12	4.29	3.26	2.79	2.52	2.23	2.07	1.95	1.88	1.83	1.79	1.76	1.74	1.71	1.68	1.67	1.65	1.64	1.62	1.61

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Table 19-3. κ -Multipliers for 1-of-4 Interwell Prediction Limits on Observations (40 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.85	1.81	1.49	1.34	1.25	1.14	1.08	1.04	1.01	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90
2	3.54	2.15	1.74	1.55	1.44	1.31	1.24	1.18	1.15	1.13	1.11	1.10	1.09	1.07	1.06	1.05	1.04	1.04	1.03	1.02
3	3.98	2.36	1.89	1.67	1.55	1.40	1.33	1.27	1.23	1.20	1.19	1.17	1.16	1.14	1.13	1.12	1.11	1.11	1.10	1.09
4	4.30	2.51	2.00	1.76	1.62	1.47	1.39	1.33	1.29	1.26	1.24	1.22	1.21	1.19	1.18	1.17	1.16	1.16	1.15	1.14
5	4.56	2.63	2.08	1.83	1.69	1.52	1.44	1.37	1.33	1.30	1.28	1.26	1.25	1.23	1.22	1.21	1.20	1.19	1.18	1.17
8	5.11	2.89	2.27	1.98	1.82	1.64	1.54	1.46	1.42	1.39	1.36	1.34	1.33	1.31	1.29	1.28	1.27	1.27	1.26	1.25
12	5.59	3.11	2.42	2.11	1.93	1.73	1.62	1.54	1.49	1.46	1.43	1.41	1.40	1.38	1.36	1.35	1.34	1.33	1.32	1.31
16	5.94	3.27	2.54	2.20	2.01	1.80	1.68	1.60	1.55	1.51	1.48	1.46	1.45	1.42	1.41	1.39	1.38	1.38	1.36	1.35
20	6.21	3.39	2.63	2.27	2.07	1.85	1.73	1.64	1.59	1.55	1.52	1.50	1.48	1.46	1.44	1.43	1.42	1.41	1.40	1.39
30	6.70	3.62	2.79	2.40	2.19	1.95	1.82	1.72	1.66	1.62	1.59	1.57	1.55	1.52	1.50	1.49	1.48	1.47	1.46	1.44
40	7.03	3.78	2.90	2.50	2.27	2.01	1.88	1.78	1.71	1.67	1.64	1.61	1.59	1.57	1.55	1.53	1.52	1.51	1.50	1.49
50	7.30	3.91	2.99	2.57	2.33	2.07	1.92	1.82	1.75	1.71	1.67	1.65	1.63	1.60	1.58	1.56	1.55	1.54	1.53	1.52
60	7.52	4.01	3.06	2.63	2.38	2.11	1.96	1.85	1.79	1.74	1.71	1.68	1.66	1.63	1.61	1.59	1.58	1.57	1.55	1.54
75	7.79	4.13	3.15	2.70	2.44	2.16	2.01	1.90	1.83	1.78	1.74	1.72	1.69	1.66	1.64	1.62	1.61	1.60	1.58	1.57
100	8.12	4.29	3.26	2.79	2.52	2.23	2.07	1.95	1.88	1.83	1.79	1.76	1.74	1.71	1.68	1.67	1.65	1.64	1.62	1.61
125	8.38	4.41	3.34	2.86	2.58	2.28	2.11	1.99	1.92	1.86	1.82	1.80	1.77	1.74	1.72	1.70	1.68	1.67	1.65	1.64
150	8.59	4.51	3.42	2.92	2.63	2.32	2.15	2.03	1.95	1.89	1.85	1.82	1.80	1.77	1.74	1.72	1.71	1.70	1.68	1.67
175	8.77	4.59	3.48	2.97	2.68	2.36	2.18	2.06	1.98	1.92	1.88	1.85	1.82	1.79	1.76	1.74	1.73	1.72	1.70	1.69
200	8.91	4.67	3.53	3.01	2.71	2.39	2.21	2.08	2.00	1.94	1.90	1.87	1.84	1.81	1.78	1.76	1.75	1.74	1.72	1.70

Table 19-3. κ -Multipliers for 1-of-4 Interwell Prediction Limits on Observations (40 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.54	2.15	1.74	1.55	1.44	1.31	1.24	1.18	1.15	1.13	1.11	1.10	1.09	1.07	1.06	1.05	1.04	1.04	1.03	1.02
2	4.30	2.51	2.00	1.76	1.62	1.47	1.39	1.33	1.29	1.26	1.24	1.22	1.21	1.19	1.18	1.17	1.16	1.16	1.15	1.14
3	4.77	2.73	2.16	1.89	1.74	1.57	1.48	1.41	1.36	1.33	1.31	1.29	1.28	1.26	1.25	1.24	1.23	1.22	1.21	1.20
4	5.11	2.89	2.27	1.98	1.82	1.64	1.54	1.46	1.42	1.39	1.36	1.34	1.33	1.31	1.29	1.28	1.27	1.27	1.26	1.25
5	5.37	3.01	2.35	2.05	1.88	1.69	1.58	1.51	1.46	1.43	1.40	1.38	1.37	1.35	1.33	1.32	1.31	1.30	1.29	1.28
8	5.94	3.27	2.54	2.20	2.01	1.80	1.68	1.60	1.55	1.51	1.48	1.46	1.45	1.42	1.41	1.39	1.38	1.38	1.36	1.35
12	6.43	3.50	2.70	2.33	2.12	1.89	1.77	1.68	1.62	1.58	1.55	1.53	1.51	1.49	1.47	1.46	1.45	1.44	1.42	1.41
16	6.78	3.66	2.81	2.42	2.20	1.96	1.83	1.73	1.67	1.63	1.60	1.58	1.56	1.53	1.51	1.50	1.49	1.48	1.46	1.45
20	7.03	3.78	2.90	2.50	2.27	2.01	1.88	1.78	1.71	1.67	1.64	1.61	1.59	1.57	1.55	1.53	1.52	1.51	1.50	1.49
30	7.52	4.01	3.06	2.63	2.38	2.11	1.96	1.85	1.79	1.74	1.71	1.68	1.66	1.63	1.61	1.59	1.58	1.57	1.55	1.54
40	7.85	4.17	3.17	2.72	2.46	2.18	2.02	1.91	1.84	1.79	1.75	1.72	1.70	1.67	1.65	1.63	1.62	1.61	1.59	1.58
50	8.12	4.29	3.26	2.79	2.52	2.23	2.07	1.95	1.88	1.83	1.79	1.76	1.74	1.71	1.68	1.67	1.65	1.64	1.62	1.61
60	8.34	4.39	3.33	2.85	2.57	2.27	2.11	1.98	1.91	1.86	1.82	1.79	1.77	1.73	1.71	1.69	1.68	1.67	1.65	1.64
75	8.59	4.51	3.42	2.92	2.63	2.32	2.15	2.03	1.95	1.89	1.85	1.82	1.80	1.77	1.74	1.72	1.71	1.70	1.68	1.67
100	8.91	4.67	3.53	3.01	2.71	2.39	2.21	2.08	2.00	1.94	1.90	1.87	1.84	1.81	1.78	1.76	1.75	1.74	1.72	1.70
125	9.16	4.79	3.61	3.08	2.77	2.44	2.26	2.12	2.04	1.98	1.94	1.90	1.88	1.84	1.81	1.79	1.78	1.77	1.75	1.73
150	9.38	4.88	3.68	3.13	2.82	2.48	2.29	2.16	2.07	2.01	1.97	1.93	1.91	1.87	1.84	1.82	1.80	1.79	1.77	1.76
175	9.53	4.96	3.74	3.18	2.87	2.51	2.33	2.19	2.10	2.03	1.99	1.96	1.93	1.89	1.86	1.84	1.82	1.81	1.79	1.78
200	9.69	5.03	3.79	3.23	2.90	2.54	2.35	2.21	2.12	2.06	2.01	1.98	1.95	1.91	1.88	1.86	1.84	1.83	1.81	1.79

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Table 19-4. κ -Multipliers for Modified Calif. Interwell Prediction Limits on Observations (1 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.71	0.59	0.53	0.50	0.48	0.45	0.44	0.43	0.42	0.41	0.41	0.41	0.40	0.40	0.40	0.40	0.39	0.39	0.39	0.39
2	1.07	0.88	0.81	0.76	0.73	0.70	0.68	0.66	0.65	0.64	0.64	0.63	0.63	0.62	0.62	0.62	0.61	0.61	0.61	0.61
3	1.28	1.05	0.96	0.90	0.87	0.83	0.80	0.78	0.77	0.76	0.76	0.75	0.75	0.74	0.74	0.73	0.73	0.73	0.72	0.72
4	1.43	1.17	1.06	1.00	0.96	0.92	0.89	0.87	0.85	0.84	0.84	0.83	0.83	0.82	0.81	0.81	0.81	0.81	0.80	0.80
5	1.54	1.26	1.14	1.07	1.03	0.98	0.95	0.93	0.92	0.91	0.90	0.89	0.89	0.88	0.87	0.87	0.87	0.86	0.86	0.86
8	1.78	1.44	1.30	1.23	1.18	1.12	1.09	1.06	1.04	1.03	1.02	1.01	1.01	1.00	0.99	0.99	0.98	0.98	0.97	0.97
12	1.98	1.59	1.44	1.35	1.30	1.23	1.20	1.16	1.14	1.13	1.12	1.11	1.11	1.10	1.09	1.08	1.08	1.08	1.07	1.07
16	2.11	1.70	1.53	1.44	1.38	1.31	1.27	1.24	1.22	1.20	1.19	1.18	1.17	1.16	1.15	1.15	1.14	1.14	1.13	1.13
20	2.22	1.78	1.60	1.51	1.44	1.37	1.33	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20	1.20	1.19	1.19	1.18	1.18
30	2.41	1.92	1.73	1.62	1.56	1.48	1.43	1.39	1.36	1.35	1.33	1.32	1.31	1.30	1.29	1.28	1.28	1.28	1.27	1.26
40	2.54	2.02	1.82	1.71	1.63	1.55	1.50	1.46	1.43	1.41	1.40	1.38	1.38	1.36	1.35	1.34	1.34	1.33	1.33	1.32
50	2.64	2.10	1.88	1.77	1.69	1.60	1.55	1.51	1.48	1.46	1.44	1.43	1.42	1.41	1.40	1.39	1.38	1.38	1.37	1.37
60	2.72	2.16	1.94	1.82	1.74	1.65	1.59	1.55	1.52	1.50	1.48	1.47	1.46	1.45	1.43	1.43	1.42	1.42	1.41	1.40
75	2.81	2.23	2.00	1.88	1.80	1.70	1.64	1.60	1.57	1.55	1.53	1.52	1.51	1.49	1.48	1.47	1.46	1.46	1.45	1.44
100	2.93	2.32	2.08	1.95	1.87	1.77	1.71	1.66	1.63	1.61	1.59	1.57	1.56	1.55	1.54	1.53	1.52	1.51	1.50	1.50
125	3.03	2.39	2.15	2.01	1.93	1.82	1.76	1.71	1.67	1.65	1.63	1.62	1.61	1.59	1.58	1.57	1.56	1.56	1.54	1.54
150	3.10	2.45	2.20	2.06	1.97	1.86	1.80	1.75	1.71	1.69	1.67	1.65	1.64	1.62	1.61	1.60	1.59	1.59	1.58	1.57
175	3.16	2.50	2.24	2.10	2.01	1.90	1.83	1.78	1.74	1.72	1.70	1.68	1.67	1.65	1.64	1.63	1.62	1.62	1.61	1.60
200	3.21	2.54	2.27	2.13	2.04	1.93	1.86	1.81	1.77	1.74	1.72	1.71	1.70	1.68	1.67	1.66	1.65	1.64	1.63	1.62

Table 19-4. κ -Multipliers for Modified Calif. Interwell Prediction Limits on Observations (1 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.07	0.88	0.81	0.76	0.73	0.70	0.68	0.66	0.65	0.64	0.64	0.63	0.63	0.62	0.62	0.62	0.61	0.61	0.61	0.61
2	1.43	1.17	1.06	1.00	0.96	0.92	0.89	0.87	0.85	0.84	0.84	0.83	0.83	0.82	0.81	0.81	0.81	0.81	0.80	0.80
3	1.63	1.33	1.20	1.13	1.09	1.04	1.01	0.98	0.97	0.95	0.95	0.94	0.93	0.93	0.92	0.92	0.91	0.91	0.90	0.90
4	1.78	1.44	1.30	1.23	1.18	1.12	1.09	1.06	1.04	1.03	1.02	1.01	1.01	1.00	0.99	0.99	0.98	0.98	0.97	0.97
5	1.89	1.52	1.38	1.30	1.25	1.18	1.15	1.12	1.10	1.09	1.08	1.07	1.06	1.05	1.05	1.04	1.04	1.03	1.03	1.02
8	2.11	1.70	1.53	1.44	1.38	1.31	1.27	1.24	1.22	1.20	1.19	1.18	1.17	1.16	1.15	1.15	1.14	1.14	1.13	1.13
12	2.31	1.84	1.66	1.56	1.50	1.42	1.37	1.34	1.31	1.30	1.28	1.27	1.26	1.25	1.24	1.24	1.23	1.23	1.22	1.22
16	2.44	1.94	1.75	1.64	1.57	1.49	1.44	1.40	1.38	1.36	1.35	1.34	1.33	1.31	1.31	1.30	1.29	1.29	1.28	1.28
20	2.54	2.02	1.82	1.71	1.63	1.55	1.50	1.46	1.43	1.41	1.40	1.38	1.38	1.36	1.35	1.34	1.34	1.33	1.33	1.32
30	2.72	2.16	1.94	1.82	1.74	1.65	1.59	1.55	1.52	1.50	1.48	1.47	1.46	1.45	1.43	1.43	1.42	1.42	1.41	1.40
40	2.84	2.25	2.02	1.89	1.81	1.72	1.66	1.61	1.58	1.56	1.54	1.53	1.52	1.50	1.49	1.48	1.48	1.47	1.46	1.46
50	2.93	2.32	2.08	1.95	1.87	1.77	1.71	1.66	1.63	1.61	1.59	1.57	1.56	1.55	1.54	1.53	1.52	1.51	1.50	1.50
60	3.01	2.38	2.13	2.00	1.92	1.81	1.75	1.70	1.67	1.64	1.62	1.61	1.60	1.58	1.57	1.56	1.55	1.55	1.54	1.53
75	3.10	2.45	2.20	2.06	1.97	1.86	1.80	1.75	1.71	1.69	1.67	1.65	1.64	1.62	1.61	1.60	1.59	1.59	1.58	1.57
100	3.21	2.54	2.27	2.13	2.04	1.93	1.86	1.81	1.77	1.74	1.72	1.71	1.70	1.68	1.67	1.66	1.65	1.64	1.63	1.62
125	3.30	2.61	2.33	2.19	2.09	1.98	1.91	1.85	1.81	1.79	1.77	1.75	1.74	1.72	1.71	1.70	1.69	1.68	1.67	1.66
150	3.37	2.66	2.38	2.23	2.13	2.02	1.95	1.89	1.85	1.82	1.80	1.79	1.77	1.75	1.74	1.73	1.72	1.71	1.70	1.69
175	3.43	2.70	2.42	2.27	2.17	2.05	1.98	1.92	1.88	1.85	1.83	1.81	1.80	1.78	1.77	1.76	1.75	1.74	1.73	1.72
200	3.48	2.74	2.46	2.30	2.20	2.08	2.00	1.95	1.91	1.88	1.86	1.84	1.83	1.80	1.79	1.78	1.77	1.76	1.75	1.74

Table 19-4. κ -Multipliers for Modified Calif. Interwell Prediction Limits on Observations (1 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.43	1.17	1.06	1.00	0.96	0.92	0.89	0.87	0.85	0.84	0.84	0.83	0.83	0.82	0.81	0.81	0.81	0.81	0.80	0.80
2	1.78	1.44	1.30	1.23	1.18	1.12	1.09	1.06	1.04	1.03	1.02	1.01	1.01	1.00	0.99	0.99	0.98	0.98	0.97	0.97
3	1.98	1.59	1.44	1.35	1.30	1.23	1.20	1.16	1.14	1.13	1.12	1.11	1.11	1.10	1.09	1.08	1.08	1.08	1.07	1.07
4	2.11	1.70	1.53	1.44	1.38	1.31	1.27	1.24	1.22	1.20	1.19	1.18	1.17	1.16	1.15	1.15	1.14	1.14	1.13	1.13
5	2.22	1.78	1.60	1.51	1.44	1.37	1.33	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20	1.20	1.19	1.19	1.18	1.18
8	2.44	1.94	1.75	1.64	1.57	1.49	1.44	1.40	1.38	1.36	1.35	1.34	1.33	1.31	1.31	1.30	1.29	1.29	1.28	1.28
12	2.62	2.08	1.87	1.76	1.68	1.59	1.54	1.50	1.47	1.45	1.43	1.42	1.41	1.40	1.39	1.38	1.38	1.37	1.36	1.36
16	2.74	2.18	1.96	1.83	1.76	1.66	1.61	1.56	1.53	1.51	1.50	1.48	1.47	1.46	1.45	1.44	1.43	1.43	1.42	1.41
20	2.84	2.25	2.02	1.89	1.81	1.72	1.66	1.61	1.58	1.56	1.54	1.53	1.52	1.50	1.49	1.48	1.48	1.47	1.46	1.46
30	3.01	2.38	2.13	2.00	1.92	1.81	1.75	1.70	1.67	1.64	1.62	1.61	1.60	1.58	1.57	1.56	1.55	1.55	1.54	1.53
40	3.13	2.47	2.21	2.07	1.99	1.88	1.81	1.76	1.73	1.70	1.68	1.67	1.65	1.64	1.62	1.61	1.61	1.60	1.59	1.58
50	3.21	2.54	2.27	2.13	2.04	1.93	1.86	1.81	1.77	1.74	1.72	1.71	1.70	1.68	1.67	1.66	1.65	1.64	1.63	1.62
60	3.29	2.59	2.32	2.18	2.08	1.97	1.90	1.84	1.81	1.78	1.76	1.74	1.73	1.71	1.70	1.69	1.68	1.67	1.66	1.65
75	3.37	2.66	2.38	2.23	2.13	2.02	1.95	1.89	1.85	1.82	1.80	1.79	1.77	1.75	1.74	1.73	1.72	1.71	1.70	1.69
100	3.48	2.74	2.46	2.30	2.20	2.08	2.00	1.95	1.91	1.88	1.86	1.84	1.83	1.80	1.79	1.78	1.77	1.76	1.75	1.74
125	3.57	2.81	2.51	2.35	2.25	2.12	2.05	1.99	1.95	1.92	1.90	1.88	1.87	1.84	1.83	1.82	1.81	1.80	1.79	1.78
150	3.63	2.86	2.56	2.40	2.29	2.16	2.09	2.02	1.98	1.95	1.93	1.91	1.90	1.88	1.86	1.85	1.84	1.83	1.82	1.81
175	3.69	2.90	2.60	2.43	2.32	2.19	2.12	2.05	2.01	1.98	1.96	1.94	1.93	1.90	1.89	1.87	1.86	1.86	1.84	1.83
200	3.74	2.94	2.63	2.46	2.35	2.22	2.14	2.08	2.04	2.01	1.98	1.96	1.95	1.93	1.91	1.90	1.89	1.88	1.86	1.85

Table 19-4. κ -Multipliers for Modified Calif. Interwell Prediction Limits on Observations (2 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.14	0.92	0.83	0.78	0.74	0.71	0.68	0.66	0.65	0.64	0.64	0.63	0.63	0.62	0.62	0.62	0.61	0.61	0.61	0.61
2	1.55	1.22	1.09	1.02	0.98	0.93	0.90	0.88	0.86	0.85	0.84	0.83	0.83	0.82	0.82	0.81	0.81	0.81	0.80	0.80
3	1.79	1.40	1.25	1.16	1.11	1.05	1.02	0.99	0.97	0.96	0.95	0.94	0.94	0.93	0.92	0.92	0.91	0.91	0.91	0.90
4	1.97	1.52	1.35	1.26	1.20	1.14	1.10	1.07	1.05	1.04	1.02	1.02	1.01	1.00	0.99	0.99	0.99	0.98	0.98	0.97
5	2.10	1.62	1.43	1.34	1.27	1.20	1.16	1.13	1.11	1.09	1.08	1.07	1.07	1.06	1.05	1.04	1.04	1.04	1.03	1.02
8	2.39	1.81	1.60	1.49	1.42	1.34	1.29	1.25	1.23	1.21	1.20	1.19	1.18	1.17	1.16	1.15	1.15	1.14	1.14	1.13
12	2.63	1.98	1.74	1.62	1.54	1.45	1.39	1.35	1.32	1.30	1.29	1.28	1.27	1.26	1.25	1.24	1.24	1.23	1.22	1.22
16	2.80	2.10	1.84	1.71	1.62	1.52	1.47	1.42	1.39	1.37	1.36	1.34	1.33	1.32	1.31	1.30	1.30	1.29	1.28	1.28
20	2.93	2.19	1.92	1.78	1.69	1.58	1.52	1.47	1.44	1.42	1.41	1.39	1.38	1.37	1.36	1.35	1.34	1.34	1.33	1.32
30	3.16	2.35	2.06	1.90	1.80	1.69	1.62	1.57	1.54	1.51	1.49	1.48	1.47	1.45	1.44	1.43	1.42	1.42	1.41	1.40
40	3.32	2.46	2.15	1.99	1.88	1.76	1.69	1.64	1.60	1.57	1.55	1.54	1.53	1.51	1.50	1.49	1.48	1.47	1.46	1.46
50	3.44	2.55	2.22	2.05	1.94	1.82	1.74	1.69	1.65	1.62	1.60	1.59	1.57	1.55	1.54	1.53	1.52	1.52	1.51	1.50
60	3.54	2.62	2.28	2.10	1.99	1.86	1.79	1.73	1.69	1.66	1.64	1.62	1.61	1.59	1.58	1.57	1.56	1.55	1.54	1.53
75	3.66	2.70	2.35	2.17	2.05	1.92	1.84	1.78	1.73	1.71	1.68	1.67	1.65	1.63	1.62	1.61	1.60	1.59	1.58	1.57
100	3.81	2.81	2.44	2.25	2.13	1.99	1.90	1.84	1.79	1.76	1.74	1.72	1.71	1.69	1.67	1.66	1.65	1.65	1.63	1.62
125	3.93	2.89	2.51	2.31	2.19	2.04	1.95	1.89	1.84	1.81	1.79	1.77	1.75	1.73	1.71	1.70	1.69	1.69	1.67	1.66
150	4.02	2.95	2.57	2.36	2.23	2.08	1.99	1.92	1.88	1.85	1.82	1.80	1.79	1.76	1.75	1.74	1.73	1.72	1.70	1.70
175	4.10	3.01	2.61	2.40	2.27	2.12	2.03	1.96	1.91	1.88	1.85	1.83	1.82	1.79	1.78	1.76	1.75	1.74	1.73	1.72
200	4.17	3.06	2.65	2.44	2.31	2.15	2.06	1.98	1.94	1.90	1.88	1.86	1.84	1.82	1.80	1.79	1.78	1.77	1.75	1.74

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Table 19-4. κ -Multipliers for Modified Calif. Interwell Prediction Limits on Observations (2 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.55	1.22	1.09	1.02	0.98	0.93	0.90	0.88	0.86	0.85	0.84	0.83	0.83	0.82	0.82	0.81	0.81	0.81	0.80	0.80
2	1.97	1.52	1.35	1.26	1.20	1.14	1.10	1.07	1.05	1.04	1.02	1.02	1.01	1.00	0.99	0.99	0.99	0.98	0.98	0.97
3	2.21	1.69	1.50	1.40	1.33	1.25	1.21	1.18	1.15	1.14	1.13	1.12	1.11	1.10	1.09	1.09	1.08	1.08	1.07	1.07
4	2.39	1.81	1.60	1.49	1.42	1.34	1.29	1.25	1.23	1.21	1.20	1.19	1.18	1.17	1.16	1.15	1.15	1.14	1.14	1.13
5	2.52	1.91	1.68	1.56	1.49	1.40	1.35	1.31	1.28	1.26	1.25	1.24	1.23	1.22	1.21	1.20	1.20	1.19	1.18	1.18
8	2.80	2.10	1.84	1.71	1.62	1.52	1.47	1.42	1.39	1.37	1.36	1.34	1.33	1.32	1.31	1.30	1.30	1.29	1.28	1.28
12	3.03	2.26	1.98	1.83	1.74	1.63	1.57	1.52	1.49	1.46	1.45	1.43	1.42	1.41	1.39	1.39	1.38	1.37	1.37	1.36
16	3.20	2.38	2.08	1.92	1.82	1.70	1.64	1.58	1.55	1.53	1.51	1.49	1.48	1.46	1.45	1.44	1.44	1.43	1.42	1.42
20	3.32	2.46	2.15	1.99	1.88	1.76	1.69	1.64	1.60	1.57	1.55	1.54	1.53	1.51	1.50	1.49	1.48	1.47	1.46	1.46
30	3.54	2.62	2.28	2.10	1.99	1.86	1.79	1.73	1.69	1.66	1.64	1.62	1.61	1.59	1.58	1.57	1.56	1.55	1.54	1.53
40	3.70	2.73	2.37	2.19	2.07	1.93	1.85	1.79	1.75	1.72	1.70	1.68	1.67	1.65	1.63	1.62	1.61	1.61	1.59	1.59
50	3.81	2.81	2.44	2.25	2.13	1.99	1.90	1.84	1.79	1.76	1.74	1.72	1.71	1.69	1.67	1.66	1.65	1.65	1.63	1.62
60	3.91	2.87	2.50	2.30	2.18	2.03	1.94	1.88	1.83	1.80	1.78	1.76	1.74	1.72	1.71	1.69	1.69	1.68	1.67	1.66
75	4.02	2.95	2.57	2.36	2.23	2.08	1.99	1.92	1.88	1.85	1.82	1.80	1.79	1.76	1.75	1.74	1.73	1.72	1.70	1.70
100	4.17	3.06	2.65	2.44	2.31	2.15	2.06	1.98	1.94	1.90	1.88	1.86	1.84	1.82	1.80	1.79	1.78	1.77	1.75	1.74
125	4.28	3.13	2.72	2.50	2.36	2.20	2.11	2.03	1.98	1.94	1.92	1.90	1.88	1.86	1.84	1.83	1.81	1.81	1.79	1.78
150	4.37	3.19	2.77	2.55	2.41	2.24	2.14	2.07	2.02	1.98	1.95	1.93	1.91	1.89	1.87	1.86	1.85	1.84	1.82	1.81
175	4.44	3.25	2.82	2.59	2.45	2.28	2.18	2.10	2.05	2.01	1.98	1.96	1.94	1.92	1.90	1.88	1.87	1.86	1.85	1.84
200	4.51	3.29	2.85	2.62	2.48	2.31	2.20	2.13	2.07	2.03	2.01	1.98	1.97	1.94	1.92	1.91	1.89	1.89	1.87	1.86

Table 19-4. κ -Multipliers for Modified Calif. Interwell Prediction Limits on Observations (2 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.97	1.52	1.35	1.26	1.20	1.14	1.10	1.07	1.05	1.04	1.02	1.02	1.01	1.00	0.99	0.99	0.99	0.98	0.98	0.97
2	2.39	1.81	1.60	1.49	1.42	1.34	1.29	1.25	1.23	1.21	1.20	1.19	1.18	1.17	1.16	1.15	1.15	1.14	1.14	1.13
3	2.63	1.98	1.74	1.62	1.54	1.45	1.39	1.35	1.32	1.30	1.29	1.28	1.27	1.26	1.25	1.24	1.24	1.23	1.22	1.22
4	2.80	2.10	1.84	1.71	1.62	1.52	1.47	1.42	1.39	1.37	1.36	1.34	1.33	1.32	1.31	1.30	1.30	1.29	1.28	1.28
5	2.93	2.19	1.92	1.78	1.69	1.58	1.52	1.47	1.44	1.42	1.41	1.39	1.38	1.37	1.36	1.35	1.34	1.34	1.33	1.32
8	3.20	2.38	2.08	1.92	1.82	1.70	1.64	1.58	1.55	1.53	1.51	1.49	1.48	1.46	1.45	1.44	1.44	1.43	1.42	1.42
12	3.42	2.53	2.21	2.04	1.93	1.81	1.73	1.68	1.64	1.61	1.59	1.58	1.56	1.55	1.53	1.52	1.52	1.51	1.50	1.49
16	3.58	2.64	2.30	2.12	2.01	1.88	1.80	1.74	1.70	1.67	1.65	1.64	1.62	1.60	1.59	1.58	1.57	1.56	1.55	1.54
20	3.70	2.73	2.37	2.19	2.07	1.93	1.85	1.79	1.75	1.72	1.70	1.68	1.67	1.65	1.63	1.62	1.61	1.61	1.59	1.59
30	3.91	2.87	2.50	2.30	2.18	2.03	1.94	1.88	1.83	1.80	1.78	1.76	1.74	1.72	1.71	1.69	1.69	1.68	1.67	1.66
40	4.06	2.98	2.59	2.38	2.25	2.10	2.01	1.94	1.89	1.86	1.83	1.81	1.80	1.78	1.76	1.75	1.74	1.73	1.72	1.71
50	4.17	3.06	2.65	2.44	2.31	2.15	2.06	1.98	1.94	1.90	1.88	1.86	1.84	1.82	1.80	1.79	1.78	1.77	1.75	1.74
60	4.26	3.12	2.71	2.49	2.35	2.19	2.10	2.02	1.97	1.94	1.91	1.89	1.87	1.85	1.83	1.82	1.81	1.80	1.78	1.77
75	4.37	3.19	2.77	2.55	2.41	2.24	2.14	2.07	2.02	1.98	1.95	1.93	1.91	1.89	1.87	1.86	1.85	1.84	1.82	1.81
100	4.51	3.29	2.85	2.62	2.48	2.31	2.20	2.13	2.07	2.03	2.01	1.98	1.97	1.94	1.92	1.91	1.89	1.89	1.87	1.86
125	4.61	3.37	2.92	2.68	2.53	2.35	2.25	2.17	2.12	2.08	2.05	2.02	2.01	1.98	1.96	1.94	1.93	1.92	1.91	1.89
150	4.69	3.43	2.97	2.73	2.58	2.39	2.29	2.21	2.15	2.11	2.08	2.06	2.04	2.01	1.99	1.97	1.96	1.95	1.93	1.92
175	4.77	3.48	3.01	2.76	2.61	2.43	2.32	2.24	2.18	2.14	2.11	2.08	2.06	2.04	2.01	2.00	1.99	1.98	1.96	1.95
200	4.83	3.52	3.05	2.80	2.64	2.46	2.35	2.26	2.20	2.16	2.13	2.11	2.09	2.06	2.04	2.02	2.01	2.00	1.98	1.97

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Table 19-4. κ -Multipliers for Modified Calif. Interwell Prediction Limits on Observations (5 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.80	1.36	1.20	1.12	1.07	1.01	0.97	0.94	0.93	0.91	0.90	0.90	0.89	0.88	0.88	0.87	0.87	0.87	0.86	0.86
2	2.30	1.69	1.47	1.36	1.29	1.21	1.17	1.13	1.11	1.10	1.08	1.08	1.07	1.06	1.05	1.04	1.04	1.04	1.03	1.03
3	2.62	1.88	1.63	1.50	1.42	1.33	1.28	1.24	1.22	1.20	1.18	1.17	1.17	1.15	1.14	1.14	1.13	1.13	1.12	1.12
4	2.84	2.02	1.74	1.60	1.52	1.41	1.36	1.32	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20	1.20	1.19	1.19	1.18
5	3.02	2.13	1.83	1.68	1.59	1.48	1.42	1.37	1.34	1.32	1.30	1.29	1.28	1.27	1.26	1.25	1.25	1.24	1.23	1.23
8	3.39	2.36	2.01	1.84	1.73	1.61	1.54	1.49	1.45	1.43	1.41	1.40	1.39	1.37	1.36	1.35	1.34	1.34	1.33	1.32
12	3.71	2.56	2.17	1.97	1.85	1.72	1.64	1.58	1.55	1.52	1.50	1.49	1.47	1.46	1.44	1.43	1.43	1.42	1.41	1.40
16	3.94	2.69	2.28	2.07	1.94	1.80	1.71	1.65	1.61	1.58	1.56	1.55	1.53	1.51	1.50	1.49	1.48	1.48	1.47	1.46
20	4.11	2.80	2.36	2.14	2.01	1.86	1.77	1.70	1.66	1.63	1.61	1.59	1.58	1.56	1.55	1.53	1.53	1.52	1.51	1.50
30	4.43	2.99	2.51	2.27	2.13	1.96	1.87	1.80	1.75	1.72	1.69	1.68	1.66	1.64	1.62	1.61	1.60	1.60	1.58	1.58
40	4.64	3.12	2.62	2.37	2.21	2.04	1.94	1.86	1.81	1.78	1.75	1.73	1.72	1.69	1.68	1.67	1.66	1.65	1.64	1.63
50	4.81	3.22	2.70	2.44	2.28	2.09	1.99	1.91	1.86	1.82	1.80	1.78	1.76	1.74	1.72	1.71	1.70	1.69	1.67	1.67
60	4.94	3.31	2.76	2.49	2.33	2.14	2.03	1.95	1.90	1.86	1.83	1.81	1.80	1.77	1.75	1.74	1.73	1.72	1.71	1.70
75	5.10	3.40	2.84	2.56	2.39	2.20	2.09	2.00	1.94	1.91	1.88	1.86	1.84	1.81	1.79	1.78	1.77	1.76	1.75	1.74
100	5.31	3.53	2.95	2.65	2.47	2.27	2.15	2.06	2.00	1.96	1.93	1.91	1.89	1.86	1.84	1.83	1.82	1.81	1.79	1.78
125	5.46	3.63	3.02	2.72	2.54	2.32	2.20	2.11	2.05	2.01	1.98	1.95	1.93	1.90	1.88	1.87	1.86	1.85	1.83	1.82
150	5.59	3.71	3.09	2.78	2.59	2.37	2.24	2.15	2.09	2.04	2.01	1.99	1.97	1.94	1.92	1.90	1.89	1.88	1.86	1.85
175	5.69	3.77	3.14	2.82	2.63	2.41	2.28	2.18	2.12	2.07	2.04	2.01	1.99	1.96	1.94	1.93	1.91	1.90	1.89	1.88
200	5.79	3.83	3.18	2.86	2.67	2.44	2.31	2.21	2.15	2.10	2.07	2.04	2.02	1.99	1.97	1.95	1.94	1.93	1.91	1.90

Table 19-4. κ -Multipliers for Modified Calif. Interwell Prediction Limits on Observations (5 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.30	1.69	1.47	1.36	1.29	1.21	1.17	1.13	1.11	1.10	1.08	1.08	1.07	1.06	1.05	1.04	1.04	1.04	1.03	1.03
2	2.84	2.02	1.74	1.60	1.52	1.41	1.36	1.32	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20	1.20	1.19	1.19	1.18
3	3.16	2.22	1.90	1.74	1.64	1.53	1.47	1.42	1.38	1.36	1.35	1.33	1.32	1.31	1.30	1.29	1.28	1.28	1.27	1.27
4	3.39	2.36	2.01	1.84	1.73	1.61	1.54	1.49	1.45	1.43	1.41	1.40	1.39	1.37	1.36	1.35	1.34	1.34	1.33	1.32
5	3.57	2.47	2.10	1.91	1.80	1.67	1.60	1.54	1.50	1.48	1.46	1.45	1.43	1.42	1.41	1.40	1.39	1.38	1.37	1.37
8	3.94	2.69	2.28	2.07	1.94	1.80	1.71	1.65	1.61	1.58	1.56	1.55	1.53	1.51	1.50	1.49	1.48	1.48	1.47	1.46
12	4.26	2.88	2.43	2.20	2.06	1.90	1.81	1.75	1.70	1.67	1.65	1.63	1.62	1.60	1.58	1.57	1.56	1.55	1.54	1.53
16	4.47	3.02	2.54	2.29	2.15	1.98	1.88	1.81	1.76	1.73	1.71	1.69	1.67	1.65	1.64	1.62	1.62	1.61	1.60	1.59
20	4.64	3.12	2.62	2.37	2.21	2.04	1.94	1.86	1.81	1.78	1.75	1.73	1.72	1.69	1.68	1.67	1.66	1.65	1.64	1.63
30	4.94	3.31	2.76	2.49	2.33	2.14	2.03	1.95	1.90	1.86	1.83	1.81	1.80	1.77	1.75	1.74	1.73	1.72	1.71	1.70
40	5.15	3.43	2.87	2.58	2.41	2.21	2.10	2.01	1.96	1.92	1.89	1.87	1.85	1.82	1.80	1.79	1.78	1.77	1.76	1.75
50	5.31	3.53	2.95	2.65	2.47	2.27	2.15	2.06	2.00	1.96	1.93	1.91	1.89	1.86	1.84	1.83	1.82	1.81	1.79	1.78
60	5.43	3.61	3.01	2.71	2.53	2.31	2.19	2.10	2.04	2.00	1.97	1.94	1.93	1.90	1.88	1.86	1.85	1.84	1.82	1.81
75	5.59	3.71	3.09	2.78	2.59	2.37	2.24	2.15	2.09	2.04	2.01	1.99	1.97	1.94	1.92	1.90	1.89	1.88	1.86	1.85
100	5.79	3.83	3.18	2.86	2.67	2.44	2.31	2.21	2.15	2.10	2.07	2.04	2.02	1.99	1.97	1.95	1.94	1.93	1.91	1.90
125	5.94	3.92	3.26	2.93	2.73	2.49	2.36	2.26	2.19	2.14	2.11	2.08	2.06	2.03	2.00	1.99	1.97	1.96	1.95	1.93
150	6.05	4.00	3.32	2.98	2.77	2.54	2.40	2.29	2.23	2.18	2.14	2.11	2.09	2.06	2.04	2.02	2.00	1.99	1.97	1.96
175	6.16	4.06	3.37	3.02	2.82	2.57	2.43	2.33	2.26	2.21	2.17	2.14	2.12	2.08	2.06	2.04	2.03	2.02	2.00	1.99
200	6.24	4.11	3.41	3.06	2.85	2.60	2.46	2.35	2.28	2.23	2.19	2.17	2.14	2.11	2.08	2.07	2.05	2.04	2.02	2.01

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Table 19-4. κ -Multipliers for Modified Calif. Interwell Prediction Limits on Observations (5 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.84	2.02	1.74	1.60	1.52	1.41	1.36	1.32	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20	1.20	1.19	1.19	1.18
2	3.39	2.36	2.01	1.84	1.73	1.61	1.54	1.49	1.45	1.43	1.41	1.40	1.39	1.37	1.36	1.35	1.34	1.34	1.33	1.32
3	3.71	2.56	2.17	1.97	1.85	1.72	1.64	1.58	1.55	1.52	1.50	1.49	1.47	1.46	1.44	1.43	1.43	1.42	1.41	1.40
4	3.94	2.69	2.28	2.07	1.94	1.80	1.71	1.65	1.61	1.58	1.56	1.55	1.53	1.51	1.50	1.49	1.48	1.48	1.47	1.46
5	4.11	2.80	2.36	2.14	2.01	1.86	1.77	1.70	1.66	1.63	1.61	1.59	1.58	1.56	1.55	1.53	1.53	1.52	1.51	1.50
8	4.47	3.02	2.54	2.29	2.15	1.98	1.88	1.81	1.76	1.73	1.71	1.69	1.67	1.65	1.64	1.62	1.62	1.61	1.60	1.59
12	4.78	3.20	2.68	2.42	2.27	2.08	1.98	1.90	1.85	1.82	1.79	1.77	1.75	1.73	1.71	1.70	1.69	1.68	1.67	1.66
16	4.99	3.33	2.79	2.51	2.35	2.16	2.05	1.97	1.91	1.87	1.85	1.82	1.81	1.78	1.76	1.75	1.74	1.73	1.72	1.71
20	5.15	3.43	2.87	2.58	2.41	2.21	2.10	2.01	1.96	1.92	1.89	1.87	1.85	1.82	1.80	1.79	1.78	1.77	1.76	1.75
30	5.43	3.61	3.01	2.71	2.53	2.31	2.19	2.10	2.04	2.00	1.97	1.94	1.93	1.90	1.88	1.86	1.85	1.84	1.82	1.81
40	5.63	3.73	3.11	2.79	2.60	2.38	2.26	2.16	2.10	2.06	2.02	2.00	1.98	1.95	1.93	1.91	1.90	1.89	1.87	1.86
50	5.79	3.83	3.18	2.86	2.67	2.44	2.31	2.21	2.15	2.10	2.07	2.04	2.02	1.99	1.97	1.95	1.94	1.93	1.91	1.90
60	5.91	3.90	3.25	2.92	2.71	2.48	2.35	2.25	2.18	2.13	2.10	2.07	2.05	2.02	2.00	1.98	1.97	1.96	1.94	1.93
75	6.05	4.00	3.32	2.98	2.77	2.54	2.40	2.29	2.23	2.18	2.14	2.11	2.09	2.06	2.04	2.02	2.00	1.99	1.97	1.96
100	6.24	4.11	3.41	3.06	2.85	2.60	2.46	2.35	2.28	2.23	2.19	2.17	2.14	2.11	2.08	2.07	2.05	2.04	2.02	2.01
125	6.39	4.20	3.49	3.13	2.91	2.66	2.51	2.40	2.33	2.27	2.23	2.20	2.18	2.15	2.12	2.10	2.09	2.08	2.05	2.04
150	6.50	4.27	3.54	3.18	2.96	2.70	2.55	2.44	2.36	2.31	2.27	2.24	2.21	2.18	2.15	2.13	2.12	2.10	2.08	2.07
175	6.60	4.33	3.59	3.22	3.00	2.73	2.58	2.47	2.39	2.34	2.30	2.26	2.24	2.20	2.18	2.16	2.14	2.13	2.11	2.09
200	6.68	4.39	3.64	3.26	3.03	2.76	2.61	2.49	2.42	2.36	2.32	2.29	2.26	2.22	2.20	2.18	2.16	2.15	2.13	2.11

Table 19-4. κ -Multipliers for Modified Calif. Interwell Prediction Limits on Observations (10 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.40	1.72	1.49	1.37	1.30	1.22	1.17	1.14	1.11	1.10	1.09	1.08	1.07	1.06	1.05	1.04	1.04	1.04	1.03	1.03
2	3.01	2.08	1.77	1.62	1.53	1.42	1.36	1.32	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20	1.20	1.19	1.19	1.18
3	3.40	2.29	1.94	1.76	1.66	1.54	1.47	1.42	1.39	1.37	1.35	1.34	1.33	1.31	1.30	1.29	1.29	1.28	1.27	1.27
4	3.68	2.44	2.05	1.86	1.75	1.62	1.55	1.49	1.46	1.43	1.41	1.40	1.39	1.37	1.36	1.35	1.35	1.34	1.33	1.32
5	3.89	2.57	2.15	1.94	1.82	1.68	1.60	1.55	1.51	1.48	1.46	1.45	1.44	1.42	1.41	1.40	1.39	1.39	1.38	1.37
8	4.36	2.82	2.34	2.11	1.97	1.81	1.72	1.66	1.62	1.59	1.56	1.55	1.54	1.52	1.50	1.49	1.48	1.48	1.47	1.46
12	4.76	3.04	2.51	2.25	2.09	1.92	1.83	1.75	1.71	1.67	1.65	1.63	1.62	1.60	1.58	1.57	1.56	1.56	1.54	1.54
16	5.04	3.20	2.62	2.35	2.18	2.00	1.90	1.82	1.77	1.74	1.71	1.69	1.68	1.65	1.64	1.63	1.62	1.61	1.60	1.59
20	5.26	3.32	2.72	2.43	2.25	2.06	1.95	1.87	1.82	1.78	1.76	1.74	1.72	1.70	1.68	1.67	1.66	1.65	1.64	1.63
30	5.65	3.53	2.88	2.56	2.38	2.17	2.05	1.96	1.91	1.87	1.84	1.82	1.80	1.77	1.75	1.74	1.73	1.72	1.71	1.70
40	5.92	3.69	3.00	2.66	2.47	2.24	2.12	2.03	1.97	1.93	1.90	1.87	1.85	1.83	1.81	1.79	1.78	1.77	1.76	1.75
50	6.13	3.80	3.08	2.74	2.53	2.30	2.17	2.08	2.01	1.97	1.94	1.91	1.90	1.87	1.85	1.83	1.82	1.81	1.80	1.78
60	6.30	3.90	3.16	2.80	2.59	2.35	2.22	2.12	2.05	2.01	1.97	1.95	1.93	1.90	1.88	1.86	1.85	1.84	1.83	1.81
75	6.50	4.01	3.24	2.87	2.66	2.41	2.27	2.17	2.10	2.05	2.02	1.99	1.97	1.94	1.92	1.90	1.89	1.88	1.86	1.85
100	6.76	4.15	3.36	2.97	2.74	2.48	2.34	2.23	2.16	2.11	2.07	2.05	2.02	1.99	1.97	1.95	1.94	1.93	1.91	1.90
125	6.96	4.27	3.44	3.04	2.81	2.54	2.39	2.28	2.20	2.15	2.12	2.09	2.06	2.03	2.01	1.99	1.98	1.97	1.95	1.93
150	7.12	4.35	3.51	3.10	2.86	2.58	2.43	2.32	2.24	2.19	2.15	2.12	2.10	2.06	2.04	2.02	2.01	2.00	1.98	1.96
175	7.25	4.43	3.57	3.15	2.90	2.62	2.47	2.35	2.27	2.22	2.18	2.15	2.12	2.09	2.06	2.05	2.03	2.02	2.00	1.99
200	7.36	4.49	3.62	3.19	2.94	2.66	2.50	2.38	2.30	2.24	2.20	2.17	2.15	2.11	2.09	2.07	2.05	2.04	2.02	2.01

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Table 19-4. κ -Multipliers for Modified Calif. Interwell Prediction Limits on Observations (10 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.01	2.08	1.77	1.62	1.53	1.42	1.36	1.32	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20	1.20	1.19	1.19	1.18
2	3.68	2.44	2.05	1.86	1.75	1.62	1.55	1.49	1.46	1.43	1.41	1.40	1.39	1.37	1.36	1.35	1.35	1.34	1.33	1.32
3	4.08	2.66	2.22	2.00	1.88	1.73	1.65	1.59	1.55	1.52	1.50	1.49	1.48	1.46	1.44	1.43	1.43	1.42	1.41	1.40
4	4.36	2.82	2.34	2.11	1.97	1.81	1.72	1.66	1.62	1.59	1.56	1.55	1.54	1.52	1.50	1.49	1.48	1.48	1.47	1.46
5	4.58	2.94	2.43	2.18	2.04	1.87	1.78	1.71	1.67	1.64	1.61	1.59	1.58	1.56	1.55	1.54	1.53	1.52	1.51	1.50
8	5.04	3.20	2.62	2.35	2.18	2.00	1.90	1.82	1.77	1.74	1.71	1.69	1.68	1.65	1.64	1.63	1.62	1.61	1.60	1.59
12	5.44	3.41	2.79	2.49	2.31	2.11	2.00	1.91	1.86	1.82	1.79	1.77	1.76	1.73	1.71	1.70	1.69	1.68	1.67	1.66
16	5.71	3.57	2.91	2.59	2.40	2.18	2.07	1.98	1.92	1.88	1.85	1.83	1.81	1.78	1.77	1.75	1.74	1.73	1.72	1.71
20	5.92	3.69	3.00	2.66	2.47	2.24	2.12	2.03	1.97	1.93	1.90	1.87	1.85	1.83	1.81	1.79	1.78	1.77	1.76	1.75
30	6.30	3.90	3.16	2.80	2.59	2.35	2.22	2.12	2.05	2.01	1.97	1.95	1.93	1.90	1.88	1.86	1.85	1.84	1.83	1.81
40	6.56	4.04	3.27	2.90	2.67	2.42	2.29	2.18	2.11	2.07	2.03	2.00	1.98	1.95	1.93	1.91	1.90	1.89	1.87	1.86
50	6.76	4.15	3.36	2.97	2.74	2.48	2.34	2.23	2.16	2.11	2.07	2.05	2.02	1.99	1.97	1.95	1.94	1.93	1.91	1.90
60	6.92	4.25	3.43	3.03	2.79	2.53	2.38	2.27	2.20	2.14	2.11	2.08	2.06	2.02	2.00	1.98	1.97	1.96	1.94	1.93
75	7.12	4.35	3.51	3.10	2.86	2.58	2.43	2.32	2.24	2.19	2.15	2.12	2.10	2.06	2.04	2.02	2.01	2.00	1.98	1.96
100	7.36	4.49	3.62	3.19	2.94	2.66	2.50	2.38	2.30	2.24	2.20	2.17	2.15	2.11	2.09	2.07	2.05	2.04	2.02	2.01
125	7.55	4.60	3.70	3.27	3.01	2.71	2.55	2.42	2.34	2.29	2.24	2.21	2.19	2.15	2.12	2.10	2.09	2.08	2.06	2.04
150	7.71	4.69	3.77	3.32	3.06	2.76	2.59	2.46	2.38	2.32	2.28	2.25	2.22	2.18	2.15	2.13	2.12	2.11	2.08	2.07
175	7.83	4.76	3.82	3.37	3.10	2.80	2.62	2.49	2.41	2.35	2.31	2.27	2.25	2.21	2.18	2.16	2.14	2.13	2.11	2.09
200	7.94	4.82	3.87	3.41	3.14	2.83	2.65	2.52	2.44	2.38	2.33	2.30	2.27	2.23	2.20	2.18	2.16	2.15	2.13	2.11

Table 19-4. κ -Multipliers for Modified Calif. Interwell Prediction Limits on Observations (10 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.68	2.44	2.05	1.86	1.75	1.62	1.55	1.49	1.46	1.43	1.41	1.40	1.39	1.37	1.36	1.35	1.35	1.34	1.33	1.32
2	4.36	2.82	2.34	2.11	1.97	1.81	1.72	1.66	1.62	1.59	1.56	1.55	1.54	1.52	1.50	1.49	1.48	1.48	1.47	1.46
3	4.76	3.04	2.51	2.25	2.09	1.92	1.83	1.75	1.71	1.67	1.65	1.63	1.62	1.60	1.58	1.57	1.56	1.56	1.54	1.54
4	5.04	3.20	2.62	2.35	2.18	2.00	1.90	1.82	1.77	1.74	1.71	1.69	1.68	1.65	1.64	1.63	1.62	1.61	1.60	1.59
5	5.26	3.32	2.72	2.43	2.25	2.06	1.95	1.87	1.82	1.78	1.76	1.74	1.72	1.70	1.68	1.67	1.66	1.65	1.64	1.63
8	5.71	3.57	2.91	2.59	2.40	2.18	2.07	1.98	1.92	1.88	1.85	1.83	1.81	1.78	1.77	1.75	1.74	1.73	1.72	1.71
12	6.09	3.78	3.07	2.72	2.52	2.29	2.16	2.07	2.01	1.96	1.93	1.91	1.89	1.86	1.84	1.83	1.81	1.80	1.79	1.78
16	6.36	3.93	3.18	2.82	2.61	2.37	2.23	2.13	2.07	2.02	1.99	1.96	1.94	1.91	1.89	1.88	1.86	1.85	1.84	1.83
20	6.56	4.04	3.27	2.90	2.67	2.42	2.29	2.18	2.11	2.07	2.03	2.00	1.98	1.95	1.93	1.91	1.90	1.89	1.87	1.86
30	6.92	4.25	3.43	3.03	2.79	2.53	2.38	2.27	2.20	2.14	2.11	2.08	2.06	2.02	2.00	1.98	1.97	1.96	1.94	1.93
40	7.17	4.39	3.53	3.12	2.88	2.60	2.45	2.33	2.25	2.20	2.16	2.13	2.11	2.07	2.05	2.03	2.02	2.01	1.99	1.97
50	7.36	4.49	3.62	3.19	2.94	2.66	2.50	2.38	2.30	2.24	2.20	2.17	2.15	2.11	2.09	2.07	2.05	2.04	2.02	2.01
60	7.52	4.58	3.69	3.25	2.99	2.70	2.54	2.41	2.33	2.28	2.24	2.21	2.18	2.14	2.12	2.10	2.08	2.07	2.05	2.04
75	7.71	4.69	3.77	3.32	3.06	2.76	2.59	2.46	2.38	2.32	2.28	2.25	2.22	2.18	2.15	2.13	2.12	2.11	2.08	2.07
100	7.94	4.82	3.87	3.41	3.14	2.83	2.65	2.52	2.44	2.38	2.33	2.30	2.27	2.23	2.20	2.18	2.16	2.15	2.13	2.11
125	8.12	4.93	3.95	3.48	3.20	2.88	2.70	2.57	2.48	2.42	2.37	2.34	2.31	2.27	2.24	2.22	2.20	2.19	2.16	2.15
150	8.27	5.01	4.02	3.54	3.25	2.93	2.74	2.60	2.51	2.45	2.40	2.37	2.34	2.30	2.27	2.24	2.23	2.21	2.19	2.17
175	8.38	5.08	4.07	3.58	3.29	2.96	2.78	2.64	2.54	2.48	2.43	2.39	2.37	2.32	2.29	2.27	2.25	2.24	2.21	2.20
200	8.49	5.14	4.12	3.62	3.33	2.99	2.81	2.66	2.57	2.50	2.46	2.42	2.39	2.34	2.31	2.29	2.27	2.26	2.23	2.22

Table 19-4. κ -Multipliers for Modified Calif. Interwell Prediction Limits on Observations (20 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.13	2.11	1.79	1.63	1.53	1.42	1.37	1.32	1.29	1.27	1.26	1.24	1.23	1.22	1.21	1.20	1.20	1.19	1.19	1.18
2	3.89	2.50	2.08	1.88	1.76	1.62	1.55	1.49	1.46	1.43	1.41	1.40	1.39	1.37	1.36	1.35	1.35	1.34	1.33	1.32
3	4.36	2.74	2.25	2.02	1.89	1.74	1.65	1.59	1.55	1.52	1.50	1.49	1.48	1.46	1.44	1.44	1.43	1.42	1.41	1.40
4	4.71	2.91	2.38	2.13	1.98	1.82	1.73	1.66	1.62	1.59	1.57	1.55	1.54	1.52	1.50	1.49	1.48	1.48	1.47	1.46
5	4.98	3.05	2.48	2.21	2.05	1.88	1.79	1.71	1.67	1.64	1.61	1.60	1.58	1.56	1.55	1.54	1.53	1.52	1.51	1.50
8	5.56	3.34	2.69	2.38	2.21	2.01	1.90	1.82	1.77	1.74	1.71	1.69	1.68	1.65	1.64	1.63	1.62	1.61	1.60	1.59
12	6.06	3.59	2.87	2.53	2.34	2.12	2.01	1.92	1.86	1.82	1.80	1.77	1.76	1.73	1.71	1.70	1.69	1.68	1.67	1.66
16	6.42	3.76	3.00	2.64	2.43	2.20	2.08	1.98	1.92	1.88	1.85	1.83	1.81	1.79	1.77	1.75	1.74	1.73	1.72	1.71
20	6.69	3.90	3.10	2.72	2.50	2.26	2.13	2.03	1.97	1.93	1.90	1.87	1.86	1.83	1.81	1.79	1.78	1.77	1.76	1.75
30	7.19	4.15	3.28	2.87	2.63	2.37	2.23	2.12	2.06	2.01	1.98	1.95	1.93	1.90	1.88	1.86	1.85	1.84	1.83	1.82
40	7.53	4.32	3.40	2.97	2.73	2.45	2.30	2.19	2.12	2.07	2.03	2.01	1.99	1.95	1.93	1.91	1.90	1.89	1.87	1.86
50	7.79	4.45	3.50	3.05	2.80	2.51	2.35	2.24	2.17	2.11	2.08	2.05	2.03	1.99	1.97	1.95	1.94	1.93	1.91	1.90
60	8.00	4.56	3.58	3.12	2.85	2.56	2.40	2.28	2.20	2.15	2.11	2.08	2.06	2.03	2.00	1.98	1.97	1.96	1.94	1.93
75	8.25	4.69	3.67	3.20	2.92	2.62	2.45	2.33	2.25	2.19	2.15	2.12	2.10	2.06	2.04	2.02	2.01	2.00	1.98	1.96
100	8.58	4.86	3.80	3.30	3.01	2.70	2.52	2.39	2.31	2.25	2.21	2.18	2.15	2.11	2.09	2.07	2.05	2.04	2.02	2.01
125	8.83	4.98	3.89	3.38	3.08	2.75	2.57	2.44	2.35	2.29	2.25	2.22	2.19	2.15	2.13	2.11	2.09	2.08	2.06	2.04
150	9.02	5.09	3.97	3.44	3.14	2.80	2.62	2.48	2.39	2.33	2.28	2.25	2.22	2.18	2.16	2.14	2.12	2.11	2.09	2.07
175	9.19	5.17	4.03	3.50	3.19	2.84	2.65	2.51	2.42	2.36	2.31	2.28	2.25	2.21	2.18	2.16	2.14	2.13	2.11	2.09
200	9.33	5.25	4.09	3.54	3.23	2.88	2.68	2.54	2.45	2.38	2.34	2.30	2.27	2.23	2.20	2.18	2.17	2.15	2.13	2.11

Table 19-4. κ -Multipliers for Modified Calif. Interwell Prediction Limits on Observations (20 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.89	2.50	2.08	1.88	1.76	1.62	1.55	1.49	1.46	1.43	1.41	1.40	1.39	1.37	1.36	1.35	1.35	1.34	1.33	1.32
2	4.71	2.91	2.38	2.13	1.98	1.82	1.73	1.66	1.62	1.59	1.57	1.55	1.54	1.52	1.50	1.49	1.48	1.48	1.47	1.46
3	5.21	3.16	2.56	2.28	2.11	1.93	1.83	1.76	1.71	1.68	1.65	1.63	1.62	1.60	1.58	1.57	1.56	1.56	1.54	1.54
4	5.56	3.34	2.69	2.38	2.21	2.01	1.90	1.82	1.77	1.74	1.71	1.69	1.68	1.65	1.64	1.63	1.62	1.61	1.60	1.59
5	5.84	3.47	2.79	2.46	2.28	2.07	1.96	1.88	1.82	1.79	1.76	1.74	1.72	1.70	1.68	1.67	1.66	1.65	1.64	1.63
8	6.42	3.76	3.00	2.64	2.43	2.20	2.08	1.98	1.92	1.88	1.85	1.83	1.81	1.79	1.77	1.75	1.74	1.73	1.72	1.71
12	6.91	4.01	3.18	2.79	2.56	2.31	2.18	2.08	2.01	1.97	1.93	1.91	1.89	1.86	1.84	1.83	1.81	1.81	1.79	1.78
16	7.26	4.19	3.30	2.89	2.65	2.39	2.25	2.14	2.07	2.03	1.99	1.96	1.94	1.91	1.89	1.88	1.86	1.85	1.84	1.83
20	7.53	4.32	3.40	2.97	2.73	2.45	2.30	2.19	2.12	2.07	2.03	2.01	1.99	1.95	1.93	1.91	1.90	1.89	1.87	1.86
30	8.00	4.56	3.58	3.12	2.85	2.56	2.40	2.28	2.20	2.15	2.11	2.08	2.06	2.03	2.00	1.98	1.97	1.96	1.94	1.93
40	8.33	4.73	3.70	3.22	2.94	2.64	2.47	2.34	2.26	2.21	2.17	2.14	2.11	2.08	2.05	2.03	2.02	2.01	1.99	1.97
50	8.58	4.86	3.80	3.30	3.01	2.70	2.52	2.39	2.31	2.25	2.21	2.18	2.15	2.11	2.09	2.07	2.05	2.04	2.02	2.01
60	8.78	4.96	3.87	3.37	3.07	2.74	2.56	2.43	2.35	2.29	2.24	2.21	2.18	2.15	2.12	2.10	2.08	2.07	2.05	2.04
75	9.02	5.09	3.97	3.44	3.14	2.80	2.62	2.48	2.39	2.33	2.28	2.25	2.22	2.18	2.16	2.14	2.12	2.11	2.09	2.07
100	9.33	5.25	4.09	3.54	3.23	2.88	2.68	2.54	2.45	2.38	2.34	2.30	2.27	2.23	2.20	2.18	2.17	2.15	2.13	2.11
125	9.57	5.37	4.18	3.62	3.30	2.93	2.74	2.59	2.49	2.43	2.38	2.34	2.31	2.27	2.24	2.22	2.20	2.19	2.16	2.15
150	9.77	5.47	4.25	3.68	3.35	2.98	2.78	2.63	2.53	2.46	2.41	2.37	2.34	2.30	2.27	2.25	2.23	2.22	2.19	2.17
175	9.93	5.55	4.31	3.73	3.40	3.02	2.81	2.66	2.56	2.49	2.44	2.40	2.37	2.33	2.29	2.27	2.25	2.24	2.21	2.20
200	10.06	5.62	4.37	3.78	3.44	3.05	2.85	2.69	2.59	2.52	2.46	2.43	2.39	2.35	2.32	2.29	2.27	2.26	2.23	2.22

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Table 19-4. κ -Multipliers for Modified Calif. Interwell Prediction Limits on Observations (20 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.72	2.92	2.38	2.13	1.98	1.82	1.73	1.66	1.62	1.59	1.57	1.55	1.54	1.52	1.50	1.49	1.48	1.48	1.47	1.46
2	5.57	3.33	2.69	2.38	2.21	2.01	1.90	1.82	1.77	1.74	1.71	1.69	1.68	1.66	1.64	1.63	1.62	1.61	1.60	1.59
3	6.06	3.59	2.87	2.53	2.34	2.12	2.01	1.92	1.86	1.82	1.79	1.77	1.76	1.73	1.71	1.70	1.69	1.68	1.67	1.66
4	6.42	3.76	3.00	2.64	2.43	2.20	2.08	1.98	1.92	1.88	1.85	1.83	1.81	1.79	1.77	1.75	1.74	1.73	1.72	1.71
5	6.69	3.90	3.10	2.72	2.50	2.26	2.13	2.03	1.97	1.93	1.90	1.88	1.85	1.83	1.81	1.79	1.78	1.77	1.76	1.75
8	7.27	4.19	3.30	2.89	2.66	2.39	2.25	2.14	2.07	2.03	1.99	1.96	1.94	1.91	1.89	1.88	1.86	1.85	1.84	1.83
12	7.73	4.42	3.48	3.04	2.78	2.50	2.34	2.23	2.16	2.11	2.07	2.04	2.02	1.99	1.96	1.95	1.93	1.92	1.90	1.89
16	8.09	4.60	3.60	3.14	2.87	2.58	2.41	2.29	2.22	2.16	2.12	2.09	2.07	2.04	2.01	2.00	1.98	1.97	1.95	1.94
20	8.32	4.73	3.70	3.22	2.94	2.64	2.47	2.34	2.26	2.21	2.17	2.14	2.11	2.08	2.05	2.03	2.02	2.01	1.99	1.97
30	8.79	4.97	3.87	3.37	3.07	2.74	2.56	2.43	2.35	2.29	2.24	2.21	2.18	2.15	2.12	2.10	2.08	2.07	2.05	2.04
40	9.08	5.13	3.99	3.46	3.16	2.82	2.63	2.49	2.40	2.34	2.30	2.26	2.24	2.20	2.17	2.15	2.13	2.12	2.09	2.08
50	9.35	5.24	4.09	3.54	3.23	2.87	2.68	2.54	2.45	2.38	2.34	2.30	2.27	2.23	2.20	2.18	2.17	2.15	2.13	2.11
60	9.52	5.35	4.16	3.60	3.28	2.92	2.73	2.58	2.48	2.42	2.37	2.33	2.31	2.26	2.23	2.21	2.19	2.18	2.16	2.14
75	9.76	5.46	4.25	3.68	3.35	2.98	2.78	2.63	2.53	2.46	2.41	2.37	2.34	2.30	2.27	2.25	2.23	2.22	2.19	2.17
100	10.08	5.62	4.37	3.78	3.44	3.05	2.85	2.69	2.59	2.52	2.46	2.42	2.39	2.35	2.32	2.29	2.27	2.26	2.23	2.22
125	10.28	5.74	4.45	3.85	3.50	3.11	2.90	2.73	2.63	2.56	2.50	2.46	2.43	2.38	2.35	2.33	2.31	2.29	2.27	2.25
150	10.49	5.84	4.53	3.91	3.56	3.16	2.94	2.77	2.67	2.59	2.54	2.50	2.46	2.42	2.38	2.35	2.34	2.32	2.29	2.27
175	10.63	5.92	4.58	3.96	3.60	3.20	2.97	2.80	2.70	2.62	2.57	2.52	2.49	2.44	2.40	2.38	2.36	2.34	2.32	2.30
200	10.75	5.99	4.64	4.01	3.64	3.23	3.00	2.83	2.72	2.64	2.59	2.55	2.51	2.46	2.43	2.40	2.38	2.36	2.33	2.32

Table 19-4. κ -Multipliers for Modified Calif. Interwell Prediction Limits on Observations (40 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.02	2.53	2.09	1.88	1.76	1.63	1.55	1.49	1.46	1.43	1.41	1.40	1.39	1.37	1.36	1.35	1.35	1.34	1.33	1.32
2	4.97	2.97	2.40	2.14	1.99	1.82	1.73	1.66	1.62	1.59	1.57	1.55	1.54	1.52	1.50	1.49	1.48	1.48	1.47	1.46
3	5.56	3.24	2.59	2.29	2.12	1.94	1.83	1.76	1.71	1.68	1.65	1.63	1.62	1.60	1.58	1.57	1.56	1.56	1.54	1.54
4	5.99	3.43	2.73	2.40	2.22	2.02	1.91	1.83	1.77	1.74	1.71	1.69	1.68	1.65	1.64	1.63	1.62	1.61	1.60	1.59
5	6.34	3.58	2.83	2.49	2.29	2.08	1.96	1.88	1.82	1.79	1.76	1.74	1.72	1.70	1.68	1.67	1.66	1.65	1.64	1.63
8	7.06	3.91	3.06	2.67	2.45	2.21	2.08	1.99	1.93	1.89	1.85	1.83	1.81	1.79	1.77	1.75	1.74	1.73	1.72	1.71
12	7.70	4.19	3.26	2.83	2.59	2.32	2.18	2.08	2.01	1.97	1.94	1.91	1.89	1.86	1.84	1.83	1.81	1.81	1.79	1.78
16	8.14	4.40	3.40	2.94	2.68	2.40	2.26	2.14	2.08	2.03	1.99	1.97	1.95	1.91	1.89	1.88	1.86	1.85	1.84	1.83
20	8.49	4.56	3.50	3.03	2.76	2.47	2.31	2.19	2.12	2.07	2.04	2.01	1.99	1.95	1.93	1.92	1.90	1.89	1.87	1.86
30	9.10	4.83	3.70	3.19	2.90	2.58	2.41	2.29	2.21	2.15	2.11	2.08	2.06	2.03	2.00	1.98	1.97	1.96	1.94	1.93
40	9.53	5.03	3.84	3.30	2.99	2.66	2.48	2.35	2.27	2.21	2.17	2.14	2.11	2.08	2.05	2.03	2.02	2.01	1.99	1.97
50	9.86	5.19	3.95	3.39	3.07	2.72	2.54	2.40	2.31	2.25	2.21	2.18	2.15	2.12	2.09	2.07	2.06	2.04	2.02	2.01
60	10.13	5.31	4.03	3.45	3.13	2.77	2.58	2.44	2.35	2.29	2.25	2.21	2.19	2.15	2.12	2.10	2.08	2.07	2.05	2.04
75	10.45	5.46	4.14	3.54	3.20	2.83	2.64	2.49	2.40	2.33	2.29	2.25	2.23	2.19	2.16	2.14	2.12	2.11	2.09	2.07
100	10.86	5.65	4.27	3.65	3.30	2.91	2.71	2.55	2.46	2.39	2.34	2.31	2.28	2.23	2.20	2.18	2.17	2.15	2.13	2.11
125	11.17	5.80	4.38	3.74	3.37	2.97	2.76	2.60	2.50	2.43	2.38	2.34	2.32	2.27	2.24	2.22	2.20	2.19	2.16	2.15
150	11.43	5.92	4.46	3.80	3.43	3.02	2.80	2.64	2.54	2.47	2.42	2.38	2.35	2.30	2.27	2.25	2.23	2.22	2.19	2.17
175	11.63	6.02	4.53	3.86	3.48	3.06	2.84	2.67	2.57	2.50	2.45	2.41	2.37	2.33	2.30	2.27	2.25	2.24	2.21	2.20
200	11.82	6.10	4.59	3.91	3.52	3.10	2.87	2.70	2.60	2.52	2.47	2.43	2.40	2.35	2.32	2.29	2.27	2.26	2.23	2.22

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Table 19-4. κ -Multipliers for Modified Calif. Interwell Prediction Limits on Observations (40 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.97	2.97	2.40	2.14	1.99	1.82	1.73	1.66	1.62	1.59	1.57	1.55	1.54	1.52	1.50	1.49	1.48	1.48	1.47	1.46
2	5.99	3.43	2.73	2.40	2.22	2.02	1.91	1.83	1.77	1.74	1.71	1.69	1.68	1.65	1.64	1.63	1.62	1.61	1.60	1.59
3	6.62	3.71	2.92	2.56	2.35	2.13	2.01	1.92	1.86	1.82	1.80	1.77	1.76	1.73	1.72	1.70	1.69	1.68	1.67	1.66
4	7.06	3.91	3.06	2.67	2.45	2.21	2.08	1.99	1.93	1.89	1.85	1.83	1.81	1.79	1.77	1.75	1.74	1.73	1.72	1.71
5	7.41	4.07	3.17	2.76	2.53	2.27	2.14	2.04	1.98	1.93	1.90	1.88	1.86	1.83	1.81	1.79	1.78	1.77	1.76	1.75
8	8.14	4.40	3.40	2.94	2.68	2.40	2.26	2.14	2.08	2.03	1.99	1.97	1.95	1.91	1.89	1.88	1.86	1.85	1.84	1.83
12	8.76	4.68	3.59	3.10	2.82	2.52	2.36	2.24	2.16	2.11	2.07	2.04	2.02	1.99	1.96	1.95	1.93	1.92	1.90	1.89
16	9.20	4.88	3.73	3.21	2.92	2.60	2.43	2.30	2.22	2.17	2.13	2.10	2.07	2.04	2.01	2.00	1.98	1.97	1.95	1.94
20	9.53	5.03	3.84	3.30	2.99	2.66	2.48	2.35	2.27	2.21	2.17	2.14	2.11	2.08	2.05	2.03	2.02	2.01	1.99	1.97
30	10.13	5.31	4.03	3.45	3.13	2.77	2.58	2.44	2.35	2.29	2.25	2.21	2.19	2.15	2.12	2.10	2.08	2.07	2.05	2.04
40	10.54	5.50	4.17	3.56	3.22	2.85	2.65	2.50	2.41	2.35	2.30	2.27	2.24	2.20	2.17	2.15	2.13	2.12	2.10	2.08
50	10.86	5.65	4.27	3.65	3.30	2.91	2.71	2.55	2.46	2.39	2.34	2.31	2.28	2.23	2.20	2.18	2.17	2.15	2.13	2.11
60	11.11	5.77	4.36	3.72	3.36	2.96	2.75	2.59	2.49	2.42	2.38	2.34	2.31	2.27	2.23	2.21	2.19	2.18	2.16	2.14
75	11.43	5.92	4.46	3.80	3.43	3.02	2.80	2.64	2.54	2.47	2.42	2.38	2.35	2.30	2.27	2.25	2.23	2.22	2.19	2.17
100	11.82	6.10	4.59	3.91	3.52	3.10	2.87	2.70	2.60	2.52	2.47	2.43	2.40	2.35	2.32	2.29	2.27	2.26	2.23	2.22
125	12.11	6.24	4.69	3.99	3.59	3.16	2.92	2.75	2.64	2.57	2.51	2.47	2.44	2.39	2.35	2.33	2.31	2.29	2.27	2.25
150	12.35	6.36	4.78	4.06	3.65	3.21	2.97	2.79	2.68	2.60	2.54	2.50	2.47	2.42	2.38	2.36	2.34	2.32	2.29	2.28
175	12.56	6.46	4.84	4.12	3.70	3.25	3.00	2.82	2.71	2.63	2.57	2.53	2.49	2.44	2.41	2.38	2.36	2.34	2.32	2.30
200	12.73	6.53	4.90	4.17	3.75	3.28	3.04	2.85	2.73	2.65	2.60	2.55	2.52	2.46	2.43	2.40	2.38	2.36	2.34	2.32

Table 19-4. κ -Multipliers for Modified Calif. Interwell Prediction Limits on Observations (40 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	5.99	3.43	2.73	2.40	2.22	2.02	1.91	1.83	1.77	1.74	1.71	1.69	1.68	1.65	1.64	1.63	1.62	1.61	1.60	1.59
2	7.06	3.91	3.06	2.67	2.45	2.21	2.08	1.99	1.93	1.89	1.85	1.83	1.81	1.79	1.77	1.75	1.74	1.73	1.72	1.71
3	7.70	4.19	3.26	2.83	2.59	2.32	2.18	2.08	2.01	1.97	1.94	1.91	1.89	1.86	1.84	1.83	1.81	1.81	1.79	1.78
4	8.14	4.40	3.40	2.94	2.68	2.40	2.26	2.14	2.08	2.03	1.99	1.97	1.95	1.91	1.89	1.88	1.86	1.85	1.84	1.83
5	8.49	4.56	3.50	3.03	2.76	2.47	2.31	2.19	2.12	2.07	2.04	2.01	1.99	1.95	1.93	1.92	1.90	1.89	1.87	1.86
8	9.20	4.88	3.73	3.21	2.92	2.60	2.43	2.30	2.22	2.17	2.13	2.10	2.07	2.04	2.01	2.00	1.98	1.97	1.95	1.94
12	9.80	5.16	3.93	3.37	3.05	2.71	2.53	2.39	2.31	2.25	2.20	2.17	2.15	2.11	2.08	2.06	2.05	2.04	2.02	2.00
16	10.21	5.35	4.06	3.48	3.15	2.79	2.60	2.45	2.36	2.30	2.26	2.22	2.20	2.16	2.13	2.11	2.10	2.08	2.06	2.05
20	10.54	5.50	4.17	3.56	3.22	2.85	2.65	2.50	2.41	2.35	2.30	2.27	2.24	2.20	2.17	2.15	2.13	2.12	2.10	2.08
30	11.11	5.77	4.36	3.72	3.36	2.96	2.75	2.59	2.49	2.42	2.38	2.34	2.31	2.27	2.23	2.21	2.19	2.18	2.16	2.14
40	11.50	5.96	4.49	3.83	3.45	3.04	2.82	2.65	2.55	2.48	2.43	2.39	2.36	2.31	2.28	2.26	2.24	2.23	2.20	2.18
50	11.82	6.10	4.59	3.91	3.52	3.10	2.87	2.70	2.60	2.52	2.47	2.43	2.40	2.35	2.32	2.29	2.27	2.26	2.23	2.22
60	12.05	6.22	4.68	3.98	3.58	3.15	2.92	2.74	2.63	2.56	2.50	2.46	2.43	2.38	2.35	2.32	2.30	2.29	2.26	2.24
75	12.35	6.36	4.78	4.06	3.65	3.21	2.97	2.79	2.68	2.60	2.54	2.50	2.47	2.42	2.38	2.36	2.34	2.32	2.29	2.28
100	12.73	6.53	4.90	4.17	3.75	3.28	3.04	2.85	2.73	2.65	2.60	2.55	2.52	2.46	2.43	2.40	2.38	2.36	2.34	2.32
125	13.01	6.67	5.00	4.25	3.82	3.34	3.09	2.90	2.78	2.70	2.64	2.59	2.55	2.50	2.46	2.43	2.41	2.40	2.37	2.35
150	13.24	6.78	5.08	4.31	3.87	3.39	3.13	2.94	2.81	2.73	2.67	2.62	2.58	2.53	2.49	2.46	2.44	2.42	2.39	2.37
175	13.44	6.88	5.15	4.37	3.92	3.43	3.17	2.97	2.84	2.76	2.70	2.65	2.61	2.55	2.51	2.49	2.46	2.45	2.42	2.40
200	13.61	6.95	5.21	4.41	3.96	3.47	3.20	3.00	2.87	2.78	2.72	2.67	2.63	2.58	2.54	2.51	2.48	2.47	2.43	2.41

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D STATISTICAL TABLES

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Table 19-5. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 2 (1 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.42	1.21	1.12	1.07	1.04	1.01	0.98	0.97	0.96	0.95	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.92	0.92	0.92
2	1.89	1.58	1.45	1.38	1.34	1.29	1.26	1.24	1.23	1.22	1.21	1.20	1.20	1.19	1.18	1.18	1.18	1.18	1.17	1.17
3	2.17	1.79	1.64	1.56	1.51	1.45	1.41	1.39	1.37	1.36	1.35	1.34	1.34	1.33	1.32	1.32	1.31	1.31	1.31	1.30
4	2.37	1.94	1.77	1.68	1.62	1.56	1.52	1.49	1.47	1.45	1.44	1.44	1.43	1.42	1.41	1.41	1.40	1.40	1.40	1.39
5	2.52	2.05	1.87	1.77	1.71	1.64	1.60	1.56	1.54	1.53	1.52	1.51	1.50	1.49	1.48	1.48	1.47	1.47	1.46	1.46
8	2.83	2.28	2.07	1.96	1.89	1.80	1.76	1.72	1.69	1.68	1.66	1.65	1.64	1.63	1.62	1.62	1.61	1.61	1.60	1.60
12	3.09	2.48	2.24	2.12	2.04	1.94	1.89	1.85	1.82	1.80	1.78	1.77	1.76	1.75	1.74	1.73	1.73	1.72	1.71	1.71
16	3.27	2.61	2.36	2.22	2.14	2.04	1.98	1.93	1.90	1.88	1.86	1.85	1.84	1.83	1.82	1.81	1.80	1.80	1.79	1.78
20	3.40	2.71	2.45	2.31	2.22	2.11	2.05	2.00	1.97	1.94	1.93	1.91	1.90	1.89	1.88	1.87	1.86	1.86	1.85	1.84
30	3.64	2.89	2.61	2.45	2.36	2.24	2.17	2.12	2.08	2.06	2.04	2.02	2.01	1.99	1.98	1.97	1.96	1.96	1.95	1.94
40	3.81	3.02	2.72	2.55	2.45	2.33	2.26	2.20	2.16	2.13	2.11	2.10	2.09	2.07	2.05	2.04	2.04	2.03	2.02	2.01
50	3.93	3.11	2.80	2.63	2.52	2.40	2.32	2.26	2.22	2.19	2.17	2.16	2.14	2.12	2.11	2.10	2.09	2.08	2.07	2.06
60	4.03	3.19	2.87	2.69	2.58	2.45	2.37	2.31	2.27	2.24	2.22	2.20	2.19	2.17	2.15	2.14	2.13	2.13	2.11	2.11
75	4.15	3.28	2.95	2.77	2.65	2.52	2.43	2.37	2.33	2.30	2.28	2.26	2.24	2.22	2.21	2.19	2.19	2.18	2.17	2.16
100	4.31	3.40	3.05	2.86	2.74	2.60	2.51	2.45	2.40	2.37	2.35	2.33	2.31	2.29	2.27	2.26	2.25	2.24	2.23	2.22
125	4.42	3.48	3.13	2.93	2.81	2.66	2.57	2.51	2.46	2.43	2.40	2.38	2.37	2.34	2.32	2.31	2.30	2.29	2.28	2.27
150	4.51	3.55	3.19	2.99	2.86	2.71	2.62	2.55	2.50	2.47	2.44	2.42	2.41	2.38	2.37	2.35	2.34	2.33	2.32	2.31
175	4.59	3.61	3.24	3.04	2.91	2.76	2.66	2.59	2.54	2.51	2.48	2.46	2.44	2.42	2.40	2.39	2.38	2.37	2.35	2.34
200	4.66	3.66	3.28	3.08	2.95	2.79	2.70	2.62	2.58	2.54	2.51	2.49	2.47	2.45	2.43	2.42	2.41	2.40	2.38	2.37

Table 19-5. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 2 (1 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.89	1.58	1.45	1.38	1.34	1.29	1.26	1.24	1.23	1.22	1.21	1.20	1.20	1.19	1.18	1.18	1.18	1.18	1.17	1.17
2	2.37	1.94	1.77	1.68	1.62	1.56	1.52	1.49	1.47	1.45	1.44	1.44	1.43	1.42	1.41	1.41	1.40	1.40	1.40	1.39
3	2.64	2.14	1.95	1.84	1.78	1.70	1.66	1.62	1.60	1.59	1.57	1.56	1.56	1.55	1.54	1.53	1.53	1.52	1.52	1.51
4	2.83	2.28	2.07	1.96	1.89	1.80	1.76	1.72	1.69	1.68	1.66	1.65	1.64	1.63	1.62	1.62	1.61	1.61	1.60	1.60
5	2.97	2.39	2.17	2.05	1.97	1.88	1.83	1.79	1.76	1.74	1.73	1.72	1.71	1.70	1.69	1.68	1.67	1.67	1.66	1.66
8	3.27	2.61	2.36	2.22	2.14	2.04	1.98	1.93	1.90	1.88	1.86	1.85	1.84	1.83	1.82	1.81	1.80	1.80	1.79	1.78
12	3.51	2.79	2.52	2.37	2.28	2.17	2.10	2.05	2.02	2.00	1.98	1.96	1.95	1.94	1.92	1.92	1.91	1.90	1.89	1.89
16	3.68	2.92	2.63	2.48	2.38	2.26	2.19	2.14	2.10	2.07	2.06	2.04	2.03	2.01	2.00	1.99	1.98	1.98	1.96	1.96
20	3.81	3.02	2.72	2.55	2.45	2.33	2.26	2.20	2.16	2.13	2.11	2.10	2.09	2.07	2.05	2.04	2.04	2.03	2.02	2.01
30	4.03	3.19	2.87	2.69	2.58	2.45	2.37	2.31	2.27	2.24	2.22	2.20	2.19	2.17	2.15	2.14	2.13	2.13	2.11	2.11
40	4.19	3.31	2.97	2.79	2.67	2.53	2.45	2.39	2.35	2.31	2.29	2.27	2.26	2.24	2.22	2.21	2.20	2.19	2.18	2.17
50	4.31	3.40	3.05	2.86	2.74	2.60	2.51	2.45	2.40	2.37	2.35	2.33	2.31	2.29	2.27	2.26	2.25	2.24	2.23	2.22
60	4.40	3.47	3.11	2.92	2.80	2.65	2.56	2.49	2.45	2.42	2.39	2.37	2.36	2.33	2.32	2.30	2.29	2.28	2.27	2.26
75	4.51	3.55	3.19	2.99	2.86	2.71	2.62	2.55	2.50	2.47	2.44	2.42	2.41	2.38	2.37	2.35	2.34	2.33	2.32	2.31
100	4.66	3.66	3.28	3.08	2.95	2.79	2.70	2.62	2.58	2.54	2.51	2.49	2.47	2.45	2.43	2.42	2.41	2.40	2.38	2.37
125	4.77	3.75	3.36	3.15	3.01	2.85	2.76	2.68	2.63	2.59	2.56	2.54	2.53	2.50	2.48	2.46	2.45	2.44	2.43	2.42
150	4.85	3.81	3.42	3.20	3.07	2.90	2.80	2.73	2.67	2.63	2.61	2.58	2.57	2.54	2.52	2.50	2.49	2.48	2.47	2.45
175	4.93	3.87	3.47	3.25	3.11	2.94	2.84	2.76	2.71	2.67	2.64	2.62	2.60	2.57	2.55	2.54	2.52	2.51	2.50	2.49
200	4.99	3.92	3.51	3.29	3.15	2.98	2.88	2.79	2.74	2.70	2.67	2.65	2.63	2.60	2.58	2.56	2.55	2.54	2.52	2.51

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Table 19-5. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 2 (1 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.37	1.94	1.77	1.68	1.62	1.56	1.52	1.49	1.47	1.45	1.44	1.44	1.43	1.42	1.41	1.41	1.40	1.40	1.40	1.39
2	2.83	2.28	2.07	1.96	1.89	1.80	1.76	1.72	1.69	1.68	1.66	1.65	1.64	1.63	1.62	1.62	1.61	1.61	1.60	1.60
3	3.09	2.48	2.24	2.12	2.04	1.94	1.89	1.85	1.82	1.80	1.78	1.77	1.76	1.75	1.74	1.73	1.73	1.72	1.71	1.71
4	3.27	2.61	2.36	2.22	2.14	2.04	1.98	1.93	1.90	1.88	1.86	1.85	1.84	1.83	1.82	1.81	1.80	1.80	1.79	1.78
5	3.40	2.71	2.45	2.31	2.22	2.11	2.05	2.00	1.97	1.94	1.93	1.91	1.90	1.89	1.88	1.87	1.86	1.86	1.85	1.84
8	3.68	2.92	2.63	2.48	2.38	2.26	2.19	2.14	2.10	2.07	2.06	2.04	2.03	2.01	2.00	1.99	1.98	1.98	1.96	1.96
12	3.91	3.10	2.78	2.62	2.51	2.38	2.31	2.25	2.21	2.18	2.16	2.15	2.13	2.11	2.10	2.09	2.08	2.07	2.06	2.05
16	4.07	3.22	2.89	2.71	2.60	2.47	2.39	2.33	2.29	2.26	2.24	2.22	2.20	2.18	2.17	2.16	2.15	2.14	2.13	2.12
20	4.19	3.31	2.97	2.79	2.67	2.53	2.45	2.39	2.35	2.31	2.29	2.27	2.26	2.24	2.22	2.21	2.20	2.19	2.18	2.17
30	4.40	3.47	3.11	2.92	2.80	2.65	2.56	2.49	2.45	2.42	2.39	2.37	2.36	2.33	2.32	2.30	2.29	2.28	2.27	2.26
40	4.55	3.58	3.21	3.01	2.88	2.73	2.64	2.57	2.52	2.49	2.46	2.44	2.42	2.40	2.38	2.37	2.36	2.35	2.33	2.32
50	4.66	3.66	3.28	3.08	2.95	2.79	2.70	2.62	2.58	2.54	2.51	2.49	2.47	2.45	2.43	2.42	2.41	2.40	2.38	2.37
60	4.75	3.73	3.34	3.13	3.00	2.84	2.75	2.67	2.62	2.58	2.56	2.53	2.52	2.49	2.47	2.46	2.44	2.44	2.42	2.41
75	4.85	3.81	3.42	3.20	3.07	2.90	2.80	2.73	2.67	2.63	2.61	2.58	2.57	2.54	2.52	2.50	2.49	2.48	2.47	2.45
100	4.99	3.92	3.51	3.29	3.15	2.98	2.88	2.79	2.74	2.70	2.67	2.65	2.63	2.60	2.58	2.56	2.55	2.54	2.52	2.51
125	5.09	4.00	3.58	3.35	3.21	3.03	2.93	2.85	2.79	2.75	2.72	2.70	2.68	2.65	2.63	2.61	2.60	2.59	2.57	2.56
150	5.18	4.06	3.63	3.40	3.26	3.08	2.98	2.89	2.83	2.79	2.76	2.74	2.72	2.69	2.67	2.65	2.64	2.63	2.61	2.59
175	5.24	4.11	3.68	3.45	3.30	3.12	3.01	2.93	2.87	2.83	2.80	2.77	2.75	2.72	2.70	2.68	2.67	2.66	2.64	2.62
200	5.30	4.16	3.72	3.49	3.34	3.15	3.04	2.96	2.90	2.86	2.82	2.80	2.78	2.75	2.72	2.71	2.69	2.68	2.66	2.65

Table 19-5. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 2 (2 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.01	1.63	1.48	1.41	1.36	1.30	1.27	1.25	1.23	1.22	1.21	1.20	1.20	1.19	1.19	1.18	1.18	1.18	1.17	1.17
2	2.57	2.02	1.82	1.71	1.65	1.57	1.53	1.50	1.48	1.46	1.45	1.44	1.43	1.42	1.42	1.41	1.41	1.40	1.40	1.39
3	2.90	2.25	2.01	1.89	1.81	1.72	1.67	1.64	1.61	1.59	1.58	1.57	1.56	1.55	1.54	1.54	1.53	1.53	1.52	1.52
4	3.14	2.41	2.15	2.01	1.93	1.83	1.77	1.73	1.70	1.68	1.67	1.66	1.65	1.64	1.63	1.62	1.61	1.61	1.60	1.60
5	3.33	2.54	2.25	2.10	2.01	1.91	1.85	1.80	1.77	1.75	1.74	1.72	1.72	1.70	1.69	1.68	1.68	1.67	1.67	1.66
8	3.71	2.79	2.47	2.30	2.19	2.07	2.00	1.95	1.92	1.89	1.87	1.86	1.85	1.83	1.82	1.81	1.81	1.80	1.79	1.79
12	4.03	3.01	2.65	2.46	2.35	2.21	2.13	2.07	2.04	2.01	1.99	1.97	1.96	1.94	1.93	1.92	1.91	1.91	1.90	1.89
16	4.25	3.16	2.78	2.57	2.45	2.31	2.22	2.16	2.12	2.09	2.07	2.05	2.04	2.02	2.00	1.99	1.99	1.98	1.97	1.96
20	4.42	3.28	2.87	2.66	2.53	2.38	2.29	2.23	2.18	2.15	2.13	2.11	2.10	2.08	2.06	2.05	2.04	2.03	2.02	2.01
30	4.72	3.48	3.04	2.82	2.68	2.51	2.42	2.34	2.29	2.26	2.23	2.22	2.20	2.18	2.16	2.15	2.14	2.13	2.12	2.11
40	4.93	3.63	3.16	2.92	2.77	2.60	2.50	2.42	2.37	2.34	2.31	2.29	2.27	2.25	2.23	2.22	2.21	2.20	2.18	2.17
50	5.08	3.74	3.26	3.01	2.85	2.67	2.57	2.48	2.43	2.39	2.37	2.34	2.33	2.30	2.28	2.27	2.26	2.25	2.23	2.22
60	5.21	3.82	3.33	3.07	2.91	2.73	2.62	2.53	2.48	2.44	2.41	2.39	2.37	2.34	2.32	2.31	2.30	2.29	2.27	2.26
75	5.36	3.93	3.42	3.15	2.99	2.79	2.68	2.59	2.54	2.50	2.47	2.44	2.42	2.40	2.38	2.36	2.35	2.34	2.32	2.31
100	5.55	4.06	3.53	3.25	3.08	2.88	2.76	2.67	2.61	2.57	2.54	2.51	2.49	2.46	2.44	2.43	2.41	2.40	2.39	2.37
125	5.70	4.16	3.61	3.33	3.15	2.94	2.82	2.73	2.67	2.62	2.59	2.56	2.54	2.51	2.49	2.47	2.46	2.45	2.43	2.42
150	5.82	4.24	3.68	3.39	3.21	3.00	2.87	2.78	2.71	2.67	2.63	2.61	2.59	2.55	2.53	2.51	2.50	2.49	2.47	2.46
175	5.91	4.31	3.74	3.44	3.26	3.04	2.92	2.82	2.75	2.70	2.67	2.64	2.62	2.59	2.56	2.55	2.53	2.52	2.50	2.49
200	6.00	4.37	3.79	3.49	3.30	3.08	2.95	2.85	2.78	2.74	2.70	2.67	2.65	2.62	2.59	2.58	2.56	2.55	2.53	2.52

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Table 19-5. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 2 (2 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.57	2.02	1.82	1.71	1.65	1.57	1.53	1.50	1.48	1.46	1.45	1.44	1.43	1.42	1.42	1.41	1.41	1.40	1.40	1.39
2	3.14	2.41	2.15	2.01	1.93	1.83	1.77	1.73	1.70	1.68	1.67	1.66	1.65	1.64	1.63	1.62	1.61	1.61	1.60	1.60
3	3.47	2.64	2.34	2.18	2.08	1.97	1.91	1.86	1.83	1.81	1.79	1.78	1.77	1.75	1.74	1.73	1.73	1.72	1.71	1.71
4	3.71	2.79	2.47	2.30	2.19	2.07	2.00	1.95	1.92	1.89	1.87	1.86	1.85	1.83	1.82	1.81	1.81	1.80	1.79	1.79
5	3.88	2.91	2.57	2.39	2.28	2.15	2.08	2.02	1.98	1.96	1.94	1.92	1.91	1.89	1.88	1.87	1.87	1.86	1.85	1.84
8	4.25	3.16	2.78	2.57	2.45	2.31	2.22	2.16	2.12	2.09	2.07	2.05	2.04	2.02	2.00	1.99	1.99	1.98	1.97	1.96
12	4.56	3.37	2.95	2.73	2.60	2.44	2.35	2.28	2.23	2.20	2.18	2.16	2.14	2.12	2.11	2.09	2.09	2.08	2.07	2.06
16	4.77	3.52	3.07	2.84	2.70	2.53	2.43	2.36	2.31	2.28	2.25	2.23	2.22	2.19	2.18	2.16	2.15	2.15	2.13	2.12
20	4.93	3.63	3.16	2.92	2.77	2.60	2.50	2.42	2.37	2.34	2.31	2.29	2.27	2.25	2.23	2.22	2.21	2.20	2.18	2.17
30	5.21	3.82	3.33	3.07	2.91	2.73	2.62	2.53	2.48	2.44	2.41	2.39	2.37	2.34	2.32	2.31	2.30	2.29	2.27	2.26
40	5.40	3.96	3.44	3.17	3.01	2.81	2.70	2.61	2.55	2.51	2.48	2.46	2.44	2.41	2.39	2.38	2.36	2.35	2.34	2.33
50	5.55	4.06	3.53	3.25	3.08	2.88	2.76	2.67	2.61	2.57	2.54	2.51	2.49	2.46	2.44	2.43	2.41	2.40	2.39	2.37
60	5.67	4.14	3.60	3.32	3.14	2.93	2.81	2.72	2.66	2.61	2.58	2.55	2.53	2.50	2.48	2.47	2.45	2.44	2.42	2.41
75	5.82	4.24	3.68	3.39	3.21	3.00	2.87	2.78	2.71	2.67	2.63	2.61	2.59	2.55	2.53	2.51	2.50	2.49	2.47	2.46
100	6.00	4.37	3.79	3.49	3.30	3.08	2.95	2.85	2.78	2.74	2.70	2.67	2.65	2.62	2.59	2.58	2.56	2.55	2.53	2.52
125	6.13	4.47	3.87	3.56	3.37	3.14	3.01	2.91	2.84	2.79	2.75	2.72	2.70	2.67	2.64	2.62	2.61	2.60	2.58	2.56
150	6.24	4.54	3.94	3.62	3.43	3.19	3.06	2.95	2.88	2.83	2.79	2.76	2.74	2.71	2.68	2.66	2.65	2.63	2.61	2.60
175	6.34	4.61	3.99	3.67	3.47	3.24	3.10	2.99	2.92	2.87	2.83	2.80	2.77	2.74	2.71	2.69	2.68	2.67	2.64	2.63
200	6.42	4.66	4.04	3.72	3.51	3.27	3.13	3.02	2.95	2.90	2.86	2.83	2.80	2.77	2.74	2.72	2.70	2.69	2.67	2.65

Table 19-5. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 2 (2 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.14	2.41	2.15	2.01	1.93	1.83	1.77	1.73	1.70	1.68	1.67	1.66	1.65	1.64	1.63	1.62	1.61	1.61	1.60	1.60
2	3.71	2.79	2.47	2.30	2.19	2.07	2.00	1.95	1.92	1.89	1.87	1.86	1.85	1.83	1.82	1.81	1.81	1.80	1.79	1.79
3	4.03	3.01	2.65	2.46	2.35	2.21	2.13	2.07	2.04	2.01	1.99	1.97	1.96	1.94	1.93	1.92	1.91	1.91	1.90	1.89
4	4.25	3.16	2.78	2.57	2.45	2.31	2.22	2.16	2.12	2.09	2.07	2.05	2.04	2.02	2.00	1.99	1.99	1.98	1.97	1.96
5	4.42	3.28	2.87	2.66	2.53	2.38	2.29	2.23	2.18	2.15	2.13	2.11	2.10	2.08	2.06	2.05	2.04	2.03	2.02	2.01
8	4.77	3.52	3.07	2.84	2.70	2.53	2.43	2.36	2.31	2.28	2.25	2.23	2.22	2.19	2.18	2.16	2.15	2.15	2.13	2.12
12	5.06	3.72	3.24	2.99	2.84	2.66	2.55	2.47	2.42	2.38	2.36	2.33	2.32	2.29	2.27	2.26	2.25	2.24	2.23	2.22
16	5.25	3.85	3.35	3.09	2.93	2.75	2.64	2.55	2.50	2.46	2.43	2.40	2.39	2.36	2.34	2.33	2.31	2.31	2.29	2.28
20	5.40	3.96	3.44	3.17	3.01	2.81	2.70	2.61	2.55	2.51	2.48	2.46	2.44	2.41	2.39	2.38	2.36	2.35	2.34	2.33
30	5.67	4.14	3.60	3.32	3.14	2.93	2.81	2.72	2.66	2.61	2.58	2.55	2.53	2.50	2.48	2.47	2.45	2.44	2.42	2.41
40	5.86	4.27	3.71	3.41	3.23	3.02	2.89	2.79	2.73	2.68	2.65	2.62	2.60	2.57	2.55	2.53	2.51	2.50	2.48	2.47
50	6.00	4.37	3.79	3.49	3.30	3.08	2.95	2.85	2.78	2.74	2.70	2.67	2.65	2.62	2.59	2.58	2.56	2.55	2.53	2.52
60	6.10	4.45	3.86	3.55	3.36	3.13	3.00	2.90	2.83	2.78	2.74	2.71	2.69	2.66	2.63	2.61	2.60	2.59	2.57	2.55
75	6.24	4.54	3.94	3.62	3.43	3.19	3.06	2.95	2.88	2.83	2.79	2.76	2.74	2.71	2.68	2.66	2.65	2.63	2.61	2.60
100	6.42	4.66	4.04	3.72	3.51	3.27	3.13	3.02	2.95	2.90	2.86	2.83	2.80	2.77	2.74	2.72	2.70	2.69	2.67	2.65
125	6.55	4.76	4.12	3.79	3.58	3.33	3.19	3.08	3.00	2.95	2.91	2.88	2.85	2.81	2.79	2.77	2.75	2.74	2.71	2.70
150	6.65	4.83	4.18	3.84	3.63	3.38	3.24	3.12	3.04	2.99	2.95	2.92	2.89	2.85	2.82	2.80	2.79	2.77	2.75	2.73
175	6.74	4.89	4.23	3.89	3.68	3.42	3.28	3.16	3.08	3.02	2.98	2.95	2.92	2.88	2.85	2.83	2.82	2.80	2.78	2.76
200	6.82	4.94	4.28	3.93	3.72	3.46	3.31	3.19	3.11	3.05	3.01	2.98	2.95	2.91	2.88	2.86	2.84	2.83	2.80	2.79

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Table 19-5. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 2 (5 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.97	2.22	1.97	1.84	1.76	1.67	1.62	1.58	1.56	1.54	1.53	1.52	1.51	1.50	1.49	1.48	1.48	1.47	1.47	1.46
2	3.68	2.66	2.32	2.15	2.04	1.93	1.86	1.81	1.78	1.76	1.74	1.73	1.72	1.70	1.69	1.69	1.68	1.67	1.67	1.66
3	4.12	2.92	2.52	2.33	2.21	2.07	2.00	1.94	1.91	1.88	1.86	1.85	1.84	1.82	1.81	1.80	1.79	1.79	1.78	1.77
4	4.43	3.10	2.67	2.45	2.32	2.18	2.09	2.03	1.99	1.96	1.94	1.93	1.92	1.90	1.88	1.88	1.87	1.86	1.85	1.84
5	4.68	3.25	2.78	2.55	2.41	2.25	2.17	2.10	2.06	2.03	2.01	1.99	1.98	1.96	1.94	1.93	1.93	1.92	1.91	1.90
8	5.19	3.55	3.02	2.75	2.60	2.42	2.32	2.24	2.20	2.16	2.14	2.12	2.10	2.08	2.06	2.05	2.04	2.04	2.02	2.02
12	5.62	3.81	3.22	2.93	2.75	2.56	2.45	2.36	2.31	2.27	2.25	2.22	2.21	2.18	2.17	2.15	2.14	2.13	2.12	2.11
16	5.92	3.99	3.36	3.05	2.86	2.65	2.54	2.45	2.39	2.35	2.32	2.30	2.28	2.25	2.23	2.22	2.21	2.20	2.19	2.18
20	6.15	4.12	3.47	3.14	2.95	2.73	2.61	2.51	2.45	2.41	2.38	2.35	2.34	2.31	2.29	2.27	2.26	2.25	2.24	2.23
30	6.55	4.37	3.66	3.31	3.10	2.86	2.73	2.63	2.56	2.51	2.48	2.45	2.43	2.40	2.38	2.37	2.35	2.34	2.33	2.32
40	6.83	4.54	3.80	3.43	3.21	2.96	2.81	2.71	2.64	2.59	2.55	2.53	2.50	2.47	2.45	2.43	2.42	2.41	2.39	2.38
50	7.04	4.67	3.90	3.52	3.29	3.03	2.88	2.77	2.70	2.65	2.61	2.58	2.56	2.52	2.50	2.48	2.47	2.46	2.44	2.42
60	7.21	4.77	3.98	3.59	3.36	3.09	2.93	2.82	2.74	2.69	2.65	2.62	2.60	2.56	2.54	2.52	2.51	2.50	2.48	2.46
75	7.42	4.90	4.08	3.68	3.44	3.16	3.00	2.88	2.80	2.75	2.71	2.67	2.65	2.61	2.59	2.57	2.55	2.54	2.52	2.51
100	7.68	5.06	4.21	3.79	3.54	3.25	3.08	2.96	2.87	2.82	2.77	2.74	2.72	2.68	2.65	2.63	2.61	2.60	2.58	2.57
125	7.88	5.18	4.31	3.88	3.62	3.31	3.15	3.02	2.93	2.87	2.83	2.79	2.77	2.73	2.70	2.68	2.66	2.65	2.63	2.61
150	8.04	5.28	4.39	3.95	3.68	3.37	3.20	3.06	2.98	2.92	2.87	2.84	2.81	2.77	2.74	2.72	2.70	2.69	2.66	2.65
175	8.17	5.36	4.45	4.00	3.73	3.42	3.24	3.10	3.01	2.95	2.91	2.87	2.84	2.80	2.77	2.75	2.73	2.72	2.69	2.68
200	8.28	5.43	4.51	4.05	3.78	3.46	3.28	3.14	3.05	2.98	2.94	2.90	2.87	2.83	2.80	2.78	2.76	2.74	2.72	2.70

Table 19-5. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 2 (5 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.68	2.66	2.32	2.15	2.04	1.93	1.86	1.81	1.78	1.76	1.74	1.73	1.72	1.70	1.69	1.69	1.68	1.67	1.67	1.66
2	4.43	3.10	2.67	2.45	2.32	2.18	2.09	2.03	1.99	1.96	1.94	1.93	1.92	1.90	1.88	1.88	1.87	1.86	1.85	1.84
3	4.88	3.37	2.87	2.63	2.48	2.32	2.23	2.16	2.11	2.08	2.06	2.04	2.03	2.01	1.99	1.98	1.97	1.97	1.95	1.95
4	5.19	3.55	3.02	2.75	2.60	2.42	2.32	2.24	2.20	2.16	2.14	2.12	2.10	2.08	2.06	2.05	2.04	2.04	2.02	2.02
5	5.42	3.69	3.13	2.85	2.68	2.49	2.39	2.31	2.26	2.22	2.20	2.18	2.16	2.14	2.12	2.11	2.10	2.09	2.08	2.07
8	5.92	3.99	3.36	3.05	2.86	2.65	2.54	2.45	2.39	2.35	2.32	2.30	2.28	2.25	2.23	2.22	2.21	2.20	2.19	2.18
12	6.33	4.23	3.56	3.22	3.02	2.79	2.66	2.56	2.50	2.46	2.42	2.40	2.38	2.35	2.33	2.32	2.30	2.29	2.28	2.27
16	6.61	4.41	3.69	3.34	3.13	2.88	2.75	2.64	2.58	2.53	2.50	2.47	2.45	2.42	2.40	2.38	2.37	2.36	2.34	2.33
20	6.83	4.54	3.80	3.43	3.21	2.96	2.81	2.71	2.64	2.59	2.55	2.53	2.50	2.47	2.45	2.43	2.42	2.41	2.39	2.38
30	7.21	4.77	3.98	3.59	3.36	3.09	2.93	2.82	2.74	2.69	2.65	2.62	2.60	2.56	2.54	2.52	2.51	2.50	2.48	2.46
40	7.48	4.94	4.11	3.70	3.46	3.18	3.02	2.90	2.82	2.76	2.72	2.69	2.67	2.63	2.60	2.58	2.57	2.56	2.53	2.52
50	7.68	5.06	4.21	3.79	3.54	3.25	3.08	2.96	2.87	2.82	2.77	2.74	2.72	2.68	2.65	2.63	2.61	2.60	2.58	2.57
60	7.84	5.16	4.29	3.86	3.60	3.30	3.13	3.00	2.92	2.86	2.82	2.78	2.76	2.72	2.69	2.67	2.65	2.64	2.62	2.60
75	8.04	5.28	4.39	3.95	3.68	3.37	3.20	3.06	2.98	2.92	2.87	2.84	2.81	2.77	2.74	2.72	2.70	2.69	2.66	2.65
100	8.28	5.43	4.51	4.05	3.78	3.46	3.28	3.14	3.05	2.98	2.94	2.90	2.87	2.83	2.80	2.78	2.76	2.74	2.72	2.70
125	8.47	5.55	4.61	4.14	3.85	3.52	3.34	3.20	3.10	3.04	2.99	2.95	2.92	2.88	2.84	2.82	2.80	2.79	2.76	2.74
150	8.62	5.64	4.68	4.20	3.91	3.58	3.39	3.24	3.15	3.08	3.03	2.99	2.96	2.91	2.88	2.86	2.84	2.82	2.80	2.78
175	8.75	5.72	4.74	4.26	3.96	3.62	3.43	3.28	3.18	3.12	3.06	3.02	2.99	2.95	2.91	2.89	2.87	2.85	2.83	2.81
200	8.85	5.79	4.80	4.31	4.01	3.66	3.47	3.31	3.22	3.15	3.09	3.05	3.02	2.97	2.94	2.91	2.90	2.88	2.85	2.83

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Table 19-5. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 2 (5 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.43	3.10	2.67	2.45	2.32	2.18	2.09	2.03	1.99	1.96	1.94	1.93	1.92	1.90	1.88	1.88	1.87	1.86	1.85	1.84
2	5.19	3.55	3.02	2.75	2.60	2.42	2.32	2.24	2.20	2.16	2.14	2.12	2.10	2.08	2.06	2.05	2.04	2.04	2.02	2.02
3	5.62	3.81	3.22	2.93	2.75	2.56	2.45	2.36	2.31	2.27	2.25	2.22	2.21	2.18	2.17	2.15	2.14	2.13	2.12	2.11
4	5.92	3.99	3.36	3.05	2.86	2.65	2.54	2.45	2.39	2.35	2.32	2.30	2.28	2.25	2.23	2.22	2.21	2.20	2.19	2.18
5	6.15	4.12	3.47	3.14	2.95	2.73	2.61	2.51	2.45	2.41	2.38	2.35	2.34	2.31	2.29	2.27	2.26	2.25	2.24	2.23
8	6.61	4.41	3.69	3.34	3.13	2.88	2.75	2.64	2.58	2.53	2.50	2.47	2.45	2.42	2.40	2.38	2.37	2.36	2.34	2.33
12	7.00	4.65	3.88	3.50	3.28	3.01	2.87	2.76	2.69	2.63	2.60	2.57	2.55	2.51	2.49	2.47	2.46	2.45	2.43	2.42
16	7.27	4.81	4.01	3.62	3.38	3.11	2.95	2.84	2.76	2.71	2.67	2.64	2.61	2.58	2.55	2.53	2.52	2.51	2.49	2.48
20	7.48	4.94	4.11	3.70	3.46	3.18	3.02	2.90	2.82	2.76	2.72	2.69	2.67	2.63	2.60	2.58	2.57	2.56	2.53	2.52
30	7.84	5.16	4.29	3.86	3.60	3.30	3.13	3.00	2.92	2.86	2.82	2.78	2.76	2.72	2.69	2.67	2.65	2.64	2.62	2.60
40	8.09	5.32	4.42	3.97	3.70	3.39	3.21	3.08	2.99	2.93	2.89	2.85	2.82	2.78	2.75	2.73	2.71	2.70	2.67	2.66
50	8.28	5.43	4.51	4.05	3.78	3.46	3.28	3.14	3.05	2.98	2.94	2.90	2.87	2.83	2.80	2.78	2.76	2.74	2.72	2.70
60	8.43	5.53	4.59	4.12	3.84	3.51	3.33	3.19	3.09	3.03	2.98	2.94	2.91	2.87	2.84	2.81	2.79	2.78	2.75	2.74
75	8.62	5.64	4.68	4.20	3.91	3.58	3.39	3.24	3.15	3.08	3.03	2.99	2.96	2.91	2.88	2.86	2.84	2.82	2.80	2.78
100	8.85	5.79	4.80	4.31	4.01	3.66	3.47	3.31	3.22	3.15	3.09	3.05	3.02	2.97	2.94	2.91	2.90	2.88	2.85	2.83
125	9.03	5.90	4.89	4.38	4.08	3.73	3.53	3.37	3.27	3.20	3.14	3.10	3.07	3.02	2.99	2.96	2.94	2.92	2.89	2.87
150	9.18	5.99	4.96	4.45	4.14	3.78	3.57	3.42	3.31	3.24	3.18	3.14	3.11	3.06	3.02	2.99	2.97	2.96	2.93	2.91
175	9.29	6.07	5.02	4.50	4.19	3.82	3.62	3.45	3.35	3.27	3.22	3.17	3.14	3.09	3.05	3.02	3.00	2.99	2.96	2.94
200	9.40	6.13	5.07	4.55	4.23	3.86	3.65	3.49	3.38	3.30	3.25	3.20	3.17	3.12	3.08	3.05	3.03	3.01	2.98	2.96

Table 19-5. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 2 (10 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.86	2.71	2.34	2.16	2.06	1.93	1.87	1.82	1.78	1.76	1.74	1.73	1.72	1.71	1.69	1.69	1.68	1.68	1.67	1.66
2	4.75	3.20	2.71	2.48	2.34	2.19	2.10	2.04	2.00	1.97	1.95	1.93	1.92	1.90	1.89	1.88	1.87	1.86	1.85	1.84
3	5.29	3.49	2.93	2.66	2.51	2.33	2.24	2.16	2.12	2.08	2.06	2.04	2.03	2.01	1.99	1.98	1.97	1.97	1.95	1.95
4	5.68	3.69	3.09	2.80	2.62	2.43	2.33	2.25	2.20	2.17	2.14	2.12	2.10	2.08	2.07	2.05	2.04	2.04	2.02	2.02
5	5.99	3.86	3.21	2.90	2.72	2.51	2.40	2.32	2.26	2.23	2.20	2.18	2.16	2.14	2.12	2.11	2.10	2.09	2.08	2.07
8	6.62	4.20	3.46	3.11	2.91	2.68	2.55	2.46	2.40	2.35	2.32	2.30	2.28	2.26	2.24	2.22	2.21	2.20	2.19	2.18
12	7.16	4.49	3.68	3.29	3.07	2.82	2.68	2.57	2.51	2.46	2.43	2.40	2.38	2.35	2.33	2.32	2.31	2.30	2.28	2.27
16	7.54	4.69	3.83	3.42	3.18	2.91	2.77	2.66	2.59	2.54	2.50	2.48	2.45	2.42	2.40	2.38	2.37	2.36	2.34	2.33
20	7.83	4.85	3.95	3.52	3.27	2.99	2.84	2.72	2.65	2.60	2.56	2.53	2.51	2.47	2.45	2.43	2.42	2.41	2.39	2.38
30	8.33	5.13	4.17	3.70	3.43	3.13	2.96	2.84	2.76	2.70	2.66	2.63	2.60	2.57	2.54	2.52	2.51	2.50	2.48	2.46
40	8.69	5.33	4.31	3.83	3.54	3.22	3.05	2.92	2.83	2.77	2.73	2.70	2.67	2.63	2.61	2.59	2.57	2.56	2.54	2.52
50	8.95	5.48	4.43	3.92	3.63	3.30	3.12	2.98	2.89	2.83	2.78	2.75	2.72	2.68	2.65	2.63	2.62	2.60	2.58	2.57
60	9.17	5.60	4.52	4.00	3.70	3.36	3.16	3.03	2.94	2.81	2.83	2.79	2.76	2.72	2.69	2.67	2.66	2.64	2.62	2.60
75	9.43	5.74	4.63	4.10	3.78	3.43	3.24	3.09	2.99	2.93	2.88	2.84	2.81	2.77	2.74	2.72	2.70	2.69	2.66	2.65
100	9.76	5.93	4.77	4.22	3.89	3.52	3.32	3.17	3.07	3.00	2.95	2.91	2.88	2.83	2.80	2.78	2.76	2.75	2.72	2.70
125	10.01	6.07	4.88	4.31	3.97	3.59	3.39	3.23	3.12	3.05	3.00	2.96	2.93	2.88	2.85	2.82	2.81	2.79	2.76	2.75
150	10.21	6.18	4.97	4.38	4.04	3.65	3.44	3.27	3.17	3.10	3.04	3.00	2.97	2.92	2.89	2.86	2.84	2.83	2.80	2.78
175	10.37	6.28	5.04	4.45	4.10	3.70	3.48	3.32	3.21	3.13	3.08	3.04	3.00	2.95	2.92	2.89	2.87	2.86	2.83	2.81
200	10.52	6.36	5.10	4.50	4.15	3.74	3.52	3.35	3.24	3.16	3.11	3.07	3.03	2.98	2.95	2.92	2.90	2.88	2.85	2.83

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Table 19-5. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 2 (10 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.75	3.20	2.71	2.48	2.34	2.19	2.10	2.04	2.00	1.97	1.95	1.93	1.92	1.90	1.89	1.88	1.87	1.86	1.85	1.84
2	5.68	3.69	3.09	2.80	2.62	2.43	2.33	2.25	2.20	2.17	2.14	2.12	2.10	2.08	2.07	2.05	2.04	2.04	2.02	2.02
3	6.23	3.99	3.37	2.98	2.79	2.58	2.46	2.37	2.32	2.28	2.25	2.23	2.21	2.18	2.17	2.15	2.14	2.14	2.12	2.11
4	6.62	4.20	3.46	3.11	2.91	2.68	2.55	2.46	2.40	2.35	2.32	2.30	2.28	2.26	2.24	2.22	2.21	2.20	2.19	2.18
5	6.92	4.36	3.58	3.21	3.00	2.75	2.62	2.52	2.46	2.41	2.38	2.36	2.34	2.31	2.29	2.27	2.26	2.25	2.24	2.23
8	7.54	4.69	3.83	3.42	3.18	2.91	2.77	2.66	2.59	2.54	2.50	2.48	2.45	2.42	2.40	2.38	2.37	2.36	2.34	2.33
12	8.06	4.98	4.05	3.60	3.34	3.05	2.89	2.77	2.70	2.64	2.60	2.57	2.55	2.52	2.49	2.47	2.46	2.45	2.43	2.42
16	8.42	5.18	4.20	3.73	3.46	3.15	2.98	2.85	2.77	2.72	2.68	2.64	2.62	2.58	2.56	2.54	2.52	2.51	2.49	2.48
20	8.69	5.33	4.31	3.83	3.54	3.22	3.05	2.92	2.83	2.77	2.73	2.70	2.67	2.63	2.61	2.59	2.57	2.56	2.54	2.52
30	9.17	5.60	4.52	4.00	3.70	3.36	3.16	3.03	2.94	2.81	2.83	2.79	2.76	2.72	2.69	2.67	2.66	2.64	2.62	2.60
40	9.50	5.78	4.66	4.12	3.81	3.45	3.25	3.11	3.01	2.94	2.90	2.86	2.83	2.79	2.76	2.73	2.71	2.70	2.68	2.66
50	9.76	5.93	4.77	4.22	3.89	3.52	3.32	3.17	3.07	3.00	2.95	2.91	2.88	2.83	2.80	2.78	2.76	2.75	2.72	2.70
60	9.96	6.04	4.86	4.29	3.96	3.58	3.37	3.22	3.11	3.04	2.99	2.95	2.92	2.87	2.84	2.82	2.80	2.78	2.76	2.74
75	10.21	6.18	4.97	4.38	4.04	3.65	3.44	3.27	3.17	3.10	3.04	3.00	2.97	2.92	2.89	2.86	2.84	2.83	2.80	2.78
100	10.52	6.36	5.10	4.50	4.15	3.74	3.52	3.35	3.24	3.16	3.11	3.07	3.03	2.98	2.95	2.92	2.90	2.88	2.85	2.83
125	10.76	6.49	5.21	4.59	4.23	3.81	3.58	3.41	3.30	3.22	3.16	3.12	3.08	3.03	2.99	2.96	2.94	2.93	2.90	2.88
150	10.95	6.60	5.29	4.66	4.29	3.87	3.64	3.46	3.34	3.26	3.20	3.16	3.12	3.07	3.03	3.00	2.98	2.96	2.93	2.91
175	11.10	6.69	5.36	4.72	4.35	3.92	3.68	3.50	3.38	3.30	3.24	3.19	3.15	3.10	3.06	3.03	3.01	2.99	2.96	2.94
200	11.24	6.77	5.42	4.77	4.39	3.96	3.72	3.53	3.41	3.33	3.27	3.22	3.18	3.12	3.09	3.06	3.03	3.02	2.98	2.96

Table 19-5. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 2 (10 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	5.68	3.69	3.09	2.80	2.62	2.43	2.33	2.25	2.20	2.17	2.14	2.12	2.10	2.08	2.07	2.05	2.04	2.04	2.02	2.02
2	6.62	4.20	3.46	3.11	2.91	2.68	2.55	2.46	2.40	2.35	2.32	2.30	2.28	2.26	2.24	2.22	2.21	2.20	2.19	2.18
3	7.16	4.49	3.68	3.29	3.07	2.82	2.68	2.57	2.51	2.46	2.43	2.40	2.38	2.35	2.33	2.32	2.31	2.30	2.28	2.27
4	7.54	4.69	3.83	3.42	3.18	2.91	2.77	2.66	2.59	2.54	2.50	2.48	2.45	2.42	2.40	2.38	2.37	2.36	2.34	2.33
5	7.83	4.85	3.95	3.52	3.27	2.99	2.84	2.72	2.65	2.60	2.56	2.53	2.51	2.47	2.45	2.43	2.42	2.41	2.39	2.38
8	8.42	5.18	4.20	3.73	3.46	3.15	2.98	2.85	2.77	2.72	2.68	2.64	2.62	2.58	2.56	2.54	2.52	2.51	2.49	2.48
12	8.91	5.45	4.41	3.91	3.67	3.28	3.10	2.97	2.88	2.82	2.77	2.74	2.71	2.67	2.65	2.62	2.61	2.60	2.57	2.56
16	9.25	5.64	4.55	4.03	3.72	3.38	3.19	3.05	2.95	2.89	2.84	2.81	2.78	2.74	2.71	2.69	2.67	2.66	2.63	2.62
20	9.50	5.78	4.66	4.12	3.81	3.45	3.25	3.11	3.01	2.94	2.90	2.86	2.83	2.79	2.76	2.73	2.71	2.70	2.68	2.66
30	9.96	6.04	4.86	4.29	3.96	3.58	3.37	3.22	3.11	3.04	2.99	2.95	2.92	2.87	2.84	2.82	2.80	2.78	2.76	2.74
40	10.28	6.22	5.00	4.41	4.06	3.67	3.46	3.29	3.19	3.11	3.06	3.02	2.98	2.93	2.90	2.87	2.85	2.84	2.81	2.79
50	10.52	6.36	5.10	4.50	4.15	3.74	3.52	3.35	3.24	3.16	3.11	3.07	3.03	2.98	2.95	2.92	2.90	2.88	2.85	2.83
60	10.71	6.47	5.19	4.57	4.21	3.80	3.57	3.40	3.29	3.21	3.15	3.11	3.07	3.02	2.98	2.96	2.93	2.92	2.89	2.87
75	10.95	6.60	5.29	4.66	4.29	3.87	3.64	3.46	3.34	3.26	3.20	3.16	3.12	3.07	3.03	3.00	2.98	2.96	2.93	2.91
100	11.24	6.77	5.42	4.77	4.39	3.96	3.72	3.53	3.41	3.33	3.27	3.22	3.18	3.12	3.09	3.06	3.03	3.02	2.98	2.96
125	11.47	6.90	5.52	4.86	4.47	4.02	3.78	3.59	3.46	3.38	3.32	3.27	3.23	3.17	3.13	3.10	3.08	3.06	3.02	3.00
150	11.65	7.00	5.60	4.93	4.53	4.08	3.83	3.63	3.51	3.42	3.36	3.31	3.27	3.21	3.17	3.13	3.11	3.09	3.06	3.03
175	11.80	7.09	5.67	4.99	4.58	4.12	3.87	3.67	3.54	3.46	3.39	3.34	3.30	3.24	3.20	3.16	3.14	3.12	3.09	3.06
200	11.93	7.16	5.73	5.04	4.63	4.16	3.90	3.71	3.58	3.49	3.42	3.37	3.33	3.26	3.22	3.19	3.16	3.14	3.11	3.09

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Table 19-5. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 2 (20 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.97	3.25	2.74	2.49	2.35	2.19	2.10	2.04	2.00	1.97	1.95	1.93	1.92	1.90	1.89	1.88	1.87	1.86	1.85	1.84
2	6.07	3.79	3.13	2.82	2.64	2.44	2.33	2.25	2.20	2.17	2.14	2.12	2.11	2.08	2.07	2.05	2.05	2.04	2.02	2.02
3	6.75	4.12	3.36	3.07	2.81	2.59	2.47	2.38	2.32	2.28	2.25	2.23	2.21	2.19	2.17	2.15	2.14	2.14	2.12	2.11
4	7.24	4.35	3.53	3.15	2.93	2.69	2.56	2.46	2.40	2.36	2.33	2.30	2.28	2.26	2.24	2.22	2.21	2.20	2.19	2.18
5	7.62	4.54	3.66	3.26	3.02	2.77	2.63	2.53	2.46	2.42	2.38	2.36	2.34	2.31	2.29	2.28	2.26	2.25	2.24	2.23
8	8.41	4.92	3.94	3.48	3.22	2.93	2.78	2.66	2.59	2.54	2.51	2.48	2.46	2.42	2.40	2.38	2.37	2.36	2.34	2.33
12	9.09	5.26	4.18	3.68	3.39	3.08	2.91	2.78	2.70	2.65	2.61	2.58	2.55	2.52	2.49	2.47	2.46	2.45	2.43	2.42
16	9.57	5.49	4.34	3.81	3.51	3.18	3.00	2.86	2.78	2.72	2.68	2.65	2.62	2.58	2.56	2.54	2.52	2.51	2.49	2.48
20	9.93	5.67	4.47	3.92	3.60	3.25	3.07	2.93	2.84	2.78	2.73	2.70	2.67	2.63	2.61	2.59	2.57	2.56	2.54	2.52
30	10.57	5.99	4.71	4.11	3.77	3.39	3.19	3.04	2.95	2.88	2.83	2.80	2.77	2.72	2.70	2.67	2.66	2.64	2.62	2.60
40	11.01	6.22	4.87	4.25	3.89	3.49	3.28	3.12	3.02	2.95	2.90	2.86	2.83	2.79	2.76	2.73	2.72	2.70	2.68	2.66
50	11.35	6.39	5.00	4.35	3.98	3.57	3.35	3.18	3.08	3.01	2.95	2.89	2.88	2.84	2.80	2.78	2.76	2.75	2.72	2.70
60	11.62	6.53	5.10	4.43	4.05	3.63	3.40	3.23	3.13	3.05	3.00	2.96	2.92	2.88	2.84	2.82	2.80	2.78	2.76	2.74
75	11.95	6.69	5.22	4.54	4.14	3.71	3.47	3.30	3.18	3.11	3.05	3.01	2.97	2.92	2.89	2.86	2.84	2.83	2.80	2.78
100	12.36	6.91	5.38	4.67	4.26	3.80	3.56	3.37	3.26	3.18	3.12	3.07	3.04	2.98	2.95	2.92	2.90	2.88	2.85	2.84
125	12.68	7.07	5.50	4.77	4.34	3.88	3.62	3.43	3.31	3.23	3.17	3.12	3.09	3.03	2.99	2.97	2.94	2.93	2.90	2.88
150	12.93	7.20	5.59	4.85	4.42	3.94	3.68	3.48	3.36	3.27	3.21	3.16	3.13	3.07	3.03	3.00	2.98	2.96	2.93	2.91
175	13.14	7.31	5.67	4.91	4.48	3.99	3.72	3.52	3.40	3.31	3.25	3.20	3.16	3.10	3.06	3.03	3.01	2.99	2.96	2.94
200	13.32	7.40	5.74	4.97	4.53	4.03	3.76	3.56	3.43	3.34	3.28	3.23	3.19	3.13	3.09	3.06	3.04	3.02	2.98	2.96

Table 19-5. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 2 (20 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	6.07	3.79	3.13	2.82	2.64	2.44	2.33	2.25	2.20	2.17	2.14	2.12	2.11	2.08	2.07	2.05	2.05	2.04	2.02	2.02
2	7.24	4.35	3.53	3.15	2.93	2.69	2.56	2.46	2.40	2.36	2.33	2.30	2.28	2.26	2.24	2.22	2.21	2.20	2.19	2.18
3	7.93	4.69	3.77	3.34	3.10	2.83	2.69	2.58	2.51	2.47	2.43	2.41	2.39	2.36	2.33	2.32	2.31	2.30	2.28	2.27
4	8.41	4.92	3.94	3.48	3.22	2.93	2.78	2.66	2.59	2.54	2.51	2.48	2.46	2.42	2.40	2.38	2.37	2.36	2.34	2.33
5	8.79	5.11	4.07	3.59	3.31	3.01	2.85	2.73	2.65	2.60	2.56	2.53	2.51	2.48	2.45	2.43	2.42	2.41	2.39	2.38
8	9.57	5.49	4.34	3.81	3.51	3.18	3.00	2.86	2.78	2.72	2.68	2.65	2.62	2.58	2.56	2.54	2.52	2.51	2.49	2.48
12	10.22	5.82	4.58	4.01	3.68	3.32	3.12	2.98	2.89	2.82	2.78	2.74	2.72	2.68	2.65	2.63	2.61	2.60	2.57	2.56
16	10.67	6.04	4.74	4.14	3.80	3.42	3.21	3.06	2.96	2.90	2.85	2.81	2.78	2.74	2.71	2.69	2.67	2.66	2.63	2.62
20	11.01	6.22	4.87	4.25	3.89	3.49	3.28	3.12	3.02	2.95	2.90	2.86	2.83	2.79	2.76	2.73	2.72	2.70	2.68	2.66
30	11.62	6.53	5.10	4.43	4.05	3.63	3.40	3.23	3.13	3.05	3.00	2.96	2.92	2.88	2.84	2.82	2.80	2.78	2.76	2.74
40	12.04	6.74	5.25	4.57	4.17	3.73	3.49	3.31	3.20	3.12	3.07	3.02	2.99	2.94	2.90	2.88	2.86	2.84	2.81	2.79
50	12.36	6.91	5.38	4.67	4.26	3.80	3.56	3.37	3.26	3.18	3.12	3.07	3.04	2.98	2.95	2.92	2.90	2.88	2.85	2.84
60	12.62	7.04	5.47	4.75	4.33	3.86	3.61	3.42	3.30	3.22	3.16	3.11	3.08	3.02	2.99	2.96	2.94	2.92	2.89	2.87
75	12.93	7.20	5.59	4.85	4.42	3.94	3.68	3.48	3.36	3.27	3.21	3.16	3.13	3.07	3.03	3.00	2.98	2.96	2.93	2.91
100	13.32	7.40	5.74	4.97	4.53	4.03	3.76	3.56	3.43	3.34	3.28	3.23	3.19	3.13	3.09	3.06	3.04	3.02	2.98	2.96
125	13.62	7.56	5.86	5.07	4.61	4.10	3.83	3.62	3.49	3.39	3.33	3.28	3.24	3.18	3.13	3.10	3.08	3.06	3.03	3.00
150	13.86	7.68	5.95	5.15	4.68	4.16	3.88	3.67	3.53	3.44	3.37	3.32	3.27	3.21	3.17	3.14	3.11	3.09	3.06	3.04
175	14.06	7.79	6.03	5.21	4.74	4.21	3.93	3.71	3.57	3.47	3.40	3.35	3.31	3.24	3.20	3.17	3.14	3.12	3.09	3.06
200	14.23	7.88	6.10	5.27	4.79	4.26	3.96	3.74	3.60	3.50	3.43	3.38	3.33	3.27	3.23	3.19	3.17	3.15	3.11	3.09

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Table 19-5. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 2 (20 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	7.24	4.35	3.53	3.15	2.93	2.69	2.56	2.46	2.40	2.36	2.33	2.30	2.28	2.26	2.24	2.22	2.21	2.20	2.19	2.18
2	8.41	4.92	3.94	3.48	3.22	2.93	2.78	2.66	2.59	2.54	2.51	2.48	2.46	2.42	2.40	2.38	2.37	2.36	2.34	2.33
3	9.09	5.26	4.18	3.68	3.39	3.08	2.91	2.78	2.70	2.65	2.61	2.58	2.55	2.52	2.49	2.47	2.46	2.45	2.43	2.42
4	9.57	5.49	4.34	3.81	3.51	3.18	3.00	2.86	2.78	2.72	2.68	2.65	2.62	2.58	2.56	2.54	2.52	2.51	2.49	2.48
5	9.93	5.67	4.47	3.92	3.60	3.25	3.07	2.93	2.84	2.78	2.73	2.70	2.67	2.63	2.61	2.59	2.57	2.56	2.54	2.52
8	10.67	6.04	4.74	4.14	3.80	3.42	3.21	3.06	2.96	2.90	2.85	2.81	2.78	2.74	2.71	2.69	2.67	2.66	2.63	2.62
12	11.29	6.36	4.97	4.33	3.96	3.56	3.34	3.17	3.07	3.00	2.94	2.91	2.87	2.83	2.80	2.77	2.75	2.74	2.71	2.70
16	11.72	6.57	5.13	4.46	4.08	3.65	3.42	3.25	3.14	3.07	3.01	2.97	2.94	2.89	2.86	2.83	2.81	2.80	2.77	2.75
20	12.04	6.74	5.25	4.57	4.17	3.73	3.49	3.31	3.20	3.12	3.07	3.02	2.99	2.94	2.90	2.88	2.86	2.84	2.81	2.79
30	12.62	7.04	5.47	4.75	4.33	3.86	3.61	3.42	3.30	3.22	3.16	3.11	3.08	3.02	2.99	2.96	2.94	2.92	2.89	2.87
40	13.02	7.24	5.63	4.87	4.44	3.96	3.70	3.50	3.38	3.29	3.23	3.18	3.14	3.08	3.04	3.01	2.99	2.97	2.94	2.92
50	13.32	7.40	5.74	4.97	4.53	4.03	3.76	3.56	3.43	3.34	3.28	3.23	3.19	3.13	3.09	3.06	3.04	3.02	2.98	2.96
60	13.56	7.53	5.84	5.05	4.60	4.09	3.82	3.61	3.48	3.39	3.32	3.27	3.23	3.17	3.13	3.09	3.07	3.05	3.02	3.00
75	13.86	7.68	5.95	5.15	4.68	4.16	3.88	3.67	3.53	3.44	3.37	3.32	3.27	3.21	3.17	3.14	3.11	3.09	3.06	3.04
100	14.23	7.88	6.10	5.27	4.79	4.26	3.96	3.74	3.60	3.50	3.43	3.38	3.33	3.27	3.23	3.19	3.17	3.15	3.11	3.09
125	14.52	8.03	6.21	5.36	4.87	4.33	4.03	3.80	3.66	3.56	3.48	3.43	3.38	3.32	3.27	3.23	3.21	3.19	3.15	3.13
150	14.74	8.15	6.30	5.44	4.94	4.38	4.08	3.85	3.70	3.60	3.52	3.46	3.42	3.35	3.30	3.27	3.24	3.22	3.18	3.16
175	14.94	8.25	6.37	5.50	5.00	4.43	4.12	3.89	3.74	3.63	3.56	3.50	3.45	3.38	3.33	3.30	3.27	3.25	3.21	3.18
200	15.10	8.33	6.44	5.55	5.04	4.47	4.16	3.92	3.77	3.66	3.59	3.53	3.48	3.41	3.36	3.32	3.30	3.27	3.23	3.21

Table 19-5. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 2 (40 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	6.34	3.85	3.15	2.83	2.65	2.45	2.34	2.26	2.20	2.17	2.14	2.12	2.11	2.08	2.07	2.05	2.05	2.04	2.02	2.02
2	7.72	4.46	3.57	3.17	2.94	2.70	2.56	2.46	2.40	2.36	2.33	2.30	2.29	2.26	2.24	2.22	2.21	2.20	2.19	2.18
3	8.57	4.83	3.83	3.37	3.12	2.84	2.69	2.58	2.52	2.47	2.43	2.41	2.39	2.36	2.33	2.32	2.31	2.30	2.28	2.27
4	9.18	5.10	4.01	3.52	3.24	2.94	2.79	2.67	2.59	2.54	2.51	2.48	2.46	2.42	2.40	2.38	2.37	2.36	2.34	2.33
5	9.66	5.30	4.15	3.63	3.34	3.02	2.86	2.73	2.66	2.60	2.56	2.53	2.51	2.48	2.45	2.43	2.42	2.41	2.39	2.38
8	10.66	5.75	4.45	3.87	3.55	3.19	3.01	2.87	2.78	2.72	2.68	2.65	2.62	2.58	2.56	2.54	2.52	2.51	2.49	2.48
12	11.51	6.13	4.71	4.08	3.72	3.34	3.14	2.99	2.89	2.83	2.78	2.75	2.72	2.68	2.65	2.63	2.61	2.60	2.57	2.56
16	12.11	6.39	4.90	4.22	3.85	3.44	3.23	3.07	2.97	2.90	2.85	2.81	2.78	2.74	2.71	2.69	2.67	2.66	2.63	2.62
20	12.56	6.60	5.04	4.34	3.95	3.52	3.30	3.13	3.03	2.96	2.90	2.87	2.83	2.79	2.76	2.73	2.72	2.70	2.68	2.66
30	13.37	6.97	5.29	4.54	4.12	3.66	3.42	3.24	3.13	3.06	3.00	2.96	2.93	2.88	2.84	2.82	2.80	2.78	2.76	2.74
40	13.93	7.22	5.47	4.69	4.25	3.77	3.51	3.33	3.21	3.13	3.07	3.03	2.99	2.94	2.90	2.88	2.86	2.84	2.81	2.79
50	14.35	7.42	5.61	4.80	4.34	3.85	3.58	3.32	3.27	3.18	3.12	3.08	3.04	2.99	2.95	2.92	2.90	2.88	2.86	2.84
60	14.70	7.58	5.72	4.89	4.42	3.91	3.64	3.44	3.31	3.23	3.16	3.12	3.08	3.03	2.99	2.96	2.94	2.92	2.89	2.87
75	15.11	7.77	5.86	5.00	4.51	3.99	3.71	3.50	3.37	3.28	3.22	3.17	3.13	3.07	3.03	3.00	2.98	2.96	2.93	2.91
100	15.63	8.02	6.03	5.14	4.64	4.09	3.80	3.58	3.44	3.35	3.28	3.23	3.19	3.13	3.09	3.06	3.04	3.02	2.99	2.96
125	16.02	8.20	6.16	5.25	4.73	4.16	3.86	3.64	3.50	3.40	3.33	3.28	3.24	3.18	3.14	3.10	3.08	3.06	3.03	3.00
150	16.34	8.35	6.27	5.33	4.80	4.23	3.92	3.69	3.55	3.45	3.38	3.32	3.28	3.22	3.17	3.14	3.11	3.09	3.06	3.04
175	16.61	8.48	6.36	5.41	4.87	4.28	3.97	3.73	3.59	3.48	3.41	3.36	3.31	3.25	3.20	3.17	3.14	3.12	3.09	3.06
200	16.84	8.59	6.44	5.47	4.92	4.33	4.01	3.77	3.62	3.52	3.44	3.38	3.34	3.27	3.23	3.19	3.17	3.15	3.11	3.09

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Table 19-5. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 2 (40 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	7.72	4.46	3.57	3.17	2.94	2.70	2.56	2.46	2.40	2.36	2.33	2.30	2.29	2.26	2.24	2.22	2.21	2.20	2.19	2.18
2	9.18	5.10	4.01	3.52	3.24	2.94	2.79	2.67	2.59	2.54	2.51	2.48	2.46	2.42	2.40	2.38	2.37	2.36	2.34	2.33
3	10.05	5.48	4.27	3.72	3.42	3.09	2.92	2.79	2.71	2.65	2.61	2.58	2.55	2.52	2.49	2.48	2.46	2.45	2.43	2.42
4	10.66	5.75	4.45	3.87	3.55	3.19	3.01	2.87	2.78	2.72	2.68	2.65	2.62	2.58	2.56	2.54	2.52	2.51	2.49	2.48
5	11.13	5.95	4.59	3.99	3.64	3.27	3.08	2.93	2.84	2.78	2.74	2.70	2.68	2.64	2.61	2.59	2.57	2.56	2.54	2.52
8	12.11	6.39	4.90	4.22	3.85	3.44	3.23	3.07	2.97	2.90	2.85	2.81	2.78	2.74	2.71	2.69	2.67	2.66	2.63	2.62
12	12.93	6.76	5.15	4.43	4.02	3.59	3.35	3.18	3.08	3.00	2.95	2.91	2.88	2.83	2.80	2.77	2.75	2.74	2.71	2.70
16	13.50	7.03	5.33	4.58	4.15	3.69	3.44	3.26	3.15	3.07	3.02	2.97	2.94	2.89	2.86	2.83	2.81	2.80	2.77	2.75
20	13.93	7.22	5.47	4.69	4.25	3.77	3.51	3.33	3.21	3.13	3.07	3.03	2.99	2.94	2.90	2.88	2.86	2.84	2.81	2.79
30	14.70	7.58	5.72	4.89	4.42	3.91	3.64	3.44	3.31	3.23	3.16	3.12	3.08	3.03	2.99	2.96	2.94	2.92	2.89	2.87
40	15.23	7.83	5.90	5.03	4.54	4.01	3.73	3.52	3.39	3.30	3.23	3.18	3.14	3.09	3.05	3.02	2.99	2.98	2.94	2.92
50	15.63	8.02	6.03	5.14	4.64	4.09	3.80	3.58	3.44	3.35	3.28	3.23	3.19	3.13	3.09	3.06	3.04	3.02	2.99	2.96
60	15.95	8.17	6.14	5.23	4.71	4.15	3.85	3.63	3.49	3.39	3.32	3.27	3.23	3.17	3.13	3.10	3.07	3.05	3.02	3.00
75	16.34	8.35	6.27	5.33	4.80	4.23	3.92	3.69	3.55	3.45	3.38	3.32	3.28	3.22	3.17	3.14	3.11	3.09	3.06	3.04
100	16.84	8.59	6.44	5.47	4.92	4.33	4.01	3.77	3.62	3.52	3.44	3.38	3.34	3.27	3.23	3.19	3.17	3.15	3.11	3.09
125	17.21	8.77	6.56	5.57	5.01	4.40	4.07	3.83	3.67	3.57	3.49	3.43	3.39	3.32	3.27	3.24	3.21	3.19	3.15	3.13
150	17.52	8.91	6.67	5.66	5.09	4.46	4.13	3.88	3.72	3.61	3.53	3.47	3.43	3.36	3.31	3.27	3.24	3.22	3.18	3.16
175	17.77	9.03	6.75	5.73	5.15	4.51	4.17	3.92	3.76	3.65	3.57	3.51	3.46	3.39	3.34	3.30	3.27	3.25	3.21	3.18
200	17.99	9.14	6.83	5.79	5.20	4.56	4.21	3.95	3.79	3.68	3.60	3.53	3.49	3.41	3.36	3.33	3.30	3.27	3.23	3.21

Table 19-5. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 2 (40 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	9.18	5.10	4.01	3.52	3.24	2.94	2.79	2.67	2.59	2.54	2.51	2.48	2.46	2.42	2.40	2.38	2.37	2.36	2.34	2.33
2	10.66	5.75	4.45	3.87	3.55	3.19	3.01	2.87	2.78	2.72	2.68	2.65	2.62	2.58	2.56	2.54	2.52	2.51	2.49	2.48
3	11.51	6.13	4.71	4.08	3.72	3.34	3.14	2.99	2.89	2.83	2.78	2.75	2.72	2.68	2.65	2.63	2.61	2.60	2.57	2.56
4	12.11	6.39	4.90	4.22	3.85	3.44	3.23	3.07	2.97	2.90	2.85	2.81	2.78	2.74	2.71	2.69	2.67	2.66	2.63	2.62
5	12.56	6.60	5.04	4.34	3.95	3.52	3.30	3.13	3.03	2.96	2.90	2.87	2.83	2.79	2.76	2.73	2.72	2.70	2.68	2.66
8	13.50	7.03	5.33	4.58	4.15	3.69	3.44	3.26	3.15	3.07	3.02	2.97	2.94	2.89	2.86	2.83	2.81	2.80	2.77	2.75
12	14.28	7.39	5.59	4.78	4.32	3.83	3.57	3.38	3.26	3.17	3.11	3.07	3.03	2.98	2.94	2.91	2.89	2.88	2.85	2.83
16	14.82	7.64	5.76	4.92	4.45	3.93	3.66	3.46	3.33	3.24	3.18	3.13	3.09	3.04	3.00	2.97	2.95	2.93	2.90	2.87
20	15.23	7.83	5.90	5.03	4.54	4.01	3.73	3.52	3.39	3.30	3.23	3.18	3.14	3.09	3.05	3.02	2.99	2.98	2.94	2.92
30	15.95	8.17	6.14	5.23	4.71	4.15	3.85	3.63	3.49	3.39	3.32	3.27	3.23	3.17	3.13	3.10	3.07	3.05	3.02	3.00
40	16.46	8.41	6.31	5.36	4.83	4.25	3.94	3.71	3.56	3.46	3.39	3.34	3.29	3.23	3.18	3.15	3.13	3.11	3.07	3.05
50	16.84	8.59	6.44	5.47	4.92	4.33	4.01	3.77	3.62	3.52	3.44	3.38	3.34	3.27	3.23	3.19	3.17	3.15	3.11	3.09
60	17.15	8.73	6.54	5.55	5.00	4.39	4.06	3.82	3.66	3.56	3.48	3.42	3.38	3.31	3.26	3.23	3.20	3.18	3.14	3.12
75	17.52	8.91	6.67	5.66	5.09	4.46	4.13	3.88	3.72	3.61	3.53	3.47	3.43	3.36	3.31	3.27	3.24	3.22	3.18	3.16
100	17.99	9.14	6.83	5.79	5.20	4.56	4.21	3.95	3.79	3.68	3.60	3.53	3.49	3.41	3.36	3.33	3.30	3.27	3.23	3.21
125	18.34	9.31	6.95	5.89	5.29	4.63	4.28	4.01	3.85	3.73	3.65	3.58	3.53	3.46	3.41	3.37	3.34	3.31	3.27	3.25
150	18.63	9.44	7.05	5.97	5.36	4.69	4.33	4.06	3.89	3.77	3.69	3.62	3.57	3.49	3.44	3.40	3.37	3.35	3.30	3.28
175	18.88	9.56	7.13	6.04	5.42	4.74	4.38	4.10	3.93	3.81	3.72	3.65	3.60	3.52	3.47	3.43	3.40	3.37	3.33	3.30
200	19.08	9.66	7.21	6.10	5.47	4.79	4.42	4.14	3.96	3.84	3.75	3.68	3.63	3.55	3.49	3.45	3.42	3.40	3.35	3.33

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Table 19-6. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 2 (1 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.69	0.56	0.50	0.47	0.45	0.42	0.40	0.39	0.38	0.37	0.37	0.37	0.36	0.36	0.36	0.35	0.35	0.35	0.35	0.35
2	1.02	0.83	0.75	0.70	0.67	0.64	0.62	0.60	0.59	0.58	0.57	0.57	0.56	0.56	0.55	0.55	0.55	0.55	0.54	0.54
3	1.21	0.98	0.89	0.83	0.80	0.76	0.73	0.71	0.70	0.69	0.68	0.68	0.67	0.66	0.66	0.66	0.65	0.65	0.65	0.64
4	1.34	1.09	0.98	0.92	0.88	0.84	0.81	0.79	0.77	0.76	0.75	0.75	0.74	0.74	0.73	0.73	0.72	0.72	0.72	0.71
5	1.44	1.17	1.05	0.99	0.95	0.90	0.87	0.84	0.83	0.82	0.81	0.80	0.80	0.79	0.78	0.78	0.78	0.77	0.77	0.77
8	1.65	1.33	1.20	1.12	1.08	1.02	0.99	0.96	0.94	0.93	0.92	0.91	0.90	0.90	0.89	0.88	0.88	0.88	0.87	0.87
12	1.83	1.47	1.32	1.24	1.19	1.12	1.08	1.05	1.03	1.02	1.01	1.00	0.99	0.98	0.98	0.97	0.97	0.96	0.96	0.95
16	1.95	1.56	1.40	1.32	1.26	1.19	1.15	1.12	1.10	1.08	1.07	1.06	1.05	1.04	1.04	1.03	1.03	1.02	1.01	1.01
20	2.05	1.63	1.47	1.38	1.32	1.24	1.20	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07	1.07	1.07	1.06	1.05
30	2.21	1.76	1.58	1.48	1.42	1.34	1.29	1.25	1.23	1.21	1.20	1.19	1.18	1.17	1.16	1.15	1.15	1.14	1.13	1.13
40	2.33	1.85	1.66	1.55	1.49	1.40	1.35	1.31	1.29	1.27	1.26	1.24	1.24	1.22	1.21	1.21	1.20	1.20	1.19	1.18
50	2.41	1.92	1.72	1.61	1.54	1.45	1.40	1.36	1.33	1.31	1.30	1.29	1.28	1.26	1.25	1.25	1.24	1.24	1.23	1.22
60	2.48	1.97	1.77	1.65	1.58	1.49	1.44	1.40	1.37	1.35	1.33	1.32	1.31	1.30	1.29	1.28	1.27	1.27	1.26	1.25
75	2.57	2.03	1.82	1.71	1.63	1.54	1.48	1.44	1.41	1.39	1.37	1.36	1.35	1.34	1.33	1.32	1.31	1.31	1.30	1.29
100	2.68	2.12	1.90	1.77	1.70	1.60	1.54	1.50	1.47	1.44	1.43	1.41	1.40	1.39	1.38	1.37	1.36	1.36	1.35	1.34
125	2.76	2.18	1.95	1.83	1.74	1.65	1.59	1.54	1.51	1.48	1.47	1.45	1.44	1.43	1.41	1.41	1.40	1.39	1.38	1.38
150	2.82	2.23	2.00	1.87	1.78	1.68	1.62	1.57	1.54	1.52	1.50	1.49	1.47	1.46	1.44	1.44	1.43	1.42	1.41	1.40
175	2.88	2.27	2.03	1.90	1.82	1.71	1.65	1.60	1.57	1.54	1.53	1.51	1.50	1.48	1.47	1.46	1.45	1.45	1.44	1.43
200	2.92	2.31	2.06	1.93	1.85	1.74	1.68	1.63	1.59	1.57	1.55	1.53	1.52	1.51	1.49	1.48	1.47	1.47	1.46	1.45

Table 19-6. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 2 (1 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.02	0.83	0.75	0.70	0.67	0.64	0.62	0.60	0.59	0.58	0.57	0.57	0.56	0.56	0.55	0.55	0.55	0.55	0.54	0.54
2	1.34	1.09	0.98	0.92	0.88	0.84	0.81	0.79	0.77	0.76	0.75	0.75	0.74	0.74	0.73	0.73	0.72	0.72	0.72	0.71
3	1.52	1.23	1.11	1.04	1.00	0.94	0.91	0.89	0.87	0.86	0.85	0.84	0.84	0.83	0.83	0.82	0.82	0.81	0.81	0.81
4	1.65	1.33	1.20	1.12	1.08	1.02	0.99	0.96	0.94	0.93	0.92	0.91	0.90	0.90	0.89	0.88	0.88	0.88	0.87	0.87
5	1.75	1.41	1.26	1.19	1.14	1.08	1.04	1.01	0.99	0.98	0.97	0.96	0.95	0.94	0.94	0.93	0.93	0.93	0.92	0.92
8	1.95	1.56	1.40	1.32	1.26	1.19	1.15	1.12	1.10	1.08	1.07	1.06	1.05	1.04	1.04	1.03	1.03	1.02	1.01	1.01
12	2.12	1.69	1.52	1.42	1.36	1.29	1.24	1.21	1.18	1.17	1.15	1.14	1.14	1.12	1.12	1.11	1.10	1.10	1.09	1.09
16	2.24	1.78	1.60	1.50	1.43	1.35	1.31	1.27	1.24	1.23	1.21	1.20	1.19	1.18	1.17	1.16	1.16	1.15	1.15	1.14
20	2.33	1.85	1.66	1.55	1.49	1.40	1.35	1.31	1.29	1.27	1.26	1.24	1.24	1.22	1.21	1.21	1.20	1.20	1.19	1.18
30	2.48	1.97	1.77	1.65	1.58	1.49	1.44	1.40	1.37	1.35	1.33	1.32	1.31	1.30	1.29	1.28	1.27	1.27	1.26	1.25
40	2.59	2.05	1.84	1.72	1.65	1.55	1.50	1.45	1.42	1.40	1.39	1.37	1.36	1.35	1.34	1.33	1.32	1.32	1.31	1.30
50	2.68	2.12	1.90	1.77	1.70	1.60	1.54	1.50	1.47	1.44	1.43	1.41	1.40	1.39	1.38	1.37	1.36	1.36	1.35	1.34
60	2.74	2.17	1.94	1.82	1.74	1.64	1.58	1.53	1.50	1.48	1.46	1.45	1.44	1.42	1.41	1.40	1.39	1.39	1.38	1.37
75	2.82	2.23	2.00	1.87	1.78	1.68	1.62	1.57	1.54	1.52	1.50	1.49	1.47	1.46	1.44	1.44	1.43	1.42	1.41	1.40
100	2.92	2.31	2.06	1.93	1.85	1.74	1.68	1.63	1.59	1.57	1.55	1.53	1.52	1.51	1.49	1.48	1.47	1.47	1.46	1.45
125	3.00	2.37	2.12	1.98	1.89	1.78	1.72	1.67	1.63	1.61	1.59	1.57	1.56	1.54	1.53	1.52	1.51	1.50	1.49	1.48
150	3.06	2.41	2.16	2.02	1.93	1.82	1.75	1.70	1.66	1.64	1.62	1.60	1.59	1.57	1.56	1.55	1.54	1.53	1.52	1.51
175	3.11	2.45	2.19	2.05	1.96	1.85	1.78	1.73	1.69	1.66	1.64	1.63	1.62	1.60	1.58	1.57	1.56	1.56	1.54	1.54
200	3.16	2.49	2.23	2.08	1.99	1.87	1.81	1.75	1.71	1.69	1.67	1.65	1.64	1.62	1.60	1.59	1.58	1.58	1.56	1.56

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Table 19-6. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 2 (1 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.34	1.09	0.98	0.92	0.88	0.84	0.81	0.79	0.77	0.76	0.75	0.75	0.74	0.74	0.73	0.73	0.72	0.72	0.72	0.71
2	1.65	1.33	1.20	1.12	1.08	1.02	0.99	0.96	0.94	0.93	0.92	0.91	0.90	0.90	0.89	0.88	0.88	0.88	0.87	0.87
3	1.83	1.47	1.32	1.24	1.19	1.12	1.08	1.05	1.03	1.02	1.01	1.00	0.99	0.98	0.98	0.97	0.97	0.96	0.96	0.95
4	1.95	1.56	1.40	1.32	1.26	1.19	1.15	1.12	1.10	1.08	1.07	1.06	1.05	1.04	1.04	1.03	1.03	1.02	1.01	1.01
5	2.05	1.63	1.47	1.38	1.32	1.24	1.20	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07	1.07	1.07	1.06	1.05
8	2.24	1.78	1.60	1.50	1.43	1.35	1.31	1.27	1.24	1.23	1.21	1.20	1.19	1.18	1.17	1.16	1.16	1.15	1.15	1.14
12	2.40	1.90	1.71	1.60	1.53	1.44	1.39	1.35	1.32	1.31	1.29	1.28	1.27	1.26	1.25	1.24	1.23	1.23	1.22	1.21
16	2.51	1.99	1.78	1.67	1.60	1.51	1.45	1.41	1.38	1.36	1.35	1.33	1.32	1.31	1.30	1.29	1.28	1.28	1.27	1.26
20	2.59	2.05	1.84	1.72	1.65	1.55	1.50	1.45	1.42	1.40	1.39	1.37	1.36	1.35	1.34	1.33	1.32	1.32	1.31	1.30
30	2.74	2.17	1.94	1.82	1.74	1.64	1.58	1.53	1.50	1.48	1.46	1.45	1.44	1.42	1.41	1.40	1.39	1.39	1.38	1.37
40	2.85	2.25	2.01	1.88	1.80	1.70	1.64	1.59	1.55	1.53	1.51	1.50	1.49	1.47	1.46	1.45	1.44	1.43	1.42	1.41
50	2.92	2.31	2.06	1.93	1.85	1.74	1.68	1.63	1.59	1.57	1.55	1.53	1.52	1.51	1.49	1.48	1.47	1.47	1.46	1.45
60	2.99	2.36	2.11	1.97	1.88	1.78	1.71	1.66	1.63	1.60	1.58	1.57	1.55	1.54	1.52	1.51	1.50	1.50	1.49	1.48
75	3.06	2.41	2.16	2.02	1.93	1.82	1.75	1.70	1.66	1.64	1.62	1.60	1.59	1.57	1.56	1.55	1.54	1.53	1.52	1.51
100	3.16	2.49	2.23	2.08	1.99	1.87	1.81	1.75	1.71	1.69	1.67	1.65	1.64	1.62	1.60	1.59	1.58	1.58	1.56	1.56
125	3.23	2.54	2.28	2.13	2.03	1.92	1.85	1.79	1.75	1.72	1.70	1.69	1.67	1.65	1.64	1.63	1.62	1.61	1.60	1.59
150	3.29	2.59	2.32	2.17	2.07	1.95	1.88	1.82	1.78	1.75	1.73	1.72	1.70	1.68	1.67	1.65	1.64	1.64	1.62	1.62
175	3.34	2.63	2.35	2.20	2.10	1.98	1.91	1.85	1.81	1.78	1.76	1.74	1.73	1.70	1.69	1.68	1.67	1.66	1.65	1.64
200	3.38	2.66	2.38	2.22	2.12	2.00	1.93	1.87	1.83	1.80	1.78	1.76	1.75	1.72	1.71	1.70	1.69	1.68	1.67	1.66

Table 19-6. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 2 (2 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.10	0.87	0.77	0.72	0.69	0.65	0.62	0.60	0.59	0.58	0.58	0.57	0.57	0.56	0.56	0.55	0.55	0.55	0.55	0.54
2	1.47	1.14	1.02	0.95	0.90	0.85	0.82	0.79	0.78	0.77	0.76	0.75	0.75	0.74	0.73	0.73	0.73	0.72	0.72	0.72
3	1.69	1.30	1.15	1.07	1.02	0.96	0.93	0.90	0.88	0.87	0.86	0.85	0.84	0.83	0.83	0.82	0.82	0.82	0.81	0.81
4	1.85	1.42	1.25	1.16	1.10	1.04	1.00	0.97	0.95	0.93	0.92	0.92	0.91	0.90	0.89	0.89	0.88	0.88	0.87	0.87
5	1.97	1.50	1.32	1.23	1.17	1.10	1.05	1.02	1.00	0.99	0.97	0.97	0.96	0.95	0.94	0.94	0.93	0.93	0.92	0.92
8	2.22	1.68	1.48	1.37	1.30	1.22	1.17	1.13	1.11	1.09	1.08	1.07	1.06	1.05	1.04	1.03	1.03	1.02	1.02	1.01
12	2.44	1.83	1.60	1.48	1.41	1.32	1.26	1.22	1.20	1.18	1.16	1.15	1.14	1.13	1.12	1.11	1.11	1.10	1.10	1.09
16	2.59	1.94	1.69	1.56	1.48	1.39	1.33	1.29	1.26	1.24	1.22	1.21	1.20	1.19	1.18	1.17	1.16	1.16	1.15	1.14
20	2.71	2.02	1.76	1.63	1.54	1.44	1.38	1.33	1.30	1.28	1.27	1.25	1.24	1.23	1.22	1.21	1.20	1.20	1.19	1.18
30	2.91	2.16	1.88	1.74	1.64	1.53	1.47	1.42	1.39	1.36	1.34	1.33	1.32	1.30	1.29	1.28	1.28	1.27	1.26	1.25
40	3.05	2.26	1.97	1.81	1.72	1.60	1.53	1.48	1.44	1.42	1.40	1.38	1.37	1.36	1.34	1.33	1.33	1.32	1.31	1.30
50	3.16	2.34	2.03	1.87	1.77	1.65	1.58	1.52	1.49	1.46	1.44	1.43	1.41	1.40	1.38	1.37	1.37	1.36	1.35	1.34
60	3.25	2.40	2.08	1.92	1.81	1.69	1.62	1.56	1.52	1.49	1.47	1.46	1.45	1.43	1.41	1.40	1.40	1.39	1.38	1.37
75	3.35	2.47	2.15	1.98	1.87	1.74	1.66	1.60	1.56	1.54	1.51	1.50	1.49	1.47	1.45	1.44	1.43	1.43	1.41	1.41
100	3.49	2.57	2.23	2.05	1.93	1.80	1.72	1.66	1.62	1.59	1.57	1.55	1.54	1.51	1.50	1.49	1.48	1.47	1.46	1.45
125	3.59	2.64	2.29	2.10	1.99	1.85	1.77	1.70	1.66	1.63	1.61	1.59	1.57	1.55	1.54	1.53	1.52	1.51	1.50	1.49
150	3.67	2.69	2.34	2.15	2.03	1.89	1.80	1.74	1.69	1.66	1.64	1.62	1.60	1.58	1.57	1.55	1.55	1.54	1.52	1.52
175	3.74	2.74	2.38	2.18	2.06	1.92	1.83	1.76	1.72	1.69	1.66	1.64	1.63	1.61	1.59	1.58	1.57	1.56	1.55	1.54
200	3.80	2.78	2.41	2.22	2.09	1.94	1.86	1.79	1.74	1.71	1.69	1.67	1.65	1.63	1.61	1.60	1.59	1.58	1.57	1.56

Table 19-6. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 2 (2 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.47	1.14	1.02	0.95	0.90	0.85	0.82	0.79	0.78	0.77	0.76	0.75	0.75	0.74	0.73	0.73	0.73	0.72	0.72	0.72
2	1.85	1.42	1.25	1.16	1.10	1.04	1.00	0.97	0.95	0.93	0.92	0.92	0.91	0.90	0.89	0.89	0.88	0.88	0.87	0.87
3	2.07	1.57	1.38	1.28	1.22	1.14	1.10	1.07	1.04	1.03	1.01	1.01	1.00	0.99	0.98	0.97	0.97	0.97	0.96	0.95
4	2.22	1.68	1.48	1.37	1.30	1.22	1.17	1.13	1.11	1.09	1.08	1.07	1.06	1.05	1.04	1.03	1.03	1.02	1.02	1.01
5	2.34	1.76	1.55	1.43	1.36	1.27	1.22	1.18	1.16	1.14	1.12	1.11	1.11	1.09	1.08	1.08	1.07	1.07	1.06	1.06
8	2.59	1.94	1.69	1.56	1.48	1.39	1.33	1.29	1.26	1.24	1.22	1.21	1.20	1.19	1.18	1.17	1.16	1.16	1.15	1.14
12	2.80	2.08	1.82	1.68	1.59	1.48	1.42	1.37	1.34	1.32	1.30	1.29	1.28	1.26	1.25	1.24	1.24	1.23	1.22	1.22
16	2.94	2.18	1.90	1.75	1.66	1.55	1.48	1.43	1.40	1.37	1.36	1.34	1.33	1.32	1.30	1.29	1.29	1.28	1.27	1.27
20	3.05	2.26	1.97	1.81	1.72	1.60	1.53	1.48	1.44	1.42	1.40	1.38	1.37	1.36	1.34	1.33	1.33	1.32	1.31	1.30
30	3.25	2.40	2.08	1.92	1.81	1.69	1.62	1.56	1.52	1.49	1.47	1.46	1.45	1.43	1.41	1.40	1.40	1.39	1.38	1.37
40	3.38	2.49	2.17	1.99	1.88	1.75	1.68	1.62	1.58	1.55	1.53	1.51	1.50	1.48	1.46	1.45	1.44	1.44	1.43	1.42
50	3.49	2.57	2.23	2.05	1.93	1.80	1.72	1.66	1.62	1.59	1.57	1.55	1.54	1.51	1.50	1.49	1.48	1.47	1.46	1.45
60	3.57	2.62	2.28	2.09	1.98	1.84	1.76	1.69	1.65	1.62	1.60	1.58	1.57	1.55	1.53	1.52	1.51	1.50	1.49	1.48
75	3.67	2.69	2.34	2.15	2.03	1.89	1.80	1.74	1.69	1.66	1.64	1.62	1.60	1.58	1.57	1.55	1.55	1.54	1.52	1.52
100	3.80	2.78	2.41	2.22	2.09	1.94	1.86	1.79	1.74	1.71	1.69	1.67	1.65	1.63	1.61	1.60	1.59	1.58	1.57	1.56
125	3.90	2.85	2.47	2.27	2.14	1.99	1.90	1.83	1.78	1.75	1.72	1.70	1.69	1.66	1.65	1.63	1.62	1.62	1.60	1.59
150	3.97	2.91	2.52	2.31	2.18	2.03	1.94	1.86	1.82	1.78	1.75	1.73	1.72	1.69	1.68	1.66	1.65	1.64	1.63	1.62
175	4.04	2.95	2.56	2.35	2.22	2.06	1.96	1.89	1.84	1.81	1.78	1.76	1.74	1.72	1.70	1.69	1.68	1.67	1.65	1.64
200	4.09	2.99	2.59	2.38	2.24	2.08	1.99	1.92	1.87	1.83	1.80	1.78	1.76	1.74	1.72	1.71	1.70	1.69	1.67	1.66

Table 19-6. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 2 (2 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.85	1.42	1.25	1.16	1.10	1.04	1.00	0.97	0.95	0.93	0.92	0.92	0.91	0.90	0.89	0.89	0.88	0.88	0.87	0.87
2	2.22	1.68	1.48	1.37	1.30	1.22	1.17	1.13	1.11	1.09	1.08	1.07	1.06	1.05	1.04	1.03	1.03	1.02	1.02	1.01
3	2.44	1.83	1.60	1.48	1.41	1.32	1.26	1.22	1.20	1.18	1.16	1.15	1.14	1.13	1.12	1.11	1.11	1.10	1.10	1.09
4	2.59	1.94	1.69	1.56	1.48	1.39	1.33	1.29	1.26	1.24	1.22	1.21	1.20	1.19	1.18	1.17	1.16	1.16	1.15	1.14
5	2.71	2.02	1.76	1.63	1.54	1.44	1.38	1.33	1.30	1.28	1.27	1.25	1.24	1.23	1.22	1.21	1.20	1.20	1.19	1.18
8	2.94	2.18	1.90	1.75	1.66	1.55	1.48	1.43	1.40	1.37	1.36	1.34	1.33	1.32	1.30	1.29	1.29	1.28	1.27	1.27
12	3.14	2.32	2.02	1.86	1.76	1.64	1.57	1.51	1.48	1.45	1.43	1.42	1.41	1.39	1.38	1.37	1.36	1.35	1.34	1.33
16	3.28	2.42	2.10	1.93	1.83	1.70	1.63	1.57	1.53	1.51	1.49	1.47	1.46	1.44	1.42	1.41	1.41	1.40	1.39	1.38
20	3.38	2.49	2.17	1.99	1.88	1.75	1.68	1.62	1.58	1.55	1.53	1.51	1.50	1.48	1.46	1.45	1.44	1.44	1.43	1.42
30	3.57	2.62	2.28	2.09	1.98	1.84	1.76	1.69	1.65	1.62	1.60	1.58	1.57	1.55	1.53	1.52	1.51	1.50	1.49	1.48
40	3.70	2.71	2.35	2.16	2.04	1.90	1.81	1.75	1.70	1.67	1.65	1.63	1.61	1.59	1.58	1.56	1.56	1.55	1.53	1.53
50	3.80	2.78	2.41	2.22	2.09	1.94	1.86	1.79	1.74	1.71	1.69	1.67	1.65	1.63	1.61	1.60	1.59	1.58	1.57	1.56
60	3.88	2.84	2.46	2.26	2.13	1.98	1.89	1.82	1.78	1.74	1.72	1.70	1.68	1.66	1.64	1.63	1.62	1.61	1.60	1.59
75	3.97	2.91	2.52	2.31	2.18	2.03	1.94	1.86	1.82	1.78	1.75	1.73	1.72	1.69	1.68	1.66	1.65	1.64	1.63	1.62
100	4.09	2.99	2.59	2.38	2.24	2.08	1.99	1.92	1.87	1.83	1.80	1.78	1.76	1.74	1.72	1.71	1.70	1.69	1.67	1.66
125	4.19	3.06	2.65	2.43	2.29	2.13	2.03	1.95	1.90	1.87	1.84	1.82	1.80	1.77	1.75	1.74	1.73	1.72	1.70	1.69
150	4.26	3.11	2.69	2.47	2.33	2.16	2.06	1.99	1.93	1.90	1.87	1.85	1.83	1.80	1.78	1.77	1.76	1.75	1.73	1.72
175	4.32	3.15	2.73	2.50	2.36	2.19	2.09	2.01	1.96	1.92	1.89	1.87	1.85	1.82	1.80	1.79	1.78	1.77	1.75	1.74
200	4.38	3.19	2.76	2.53	2.39	2.22	2.12	2.04	1.98	1.94	1.91	1.89	1.87	1.84	1.82	1.81	1.80	1.79	1.77	1.76

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Table 19-6. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 2 (5 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.72	1.28	1.12	1.04	0.98	0.92	0.88	0.86	0.84	0.83	0.82	0.81	0.80	0.79	0.79	0.78	0.78	0.78	0.77	0.77
2	2.19	1.58	1.37	1.26	1.19	1.11	1.06	1.03	1.01	0.99	0.98	0.97	0.96	0.95	0.94	0.94	0.93	0.93	0.92	0.92
3	2.47	1.76	1.51	1.39	1.31	1.22	1.17	1.13	1.10	1.08	1.07	1.06	1.05	1.04	1.03	1.02	1.02	1.01	1.01	1.00
4	2.67	1.89	1.61	1.48	1.39	1.29	1.24	1.19	1.16	1.14	1.13	1.12	1.11	1.10	1.09	1.08	1.07	1.07	1.06	1.06
5	2.83	1.98	1.69	1.54	1.45	1.35	1.29	1.24	1.21	1.19	1.18	1.16	1.15	1.14	1.13	1.12	1.12	1.11	1.10	1.10
8	3.17	2.19	1.86	1.69	1.59	1.47	1.40	1.35	1.31	1.29	1.27	1.26	1.25	1.23	1.22	1.21	1.21	1.20	1.19	1.18
12	3.45	2.37	2.00	1.81	1.70	1.57	1.49	1.43	1.40	1.37	1.35	1.34	1.33	1.31	1.30	1.29	1.28	1.27	1.26	1.26
16	3.65	2.49	2.10	1.90	1.78	1.64	1.56	1.50	1.46	1.43	1.41	1.39	1.38	1.36	1.35	1.34	1.33	1.32	1.31	1.31
20	3.81	2.58	2.17	1.96	1.84	1.69	1.61	1.54	1.50	1.47	1.45	1.43	1.42	1.40	1.39	1.38	1.37	1.36	1.35	1.34
30	4.08	2.75	2.31	2.08	1.94	1.78	1.69	1.63	1.58	1.55	1.53	1.51	1.49	1.47	1.46	1.45	1.44	1.43	1.42	1.41
40	4.27	2.87	2.40	2.16	2.02	1.85	1.76	1.68	1.64	1.60	1.58	1.56	1.54	1.52	1.50	1.49	1.48	1.48	1.46	1.45
50	4.42	2.96	2.47	2.23	2.08	1.90	1.80	1.73	1.68	1.64	1.62	1.60	1.58	1.56	1.54	1.53	1.52	1.51	1.50	1.49
60	4.54	3.03	2.53	2.28	2.12	1.94	1.84	1.76	1.71	1.68	1.65	1.63	1.61	1.59	1.57	1.56	1.55	1.54	1.53	1.52
75	4.68	3.12	2.60	2.34	2.18	1.99	1.89	1.81	1.75	1.72	1.69	1.67	1.65	1.63	1.61	1.59	1.58	1.58	1.56	1.55
100	4.86	3.23	2.69	2.42	2.25	2.06	1.95	1.86	1.81	1.77	1.74	1.72	1.70	1.67	1.65	1.64	1.63	1.62	1.60	1.59
125	5.00	3.32	2.76	2.48	2.31	2.11	1.99	1.91	1.85	1.81	1.78	1.75	1.74	1.71	1.69	1.67	1.66	1.65	1.64	1.63
150	5.11	3.39	2.82	2.53	2.35	2.15	2.03	1.94	1.88	1.84	1.81	1.79	1.77	1.74	1.72	1.70	1.69	1.68	1.66	1.65
175	5.20	3.44	2.86	2.57	2.39	2.18	2.06	1.97	1.91	1.87	1.84	1.81	1.79	1.76	1.74	1.73	1.71	1.70	1.69	1.67
200	5.28	3.49	2.90	2.60	2.42	2.21	2.09	2.00	1.93	1.89	1.86	1.83	1.81	1.78	1.76	1.75	1.73	1.72	1.71	1.70

Table 19-6. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 2 (5 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.19	1.58	1.37	1.26	1.19	1.11	1.06	1.03	1.01	0.99	0.98	0.97	0.96	0.95	0.94	0.94	0.93	0.93	0.92	0.92
2	2.67	1.89	1.61	1.48	1.39	1.29	1.24	1.19	1.16	1.14	1.13	1.12	1.11	1.10	1.09	1.08	1.07	1.07	1.06	1.06
3	2.96	2.06	1.76	1.60	1.50	1.39	1.33	1.28	1.25	1.23	1.21	1.20	1.19	1.18	1.17	1.16	1.15	1.15	1.14	1.13
4	3.17	2.19	1.86	1.69	1.59	1.47	1.40	1.35	1.31	1.29	1.27	1.26	1.25	1.23	1.22	1.21	1.21	1.20	1.19	1.18
5	3.32	2.29	1.93	1.76	1.65	1.52	1.45	1.40	1.36	1.33	1.32	1.30	1.29	1.27	1.26	1.25	1.25	1.24	1.23	1.22
8	3.65	2.49	2.10	1.90	1.78	1.64	1.56	1.50	1.46	1.43	1.41	1.39	1.38	1.36	1.35	1.34	1.33	1.32	1.31	1.31
12	3.93	2.66	2.23	2.02	1.88	1.73	1.65	1.58	1.54	1.51	1.48	1.47	1.45	1.43	1.42	1.41	1.40	1.39	1.38	1.37
16	4.13	2.78	2.33	2.10	1.96	1.80	1.71	1.64	1.59	1.56	1.54	1.52	1.50	1.48	1.47	1.46	1.45	1.44	1.43	1.42
20	4.27	2.87	2.40	2.16	2.02	1.85	1.76	1.68	1.64	1.60	1.58	1.56	1.54	1.52	1.50	1.49	1.48	1.48	1.46	1.45
30	4.54	3.03	2.53	2.28	2.12	1.94	1.84	1.76	1.71	1.68	1.65	1.63	1.61	1.59	1.57	1.56	1.55	1.54	1.53	1.52
40	4.72	3.15	2.62	2.36	2.20	2.01	1.90	1.82	1.77	1.73	1.70	1.68	1.66	1.64	1.62	1.60	1.59	1.59	1.57	1.56
50	4.86	3.23	2.69	2.42	2.25	2.06	1.95	1.86	1.81	1.77	1.74	1.72	1.70	1.67	1.65	1.64	1.63	1.62	1.60	1.59
60	4.97	3.30	2.75	2.47	2.30	2.10	1.99	1.90	1.84	1.80	1.77	1.75	1.73	1.70	1.68	1.67	1.66	1.65	1.63	1.62
75	5.11	3.39	2.82	2.53	2.35	2.15	2.03	1.94	1.88	1.84	1.81	1.79	1.77	1.74	1.72	1.70	1.69	1.68	1.66	1.65
100	5.28	3.49	2.90	2.60	2.42	2.21	2.09	2.00	1.93	1.89	1.86	1.83	1.81	1.78	1.76	1.75	1.73	1.72	1.71	1.70
125	5.41	3.58	2.97	2.66	2.48	2.26	2.13	2.04	1.97	1.93	1.89	1.87	1.85	1.82	1.80	1.78	1.77	1.76	1.74	1.73
150	5.52	3.64	3.02	2.71	2.52	2.30	2.17	2.07	2.01	1.96	1.92	1.90	1.88	1.85	1.82	1.81	1.79	1.78	1.76	1.75
175	5.61	3.70	3.07	2.75	2.56	2.33	2.20	2.10	2.03	1.99	1.95	1.92	1.90	1.87	1.85	1.83	1.82	1.81	1.79	1.77
200	5.68	3.75	3.11	2.78	2.59	2.36	2.23	2.12	2.06	2.01	1.97	1.94	1.92	1.89	1.87	1.85	1.84	1.82	1.80	1.79

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Table 19-6. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 2 (5 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.67	1.89	1.61	1.48	1.39	1.29	1.24	1.19	1.16	1.14	1.13	1.12	1.11	1.10	1.09	1.08	1.07	1.07	1.06	1.06
2	3.17	2.19	1.86	1.69	1.59	1.47	1.40	1.35	1.31	1.29	1.27	1.26	1.25	1.23	1.22	1.21	1.21	1.20	1.19	1.18
3	3.45	2.37	2.00	1.81	1.70	1.57	1.49	1.43	1.40	1.37	1.35	1.34	1.33	1.31	1.30	1.29	1.28	1.27	1.26	1.26
4	3.65	2.49	2.10	1.90	1.78	1.64	1.56	1.50	1.46	1.43	1.41	1.39	1.38	1.36	1.35	1.34	1.33	1.32	1.31	1.31
5	3.81	2.58	2.17	1.96	1.84	1.69	1.61	1.54	1.50	1.47	1.45	1.43	1.42	1.40	1.39	1.38	1.37	1.36	1.35	1.34
8	4.13	2.78	2.33	2.10	1.96	1.80	1.71	1.64	1.59	1.56	1.54	1.52	1.50	1.48	1.47	1.46	1.45	1.44	1.43	1.42
12	4.39	2.94	2.46	2.21	2.07	1.89	1.80	1.72	1.67	1.64	1.61	1.59	1.58	1.55	1.54	1.52	1.51	1.51	1.49	1.48
16	4.58	3.06	2.55	2.30	2.14	1.96	1.86	1.78	1.73	1.69	1.66	1.64	1.62	1.60	1.58	1.57	1.56	1.55	1.54	1.53
20	4.72	3.15	2.62	2.36	2.20	2.01	1.90	1.82	1.77	1.73	1.70	1.68	1.66	1.64	1.62	1.60	1.59	1.59	1.57	1.56
30	4.97	3.30	2.75	2.47	2.30	2.10	1.99	1.90	1.84	1.80	1.77	1.75	1.73	1.70	1.68	1.67	1.66	1.65	1.63	1.62
40	5.15	3.41	2.84	2.55	2.37	2.16	2.04	1.95	1.89	1.85	1.82	1.80	1.78	1.75	1.73	1.71	1.70	1.69	1.67	1.66
50	5.28	3.49	2.90	2.60	2.42	2.21	2.09	2.00	1.93	1.89	1.86	1.83	1.81	1.78	1.76	1.75	1.73	1.72	1.71	1.70
60	5.39	3.56	2.96	2.65	2.47	2.25	2.13	2.03	1.97	1.92	1.89	1.86	1.84	1.81	1.79	1.77	1.76	1.75	1.73	1.72
75	5.52	3.64	3.02	2.71	2.52	2.30	2.17	2.07	2.01	1.96	1.92	1.90	1.88	1.85	1.82	1.81	1.79	1.78	1.76	1.75
100	5.68	3.75	3.11	2.78	2.59	2.36	2.23	2.12	2.06	2.01	1.97	1.94	1.92	1.89	1.87	1.85	1.84	1.82	1.80	1.79
125	5.81	3.82	3.17	2.84	2.64	2.40	2.27	2.16	2.09	2.04	2.01	1.98	1.96	1.92	1.90	1.88	1.87	1.86	1.84	1.82
150	5.91	3.89	3.22	2.88	2.68	2.44	2.30	2.20	2.12	2.07	2.04	2.01	1.99	1.95	1.93	1.91	1.89	1.88	1.86	1.85
175	5.99	3.94	3.26	2.92	2.71	2.47	2.33	2.22	2.15	2.10	2.06	2.03	2.01	1.97	1.95	1.93	1.91	1.90	1.88	1.87
200	6.07	3.99	3.30	2.96	2.74	2.50	2.36	2.25	2.17	2.12	2.08	2.05	2.03	1.99	1.97	1.95	1.93	1.92	1.90	1.89

Table 19-6. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 2 (10 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.29	1.62	1.39	1.27	1.20	1.11	1.07	1.03	1.01	0.99	0.98	0.97	0.96	0.95	0.94	0.94	0.93	0.93	0.92	0.92
2	2.86	1.94	1.64	1.49	1.40	1.30	1.24	1.20	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07	1.07	1.06	1.06
3	3.21	2.14	1.79	1.62	1.52	1.40	1.34	1.29	1.26	1.23	1.22	1.20	1.19	1.18	1.17	1.16	1.15	1.15	1.14	1.13
4	3.46	2.28	1.90	1.72	1.60	1.48	1.41	1.35	1.32	1.29	1.27	1.26	1.25	1.23	1.22	1.21	1.21	1.20	1.19	1.19
5	3.66	2.39	1.99	1.79	1.67	1.53	1.46	1.40	1.36	1.34	1.32	1.30	1.29	1.28	1.26	1.25	1.25	1.24	1.23	1.22
8	4.07	2.62	2.16	1.94	1.80	1.65	1.57	1.50	1.46	1.43	1.41	1.39	1.38	1.36	1.35	1.34	1.33	1.32	1.31	1.31
12	4.43	2.82	2.31	2.06	1.92	1.75	1.66	1.59	1.54	1.51	1.49	1.47	1.46	1.43	1.42	1.41	1.40	1.39	1.38	1.37
16	4.68	2.96	2.42	2.15	2.00	1.82	1.72	1.65	1.60	1.57	1.54	1.52	1.51	1.48	1.47	1.46	1.45	1.44	1.43	1.42
20	4.87	3.06	2.50	2.22	2.06	1.87	1.77	1.69	1.64	1.61	1.58	1.56	1.55	1.52	1.51	1.49	1.49	1.48	1.46	1.46
30	5.22	3.26	2.65	2.35	2.17	1.97	1.86	1.78	1.72	1.68	1.66	1.63	1.62	1.59	1.57	1.56	1.55	1.54	1.53	1.52
40	5.46	3.39	2.75	2.44	2.25	2.04	1.92	1.83	1.78	1.74	1.71	1.68	1.67	1.64	1.62	1.61	1.60	1.59	1.57	1.56
50	5.64	3.49	2.83	2.50	2.31	2.09	1.97	1.88	1.82	1.78	1.75	1.72	1.70	1.68	1.66	1.64	1.63	1.62	1.61	1.60
60	5.79	3.58	2.89	2.56	2.36	2.14	2.01	1.91	1.85	1.81	1.78	1.75	1.73	1.71	1.69	1.67	1.66	1.65	1.63	1.62
75	5.97	3.68	2.97	2.63	2.42	2.19	2.06	1.96	1.89	1.85	1.82	1.79	1.77	1.74	1.72	1.70	1.69	1.68	1.67	1.65
100	6.19	3.81	3.07	2.71	2.50	2.25	2.12	2.01	1.95	1.90	1.87	1.84	1.82	1.79	1.76	1.75	1.74	1.73	1.71	1.70
125	6.37	3.90	3.15	2.78	2.56	2.30	2.16	2.06	1.99	1.94	1.90	1.88	1.85	1.82	1.80	1.78	1.77	1.76	1.74	1.73
150	6.51	3.98	3.21	2.83	2.60	2.35	2.20	2.09	2.02	1.97	1.93	1.91	1.88	1.85	1.83	1.81	1.80	1.78	1.77	1.75
175	6.62	4.05	3.26	2.87	2.64	2.38	2.23	2.12	2.05	2.00	1.96	1.93	1.91	1.87	1.85	1.83	1.82	1.81	1.79	1.77
200	6.72	4.11	3.30	2.91	2.68	2.41	2.26	2.15	2.07	2.02	1.98	1.95	1.93	1.89	1.87	1.85	1.84	1.83	1.81	1.79

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Table 19-6. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 2 (10 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.86	1.94	1.64	1.49	1.40	1.30	1.24	1.20	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07	1.07	1.06	1.06
2	3.46	2.28	1.90	1.72	1.60	1.48	1.41	1.35	1.32	1.29	1.27	1.26	1.25	1.23	1.22	1.21	1.21	1.20	1.19	1.19
3	3.82	2.48	2.05	1.84	1.72	1.58	1.50	1.44	1.40	1.37	1.35	1.34	1.33	1.31	1.30	1.29	1.28	1.27	1.26	1.26
4	4.07	2.62	2.16	1.94	1.80	1.65	1.57	1.50	1.46	1.43	1.41	1.39	1.38	1.36	1.35	1.34	1.33	1.32	1.31	1.31
5	4.27	2.73	2.24	2.01	1.87	1.71	1.62	1.55	1.51	1.48	1.45	1.44	1.42	1.40	1.39	1.38	1.37	1.36	1.35	1.34
8	4.68	2.96	2.42	2.15	2.00	1.82	1.72	1.65	1.60	1.57	1.54	1.52	1.51	1.48	1.47	1.46	1.45	1.44	1.43	1.42
12	5.03	3.15	2.57	2.28	2.11	1.92	1.81	1.73	1.68	1.64	1.62	1.59	1.58	1.55	1.54	1.52	1.51	1.51	1.49	1.48
16	5.27	3.29	2.67	2.37	2.19	1.99	1.87	1.79	1.73	1.70	1.67	1.65	1.63	1.60	1.58	1.57	1.56	1.55	1.54	1.53
20	5.46	3.39	2.75	2.44	2.25	2.04	1.92	1.83	1.78	1.74	1.71	1.68	1.67	1.64	1.62	1.61	1.60	1.59	1.57	1.56
30	5.79	3.58	2.89	2.56	2.36	2.14	2.01	1.91	1.85	1.81	1.78	1.75	1.73	1.71	1.69	1.67	1.66	1.65	1.63	1.62
40	6.02	3.71	2.99	2.65	2.44	2.20	2.07	1.97	1.91	1.86	1.83	1.80	1.78	1.75	1.73	1.71	1.70	1.69	1.68	1.66
50	6.19	3.81	3.07	2.71	2.50	2.25	2.12	2.01	1.95	1.90	1.87	1.84	1.82	1.79	1.76	1.75	1.74	1.73	1.71	1.70
60	6.34	3.89	3.13	2.76	2.54	2.30	2.16	2.05	1.98	1.93	1.90	1.87	1.85	1.82	1.79	1.78	1.76	1.75	1.73	1.72
75	6.51	3.98	3.21	2.83	2.60	2.35	2.20	2.09	2.02	1.97	1.93	1.91	1.88	1.85	1.83	1.81	1.80	1.78	1.77	1.75
100	6.72	4.11	3.30	2.91	2.68	2.41	2.26	2.15	2.07	2.02	1.98	1.95	1.93	1.89	1.87	1.85	1.84	1.83	1.81	1.79
125	6.89	4.20	3.38	2.97	2.73	2.46	2.31	2.19	2.11	2.06	2.02	1.99	1.96	1.93	1.90	1.88	1.87	1.86	1.84	1.82
150	7.02	4.28	3.43	3.02	2.78	2.50	2.34	2.22	2.14	2.09	2.05	2.02	1.99	1.96	1.93	1.91	1.90	1.88	1.86	1.85
175	7.13	4.34	3.48	3.07	2.82	2.53	2.37	2.25	2.17	2.12	2.07	2.04	2.02	1.98	1.95	1.93	1.92	1.90	1.88	1.87
200	7.23	4.40	3.53	3.10	2.85	2.56	2.40	2.28	2.19	2.14	2.10	2.06	2.04	2.00	1.97	1.95	1.94	1.92	1.90	1.89

Table 19-6. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 2 (10 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.46	2.28	1.90	1.72	1.60	1.48	1.41	1.35	1.32	1.29	1.27	1.26	1.25	1.23	1.22	1.21	1.21	1.20	1.19	1.19
2	4.07	2.62	2.16	1.94	1.80	1.65	1.57	1.50	1.46	1.43	1.41	1.39	1.38	1.36	1.35	1.34	1.33	1.32	1.31	1.31
3	4.43	2.82	2.31	2.06	1.92	1.75	1.66	1.59	1.54	1.51	1.49	1.47	1.46	1.43	1.42	1.41	1.40	1.39	1.38	1.37
4	4.68	2.96	2.42	2.15	2.00	1.82	1.72	1.65	1.60	1.57	1.54	1.52	1.51	1.48	1.47	1.46	1.45	1.44	1.43	1.42
5	4.87	3.06	2.50	2.22	2.06	1.87	1.77	1.69	1.64	1.61	1.58	1.56	1.55	1.52	1.51	1.49	1.49	1.48	1.46	1.46
8	5.27	3.29	2.67	2.37	2.19	1.99	1.87	1.79	1.73	1.70	1.67	1.65	1.63	1.60	1.58	1.57	1.56	1.55	1.54	1.53
12	5.61	3.48	2.81	2.49	2.30	2.08	1.96	1.87	1.81	1.77	1.74	1.72	1.70	1.67	1.65	1.64	1.62	1.62	1.60	1.59
16	5.84	3.61	2.92	2.58	2.38	2.15	2.02	1.93	1.86	1.82	1.79	1.76	1.74	1.72	1.70	1.68	1.67	1.66	1.64	1.63
20	6.02	3.71	2.99	2.65	2.44	2.20	2.07	1.97	1.91	1.86	1.83	1.80	1.78	1.75	1.73	1.71	1.70	1.69	1.68	1.66
30	6.34	3.89	3.13	2.76	2.54	2.30	2.16	2.05	1.98	1.93	1.90	1.87	1.85	1.82	1.79	1.78	1.76	1.75	1.73	1.72
40	6.56	4.01	3.23	2.85	2.62	2.36	2.22	2.10	2.03	1.98	1.94	1.92	1.89	1.86	1.84	1.82	1.81	1.79	1.77	1.76
50	6.72	4.11	3.30	2.91	2.68	2.41	2.26	2.15	2.07	2.02	1.98	1.95	1.93	1.89	1.87	1.85	1.84	1.83	1.81	1.79
60	6.86	4.18	3.36	2.96	2.72	2.45	2.30	2.18	2.10	2.05	2.01	1.98	1.96	1.92	1.90	1.88	1.86	1.85	1.83	1.82
75	7.02	4.28	3.43	3.02	2.78	2.50	2.34	2.22	2.14	2.09	2.05	2.02	1.99	1.96	1.93	1.91	1.90	1.88	1.86	1.85
100	7.23	4.40	3.53	3.10	2.85	2.56	2.40	2.28	2.19	2.14	2.10	2.06	2.04	2.00	1.97	1.95	1.94	1.92	1.90	1.89
125	7.39	4.49	3.60	3.16	2.91	2.61	2.44	2.32	2.23	2.17	2.13	2.10	2.07	2.03	2.00	1.98	1.97	1.95	1.93	1.92
150	7.52	4.56	3.65	3.21	2.95	2.65	2.48	2.35	2.26	2.20	2.16	2.13	2.10	2.06	2.03	2.01	1.99	1.98	1.96	1.93
175	7.62	4.62	3.70	3.25	2.99	2.68	2.51	2.38	2.29	2.23	2.18	2.15	2.12	2.08	2.05	2.03	2.01	2.00	1.98	1.96
200	7.71	4.67	3.74	3.29	3.02	2.71	2.54	2.40	2.31	2.25	2.21	2.17	2.14	2.10	2.07	2.05	2.03	2.02	1.99	1.98

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Table 19-6. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 2 (20 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.99	1.98	1.66	1.50	1.41	1.30	1.24	1.20	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07	1.07	1.06	1.06
2	3.68	2.34	1.93	1.73	1.61	1.48	1.41	1.35	1.32	1.29	1.28	1.26	1.25	1.23	1.22	1.21	1.21	1.20	1.19	1.19
3	4.12	2.56	2.09	1.87	1.73	1.59	1.50	1.44	1.40	1.38	1.36	1.34	1.33	1.31	1.30	1.29	1.28	1.27	1.26	1.26
4	4.43	2.77	2.20	1.96	1.82	1.66	1.57	1.51	1.46	1.43	1.41	1.40	1.38	1.36	1.35	1.34	1.33	1.32	1.31	1.31
5	4.68	2.84	2.29	2.04	1.88	1.72	1.62	1.55	1.51	1.48	1.45	1.44	1.42	1.40	1.39	1.38	1.37	1.36	1.35	1.34
8	5.20	3.10	2.48	2.19	2.02	1.83	1.73	1.65	1.60	1.57	1.54	1.52	1.51	1.49	1.47	1.46	1.45	1.44	1.43	1.42
12	5.65	3.32	2.65	2.33	2.14	1.93	1.82	1.74	1.68	1.65	1.62	1.60	1.58	1.56	1.54	1.53	1.52	1.51	1.49	1.48
16	5.96	3.48	2.76	2.42	2.23	2.01	1.89	1.80	1.74	1.70	1.67	1.65	1.63	1.60	1.59	1.57	1.56	1.55	1.54	1.53
20	6.20	3.60	2.85	2.50	2.29	2.06	1.94	1.84	1.78	1.74	1.71	1.69	1.67	1.64	1.62	1.61	1.60	1.59	1.57	1.56
30	6.63	3.82	3.01	2.63	2.41	2.16	2.02	1.92	1.86	1.81	1.78	1.76	1.74	1.71	1.69	1.67	1.66	1.65	1.63	1.62
40	6.94	3.98	3.12	2.72	2.49	2.23	2.09	1.98	1.91	1.87	1.83	1.80	1.78	1.75	1.73	1.72	1.70	1.69	1.68	1.66
50	7.17	4.09	3.21	2.80	2.55	2.28	2.14	2.03	1.95	1.91	1.87	1.84	1.82	1.79	1.77	1.75	1.74	1.73	1.71	1.70
60	7.35	4.19	3.28	2.85	2.61	2.33	2.18	2.06	1.99	1.94	1.90	1.87	1.85	1.82	1.79	1.78	1.76	1.75	1.73	1.72
75	7.58	4.31	3.37	2.92	2.67	2.38	2.22	2.11	2.03	1.98	1.94	1.91	1.89	1.85	1.83	1.81	1.80	1.79	1.77	1.75
100	7.86	4.45	3.48	3.02	2.75	2.45	2.28	2.16	2.08	2.03	1.99	1.96	1.93	1.90	1.87	1.85	1.84	1.83	1.81	1.79
125	8.08	4.56	3.56	3.09	2.81	2.50	2.33	2.20	2.12	2.07	2.02	1.99	1.97	1.93	1.90	1.89	1.87	1.86	1.84	1.82
150	8.26	4.66	3.63	3.14	2.86	2.54	2.37	2.24	2.16	2.10	2.06	2.02	2.00	1.96	1.93	1.91	1.90	1.88	1.86	1.85
175	8.40	4.73	3.68	3.19	2.90	2.58	2.40	2.27	2.18	2.12	2.08	2.05	2.02	1.98	1.95	1.93	1.92	1.91	1.88	1.87
200	8.53	4.80	3.73	3.23	2.94	2.61	2.43	2.29	2.21	2.15	2.10	2.07	2.04	2.00	1.97	1.95	1.94	1.92	1.90	1.89

Table 19-6. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 2 (20 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.68	2.34	1.93	1.73	1.61	1.48	1.41	1.35	1.32	1.29	1.28	1.26	1.25	1.23	1.22	1.21	1.21	1.20	1.19	1.19
2	4.43	2.71	2.20	1.96	1.82	1.66	1.57	1.51	1.46	1.43	1.41	1.40	1.38	1.36	1.35	1.34	1.33	1.32	1.31	1.31
3	4.88	2.94	2.37	2.10	1.94	1.76	1.66	1.59	1.55	1.51	1.49	1.47	1.46	1.44	1.42	1.41	1.40	1.39	1.38	1.37
4	5.20	3.10	2.48	2.19	2.02	1.83	1.73	1.65	1.60	1.57	1.54	1.52	1.51	1.49	1.47	1.46	1.45	1.44	1.43	1.42
5	5.44	3.22	2.57	2.27	2.09	1.89	1.78	1.70	1.65	1.61	1.58	1.56	1.55	1.52	1.51	1.50	1.49	1.48	1.46	1.46
8	5.96	3.48	2.76	2.42	2.23	2.01	1.89	1.80	1.74	1.70	1.67	1.65	1.63	1.60	1.59	1.57	1.56	1.55	1.54	1.53
12	6.40	3.70	2.92	2.56	2.34	2.11	1.98	1.88	1.82	1.77	1.74	1.72	1.70	1.67	1.65	1.64	1.63	1.62	1.60	1.59
16	6.70	3.86	3.04	2.65	2.43	2.18	2.04	1.94	1.87	1.83	1.79	1.77	1.75	1.72	1.70	1.68	1.67	1.66	1.64	1.63
20	6.94	3.98	3.12	2.72	2.49	2.23	2.09	1.98	1.91	1.87	1.83	1.80	1.78	1.75	1.73	1.72	1.70	1.69	1.68	1.66
30	7.35	4.19	3.28	2.85	2.61	2.33	2.18	2.06	1.99	1.94	1.90	1.87	1.85	1.82	1.79	1.78	1.76	1.75	1.73	1.72
40	7.64	4.34	3.39	2.95	2.69	2.40	2.24	2.12	2.04	1.99	1.95	1.92	1.90	1.86	1.84	1.82	1.81	1.80	1.78	1.76
50	7.86	4.45	3.48	3.02	2.75	2.45	2.28	2.16	2.08	2.03	1.99	1.96	1.93	1.90	1.87	1.85	1.84	1.83	1.81	1.79
60	8.04	4.54	3.54	3.07	2.80	2.49	2.32	2.20	2.12	2.06	2.02	1.99	1.96	1.92	1.90	1.88	1.86	1.85	1.83	1.82
75	8.26	4.66	3.63	3.14	2.86	2.54	2.37	2.24	2.16	2.10	2.06	2.02	2.00	1.96	1.93	1.91	1.90	1.88	1.86	1.85
100	8.53	4.80	3.73	3.23	2.94	2.61	2.43	2.29	2.21	2.15	2.10	2.07	2.04	2.00	1.97	1.95	1.94	1.92	1.90	1.89
125	8.74	4.91	3.81	3.30	3.00	2.66	2.48	2.34	2.25	2.18	2.14	2.10	2.08	2.04	2.01	1.98	1.97	1.96	1.93	1.92
150	8.91	4.99	3.88	3.35	3.05	2.70	2.51	2.37	2.28	2.22	2.17	2.13	2.10	2.06	2.03	2.01	1.99	1.98	1.96	1.94
175	9.05	5.07	3.93	3.40	3.09	2.74	2.55	2.40	2.31	2.24	2.19	2.16	2.13	2.08	2.05	2.03	2.02	2.00	1.98	1.96
200	9.17	5.13	3.98	3.44	3.12	2.77	2.57	2.43	2.33	2.26	2.22	2.18	2.15	2.10	2.07	2.05	2.03	2.02	1.99	1.98

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Table 19-6. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 2 (20 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.43	2.71	2.20	1.96	1.82	1.66	1.57	1.51	1.46	1.43	1.41	1.40	1.38	1.36	1.35	1.34	1.33	1.32	1.31	1.31
2	5.20	3.10	2.48	2.19	2.02	1.83	1.73	1.65	1.60	1.57	1.54	1.52	1.51	1.49	1.47	1.46	1.45	1.44	1.43	1.42
3	5.65	3.32	2.65	2.33	2.14	1.93	1.82	1.74	1.68	1.65	1.62	1.60	1.58	1.56	1.54	1.53	1.52	1.51	1.49	1.48
4	5.96	3.48	2.76	2.42	2.23	2.01	1.89	1.80	1.74	1.70	1.67	1.65	1.63	1.60	1.59	1.57	1.56	1.55	1.54	1.53
5	6.20	3.60	2.85	2.50	2.29	2.06	1.94	1.84	1.78	1.74	1.71	1.69	1.67	1.64	1.62	1.61	1.60	1.59	1.57	1.56
8	6.70	3.86	3.04	2.65	2.43	2.18	2.04	1.94	1.87	1.83	1.79	1.77	1.75	1.72	1.70	1.68	1.67	1.66	1.64	1.63
12	7.12	4.07	3.19	2.78	2.54	2.27	2.13	2.02	1.95	1.90	1.86	1.84	1.81	1.78	1.76	1.74	1.73	1.72	1.70	1.69
16	7.42	4.22	3.31	2.87	2.62	2.34	2.19	2.07	2.00	1.95	1.91	1.88	1.86	1.83	1.80	1.79	1.77	1.76	1.74	1.73
20	7.64	4.34	3.39	2.95	2.69	2.40	2.24	2.12	2.04	1.99	1.95	1.92	1.90	1.86	1.84	1.82	1.81	1.80	1.78	1.76
30	8.04	4.54	3.54	3.07	2.80	2.49	2.32	2.20	2.12	2.06	2.02	1.99	1.96	1.92	1.90	1.88	1.86	1.85	1.83	1.82
40	8.32	4.69	3.65	3.16	2.88	2.56	2.38	2.25	2.17	2.11	2.07	2.03	2.01	1.97	1.94	1.92	1.91	1.89	1.87	1.86
50	8.53	4.80	3.73	3.23	2.94	2.61	2.43	2.29	2.21	2.15	2.10	2.07	2.04	2.00	1.97	1.95	1.94	1.92	1.90	1.89
60	8.70	4.89	3.80	3.29	2.99	2.65	2.47	2.33	2.24	2.18	2.13	2.10	2.07	2.03	2.00	1.98	1.96	1.95	1.93	1.91
75	8.91	4.99	3.88	3.35	3.05	2.70	2.51	2.37	2.28	2.22	2.17	2.13	2.10	2.06	2.03	2.01	1.99	1.98	1.96	1.94
100	9.17	5.13	3.98	3.44	3.12	2.77	2.57	2.43	2.33	2.26	2.22	2.18	2.15	2.10	2.07	2.05	2.03	2.02	1.99	1.98
125	9.37	5.23	4.06	3.50	3.18	2.82	2.62	2.47	2.37	2.30	2.25	2.21	2.18	2.14	2.11	2.08	2.06	2.05	2.02	2.01
150	9.53	5.32	4.12	3.56	3.23	2.86	2.66	2.50	2.40	2.33	2.28	2.24	2.21	2.16	2.13	2.11	2.09	2.07	2.05	2.03
175	9.66	5.39	4.17	3.60	3.27	2.89	2.69	2.53	2.43	2.36	2.30	2.26	2.23	2.19	2.15	2.13	2.11	2.09	2.07	2.05
200	9.78	5.45	4.22	3.64	3.30	2.92	2.71	2.55	2.45	2.38	2.33	2.28	2.25	2.20	2.17	2.15	2.13	2.11	2.08	2.07

Table 19-6. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 2 (40 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.84	2.38	1.94	1.74	1.62	1.49	1.41	1.36	1.32	1.29	1.28	1.26	1.25	1.23	1.22	1.21	1.21	1.20	1.19	1.19
2	4.71	2.78	2.23	1.98	1.83	1.66	1.57	1.51	1.46	1.43	1.41	1.40	1.38	1.36	1.35	1.34	1.33	1.32	1.31	1.31
3	5.25	3.02	2.40	2.12	1.95	1.77	1.67	1.59	1.55	1.51	1.49	1.47	1.46	1.44	1.42	1.41	1.40	1.39	1.38	1.37
4	5.64	3.20	2.53	2.22	2.04	1.84	1.73	1.65	1.60	1.57	1.54	1.52	1.51	1.49	1.47	1.46	1.45	1.44	1.43	1.42
5	5.95	3.34	2.62	2.29	2.10	1.90	1.79	1.70	1.65	1.61	1.59	1.56	1.55	1.52	1.51	1.50	1.49	1.48	1.46	1.46
8	6.60	3.64	2.83	2.46	2.25	2.02	1.89	1.80	1.74	1.70	1.67	1.65	1.63	1.60	1.59	1.57	1.56	1.55	1.54	1.53
12	7.16	3.89	3.00	2.60	2.37	2.12	1.98	1.88	1.82	1.78	1.74	1.72	1.70	1.67	1.65	1.64	1.63	1.62	1.60	1.59
16	7.56	4.07	3.13	2.70	2.46	2.19	2.05	1.94	1.87	1.83	1.79	1.77	1.75	1.72	1.70	1.68	1.67	1.66	1.64	1.63
20	7.86	4.21	3.23	2.78	2.53	2.25	2.10	1.99	1.92	1.87	1.83	1.81	1.79	1.75	1.73	1.72	1.70	1.69	1.68	1.66
30	8.41	4.46	3.40	2.92	2.65	2.35	2.19	2.07	1.99	1.94	1.90	1.87	1.85	1.82	1.80	1.78	1.76	1.75	1.74	1.72
40	8.79	4.64	3.53	3.02	2.73	2.42	2.25	2.13	2.05	1.99	1.95	1.92	1.90	1.86	1.84	1.82	1.81	1.80	1.78	1.76
50	9.08	4.77	3.62	3.10	2.80	2.48	2.30	2.17	2.09	2.03	1.99	1.96	1.93	1.90	1.87	1.85	1.84	1.83	1.81	1.79
60	9.31	4.88	3.70	3.16	2.86	2.52	2.34	2.21	2.12	2.06	2.02	1.99	1.96	1.93	1.90	1.88	1.87	1.85	1.83	1.82
75	9.59	5.01	3.79	3.24	2.92	2.58	2.39	2.25	2.16	2.10	2.06	2.03	2.00	1.96	1.93	1.91	1.90	1.89	1.86	1.85
100	9.95	5.18	3.91	3.34	3.01	2.65	2.45	2.31	2.22	2.15	2.11	2.07	2.04	2.00	1.98	1.95	1.94	1.93	1.90	1.89
125	10.23	5.31	4.00	3.41	3.07	2.70	2.50	2.35	2.26	2.19	2.14	2.11	2.08	2.04	2.01	1.99	1.97	1.96	1.93	1.92
150	10.45	5.42	4.08	3.47	3.13	2.74	2.54	2.39	2.29	2.22	2.17	2.14	2.11	2.06	2.03	2.01	1.99	1.98	1.96	1.94
175	10.63	5.50	4.14	3.52	3.17	2.78	2.57	2.42	2.32	2.25	2.20	2.16	2.13	2.09	2.06	2.03	2.02	2.00	1.98	1.96
200	10.79	5.58	4.20	3.57	3.21	2.81	2.60	2.44	2.34	2.27	2.22	2.18	2.15	2.11	2.08	2.05	2.03	2.02	1.99	1.98

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Table 19-6. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 2 (40 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.71	2.78	2.23	1.98	1.83	1.66	1.57	1.51	1.46	1.43	1.41	1.40	1.38	1.36	1.35	1.34	1.33	1.32	1.31	1.31
2	5.64	3.20	2.53	2.22	2.04	1.84	1.73	1.65	1.60	1.57	1.54	1.52	1.51	1.49	1.47	1.46	1.45	1.44	1.43	1.42
3	6.20	3.45	2.70	2.36	2.16	1.94	1.83	1.74	1.68	1.65	1.62	1.60	1.58	1.56	1.54	1.53	1.52	1.51	1.49	1.48
4	6.60	3.64	2.83	2.46	2.25	2.02	1.89	1.80	1.74	1.70	1.67	1.65	1.63	1.60	1.59	1.57	1.56	1.55	1.54	1.53
5	6.91	3.78	2.92	2.54	2.32	2.07	1.94	1.85	1.78	1.74	1.71	1.69	1.67	1.64	1.62	1.61	1.60	1.59	1.57	1.56
8	7.56	4.07	3.13	2.70	2.46	2.19	2.05	1.94	1.87	1.83	1.79	1.77	1.75	1.72	1.70	1.68	1.67	1.66	1.64	1.63
12	8.11	4.32	3.31	2.84	2.58	2.29	2.14	2.02	1.95	1.90	1.87	1.84	1.82	1.78	1.76	1.74	1.73	1.72	1.70	1.69
16	8.49	4.50	3.43	2.94	2.67	2.36	2.20	2.08	2.01	1.95	1.91	1.89	1.86	1.83	1.81	1.79	1.77	1.76	1.74	1.73
20	8.79	4.64	3.53	3.02	2.73	2.42	2.25	2.13	2.05	1.99	1.95	1.92	1.90	1.86	1.84	1.82	1.81	1.80	1.78	1.76
30	9.31	4.88	3.70	3.16	2.86	2.52	2.34	2.21	2.12	2.06	2.02	1.99	1.96	1.93	1.90	1.88	1.87	1.85	1.83	1.82
40	9.68	5.05	3.82	3.26	2.94	2.59	2.40	2.26	2.17	2.11	2.07	2.04	2.01	1.97	1.94	1.92	1.91	1.89	1.87	1.86
50	9.95	5.18	3.91	3.34	3.01	2.65	2.45	2.31	2.22	2.15	2.11	2.07	2.04	2.00	1.98	1.95	1.94	1.93	1.90	1.89
60	10.18	5.29	3.99	3.40	3.06	2.69	2.49	2.34	2.25	2.18	2.14	2.10	2.07	2.03	2.00	1.98	1.96	1.95	1.93	1.91
75	10.45	5.42	4.08	3.47	3.13	2.74	2.54	2.39	2.29	2.22	2.17	2.14	2.11	2.06	2.03	2.01	1.99	1.98	1.96	1.94
100	10.79	5.58	4.20	3.57	3.21	2.81	2.60	2.44	2.34	2.27	2.22	2.18	2.15	2.11	2.08	2.05	2.03	2.02	1.99	1.98
125	11.05	5.70	4.28	3.64	3.27	2.87	2.65	2.48	2.38	2.31	2.26	2.22	2.19	2.14	2.11	2.08	2.06	2.05	2.02	2.01
150	11.27	5.81	4.36	3.70	3.32	2.91	2.69	2.52	2.41	2.34	2.29	2.25	2.21	2.17	2.13	2.11	2.09	2.07	2.05	2.03
175	11.44	5.89	4.42	3.75	3.37	2.95	2.72	2.55	2.44	2.37	2.31	2.27	2.24	2.19	2.15	2.13	2.11	2.09	2.07	2.05
200	11.60	5.96	4.47	3.79	3.41	2.98	2.75	2.57	2.46	2.39	2.33	2.29	2.26	2.21	2.17	2.15	2.13	2.11	2.08	2.07

Table 19-6. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 2 (40 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	5.64	3.20	2.53	2.22	2.04	1.84	1.73	1.65	1.60	1.57	1.54	1.52	1.51	1.49	1.47	1.46	1.45	1.44	1.43	1.42
2	6.60	3.64	2.83	2.46	2.25	2.02	1.89	1.80	1.74	1.70	1.67	1.65	1.63	1.60	1.59	1.57	1.56	1.55	1.54	1.53
3	7.16	3.89	3.00	2.60	2.37	2.12	1.98	1.88	1.82	1.78	1.74	1.72	1.70	1.67	1.65	1.64	1.63	1.62	1.60	1.59
4	7.56	4.07	3.13	2.70	2.46	2.19	2.05	1.94	1.87	1.83	1.79	1.77	1.75	1.72	1.70	1.68	1.67	1.66	1.64	1.63
5	7.86	4.21	3.23	2.78	2.53	2.25	2.10	1.99	1.92	1.87	1.83	1.81	1.79	1.75	1.73	1.72	1.70	1.69	1.68	1.66
8	8.49	4.50	3.43	2.94	2.67	2.36	2.20	2.08	2.01	1.95	1.91	1.89	1.86	1.83	1.81	1.79	1.77	1.76	1.74	1.73
12	9.02	4.75	3.60	3.09	2.79	2.47	2.29	2.16	2.08	2.02	1.98	1.95	1.93	1.89	1.87	1.85	1.83	1.82	1.79	1.79
16	9.39	4.92	3.73	3.18	2.88	2.54	2.35	2.22	2.13	2.08	2.03	2.00	1.97	1.94	1.91	1.89	1.87	1.86	1.84	1.83
20	9.68	5.05	3.82	3.26	2.94	2.59	2.40	2.26	2.17	2.11	2.07	2.04	2.01	1.97	1.94	1.92	1.91	1.89	1.87	1.86
30	10.18	5.29	3.99	3.40	3.06	2.69	2.49	2.34	2.25	2.18	2.14	2.10	2.07	2.03	2.00	1.98	1.96	1.95	1.93	1.91
40	10.53	5.45	4.11	3.49	3.14	2.76	2.55	2.40	2.30	2.23	2.18	2.15	2.12	2.07	2.04	2.02	2.00	1.99	1.97	1.95
50	10.79	5.58	4.20	3.57	3.21	2.81	2.60	2.44	2.34	2.27	2.22	2.18	2.15	2.11	2.08	2.05	2.03	2.02	1.99	1.98
60	11.01	5.68	4.27	3.63	3.26	2.86	2.64	2.48	2.37	2.30	2.25	2.21	2.18	2.13	2.10	2.08	2.06	2.04	2.02	2.00
75	11.27	5.81	4.36	3.70	3.32	2.91	2.69	2.52	2.41	2.34	2.29	2.25	2.21	2.17	2.13	2.11	2.09	2.07	2.05	2.03
100	11.60	5.96	4.47	3.79	3.41	2.98	2.75	2.57	2.46	2.39	2.33	2.29	2.26	2.21	2.17	2.15	2.13	2.11	2.08	2.07
125	11.85	6.08	4.56	3.86	3.47	3.03	2.79	2.62	2.50	2.43	2.37	2.32	2.29	2.24	2.20	2.18	2.16	2.14	2.11	2.09
150	12.05	6.18	4.63	3.92	3.52	3.07	2.83	2.65	2.54	2.46	2.40	2.35	2.32	2.27	2.23	2.20	2.18	2.17	2.14	2.12
175	12.22	6.26	4.68	3.97	3.56	3.11	2.86	2.68	2.56	2.48	2.42	2.38	2.34	2.29	2.25	2.22	2.20	2.19	2.16	2.14
200	12.37	6.33	4.74	4.01	3.60	3.14	2.89	2.70	2.59	2.50	2.44	2.40	2.36	2.31	2.27	2.24	2.22	2.20	2.17	2.15

Table 19-7. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Means of Order 2 (1 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.37	0.27	0.22	0.19	0.17	0.14	0.13	0.11	0.11	0.10	0.10	0.09	0.09	0.08	0.08	0.08	0.08	0.08	0.07	0.07
2	0.64	0.50	0.43	0.39	0.36	0.33	0.31	0.30	0.29	0.28	0.27	0.27	0.26	0.26	0.25	0.25	0.25	0.25	0.24	0.24
3	0.79	0.62	0.54	0.50	0.47	0.43	0.41	0.39	0.38	0.37	0.37	0.36	0.36	0.35	0.35	0.34	0.34	0.34	0.33	0.33
4	0.90	0.71	0.62	0.57	0.54	0.50	0.48	0.46	0.45	0.44	0.43	0.42	0.42	0.41	0.41	0.40	0.40	0.40	0.39	0.39
5	0.98	0.77	0.68	0.63	0.60	0.55	0.53	0.51	0.49	0.48	0.48	0.47	0.47	0.46	0.45	0.45	0.45	0.44	0.44	0.44
8	1.15	0.91	0.80	0.75	0.71	0.66	0.63	0.61	0.59	0.58	0.57	0.56	0.56	0.55	0.54	0.54	0.54	0.53	0.53	0.53
12	1.29	1.02	0.90	0.84	0.80	0.74	0.71	0.69	0.67	0.66	0.65	0.64	0.63	0.63	0.62	0.61	0.61	0.61	0.60	0.60
16	1.38	1.10	0.97	0.90	0.86	0.80	0.77	0.74	0.72	0.71	0.70	0.69	0.69	0.68	0.67	0.66	0.66	0.66	0.65	0.65
20	1.46	1.15	1.03	0.95	0.91	0.85	0.81	0.78	0.76	0.75	0.74	0.73	0.73	0.72	0.71	0.70	0.70	0.69	0.69	0.68
30	1.59	1.26	1.12	1.04	0.99	0.93	0.89	0.86	0.84	0.82	0.81	0.80	0.79	0.78	0.78	0.77	0.76	0.76	0.75	0.75
40	1.68	1.33	1.18	1.10	1.05	0.98	0.94	0.91	0.89	0.87	0.86	0.85	0.84	0.83	0.82	0.81	0.81	0.81	0.80	0.79
50	1.75	1.38	1.23	1.15	1.09	1.02	0.98	0.95	0.92	0.91	0.89	0.88	0.88	0.86	0.86	0.85	0.84	0.84	0.83	0.83
60	1.81	1.43	1.27	1.18	1.13	1.06	1.01	0.98	0.95	0.94	0.92	0.91	0.91	0.89	0.88	0.88	0.87	0.87	0.86	0.85
75	1.87	1.48	1.32	1.23	1.17	1.10	1.05	1.01	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.91	0.91	0.90	0.89	0.89
100	1.96	1.55	1.38	1.28	1.22	1.15	1.10	1.06	1.04	1.02	1.00	0.99	0.98	0.97	0.96	0.95	0.95	0.94	0.93	0.93
125	2.02	1.60	1.42	1.33	1.26	1.18	1.14	1.10	1.07	1.05	1.04	1.03	1.02	1.00	0.99	0.98	0.98	0.97	0.97	0.96
150	2.08	1.64	1.46	1.36	1.30	1.21	1.17	1.13	1.10	1.08	1.06	1.05	1.04	1.03	1.02	1.01	1.00	1.00	0.99	0.98
175	2.12	1.67	1.49	1.39	1.32	1.24	1.19	1.15	1.12	1.10	1.09	1.08	1.07	1.05	1.04	1.03	1.03	1.02	1.01	1.00
200	2.16	1.70	1.52	1.41	1.35	1.26	1.21	1.17	1.14	1.12	1.11	1.09	1.08	1.07	1.06	1.05	1.04	1.04	1.03	1.02

Table 19-7. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Means of Order 2 (1 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.64	0.50	0.43	0.39	0.36	0.33	0.31	0.30	0.29	0.28	0.27	0.27	0.26	0.26	0.25	0.25	0.25	0.25	0.24	0.24
2	0.90	0.71	0.62	0.57	0.54	0.50	0.48	0.46	0.45	0.44	0.43	0.42	0.42	0.41	0.41	0.40	0.40	0.40	0.39	0.39
3	1.04	0.83	0.73	0.68	0.64	0.59	0.57	0.55	0.53	0.52	0.51	0.51	0.50	0.49	0.49	0.49	0.48	0.48	0.48	0.47
4	1.15	0.91	0.80	0.75	0.71	0.66	0.63	0.61	0.59	0.58	0.57	0.56	0.56	0.55	0.54	0.54	0.54	0.53	0.53	0.53
5	1.22	0.97	0.86	0.80	0.76	0.71	0.68	0.65	0.63	0.62	0.61	0.61	0.60	0.59	0.59	0.58	0.58	0.57	0.57	0.57
8	1.38	1.10	0.97	0.90	0.86	0.80	0.77	0.74	0.72	0.71	0.70	0.69	0.69	0.68	0.67	0.66	0.66	0.66	0.65	0.65
12	1.52	1.20	1.07	0.99	0.94	0.88	0.85	0.82	0.80	0.78	0.77	0.76	0.76	0.75	0.74	0.73	0.73	0.73	0.72	0.71
16	1.61	1.27	1.13	1.05	1.00	0.94	0.90	0.87	0.85	0.83	0.82	0.81	0.80	0.79	0.79	0.78	0.77	0.77	0.76	0.76
20	1.68	1.33	1.18	1.10	1.05	0.98	0.94	0.91	0.89	0.87	0.86	0.85	0.84	0.83	0.82	0.81	0.81	0.81	0.80	0.79
30	1.81	1.43	1.27	1.18	1.13	1.06	1.01	0.98	0.95	0.94	0.92	0.91	0.91	0.89	0.88	0.88	0.87	0.87	0.86	0.85
40	1.89	1.50	1.33	1.24	1.18	1.11	1.06	1.03	1.00	0.98	0.97	0.96	0.95	0.94	0.93	0.92	0.91	0.91	0.90	0.90
50	1.96	1.55	1.38	1.28	1.22	1.15	1.10	1.06	1.04	1.02	1.00	0.99	0.98	0.97	0.96	0.95	0.95	0.94	0.93	0.93
60	2.01	1.59	1.42	1.32	1.26	1.18	1.13	1.09	1.06	1.05	1.03	1.02	1.01	1.00	0.99	0.98	0.97	0.97	0.96	0.95
75	2.08	1.64	1.46	1.36	1.30	1.21	1.17	1.13	1.10	1.08	1.06	1.05	1.04	1.03	1.02	1.01	1.00	1.00	0.99	0.98
100	2.16	1.70	1.52	1.41	1.35	1.26	1.21	1.17	1.14	1.12	1.11	1.09	1.08	1.07	1.06	1.05	1.04	1.04	1.03	1.02
125	2.22	1.75	1.56	1.45	1.38	1.30	1.25	1.20	1.18	1.15	1.14	1.13	1.12	1.10	1.09	1.08	1.07	1.07	1.06	1.05
150	2.27	1.79	1.60	1.49	1.42	1.33	1.28	1.23	1.20	1.18	1.16	1.15	1.14	1.13	1.11	1.11	1.10	1.09	1.08	1.08
175	2.31	1.82	1.62	1.51	1.44	1.35	1.30	1.25	1.22	1.20	1.19	1.17	1.16	1.15	1.13	1.13	1.12	1.11	1.10	1.10
200	2.35	1.85	1.65	1.54	1.46	1.37	1.32	1.27	1.24	1.22	1.20	1.19	1.18	1.16	1.15	1.14	1.14	1.13	1.12	1.11

Table 19-7. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Means of Order 2 (1 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.90	0.71	0.62	0.57	0.54	0.50	0.48	0.46	0.45	0.44	0.43	0.42	0.42	0.41	0.41	0.40	0.40	0.40	0.39	0.39
2	1.15	0.91	0.80	0.75	0.71	0.66	0.63	0.61	0.59	0.58	0.57	0.56	0.56	0.55	0.54	0.54	0.54	0.53	0.53	0.53
3	1.29	1.02	0.90	0.84	0.80	0.74	0.71	0.69	0.67	0.66	0.65	0.64	0.63	0.63	0.62	0.61	0.61	0.61	0.60	0.60
4	1.38	1.10	0.97	0.90	0.86	0.80	0.77	0.74	0.72	0.71	0.70	0.69	0.69	0.68	0.67	0.66	0.66	0.66	0.65	0.65
5	1.46	1.15	1.03	0.95	0.91	0.85	0.81	0.78	0.76	0.75	0.74	0.73	0.73	0.72	0.71	0.70	0.70	0.69	0.69	0.68
8	1.61	1.27	1.13	1.05	1.00	0.94	0.90	0.87	0.85	0.83	0.82	0.81	0.80	0.79	0.79	0.78	0.77	0.77	0.76	0.76
12	1.74	1.37	1.22	1.14	1.08	1.01	0.97	0.94	0.92	0.90	0.89	0.88	0.87	0.86	0.85	0.84	0.84	0.83	0.83	0.82
16	1.83	1.44	1.29	1.20	1.14	1.07	1.02	0.99	0.96	0.95	0.93	0.92	0.92	0.90	0.89	0.89	0.88	0.88	0.87	0.86
20	1.89	1.50	1.33	1.24	1.18	1.11	1.06	1.03	1.00	0.98	0.97	0.96	0.95	0.94	0.93	0.92	0.91	0.91	0.90	0.90
30	2.01	1.59	1.42	1.32	1.26	1.18	1.13	1.09	1.06	1.05	1.03	1.02	1.01	1.00	0.99	0.98	0.97	0.97	0.96	0.95
40	2.09	1.65	1.47	1.37	1.31	1.23	1.18	1.14	1.11	1.09	1.07	1.06	1.05	1.04	1.03	1.02	1.01	1.01	1.00	0.99
50	2.16	1.70	1.52	1.41	1.35	1.26	1.21	1.17	1.14	1.12	1.11	1.09	1.08	1.07	1.06	1.05	1.04	1.04	1.03	1.02
60	2.21	1.74	1.55	1.45	1.38	1.29	1.24	1.20	1.17	1.15	1.13	1.12	1.11	1.09	1.08	1.08	1.07	1.06	1.05	1.05
75	2.27	1.79	1.60	1.49	1.42	1.33	1.28	1.23	1.20	1.18	1.16	1.15	1.14	1.13	1.11	1.11	1.10	1.09	1.08	1.08
100	2.35	1.85	1.65	1.54	1.46	1.37	1.32	1.27	1.24	1.22	1.20	1.19	1.18	1.16	1.15	1.14	1.14	1.13	1.12	1.11
125	2.41	1.90	1.69	1.58	1.50	1.41	1.35	1.31	1.28	1.25	1.24	1.22	1.21	1.19	1.18	1.17	1.16	1.16	1.15	1.14
150	2.46	1.93	1.72	1.61	1.53	1.44	1.38	1.33	1.30	1.28	1.26	1.25	1.24	1.22	1.21	1.20	1.19	1.18	1.17	1.16
175	2.50	1.96	1.75	1.63	1.56	1.46	1.40	1.36	1.32	1.30	1.28	1.27	1.26	1.24	1.22	1.21	1.21	1.20	1.19	1.18
200	2.53	1.99	1.78	1.66	1.58	1.48	1.42	1.37	1.34	1.32	1.30	1.28	1.27	1.25	1.24	1.23	1.22	1.22	1.21	1.20

Table 19-7. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Means of Order 2 (2 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.71	0.53	0.45	0.41	0.38	0.34	0.32	0.30	0.29	0.28	0.28	0.27	0.27	0.26	0.26	0.25	0.25	0.25	0.25	0.24
2	1.00	0.76	0.66	0.60	0.56	0.51	0.49	0.47	0.45	0.44	0.43	0.43	0.42	0.41	0.41	0.41	0.40	0.40	0.40	0.39
3	1.17	0.89	0.77	0.70	0.66	0.61	0.58	0.55	0.54	0.53	0.52	0.51	0.51	0.50	0.49	0.49	0.48	0.48	0.48	0.47
4	1.30	0.98	0.85	0.78	0.73	0.68	0.64	0.62	0.60	0.59	0.58	0.57	0.56	0.55	0.55	0.54	0.54	0.54	0.53	0.53
5	1.39	1.05	0.91	0.83	0.78	0.72	0.69	0.66	0.64	0.63	0.62	0.61	0.60	0.60	0.59	0.58	0.58	0.58	0.57	0.57
8	1.59	1.19	1.04	0.95	0.89	0.83	0.79	0.75	0.73	0.72	0.71	0.70	0.69	0.68	0.67	0.67	0.66	0.66	0.65	0.65
12	1.76	1.31	1.14	1.04	0.98	0.91	0.87	0.83	0.81	0.79	0.78	0.77	0.76	0.75	0.74	0.74	0.73	0.73	0.72	0.72
16	1.88	1.40	1.21	1.11	1.05	0.97	0.92	0.88	0.86	0.84	0.83	0.82	0.81	0.80	0.79	0.78	0.78	0.77	0.77	0.76
20	1.97	1.46	1.27	1.16	1.09	1.01	0.96	0.92	0.90	0.88	0.87	0.86	0.85	0.83	0.83	0.82	0.81	0.81	0.80	0.80
30	2.13	1.58	1.37	1.25	1.18	1.09	1.04	1.00	0.97	0.95	0.93	0.92	0.91	0.90	0.89	0.88	0.88	0.87	0.86	0.86
40	2.24	1.66	1.44	1.32	1.24	1.15	1.09	1.05	1.02	1.00	0.98	0.97	0.96	0.94	0.93	0.92	0.92	0.91	0.90	0.90
50	2.33	1.72	1.49	1.36	1.28	1.19	1.13	1.08	1.05	1.03	1.02	1.00	0.99	0.98	0.97	0.96	0.95	0.95	0.94	0.93
60	2.40	1.77	1.53	1.40	1.32	1.22	1.16	1.11	1.08	1.06	1.04	1.03	1.02	1.00	0.99	0.98	0.98	0.97	0.96	0.96
75	2.48	1.83	1.58	1.45	1.36	1.26	1.20	1.15	1.12	1.10	1.08	1.06	1.05	1.04	1.02	1.02	1.01	1.00	0.99	0.99
100	2.59	1.90	1.65	1.51	1.42	1.31	1.25	1.20	1.16	1.14	1.12	1.11	1.10	1.08	1.07	1.06	1.05	1.04	1.03	1.03
125	2.67	1.96	1.70	1.55	1.46	1.35	1.29	1.23	1.20	1.17	1.15	1.14	1.13	1.11	1.10	1.09	1.08	1.07	1.06	1.05
150	2.73	2.01	1.74	1.59	1.50	1.38	1.32	1.26	1.23	1.20	1.18	1.17	1.15	1.13	1.12	1.11	1.10	1.10	1.09	1.08
175	2.79	2.05	1.77	1.62	1.52	1.41	1.34	1.29	1.25	1.22	1.20	1.19	1.17	1.16	1.14	1.13	1.12	1.12	1.11	1.10
200	2.83	2.08	1.80	1.65	1.55	1.43	1.36	1.31	1.27	1.24	1.22	1.21	1.19	1.17	1.16	1.15	1.14	1.14	1.12	1.12

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Table 19-7. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Means of Order 2 (2 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.00	0.76	0.66	0.60	0.56	0.51	0.49	0.47	0.45	0.44	0.43	0.43	0.42	0.41	0.41	0.41	0.40	0.40	0.40	0.39
2	1.30	0.98	0.85	0.78	0.73	0.68	0.64	0.62	0.60	0.59	0.58	0.57	0.56	0.55	0.55	0.54	0.54	0.54	0.53	0.53
3	1.47	1.10	0.96	0.88	0.83	0.76	0.73	0.70	0.68	0.66	0.65	0.65	0.64	0.63	0.62	0.62	0.61	0.61	0.60	0.60
4	1.59	1.19	1.04	0.95	0.89	0.83	0.79	0.75	0.73	0.72	0.71	0.70	0.69	0.68	0.67	0.67	0.66	0.66	0.65	0.65
5	1.68	1.26	1.09	1.00	0.94	0.87	0.83	0.80	0.77	0.76	0.75	0.74	0.73	0.72	0.71	0.71	0.70	0.70	0.69	0.69
8	1.88	1.40	1.21	1.11	1.05	0.97	0.92	0.88	0.86	0.84	0.83	0.82	0.81	0.80	0.79	0.78	0.78	0.77	0.77	0.76
12	2.04	1.52	1.31	1.20	1.13	1.05	1.00	0.96	0.93	0.91	0.90	0.89	0.88	0.86	0.85	0.85	0.84	0.84	0.83	0.82
16	2.15	1.60	1.38	1.27	1.19	1.10	1.05	1.01	0.98	0.96	0.94	0.93	0.92	0.91	0.90	0.89	0.89	0.88	0.87	0.87
20	2.24	1.66	1.44	1.32	1.24	1.15	1.09	1.05	1.02	1.00	0.98	0.97	0.96	0.94	0.93	0.92	0.92	0.91	0.90	0.90
30	2.40	1.77	1.53	1.40	1.32	1.22	1.16	1.11	1.08	1.06	1.04	1.03	1.02	1.00	0.99	0.98	0.98	0.97	0.96	0.96
40	2.50	1.85	1.60	1.46	1.38	1.27	1.21	1.16	1.13	1.11	1.09	1.07	1.06	1.05	1.03	1.02	1.02	1.01	1.00	1.00
50	2.59	1.90	1.65	1.51	1.42	1.31	1.25	1.20	1.16	1.14	1.12	1.11	1.10	1.08	1.07	1.06	1.05	1.04	1.03	1.03
60	2.65	1.95	1.69	1.54	1.45	1.34	1.28	1.23	1.19	1.17	1.15	1.13	1.12	1.10	1.09	1.08	1.07	1.07	1.06	1.05
75	2.73	2.01	1.74	1.59	1.50	1.38	1.32	1.26	1.23	1.20	1.18	1.17	1.15	1.13	1.12	1.11	1.10	1.10	1.09	1.08
100	2.83	2.08	1.80	1.65	1.55	1.43	1.36	1.31	1.27	1.24	1.22	1.21	1.19	1.17	1.16	1.15	1.14	1.14	1.12	1.12
125	2.91	2.14	1.85	1.69	1.59	1.47	1.40	1.34	1.30	1.27	1.25	1.24	1.22	1.20	1.19	1.18	1.17	1.16	1.15	1.14
150	2.97	2.18	1.88	1.72	1.62	1.50	1.43	1.37	1.33	1.30	1.28	1.26	1.25	1.23	1.21	1.20	1.19	1.19	1.17	1.17
175	3.03	2.22	1.92	1.75	1.65	1.53	1.45	1.39	1.35	1.32	1.30	1.28	1.27	1.25	1.23	1.22	1.21	1.21	1.19	1.19
200	3.07	2.25	1.94	1.78	1.67	1.55	1.47	1.41	1.37	1.34	1.32	1.30	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20

Table 19-7. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Means of Order 2 (2 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.30	0.98	0.85	0.78	0.73	0.68	0.64	0.62	0.60	0.59	0.58	0.57	0.56	0.55	0.55	0.54	0.54	0.54	0.53	0.53
2	1.59	1.19	1.04	0.95	0.89	0.83	0.79	0.75	0.73	0.72	0.71	0.70	0.69	0.68	0.67	0.67	0.66	0.66	0.65	0.65
3	1.76	1.31	1.14	1.04	0.98	0.91	0.87	0.83	0.81	0.79	0.78	0.77	0.76	0.75	0.74	0.74	0.73	0.73	0.72	0.72
4	1.88	1.40	1.21	1.11	1.05	0.97	0.92	0.88	0.86	0.84	0.83	0.82	0.81	0.80	0.79	0.78	0.78	0.77	0.77	0.76
5	1.97	1.46	1.27	1.16	1.09	1.01	0.96	0.92	0.90	0.88	0.87	0.86	0.85	0.83	0.83	0.82	0.81	0.81	0.80	0.80
8	2.15	1.60	1.38	1.27	1.19	1.10	1.05	1.01	0.98	0.96	0.94	0.93	0.92	0.91	0.90	0.89	0.89	0.88	0.87	0.87
12	2.31	1.71	1.48	1.35	1.28	1.18	1.12	1.08	1.05	1.03	1.01	1.00	0.99	0.97	0.96	0.95	0.95	0.94	0.93	0.92
16	2.42	1.79	1.55	1.42	1.33	1.23	1.17	1.12	1.09	1.07	1.05	1.04	1.03	1.01	1.00	0.99	0.99	0.98	0.97	0.96
20	2.50	1.85	1.60	1.46	1.38	1.27	1.21	1.16	1.13	1.11	1.09	1.07	1.06	1.05	1.03	1.02	1.02	1.01	1.00	1.00
30	2.65	1.95	1.69	1.54	1.45	1.34	1.28	1.23	1.19	1.17	1.15	1.13	1.12	1.10	1.09	1.08	1.07	1.07	1.06	1.05
40	2.75	2.02	1.75	1.60	1.51	1.39	1.33	1.27	1.24	1.21	1.19	1.17	1.16	1.14	1.13	1.12	1.11	1.11	1.09	1.09
50	2.83	2.08	1.80	1.65	1.55	1.43	1.36	1.31	1.27	1.24	1.22	1.21	1.19	1.17	1.16	1.15	1.14	1.14	1.12	1.12
60	2.90	2.13	1.84	1.68	1.58	1.46	1.39	1.33	1.30	1.27	1.25	1.23	1.22	1.20	1.18	1.17	1.17	1.16	1.15	1.14
75	2.97	2.18	1.88	1.72	1.62	1.50	1.43	1.37	1.33	1.30	1.28	1.26	1.25	1.23	1.21	1.20	1.19	1.19	1.17	1.17
100	3.07	2.25	1.94	1.78	1.67	1.55	1.47	1.41	1.37	1.34	1.32	1.30	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20
125	3.14	2.30	1.99	1.82	1.71	1.58	1.51	1.44	1.40	1.37	1.35	1.33	1.32	1.30	1.28	1.27	1.26	1.25	1.24	1.23
150	3.20	2.35	2.03	1.85	1.74	1.61	1.53	1.47	1.43	1.40	1.37	1.36	1.34	1.32	1.30	1.29	1.28	1.27	1.26	1.25
175	3.25	2.38	2.06	1.88	1.77	1.64	1.56	1.49	1.45	1.42	1.39	1.38	1.36	1.34	1.32	1.31	1.30	1.29	1.28	1.27
200	3.30	2.41	2.08	1.91	1.79	1.66	1.58	1.51	1.47	1.44	1.41	1.39	1.38	1.36	1.34	1.33	1.32	1.31	1.29	1.28

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Table 19-7. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Means of Order 2 (5 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.20	0.87	0.74	0.67	0.63	0.58	0.54	0.52	0.50	0.49	0.48	0.48	0.47	0.46	0.46	0.45	0.45	0.45	0.44	0.44
2	1.56	1.11	0.95	0.86	0.80	0.74	0.70	0.67	0.65	0.63	0.62	0.61	0.61	0.60	0.59	0.59	0.58	0.58	0.57	0.57
3	1.78	1.26	1.07	0.97	0.90	0.83	0.78	0.75	0.73	0.71	0.70	0.69	0.68	0.67	0.66	0.66	0.65	0.65	0.64	0.64
4	1.93	1.36	1.15	1.04	0.97	0.89	0.84	0.81	0.78	0.76	0.75	0.74	0.73	0.72	0.71	0.71	0.70	0.70	0.69	0.69
5	2.05	1.44	1.21	1.10	1.02	0.94	0.89	0.85	0.82	0.80	0.79	0.78	0.77	0.76	0.75	0.74	0.74	0.74	0.73	0.72
8	2.31	1.60	1.35	1.21	1.13	1.04	0.98	0.94	0.91	0.89	0.87	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.80	0.80
12	2.53	1.74	1.46	1.31	1.22	1.12	1.06	1.01	0.98	0.96	0.94	0.93	0.92	0.90	0.89	0.88	0.88	0.87	0.86	0.86
16	2.69	1.84	1.54	1.38	1.29	1.18	1.11	1.06	1.03	1.00	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.90
20	2.81	1.91	1.60	1.44	1.34	1.22	1.15	1.10	1.07	1.04	1.02	1.01	1.00	0.98	0.97	0.96	0.95	0.95	0.94	0.93
30	3.02	2.05	1.71	1.53	1.43	1.30	1.23	1.17	1.13	1.11	1.09	1.07	1.06	1.04	1.03	1.02	1.01	1.01	1.00	0.99
40	3.17	2.14	1.78	1.60	1.49	1.35	1.28	1.22	1.18	1.15	1.13	1.11	1.10	1.08	1.07	1.06	1.05	1.05	1.03	1.03
50	3.29	2.21	1.84	1.65	1.53	1.40	1.32	1.26	1.21	1.19	1.16	1.15	1.13	1.12	1.10	1.09	1.08	1.08	1.06	1.06
60	3.38	2.27	1.89	1.69	1.57	1.43	1.35	1.29	1.24	1.21	1.19	1.17	1.16	1.14	1.13	1.12	1.11	1.10	1.09	1.08
75	3.49	2.34	1.95	1.74	1.62	1.47	1.39	1.32	1.28	1.25	1.22	1.21	1.19	1.17	1.16	1.15	1.14	1.13	1.12	1.11
100	3.63	2.43	2.02	1.81	1.68	1.53	1.44	1.37	1.32	1.29	1.27	1.25	1.23	1.21	1.20	1.18	1.17	1.17	1.15	1.15
125	3.74	2.50	2.07	1.86	1.72	1.57	1.47	1.40	1.36	1.32	1.30	1.28	1.26	1.24	1.23	1.21	1.20	1.20	1.18	1.17
150	3.83	2.55	2.12	1.90	1.76	1.60	1.51	1.43	1.38	1.35	1.32	1.31	1.29	1.27	1.25	1.24	1.23	1.22	1.20	1.20
175	3.90	2.60	2.16	1.93	1.79	1.63	1.53	1.46	1.41	1.37	1.35	1.33	1.31	1.29	1.27	1.26	1.25	1.24	1.22	1.21
200	3.97	2.64	2.19	1.96	1.82	1.65	1.55	1.48	1.43	1.39	1.37	1.34	1.33	1.30	1.29	1.27	1.26	1.25	1.24	1.23

Table 19-7. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Means of Order 2 (5 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.56	1.11	0.95	0.86	0.80	0.74	0.70	0.67	0.65	0.63	0.62	0.61	0.61	0.60	0.59	0.59	0.58	0.58	0.57	0.57
2	1.93	1.36	1.15	1.04	0.97	0.89	0.84	0.81	0.78	0.76	0.75	0.74	0.73	0.72	0.71	0.71	0.70	0.70	0.69	0.69
3	2.15	1.50	1.26	1.14	1.07	0.98	0.92	0.88	0.86	0.84	0.82	0.81	0.80	0.79	0.78	0.77	0.77	0.77	0.76	0.75
4	2.31	1.60	1.35	1.21	1.13	1.04	0.98	0.94	0.91	0.89	0.87	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.80	0.80
5	2.43	1.68	1.41	1.27	1.18	1.08	1.02	0.98	0.95	0.93	0.91	0.90	0.89	0.87	0.86	0.86	0.85	0.85	0.84	0.83
8	2.69	1.84	1.54	1.38	1.29	1.18	1.11	1.06	1.03	1.00	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.90
12	2.91	1.97	1.65	1.48	1.38	1.26	1.19	1.13	1.10	1.07	1.05	1.04	1.03	1.01	1.00	0.99	0.98	0.97	0.96	0.96
16	3.06	2.07	1.72	1.55	1.44	1.31	1.24	1.18	1.14	1.12	1.10	1.08	1.07	1.05	1.04	1.03	1.02	1.01	1.00	1.00
20	3.17	2.14	1.78	1.60	1.49	1.35	1.28	1.22	1.18	1.15	1.13	1.11	1.10	1.08	1.07	1.06	1.05	1.05	1.03	1.03
30	3.38	2.27	1.89	1.69	1.57	1.43	1.35	1.29	1.24	1.21	1.19	1.17	1.16	1.14	1.13	1.12	1.11	1.10	1.09	1.08
40	3.52	2.36	1.96	1.76	1.63	1.48	1.40	1.33	1.29	1.26	1.23	1.22	1.20	1.18	1.17	1.15	1.15	1.14	1.13	1.12
50	3.63	2.43	2.02	1.81	1.68	1.53	1.44	1.37	1.32	1.29	1.27	1.25	1.23	1.21	1.20	1.18	1.17	1.17	1.15	1.15
60	3.72	2.49	2.06	1.85	1.72	1.56	1.47	1.40	1.35	1.32	1.29	1.27	1.26	1.24	1.22	1.21	1.20	1.19	1.18	1.17
75	3.83	2.55	2.12	1.90	1.76	1.60	1.51	1.43	1.38	1.35	1.32	1.31	1.29	1.27	1.25	1.24	1.23	1.22	1.20	1.20
100	3.97	2.64	2.19	1.96	1.82	1.65	1.55	1.48	1.43	1.39	1.37	1.34	1.33	1.30	1.29	1.27	1.26	1.25	1.24	1.23
125	4.07	2.71	2.24	2.01	1.86	1.69	1.59	1.51	1.46	1.42	1.40	1.38	1.36	1.33	1.31	1.30	1.29	1.28	1.27	1.26
150	4.16	2.76	2.29	2.04	1.90	1.72	1.62	1.54	1.49	1.45	1.42	1.40	1.38	1.36	1.34	1.32	1.31	1.30	1.29	1.28
175	4.23	2.80	2.32	2.08	1.93	1.75	1.64	1.56	1.51	1.47	1.44	1.42	1.40	1.38	1.36	1.34	1.33	1.32	1.31	1.30
200	4.29	2.84	2.35	2.10	1.95	1.77	1.67	1.58	1.53	1.49	1.46	1.44	1.42	1.39	1.37	1.36	1.35	1.34	1.32	1.31

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Table 19-7. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Means of Order 2 (5 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.93	1.36	1.15	1.04	0.97	0.89	0.84	0.81	0.78	0.76	0.75	0.74	0.73	0.72	0.71	0.71	0.70	0.70	0.69	0.69
2	2.31	1.60	1.35	1.21	1.13	1.04	0.98	0.94	0.91	0.89	0.87	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.80	0.80
3	2.53	1.74	1.46	1.31	1.22	1.12	1.06	1.01	0.98	0.96	0.94	0.93	0.92	0.90	0.89	0.88	0.88	0.87	0.86	0.86
4	2.69	1.84	1.54	1.38	1.29	1.18	1.11	1.06	1.03	1.00	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.90
5	2.81	1.91	1.60	1.44	1.34	1.22	1.15	1.10	1.07	1.04	1.02	1.01	1.00	0.98	0.97	0.96	0.95	0.95	0.94	0.93
8	3.06	2.07	1.72	1.55	1.44	1.31	1.24	1.18	1.14	1.12	1.10	1.08	1.07	1.05	1.04	1.03	1.02	1.01	1.00	1.00
12	3.27	2.20	1.83	1.64	1.53	1.39	1.31	1.25	1.21	1.18	1.16	1.14	1.13	1.11	1.10	1.08	1.08	1.07	1.06	1.05
16	3.41	2.29	1.91	1.71	1.59	1.44	1.36	1.30	1.25	1.22	1.20	1.18	1.17	1.15	1.14	1.12	1.12	1.11	1.10	1.09
20	3.52	2.36	1.96	1.76	1.63	1.48	1.40	1.33	1.29	1.26	1.23	1.22	1.20	1.18	1.17	1.15	1.15	1.14	1.13	1.12
30	3.72	2.49	2.06	1.85	1.72	1.56	1.47	1.40	1.35	1.32	1.29	1.27	1.26	1.24	1.22	1.21	1.20	1.19	1.18	1.17
40	3.86	2.57	2.14	1.91	1.77	1.61	1.52	1.44	1.39	1.36	1.33	1.31	1.30	1.27	1.26	1.24	1.23	1.23	1.21	1.20
50	3.97	2.64	2.19	1.96	1.82	1.65	1.55	1.48	1.43	1.39	1.37	1.34	1.33	1.30	1.29	1.27	1.26	1.25	1.24	1.23
60	4.05	2.69	2.23	2.00	1.85	1.68	1.58	1.51	1.45	1.42	1.39	1.37	1.35	1.33	1.31	1.30	1.29	1.28	1.26	1.25
75	4.16	2.76	2.29	2.04	1.90	1.72	1.62	1.54	1.49	1.45	1.42	1.40	1.38	1.36	1.34	1.32	1.31	1.30	1.29	1.28
100	4.29	2.84	2.35	2.10	1.95	1.77	1.67	1.58	1.53	1.49	1.46	1.44	1.42	1.39	1.37	1.36	1.35	1.34	1.32	1.31
125	4.39	2.91	2.41	2.15	1.99	1.81	1.70	1.62	1.56	1.52	1.49	1.47	1.45	1.42	1.40	1.39	1.37	1.37	1.35	1.34
150	4.47	2.96	2.45	2.19	2.03	1.84	1.73	1.64	1.59	1.55	1.52	1.49	1.47	1.44	1.42	1.41	1.40	1.39	1.37	1.36
175	4.54	3.00	2.48	2.22	2.06	1.86	1.75	1.67	1.61	1.57	1.54	1.51	1.49	1.46	1.44	1.43	1.41	1.41	1.39	1.38
200	4.60	3.04	2.51	2.24	2.08	1.89	1.77	1.69	1.63	1.58	1.55	1.53	1.51	1.48	1.46	1.44	1.43	1.42	1.40	1.39

Table 19-7. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Means of Order 2 (10 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.64	1.14	0.96	0.87	0.81	0.74	0.70	0.67	0.65	0.63	0.62	0.62	0.61	0.60	0.59	0.59	0.58	0.58	0.57	0.57
2	2.07	1.40	1.17	1.05	0.98	0.90	0.85	0.81	0.78	0.77	0.75	0.74	0.74	0.72	0.71	0.71	0.70	0.70	0.69	0.69
3	2.34	1.56	1.29	1.16	1.08	0.98	0.93	0.89	0.86	0.84	0.83	0.81	0.81	0.79	0.78	0.78	0.77	0.77	0.76	0.75
4	2.53	1.67	1.38	1.24	1.15	1.04	0.99	0.94	0.91	0.89	0.87	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.80	0.80
5	2.68	1.76	1.45	1.29	1.20	1.09	1.03	0.98	0.95	0.93	0.91	0.90	0.89	0.88	0.86	0.86	0.85	0.85	0.84	0.83
8	3.00	1.94	1.59	1.42	1.31	1.19	1.12	1.07	1.03	1.01	0.99	0.98	0.97	0.95	0.94	0.93	0.92	0.92	0.91	0.90
12	3.27	2.09	1.71	1.52	1.40	1.27	1.20	1.14	1.10	1.07	1.05	1.04	1.03	1.01	1.00	0.99	0.98	0.98	0.96	0.96
16	3.47	2.20	1.80	1.59	1.47	1.33	1.25	1.19	1.15	1.12	1.10	1.08	1.07	1.05	1.04	1.03	1.02	1.02	1.00	1.00
20	3.62	2.29	1.86	1.65	1.52	1.37	1.29	1.23	1.19	1.16	1.13	1.12	1.10	1.09	1.07	1.06	1.05	1.05	1.04	1.03
30	3.88	2.44	1.98	1.75	1.61	1.45	1.36	1.30	1.25	1.22	1.20	1.18	1.16	1.14	1.13	1.12	1.11	1.10	1.09	1.08
40	4.07	2.55	2.06	1.82	1.68	1.51	1.42	1.34	1.30	1.26	1.24	1.22	1.21	1.18	1.17	1.16	1.15	1.14	1.13	1.12
50	4.21	2.63	2.13	1.88	1.73	1.55	1.46	1.38	1.33	1.30	1.27	1.25	1.24	1.21	1.20	1.19	1.18	1.17	1.16	1.15
60	4.33	2.70	2.18	1.92	1.77	1.59	1.49	1.41	1.36	1.32	1.30	1.28	1.26	1.24	1.22	1.21	1.20	1.19	1.18	1.17
75	4.47	2.78	2.24	1.97	1.81	1.63	1.53	1.45	1.39	1.36	1.33	1.31	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20
100	4.65	2.88	2.32	2.04	1.88	1.68	1.58	1.49	1.44	1.40	1.37	1.35	1.33	1.31	1.29	1.28	1.26	1.26	1.24	1.23
125	4.78	2.96	2.38	2.10	1.92	1.73	1.61	1.53	1.47	1.43	1.40	1.38	1.36	1.34	1.32	1.30	1.29	1.28	1.27	1.26
150	4.90	3.02	2.43	2.14	1.96	1.76	1.65	1.56	1.50	1.46	1.43	1.41	1.39	1.36	1.34	1.33	1.32	1.31	1.29	1.28
175	4.99	3.07	2.47	2.17	1.99	1.79	1.67	1.58	1.52	1.48	1.45	1.43	1.41	1.38	1.36	1.35	1.33	1.32	1.31	1.30
200	5.07	3.12	2.51	2.20	2.02	1.81	1.69	1.60	1.54	1.50	1.47	1.44	1.43	1.40	1.38	1.36	1.35	1.34	1.32	1.31

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Table 19-7. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Means of Order 2 (10 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.07	1.40	1.17	1.05	0.98	0.90	0.85	0.81	0.78	0.77	0.75	0.74	0.74	0.72	0.71	0.71	0.70	0.70	0.69	0.69
2	2.53	1.67	1.38	1.24	1.15	1.04	0.99	0.94	0.91	0.89	0.87	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.80	0.80
3	2.80	1.83	1.50	1.34	1.24	1.13	1.06	1.01	0.98	0.96	0.94	0.93	0.92	0.90	0.89	0.88	0.88	0.87	0.86	0.86
4	3.00	1.94	1.59	1.42	1.31	1.19	1.12	1.07	1.03	1.01	0.99	0.98	0.97	0.95	0.94	0.93	0.92	0.92	0.91	0.90
5	3.15	2.02	1.66	1.47	1.36	1.23	1.16	1.11	1.07	1.04	1.03	1.01	1.00	0.98	0.97	0.96	0.95	0.95	0.94	0.93
8	3.47	2.20	1.80	1.59	1.47	1.33	1.25	1.19	1.15	1.12	1.10	1.08	1.07	1.05	1.04	1.03	1.02	1.02	1.00	1.00
12	3.74	2.36	1.91	1.70	1.56	1.41	1.32	1.26	1.21	1.18	1.16	1.15	1.13	1.11	1.10	1.09	1.08	1.07	1.06	1.05
16	3.93	2.46	2.00	1.77	1.63	1.47	1.38	1.31	1.26	1.23	1.21	1.19	1.17	1.15	1.14	1.13	1.12	1.11	1.10	1.09
20	4.07	2.55	2.06	1.82	1.68	1.51	1.42	1.34	1.30	1.26	1.24	1.22	1.21	1.18	1.17	1.16	1.15	1.14	1.13	1.12
30	4.33	2.70	2.18	1.92	1.77	1.59	1.49	1.41	1.36	1.32	1.30	1.28	1.26	1.24	1.22	1.21	1.20	1.19	1.18	1.17
40	4.51	2.80	2.26	1.99	1.83	1.64	1.54	1.46	1.40	1.37	1.34	1.32	1.30	1.28	1.26	1.25	1.24	1.23	1.21	1.20
50	4.65	2.88	2.32	2.04	1.88	1.68	1.58	1.49	1.44	1.40	1.37	1.35	1.33	1.31	1.29	1.28	1.26	1.26	1.24	1.23
60	4.76	2.94	2.37	2.09	1.92	1.72	1.61	1.52	1.47	1.43	1.40	1.38	1.36	1.33	1.31	1.30	1.29	1.28	1.26	1.25
75	4.90	3.02	2.43	2.14	1.96	1.76	1.65	1.56	1.50	1.46	1.43	1.41	1.39	1.36	1.34	1.33	1.32	1.31	1.29	1.28
100	5.07	3.12	2.51	2.20	2.02	1.81	1.69	1.60	1.54	1.50	1.47	1.44	1.43	1.40	1.38	1.36	1.35	1.34	1.32	1.31
125	5.20	3.19	2.57	2.26	2.07	1.85	1.73	1.64	1.58	1.53	1.50	1.47	1.45	1.43	1.40	1.39	1.38	1.37	1.35	1.34
150	5.30	3.26	2.61	2.30	2.11	1.89	1.76	1.66	1.60	1.56	1.52	1.50	1.48	1.45	1.43	1.41	1.40	1.39	1.37	1.36
175	5.39	3.31	2.65	2.33	2.14	1.91	1.79	1.69	1.62	1.58	1.55	1.52	1.50	1.47	1.45	1.43	1.42	1.41	1.39	1.38
200	5.47	3.35	2.69	2.36	2.16	1.94	1.81	1.71	1.64	1.60	1.56	1.54	1.52	1.48	1.46	1.45	1.43	1.42	1.40	1.39

Table 19-7. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Means of Order 2 (10 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.53	1.67	1.38	1.24	1.15	1.04	0.99	0.94	0.91	0.89	0.87	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.80	0.80
2	3.00	1.94	1.59	1.42	1.31	1.19	1.12	1.07	1.03	1.01	0.99	0.98	0.97	0.95	0.94	0.93	0.92	0.92	0.91	0.90
3	3.27	2.09	1.71	1.52	1.40	1.27	1.20	1.14	1.10	1.07	1.05	1.04	1.03	1.01	1.00	0.99	0.98	0.98	0.96	0.96
4	3.47	2.20	1.80	1.59	1.47	1.33	1.25	1.19	1.15	1.12	1.10	1.08	1.07	1.05	1.04	1.03	1.02	1.02	1.00	1.00
5	3.62	2.29	1.86	1.65	1.52	1.37	1.29	1.23	1.19	1.16	1.13	1.12	1.10	1.09	1.07	1.06	1.05	1.05	1.04	1.03
8	3.93	2.46	2.00	1.77	1.63	1.47	1.38	1.31	1.26	1.23	1.21	1.19	1.17	1.15	1.14	1.13	1.12	1.11	1.10	1.09
12	4.19	2.61	2.11	1.87	1.72	1.54	1.45	1.37	1.32	1.29	1.27	1.25	1.23	1.21	1.19	1.18	1.17	1.16	1.15	1.14
16	4.37	2.72	2.20	1.94	1.78	1.60	1.50	1.42	1.37	1.33	1.31	1.29	1.27	1.25	1.23	1.22	1.21	1.20	1.19	1.18
20	4.51	2.80	2.26	1.99	1.83	1.64	1.54	1.46	1.40	1.37	1.34	1.32	1.30	1.28	1.26	1.25	1.24	1.23	1.21	1.20
30	4.76	2.94	2.37	2.09	1.92	1.72	1.61	1.52	1.47	1.43	1.40	1.38	1.36	1.33	1.31	1.30	1.29	1.28	1.26	1.25
40	4.93	3.04	2.45	2.15	1.98	1.77	1.66	1.57	1.51	1.47	1.44	1.41	1.40	1.37	1.35	1.33	1.32	1.31	1.30	1.29
50	5.07	3.12	2.51	2.20	2.02	1.81	1.69	1.60	1.54	1.50	1.47	1.44	1.43	1.40	1.38	1.36	1.35	1.34	1.32	1.31
60	5.17	3.18	2.55	2.25	2.06	1.85	1.72	1.63	1.57	1.53	1.49	1.47	1.45	1.42	1.40	1.38	1.37	1.36	1.35	1.33
75	5.30	3.26	2.61	2.30	2.11	1.89	1.76	1.66	1.60	1.56	1.52	1.50	1.48	1.45	1.43	1.41	1.40	1.39	1.37	1.36
100	5.47	3.35	2.69	2.36	2.16	1.94	1.81	1.71	1.64	1.60	1.56	1.54	1.52	1.48	1.46	1.45	1.43	1.42	1.40	1.39
125	5.60	3.42	2.74	2.41	2.21	1.98	1.84	1.74	1.68	1.63	1.59	1.57	1.54	1.51	1.49	1.47	1.46	1.45	1.43	1.42
150	5.70	3.48	2.79	2.45	2.25	2.01	1.87	1.77	1.70	1.65	1.62	1.59	1.57	1.53	1.51	1.49	1.48	1.47	1.45	1.44
175	5.78	3.53	2.83	2.48	2.28	2.04	1.90	1.79	1.72	1.67	1.64	1.61	1.59	1.55	1.53	1.51	1.50	1.49	1.47	1.45
200	5.86	3.57	2.86	2.51	2.30	2.06	1.92	1.81	1.74	1.69	1.66	1.63	1.60	1.57	1.55	1.53	1.51	1.50	1.48	1.47

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Table 19-7. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Means of Order 2 (20 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.16	1.43	1.19	1.06	0.99	0.90	0.85	0.81	0.78	0.77	0.75	0.74	0.74	0.72	0.71	0.71	0.70	0.70	0.69	0.69
2	2.69	1.72	1.40	1.25	1.16	1.05	0.99	0.94	0.91	0.89	0.88	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.80	0.80
3	3.02	1.89	1.53	1.36	1.25	1.14	1.07	1.02	0.98	0.96	0.94	0.93	0.92	0.90	0.89	0.89	0.88	0.87	0.86	0.86
4	3.26	2.01	1.62	1.44	1.32	1.20	1.12	1.07	1.03	1.01	0.99	0.98	0.97	0.95	0.94	0.93	0.92	0.92	0.91	0.90
5	3.45	2.11	1.70	1.50	1.38	1.24	1.17	1.11	1.07	1.05	1.03	1.01	1.00	0.98	0.97	0.96	0.95	0.95	0.94	0.93
8	3.84	2.31	1.85	1.62	1.49	1.34	1.26	1.19	1.15	1.12	1.10	1.09	1.07	1.05	1.04	1.03	1.02	1.02	1.00	1.00
12	4.19	2.49	1.98	1.73	1.59	1.42	1.33	1.26	1.22	1.19	1.16	1.15	1.13	1.11	1.10	1.09	1.08	1.07	1.06	1.05
16	4.43	2.61	2.07	1.81	1.65	1.48	1.38	1.31	1.26	1.23	1.21	1.19	1.17	1.15	1.14	1.13	1.12	1.11	1.10	1.09
20	4.62	2.71	2.14	1.87	1.71	1.53	1.43	1.35	1.30	1.27	1.24	1.22	1.21	1.18	1.17	1.16	1.15	1.14	1.13	1.12
30	4.95	2.88	2.27	1.97	1.80	1.61	1.50	1.42	1.36	1.33	1.30	1.28	1.26	1.24	1.22	1.21	1.20	1.19	1.18	1.17
40	5.19	3.00	2.36	2.05	1.87	1.66	1.55	1.47	1.41	1.37	1.34	1.32	1.30	1.28	1.26	1.25	1.24	1.23	1.21	1.20
50	5.37	3.10	2.43	2.11	1.92	1.71	1.59	1.50	1.44	1.40	1.38	1.35	1.34	1.31	1.29	1.28	1.27	1.26	1.24	1.23
60	5.51	3.17	2.48	2.16	1.96	1.74	1.62	1.53	1.47	1.43	1.40	1.38	1.36	1.33	1.31	1.30	1.29	1.28	1.26	1.25
75	5.69	3.26	2.55	2.21	2.01	1.79	1.66	1.57	1.51	1.46	1.43	1.41	1.39	1.36	1.34	1.33	1.32	1.31	1.29	1.28
100	5.91	3.38	2.64	2.29	2.08	1.84	1.71	1.61	1.55	1.51	1.47	1.45	1.43	1.40	1.38	1.36	1.35	1.34	1.32	1.31
125	6.08	3.47	2.71	2.34	2.13	1.89	1.75	1.65	1.58	1.54	1.50	1.48	1.46	1.43	1.41	1.39	1.38	1.37	1.35	1.34
150	6.22	3.54	2.76	2.39	2.17	1.92	1.78	1.68	1.61	1.56	1.53	1.50	1.48	1.45	1.43	1.41	1.40	1.39	1.37	1.36
175	6.34	3.60	2.81	2.43	2.20	1.95	1.81	1.70	1.63	1.59	1.55	1.52	1.50	1.47	1.45	1.43	1.42	1.41	1.39	1.38
200	6.44	3.66	2.85	2.46	2.23	1.98	1.83	1.72	1.65	1.61	1.57	1.54	1.52	1.49	1.46	1.45	1.43	1.42	1.41	1.39

Table 19-7. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Means of Order 2 (20 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.69	1.72	1.40	1.25	1.16	1.05	0.99	0.94	0.91	0.89	0.88	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.80	0.80
2	3.26	2.01	1.62	1.44	1.32	1.20	1.12	1.07	1.03	1.01	0.99	0.98	0.97	0.95	0.94	0.93	0.92	0.92	0.91	0.90
3	3.60	2.19	1.75	1.55	1.42	1.28	1.20	1.14	1.10	1.08	1.06	1.04	1.03	1.01	1.00	0.99	0.98	0.98	0.96	0.96
4	3.84	2.31	1.85	1.62	1.49	1.34	1.26	1.19	1.15	1.12	1.10	1.09	1.07	1.05	1.04	1.03	1.02	1.02	1.00	1.00
5	4.03	2.41	1.92	1.68	1.54	1.39	1.30	1.23	1.19	1.16	1.14	1.12	1.11	1.09	1.07	1.06	1.05	1.05	1.04	1.03
8	4.43	2.61	2.07	1.81	1.65	1.48	1.38	1.31	1.26	1.23	1.21	1.19	1.17	1.15	1.14	1.13	1.12	1.11	1.10	1.09
12	4.77	2.79	2.20	1.92	1.75	1.56	1.46	1.38	1.33	1.29	1.27	1.25	1.23	1.21	1.19	1.18	1.17	1.16	1.15	1.14
16	5.00	2.91	2.29	1.99	1.82	1.62	1.51	1.43	1.38	1.34	1.31	1.29	1.27	1.25	1.23	1.22	1.21	1.20	1.19	1.18
20	5.19	3.00	2.36	2.05	1.87	1.66	1.55	1.47	1.41	1.37	1.34	1.32	1.30	1.28	1.26	1.25	1.24	1.23	1.21	1.20
30	5.51	3.17	2.48	2.16	1.96	1.74	1.62	1.53	1.47	1.43	1.40	1.38	1.36	1.33	1.31	1.30	1.29	1.28	1.26	1.25
40	5.74	3.29	2.57	2.23	2.03	1.80	1.67	1.58	1.52	1.47	1.44	1.42	1.40	1.37	1.35	1.34	1.32	1.31	1.30	1.29
50	5.91	3.38	2.64	2.29	2.08	1.84	1.71	1.61	1.55	1.51	1.47	1.45	1.43	1.40	1.38	1.36	1.35	1.34	1.32	1.31
60	6.05	3.45	2.69	2.33	2.12	1.88	1.74	1.64	1.58	1.53	1.50	1.47	1.45	1.42	1.40	1.39	1.37	1.36	1.35	1.33
75	6.22	3.54	2.76	2.39	2.17	1.92	1.78	1.68	1.61	1.56	1.53	1.50	1.48	1.45	1.43	1.41	1.40	1.39	1.37	1.36
100	6.44	3.66	2.85	2.46	2.23	1.98	1.83	1.72	1.65	1.61	1.57	1.54	1.52	1.49	1.46	1.45	1.43	1.42	1.41	1.39
125	6.61	3.74	2.91	2.51	2.28	2.02	1.87	1.76	1.69	1.64	1.60	1.57	1.55	1.51	1.49	1.47	1.46	1.45	1.43	1.42
150	6.74	3.81	2.96	2.56	2.32	2.05	1.90	1.79	1.71	1.66	1.62	1.59	1.57	1.54	1.51	1.50	1.48	1.47	1.45	1.44
175	6.85	3.87	3.01	2.60	2.35	2.08	1.93	1.81	1.74	1.68	1.64	1.62	1.59	1.56	1.53	1.51	1.50	1.49	1.47	1.45
200	6.95	3.92	3.04	2.63	2.38	2.10	1.95	1.83	1.76	1.70	1.66	1.63	1.61	1.57	1.55	1.53	1.51	1.50	1.48	1.47

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Table 19-7. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Means of Order 2 (20 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.26	2.01	1.62	1.44	1.32	1.20	1.12	1.07	1.03	1.01	0.99	0.98	0.97	0.95	0.94	0.93	0.92	0.92	0.91	0.90
2	3.84	2.31	1.85	1.62	1.49	1.34	1.26	1.19	1.15	1.12	1.10	1.09	1.07	1.05	1.04	1.03	1.02	1.02	1.00	1.00
3	4.19	2.49	1.98	1.73	1.59	1.42	1.33	1.26	1.22	1.19	1.16	1.15	1.13	1.11	1.10	1.09	1.08	1.07	1.06	1.05
4	4.43	2.61	2.07	1.81	1.65	1.48	1.38	1.31	1.26	1.23	1.21	1.19	1.17	1.15	1.14	1.13	1.12	1.11	1.10	1.09
5	4.62	2.71	2.14	1.87	1.71	1.53	1.43	1.35	1.30	1.27	1.24	1.22	1.21	1.18	1.17	1.16	1.15	1.14	1.13	1.12
8	5.00	2.97	2.29	1.99	1.82	1.62	1.51	1.43	1.38	1.34	1.31	1.29	1.27	1.25	1.23	1.22	1.21	1.20	1.19	1.18
12	5.33	3.08	2.42	2.10	1.91	1.70	1.58	1.50	1.44	1.40	1.37	1.35	1.33	1.30	1.28	1.27	1.26	1.25	1.24	1.23
16	5.56	3.20	2.50	2.17	1.98	1.76	1.63	1.54	1.48	1.44	1.41	1.39	1.37	1.34	1.32	1.31	1.30	1.29	1.27	1.26
20	5.74	3.29	2.57	2.23	2.03	1.80	1.67	1.58	1.52	1.47	1.44	1.42	1.40	1.37	1.35	1.34	1.32	1.31	1.30	1.29
30	6.05	3.45	2.69	2.33	2.12	1.88	1.74	1.64	1.58	1.53	1.50	1.47	1.45	1.42	1.40	1.39	1.37	1.36	1.35	1.33
40	6.27	3.57	2.78	2.40	2.18	1.93	1.79	1.69	1.62	1.57	1.54	1.51	1.49	1.46	1.44	1.42	1.41	1.40	1.38	1.37
50	6.44	3.66	2.85	2.46	2.23	1.98	1.83	1.72	1.65	1.61	1.57	1.54	1.52	1.49	1.46	1.45	1.43	1.42	1.41	1.39
60	6.57	3.73	2.90	2.50	2.27	2.01	1.86	1.75	1.68	1.63	1.59	1.57	1.54	1.51	1.49	1.47	1.46	1.44	1.43	1.41
75	6.74	3.81	2.96	2.56	2.32	2.05	1.90	1.79	1.71	1.66	1.62	1.59	1.57	1.54	1.51	1.50	1.48	1.47	1.45	1.44
100	6.95	3.92	3.04	2.63	2.38	2.10	1.95	1.83	1.76	1.70	1.66	1.63	1.61	1.57	1.55	1.53	1.51	1.50	1.48	1.47
125	7.11	4.01	3.11	2.68	2.43	2.15	1.99	1.87	1.79	1.73	1.69	1.66	1.64	1.60	1.57	1.55	1.54	1.53	1.51	1.49
150	7.24	4.07	3.16	2.72	2.47	2.18	2.02	1.89	1.81	1.76	1.72	1.68	1.66	1.62	1.60	1.58	1.56	1.55	1.53	1.51
175	7.34	4.13	3.20	2.76	2.50	2.21	2.04	1.92	1.84	1.78	1.74	1.70	1.68	1.64	1.61	1.59	1.58	1.57	1.54	1.53
200	7.44	4.18	3.24	2.79	2.53	2.23	2.06	1.94	1.85	1.80	1.75	1.72	1.70	1.66	1.63	1.61	1.59	1.58	1.56	1.54

Table 19-7. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Means of Order 2 (40 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.81	1.74	1.42	1.26	1.16	1.05	0.99	0.94	0.91	0.89	0.88	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.80	0.80
2	3.46	2.06	1.65	1.45	1.33	1.20	1.13	1.07	1.04	1.01	0.99	0.98	0.97	0.95	0.94	0.93	0.92	0.92	0.91	0.90
3	3.87	2.25	1.78	1.56	1.43	1.28	1.20	1.14	1.10	1.08	1.06	1.04	1.03	1.01	1.00	0.99	0.98	0.98	0.97	0.96
4	4.17	2.39	1.88	1.64	1.50	1.35	1.26	1.19	1.15	1.12	1.10	1.09	1.07	1.05	1.04	1.03	1.02	1.02	1.01	1.00
5	4.40	2.50	1.96	1.70	1.56	1.39	1.30	1.23	1.19	1.16	1.14	1.12	1.11	1.09	1.07	1.06	1.05	1.05	1.04	1.03
8	4.90	2.73	2.12	1.84	1.67	1.49	1.39	1.31	1.27	1.23	1.21	1.19	1.18	1.15	1.14	1.13	1.12	1.11	1.10	1.09
12	5.33	2.93	2.26	1.95	1.77	1.57	1.47	1.38	1.33	1.30	1.27	1.25	1.23	1.21	1.19	1.18	1.17	1.16	1.15	1.14
16	5.63	3.07	2.36	2.03	1.84	1.63	1.52	1.43	1.38	1.34	1.31	1.29	1.27	1.25	1.23	1.22	1.21	1.20	1.19	1.18
20	5.86	3.18	2.44	2.09	1.90	1.68	1.56	1.47	1.41	1.37	1.35	1.32	1.31	1.28	1.26	1.25	1.24	1.23	1.21	1.20
30	6.29	3.38	2.58	2.21	2.00	1.76	1.63	1.54	1.48	1.43	1.40	1.38	1.36	1.33	1.31	1.30	1.29	1.28	1.26	1.25
40	6.58	3.51	2.68	2.29	2.07	1.82	1.69	1.59	1.52	1.48	1.44	1.42	1.40	1.37	1.35	1.34	1.32	1.32	1.30	1.29
50	6.81	3.62	2.75	2.35	2.12	1.86	1.73	1.62	1.56	1.51	1.48	1.45	1.43	1.40	1.38	1.36	1.35	1.34	1.33	1.31
60	6.99	3.71	2.81	2.40	2.16	1.90	1.76	1.65	1.58	1.54	1.50	1.48	1.45	1.42	1.40	1.39	1.37	1.36	1.35	1.34
75	7.21	3.81	2.89	2.46	2.22	1.95	1.80	1.69	1.62	1.57	1.53	1.51	1.48	1.45	1.43	1.41	1.40	1.39	1.37	1.36
100	7.49	3.95	2.98	2.54	2.29	2.00	1.85	1.73	1.66	1.61	1.57	1.54	1.52	1.49	1.47	1.45	1.43	1.42	1.41	1.39
125	7.71	4.05	3.06	2.60	2.34	2.05	1.89	1.77	1.69	1.64	1.60	1.57	1.55	1.52	1.49	1.47	1.46	1.45	1.43	1.42
150	7.89	4.13	3.12	2.65	2.38	2.08	1.92	1.80	1.72	1.67	1.63	1.60	1.57	1.54	1.51	1.50	1.48	1.47	1.45	1.44
175	8.03	4.20	3.17	2.69	2.42	2.11	1.95	1.82	1.74	1.69	1.65	1.62	1.59	1.56	1.53	1.51	1.50	1.49	1.47	1.45
200	8.16	4.26	3.21	2.73	2.45	2.14	1.97	1.84	1.76	1.71	1.67	1.64	1.61	1.57	1.55	1.53	1.52	1.50	1.48	1.47

Table 19-7. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Means of Order 2 (40 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.46	2.06	1.65	1.45	1.33	1.20	1.13	1.07	1.04	1.01	0.99	0.98	0.97	0.95	0.94	0.93	0.92	0.92	0.91	0.90
2	4.17	2.39	1.88	1.64	1.50	1.35	1.26	1.19	1.15	1.12	1.10	1.09	1.07	1.05	1.04	1.03	1.02	1.02	1.01	1.00
3	4.59	2.59	2.02	1.76	1.60	1.43	1.34	1.27	1.22	1.19	1.17	1.15	1.13	1.11	1.10	1.09	1.08	1.07	1.06	1.05
4	4.90	2.73	2.12	1.84	1.67	1.49	1.39	1.31	1.27	1.23	1.21	1.19	1.18	1.15	1.14	1.13	1.12	1.11	1.10	1.09
5	5.13	2.84	2.20	1.90	1.73	1.54	1.43	1.35	1.30	1.27	1.24	1.22	1.21	1.18	1.17	1.16	1.15	1.14	1.13	1.12
8	5.63	3.07	2.36	2.03	1.84	1.63	1.52	1.43	1.38	1.34	1.31	1.29	1.27	1.25	1.23	1.22	1.21	1.20	1.19	1.18
12	6.06	3.27	2.50	2.15	1.94	1.72	1.59	1.50	1.44	1.40	1.37	1.35	1.33	1.30	1.29	1.27	1.26	1.25	1.24	1.23
16	6.35	3.41	2.60	2.23	2.01	1.77	1.65	1.55	1.49	1.44	1.41	1.39	1.37	1.34	1.32	1.31	1.30	1.29	1.27	1.26
20	6.58	3.51	2.68	2.29	2.07	1.82	1.69	1.59	1.52	1.48	1.44	1.42	1.40	1.37	1.35	1.34	1.32	1.32	1.30	1.29
30	6.99	3.71	2.81	2.40	2.16	1.90	1.76	1.65	1.58	1.54	1.50	1.48	1.45	1.42	1.40	1.39	1.37	1.36	1.35	1.34
40	7.28	3.84	2.91	2.48	2.23	1.96	1.81	1.70	1.63	1.58	1.54	1.51	1.49	1.46	1.44	1.42	1.41	1.40	1.38	1.37
50	7.49	3.95	2.98	2.54	2.29	2.00	1.85	1.73	1.66	1.61	1.57	1.54	1.52	1.49	1.47	1.45	1.43	1.42	1.41	1.39
60	7.67	4.03	3.04	2.59	2.33	2.04	1.88	1.76	1.69	1.64	1.60	1.57	1.55	1.51	1.49	1.47	1.46	1.45	1.43	1.41
75	7.89	4.13	3.12	2.65	2.38	2.08	1.92	1.80	1.72	1.67	1.63	1.60	1.57	1.54	1.51	1.50	1.48	1.47	1.45	1.44
100	8.16	4.26	3.21	2.73	2.45	2.14	1.97	1.84	1.76	1.71	1.67	1.64	1.61	1.57	1.55	1.53	1.52	1.50	1.48	1.47
125	8.37	4.36	3.28	2.79	2.50	2.18	2.01	1.88	1.80	1.74	1.70	1.66	1.64	1.60	1.58	1.56	1.54	1.53	1.51	1.49
150	8.53	4.44	3.34	2.83	2.54	2.22	2.04	1.91	1.82	1.76	1.72	1.69	1.66	1.62	1.60	1.58	1.56	1.55	1.53	1.51
175	8.68	4.51	3.39	2.87	2.58	2.25	2.07	1.93	1.85	1.79	1.74	1.71	1.68	1.64	1.61	1.59	1.58	1.57	1.54	1.53
200	8.80	4.57	3.43	2.91	2.61	2.27	2.09	1.95	1.87	1.80	1.76	1.73	1.70	1.66	1.63	1.61	1.59	1.58	1.56	1.54

Table 19-7. κ -Multipliers for 1-of-3 Interwell Prediction Limits on Means of Order 2 (40 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.17	2.39	1.88	1.64	1.50	1.35	1.26	1.19	1.15	1.12	1.10	1.09	1.07	1.05	1.04	1.03	1.02	1.02	1.01	1.00
2	4.90	2.73	2.12	1.84	1.67	1.49	1.39	1.31	1.27	1.23	1.21	1.19	1.18	1.15	1.14	1.13	1.12	1.11	1.10	1.09
3	5.33	2.93	2.26	1.95	1.77	1.57	1.47	1.38	1.33	1.30	1.27	1.25	1.23	1.21	1.19	1.18	1.17	1.16	1.15	1.14
4	5.63	3.07	2.36	2.03	1.84	1.63	1.52	1.43	1.38	1.34	1.31	1.29	1.27	1.25	1.23	1.22	1.21	1.20	1.19	1.18
5	5.86	3.18	2.44	2.09	1.90	1.68	1.56	1.47	1.41	1.37	1.35	1.32	1.31	1.28	1.26	1.25	1.24	1.23	1.21	1.20
8	6.35	3.41	2.60	2.23	2.01	1.77	1.65	1.55	1.49	1.44	1.41	1.39	1.37	1.34	1.32	1.31	1.30	1.29	1.27	1.26
12	6.77	3.60	2.74	2.34	2.11	1.86	1.72	1.61	1.55	1.50	1.47	1.44	1.42	1.40	1.37	1.36	1.35	1.34	1.32	1.31
16	7.06	3.74	2.83	2.42	2.18	1.91	1.77	1.66	1.59	1.55	1.51	1.48	1.46	1.43	1.41	1.39	1.38	1.37	1.35	1.34
20	7.28	3.84	2.91	2.48	2.23	1.96	1.81	1.70	1.63	1.58	1.54	1.51	1.49	1.46	1.44	1.42	1.41	1.40	1.38	1.37
30	7.67	4.03	3.04	2.59	2.33	2.04	1.88	1.76	1.69	1.64	1.60	1.57	1.55	1.51	1.49	1.47	1.46	1.45	1.43	1.41
40	7.95	4.16	3.14	2.67	2.40	2.10	1.93	1.81	1.73	1.68	1.64	1.61	1.58	1.55	1.52	1.50	1.49	1.48	1.46	1.45
50	8.16	4.26	3.21	2.73	2.45	2.14	1.97	1.84	1.76	1.71	1.67	1.64	1.61	1.57	1.55	1.53	1.52	1.50	1.48	1.47
60	8.33	4.34	3.27	2.77	2.49	2.18	2.00	1.87	1.79	1.73	1.69	1.66	1.63	1.60	1.57	1.55	1.54	1.52	1.50	1.49
75	8.53	4.44	3.34	2.83	2.54	2.22	2.04	1.91	1.82	1.76	1.72	1.69	1.66	1.62	1.60	1.58	1.56	1.55	1.53	1.51
100	8.80	4.57	3.43	2.91	2.61	2.27	2.09	1.95	1.87	1.80	1.76	1.73	1.70	1.66	1.63	1.61	1.59	1.58	1.56	1.54
125	9.00	4.67	3.50	2.97	2.66	2.32	2.13	1.99	1.90	1.84	1.79	1.75	1.73	1.69	1.66	1.64	1.62	1.61	1.58	1.57
150	9.16	4.74	3.56	3.01	2.70	2.35	2.16	2.02	1.92	1.86	1.81	1.78	1.75	1.71	1.68	1.66	1.64	1.63	1.60	1.59
175	9.29	4.81	3.60	3.05	2.73	2.38	2.19	2.04	1.95	1.88	1.83	1.80	1.77	1.73	1.69	1.67	1.66	1.64	1.62	1.60
200	9.41	4.86	3.64	3.08	2.76	2.40	2.21	2.06	1.97	1.90	1.85	1.81	1.78	1.74	1.71	1.69	1.67	1.66	1.63	1.62

Table 19-8. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 3 (1 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.25	1.04	0.96	0.91	0.88	0.84	0.82	0.81	0.79	0.79	0.78	0.78	0.77	0.77	0.76	0.76	0.76	0.76	0.75	0.75
2	1.65	1.35	1.24	1.17	1.13	1.08	1.05	1.03	1.01	1.00	1.00	0.99	0.99	0.98	0.97	0.97	0.97	0.96	0.96	0.96
3	1.87	1.53	1.39	1.32	1.27	1.21	1.18	1.15	1.13	1.12	1.11	1.11	1.10	1.09	1.09	1.08	1.08	1.07	1.07	1.07
4	2.03	1.65	1.50	1.42	1.36	1.30	1.26	1.23	1.22	1.20	1.19	1.18	1.18	1.17	1.16	1.16	1.15	1.15	1.14	1.14
5	2.16	1.74	1.58	1.49	1.43	1.37	1.33	1.30	1.28	1.26	1.25	1.24	1.24	1.23	1.22	1.21	1.21	1.21	1.20	1.20
8	2.41	1.93	1.75	1.65	1.58	1.50	1.46	1.42	1.40	1.38	1.37	1.36	1.35	1.34	1.33	1.33	1.32	1.32	1.31	1.31
12	2.62	2.09	1.89	1.77	1.70	1.62	1.57	1.53	1.50	1.48	1.47	1.46	1.45	1.44	1.43	1.42	1.42	1.41	1.40	1.40
16	2.76	2.20	1.98	1.86	1.79	1.70	1.64	1.60	1.57	1.55	1.54	1.53	1.52	1.50	1.49	1.48	1.48	1.47	1.47	1.46
20	2.87	2.28	2.05	1.93	1.85	1.76	1.70	1.65	1.63	1.60	1.59	1.58	1.57	1.55	1.54	1.53	1.53	1.52	1.51	1.51
30	3.06	2.43	2.18	2.05	1.96	1.86	1.80	1.75	1.72	1.70	1.68	1.67	1.65	1.64	1.63	1.62	1.61	1.61	1.60	1.59
40	3.19	2.53	2.27	2.13	2.04	1.93	1.87	1.82	1.78	1.76	1.74	1.73	1.72	1.70	1.69	1.68	1.67	1.66	1.65	1.65
50	3.29	2.61	2.34	2.19	2.10	1.99	1.92	1.87	1.83	1.81	1.79	1.77	1.76	1.74	1.73	1.72	1.71	1.71	1.70	1.69
60	3.38	2.67	2.39	2.24	2.15	2.03	1.96	1.91	1.87	1.85	1.83	1.81	1.80	1.78	1.77	1.76	1.75	1.74	1.73	1.72
75	3.47	2.74	2.46	2.30	2.21	2.09	2.02	1.96	1.92	1.89	1.87	1.86	1.84	1.83	1.81	1.80	1.79	1.79	1.77	1.77
100	3.59	2.83	2.54	2.38	2.28	2.15	2.08	2.02	1.98	1.95	1.93	1.92	1.90	1.88	1.87	1.86	1.85	1.84	1.83	1.82
125	3.69	2.90	2.60	2.44	2.33	2.21	2.13	2.07	2.03	2.00	1.98	1.96	1.94	1.92	1.91	1.90	1.89	1.88	1.87	1.86
150	3.76	2.96	2.65	2.48	2.38	2.25	2.17	2.11	2.07	2.04	2.01	1.99	1.98	1.96	1.94	1.93	1.92	1.91	1.90	1.89
175	3.82	3.01	2.69	2.52	2.41	2.28	2.20	2.14	2.10	2.07	2.04	2.02	2.01	1.99	1.97	1.96	1.95	1.94	1.93	1.92
200	3.88	3.05	2.73	2.56	2.45	2.31	2.23	2.17	2.12	2.09	2.07	2.05	2.03	2.01	1.99	1.98	1.97	1.96	1.95	1.94

Table 19-8. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 3 (1 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.65	1.35	1.24	1.17	1.13	1.08	1.05	1.03	1.01	1.00	1.00	0.99	0.99	0.98	0.97	0.97	0.97	0.96	0.96	0.96
2	2.03	1.65	1.50	1.42	1.36	1.30	1.26	1.23	1.22	1.20	1.19	1.18	1.18	1.17	1.16	1.16	1.15	1.15	1.14	1.14
3	2.25	1.82	1.65	1.55	1.49	1.42	1.38	1.35	1.32	1.31	1.30	1.29	1.28	1.27	1.26	1.26	1.25	1.25	1.24	1.24
4	2.41	1.93	1.75	1.65	1.58	1.50	1.46	1.42	1.40	1.38	1.37	1.36	1.35	1.34	1.33	1.33	1.32	1.32	1.31	1.31
5	2.52	2.02	1.82	1.72	1.65	1.57	1.52	1.48	1.46	1.44	1.43	1.42	1.41	1.39	1.39	1.38	1.37	1.37	1.36	1.36
8	2.76	2.20	1.98	1.86	1.79	1.70	1.64	1.60	1.57	1.55	1.54	1.53	1.52	1.50	1.49	1.48	1.48	1.47	1.47	1.46
12	2.96	2.35	2.11	1.98	1.90	1.80	1.74	1.70	1.67	1.65	1.63	1.62	1.61	1.59	1.58	1.57	1.57	1.56	1.55	1.54
16	3.09	2.45	2.20	2.07	1.98	1.88	1.82	1.77	1.73	1.71	1.69	1.68	1.67	1.65	1.64	1.63	1.62	1.62	1.61	1.60
20	3.19	2.53	2.27	2.13	2.04	1.93	1.87	1.82	1.78	1.76	1.74	1.73	1.72	1.70	1.69	1.68	1.67	1.66	1.65	1.65
30	3.38	2.67	2.39	2.24	2.15	2.03	1.96	1.91	1.87	1.85	1.83	1.81	1.80	1.78	1.77	1.76	1.75	1.74	1.73	1.72
40	3.50	2.76	2.48	2.32	2.22	2.10	2.03	1.97	1.94	1.91	1.89	1.87	1.86	1.84	1.82	1.81	1.80	1.80	1.79	1.78
50	3.59	2.83	2.54	2.38	2.28	2.15	2.08	2.02	1.98	1.95	1.93	1.92	1.90	1.88	1.87	1.86	1.85	1.84	1.83	1.82
60	3.67	2.89	2.59	2.43	2.32	2.20	2.12	2.06	2.02	1.99	1.97	1.95	1.94	1.92	1.90	1.89	1.88	1.87	1.86	1.85
75	3.76	2.96	2.65	2.48	2.38	2.25	2.17	2.11	2.07	2.04	2.01	1.99	1.98	1.96	1.94	1.93	1.92	1.91	1.90	1.89
100	3.88	3.05	2.73	2.56	2.45	2.31	2.23	2.17	2.12	2.09	2.07	2.05	2.03	2.01	1.99	1.98	1.97	1.96	1.95	1.94
125	3.96	3.12	2.79	2.61	2.50	2.36	2.28	2.21	2.17	2.13	2.11	2.09	2.08	2.05	2.03	2.02	2.01	2.00	1.99	1.98
150	4.03	3.17	2.84	2.66	2.54	2.40	2.32	2.25	2.20	2.17	2.14	2.12	2.11	2.08	2.07	2.05	2.04	2.03	2.02	2.01
175	4.09	3.22	2.88	2.69	2.58	2.43	2.35	2.28	2.23	2.20	2.17	2.15	2.14	2.11	2.09	2.08	2.07	2.06	2.05	2.03
200	4.14	3.25	2.91	2.73	2.61	2.46	2.37	2.31	2.26	2.22	2.20	2.18	2.16	2.14	2.12	2.10	2.09	2.08	2.07	2.06

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Table 19-8. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 3 (1 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.03	1.65	1.50	1.42	1.36	1.30	1.26	1.23	1.22	1.20	1.19	1.18	1.18	1.17	1.16	1.16	1.15	1.15	1.14	1.14
2	2.41	1.93	1.75	1.65	1.58	1.50	1.46	1.42	1.40	1.38	1.37	1.36	1.35	1.34	1.33	1.33	1.32	1.32	1.31	1.31
3	2.62	2.09	1.89	1.77	1.70	1.62	1.57	1.53	1.50	1.48	1.47	1.46	1.45	1.44	1.43	1.42	1.42	1.41	1.40	1.40
4	2.76	2.20	1.98	1.86	1.79	1.70	1.64	1.60	1.57	1.55	1.54	1.53	1.52	1.50	1.49	1.48	1.48	1.47	1.47	1.46
5	2.87	2.28	2.05	1.93	1.85	1.76	1.70	1.65	1.63	1.60	1.59	1.58	1.57	1.55	1.54	1.53	1.53	1.52	1.51	1.51
8	3.09	2.45	2.20	2.07	1.98	1.88	1.82	1.77	1.73	1.71	1.69	1.68	1.67	1.65	1.64	1.63	1.62	1.62	1.61	1.60
12	3.28	2.59	2.33	2.18	2.09	1.98	1.91	1.86	1.82	1.80	1.78	1.77	1.75	1.74	1.72	1.71	1.71	1.70	1.69	1.68
16	3.40	2.69	2.41	2.26	2.16	2.05	1.98	1.92	1.89	1.86	1.84	1.83	1.81	1.79	1.78	1.77	1.76	1.76	1.74	1.74
20	3.50	2.76	2.48	2.32	2.22	2.10	2.03	1.97	1.94	1.91	1.89	1.87	1.86	1.84	1.82	1.81	1.80	1.80	1.79	1.78
30	3.67	2.89	2.59	2.43	2.32	2.20	2.12	2.06	2.02	1.99	1.97	1.95	1.94	1.92	1.90	1.89	1.88	1.87	1.86	1.85
40	3.79	2.98	2.67	2.50	2.39	2.26	2.18	2.12	2.08	2.05	2.02	2.01	1.99	1.97	1.95	1.94	1.93	1.92	1.91	1.90
50	3.88	3.05	2.73	2.56	2.45	2.31	2.23	2.17	2.12	2.09	2.07	2.05	2.03	2.01	1.99	1.98	1.97	1.96	1.95	1.94
60	3.95	3.10	2.78	2.60	2.49	2.35	2.27	2.20	2.16	2.13	2.10	2.08	2.07	2.04	2.03	2.01	2.00	2.00	1.98	1.97
75	4.03	3.17	2.84	2.66	2.54	2.40	2.32	2.25	2.20	2.17	2.14	2.12	2.11	2.08	2.07	2.05	2.04	2.03	2.02	2.01
100	4.14	3.25	2.91	2.73	2.61	2.46	2.37	2.31	2.26	2.22	2.20	2.18	2.16	2.14	2.12	2.10	2.09	2.08	2.07	2.06
125	4.23	3.32	2.97	2.78	2.66	2.51	2.42	2.35	2.30	2.27	2.24	2.22	2.20	2.17	2.16	2.14	2.13	2.12	2.10	2.09
150	4.29	3.37	3.01	2.82	2.70	2.55	2.46	2.38	2.33	2.30	2.27	2.25	2.23	2.21	2.19	2.17	2.16	2.15	2.13	2.12
175	4.35	3.41	3.05	2.86	2.73	2.58	2.49	2.41	2.36	2.33	2.30	2.28	2.26	2.23	2.21	2.20	2.19	2.18	2.16	2.15
200	4.40	3.45	3.08	2.89	2.76	2.60	2.51	2.44	2.39	2.35	2.32	2.30	2.28	2.25	2.24	2.22	2.21	2.20	2.18	2.17

Table 19-8. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 3 (2 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.78	1.41	1.27	1.20	1.15	1.09	1.06	1.04	1.02	1.01	1.00	0.99	0.99	0.98	0.98	0.97	0.97	0.97	0.96	0.96
2	2.24	1.74	1.55	1.45	1.39	1.32	1.28	1.24	1.22	1.21	1.20	1.19	1.18	1.17	1.16	1.16	1.15	1.15	1.15	1.14
3	2.52	1.93	1.71	1.60	1.53	1.44	1.40	1.36	1.33	1.32	1.30	1.29	1.29	1.28	1.27	1.26	1.26	1.25	1.25	1.24
4	2.71	2.06	1.82	1.70	1.62	1.53	1.48	1.44	1.41	1.39	1.38	1.37	1.36	1.35	1.34	1.33	1.33	1.32	1.31	1.31
5	2.86	2.16	1.91	1.78	1.69	1.60	1.54	1.50	1.47	1.45	1.43	1.42	1.41	1.40	1.39	1.38	1.38	1.37	1.36	1.36
8	3.17	2.38	2.09	1.94	1.84	1.73	1.67	1.62	1.59	1.56	1.55	1.53	1.52	1.51	1.50	1.49	1.48	1.48	1.47	1.46
12	3.43	2.55	2.24	2.07	1.97	1.84	1.77	1.72	1.68	1.66	1.64	1.63	1.61	1.60	1.59	1.58	1.57	1.56	1.55	1.55
16	3.60	2.68	2.34	2.16	2.05	1.92	1.85	1.79	1.75	1.73	1.71	1.69	1.68	1.66	1.65	1.64	1.63	1.62	1.61	1.60
20	3.74	2.77	2.42	2.23	2.12	1.98	1.91	1.84	1.80	1.78	1.76	1.74	1.73	1.71	1.69	1.68	1.67	1.67	1.66	1.65
30	3.98	2.94	2.56	2.36	2.24	2.09	2.01	1.94	1.90	1.87	1.84	1.83	1.81	1.79	1.77	1.76	1.75	1.75	1.74	1.73
40	4.15	3.05	2.65	2.45	2.32	2.16	2.08	2.01	1.96	1.93	1.90	1.89	1.87	1.85	1.83	1.82	1.81	1.80	1.79	1.78
50	4.27	3.14	2.73	2.51	2.38	2.22	2.13	2.06	2.01	1.98	1.95	1.93	1.92	1.89	1.87	1.86	1.85	1.84	1.83	1.82
60	4.37	3.21	2.79	2.57	2.43	2.27	2.17	2.10	2.05	2.01	1.99	1.97	1.95	1.93	1.91	1.90	1.89	1.88	1.86	1.85
75	4.49	3.29	2.86	2.63	2.49	2.32	2.22	2.15	2.10	2.06	2.03	2.01	2.00	1.97	1.95	1.94	1.93	1.92	1.90	1.89
100	4.65	3.40	2.95	2.71	2.57	2.39	2.29	2.21	2.16	2.12	2.09	2.07	2.05	2.02	2.01	1.99	1.98	1.97	1.96	1.94
125	4.76	3.48	3.02	2.78	2.63	2.45	2.34	2.26	2.20	2.16	2.13	2.11	2.09	2.07	2.05	2.03	2.02	2.01	1.99	1.98
150	4.86	3.55	3.07	2.83	2.67	2.49	2.38	2.30	2.24	2.20	2.17	2.15	2.13	2.10	2.08	2.06	2.05	2.04	2.03	2.01
175	4.94	3.60	3.12	2.87	2.71	2.52	2.42	2.33	2.27	2.23	2.20	2.18	2.16	2.13	2.11	2.09	2.08	2.07	2.05	2.04
200	5.00	3.65	3.16	2.91	2.75	2.56	2.44	2.36	2.30	2.26	2.23	2.20	2.18	2.15	2.13	2.11	2.10	2.09	2.07	2.06

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Table 19-8. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 3 (2 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.24	1.74	1.55	1.45	1.39	1.32	1.28	1.24	1.22	1.21	1.20	1.19	1.18	1.17	1.16	1.16	1.15	1.15	1.15	1.14
2	2.71	2.06	1.82	1.70	1.62	1.53	1.48	1.44	1.41	1.39	1.38	1.37	1.36	1.35	1.34	1.33	1.33	1.32	1.31	1.31
3	2.98	2.25	1.98	1.84	1.75	1.65	1.59	1.54	1.51	1.49	1.48	1.47	1.46	1.44	1.43	1.42	1.42	1.41	1.41	1.40
4	3.17	2.38	2.09	1.94	1.84	1.73	1.67	1.62	1.59	1.56	1.55	1.53	1.52	1.51	1.50	1.49	1.48	1.48	1.47	1.46
5	3.31	2.47	2.17	2.01	1.91	1.79	1.73	1.67	1.64	1.62	1.60	1.59	1.57	1.56	1.55	1.54	1.53	1.53	1.52	1.51
8	3.60	2.68	2.34	2.16	2.05	1.92	1.85	1.79	1.75	1.73	1.71	1.69	1.68	1.66	1.65	1.64	1.63	1.62	1.61	1.60
12	3.85	2.84	2.48	2.29	2.17	2.03	1.95	1.89	1.85	1.82	1.80	1.78	1.76	1.74	1.73	1.72	1.71	1.70	1.69	1.68
16	4.02	2.96	2.58	2.38	2.25	2.11	2.02	1.96	1.91	1.88	1.86	1.84	1.82	1.80	1.79	1.78	1.77	1.76	1.75	1.74
20	4.15	3.05	2.65	2.45	2.32	2.16	2.08	2.01	1.96	1.93	1.90	1.89	1.87	1.85	1.83	1.82	1.81	1.80	1.79	1.78
30	4.37	3.21	2.79	2.57	2.43	2.27	2.17	2.10	2.05	2.01	1.99	1.97	1.95	1.93	1.91	1.90	1.89	1.88	1.86	1.85
40	4.53	3.32	2.88	2.65	2.51	2.34	2.24	2.16	2.11	2.07	2.05	2.02	2.01	1.98	1.96	1.95	1.94	1.93	1.92	1.91
50	4.65	3.40	2.95	2.71	2.57	2.39	2.29	2.21	2.16	2.12	2.09	2.07	2.05	2.02	2.01	1.99	1.98	1.97	1.96	1.94
60	4.74	3.47	3.01	2.77	2.62	2.44	2.33	2.25	2.19	2.16	2.13	2.10	2.09	2.06	2.04	2.02	2.01	2.00	1.99	1.98
75	4.86	3.55	3.07	2.83	2.67	2.49	2.38	2.30	2.24	2.20	2.17	2.15	2.13	2.10	2.08	2.06	2.05	2.04	2.03	2.01
100	5.00	3.65	3.16	2.91	2.75	2.56	2.44	2.36	2.30	2.26	2.23	2.20	2.18	2.15	2.13	2.11	2.10	2.09	2.07	2.06
125	5.11	3.73	3.23	2.97	2.80	2.61	2.49	2.40	2.34	2.30	2.27	2.24	2.22	2.19	2.17	2.15	2.14	2.13	2.11	2.10
150	5.20	3.79	3.28	3.01	2.85	2.65	2.53	2.44	2.38	2.33	2.30	2.28	2.25	2.22	2.20	2.18	2.17	2.16	2.14	2.13
175	5.28	3.84	3.32	3.05	2.88	2.68	2.56	2.47	2.41	2.36	2.33	2.30	2.28	2.25	2.23	2.21	2.20	2.19	2.17	2.15
200	5.34	3.89	3.36	3.09	2.92	2.71	2.59	2.50	2.43	2.39	2.35	2.33	2.31	2.27	2.25	2.23	2.22	2.21	2.19	2.17

Table 19-8. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 3 (2 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.71	2.06	1.82	1.70	1.62	1.53	1.48	1.44	1.41	1.39	1.38	1.37	1.36	1.35	1.34	1.33	1.33	1.32	1.31	1.31
2	3.17	2.38	2.09	1.94	1.84	1.73	1.67	1.62	1.59	1.56	1.55	1.53	1.52	1.51	1.50	1.49	1.48	1.48	1.47	1.46
3	3.43	2.55	2.24	2.07	1.97	1.84	1.77	1.72	1.68	1.66	1.64	1.63	1.61	1.60	1.59	1.58	1.57	1.56	1.55	1.55
4	3.60	2.68	2.34	2.16	2.05	1.92	1.85	1.79	1.75	1.73	1.71	1.69	1.68	1.66	1.65	1.64	1.63	1.62	1.61	1.60
5	3.74	2.77	2.42	2.23	2.12	1.98	1.91	1.84	1.80	1.78	1.76	1.74	1.73	1.71	1.69	1.68	1.67	1.67	1.66	1.65
8	4.02	2.96	2.58	2.38	2.25	2.11	2.02	1.96	1.91	1.88	1.86	1.84	1.82	1.80	1.79	1.78	1.77	1.76	1.75	1.74
12	4.25	3.12	2.71	2.50	2.37	2.21	2.12	2.05	2.00	1.97	1.94	1.92	1.91	1.88	1.87	1.85	1.84	1.84	1.82	1.81
16	4.41	3.23	2.81	2.59	2.45	2.28	2.19	2.11	2.06	2.03	2.00	1.98	1.96	1.94	1.92	1.91	1.90	1.89	1.88	1.87
20	4.53	3.32	2.88	2.65	2.51	2.34	2.24	2.16	2.11	2.07	2.05	2.02	2.01	1.98	1.96	1.95	1.94	1.93	1.92	1.91
30	4.74	3.47	3.01	2.77	2.62	2.44	2.33	2.25	2.19	2.16	2.13	2.10	2.09	2.06	2.04	2.02	2.01	2.00	1.99	1.98
40	4.89	3.57	3.09	2.84	2.69	2.50	2.40	2.31	2.25	2.21	2.18	2.16	2.14	2.11	2.09	2.07	2.06	2.05	2.04	2.02
50	5.00	3.65	3.16	2.91	2.75	2.56	2.44	2.36	2.30	2.26	2.23	2.20	2.18	2.15	2.13	2.11	2.10	2.09	2.07	2.06
60	5.09	3.71	3.22	2.95	2.79	2.60	2.48	2.39	2.33	2.29	2.26	2.23	2.21	2.18	2.16	2.15	2.13	2.12	2.10	2.09
75	5.20	3.79	3.28	3.01	2.85	2.65	2.53	2.44	2.38	2.33	2.30	2.28	2.25	2.22	2.20	2.18	2.17	2.16	2.14	2.13
100	5.34	3.89	3.36	3.09	2.92	2.71	2.59	2.50	2.43	2.39	2.35	2.33	2.31	2.27	2.25	2.23	2.22	2.21	2.19	2.17
125	5.44	3.96	3.43	3.15	2.97	2.76	2.64	2.54	2.48	2.43	2.40	2.37	2.35	2.31	2.29	2.27	2.26	2.24	2.22	2.21
150	5.53	4.02	3.48	3.19	3.01	2.80	2.68	2.58	2.51	2.46	2.43	2.40	2.38	2.34	2.32	2.30	2.29	2.27	2.25	2.24
175	5.60	4.07	3.52	3.23	3.05	2.83	2.71	2.61	2.54	2.49	2.46	2.43	2.40	2.37	2.34	2.32	2.31	2.30	2.28	2.26
200	5.66	4.11	3.56	3.26	3.08	2.86	2.74	2.63	2.57	2.52	2.48	2.45	2.43	2.39	2.37	2.35	2.33	2.32	2.30	2.28

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Table 19-8. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 3 (5 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.62	1.92	1.68	1.56	1.49	1.40	1.35	1.31	1.29	1.27	1.26	1.25	1.24	1.23	1.22	1.22	1.21	1.21	1.20	1.20
2	3.22	2.29	1.98	1.82	1.73	1.62	1.55	1.51	1.48	1.45	1.44	1.43	1.42	1.40	1.39	1.38	1.38	1.37	1.37	1.36
3	3.58	2.51	2.15	1.97	1.86	1.74	1.67	1.61	1.58	1.56	1.54	1.52	1.51	1.50	1.49	1.48	1.47	1.46	1.46	1.45
4	3.83	2.66	2.27	2.08	1.96	1.82	1.75	1.69	1.65	1.63	1.61	1.59	1.58	1.56	1.55	1.54	1.53	1.53	1.52	1.51
5	4.03	2.78	2.36	2.16	2.03	1.89	1.81	1.75	1.71	1.68	1.66	1.64	1.63	1.61	1.60	1.59	1.58	1.57	1.56	1.56
8	4.44	3.03	2.56	2.32	2.18	2.02	1.93	1.86	1.82	1.79	1.76	1.75	1.73	1.71	1.70	1.69	1.68	1.67	1.66	1.65
12	4.79	3.23	2.72	2.47	2.31	2.14	2.04	1.96	1.91	1.88	1.85	1.83	1.82	1.80	1.78	1.77	1.76	1.75	1.74	1.73
16	5.03	3.38	2.84	2.57	2.40	2.22	2.11	2.03	1.98	1.94	1.92	1.89	1.88	1.85	1.84	1.82	1.81	1.81	1.79	1.78
20	5.21	3.49	2.93	2.64	2.47	2.28	2.17	2.08	2.03	1.99	1.96	1.94	1.92	1.90	1.88	1.87	1.86	1.85	1.83	1.82
30	5.53	3.69	3.08	2.78	2.60	2.39	2.27	2.18	2.12	2.08	2.05	2.02	2.01	1.98	1.96	1.94	1.93	1.92	1.91	1.90
40	5.76	3.83	3.19	2.88	2.69	2.46	2.34	2.24	2.18	2.14	2.11	2.08	2.06	2.03	2.01	2.00	1.98	1.98	1.96	1.95
50	5.93	3.93	3.28	2.95	2.75	2.52	2.39	2.30	2.23	2.19	2.15	2.13	2.11	2.07	2.05	2.04	2.02	2.01	2.00	1.99
60	6.07	4.02	3.35	3.01	2.81	2.57	2.44	2.34	2.27	2.22	2.19	2.16	2.14	2.11	2.09	2.07	2.06	2.05	2.03	2.02
75	6.23	4.12	3.43	3.08	2.87	2.63	2.49	2.39	2.32	2.27	2.23	2.20	2.18	2.15	2.13	2.11	2.10	2.09	2.07	2.05
100	6.44	4.25	3.53	3.17	2.95	2.70	2.56	2.45	2.38	2.33	2.29	2.26	2.24	2.20	2.18	2.16	2.15	2.13	2.11	2.10
125	6.60	4.35	3.61	3.24	3.02	2.76	2.61	2.50	2.42	2.37	2.33	2.30	2.28	2.24	2.22	2.20	2.18	2.17	2.15	2.14
150	6.72	4.42	3.67	3.30	3.07	2.80	2.65	2.54	2.46	2.41	2.37	2.34	2.31	2.28	2.25	2.23	2.21	2.20	2.18	2.17
175	6.83	4.49	3.73	3.34	3.11	2.84	2.69	2.57	2.49	2.44	2.40	2.37	2.34	2.30	2.28	2.26	2.24	2.23	2.21	2.19
200	6.92	4.55	3.77	3.38	3.15	2.87	2.72	2.60	2.52	2.46	2.42	2.39	2.36	2.33	2.30	2.28	2.26	2.25	2.23	2.21

Table 19-8. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 3 (5 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.22	2.29	1.98	1.82	1.73	1.62	1.55	1.51	1.48	1.45	1.44	1.43	1.42	1.40	1.39	1.38	1.38	1.37	1.37	1.36
2	3.83	2.66	2.27	2.08	1.96	1.82	1.75	1.69	1.65	1.63	1.61	1.59	1.58	1.56	1.55	1.54	1.53	1.53	1.52	1.51
3	4.19	2.88	2.44	2.22	2.09	1.94	1.86	1.79	1.75	1.72	1.70	1.68	1.67	1.65	1.64	1.63	1.62	1.61	1.60	1.59
4	4.44	3.03	2.56	2.32	2.18	2.02	1.93	1.86	1.82	1.79	1.76	1.75	1.73	1.71	1.70	1.69	1.68	1.67	1.66	1.65
5	4.63	3.14	2.65	2.40	2.26	2.09	1.99	1.92	1.87	1.84	1.81	1.79	1.78	1.76	1.74	1.73	1.72	1.72	1.70	1.69
8	5.03	3.38	2.84	2.57	2.40	2.22	2.11	2.03	1.98	1.94	1.92	1.89	1.88	1.85	1.84	1.82	1.81	1.81	1.79	1.78
12	5.36	3.58	3.00	2.71	2.53	2.33	2.21	2.13	2.07	2.03	2.00	1.98	1.96	1.93	1.92	1.90	1.89	1.88	1.87	1.86
16	5.59	3.72	3.11	2.80	2.62	2.41	2.29	2.19	2.13	2.09	2.06	2.04	2.02	1.99	1.97	1.96	1.94	1.93	1.92	1.91
20	5.76	3.83	3.19	2.88	2.69	2.46	2.34	2.24	2.18	2.14	2.11	2.08	2.06	2.03	2.01	2.00	1.98	1.98	1.96	1.95
30	6.07	4.02	3.35	3.01	2.81	2.57	2.44	2.34	2.27	2.22	2.19	2.16	2.14	2.11	2.09	2.07	2.06	2.05	2.03	2.02
40	6.28	4.15	3.45	3.10	2.89	2.65	2.51	2.40	2.33	2.28	2.25	2.22	2.20	2.16	2.14	2.12	2.11	2.10	2.08	2.06
50	6.44	4.25	3.53	3.17	2.95	2.70	2.56	2.45	2.38	2.33	2.29	2.26	2.24	2.20	2.18	2.16	2.15	2.13	2.11	2.10
60	6.57	4.33	3.59	3.23	3.01	2.75	2.60	2.49	2.42	2.36	2.32	2.29	2.27	2.24	2.21	2.19	2.17	2.17	2.14	2.13
75	6.72	4.42	3.67	3.30	3.07	2.80	2.65	2.54	2.46	2.41	2.37	2.34	2.31	2.28	2.25	2.23	2.21	2.20	2.18	2.17
100	6.92	4.55	3.77	3.38	3.15	2.87	2.72	2.60	2.52	2.46	2.42	2.39	2.36	2.33	2.30	2.28	2.26	2.25	2.23	2.21
125	7.07	4.64	3.85	3.45	3.21	2.93	2.77	2.65	2.56	2.51	2.46	2.43	2.40	2.36	2.33	2.32	2.30	2.29	2.26	2.25
150	7.19	4.72	3.91	3.50	3.26	2.97	2.81	2.68	2.60	2.54	2.50	2.46	2.44	2.40	2.37	2.35	2.33	2.32	2.29	2.28
175	7.29	4.78	3.96	3.55	3.30	3.01	2.84	2.72	2.63	2.57	2.53	2.49	2.46	2.42	2.39	2.37	2.35	2.34	2.32	2.30
200	7.34	4.83	4.00	3.59	3.34	3.04	2.87	2.74	2.66	2.60	2.55	2.52	2.49	2.45	2.42	2.39	2.38	2.36	2.34	2.32

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Table 19-8. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 3 (5 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.83	2.66	2.27	2.08	1.96	1.82	1.75	1.69	1.65	1.63	1.61	1.59	1.58	1.56	1.55	1.54	1.53	1.53	1.52	1.51
2	4.44	3.03	2.56	2.32	2.18	2.02	1.93	1.86	1.82	1.79	1.76	1.75	1.73	1.71	1.70	1.69	1.68	1.67	1.66	1.65
3	4.79	3.23	2.72	2.47	2.31	2.14	2.04	1.96	1.91	1.88	1.85	1.83	1.82	1.80	1.78	1.77	1.76	1.75	1.74	1.73
4	5.03	3.38	2.84	2.57	2.40	2.22	2.11	2.03	1.98	1.94	1.92	1.89	1.88	1.85	1.84	1.82	1.81	1.81	1.79	1.78
5	5.21	3.49	2.93	2.64	2.47	2.28	2.17	2.08	2.03	1.99	1.96	1.94	1.92	1.90	1.88	1.87	1.86	1.85	1.83	1.82
8	5.59	3.72	3.11	2.80	2.62	2.41	2.29	2.19	2.13	2.09	2.06	2.04	2.02	1.99	1.97	1.96	1.94	1.93	1.92	1.91
12	5.90	3.91	3.26	2.94	2.74	2.51	2.38	2.29	2.22	2.18	2.14	2.12	2.10	2.07	2.05	2.03	2.02	2.01	1.99	1.98
16	6.11	4.05	3.37	3.03	2.83	2.59	2.45	2.35	2.28	2.24	2.20	2.17	2.15	2.12	2.10	2.08	2.07	2.06	2.04	2.03
20	6.28	4.15	3.45	3.10	2.89	2.65	2.51	2.40	2.33	2.28	2.25	2.22	2.20	2.16	2.14	2.12	2.11	2.10	2.08	2.06
30	6.57	4.33	3.59	3.23	3.01	2.75	2.60	2.49	2.42	2.36	2.32	2.29	2.27	2.24	2.21	2.19	2.17	2.17	2.14	2.13
40	6.77	4.45	3.70	3.32	3.09	2.82	2.67	2.55	2.47	2.42	2.38	2.35	2.32	2.29	2.26	2.24	2.23	2.21	2.19	2.18
50	6.92	4.55	3.77	3.38	3.15	2.87	2.72	2.60	2.52	2.46	2.42	2.39	2.36	2.33	2.30	2.28	2.26	2.25	2.23	2.21
60	7.04	4.62	3.83	3.44	3.20	2.92	2.76	2.64	2.56	2.50	2.46	2.42	2.40	2.36	2.33	2.31	2.29	2.28	2.26	2.24
75	7.19	4.72	3.91	3.50	3.26	2.97	2.81	2.68	2.60	2.54	2.50	2.46	2.44	2.40	2.37	2.35	2.33	2.32	2.29	2.28
100	7.34	4.83	4.00	3.59	3.34	3.04	2.87	2.74	2.66	2.60	2.55	2.52	2.49	2.45	2.42	2.39	2.38	2.36	2.34	2.32
125	7.52	4.92	4.08	3.65	3.39	3.09	2.92	2.79	2.70	2.64	2.59	2.56	2.53	2.48	2.45	2.43	2.41	2.40	2.37	2.35
150	7.64	5.00	4.13	3.70	3.44	3.14	2.96	2.83	2.74	2.67	2.62	2.59	2.56	2.51	2.48	2.46	2.44	2.43	2.40	2.38
175	7.73	5.06	4.18	3.75	3.48	3.17	2.99	2.86	2.77	2.70	2.65	2.61	2.58	2.54	2.51	2.48	2.46	2.45	2.42	2.40
200	7.82	5.11	4.23	3.78	3.52	3.20	3.02	2.88	2.79	2.73	2.68	2.64	2.61	2.56	2.53	2.50	2.49	2.47	2.44	2.42

Table 19-8. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 3 (10 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.41	2.35	2.01	1.84	1.74	1.62	1.56	1.51	1.48	1.46	1.44	1.43	1.42	1.40	1.39	1.39	1.38	1.37	1.37	1.36
2	4.15	2.76	2.32	2.10	1.98	1.83	1.75	1.69	1.65	1.63	1.61	1.59	1.58	1.56	1.55	1.54	1.53	1.53	1.52	1.51
3	4.60	3.00	2.50	2.26	2.12	1.95	1.86	1.80	1.75	1.72	1.70	1.69	1.67	1.65	1.64	1.63	1.62	1.61	1.60	1.59
4	4.92	3.17	2.63	2.37	2.21	2.04	1.94	1.87	1.82	1.79	1.77	1.75	1.73	1.71	1.70	1.69	1.68	1.67	1.66	1.65
5	5.16	3.30	2.73	2.45	2.29	2.10	2.00	1.93	1.88	1.84	1.82	1.80	1.78	1.76	1.74	1.73	1.72	1.72	1.70	1.69
8	5.68	3.58	2.94	2.63	2.45	2.24	2.13	2.04	1.99	1.95	1.92	1.90	1.88	1.86	1.84	1.83	1.82	1.81	1.79	1.78
12	6.11	3.82	3.12	2.78	2.58	2.36	2.23	2.14	2.08	2.04	2.01	1.98	1.96	1.94	1.92	1.90	1.89	1.88	1.87	1.86
16	6.41	3.99	3.24	2.89	2.68	2.44	2.31	2.21	2.14	2.10	2.07	2.04	2.02	1.99	1.97	1.96	1.95	1.94	1.92	1.91
20	6.64	4.11	3.34	2.97	2.75	2.50	2.36	2.26	2.19	2.15	2.11	2.09	2.07	2.04	2.01	2.00	1.99	1.98	1.96	1.95
30	7.05	4.34	3.51	3.11	2.88	2.61	2.47	2.35	2.28	2.23	2.20	2.17	2.15	2.11	2.09	2.07	2.06	2.05	2.03	2.02
40	7.33	4.50	3.63	3.22	2.97	2.69	2.54	2.42	2.34	2.29	2.25	2.22	2.20	2.17	2.14	2.12	2.11	2.10	2.08	2.07
50	7.55	4.62	3.73	3.30	3.04	2.75	2.59	2.47	2.39	2.34	2.30	2.27	2.24	2.21	2.18	2.16	2.15	2.14	2.12	2.10
60	7.72	4.71	3.80	3.36	3.10	2.80	2.63	2.50	2.43	2.38	2.33	2.30	2.28	2.24	2.21	2.19	2.18	2.17	2.15	2.13
75	7.93	4.83	3.89	3.44	3.17	2.86	2.69	2.56	2.48	2.42	2.38	2.34	2.32	2.28	2.25	2.23	2.22	2.20	2.18	2.17
100	8.19	4.98	4.00	3.53	3.25	2.94	2.76	2.63	2.54	2.48	2.43	2.40	2.37	2.33	2.30	2.28	2.27	2.25	2.23	2.21
125	8.39	5.09	4.09	3.61	3.32	2.99	2.81	2.67	2.58	2.52	2.48	2.44	2.41	2.37	2.34	2.32	2.30	2.29	2.27	2.25
150	8.55	5.18	4.16	3.67	3.38	3.04	2.86	2.71	2.62	2.56	2.51	2.47	2.45	2.40	2.37	2.35	2.33	2.32	2.29	2.28
175	8.68	5.26	4.22	3.72	3.42	3.08	2.89	2.75	2.65	2.59	2.54	2.50	2.47	2.43	2.40	2.38	2.36	2.34	2.32	2.30
200	8.80	5.32	4.27	3.76	3.46	3.12	2.92	2.78	2.68	2.61	2.57	2.53	2.50	2.45	2.42	2.40	2.38	2.36	2.34	2.26

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Table 19-8. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 3 (10 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.15	2.76	2.32	2.10	1.98	1.83	1.75	1.69	1.65	1.63	1.61	1.59	1.58	1.56	1.55	1.54	1.53	1.53	1.52	1.51
2	4.92	3.17	2.63	2.37	2.21	2.04	1.94	1.87	1.82	1.79	1.77	1.75	1.73	1.71	1.70	1.69	1.68	1.67	1.66	1.65
3	5.36	3.41	2.81	2.52	2.35	2.16	2.05	1.97	1.92	1.88	1.86	1.84	1.82	1.80	1.78	1.77	1.76	1.75	1.74	1.73
4	5.68	3.58	2.94	2.63	2.45	2.24	2.13	2.04	1.99	1.95	1.92	1.90	1.88	1.86	1.84	1.83	1.82	1.81	1.79	1.78
5	5.92	3.71	3.04	2.71	2.52	2.30	2.18	2.09	2.04	2.00	1.97	1.95	1.93	1.90	1.88	1.87	1.86	1.85	1.83	1.82
8	6.41	3.99	3.24	2.89	2.68	2.44	2.31	2.21	2.14	2.10	2.07	2.04	2.02	1.99	1.97	1.96	1.95	1.94	1.92	1.91
12	6.83	4.22	3.42	3.03	2.81	2.55	2.41	2.30	2.23	2.19	2.15	2.12	2.10	2.07	2.05	2.03	2.02	2.01	1.99	1.98
16	7.11	4.38	3.54	3.14	2.90	2.63	2.48	2.37	2.30	2.25	2.21	2.18	2.16	2.12	2.10	2.08	2.07	2.06	2.04	2.03
20	7.33	4.50	3.63	3.22	2.97	2.69	2.54	2.42	2.34	2.29	2.25	2.22	2.20	2.17	2.14	2.12	2.11	2.10	2.08	2.07
30	7.72	4.71	3.80	3.36	3.10	2.80	2.63	2.50	2.43	2.38	2.33	2.30	2.28	2.24	2.21	2.19	2.18	2.17	2.15	2.13
40	7.99	4.87	3.92	3.46	3.19	2.88	2.71	2.58	2.49	2.43	2.39	2.36	2.33	2.29	2.26	2.24	2.23	2.22	2.19	2.18
50	8.19	4.98	4.00	3.53	3.25	2.94	2.76	2.63	2.54	2.48	2.43	2.40	2.37	2.33	2.30	2.28	2.27	2.25	2.23	2.21
60	8.35	5.07	4.08	3.59	3.31	2.98	2.80	2.67	2.58	2.51	2.47	2.43	2.41	2.36	2.33	2.31	2.30	2.28	2.26	2.24
75	8.55	5.18	4.16	3.67	3.38	3.04	2.86	2.71	2.62	2.56	2.51	2.47	2.45	2.40	2.37	2.35	2.33	2.32	2.29	2.28
100	8.80	5.32	4.27	3.76	3.46	3.12	2.92	2.78	2.68	2.61	2.57	2.53	2.50	2.45	2.42	2.40	2.38	2.36	2.34	2.26
125	8.99	5.43	4.36	3.83	3.53	3.17	2.98	2.82	2.73	2.66	2.61	2.57	2.54	2.49	2.46	2.43	2.42	2.40	2.37	2.36
150	9.14	5.52	4.42	3.89	3.58	3.22	3.02	2.86	2.76	2.69	2.64	2.60	2.57	2.52	2.49	2.46	2.44	2.43	2.40	2.38
175	9.27	5.60	4.48	3.94	3.62	3.26	3.05	2.90	2.79	2.72	2.67	2.63	2.60	2.55	2.51	2.49	2.47	2.45	2.42	2.41
200	9.38	5.66	4.53	3.98	3.66	3.29	3.08	2.92	2.82	2.75	2.69	2.65	2.62	2.57	2.54	2.51	2.49	2.47	2.45	2.43

Table 19-8. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 3 (10 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.92	3.17	2.63	2.37	2.21	2.04	1.94	1.87	1.82	1.79	1.77	1.75	1.73	1.71	1.70	1.69	1.68	1.67	1.66	1.65
2	5.68	3.58	2.94	2.63	2.45	2.24	2.13	2.04	1.99	1.95	1.92	1.90	1.88	1.86	1.84	1.83	1.82	1.81	1.79	1.78
3	6.11	3.82	3.12	2.78	2.58	2.36	2.23	2.14	2.08	2.04	2.01	1.98	1.96	1.94	1.92	1.90	1.89	1.88	1.87	1.86
4	6.41	3.99	3.24	2.89	2.68	2.44	2.31	2.21	2.14	2.10	2.07	2.04	2.02	1.99	1.97	1.96	1.95	1.94	1.92	1.91
5	6.64	4.11	3.34	2.97	2.75	2.50	2.36	2.26	2.19	2.15	2.11	2.09	2.07	2.04	2.01	2.00	1.99	1.98	1.96	1.95
8	7.11	4.38	3.54	3.14	2.90	2.63	2.48	2.37	2.30	2.25	2.21	2.18	2.16	2.12	2.10	2.08	2.07	2.06	2.04	2.03
12	7.51	4.60	3.71	3.28	3.03	2.74	2.58	2.46	2.38	2.33	2.29	2.26	2.24	2.20	2.17	2.16	2.14	2.13	2.11	2.10
16	7.78	4.75	3.83	3.38	3.12	2.82	2.65	2.53	2.44	2.39	2.35	2.31	2.29	2.25	2.23	2.21	2.19	2.18	2.16	2.14
20	7.99	4.87	3.92	3.46	3.19	2.88	2.71	2.58	2.49	2.43	2.39	2.36	2.33	2.29	2.26	2.24	2.23	2.22	2.19	2.18
30	8.35	5.07	4.08	3.59	3.31	2.98	2.80	2.67	2.58	2.51	2.47	2.43	2.41	2.36	2.33	2.31	2.30	2.28	2.26	2.24
40	8.60	5.22	4.19	3.69	3.39	3.06	2.87	2.73	2.64	2.57	2.52	2.49	2.46	2.41	2.38	2.36	2.34	2.33	2.30	2.29
50	8.80	5.32	4.27	3.76	3.46	3.12	2.92	2.78	2.68	2.61	2.57	2.53	2.50	2.45	2.42	2.40	2.38	2.36	2.34	2.26
60	8.95	5.42	4.34	3.82	3.51	3.16	2.97	2.82	2.72	2.65	2.60	2.56	2.53	2.48	2.45	2.43	2.41	2.39	2.37	2.35
75	9.14	5.52	4.42	3.89	3.58	3.22	3.02	2.86	2.76	2.69	2.64	2.60	2.57	2.52	2.49	2.46	2.44	2.43	2.40	2.38
100	9.38	5.66	4.53	3.98	3.66	3.29	3.08	2.92	2.82	2.75	2.69	2.65	2.62	2.57	2.54	2.51	2.49	2.47	2.45	2.43
125	9.56	5.76	4.61	4.05	3.72	3.34	3.13	2.97	2.86	2.79	2.73	2.69	2.66	2.61	2.57	2.54	2.52	2.51	2.48	2.46
150	9.70	5.85	4.68	4.11	3.77	3.39	3.17	3.01	2.90	2.82	2.77	2.72	2.69	2.64	2.60	2.57	2.55	2.54	2.51	2.49
175	9.82	5.91	4.73	4.16	3.82	3.43	3.21	3.04	2.93	2.85	2.80	2.75	2.72	2.66	2.63	2.60	2.58	2.56	2.53	2.51
200	9.93	5.97	4.77	4.20	3.85	3.46	3.24	3.07	2.96	2.88	2.82	2.77	2.74	2.68	2.65	2.62	2.60	2.58	2.55	2.53

Table 19-8. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 3 (20 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.38	2.82	2.34	2.12	1.99	1.84	1.76	1.70	1.66	1.63	1.61	1.59	1.58	1.56	1.55	1.54	1.53	1.53	1.52	1.51
2	5.31	3.27	2.67	2.39	2.23	2.05	1.95	1.87	1.83	1.79	1.77	1.75	1.74	1.71	1.70	1.69	1.68	1.67	1.66	1.65
3	5.86	3.54	2.87	2.55	2.37	2.17	2.06	1.97	1.92	1.89	1.86	1.84	1.82	1.80	1.78	1.77	1.76	1.75	1.74	1.73
4	6.26	3.74	3.01	2.67	2.47	2.25	2.13	2.05	1.99	1.95	1.92	1.90	1.88	1.86	1.84	1.83	1.82	1.81	1.79	1.78
5	6.57	3.89	3.12	2.76	2.55	2.32	2.19	2.10	2.04	2.00	1.97	1.95	1.93	1.90	1.88	1.87	1.86	1.85	1.83	1.82
8	7.22	4.21	3.35	2.95	2.71	2.46	2.32	2.21	2.15	2.10	2.07	2.04	2.02	1.99	1.97	1.96	1.95	1.94	1.92	1.91
12	7.76	4.48	3.54	3.11	2.85	2.57	2.42	2.31	2.24	2.19	2.15	2.13	2.10	2.07	2.05	2.03	2.02	2.01	1.99	1.98
16	8.14	4.67	3.68	3.22	2.95	2.66	2.50	2.38	2.30	2.25	2.21	2.18	2.16	2.13	2.10	2.08	2.07	2.06	2.04	2.03
20	8.43	4.81	3.78	3.31	3.03	2.72	2.56	2.43	2.35	2.30	2.26	2.23	2.20	2.17	2.14	2.12	2.11	2.10	2.08	2.07
30	8.94	5.07	3.97	3.46	3.17	2.84	2.66	2.53	2.44	2.38	2.34	2.31	2.28	2.24	2.22	2.20	2.18	2.17	2.15	2.13
40	9.30	5.25	4.11	3.57	3.26	2.92	2.73	2.59	2.50	2.44	2.40	2.36	2.33	2.29	2.27	2.25	2.23	2.22	2.17	2.18
50	9.57	5.39	4.21	3.66	3.34	2.98	2.79	2.64	2.55	2.49	2.44	2.40	2.38	2.33	2.31	2.28	2.27	2.25	2.23	2.21
60	9.79	5.50	4.29	3.72	3.40	3.03	2.83	2.68	2.59	2.52	2.48	2.44	2.41	2.37	2.34	2.31	2.30	2.28	2.26	2.24
75	10.05	5.64	4.39	3.81	3.47	3.09	2.89	2.73	2.64	2.57	2.52	2.48	2.45	2.41	2.37	2.35	2.33	2.32	2.29	2.26
100	10.38	5.81	4.52	3.91	3.56	3.17	2.96	2.80	2.70	2.63	2.57	2.53	2.50	2.46	2.42	2.40	2.38	2.37	2.34	2.32
125	10.63	5.94	4.61	3.99	3.63	3.23	3.01	2.85	2.74	2.67	2.62	2.57	2.54	2.49	2.46	2.44	2.42	2.40	2.37	2.36
150	10.83	6.04	4.69	4.06	3.69	3.28	3.06	2.89	2.78	2.71	2.65	2.61	2.58	2.53	2.49	2.47	2.45	2.43	2.40	2.38
175	11.00	6.13	4.76	4.11	3.74	3.32	3.10	2.92	2.81	2.74	2.68	2.64	2.60	2.55	2.52	2.49	2.47	2.45	2.43	2.41
200	11.15	6.20	4.81	4.16	3.78	3.36	3.13	2.95	2.84	2.76	2.70	2.66	2.63	2.57	2.54	2.51	2.49	2.48	2.45	2.43

Table 19-8. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 3 (20 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	5.31	3.27	2.67	2.39	2.23	2.05	1.95	1.87	1.83	1.79	1.77	1.75	1.74	1.71	1.70	1.69	1.68	1.67	1.66	1.65
2	6.26	3.74	3.01	2.67	2.47	2.25	2.13	2.05	1.99	1.95	1.92	1.90	1.88	1.86	1.84	1.83	1.82	1.81	1.79	1.78
3	6.82	4.01	3.21	2.83	2.61	2.37	2.24	2.14	2.08	2.04	2.01	1.98	1.97	1.94	1.92	1.90	1.89	1.88	1.87	1.86
4	7.22	4.21	3.35	2.95	2.71	2.46	2.32	2.21	2.15	2.10	2.07	2.04	2.02	1.99	1.97	1.96	1.95	1.94	1.92	1.91
5	7.52	4.36	3.45	3.03	2.79	2.52	2.38	2.27	2.20	2.15	2.12	2.09	2.07	2.04	2.02	2.00	1.99	1.98	1.96	1.95
8	8.14	4.67	3.68	3.22	2.95	2.66	2.50	2.38	2.30	2.25	2.21	2.18	2.16	2.13	2.10	2.08	2.07	2.06	2.04	2.03
12	8.66	4.93	3.87	3.38	3.09	2.77	2.60	2.47	2.39	2.34	2.29	2.26	2.24	2.20	2.18	2.16	2.14	2.13	2.11	2.10
16	9.02	5.11	4.00	3.49	3.19	2.86	2.68	2.54	2.45	2.40	2.35	2.32	2.29	2.25	2.23	2.21	2.19	2.18	2.16	2.14
20	9.30	5.25	4.11	3.57	3.26	2.92	2.73	2.59	2.50	2.44	2.40	2.36	2.33	2.29	2.27	2.25	2.23	2.22	2.17	2.18
30	9.79	5.50	4.29	3.72	3.40	3.03	2.83	2.68	2.59	2.52	2.48	2.44	2.41	2.37	2.34	2.31	2.30	2.28	2.26	2.24
40	10.12	5.68	4.42	3.83	3.49	3.11	2.90	2.75	2.65	2.58	2.53	2.49	2.46	2.42	2.39	2.36	2.34	2.33	2.31	2.29
50	10.38	5.81	4.52	3.91	3.56	3.17	2.96	2.80	2.70	2.63	2.57	2.53	2.50	2.46	2.42	2.40	2.38	2.37	2.34	2.32
60	10.58	5.91	4.59	3.98	3.62	3.22	3.00	2.84	2.73	2.66	2.61	2.57	2.54	2.49	2.45	2.43	2.41	2.40	2.37	2.35
75	10.83	6.04	4.69	4.06	3.69	3.28	3.06	2.89	2.78	2.71	2.65	2.61	2.58	2.53	2.49	2.47	2.45	2.43	2.40	2.38
100	11.15	6.20	4.81	4.16	3.78	3.36	3.13	2.95	2.84	2.76	2.70	2.66	2.63	2.57	2.54	2.51	2.49	2.48	2.45	2.43
125	11.38	6.33	4.90	4.24	3.85	3.42	3.18	3.00	2.89	2.81	2.75	2.70	2.67	2.61	2.58	2.55	2.53	2.51	2.48	2.46
150	11.58	6.43	4.98	4.30	3.91	3.47	3.22	3.04	2.92	2.84	2.78	2.73	2.70	2.64	2.60	2.58	2.56	2.54	2.51	2.49
175	11.74	6.52	5.04	4.35	3.95	3.51	3.26	3.07	2.95	2.87	2.81	2.76	2.72	2.67	2.63	2.60	2.58	2.56	2.53	2.51
200	11.88	6.59	5.10	4.40	3.99	3.54	3.29	3.10	2.98	2.90	2.83	2.78	2.75	2.69	2.65	2.62	2.60	2.58	2.55	2.53

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Table 19-8. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 3 (20 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	6.26	3.74	3.01	2.67	2.47	2.25	2.13	2.05	1.99	1.95	1.92	1.90	1.88	1.86	1.84	1.83	1.82	1.81	1.79	1.78
2	7.22	4.21	3.35	2.95	2.71	2.46	2.32	2.21	2.15	2.10	2.07	2.04	2.02	1.99	1.97	1.96	1.95	1.94	1.92	1.91
3	7.76	4.48	3.54	3.11	2.85	2.57	2.42	2.31	2.24	2.19	2.15	2.13	2.10	2.07	2.05	2.03	2.02	2.01	1.99	1.98
4	8.14	4.67	3.68	3.22	2.95	2.66	2.50	2.38	2.30	2.25	2.21	2.18	2.16	2.13	2.10	2.08	2.07	2.06	2.04	2.03
5	8.43	4.81	3.78	3.31	3.03	2.72	2.56	2.43	2.35	2.30	2.26	2.23	2.20	2.17	2.14	2.12	2.11	2.10	2.08	2.07
8	9.02	5.11	4.00	3.49	3.19	2.86	2.68	2.54	2.45	2.40	2.35	2.32	2.29	2.25	2.23	2.21	2.19	2.18	2.16	2.14
12	9.52	5.37	4.19	3.64	3.32	2.97	2.78	2.63	2.54	2.48	2.43	2.40	2.37	2.31	2.30	2.28	2.26	2.25	2.22	2.21
16	9.86	5.54	4.32	3.75	3.42	3.05	2.85	2.70	2.60	2.54	2.49	2.45	2.42	2.38	2.35	2.33	2.31	2.29	2.27	2.25
20	10.12	5.68	4.42	3.83	3.49	3.11	2.90	2.75	2.65	2.58	2.53	2.49	2.46	2.42	2.39	2.36	2.34	2.33	2.31	2.29
30	10.58	5.91	4.59	3.98	3.62	3.22	3.00	2.84	2.73	2.66	2.61	2.57	2.54	2.49	2.45	2.43	2.41	2.40	2.37	2.35
40	10.90	6.08	4.72	4.08	3.71	3.30	3.07	2.90	2.79	2.72	2.66	2.62	2.59	2.54	2.50	2.48	2.46	2.44	2.41	2.39
50	11.15	6.20	4.81	4.16	3.78	3.36	3.13	2.95	2.84	2.76	2.70	2.66	2.63	2.57	2.54	2.51	2.49	2.48	2.45	2.43
60	11.34	6.31	4.89	4.22	3.84	3.41	3.17	2.99	2.88	2.80	2.74	2.69	2.66	2.61	2.57	2.54	2.52	2.50	2.47	2.45
75	11.58	6.43	4.98	4.30	3.91	3.47	3.22	3.04	2.92	2.84	2.78	2.73	2.70	2.64	2.60	2.58	2.56	2.54	2.51	2.49
100	11.88	6.59	5.10	4.40	3.99	3.54	3.29	3.10	2.98	2.90	2.83	2.78	2.75	2.69	2.65	2.62	2.60	2.58	2.55	2.53
125	12.10	6.71	5.19	4.48	4.06	3.60	3.34	3.15	3.02	2.94	2.87	2.82	2.79	2.73	2.69	2.66	2.63	2.62	2.58	2.56
150	12.29	6.80	5.26	4.54	4.12	3.64	3.39	3.19	3.06	2.97	2.91	2.86	2.82	2.76	2.72	2.69	2.66	2.64	2.61	2.59
175	12.44	6.89	5.32	4.59	4.16	3.68	3.42	3.22	3.09	3.00	2.93	2.88	2.84	2.78	2.74	2.71	2.68	2.67	2.63	2.61
200	12.57	6.95	5.37	4.63	4.20	3.69	3.45	3.25	3.12	3.03	2.96	2.91	2.87	2.80	2.76	2.73	2.70	2.69	2.65	2.63

Table 19-8. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 3 (40 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	5.59	3.33	2.70	2.41	2.24	2.05	1.95	1.88	1.83	1.79	1.77	1.75	1.74	1.71	1.70	1.69	1.68	1.67	1.66	1.65
2	6.75	3.85	3.05	2.69	2.49	2.26	2.14	2.05	1.99	1.95	1.92	1.90	1.88	1.86	1.84	1.83	1.82	1.81	1.79	1.78
3	7.45	4.16	3.27	2.86	2.63	2.38	2.25	2.15	2.09	2.04	2.01	1.99	1.97	1.94	1.92	1.90	1.89	1.88	1.87	1.86
4	7.95	4.38	3.42	2.98	2.74	2.47	2.32	2.22	2.15	2.10	2.07	2.05	2.02	2.00	1.97	1.96	1.95	1.94	1.92	1.91
5	8.33	4.55	3.54	3.08	2.82	2.53	2.38	2.27	2.20	2.15	2.12	2.09	2.07	2.04	2.02	2.00	1.99	1.98	1.96	1.95
8	9.15	4.91	3.78	3.28	2.99	2.67	2.51	2.38	2.31	2.25	2.21	2.19	2.16	2.13	2.10	2.09	2.07	2.06	2.04	2.03
12	9.83	5.22	4.00	3.45	3.13	2.79	2.61	2.48	2.40	2.34	2.30	2.27	2.24	2.20	2.18	2.16	2.14	2.13	2.11	2.10
16	10.31	5.44	4.15	3.57	3.24	2.88	2.69	2.55	2.46	2.40	2.35	2.32	2.29	2.26	2.23	2.21	2.19	2.18	2.16	2.14
20	10.67	5.60	4.26	3.66	3.32	2.95	2.75	2.60	2.51	2.45	2.40	2.36	2.34	2.30	2.27	2.25	2.23	2.22	2.19	2.18
30	11.32	5.90	4.47	3.83	3.46	3.06	2.85	2.70	2.60	2.53	2.48	2.44	2.41	2.37	2.34	2.32	2.30	2.28	2.26	2.20
40	11.77	6.11	4.62	3.95	3.56	3.15	2.93	2.76	2.66	2.59	2.54	2.50	2.46	2.42	2.39	2.33	2.35	2.33	2.31	2.29
50	12.10	6.27	4.73	4.04	3.64	3.20	2.98	2.81	2.71	2.63	2.58	2.54	2.51	2.46	2.42	2.40	2.38	2.37	2.34	2.32
60	12.38	6.40	4.82	4.11	3.71	3.27	3.03	2.85	2.74	2.67	2.61	2.57	2.54	2.49	2.46	2.43	2.41	2.40	2.37	2.34
75	12.71	6.55	4.93	4.20	3.78	3.33	3.09	2.91	2.79	2.71	2.66	2.61	2.58	2.53	2.49	2.47	2.44	2.43	2.40	2.38
100	13.12	6.75	5.07	4.31	3.88	3.41	3.16	2.97	2.85	2.77	2.71	2.67	2.63	2.58	2.54	2.51	2.49	2.48	2.45	2.43
125	13.44	6.90	5.18	4.40	3.96	3.47	3.22	3.02	2.90	2.81	2.75	2.71	2.67	2.62	2.58	2.55	2.53	2.51	2.48	2.46
150	13.70	7.02	5.26	4.47	4.02	3.53	3.26	3.06	2.94	2.85	2.79	2.74	2.70	2.65	2.61	2.58	2.56	2.52	2.51	2.49
175	13.91	7.12	5.31	4.53	4.07	3.57	3.30	3.10	2.97	2.88	2.82	2.77	2.73	2.67	2.63	2.60	2.58	2.56	2.53	2.51
200	14.09	7.21	5.40	4.58	4.12	3.61	3.33	3.13	3.00	2.91	2.84	2.79	2.75	2.69	2.65	2.62	2.60	2.58	2.54	2.53

Table 19-8. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 3 (40 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	6.75	3.85	3.05	2.69	2.49	2.26	2.14	2.05	1.99	1.95	1.92	1.90	1.88	1.86	1.84	1.83	1.82	1.81	1.79	1.78
2	7.95	4.38	3.42	2.98	2.74	2.47	2.32	2.22	2.15	2.10	2.07	2.05	2.02	2.00	1.97	1.96	1.95	1.94	1.92	1.91
3	8.65	4.69	3.63	3.15	2.88	2.59	2.43	2.32	2.24	2.19	2.16	2.13	2.11	2.07	2.05	2.03	2.02	2.01	1.99	1.98
4	9.15	4.91	3.78	3.28	2.99	2.67	2.51	2.38	2.31	2.25	2.21	2.19	2.16	2.13	2.10	2.09	2.07	2.06	2.04	2.03
5	9.52	5.08	3.90	3.37	3.07	2.74	2.57	2.44	2.36	2.30	2.26	2.23	2.20	2.17	2.14	2.13	2.11	2.10	2.08	2.07
8	10.31	5.44	4.15	3.57	3.24	2.88	2.69	2.55	2.46	2.40	2.35	2.32	2.29	2.26	2.23	2.21	2.19	2.18	2.16	2.14
12	10.96	5.74	4.36	3.74	3.38	3.00	2.79	2.64	2.55	2.48	2.44	2.40	2.37	2.33	2.30	2.28	2.26	2.25	2.22	2.21
16	11.42	5.95	4.51	3.85	3.49	3.08	2.87	2.71	2.61	2.54	2.49	2.45	2.42	2.38	2.35	2.33	2.31	2.30	2.26	2.25
20	11.77	6.11	4.62	3.95	3.56	3.15	2.93	2.76	2.66	2.59	2.54	2.50	2.46	2.42	2.39	2.33	2.35	2.33	2.31	2.29
30	12.38	6.40	4.82	4.11	3.71	3.27	3.03	2.85	2.74	2.67	2.61	2.57	2.54	2.49	2.46	2.43	2.41	2.40	2.37	2.34
40	12.80	6.60	4.96	4.22	3.81	3.35	3.10	2.92	2.81	2.73	2.67	2.62	2.59	2.54	2.50	2.48	2.46	2.44	2.41	2.39
50	13.12	6.75	5.07	4.31	3.88	3.41	3.16	2.97	2.85	2.77	2.71	2.67	2.63	2.58	2.54	2.51	2.49	2.48	2.45	2.43
60	13.38	6.87	5.16	4.38	3.94	3.46	3.20	3.01	2.89	2.81	2.75	2.70	2.66	2.61	2.57	2.54	2.52	2.50	2.47	2.45
75	13.70	7.02	5.26	4.47	4.02	3.53	3.26	3.06	2.94	2.85	2.79	2.74	2.70	2.65	2.61	2.58	2.56	2.52	2.51	2.46
100	14.09	7.21	5.40	4.58	4.12	3.61	3.33	3.13	3.00	2.91	2.84	2.79	2.75	2.69	2.65	2.62	2.60	2.58	2.54	2.47
125	14.39	7.35	5.50	4.66	4.19	3.67	3.39	3.18	3.04	2.95	2.88	2.83	2.79	2.73	2.69	2.66	2.64	2.62	2.58	2.56
150	14.64	7.47	5.58	4.73	4.25	3.72	3.43	3.22	3.08	2.99	2.92	2.86	2.82	2.76	2.72	2.69	2.66	2.64	2.57	2.59
175	14.84	7.56	5.65	4.79	4.30	3.76	3.47	3.25	3.11	3.01	2.94	2.89	2.85	2.77	2.74	2.71	2.69	2.67	2.63	2.61
200	15.01	7.65	5.71	4.84	4.34	3.80	3.50	3.28	3.14	3.04	2.97	2.91	2.87	2.81	2.76	2.73	2.71	2.69	2.65	2.60

Table 19-8. κ -Multipliers for 1-of-1 Interwell Prediction Limits on Means of Order 3 (40 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	7.95	4.38	3.42	2.98	2.74	2.47	2.32	2.22	2.15	2.10	2.07	2.05	2.02	2.00	1.97	1.96	1.95	1.94	1.92	1.91
2	9.15	4.91	3.78	3.28	2.99	2.67	2.51	2.38	2.31	2.25	2.21	2.19	2.16	2.13	2.10	2.09	2.07	2.06	2.04	2.03
3	9.83	5.22	4.00	3.45	3.13	2.79	2.61	2.48	2.40	2.34	2.30	2.27	2.24	2.20	2.18	2.16	2.14	2.13	2.11	2.10
4	10.31	5.44	4.15	3.57	3.24	2.88	2.69	2.55	2.46	2.40	2.35	2.32	2.29	2.26	2.23	2.21	2.19	2.18	2.16	2.14
5	10.67	5.60	4.26	3.66	3.32	2.95	2.75	2.60	2.51	2.45	2.40	2.36	2.34	2.30	2.27	2.25	2.23	2.22	2.19	2.18
8	11.42	5.95	4.51	3.85	3.49	3.08	2.87	2.71	2.61	2.54	2.49	2.45	2.42	2.38	2.35	2.33	2.31	2.30	2.26	2.20
12	12.04	6.24	4.69	4.02	3.63	3.20	2.97	2.80	2.69	2.62	2.57	2.53	2.50	2.45	2.42	2.39	2.38	2.36	2.33	2.32
16	12.48	6.44	4.85	4.14	3.73	3.28	3.05	2.87	2.76	2.68	2.63	2.58	2.55	2.50	2.47	2.44	2.42	2.41	2.38	2.32
20	12.80	6.60	4.96	4.22	3.81	3.35	3.10	2.92	2.81	2.73	2.67	2.62	2.59	2.54	2.50	2.48	2.46	2.44	2.41	2.39
30	13.38	6.87	5.16	4.38	3.94	3.46	3.20	3.01	2.89	2.81	2.75	2.70	2.66	2.61	2.57	2.54	2.52	2.50	2.47	2.46
40	13.79	7.06	5.29	4.50	4.04	3.54	3.28	3.08	2.95	2.86	2.80	2.75	2.71	2.66	2.62	2.58	2.57	2.55	2.52	2.50
50	14.09	7.21	5.40	4.58	4.12	3.61	3.33	3.13	3.00	2.91	2.84	2.79	2.75	2.69	2.65	2.62	2.60	2.58	2.54	2.53
60	14.34	7.32	5.48	4.65	4.18	3.66	3.38	3.17	3.03	2.94	2.87	2.82	2.78	2.72	2.68	2.65	2.63	2.61	2.58	2.56
75	14.64	7.47	5.58	4.73	4.25	3.72	3.43	3.22	3.08	2.99	2.92	2.86	2.82	2.76	2.72	2.69	2.66	2.64	2.61	2.59
100	15.01	7.65	5.71	4.84	4.34	3.80	3.50	3.28	3.14	3.04	2.97	2.91	2.87	2.81	2.76	2.73	2.71	2.69	2.65	2.63
125	15.30	7.78	5.81	4.92	4.41	3.86	3.55	3.33	3.18	3.08	3.01	2.95	2.91	2.84	2.80	2.77	2.74	2.72	2.68	2.66
150	15.48	7.90	5.89	4.99	4.47	3.90	3.60	3.37	3.22	3.12	3.04	2.99	2.94	2.87	2.83	2.79	2.77	2.75	2.71	2.68
175	15.73	7.99	5.96	5.04	4.52	3.95	3.63	3.40	3.25	3.15	3.07	3.01	2.97	2.90	2.85	2.82	2.79	2.77	2.73	2.71
200	15.89	8.07	6.02	5.09	4.56	3.98	3.67	3.43	3.28	3.17	3.09	3.04	2.99	2.92	2.87	2.84	2.81	2.79	2.75	2.73

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Table 19-9. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 3 (1 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.67	0.53	0.46	0.42	0.40	0.37	0.35	0.34	0.33	0.32	0.31	0.31	0.31	0.30	0.30	0.29	0.29	0.29	0.29	0.29
2	0.95	0.75	0.67	0.62	0.59	0.55	0.53	0.51	0.50	0.49	0.48	0.48	0.47	0.47	0.46	0.46	0.45	0.45	0.45	0.45
3	1.11	0.88	0.79	0.73	0.69	0.65	0.62	0.60	0.59	0.58	0.57	0.56	0.56	0.55	0.55	0.54	0.54	0.54	0.53	0.53
4	1.22	0.97	0.86	0.80	0.77	0.72	0.69	0.67	0.65	0.64	0.63	0.62	0.62	0.61	0.61	0.60	0.60	0.60	0.59	0.59
5	1.30	1.04	0.92	0.86	0.82	0.77	0.74	0.71	0.70	0.68	0.68	0.67	0.66	0.65	0.65	0.64	0.64	0.64	0.63	0.63
8	1.47	1.17	1.05	0.97	0.93	0.87	0.84	0.81	0.79	0.78	0.77	0.76	0.75	0.74	0.74	0.73	0.73	0.72	0.72	0.71
12	1.62	1.28	1.15	1.07	1.02	0.95	0.92	0.89	0.87	0.85	0.84	0.83	0.83	0.82	0.81	0.80	0.80	0.79	0.79	0.78
16	1.72	1.36	1.21	1.13	1.08	1.01	0.97	0.94	0.92	0.90	0.89	0.88	0.88	0.86	0.86	0.85	0.85	0.84	0.84	0.83
20	1.79	1.42	1.27	1.18	1.13	1.06	1.02	0.98	0.96	0.94	0.93	0.92	0.91	0.90	0.89	0.89	0.88	0.88	0.87	0.87
30	1.92	1.52	1.36	1.27	1.21	1.13	1.09	1.05	1.03	1.01	1.00	0.99	0.98	0.97	0.96	0.95	0.95	0.94	0.93	0.93
40	2.02	1.59	1.42	1.33	1.26	1.19	1.14	1.10	1.08	1.06	1.05	1.03	1.03	1.01	1.00	1.00	0.99	0.98	0.98	0.97
50	2.09	1.65	1.47	1.37	1.31	1.23	1.18	1.14	1.11	1.09	1.08	1.07	1.06	1.05	1.04	1.03	1.02	1.02	1.01	1.00
60	2.14	1.69	1.51	1.41	1.34	1.26	1.21	1.17	1.14	1.12	1.11	1.10	1.09	1.07	1.06	1.06	1.05	1.04	1.04	1.03
75	2.21	1.74	1.56	1.45	1.38	1.30	1.25	1.21	1.18	1.16	1.14	1.13	1.12	1.11	1.10	1.09	1.08	1.08	1.07	1.06
100	2.29	1.81	1.62	1.51	1.44	1.35	1.30	1.25	1.22	1.20	1.19	1.17	1.16	1.15	1.14	1.13	1.12	1.12	1.11	1.10
125	2.36	1.86	1.66	1.55	1.48	1.39	1.33	1.29	1.26	1.24	1.22	1.21	1.20	1.18	1.17	1.16	1.15	1.15	1.14	1.13
150	2.41	1.90	1.70	1.58	1.51	1.42	1.36	1.32	1.29	1.26	1.25	1.23	1.22	1.21	1.19	1.18	1.18	1.17	1.16	1.15
175	2.45	1.93	1.73	1.61	1.53	1.44	1.38	1.34	1.31	1.29	1.27	1.25	1.24	1.23	1.21	1.20	1.20	1.19	1.18	1.17
200	2.49	1.96	1.75	1.63	1.56	1.46	1.41	1.36	1.33	1.30	1.29	1.27	1.26	1.24	1.23	1.22	1.22	1.21	1.20	1.19

Table 19-9. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 3 (1 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.95	0.75	0.67	0.62	0.59	0.55	0.53	0.51	0.50	0.49	0.48	0.48	0.47	0.47	0.46	0.46	0.45	0.45	0.45	0.45
2	1.22	0.97	0.86	0.80	0.77	0.72	0.69	0.67	0.65	0.64	0.63	0.62	0.62	0.61	0.61	0.60	0.60	0.60	0.59	0.59
3	1.37	1.09	0.97	0.91	0.86	0.81	0.78	0.75	0.73	0.72	0.71	0.70	0.70	0.69	0.68	0.68	0.67	0.67	0.67	0.66
4	1.47	1.17	1.05	0.97	0.93	0.87	0.84	0.81	0.79	0.78	0.77	0.76	0.75	0.74	0.74	0.73	0.73	0.72	0.72	0.71
5	1.55	1.23	1.10	1.03	0.98	0.92	0.88	0.85	0.83	0.82	0.81	0.80	0.79	0.78	0.78	0.77	0.77	0.76	0.76	0.75
8	1.72	1.36	1.21	1.13	1.08	1.01	0.97	0.94	0.92	0.90	0.89	0.88	0.88	0.86	0.86	0.85	0.85	0.84	0.84	0.83
12	1.85	1.47	1.31	1.22	1.16	1.09	1.05	1.01	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90	0.89
16	1.94	1.54	1.37	1.28	1.22	1.15	1.10	1.06	1.04	1.02	1.01	1.00	0.99	0.98	0.97	0.96	0.96	0.95	0.94	0.94
20	2.02	1.59	1.42	1.33	1.26	1.19	1.14	1.10	1.08	1.06	1.05	1.03	1.03	1.01	1.00	1.00	0.99	0.98	0.98	0.97
30	2.14	1.69	1.51	1.41	1.34	1.26	1.21	1.17	1.14	1.12	1.11	1.10	1.09	1.07	1.06	1.06	1.05	1.04	1.04	1.03
40	2.23	1.76	1.57	1.46	1.40	1.31	1.26	1.22	1.19	1.17	1.15	1.14	1.13	1.12	1.10	1.10	1.09	1.08	1.08	1.07
50	2.29	1.81	1.62	1.51	1.44	1.35	1.30	1.25	1.22	1.20	1.19	1.17	1.16	1.15	1.14	1.13	1.12	1.12	1.11	1.10
60	2.35	1.85	1.65	1.54	1.47	1.38	1.33	1.28	1.25	1.23	1.21	1.20	1.19	1.17	1.16	1.15	1.15	1.14	1.13	1.12
75	2.41	1.90	1.70	1.58	1.51	1.42	1.36	1.32	1.29	1.26	1.25	1.23	1.22	1.21	1.19	1.18	1.18	1.17	1.16	1.15
100	2.49	1.96	1.75	1.63	1.56	1.46	1.41	1.36	1.33	1.30	1.29	1.27	1.26	1.24	1.23	1.22	1.22	1.21	1.20	1.19
125	2.55	2.01	1.79	1.67	1.60	1.50	1.44	1.39	1.36	1.34	1.32	1.30	1.29	1.27	1.26	1.25	1.24	1.24	1.23	1.22
150	2.60	2.05	1.83	1.71	1.63	1.53	1.47	1.42	1.39	1.36	1.34	1.33	1.32	1.30	1.29	1.28	1.27	1.26	1.25	1.24
175	2.64	2.08	1.86	1.73	1.65	1.55	1.49	1.44	1.41	1.38	1.36	1.35	1.34	1.32	1.31	1.30	1.29	1.28	1.27	1.26
200	2.68	2.11	1.88	1.75	1.67	1.57	1.51	1.46	1.43	1.40	1.38	1.37	1.36	1.34	1.32	1.31	1.30	1.30	1.29	1.28

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Table 19-9. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 3 (1 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.22	0.97	0.86	0.80	0.77	0.72	0.69	0.67	0.65	0.64	0.63	0.62	0.62	0.61	0.61	0.60	0.60	0.60	0.59	0.59
2	1.47	1.17	1.05	0.97	0.93	0.87	0.84	0.81	0.79	0.78	0.77	0.76	0.75	0.74	0.74	0.73	0.73	0.72	0.72	0.71
3	1.62	1.28	1.15	1.07	1.02	0.95	0.92	0.89	0.87	0.85	0.84	0.83	0.83	0.82	0.81	0.80	0.80	0.79	0.79	0.78
4	1.72	1.36	1.21	1.13	1.08	1.01	0.97	0.94	0.92	0.90	0.89	0.88	0.88	0.86	0.86	0.85	0.85	0.84	0.84	0.83
5	1.79	1.42	1.27	1.18	1.13	1.06	1.02	0.98	0.96	0.94	0.93	0.92	0.91	0.90	0.89	0.89	0.88	0.88	0.87	0.87
8	1.94	1.54	1.37	1.28	1.22	1.15	1.10	1.06	1.04	1.02	1.01	1.00	0.99	0.98	0.97	0.96	0.96	0.95	0.94	0.94
12	2.07	1.64	1.46	1.36	1.30	1.22	1.17	1.13	1.11	1.09	1.07	1.06	1.05	1.04	1.03	1.02	1.02	1.01	1.00	1.00
16	2.16	1.71	1.52	1.42	1.35	1.27	1.22	1.18	1.15	1.13	1.12	1.11	1.10	1.08	1.07	1.06	1.06	1.05	1.04	1.04
20	2.23	1.76	1.57	1.46	1.40	1.31	1.26	1.22	1.19	1.17	1.15	1.14	1.13	1.12	1.10	1.10	1.09	1.08	1.08	1.07
30	2.35	1.85	1.65	1.54	1.47	1.38	1.33	1.28	1.25	1.23	1.21	1.20	1.19	1.17	1.16	1.15	1.15	1.14	1.13	1.12
40	2.43	1.91	1.71	1.59	1.52	1.43	1.37	1.33	1.29	1.27	1.26	1.24	1.23	1.21	1.20	1.19	1.19	1.18	1.17	1.16
50	2.49	1.96	1.75	1.63	1.56	1.46	1.41	1.36	1.33	1.30	1.29	1.27	1.26	1.24	1.23	1.22	1.22	1.21	1.20	1.19
60	2.54	2.00	1.79	1.67	1.59	1.49	1.43	1.39	1.35	1.33	1.31	1.30	1.29	1.27	1.26	1.25	1.24	1.23	1.22	1.21
75	2.60	2.05	1.83	1.71	1.63	1.53	1.47	1.42	1.39	1.36	1.34	1.33	1.32	1.30	1.29	1.28	1.27	1.26	1.25	1.24
100	2.68	2.11	1.88	1.75	1.67	1.57	1.51	1.46	1.43	1.40	1.38	1.37	1.36	1.34	1.32	1.31	1.30	1.30	1.29	1.28
125	2.74	2.15	1.92	1.79	1.71	1.61	1.54	1.49	1.46	1.43	1.41	1.40	1.38	1.37	1.35	1.34	1.33	1.33	1.31	1.30
150	2.79	2.19	1.95	1.82	1.74	1.63	1.57	1.52	1.48	1.46	1.44	1.42	1.41	1.39	1.37	1.36	1.35	1.35	1.33	1.33
175	2.82	2.22	1.98	1.85	1.76	1.66	1.59	1.54	1.50	1.48	1.46	1.44	1.43	1.41	1.39	1.38	1.37	1.37	1.35	1.34
200	2.86	2.25	2.00	1.87	1.78	1.68	1.61	1.56	1.52	1.49	1.47	1.46	1.44	1.42	1.41	1.40	1.39	1.38	1.37	1.36

Table 19-9. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 3 (2 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.04	0.80	0.70	0.64	0.61	0.56	0.54	0.52	0.50	0.49	0.49	0.48	0.47	0.47	0.46	0.46	0.46	0.45	0.45	0.45
2	1.36	1.04	0.91	0.84	0.79	0.73	0.70	0.67	0.66	0.64	0.64	0.63	0.62	0.61	0.61	0.60	0.60	0.60	0.59	0.59
3	1.55	1.17	1.02	0.94	0.89	0.83	0.79	0.76	0.74	0.73	0.72	0.71	0.70	0.69	0.69	0.68	0.68	0.67	0.67	0.66
4	1.68	1.27	1.11	1.02	0.96	0.89	0.85	0.82	0.80	0.78	0.77	0.76	0.76	0.75	0.74	0.73	0.73	0.73	0.72	0.72
5	1.78	1.34	1.17	1.07	1.01	0.94	0.90	0.87	0.84	0.83	0.82	0.81	0.80	0.79	0.78	0.77	0.77	0.77	0.76	0.75
8	1.99	1.49	1.29	1.19	1.12	1.04	0.99	0.96	0.93	0.91	0.90	0.89	0.88	0.87	0.86	0.85	0.85	0.84	0.84	0.83
12	2.17	1.61	1.40	1.29	1.21	1.12	1.07	1.03	1.00	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.91	0.91	0.90	0.90
16	2.29	1.70	1.47	1.35	1.28	1.18	1.13	1.08	1.06	1.03	1.02	1.01	1.00	0.98	0.97	0.97	0.96	0.95	0.95	0.94
20	2.38	1.76	1.53	1.40	1.32	1.23	1.17	1.12	1.09	1.07	1.06	1.04	1.03	1.02	1.01	1.00	0.99	0.99	0.98	0.97
30	2.54	1.88	1.63	1.49	1.41	1.30	1.24	1.19	1.16	1.14	1.12	1.11	1.10	1.08	1.07	1.06	1.05	1.05	1.04	1.03
40	2.66	1.96	1.70	1.56	1.47	1.36	1.29	1.24	1.21	1.18	1.17	1.15	1.14	1.12	1.11	1.10	1.09	1.09	1.08	1.07
50	2.74	2.02	1.75	1.60	1.51	1.40	1.33	1.28	1.25	1.22	1.20	1.19	1.17	1.16	1.14	1.13	1.13	1.12	1.11	1.10
60	2.81	2.07	1.79	1.64	1.55	1.43	1.36	1.31	1.27	1.25	1.23	1.21	1.20	1.18	1.17	1.16	1.15	1.15	1.13	1.13
75	2.90	2.13	1.84	1.69	1.59	1.47	1.40	1.35	1.31	1.28	1.26	1.25	1.23	1.21	1.20	1.19	1.18	1.18	1.16	1.16
100	3.00	2.21	1.91	1.75	1.65	1.52	1.45	1.39	1.35	1.33	1.30	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20	1.19
125	3.08	2.26	1.96	1.79	1.69	1.56	1.49	1.43	1.39	1.36	1.34	1.32	1.31	1.29	1.27	1.26	1.25	1.24	1.23	1.22
150	3.15	2.31	2.00	1.83	1.72	1.59	1.52	1.46	1.41	1.39	1.36	1.35	1.33	1.31	1.29	1.28	1.27	1.27	1.25	1.25
175	3.20	2.35	2.03	1.86	1.75	1.62	1.54	1.48	1.44	1.41	1.38	1.37	1.35	1.33	1.32	1.30	1.29	1.29	1.27	1.26
200	3.25	2.38	2.06	1.88	1.77	1.64	1.56	1.50	1.46	1.43	1.40	1.39	1.37	1.35	1.33	1.32	1.31	1.30	1.29	1.28

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Table 19-9. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 3 (2 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.36	1.04	0.91	0.84	0.79	0.73	0.70	0.67	0.66	0.64	0.64	0.63	0.62	0.61	0.61	0.60	0.60	0.60	0.59	0.59
2	1.68	1.27	1.11	1.02	0.96	0.89	0.85	0.82	0.80	0.78	0.77	0.76	0.76	0.75	0.74	0.73	0.73	0.73	0.72	0.72
3	1.86	1.40	1.22	1.12	1.06	0.98	0.94	0.90	0.88	0.86	0.85	0.84	0.83	0.82	0.81	0.81	0.80	0.80	0.79	0.78
4	1.99	1.49	1.29	1.19	1.12	1.04	0.99	0.96	0.93	0.91	0.90	0.89	0.88	0.87	0.86	0.85	0.85	0.84	0.84	0.83
5	2.09	1.56	1.35	1.24	1.17	1.09	1.04	1.00	0.97	0.95	0.94	0.93	0.92	0.91	0.90	0.89	0.89	0.88	0.87	0.87
8	2.29	1.70	1.47	1.35	1.28	1.18	1.13	1.08	1.06	1.03	1.02	1.01	1.00	0.98	0.97	0.97	0.96	0.95	0.95	0.94
12	2.45	1.82	1.57	1.44	1.36	1.26	1.20	1.16	1.12	1.10	1.09	1.07	1.06	1.05	1.04	1.03	1.02	1.02	1.01	1.00
16	2.57	1.90	1.64	1.51	1.42	1.32	1.25	1.21	1.17	1.15	1.13	1.12	1.11	1.09	1.08	1.07	1.06	1.06	1.05	1.04
20	2.66	1.96	1.70	1.56	1.47	1.36	1.29	1.24	1.21	1.18	1.17	1.15	1.14	1.12	1.11	1.10	1.09	1.09	1.08	1.07
30	2.81	2.07	1.79	1.64	1.55	1.43	1.36	1.31	1.27	1.25	1.23	1.21	1.20	1.18	1.17	1.16	1.15	1.15	1.13	1.13
40	2.92	2.15	1.86	1.70	1.60	1.48	1.41	1.36	1.32	1.29	1.27	1.26	1.24	1.22	1.21	1.20	1.19	1.18	1.17	1.16
50	3.00	2.21	1.91	1.75	1.65	1.52	1.45	1.39	1.35	1.33	1.30	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20	1.19
60	3.07	2.25	1.95	1.78	1.68	1.55	1.48	1.42	1.38	1.35	1.33	1.31	1.30	1.28	1.27	1.25	1.25	1.24	1.23	1.22
75	3.15	2.31	2.00	1.83	1.72	1.59	1.52	1.46	1.41	1.39	1.36	1.35	1.33	1.31	1.29	1.28	1.27	1.27	1.25	1.25
100	3.25	2.38	2.06	1.88	1.77	1.64	1.56	1.50	1.46	1.43	1.40	1.39	1.37	1.35	1.33	1.32	1.31	1.30	1.29	1.28
125	3.33	2.44	2.10	1.93	1.81	1.68	1.60	1.53	1.49	1.46	1.43	1.42	1.40	1.38	1.36	1.35	1.34	1.33	1.32	1.31
150	3.39	2.48	2.14	1.96	1.85	1.71	1.63	1.56	1.52	1.48	1.46	1.44	1.43	1.40	1.39	1.37	1.36	1.35	1.34	1.33
175	3.44	2.52	2.17	1.99	1.87	1.73	1.65	1.58	1.54	1.51	1.48	1.46	1.45	1.42	1.40	1.39	1.38	1.37	1.36	1.35
200	3.49	2.55	2.20	2.01	1.90	1.75	1.67	1.60	1.56	1.52	1.50	1.48	1.46	1.44	1.42	1.41	1.40	1.39	1.37	1.36

Table 19-9. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 3 (2 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.68	1.27	1.11	1.02	0.96	0.89	0.85	0.82	0.80	0.78	0.77	0.76	0.76	0.75	0.74	0.73	0.73	0.73	0.72	0.72
2	1.99	1.49	1.29	1.19	1.12	1.04	0.99	0.96	0.93	0.91	0.90	0.89	0.88	0.87	0.86	0.85	0.85	0.84	0.84	0.83
3	2.17	1.61	1.40	1.29	1.21	1.12	1.07	1.03	1.00	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.91	0.91	0.90	0.90
4	2.29	1.70	1.47	1.35	1.28	1.18	1.13	1.08	1.06	1.03	1.02	1.01	1.00	0.98	0.97	0.97	0.96	0.95	0.95	0.94
5	2.38	1.76	1.53	1.40	1.32	1.23	1.17	1.12	1.09	1.07	1.06	1.04	1.03	1.02	1.01	1.00	0.99	0.99	0.98	0.97
8	2.57	1.90	1.64	1.51	1.42	1.32	1.25	1.21	1.17	1.15	1.13	1.12	1.11	1.09	1.08	1.07	1.06	1.06	1.05	1.04
12	2.73	2.01	1.74	1.60	1.50	1.39	1.33	1.27	1.24	1.21	1.19	1.18	1.17	1.15	1.14	1.13	1.12	1.11	1.10	1.10
16	2.84	2.09	1.81	1.66	1.56	1.44	1.38	1.32	1.28	1.26	1.24	1.22	1.21	1.19	1.18	1.17	1.16	1.15	1.14	1.14
20	2.92	2.15	1.86	1.70	1.60	1.48	1.41	1.36	1.32	1.29	1.27	1.26	1.24	1.22	1.21	1.20	1.19	1.18	1.17	1.16
30	3.07	2.25	1.95	1.78	1.68	1.55	1.48	1.42	1.38	1.35	1.33	1.31	1.30	1.28	1.27	1.25	1.25	1.24	1.23	1.22
40	3.17	2.33	2.01	1.84	1.73	1.60	1.53	1.47	1.42	1.39	1.37	1.35	1.34	1.32	1.30	1.29	1.28	1.28	1.26	1.25
50	3.25	2.38	2.06	1.88	1.77	1.64	1.56	1.50	1.46	1.43	1.40	1.39	1.37	1.35	1.33	1.32	1.31	1.30	1.29	1.28
60	3.31	2.43	2.10	1.92	1.81	1.67	1.59	1.53	1.48	1.45	1.43	1.41	1.40	1.37	1.36	1.34	1.33	1.33	1.31	1.30
75	3.39	2.48	2.14	1.96	1.85	1.71	1.63	1.56	1.52	1.48	1.46	1.44	1.43	1.40	1.39	1.37	1.36	1.35	1.34	1.33
100	3.49	2.55	2.20	2.01	1.90	1.75	1.67	1.60	1.56	1.52	1.50	1.48	1.46	1.44	1.42	1.41	1.40	1.39	1.37	1.36
125	3.56	2.60	2.24	2.06	1.94	1.79	1.70	1.63	1.59	1.55	1.53	1.51	1.49	1.47	1.45	1.44	1.42	1.42	1.40	1.39
150	3.62	2.64	2.28	2.09	1.97	1.82	1.73	1.66	1.61	1.58	1.55	1.53	1.52	1.49	1.47	1.46	1.45	1.44	1.42	1.41
175	3.67	2.68	2.31	2.12	1.99	1.84	1.75	1.68	1.63	1.60	1.57	1.55	1.53	1.51	1.49	1.48	1.47	1.46	1.44	1.43
200	3.71	2.71	2.34	2.14	2.01	1.86	1.77	1.70	1.65	1.62	1.59	1.57	1.55	1.53	1.51	1.49	1.48	1.47	1.46	1.44

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Table 19-9. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 3 (5 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.62	1.17	1.01	0.92	0.86	0.80	0.76	0.73	0.71	0.70	0.68	0.68	0.67	0.66	0.65	0.65	0.64	0.64	0.64	0.63
2	2.02	1.43	1.22	1.11	1.04	0.96	0.91	0.87	0.85	0.83	0.82	0.81	0.80	0.79	0.78	0.78	0.77	0.77	0.76	0.76
3	2.26	1.58	1.34	1.22	1.14	1.05	1.00	0.95	0.93	0.91	0.89	0.88	0.87	0.86	0.85	0.85	0.84	0.84	0.83	0.82
4	2.43	1.69	1.43	1.29	1.21	1.11	1.05	1.01	0.98	0.96	0.95	0.93	0.92	0.91	0.90	0.89	0.89	0.88	0.87	0.87
5	2.57	1.77	1.50	1.35	1.26	1.16	1.10	1.05	1.02	1.00	0.98	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.90
8	2.84	1.94	1.63	1.47	1.37	1.26	1.19	1.14	1.11	1.08	1.06	1.05	1.04	1.02	1.01	1.00	1.00	0.99	0.98	0.97
12	3.07	2.09	1.75	1.57	1.47	1.34	1.27	1.21	1.18	1.15	1.13	1.12	1.10	1.09	1.07	1.06	1.06	1.05	1.04	1.03
16	3.24	2.19	1.83	1.65	1.53	1.40	1.32	1.26	1.22	1.20	1.18	1.16	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07
20	3.36	2.27	1.89	1.70	1.58	1.44	1.36	1.30	1.26	1.23	1.21	1.19	1.18	1.16	1.15	1.14	1.13	1.12	1.11	1.10
30	3.58	2.40	2.00	1.80	1.67	1.52	1.44	1.37	1.33	1.30	1.27	1.26	1.24	1.22	1.21	1.19	1.19	1.18	1.17	1.16
40	3.73	2.50	2.08	1.86	1.73	1.58	1.49	1.42	1.37	1.34	1.32	1.30	1.28	1.26	1.25	1.23	1.22	1.22	1.20	1.20
50	3.85	2.57	2.14	1.92	1.78	1.62	1.53	1.46	1.41	1.38	1.35	1.33	1.32	1.29	1.28	1.26	1.25	1.25	1.23	1.22
60	3.94	2.63	2.19	1.96	1.82	1.65	1.56	1.49	1.44	1.40	1.38	1.36	1.34	1.32	1.30	1.29	1.28	1.27	1.26	1.25
75	4.06	2.70	2.24	2.01	1.86	1.70	1.60	1.52	1.47	1.44	1.41	1.39	1.37	1.35	1.33	1.32	1.31	1.30	1.29	1.28
100	4.20	2.79	2.32	2.07	1.92	1.75	1.65	1.57	1.52	1.48	1.45	1.43	1.41	1.39	1.37	1.36	1.34	1.34	1.32	1.31
125	4.31	2.86	2.37	2.12	1.97	1.79	1.68	1.60	1.55	1.51	1.48	1.46	1.44	1.42	1.40	1.38	1.37	1.36	1.35	1.34
150	4.40	2.91	2.42	2.16	2.01	1.82	1.72	1.63	1.58	1.54	1.51	1.49	1.47	1.44	1.42	1.41	1.40	1.39	1.37	1.36
175	4.47	2.96	2.45	2.19	2.04	1.85	1.74	1.66	1.60	1.56	1.53	1.51	1.49	1.46	1.44	1.43	1.41	1.41	1.39	1.38
200	4.53	3.00	2.49	2.22	2.06	1.87	1.76	1.68	1.62	1.58	1.55	1.52	1.51	1.48	1.46	1.44	1.43	1.42	1.40	1.39

Table 19-9. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 3 (5 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.02	1.43	1.22	1.11	1.04	0.96	0.91	0.87	0.85	0.83	0.82	0.81	0.80	0.79	0.78	0.78	0.77	0.77	0.76	0.76
2	2.43	1.69	1.43	1.29	1.21	1.11	1.05	1.01	0.98	0.96	0.95	0.93	0.92	0.91	0.90	0.89	0.89	0.88	0.87	0.87
3	2.67	1.84	1.55	1.40	1.31	1.20	1.13	1.09	1.05	1.03	1.02	1.00	0.99	0.98	0.97	0.96	0.95	0.95	0.94	0.93
4	2.84	1.94	1.63	1.47	1.37	1.26	1.19	1.14	1.11	1.08	1.06	1.05	1.04	1.02	1.01	1.00	1.00	0.99	0.98	0.97
5	2.97	2.02	1.70	1.53	1.42	1.30	1.23	1.18	1.14	1.12	1.10	1.09	1.07	1.06	1.05	1.04	1.03	1.02	1.01	1.01
8	3.24	2.19	1.83	1.65	1.53	1.40	1.32	1.26	1.22	1.20	1.18	1.16	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07
12	3.46	2.33	1.94	1.74	1.62	1.48	1.40	1.33	1.29	1.26	1.24	1.22	1.21	1.19	1.17	1.16	1.16	1.15	1.14	1.13
16	3.61	2.43	2.02	1.81	1.68	1.53	1.45	1.38	1.34	1.31	1.28	1.27	1.25	1.23	1.21	1.20	1.19	1.19	1.18	1.17
20	3.73	2.50	2.08	1.86	1.73	1.58	1.49	1.42	1.37	1.34	1.32	1.30	1.28	1.26	1.25	1.23	1.22	1.22	1.20	1.20
30	3.94	2.63	2.19	1.96	1.82	1.65	1.56	1.49	1.44	1.40	1.38	1.36	1.34	1.32	1.30	1.29	1.28	1.27	1.26	1.25
40	4.09	2.72	2.26	2.02	1.88	1.71	1.61	1.53	1.48	1.45	1.42	1.40	1.38	1.36	1.34	1.33	1.32	1.31	1.29	1.28
50	4.20	2.79	2.32	2.07	1.92	1.75	1.65	1.57	1.52	1.48	1.45	1.43	1.41	1.39	1.37	1.36	1.34	1.34	1.32	1.31
60	4.29	2.85	2.36	2.11	1.96	1.78	1.68	1.60	1.54	1.51	1.48	1.46	1.44	1.41	1.39	1.38	1.37	1.36	1.34	1.33
75	4.40	2.91	2.42	2.16	2.01	1.82	1.72	1.63	1.58	1.54	1.51	1.49	1.47	1.44	1.42	1.41	1.40	1.39	1.37	1.36
100	4.53	3.00	2.49	2.22	2.06	1.87	1.76	1.68	1.62	1.58	1.55	1.52	1.51	1.48	1.46	1.44	1.43	1.42	1.40	1.39
125	4.64	3.07	2.54	2.27	2.11	1.91	1.80	1.71	1.65	1.61	1.58	1.55	1.54	1.51	1.49	1.47	1.46	1.45	1.43	1.42
150	4.72	3.12	2.58	2.31	2.14	1.94	1.83	1.74	1.68	1.64	1.60	1.58	1.56	1.53	1.51	1.49	1.48	1.47	1.45	1.44
175	4.79	3.16	2.62	2.34	2.17	1.97	1.85	1.76	1.70	1.66	1.62	1.60	1.58	1.55	1.53	1.51	1.50	1.49	1.47	1.46
200	4.85	3.20	2.65	2.37	2.19	1.99	1.87	1.78	1.72	1.68	1.64	1.62	1.60	1.57	1.54	1.53	1.51	1.50	1.49	1.47

Table 19-9. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 3 (5 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.43	1.69	1.43	1.29	1.21	1.11	1.05	1.01	0.98	0.96	0.95	0.93	0.92	0.91	0.90	0.89	0.89	0.88	0.87	0.87
2	2.84	1.94	1.63	1.47	1.37	1.26	1.19	1.14	1.11	1.08	1.06	1.05	1.04	1.02	1.01	1.00	1.00	0.99	0.98	0.97
3	3.07	2.09	1.75	1.57	1.47	1.34	1.27	1.21	1.18	1.15	1.13	1.12	1.10	1.09	1.07	1.06	1.06	1.05	1.04	1.03
4	3.24	2.19	1.83	1.65	1.53	1.40	1.32	1.26	1.22	1.20	1.18	1.16	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07
5	3.36	2.27	1.89	1.70	1.58	1.44	1.36	1.30	1.26	1.23	1.21	1.19	1.18	1.16	1.15	1.14	1.13	1.12	1.11	1.10
8	3.61	2.43	2.02	1.81	1.68	1.53	1.45	1.38	1.34	1.31	1.28	1.27	1.25	1.23	1.21	1.20	1.19	1.19	1.18	1.17
12	3.83	2.56	2.13	1.91	1.77	1.61	1.52	1.45	1.40	1.37	1.34	1.33	1.31	1.29	1.27	1.26	1.25	1.24	1.23	1.22
16	3.98	2.65	2.20	1.97	1.83	1.67	1.57	1.50	1.45	1.41	1.39	1.37	1.35	1.33	1.31	1.30	1.29	1.28	1.27	1.26
20	4.09	2.72	2.26	2.02	1.88	1.71	1.61	1.53	1.48	1.45	1.42	1.40	1.38	1.36	1.34	1.33	1.32	1.31	1.29	1.28
30	4.29	2.85	2.36	2.11	1.96	1.78	1.68	1.60	1.54	1.51	1.48	1.46	1.44	1.41	1.39	1.38	1.37	1.36	1.34	1.33
40	4.43	2.93	2.43	2.18	2.02	1.83	1.73	1.64	1.59	1.55	1.52	1.49	1.48	1.45	1.43	1.41	1.40	1.39	1.38	1.37
50	4.53	3.00	2.49	2.22	2.06	1.87	1.76	1.68	1.62	1.58	1.55	1.52	1.51	1.48	1.46	1.44	1.43	1.42	1.40	1.39
60	4.62	3.05	2.53	2.26	2.10	1.90	1.79	1.70	1.65	1.60	1.57	1.55	1.53	1.50	1.48	1.47	1.45	1.44	1.43	1.41
75	4.72	3.12	2.58	2.31	2.14	1.94	1.83	1.74	1.68	1.64	1.60	1.58	1.56	1.53	1.51	1.49	1.48	1.47	1.45	1.44
100	4.85	3.20	2.65	2.37	2.19	1.99	1.87	1.78	1.72	1.68	1.64	1.62	1.60	1.57	1.54	1.53	1.51	1.50	1.49	1.47
125	4.95	3.26	2.70	2.41	2.24	2.03	1.91	1.81	1.75	1.71	1.67	1.65	1.62	1.59	1.57	1.55	1.54	1.53	1.51	1.50
150	5.03	3.31	2.74	2.45	2.27	2.06	1.94	1.84	1.78	1.73	1.70	1.67	1.65	1.62	1.59	1.58	1.56	1.55	1.53	1.52
175	5.10	3.36	2.78	2.48	2.30	2.08	1.96	1.86	1.80	1.75	1.72	1.69	1.67	1.63	1.61	1.59	1.58	1.57	1.55	1.53
200	5.16	3.39	2.81	2.51	2.32	2.11	1.98	1.88	1.82	1.77	1.73	1.71	1.68	1.65	1.63	1.61	1.59	1.58	1.56	1.55

Table 19-9. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 3 (10 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.15	1.48	1.24	1.12	1.05	0.96	0.91	0.88	0.85	0.83	0.82	0.81	0.80	0.79	0.78	0.78	0.77	0.77	0.76	0.76
2	2.64	1.76	1.46	1.31	1.22	1.12	1.06	1.01	0.98	0.96	0.95	0.94	0.93	0.91	0.90	0.89	0.89	0.88	0.87	0.87
3	2.94	1.93	1.59	1.43	1.32	1.21	1.14	1.09	1.06	1.03	1.02	1.00	0.99	0.98	0.97	0.96	0.95	0.95	0.94	0.93
4	3.15	2.04	1.68	1.50	1.40	1.27	1.20	1.14	1.11	1.08	1.07	1.05	1.04	1.02	1.01	1.00	1.00	0.99	0.98	0.97
5	3.32	2.14	1.75	1.56	1.45	1.32	1.24	1.19	1.15	1.12	1.10	1.09	1.08	1.06	1.05	1.04	1.03	1.02	1.01	1.01
8	3.66	2.33	1.90	1.69	1.56	1.42	1.33	1.27	1.23	1.20	1.18	1.16	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07
12	3.95	2.49	2.03	1.80	1.66	1.50	1.41	1.34	1.30	1.27	1.24	1.23	1.21	1.19	1.18	1.16	1.16	1.15	1.14	1.13
16	4.15	2.61	2.12	1.87	1.73	1.56	1.46	1.39	1.35	1.31	1.29	1.27	1.25	1.23	1.22	1.21	1.20	1.19	1.18	1.17
20	4.31	2.69	2.18	1.93	1.78	1.60	1.51	1.43	1.38	1.35	1.32	1.30	1.29	1.26	1.25	1.24	1.23	1.22	1.21	1.20
30	4.58	2.85	2.30	2.03	1.87	1.68	1.58	1.50	1.45	1.41	1.38	1.36	1.35	1.32	1.30	1.29	1.28	1.27	1.26	1.25
40	4.77	2.96	2.39	2.11	1.94	1.74	1.63	1.55	1.49	1.45	1.43	1.40	1.39	1.36	1.34	1.33	1.32	1.31	1.29	1.28
50	4.92	3.04	2.45	2.16	1.99	1.78	1.67	1.58	1.53	1.49	1.46	1.44	1.42	1.39	1.37	1.36	1.35	1.34	1.32	1.31
60	5.04	3.11	2.50	2.21	2.03	1.82	1.70	1.61	1.56	1.51	1.48	1.46	1.44	1.41	1.40	1.38	1.37	1.36	1.34	1.33
75	5.18	3.19	2.57	2.26	2.08	1.86	1.74	1.65	1.59	1.55	1.52	1.49	1.47	1.44	1.42	1.41	1.40	1.39	1.37	1.36
100	5.36	3.29	2.65	2.33	2.14	1.92	1.79	1.70	1.63	1.59	1.56	1.53	1.51	1.48	1.46	1.45	1.43	1.42	1.41	1.39
125	5.50	3.37	2.71	2.38	2.18	1.96	1.83	1.73	1.67	1.62	1.59	1.56	1.54	1.51	1.49	1.47	1.46	1.45	1.43	1.42
150	5.61	3.43	2.76	2.42	2.22	1.99	1.86	1.76	1.69	1.65	1.61	1.59	1.57	1.53	1.51	1.50	1.48	1.47	1.45	1.44
175	5.70	3.49	2.80	2.46	2.26	2.02	1.89	1.78	1.72	1.67	1.64	1.61	1.59	1.55	1.53	1.51	1.50	1.49	1.47	1.46
200	5.78	3.53	2.83	2.49	2.28	2.05	1.91	1.81	1.74	1.69	1.65	1.63	1.60	1.57	1.55	1.53	1.52	1.51	1.49	1.47

Table 19-9. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 3 (10 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.64	1.76	1.46	1.31	1.22	1.12	1.06	1.01	0.98	0.96	0.95	0.94	0.93	0.91	0.90	0.89	0.89	0.88	0.87	0.87
2	3.15	2.04	1.68	1.50	1.40	1.27	1.20	1.14	1.11	1.08	1.07	1.05	1.04	1.02	1.01	1.00	1.00	0.99	0.98	0.97
3	3.45	2.21	1.81	1.61	1.49	1.36	1.28	1.22	1.18	1.15	1.13	1.12	1.11	1.09	1.07	1.06	1.06	1.05	1.04	1.03
4	3.66	2.33	1.90	1.69	1.56	1.42	1.33	1.27	1.23	1.20	1.18	1.16	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07
5	3.82	2.42	1.97	1.75	1.62	1.46	1.38	1.31	1.27	1.24	1.21	1.20	1.18	1.16	1.15	1.14	1.13	1.12	1.11	1.10
8	4.15	2.61	2.12	1.87	1.73	1.56	1.46	1.39	1.35	1.31	1.29	1.27	1.25	1.23	1.22	1.21	1.20	1.19	1.18	1.17
12	4.43	2.76	2.24	1.98	1.82	1.64	1.54	1.46	1.41	1.38	1.35	1.33	1.31	1.29	1.27	1.26	1.25	1.24	1.23	1.22
16	4.63	2.87	2.32	2.05	1.89	1.70	1.59	1.51	1.46	1.42	1.39	1.37	1.35	1.33	1.31	1.30	1.29	1.28	1.27	1.26
20	4.77	2.96	2.39	2.11	1.94	1.74	1.63	1.55	1.49	1.45	1.43	1.40	1.39	1.36	1.34	1.33	1.32	1.31	1.29	1.28
30	5.04	3.11	2.50	2.21	2.03	1.82	1.70	1.61	1.56	1.51	1.48	1.46	1.44	1.41	1.40	1.38	1.37	1.36	1.34	1.33
40	5.22	3.21	2.58	2.28	2.09	1.87	1.75	1.66	1.60	1.56	1.53	1.50	1.48	1.45	1.43	1.42	1.41	1.40	1.38	1.37
50	5.36	3.29	2.65	2.33	2.14	1.92	1.79	1.70	1.63	1.59	1.56	1.53	1.51	1.48	1.46	1.45	1.43	1.42	1.41	1.39
60	5.47	3.36	2.70	2.37	2.18	1.95	1.82	1.73	1.66	1.62	1.58	1.56	1.54	1.51	1.48	1.47	1.46	1.45	1.43	1.42
75	5.61	3.43	2.76	2.42	2.22	1.99	1.86	1.76	1.69	1.65	1.61	1.59	1.57	1.53	1.51	1.50	1.48	1.47	1.45	1.44
100	5.78	3.53	2.83	2.49	2.28	2.05	1.91	1.81	1.74	1.69	1.65	1.63	1.60	1.57	1.55	1.53	1.52	1.51	1.49	1.47
125	5.91	3.61	2.89	2.54	2.33	2.09	1.95	1.84	1.77	1.72	1.68	1.66	1.63	1.60	1.57	1.56	1.54	1.53	1.51	1.50
150	6.02	3.67	2.94	2.58	2.37	2.12	1.98	1.87	1.80	1.75	1.71	1.68	1.66	1.62	1.60	1.58	1.56	1.55	1.53	1.52
175	6.10	3.72	2.98	2.62	2.40	2.15	2.00	1.89	1.82	1.77	1.73	1.70	1.68	1.64	1.62	1.60	1.58	1.57	1.55	1.54
200	6.18	3.76	3.01	2.65	2.42	2.17	2.02	1.91	1.84	1.79	1.75	1.72	1.69	1.66	1.63	1.61	1.60	1.59	1.56	1.55

Table 19-9. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 3 (10 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.15	2.04	1.68	1.50	1.40	1.27	1.20	1.14	1.11	1.08	1.07	1.05	1.04	1.02	1.01	1.00	1.00	0.99	0.98	0.97
2	3.66	2.33	1.90	1.69	1.56	1.42	1.33	1.27	1.23	1.20	1.18	1.16	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07
3	3.95	2.49	2.03	1.80	1.66	1.50	1.41	1.34	1.30	1.27	1.24	1.23	1.21	1.19	1.18	1.16	1.16	1.15	1.14	1.13
4	4.15	2.61	2.12	1.87	1.73	1.56	1.46	1.39	1.35	1.31	1.29	1.27	1.25	1.23	1.22	1.21	1.20	1.19	1.18	1.17
5	4.31	2.69	2.18	1.93	1.78	1.60	1.51	1.43	1.38	1.35	1.32	1.30	1.29	1.26	1.25	1.24	1.23	1.22	1.21	1.20
8	4.63	2.87	2.32	2.05	1.89	1.70	1.59	1.51	1.46	1.42	1.39	1.37	1.35	1.33	1.31	1.30	1.29	1.28	1.27	1.26
12	4.89	3.03	2.44	2.15	1.98	1.78	1.66	1.58	1.52	1.48	1.45	1.43	1.41	1.38	1.37	1.35	1.34	1.33	1.32	1.31
16	5.08	3.13	2.52	2.22	2.04	1.83	1.72	1.62	1.57	1.52	1.49	1.47	1.45	1.42	1.40	1.39	1.38	1.37	1.35	1.34
20	5.22	3.21	2.58	2.28	2.09	1.87	1.75	1.66	1.60	1.56	1.53	1.50	1.48	1.45	1.43	1.42	1.41	1.40	1.38	1.37
30	5.47	3.36	2.70	2.37	2.18	1.95	1.82	1.73	1.66	1.62	1.58	1.56	1.54	1.51	1.48	1.47	1.46	1.45	1.43	1.42
40	5.65	3.46	2.77	2.44	2.24	2.00	1.87	1.77	1.70	1.66	1.62	1.60	1.57	1.54	1.52	1.50	1.49	1.48	1.46	1.45
50	5.78	3.53	2.83	2.49	2.28	2.05	1.91	1.81	1.74	1.69	1.65	1.63	1.60	1.57	1.55	1.53	1.52	1.51	1.49	1.47
60	5.89	3.60	2.88	2.53	2.32	2.08	1.94	1.83	1.76	1.71	1.68	1.65	1.63	1.59	1.57	1.55	1.54	1.53	1.51	1.49
75	6.02	3.67	2.94	2.58	2.37	2.12	1.98	1.87	1.80	1.75	1.71	1.68	1.66	1.62	1.60	1.58	1.56	1.55	1.53	1.52
100	6.18	3.76	3.01	2.65	2.42	2.17	2.02	1.91	1.84	1.79	1.75	1.72	1.69	1.66	1.63	1.61	1.60	1.59	1.56	1.55
125	6.31	3.84	3.07	2.69	2.47	2.21	2.06	1.95	1.87	1.82	1.78	1.75	1.72	1.68	1.66	1.64	1.62	1.61	1.59	1.57
150	6.41	3.90	3.12	2.73	2.51	2.24	2.09	1.97	1.90	1.84	1.80	1.77	1.74	1.71	1.68	1.66	1.64	1.63	1.61	1.59
175	6.49	3.94	3.16	2.77	2.54	2.27	2.11	2.00	1.92	1.86	1.82	1.79	1.76	1.72	1.70	1.68	1.66	1.65	1.63	1.61
200	6.56	3.99	3.19	2.80	2.56	2.29	2.13	2.01	1.94	1.88	1.84	1.81	1.78	1.74	1.71	1.69	1.68	1.66	1.64	1.63

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Table 19-9. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 3 (20 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.80	1.80	1.48	1.33	1.23	1.12	1.06	1.02	0.99	0.96	0.95	0.94	0.93	0.91	0.90	0.89	0.89	0.88	0.88	0.87
2	3.41	2.12	1.72	1.52	1.41	1.28	1.20	1.15	1.11	1.09	1.07	1.05	1.04	1.02	1.01	1.00	1.00	0.99	0.98	0.97
3	3.78	2.30	1.85	1.64	1.51	1.36	1.28	1.22	1.18	1.16	1.13	1.12	1.11	1.09	1.07	1.07	1.06	1.05	1.04	1.03
4	4.04	2.44	1.95	1.72	1.58	1.43	1.34	1.27	1.23	1.20	1.18	1.16	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07
5	4.24	2.54	2.03	1.78	1.64	1.47	1.38	1.31	1.27	1.24	1.22	1.20	1.19	1.17	1.15	1.14	1.13	1.12	1.11	1.10
8	4.67	2.76	2.19	1.91	1.75	1.57	1.47	1.40	1.35	1.32	1.29	1.27	1.26	1.23	1.22	1.21	1.20	1.19	1.18	1.17
12	5.04	2.94	2.32	2.03	1.85	1.66	1.55	1.47	1.42	1.38	1.35	1.33	1.32	1.29	1.27	1.26	1.25	1.24	1.23	1.22
16	5.29	3.07	2.42	2.11	1.92	1.72	1.60	1.52	1.46	1.42	1.40	1.37	1.36	1.33	1.31	1.30	1.29	1.28	1.27	1.26
20	5.48	3.17	2.49	2.17	1.98	1.76	1.65	1.56	1.50	1.46	1.43	1.41	1.39	1.36	1.34	1.33	1.32	1.31	1.29	1.28
30	5.83	3.35	2.62	2.28	2.08	1.85	1.72	1.62	1.56	1.52	1.49	1.46	1.45	1.42	1.40	1.38	1.37	1.36	1.34	1.33
40	6.07	3.47	2.72	2.36	2.14	1.90	1.77	1.67	1.61	1.56	1.53	1.50	1.48	1.46	1.43	1.42	1.41	1.40	1.38	1.37
50	6.25	3.57	2.79	2.41	2.20	1.95	1.81	1.71	1.64	1.60	1.56	1.54	1.52	1.48	1.46	1.45	1.43	1.42	1.41	1.39
60	6.40	3.65	2.84	2.46	2.24	1.99	1.85	1.74	1.67	1.62	1.59	1.56	1.54	1.51	1.49	1.47	1.46	1.45	1.43	1.42
75	6.58	3.74	2.91	2.52	2.29	2.03	1.89	1.78	1.71	1.66	1.62	1.59	1.57	1.54	1.51	1.50	1.48	1.47	1.45	1.44
100	6.81	3.86	3.00	2.59	2.36	2.09	1.94	1.82	1.75	1.70	1.66	1.63	1.61	1.57	1.55	1.53	1.52	1.51	1.49	1.47
125	6.98	3.95	3.07	2.65	2.41	2.13	1.98	1.86	1.78	1.73	1.69	1.66	1.64	1.60	1.58	1.56	1.54	1.53	1.51	1.50
150	7.12	4.02	3.12	2.70	2.45	2.16	2.01	1.89	1.81	1.76	1.72	1.69	1.66	1.62	1.60	1.58	1.57	1.55	1.53	1.52
175	7.24	4.08	3.17	2.74	2.48	2.19	2.03	1.91	1.83	1.78	1.74	1.71	1.68	1.64	1.62	1.60	1.58	1.57	1.55	1.54
200	7.34	4.13	3.21	2.77	2.51	2.22	2.06	1.93	1.85	1.80	1.75	1.72	1.70	1.66	1.63	1.61	1.60	1.59	1.57	1.55

Table 19-9. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 3 (20 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.41	2.12	1.72	1.52	1.41	1.28	1.20	1.15	1.11	1.09	1.07	1.05	1.04	1.02	1.01	1.00	1.00	0.99	0.98	0.97
2	4.04	2.44	1.95	1.72	1.58	1.43	1.34	1.27	1.23	1.20	1.18	1.16	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07
3	4.41	2.62	2.09	1.83	1.68	1.51	1.42	1.35	1.30	1.27	1.25	1.23	1.21	1.19	1.18	1.17	1.16	1.15	1.14	1.13
4	4.67	2.76	2.19	1.91	1.75	1.57	1.47	1.40	1.35	1.32	1.29	1.27	1.26	1.23	1.22	1.21	1.20	1.19	1.18	1.17
5	4.87	2.86	2.26	1.98	1.81	1.62	1.52	1.44	1.39	1.35	1.32	1.30	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20
8	5.29	3.07	2.42	2.11	1.92	1.72	1.60	1.52	1.46	1.42	1.40	1.37	1.36	1.33	1.31	1.30	1.29	1.28	1.27	1.26
12	5.64	3.25	2.55	2.22	2.02	1.80	1.68	1.59	1.53	1.49	1.46	1.43	1.41	1.39	1.37	1.35	1.34	1.33	1.32	1.31
16	5.89	3.38	2.64	2.30	2.09	1.86	1.73	1.64	1.57	1.53	1.50	1.47	1.45	1.43	1.41	1.39	1.38	1.37	1.35	1.34
20	6.07	3.47	2.72	2.36	2.14	1.90	1.77	1.67	1.61	1.56	1.53	1.50	1.48	1.46	1.43	1.42	1.41	1.40	1.38	1.37
30	6.40	3.65	2.84	2.46	2.24	1.99	1.85	1.74	1.67	1.62	1.59	1.56	1.54	1.51	1.49	1.47	1.46	1.45	1.43	1.42
40	6.63	3.77	2.93	2.54	2.30	2.04	1.90	1.79	1.72	1.67	1.63	1.60	1.58	1.55	1.52	1.50	1.49	1.48	1.46	1.45
50	6.81	3.86	3.00	2.59	2.36	2.09	1.94	1.82	1.75	1.70	1.66	1.63	1.61	1.57	1.55	1.53	1.52	1.51	1.49	1.47
60	6.95	3.93	3.06	2.64	2.40	2.12	1.97	1.85	1.78	1.72	1.69	1.66	1.63	1.60	1.57	1.55	1.54	1.53	1.51	1.49
75	7.12	4.02	3.12	2.70	2.45	2.16	2.01	1.89	1.81	1.76	1.72	1.69	1.66	1.62	1.60	1.58	1.57	1.55	1.53	1.52
100	7.34	4.13	3.21	2.77	2.51	2.22	2.06	1.93	1.85	1.80	1.75	1.72	1.70	1.66	1.63	1.61	1.60	1.59	1.57	1.55
125	7.50	4.22	3.27	2.82	2.56	2.26	2.09	1.97	1.89	1.83	1.79	1.75	1.73	1.69	1.66	1.64	1.62	1.61	1.59	1.58
150	7.64	4.29	3.33	2.87	2.60	2.29	2.13	2.00	1.91	1.85	1.81	1.78	1.75	1.71	1.68	1.66	1.65	1.63	1.61	1.60
175	7.75	4.35	3.37	2.90	2.63	2.32	2.15	2.02	1.93	1.87	1.83	1.80	1.77	1.73	1.70	1.68	1.66	1.65	1.63	1.61
200	7.84	4.40	3.41	2.94	2.66	2.35	2.17	2.04	1.95	1.89	1.85	1.81	1.79	1.75	1.72	1.69	1.68	1.67	1.64	1.63

Table 19-9. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 3 (20 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.04	2.44	1.95	1.72	1.58	1.43	1.34	1.27	1.23	1.20	1.18	1.16	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07
2	4.67	2.76	2.19	1.91	1.75	1.57	1.47	1.40	1.35	1.32	1.29	1.27	1.26	1.23	1.22	1.21	1.20	1.19	1.18	1.17
3	5.04	2.94	2.32	2.03	1.85	1.66	1.55	1.47	1.42	1.38	1.35	1.33	1.32	1.29	1.27	1.26	1.25	1.24	1.23	1.22
4	5.29	3.07	2.42	2.11	1.92	1.72	1.60	1.52	1.46	1.42	1.40	1.37	1.36	1.33	1.31	1.30	1.29	1.28	1.27	1.26
5	5.48	3.17	2.49	2.17	1.98	1.76	1.65	1.56	1.50	1.46	1.43	1.41	1.39	1.36	1.34	1.33	1.32	1.31	1.29	1.28
8	5.89	3.38	2.64	2.30	2.09	1.86	1.73	1.64	1.57	1.53	1.50	1.47	1.45	1.43	1.41	1.39	1.38	1.37	1.35	1.34
12	6.22	3.55	2.77	2.40	2.19	1.94	1.81	1.70	1.64	1.59	1.56	1.53	1.51	1.48	1.46	1.44	1.43	1.42	1.40	1.39
16	6.46	3.67	2.86	2.48	2.25	2.00	1.86	1.75	1.68	1.63	1.60	1.57	1.55	1.52	1.49	1.48	1.46	1.45	1.44	1.42
20	6.63	3.77	2.93	2.54	2.30	2.04	1.90	1.79	1.72	1.67	1.63	1.60	1.58	1.55	1.52	1.50	1.49	1.48	1.46	1.45
30	6.95	3.93	3.06	2.64	2.40	2.12	1.97	1.85	1.78	1.72	1.69	1.66	1.63	1.60	1.57	1.55	1.54	1.53	1.51	1.49
40	7.17	4.05	3.14	2.71	2.46	2.18	2.02	1.90	1.82	1.76	1.72	1.69	1.67	1.63	1.61	1.59	1.57	1.56	1.54	1.53
50	7.34	4.13	3.21	2.77	2.51	2.22	2.06	1.93	1.85	1.80	1.75	1.72	1.70	1.66	1.63	1.61	1.60	1.59	1.57	1.55
60	7.47	4.20	3.26	2.81	2.55	2.25	2.09	1.96	1.88	1.82	1.78	1.75	1.72	1.68	1.66	1.64	1.62	1.61	1.59	1.57
75	7.64	4.29	3.33	2.87	2.60	2.29	2.13	2.00	1.91	1.85	1.81	1.78	1.75	1.71	1.68	1.66	1.65	1.63	1.61	1.60
100	7.84	4.40	3.41	2.94	2.66	2.35	2.17	2.04	1.95	1.89	1.85	1.81	1.79	1.75	1.72	1.69	1.68	1.67	1.64	1.63
125	8.00	4.48	3.47	2.99	2.71	2.39	2.21	2.07	1.99	1.92	1.88	1.84	1.81	1.77	1.74	1.72	1.70	1.69	1.67	1.65
150	8.13	4.55	3.52	3.03	2.75	2.42	2.24	2.10	2.01	1.95	1.90	1.87	1.84	1.79	1.76	1.74	1.72	1.71	1.68	1.67
175	8.23	4.61	3.56	3.07	2.78	2.45	2.27	2.13	2.03	1.97	1.92	1.88	1.86	1.81	1.78	1.76	1.74	1.73	1.70	1.68
200	8.33	4.65	3.60	3.10	2.81	2.47	2.29	2.15	2.05	1.99	1.94	1.90	1.87	1.83	1.80	1.77	1.76	1.74	1.72	1.70

Table 19-9. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 3 (40 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.60	2.16	1.74	1.53	1.42	1.28	1.21	1.15	1.11	1.09	1.07	1.05	1.04	1.03	1.01	1.00	1.00	0.99	0.98	0.98
2	4.35	2.51	1.98	1.74	1.59	1.43	1.34	1.28	1.23	1.20	1.18	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07
3	4.81	2.72	2.13	1.86	1.70	1.52	1.42	1.35	1.30	1.27	1.25	1.23	1.21	1.19	1.18	1.17	1.16	1.15	1.14	1.13
4	5.14	2.87	2.24	1.94	1.77	1.58	1.48	1.40	1.35	1.32	1.29	1.27	1.26	1.23	1.22	1.21	1.20	1.19	1.18	1.17
5	5.40	2.99	2.32	2.01	1.83	1.63	1.52	1.44	1.39	1.35	1.33	1.31	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20
8	5.94	3.24	2.49	2.15	1.95	1.73	1.61	1.52	1.47	1.43	1.40	1.38	1.36	1.33	1.31	1.30	1.29	1.28	1.27	1.26
12	6.39	3.45	2.64	2.27	2.05	1.82	1.69	1.59	1.53	1.49	1.46	1.43	1.42	1.39	1.37	1.35	1.34	1.33	1.32	1.31
16	6.71	3.60	2.74	2.35	2.13	1.88	1.74	1.64	1.58	1.53	1.50	1.48	1.46	1.43	1.41	1.39	1.38	1.37	1.35	1.34
20	6.96	3.71	2.82	2.42	2.18	1.92	1.78	1.68	1.61	1.57	1.53	1.51	1.49	1.46	1.43	1.42	1.41	1.40	1.38	1.37
30	7.39	3.91	2.97	2.53	2.29	2.01	1.86	1.75	1.68	1.63	1.59	1.56	1.54	1.51	1.49	1.47	1.46	1.45	1.43	1.42
40	7.70	4.06	3.07	2.62	2.36	2.07	1.91	1.80	1.72	1.67	1.63	1.60	1.58	1.55	1.52	1.51	1.49	1.48	1.46	1.45
50	7.93	4.16	3.15	2.68	2.41	2.12	1.95	1.83	1.76	1.70	1.66	1.63	1.61	1.58	1.55	1.53	1.52	1.51	1.49	1.47
60	8.11	4.25	3.21	2.73	2.46	2.15	1.99	1.86	1.78	1.73	1.69	1.66	1.63	1.60	1.57	1.55	1.54	1.53	1.51	1.50
75	8.34	4.36	3.29	2.79	2.51	2.20	2.03	1.90	1.82	1.76	1.72	1.69	1.66	1.63	1.60	1.58	1.57	1.55	1.53	1.52
100	8.62	4.49	3.38	2.87	2.58	2.26	2.08	1.95	1.86	1.80	1.76	1.73	1.70	1.66	1.64	1.62	1.60	1.59	1.57	1.55
125	8.84	4.60	3.46	2.93	2.63	2.30	2.12	1.98	1.90	1.83	1.79	1.76	1.73	1.69	1.66	1.64	1.63	1.61	1.59	1.58
150	9.01	4.68	3.52	2.98	2.68	2.34	2.15	2.01	1.92	1.86	1.82	1.78	1.75	1.71	1.68	1.66	1.65	1.63	1.61	1.60
175	9.16	4.75	3.57	3.03	2.71	2.37	2.18	2.04	1.95	1.88	1.84	1.80	1.77	1.73	1.70	1.68	1.66	1.65	1.63	1.61
200	9.29	4.81	3.61	3.06	2.75	2.39	2.20	2.06	1.97	1.90	1.86	1.82	1.79	1.75	1.72	1.70	1.68	1.67	1.64	1.62

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Table 19-9. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 3 (40 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.35	2.51	1.98	1.74	1.59	1.43	1.34	1.28	1.23	1.20	1.18	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07
2	5.14	2.87	2.24	1.94	1.77	1.58	1.48	1.40	1.35	1.32	1.29	1.27	1.26	1.23	1.22	1.21	1.20	1.19	1.18	1.17
3	5.61	3.09	2.39	2.06	1.88	1.67	1.56	1.47	1.42	1.38	1.35	1.33	1.32	1.29	1.27	1.26	1.25	1.24	1.23	1.22
4	5.94	3.24	2.49	2.15	1.95	1.73	1.61	1.52	1.47	1.43	1.40	1.38	1.36	1.33	1.31	1.30	1.29	1.28	1.27	1.26
5	6.19	3.35	2.57	2.21	2.01	1.78	1.65	1.56	1.50	1.46	1.43	1.41	1.39	1.36	1.34	1.33	1.32	1.31	1.29	1.28
8	6.71	3.60	2.74	2.35	2.13	1.88	1.74	1.64	1.58	1.53	1.50	1.48	1.46	1.43	1.41	1.39	1.38	1.37	1.35	1.34
12	7.15	3.80	2.89	2.47	2.23	1.96	1.82	1.71	1.64	1.59	1.56	1.53	1.51	1.48	1.46	1.44	1.43	1.42	1.40	1.39
16	7.46	3.95	2.99	2.55	2.30	2.02	1.87	1.76	1.69	1.64	1.60	1.57	1.55	1.52	1.49	1.48	1.46	1.45	1.44	1.42
20	7.70	4.06	3.07	2.62	2.36	2.07	1.91	1.80	1.72	1.67	1.63	1.60	1.58	1.55	1.52	1.51	1.49	1.48	1.46	1.45
30	8.11	4.25	3.21	2.73	2.46	2.15	1.99	1.86	1.78	1.73	1.69	1.66	1.63	1.60	1.57	1.55	1.54	1.53	1.51	1.50
40	8.40	4.39	3.31	2.81	2.53	2.21	2.04	1.91	1.83	1.77	1.73	1.70	1.67	1.63	1.61	1.59	1.57	1.56	1.54	1.53
50	8.62	4.49	3.38	2.87	2.58	2.26	2.08	1.95	1.86	1.80	1.76	1.73	1.70	1.66	1.64	1.62	1.60	1.59	1.57	1.55
60	8.80	4.58	3.44	2.92	2.62	2.29	2.11	1.98	1.89	1.83	1.78	1.75	1.72	1.69	1.66	1.64	1.62	1.61	1.59	1.57
75	9.01	4.68	3.52	2.98	2.68	2.34	2.15	2.01	1.92	1.86	1.82	1.78	1.75	1.71	1.68	1.66	1.65	1.63	1.61	1.60
100	9.29	4.81	3.61	3.06	2.75	2.39	2.20	2.06	1.97	1.90	1.86	1.82	1.79	1.75	1.72	1.70	1.68	1.67	1.64	1.62
125	9.50	4.91	3.68	3.12	2.80	2.44	2.24	2.09	2.00	1.93	1.89	1.85	1.82	1.77	1.74	1.72	1.70	1.69	1.67	1.65
150	9.67	4.99	3.74	3.17	2.84	2.47	2.27	2.12	2.03	1.96	1.91	1.87	1.84	1.80	1.77	1.74	1.72	1.71	1.69	1.67
175	9.81	5.06	3.79	3.21	2.87	2.50	2.30	2.15	2.05	1.98	1.93	1.89	1.86	1.82	1.78	1.76	1.74	1.73	1.70	1.69
200	9.93	5.12	3.83	3.24	2.90	2.53	2.32	2.17	2.07	2.00	1.95	1.91	1.88	1.83	1.80	1.77	1.76	1.74	1.72	1.70

Table 19-9. κ -Multipliers for 1-of-2 Interwell Prediction Limits on Means of Order 3 (40 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	5.14	2.87	2.24	1.94	1.77	1.58	1.48	1.40	1.35	1.32	1.29	1.27	1.26	1.23	1.22	1.21	1.20	1.19	1.18	1.17
2	5.94	3.24	2.49	2.15	1.95	1.73	1.61	1.52	1.47	1.43	1.40	1.38	1.36	1.33	1.31	1.30	1.29	1.28	1.27	1.26
3	6.39	3.45	2.64	2.27	2.05	1.82	1.69	1.59	1.53	1.49	1.46	1.43	1.42	1.39	1.37	1.35	1.34	1.33	1.32	1.31
4	6.71	3.60	2.74	2.35	2.13	1.88	1.74	1.64	1.58	1.53	1.50	1.48	1.46	1.43	1.41	1.39	1.38	1.37	1.35	1.34
5	6.96	3.71	2.82	2.42	2.18	1.92	1.78	1.68	1.61	1.57	1.53	1.51	1.49	1.46	1.43	1.42	1.41	1.40	1.38	1.37
8	7.46	3.95	2.99	2.55	2.30	2.02	1.87	1.76	1.69	1.64	1.60	1.57	1.55	1.52	1.49	1.48	1.46	1.45	1.44	1.42
12	7.88	4.14	3.13	2.67	2.40	2.11	1.95	1.83	1.75	1.70	1.66	1.63	1.60	1.57	1.55	1.53	1.51	1.50	1.48	1.47
16	8.18	4.28	3.23	2.75	2.47	2.17	2.00	1.87	1.79	1.74	1.70	1.67	1.64	1.61	1.58	1.56	1.55	1.54	1.52	1.50
20	8.40	4.39	3.31	2.81	2.53	2.21	2.04	1.91	1.83	1.77	1.73	1.70	1.67	1.63	1.61	1.59	1.57	1.56	1.54	1.53
30	8.80	4.58	3.44	2.92	2.62	2.29	2.11	1.98	1.89	1.83	1.78	1.75	1.72	1.69	1.66	1.64	1.62	1.61	1.59	1.57
40	9.08	4.71	3.54	3.00	2.69	2.35	2.16	2.02	1.93	1.87	1.82	1.79	1.76	1.72	1.69	1.67	1.65	1.64	1.62	1.60
50	9.29	4.81	3.61	3.06	2.75	2.39	2.20	2.06	1.97	1.90	1.86	1.82	1.79	1.75	1.72	1.70	1.68	1.67	1.64	1.62
60	9.46	4.89	3.67	3.11	2.79	2.43	2.23	2.09	1.99	1.93	1.88	1.84	1.81	1.77	1.74	1.72	1.70	1.69	1.66	1.65
75	9.67	4.99	3.74	3.17	2.84	2.47	2.27	2.12	2.03	1.96	1.91	1.87	1.84	1.80	1.77	1.74	1.72	1.71	1.69	1.67
100	9.93	5.12	3.83	3.24	2.90	2.53	2.32	2.17	2.07	2.00	1.95	1.91	1.88	1.83	1.80	1.77	1.76	1.74	1.72	1.70
125	10.12	5.21	3.90	3.30	2.95	2.57	2.36	2.20	2.10	2.03	1.98	1.94	1.90	1.86	1.82	1.80	1.78	1.77	1.74	1.72
150	10.29	5.29	3.96	3.35	3.00	2.61	2.39	2.23	2.13	2.05	2.00	1.96	1.93	1.88	1.85	1.82	1.80	1.79	1.76	1.74
175	10.42	5.36	4.00	3.39	3.03	2.63	2.42	2.25	2.15	2.07	2.02	1.98	1.95	1.90	1.86	1.84	1.82	1.80	1.77	1.76
200	10.54	5.41	4.04	3.42	3.06	2.66	2.44	2.27	2.17	2.09	2.04	2.00	1.96	1.91	1.88	1.85	1.83	1.82	1.79	1.77

D STATISTICAL TABLES

D.3 TABLES FROM CHAPTER 19: INTRAWELL PREDICTION LIMITS FOR FUTURE OBSERVATIONS

TABLE 19-10 κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Observations.....D-118

TABLE 19-11 κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Observations.....D-127

TABLE 19-12 κ -Multipliers for 1-of-4 Intrawell Prediction Limits on Observations.....D-136

TABLE 19-13 κ -Multipliers for Mod. Cal. Intrawell Prediction Limits on Observations.....D-145

Table 19-10. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Observations (1 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.78	0.67	0.61	0.58	0.57	0.54	0.53	0.52	0.51	0.51	0.50	0.50	0.50	0.50	0.49	0.49	0.49	0.49	0.49	0.49
2	1.27	1.05	0.97	0.92	0.89	0.85	0.83	0.81	0.80	0.79	0.79	0.78	0.78	0.78	0.77	0.77	0.77	0.77	0.76	0.76
3	1.59	1.28	1.17	1.10	1.06	1.02	0.99	0.97	0.96	0.95	0.94	0.94	0.93	0.93	0.92	0.92	0.91	0.91	0.91	0.91
4	1.82	1.45	1.31	1.23	1.19	1.13	1.10	1.08	1.06	1.05	1.04	1.04	1.03	1.03	1.02	1.02	1.01	1.01	1.01	1.00
5	2.02	1.58	1.41	1.33	1.28	1.22	1.19	1.16	1.14	1.13	1.12	1.11	1.11	1.10	1.09	1.09	1.09	1.08	1.08	1.08
8	2.47	1.86	1.65	1.54	1.47	1.40	1.36	1.32	1.30	1.29	1.28	1.27	1.26	1.25	1.24	1.24	1.24	1.23	1.23	1.22
12	2.90	2.11	1.85	1.72	1.64	1.55	1.50	1.46	1.43	1.42	1.40	1.39	1.39	1.38	1.37	1.36	1.36	1.35	1.35	1.34
16	3.24	2.30	1.99	1.84	1.75	1.65	1.60	1.55	1.53	1.51	1.49	1.48	1.47	1.46	1.45	1.44	1.44	1.43	1.43	1.42
20	3.52	2.45	2.11	1.94	1.84	1.73	1.67	1.62	1.59	1.57	1.56	1.55	1.54	1.52	1.51	1.51	1.50	1.50	1.49	1.48
30	4.09	2.73	2.32	2.12	2.01	1.88	1.80	1.75	1.72	1.69	1.68	1.66	1.65	1.64	1.63	1.62	1.61	1.61	1.60	1.59
40	4.54	2.94	2.47	2.25	2.12	1.98	1.90	1.84	1.80	1.78	1.76	1.74	1.73	1.71	1.70	1.69	1.69	1.68	1.67	1.66
50	4.91	3.11	2.59	2.35	2.21	2.06	1.97	1.91	1.87	1.84	1.82	1.80	1.79	1.77	1.76	1.75	1.74	1.74	1.73	1.72
60	5.24	3.26	2.70	2.43	2.29	2.12	2.03	1.96	1.92	1.89	1.87	1.85	1.84	1.82	1.81	1.80	1.79	1.78	1.77	1.76
75	5.67	3.44	2.82	2.54	2.38	2.20	2.10	2.03	1.98	1.95	1.93	1.91	1.90	1.88	1.86	1.85	1.84	1.84	1.83	1.82
100	6.26	3.68	2.99	2.67	2.49	2.30	2.19	2.11	2.07	2.03	2.01	1.99	1.97	1.95	1.93	1.92	1.91	1.91	1.89	1.89
125	6.76	3.88	3.12	2.78	2.59	2.37	2.26	2.18	2.13	2.09	2.07	2.05	2.03	2.01	1.99	1.98	1.97	1.96	1.95	1.94
150	7.20	4.05	3.23	2.87	2.66	2.44	2.32	2.23	2.18	2.14	2.11	2.09	2.07	2.05	2.03	2.02	2.01	2.00	1.99	1.98
175	7.59	4.19	3.33	2.94	2.72	2.49	2.37	2.28	2.22	2.18	2.15	2.13	2.11	2.09	2.07	2.06	2.05	2.04	2.02	2.01
200	7.95	4.32	3.41	3.01	2.78	2.54	2.41	2.32	2.26	2.22	2.19	2.16	2.15	2.12	2.10	2.09	2.08	2.07	2.05	2.04

Table 19-10. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Observations (1 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.21	1.03	0.95	0.90	0.88	0.84	0.82	0.81	0.80	0.79	0.79	0.78	0.78	0.77	0.77	0.77	0.77	0.76	0.76	0.76
2	1.76	1.42	1.29	1.22	1.18	1.13	1.10	1.08	1.06	1.05	1.04	1.04	1.03	1.02	1.02	1.02	1.01	1.01	1.01	1.00
3	2.11	1.66	1.49	1.40	1.35	1.28	1.25	1.22	1.20	1.19	1.18	1.17	1.17	1.16	1.15	1.15	1.14	1.14	1.14	1.13
4	2.39	1.83	1.63	1.53	1.47	1.39	1.35	1.32	1.30	1.29	1.27	1.27	1.26	1.25	1.24	1.24	1.23	1.23	1.23	1.22
5	2.62	1.97	1.74	1.63	1.56	1.48	1.43	1.40	1.37	1.36	1.35	1.34	1.33	1.32	1.31	1.31	1.30	1.30	1.29	1.29
8	3.15	2.27	1.98	1.83	1.75	1.65	1.59	1.55	1.52	1.50	1.49	1.48	1.47	1.46	1.45	1.44	1.44	1.43	1.43	1.42
12	3.67	2.55	2.19	2.01	1.91	1.79	1.73	1.68	1.65	1.63	1.61	1.60	1.59	1.57	1.56	1.56	1.55	1.55	1.54	1.53
16	4.08	2.75	2.34	2.14	2.03	1.90	1.82	1.77	1.74	1.71	1.69	1.68	1.67	1.65	1.64	1.63	1.63	1.62	1.61	1.61
20	4.42	2.91	2.46	2.24	2.12	1.98	1.90	1.84	1.80	1.78	1.76	1.74	1.73	1.71	1.70	1.69	1.69	1.68	1.67	1.66
30	5.11	3.23	2.68	2.43	2.28	2.12	2.03	1.96	1.92	1.89	1.87	1.85	1.84	1.82	1.81	1.80	1.79	1.78	1.77	1.76
40	5.65	3.46	2.85	2.56	2.40	2.22	2.12	2.05	2.00	1.97	1.95	1.93	1.91	1.89	1.88	1.87	1.86	1.85	1.84	1.83
50	6.11	3.65	2.98	2.67	2.49	2.30	2.19	2.11	2.06	2.03	2.01	1.99	1.97	1.95	1.93	1.92	1.91	1.91	1.89	1.89
60	6.50	3.81	3.08	2.75	2.56	2.36	2.25	2.17	2.12	2.08	2.05	2.03	2.02	2.00	1.98	1.97	1.96	1.95	1.94	1.93
75	7.02	4.02	3.22	2.86	2.66	2.44	2.32	2.23	2.18	2.14	2.11	2.09	2.07	2.05	2.03	2.02	2.01	2.00	1.99	1.98
100	7.75	4.29	3.40	3.00	2.78	2.54	2.41	2.32	2.26	2.22	2.19	2.16	2.15	2.12	2.10	2.09	2.08	2.07	2.05	2.04
125	8.36	4.51	3.54	3.11	2.87	2.62	2.48	2.38	2.32	2.27	2.24	2.22	2.20	2.17	2.15	2.14	2.13	2.12	2.10	2.09
150	8.91	4.70	3.66	3.20	2.95	2.68	2.54	2.43	2.37	2.32	2.29	2.26	2.24	2.22	2.20	2.18	2.17	2.16	2.14	2.13
175	9.38	4.86	3.76	3.28	3.02	2.73	2.59	2.48	2.41	2.36	2.33	2.30	2.28	2.25	2.23	2.22	2.20	2.19	2.18	2.17
200	9.81	5.01	3.85	3.35	3.07	2.78	2.63	2.51	2.44	2.40	2.36	2.33	2.31	2.28	2.26	2.24	2.23	2.22	2.21	2.19

Table 19-10. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Observations (1 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.65	1.37	1.26	1.20	1.16	1.12	1.09	1.07	1.06	1.05	1.04	1.03	1.03	1.02	1.02	1.01	1.01	1.01	1.00	1.00
2	2.27	1.78	1.61	1.51	1.45	1.39	1.35	1.32	1.30	1.28	1.27	1.26	1.26	1.25	1.24	1.24	1.23	1.23	1.23	1.22
3	2.68	2.04	1.81	1.69	1.62	1.54	1.49	1.45	1.43	1.41	1.40	1.39	1.38	1.37	1.37	1.36	1.36	1.35	1.34	1.34
4	3.00	2.22	1.96	1.82	1.74	1.64	1.59	1.55	1.52	1.50	1.49	1.48	1.47	1.46	1.45	1.44	1.44	1.43	1.43	1.42
5	3.27	2.37	2.07	1.92	1.83	1.72	1.66	1.62	1.59	1.57	1.56	1.54	1.54	1.52	1.51	1.51	1.50	1.50	1.49	1.48
8	3.90	2.70	2.32	2.13	2.02	1.89	1.82	1.77	1.73	1.71	1.69	1.68	1.67	1.65	1.64	1.63	1.63	1.62	1.61	1.61
12	4.52	3.00	2.54	2.31	2.18	2.03	1.95	1.89	1.85	1.83	1.81	1.79	1.78	1.76	1.75	1.74	1.73	1.73	1.72	1.71
16	5.01	3.23	2.70	2.45	2.30	2.14	2.05	1.98	1.94	1.91	1.89	1.87	1.86	1.84	1.82	1.81	1.80	1.80	1.79	1.78
20	5.42	3.41	2.83	2.55	2.39	2.21	2.12	2.05	2.00	1.97	1.95	1.93	1.91	1.89	1.88	1.87	1.86	1.85	1.84	1.83
30	6.24	3.76	3.06	2.74	2.56	2.36	2.25	2.17	2.11	2.08	2.05	2.03	2.02	2.00	1.98	1.97	1.96	1.95	1.94	1.93
40	6.89	4.02	3.24	2.88	2.68	2.46	2.34	2.25	2.19	2.16	2.13	2.11	2.09	2.07	2.05	2.04	2.03	2.02	2.00	1.99
50	7.45	4.23	3.38	2.99	2.77	2.53	2.41	2.32	2.26	2.22	2.19	2.16	2.15	2.12	2.10	2.09	2.08	2.07	2.05	2.04
60	7.92	4.41	3.49	3.08	2.85	2.60	2.47	2.37	2.31	2.26	2.23	2.21	2.19	2.16	2.14	2.13	2.12	2.11	2.09	2.08
75	8.55	4.64	3.64	3.19	2.94	2.68	2.54	2.43	2.37	2.32	2.29	2.26	2.24	2.22	2.20	2.18	2.17	2.16	2.14	2.13
100	9.43	4.95	3.83	3.34	3.07	2.78	2.63	2.51	2.44	2.40	2.36	2.33	2.31	2.28	2.26	2.24	2.23	2.22	2.21	2.19
125	10.17	5.20	3.98	3.46	3.17	2.86	2.70	2.58	2.50	2.45	2.42	2.39	2.37	2.33	2.31	2.29	2.28	2.27	2.25	2.24
150	10.82	5.41	4.11	3.55	3.25	2.92	2.75	2.63	2.55	2.50	2.46	2.43	2.41	2.37	2.35	2.33	2.32	2.31	2.29	2.28
175	11.40	5.59	4.22	3.64	3.32	2.98	2.80	2.67	2.59	2.54	2.50	2.47	2.44	2.41	2.39	2.37	2.35	2.34	2.32	2.31
200	11.92	5.76	4.32	3.71	3.37	3.02	2.84	2.71	2.63	2.57	2.53	2.50	2.48	2.44	2.42	2.40	2.38	2.37	2.35	2.34

Table 19-10. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Observations (2 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.27	1.05	0.97	0.92	0.89	0.85	0.83	0.81	0.80	0.79	0.79	0.78	0.78	0.78	0.77	0.77	0.77	0.77	0.76	0.76
2	1.82	1.45	1.31	1.23	1.19	1.13	1.10	1.08	1.06	1.05	1.04	1.04	1.03	1.03	1.02	1.02	1.01	1.01	1.01	1.00
3	2.19	1.68	1.50	1.41	1.35	1.29	1.25	1.22	1.20	1.19	1.18	1.17	1.17	1.16	1.15	1.15	1.15	1.14	1.14	1.13
4	2.47	1.86	1.65	1.54	1.47	1.40	1.36	1.32	1.30	1.29	1.28	1.27	1.26	1.25	1.24	1.24	1.24	1.23	1.23	1.22
5	2.70	1.99	1.76	1.64	1.56	1.48	1.43	1.40	1.38	1.36	1.35	1.34	1.33	1.32	1.31	1.31	1.30	1.30	1.29	1.29
8	3.24	2.30	1.99	1.84	1.75	1.65	1.60	1.55	1.53	1.51	1.49	1.48	1.47	1.46	1.45	1.44	1.44	1.43	1.43	1.42
12	3.77	2.57	2.20	2.02	1.92	1.80	1.73	1.68	1.65	1.63	1.61	1.60	1.59	1.57	1.56	1.56	1.55	1.55	1.54	1.53
16	4.19	2.78	2.35	2.15	2.03	1.90	1.83	1.77	1.74	1.71	1.69	1.68	1.67	1.65	1.64	1.63	1.63	1.62	1.61	1.61
20	4.54	2.94	2.47	2.25	2.12	1.98	1.90	1.84	1.80	1.78	1.76	1.74	1.73	1.71	1.70	1.69	1.69	1.68	1.67	1.66
30	5.24	3.26	2.70	2.43	2.29	2.12	2.03	1.96	1.92	1.89	1.87	1.85	1.84	1.82	1.81	1.80	1.79	1.78	1.77	1.76
40	5.80	3.49	2.86	2.57	2.40	2.22	2.12	2.05	2.00	1.97	1.95	1.93	1.91	1.89	1.88	1.87	1.86	1.85	1.84	1.83
50	6.26	3.68	2.99	2.67	2.49	2.30	2.19	2.11	2.07	2.03	2.01	1.99	1.97	1.95	1.93	1.92	1.91	1.91	1.89	1.89
60	6.67	3.84	3.10	2.76	2.57	2.36	2.25	2.17	2.12	2.08	2.05	2.03	2.02	2.00	1.98	1.97	1.96	1.95	1.93	1.92
75	7.20	4.05	3.23	2.87	2.66	2.44	2.32	2.23	2.18	2.14	2.11	2.09	2.08	2.05	2.03	2.02	2.01	2.00	1.99	1.98
100	7.95	4.32	3.41	3.01	2.78	2.54	2.41	2.32	2.26	2.22	2.19	2.16	2.15	2.12	2.10	2.09	2.08	2.07	2.05	2.04
125	8.57	4.55	3.55	3.12	2.88	2.62	2.48	2.38	2.32	2.27	2.24	2.22	2.20	2.17	2.15	2.14	2.13	2.12	2.10	2.09
150	9.12	4.74	3.67	3.21	2.95	2.68	2.54	2.43	2.37	2.32	2.29	2.26	2.24	2.22	2.20	2.18	2.17	2.16	2.14	2.13
175	9.61	4.90	3.77	3.29	3.02	2.73	2.59	2.48	2.41	2.36	2.33	2.30	2.28	2.25	2.23	2.22	2.20	2.19	2.18	2.17
200	10.06	5.04	3.86	3.35	3.08	2.78	2.63	2.51	2.44	2.40	2.36	2.33	2.31	2.28	2.26	2.24	2.23	2.22	2.21	2.19

Table 19-10. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Observations (2 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.76	1.42	1.29	1.22	1.18	1.13	1.10	1.08	1.06	1.05	1.04	1.04	1.03	1.02	1.02	1.02	1.01	1.01	1.01	1.00
2	2.39	1.83	1.63	1.53	1.47	1.39	1.35	1.32	1.30	1.29	1.28	1.27	1.26	1.25	1.24	1.24	1.23	1.23	1.23	1.22
3	2.82	2.08	1.83	1.71	1.63	1.54	1.49	1.46	1.43	1.42	1.40	1.39	1.39	1.37	1.37	1.36	1.36	1.35	1.35	1.34
4	3.15	2.27	1.98	1.83	1.75	1.65	1.59	1.55	1.52	1.50	1.49	1.48	1.47	1.46	1.45	1.44	1.44	1.43	1.43	1.42
5	3.43	2.42	2.09	1.93	1.84	1.73	1.67	1.62	1.59	1.57	1.56	1.55	1.54	1.52	1.51	1.51	1.50	1.50	1.49	1.48
8	4.08	2.75	2.34	2.14	2.03	1.90	1.82	1.77	1.74	1.71	1.69	1.68	1.67	1.65	1.64	1.63	1.63	1.62	1.61	1.61
12	4.72	3.05	2.56	2.33	2.19	2.04	1.96	1.89	1.86	1.83	1.81	1.79	1.78	1.76	1.75	1.74	1.73	1.73	1.72	1.71
16	5.22	3.28	2.72	2.46	2.31	2.14	2.05	1.98	1.94	1.91	1.89	1.87	1.86	1.84	1.82	1.81	1.81	1.80	1.79	1.78
20	5.65	3.46	2.85	2.56	2.40	2.22	2.12	2.05	2.00	1.97	1.95	1.93	1.91	1.89	1.88	1.87	1.86	1.85	1.84	1.83
30	6.50	3.81	3.08	2.75	2.57	2.36	2.25	2.17	2.12	2.08	2.05	2.03	2.02	2.00	1.98	1.97	1.96	1.95	1.93	1.92
40	7.18	4.08	3.26	2.89	2.68	2.46	2.34	2.25	2.20	2.16	2.13	2.11	2.09	2.07	2.05	2.04	2.03	2.02	2.00	1.99
50	7.75	4.29	3.40	3.00	2.78	2.54	2.41	2.32	2.26	2.22	2.19	2.16	2.15	2.12	2.10	2.09	2.08	2.07	2.05	2.04
60	8.25	4.47	3.51	3.09	2.86	2.60	2.47	2.37	2.31	2.26	2.23	2.21	2.19	2.16	2.14	2.13	2.12	2.11	2.09	2.08
75	8.91	4.70	3.66	3.20	2.95	2.68	2.54	2.43	2.37	2.32	2.29	2.26	2.24	2.22	2.20	2.18	2.17	2.16	2.14	2.13
100	9.81	5.01	3.85	3.35	3.07	2.78	2.63	2.51	2.44	2.40	2.36	2.33	2.31	2.28	2.26	2.24	2.23	2.22	2.21	2.19
125	10.59	5.26	4.00	3.47	3.17	2.86	2.70	2.58	2.50	2.45	2.42	2.39	2.37	2.33	2.31	2.29	2.28	2.27	2.25	2.24
150	11.25	5.47	4.13	3.56	3.25	2.92	2.75	2.63	2.55	2.50	2.46	2.43	2.41	2.38	2.35	2.33	2.32	2.31	2.29	2.28
175	11.86	5.66	4.24	3.65	3.32	2.98	2.80	2.67	2.59	2.54	2.50	2.47	2.45	2.41	2.39	2.37	2.35	2.34	2.32	2.31
200	12.40	5.82	4.34	3.72	3.38	3.03	2.84	2.71	2.63	2.57	2.53	2.50	2.48	2.44	2.41	2.40	2.38	2.37	2.35	2.34

Table 19-10. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Observations (2 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.27	1.78	1.61	1.51	1.45	1.39	1.35	1.32	1.30	1.28	1.27	1.26	1.26	1.25	1.24	1.24	1.23	1.23	1.23	1.22
2	3.00	2.22	1.96	1.82	1.74	1.64	1.59	1.55	1.52	1.50	1.49	1.48	1.47	1.46	1.45	1.44	1.44	1.43	1.43	1.42
3	3.51	2.50	2.17	2.00	1.90	1.79	1.73	1.68	1.65	1.63	1.61	1.60	1.59	1.57	1.56	1.56	1.55	1.55	1.54	1.53
4	3.90	2.70	2.32	2.13	2.02	1.89	1.82	1.77	1.73	1.71	1.69	1.68	1.67	1.65	1.64	1.63	1.63	1.62	1.61	1.61
5	4.23	2.87	2.44	2.23	2.11	1.97	1.89	1.84	1.80	1.77	1.76	1.74	1.73	1.71	1.70	1.69	1.69	1.68	1.67	1.66
8	5.01	3.23	2.70	2.45	2.30	2.14	2.05	1.98	1.94	1.91	1.89	1.87	1.86	1.84	1.82	1.81	1.80	1.80	1.79	1.78
12	5.78	3.57	2.93	2.64	2.47	2.28	2.18	2.10	2.05	2.02	1.99	1.98	1.96	1.94	1.92	1.91	1.90	1.90	1.89	1.88
16	6.38	3.82	3.10	2.77	2.59	2.38	2.27	2.19	2.13	2.10	2.07	2.05	2.03	2.01	1.99	1.98	1.97	1.97	1.95	1.94
20	6.89	4.02	3.24	2.88	2.68	2.46	2.34	2.25	2.19	2.16	2.13	2.11	2.09	2.07	2.05	2.04	2.03	2.02	2.00	1.99
30	7.92	4.41	3.49	3.08	2.85	2.60	2.47	2.37	2.31	2.26	2.23	2.21	2.19	2.16	2.14	2.13	2.12	2.11	2.09	2.08
40	8.74	4.71	3.68	3.23	2.97	2.70	2.56	2.45	2.38	2.34	2.30	2.28	2.26	2.23	2.21	2.19	2.18	2.17	2.16	2.15
50	9.43	4.95	3.83	3.34	3.07	2.78	2.63	2.51	2.44	2.40	2.36	2.33	2.31	2.28	2.26	2.24	2.23	2.22	2.21	2.19
60	10.03	5.15	3.95	3.44	3.15	2.84	2.68	2.57	2.49	2.44	2.41	2.38	2.36	2.32	2.30	2.29	2.27	2.26	2.24	2.23
75	10.82	5.41	4.11	3.55	3.25	2.92	2.75	2.63	2.55	2.50	2.46	2.43	2.41	2.37	2.35	2.33	2.32	2.31	2.29	2.28
100	11.92	5.76	4.32	3.71	3.38	3.02	2.84	2.71	2.63	2.57	2.53	2.50	2.48	2.44	2.41	2.40	2.38	2.37	2.35	2.34
125	12.85	6.04	4.48	3.83	3.48	3.10	2.91	2.77	2.69	2.63	2.58	2.55	2.53	2.49	2.46	2.44	2.43	2.42	2.40	2.38
150	13.67	6.28	4.62	3.93	3.56	3.17	2.97	2.82	2.73	2.67	2.63	2.60	2.57	2.53	2.50	2.48	2.47	2.45	2.43	2.42
175	14.39	6.49	4.74	4.02	3.63	3.23	3.02	2.87	2.77	2.71	2.67	2.63	2.60	2.56	2.54	2.51	2.50	2.49	2.46	2.45
200	15.04	6.68	4.85	4.10	3.69	3.27	3.06	2.91	2.81	2.74	2.70	2.66	2.63	2.59	2.56	2.54	2.53	2.51	2.49	2.48

Table 19-10. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Observations (5 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.02	1.58	1.41	1.33	1.28	1.22	1.19	1.16	1.14	1.13	1.12	1.11	1.11	1.10	1.09	1.09	1.09	1.08	1.08	1.08
2	2.70	1.99	1.76	1.64	1.56	1.48	1.43	1.40	1.38	1.36	1.35	1.34	1.33	1.32	1.31	1.31	1.30	1.30	1.29	1.29
3	3.16	2.25	1.96	1.81	1.73	1.63	1.57	1.53	1.50	1.49	1.47	1.46	1.45	1.44	1.43	1.43	1.42	1.42	1.41	1.40
4	3.52	2.45	2.11	1.94	1.84	1.73	1.67	1.62	1.59	1.57	1.56	1.55	1.54	1.52	1.51	1.51	1.50	1.50	1.49	1.48
5	3.83	2.60	2.22	2.04	1.93	1.81	1.74	1.69	1.66	1.64	1.62	1.61	1.60	1.59	1.58	1.57	1.56	1.56	1.55	1.54
8	4.54	2.94	2.47	2.25	2.12	1.98	1.90	1.84	1.80	1.78	1.76	1.74	1.73	1.71	1.70	1.69	1.69	1.68	1.67	1.66
12	5.24	3.26	2.69	2.43	2.29	2.12	2.03	1.96	1.92	1.89	1.87	1.85	1.84	1.82	1.81	1.80	1.79	1.78	1.77	1.76
16	5.80	3.49	2.86	2.57	2.40	2.22	2.12	2.05	2.00	1.97	1.95	1.93	1.91	1.89	1.88	1.87	1.86	1.85	1.84	1.83
20	6.26	3.68	2.99	2.67	2.49	2.30	2.19	2.11	2.07	2.03	2.01	1.99	1.97	1.95	1.93	1.92	1.91	1.91	1.89	1.89
30	7.20	4.05	3.23	2.87	2.66	2.44	2.32	2.23	2.18	2.14	2.11	2.09	2.08	2.05	2.03	2.02	2.01	2.00	1.99	1.98
40	7.95	4.32	3.41	3.01	2.78	2.54	2.41	2.32	2.26	2.22	2.19	2.16	2.15	2.12	2.10	2.09	2.08	2.07	2.05	2.04
50	8.57	4.55	3.55	3.12	2.87	2.62	2.48	2.38	2.32	2.28	2.24	2.22	2.20	2.17	2.15	2.14	2.13	2.12	2.10	2.09
60	9.12	4.74	3.67	3.21	2.95	2.68	2.54	2.43	2.37	2.32	2.29	2.26	2.24	2.22	2.20	2.18	2.17	2.16	2.14	2.13
75	9.84	4.97	3.82	3.32	3.05	2.76	2.61	2.50	2.43	2.38	2.35	2.32	2.30	2.27	2.25	2.23	2.22	2.21	2.19	2.18
100	10.84	5.30	4.02	3.47	3.17	2.86	2.70	2.58	2.50	2.45	2.42	2.39	2.37	2.33	2.31	2.29	2.28	2.27	2.25	2.24
125	11.67	5.57	4.17	3.59	3.27	2.94	2.77	2.64	2.56	2.51	2.47	2.44	2.42	2.38	2.36	2.34	2.33	2.32	2.30	2.29
150	12.45	5.79	4.30	3.69	3.36	3.00	2.83	2.69	2.61	2.56	2.51	2.48	2.46	2.43	2.40	2.38	2.37	2.36	2.34	2.33
175	13.09	5.98	4.42	3.77	3.42	3.06	2.87	2.73	2.65	2.59	2.55	2.52	2.50	2.46	2.44	2.42	2.40	2.39	2.37	2.36
200	13.67	6.15	4.52	3.85	3.49	3.11	2.91	2.77	2.69	2.63	2.58	2.55	2.53	2.49	2.46	2.44	2.43	2.42	2.40	2.38

Table 19-10. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Observations (5 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.62	1.97	1.74	1.63	1.56	1.48	1.43	1.40	1.37	1.36	1.35	1.34	1.33	1.32	1.31	1.31	1.30	1.30	1.29	1.29
2	3.43	2.42	2.09	1.93	1.84	1.73	1.67	1.62	1.59	1.57	1.56	1.55	1.54	1.52	1.51	1.51	1.50	1.50	1.49	1.48
3	3.98	2.70	2.31	2.11	2.00	1.87	1.80	1.75	1.72	1.69	1.68	1.66	1.65	1.64	1.63	1.62	1.61	1.61	1.60	1.59
4	4.42	2.91	2.46	2.24	2.12	1.98	1.90	1.84	1.80	1.78	1.76	1.74	1.73	1.71	1.70	1.69	1.69	1.68	1.67	1.66
5	4.79	3.08	2.58	2.35	2.21	2.05	1.97	1.91	1.87	1.84	1.82	1.80	1.79	1.77	1.76	1.75	1.74	1.74	1.73	1.72
8	5.65	3.46	2.85	2.56	2.40	2.22	2.12	2.05	2.00	1.97	1.95	1.93	1.91	1.89	1.88	1.87	1.86	1.85	1.84	1.83
12	6.50	3.81	3.08	2.75	2.57	2.36	2.25	2.17	2.12	2.08	2.05	2.03	2.02	2.00	1.98	1.97	1.96	1.95	1.93	1.93
16	7.18	4.08	3.26	2.89	2.68	2.46	2.34	2.25	2.20	2.16	2.13	2.11	2.09	2.07	2.05	2.04	2.03	2.02	2.00	1.99
20	7.75	4.29	3.40	3.00	2.78	2.54	2.41	2.32	2.26	2.22	2.19	2.16	2.15	2.12	2.10	2.09	2.08	2.07	2.05	2.04
30	8.90	4.70	3.66	3.20	2.95	2.68	2.54	2.43	2.37	2.32	2.29	2.26	2.24	2.22	2.20	2.18	2.17	2.16	2.14	2.13
40	9.81	5.01	3.85	3.35	3.07	2.78	2.63	2.51	2.44	2.40	2.36	2.33	2.31	2.28	2.26	2.25	2.23	2.22	2.21	2.19
50	10.58	5.26	4.00	3.47	3.17	2.86	2.70	2.58	2.50	2.45	2.42	2.39	2.37	2.33	2.31	2.29	2.28	2.27	2.25	2.24
60	11.25	5.47	4.13	3.56	3.25	2.92	2.75	2.63	2.55	2.50	2.46	2.43	2.41	2.38	2.35	2.33	2.32	2.31	2.29	2.28
75	12.13	5.74	4.29	3.68	3.35	3.00	2.82	2.69	2.61	2.56	2.51	2.48	2.46	2.43	2.40	2.38	2.37	2.36	2.34	2.33
100	13.38	6.12	4.50	3.84	3.48	3.11	2.91	2.77	2.69	2.63	2.58	2.55	2.53	2.49	2.46	2.44	2.43	2.42	2.40	2.38
125	14.40	6.41	4.68	3.97	3.58	3.19	2.98	2.84	2.75	2.68	2.64	2.60	2.58	2.54	2.51	2.49	2.47	2.46	2.44	2.43
150	15.33	6.67	4.82	4.06	3.67	3.25	3.04	2.89	2.79	2.73	2.68	2.65	2.62	2.58	2.55	2.53	2.51	2.50	2.48	2.46
175	16.11	6.88	4.94	4.16	3.74	3.31	3.09	2.93	2.83	2.76	2.72	2.68	2.66	2.61	2.58	2.56	2.55	2.53	2.50	2.48
200	16.89	7.08	5.05	4.24	3.80	3.36	3.13	2.97	2.87	2.80	2.75	2.71	2.69	2.64	2.61	2.59	2.56	2.54	2.50	2.48

Table 19-10. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Observations (5 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.27	2.37	2.07	1.92	1.83	1.72	1.66	1.62	1.59	1.57	1.56	1.54	1.54	1.52	1.51	1.51	1.50	1.50	1.49	1.48
2	4.23	2.87	2.44	2.23	2.11	1.97	1.89	1.84	1.80	1.77	1.76	1.74	1.73	1.71	1.70	1.69	1.69	1.68	1.67	1.66
3	4.89	3.18	2.66	2.42	2.27	2.11	2.03	1.96	1.92	1.89	1.87	1.85	1.84	1.82	1.81	1.80	1.79	1.78	1.77	1.76
4	5.42	3.41	2.83	2.55	2.39	2.21	2.12	2.05	2.00	1.97	1.95	1.93	1.91	1.89	1.88	1.87	1.86	1.85	1.84	1.83
5	5.86	3.60	2.96	2.66	2.48	2.29	2.19	2.11	2.06	2.03	2.01	1.99	1.97	1.95	1.93	1.92	1.91	1.91	1.89	1.89
8	6.89	4.02	3.24	2.88	2.68	2.46	2.34	2.25	2.19	2.16	2.13	2.11	2.09	2.07	2.05	2.04	2.03	2.02	2.00	1.99
12	7.93	4.41	3.49	3.08	2.85	2.60	2.47	2.37	2.31	2.26	2.23	2.21	2.19	2.16	2.14	2.13	2.12	2.11	2.09	2.08
16	8.74	4.71	3.68	3.23	2.97	2.70	2.56	2.45	2.38	2.34	2.30	2.28	2.26	2.23	2.21	2.19	2.18	2.17	2.16	2.15
20	9.43	4.95	3.83	3.34	3.07	2.78	2.63	2.51	2.44	2.40	2.36	2.33	2.31	2.28	2.26	2.24	2.23	2.22	2.21	2.19
30	10.82	5.41	4.11	3.55	3.25	2.92	2.75	2.63	2.55	2.50	2.46	2.43	2.41	2.38	2.35	2.33	2.32	2.31	2.29	2.28
40	11.93	5.76	4.32	3.71	3.38	3.02	2.84	2.71	2.63	2.57	2.53	2.50	2.48	2.44	2.41	2.40	2.38	2.37	2.35	2.34
50	12.85	6.04	4.48	3.83	3.48	3.10	2.91	2.77	2.69	2.63	2.58	2.55	2.53	2.49	2.46	2.44	2.43	2.42	2.40	2.38
60	13.67	6.28	4.62	3.93	3.56	3.17	2.97	2.82	2.73	2.67	2.63	2.59	2.57	2.53	2.50	2.48	2.47	2.46	2.43	2.42
75	14.75	6.59	4.80	4.06	3.66	3.25	3.04	2.89	2.79	2.73	2.68	2.65	2.62	2.58	2.55	2.53	2.51	2.50	2.48	2.46
100	16.21	6.99	5.03	4.22	3.80	3.36	3.13	2.97	2.87	2.80	2.75	2.71	2.68	2.64	2.61	2.59	2.57	2.55	2.51	2.48
125	17.48	7.34	5.21	4.36	3.91	3.44	3.20	3.03	2.92	2.85	2.80	2.76	2.73	2.69	2.65	2.62	2.62	2.60	2.58	2.56
150	18.55	7.62	5.37	4.47	3.99	3.50	3.26	3.08	2.97	2.90	2.84	2.81	2.77	2.73	2.69	2.67	2.66	2.64	2.62	2.60
175	19.53	7.86	5.51	4.57	4.06	3.56	3.31	3.12	3.02	2.94	2.88	2.84	2.81	2.76	2.73	2.70	2.69	2.67	2.64	2.63
200	20.51	8.11	5.62	4.65	4.14	3.61	3.35	3.16	3.05	2.97	2.92	2.87	2.84	2.79	2.76	2.73	2.71	2.69	2.67	2.65

Table 19-10. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Observations (10 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.70	1.99	1.76	1.64	1.56	1.48	1.43	1.40	1.38	1.36	1.35	1.34	1.33	1.32	1.31	1.31	1.30	1.30	1.29	1.29
2	3.52	2.45	2.11	1.94	1.84	1.73	1.67	1.62	1.59	1.57	1.56	1.55	1.54	1.52	1.51	1.51	1.50	1.50	1.49	1.48
3	4.09	2.73	2.32	2.12	2.01	1.88	1.80	1.75	1.72	1.69	1.68	1.66	1.65	1.64	1.63	1.62	1.61	1.61	1.60	1.59
4	4.54	2.94	2.47	2.25	2.12	1.98	1.90	1.84	1.80	1.78	1.76	1.74	1.73	1.71	1.70	1.69	1.69	1.68	1.67	1.66
5	4.91	3.11	2.59	2.35	2.21	2.06	1.97	1.91	1.87	1.84	1.82	1.80	1.79	1.77	1.76	1.75	1.74	1.74	1.73	1.72
8	5.79	3.49	2.86	2.57	2.40	2.22	2.12	2.05	2.00	1.97	1.95	1.93	1.92	1.89	1.88	1.87	1.86	1.85	1.84	1.83
12	6.67	3.84	3.10	2.76	2.57	2.36	2.25	2.17	2.12	2.08	2.05	2.03	2.02	2.00	1.98	1.97	1.96	1.95	1.93	1.92
16	7.36	4.11	3.27	2.90	2.69	2.46	2.34	2.25	2.20	2.16	2.13	2.11	2.09	2.07	2.05	2.04	2.03	2.02	2.00	1.99
20	7.95	4.32	3.41	3.01	2.78	2.54	2.41	2.32	2.26	2.22	2.19	2.16	2.15	2.12	2.10	2.09	2.08	2.07	2.05	2.04
30	9.13	4.73	3.67	3.21	2.95	2.68	2.54	2.43	2.37	2.32	2.29	2.26	2.24	2.22	2.20	2.18	2.17	2.16	2.14	2.13
40	10.05	5.05	3.86	3.35	3.08	2.78	2.63	2.51	2.44	2.40	2.36	2.33	2.31	2.28	2.26	2.24	2.23	2.22	2.21	2.19
50	10.84	5.30	4.01	3.47	3.18	2.86	2.70	2.58	2.50	2.45	2.42	2.39	2.37	2.33	2.31	2.29	2.28	2.27	2.25	2.24
60	11.54	5.51	4.15	3.57	3.26	2.93	2.75	2.63	2.55	2.50	2.46	2.43	2.41	2.37	2.35	2.33	2.32	2.31	2.29	2.28
75	12.42	5.79	4.31	3.68	3.35	3.00	2.82	2.69	2.61	2.56	2.52	2.48	2.46	2.42	2.40	2.38	2.37	2.36	2.34	2.33
100	13.71	6.15	4.51	3.85	3.49	3.11	2.92	2.77	2.69	2.63	2.59	2.55	2.53	2.49	2.46	2.44	2.43	2.42	2.40	2.38
125	14.77	6.45	4.69	3.97	3.59	3.19	2.98	2.83	2.75	2.68	2.64	2.60	2.58	2.54	2.51	2.49	2.48	2.46	2.44	2.43
150	15.70	6.71	4.83	4.07	3.67	3.25	3.04	2.89	2.79	2.73	2.68	2.64	2.62	2.58	2.55	2.53	2.51	2.50	2.48	2.46
175	16.52	6.91	4.95	4.16	3.74	3.31	3.09	2.93	2.83	2.77	2.72	2.68	2.65	2.61	2.59	2.56	2.54	2.52	2.51	2.49
200	17.34	7.12	5.07	4.25	3.81	3.35	3.13	2.97	2.87	2.80	2.75	2.71	2.68	2.64	2.61	2.59	2.57	2.54	2.53	2.52

Table 19-10. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Observations (10 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.43	2.42	2.09	1.93	1.84	1.73	1.67	1.62	1.59	1.57	1.56	1.55	1.54	1.52	1.51	1.51	1.50	1.50	1.49	1.48
2	4.42	2.91	2.46	2.24	2.12	1.98	1.90	1.84	1.80	1.78	1.76	1.74	1.73	1.71	1.70	1.69	1.69	1.68	1.67	1.66
3	5.11	3.23	2.68	2.43	2.28	2.12	2.03	1.96	1.92	1.89	1.87	1.85	1.84	1.82	1.81	1.80	1.79	1.78	1.77	1.76
4	5.65	3.46	2.85	2.56	2.40	2.22	2.12	2.05	2.00	1.97	1.95	1.93	1.91	1.89	1.88	1.87	1.86	1.85	1.84	1.83
5	6.11	3.65	2.98	2.67	2.49	2.30	2.19	2.11	2.06	2.03	2.01	1.99	1.97	1.95	1.93	1.92	1.91	1.91	1.89	1.89
8	7.18	4.08	3.26	2.89	2.68	2.46	2.34	2.25	2.20	2.16	2.13	2.11	2.09	2.07	2.05	2.04	2.03	2.02	2.00	1.99
12	8.25	4.47	3.51	3.09	2.86	2.60	2.47	2.37	2.31	2.26	2.23	2.21	2.19	2.16	2.14	2.13	2.12	2.11	2.09	2.08
16	9.10	4.77	3.70	3.24	2.98	2.70	2.56	2.45	2.38	2.34	2.31	2.28	2.26	2.23	2.21	2.19	2.18	2.17	2.16	2.15
20	9.81	5.01	3.85	3.35	3.07	2.78	2.63	2.51	2.44	2.40	2.36	2.33	2.31	2.28	2.26	2.24	2.23	2.22	2.21	2.19
30	11.25	5.47	4.13	3.56	3.25	2.92	2.75	2.63	2.55	2.50	2.46	2.43	2.41	2.37	2.35	2.33	2.32	2.31	2.29	2.28
40	12.39	5.82	4.34	3.72	3.38	3.03	2.84	2.71	2.63	2.57	2.53	2.50	2.48	2.44	2.42	2.40	2.38	2.37	2.35	2.34
50	13.36	6.11	4.50	3.84	3.48	3.11	2.91	2.77	2.69	2.63	2.59	2.55	2.53	2.49	2.46	2.44	2.43	2.42	2.40	2.38
60	14.24	6.36	4.64	3.94	3.56	3.17	2.97	2.82	2.74	2.67	2.63	2.59	2.57	2.53	2.50	2.48	2.47	2.46	2.43	2.42
75	15.35	6.67	4.82	4.06	3.67	3.25	3.04	2.89	2.79	2.73	2.68	2.65	2.62	2.58	2.55	2.53	2.51	2.50	2.48	2.46
100	16.88	7.08	5.05	4.23	3.80	3.36	3.13	2.97	2.87	2.80	2.75	2.71	2.68	2.64	2.61	2.59	2.56	2.54	2.50	2.52
125	18.16	7.41	5.24	4.37	3.91	3.44	3.20	3.03	2.93	2.85	2.80	2.76	2.73	2.68	2.65	2.62	2.60	2.60	2.58	2.56
150	19.34	7.71	5.39	4.48	4.00	3.51	3.26	3.08	2.97	2.90	2.85	2.81	2.78	2.72	2.69	2.67	2.66	2.64	2.61	2.60
175	20.39	7.97	5.54	4.57	4.07	3.57	3.31	3.13	3.02	2.94	2.89	2.84	2.81	2.76	2.72	2.70	2.68	2.67	2.64	2.63
200	21.33	8.20	5.65	4.66	4.13	3.62	3.35	3.16	3.05	2.97	2.92	2.87	2.84	2.79	2.75	2.73	2.71	2.70	2.67	2.65

Table 19-10. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Observations (10 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.23	2.87	2.44	2.23	2.11	1.97	1.89	1.84	1.80	1.77	1.76	1.74	1.73	1.71	1.70	1.69	1.69	1.68	1.67	1.66
2	5.42	3.41	2.83	2.55	2.39	2.21	2.12	2.05	2.00	1.97	1.95	1.93	1.91	1.89	1.88	1.87	1.86	1.85	1.84	1.83
3	6.24	3.76	3.06	2.74	2.56	2.36	2.25	2.17	2.11	2.08	2.05	2.03	2.02	2.00	1.98	1.97	1.96	1.95	1.94	1.93
4	6.89	4.02	3.24	2.88	2.68	2.46	2.34	2.25	2.19	2.16	2.13	2.11	2.09	2.07	2.05	2.04	2.03	2.02	2.00	1.99
5	7.45	4.23	3.38	2.99	2.77	2.53	2.41	2.32	2.26	2.22	2.19	2.16	2.15	2.12	2.10	2.09	2.08	2.07	2.05	2.04
8	8.74	4.71	3.68	3.23	2.97	2.70	2.56	2.45	2.38	2.34	2.31	2.28	2.26	2.23	2.21	2.19	2.18	2.17	2.16	2.15
12	10.03	5.15	3.95	3.44	3.15	2.84	2.68	2.57	2.49	2.44	2.41	2.38	2.36	2.32	2.30	2.29	2.27	2.26	2.24	2.23
16	11.06	5.49	4.16	3.59	3.28	2.95	2.77	2.65	2.57	2.52	2.48	2.45	2.42	2.39	2.37	2.35	2.33	2.32	2.30	2.29
20	11.92	5.76	4.32	3.71	3.37	3.02	2.84	2.71	2.63	2.57	2.53	2.50	2.48	2.44	2.42	2.40	2.38	2.37	2.35	2.34
30	13.67	6.28	4.62	3.93	3.56	3.17	2.97	2.82	2.73	2.67	2.63	2.59	2.57	2.53	2.50	2.48	2.47	2.46	2.43	2.42
40	15.06	6.68	4.85	4.10	3.69	3.27	3.06	2.90	2.81	2.74	2.70	2.66	2.63	2.59	2.56	2.54	2.53	2.51	2.49	2.48
50	16.23	7.00	5.03	4.23	3.80	3.35	3.13	2.97	2.87	2.80	2.75	2.71	2.68	2.64	2.61	2.59	2.57	2.55	2.51	2.48
60	17.23	7.27	5.18	4.34	3.89	3.42	3.19	3.02	2.92	2.84	2.79	2.75	2.72	2.68	2.64	2.61	2.61	2.57	2.57	2.55
75	18.57	7.62	5.37	4.47	3.99	3.50	3.26	3.08	2.97	2.90	2.85	2.81	2.77	2.72	2.70	2.67	2.65	2.64	2.61	2.60
100	20.51	8.09	5.62	4.64	4.13	3.61	3.35	3.16	3.05	2.97	2.92	2.87	2.84	2.79	2.75	2.73	2.71	2.70	2.67	2.65
125	22.03	8.47	5.83	4.79	4.25	3.70	3.42	3.23	3.11	3.03	2.97	2.93	2.89	2.83	2.80	2.78	2.75	2.74	2.71	2.69
150	23.44	8.79	5.99	4.91	4.34	3.76	3.48	3.28	3.16	3.07	3.01	2.96	2.93	2.87	2.84	2.81	2.79	2.78	2.75	2.72
175	24.61	9.08	6.15	5.01	4.41	3.82	3.53	3.33	3.19	3.11	3.05	3.00	2.96	2.91	2.87	2.84	2.82	2.81	2.77	2.75
200	25.78	9.32	6.27	5.10	4.48	3.88	3.57	3.36	3.23	3.14	3.08	3.02	2.99	2.93	2.89	2.87	2.84	2.82	2.78	2.75

Table 19-10. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Observations (20 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.52	2.45	2.11	1.94	1.84	1.73	1.67	1.62	1.59	1.57	1.56	1.55	1.54	1.52	1.51	1.51	1.50	1.50	1.49	1.48
2	4.54	2.94	2.47	2.25	2.12	1.98	1.90	1.84	1.80	1.78	1.76	1.74	1.73	1.71	1.70	1.69	1.69	1.68	1.67	1.66
3	5.24	3.26	2.70	2.43	2.28	2.12	2.03	1.96	1.92	1.89	1.87	1.85	1.84	1.82	1.81	1.80	1.79	1.78	1.77	1.76
4	5.79	3.49	2.86	2.57	2.40	2.22	2.12	2.05	2.00	1.97	1.95	1.93	1.92	1.89	1.88	1.87	1.86	1.85	1.84	1.83
5	6.26	3.68	2.99	2.67	2.49	2.30	2.19	2.11	2.07	2.03	2.01	1.99	1.97	1.95	1.93	1.92	1.91	1.91	1.89	1.89
8	7.36	4.11	3.27	2.90	2.69	2.46	2.34	2.25	2.20	2.16	2.13	2.11	2.09	2.07	2.05	2.04	2.03	2.02	2.00	1.99
12	8.45	4.50	3.52	3.10	2.86	2.60	2.47	2.37	2.31	2.26	2.23	2.21	2.19	2.16	2.14	2.13	2.12	2.11	2.09	2.08
16	9.32	4.80	3.71	3.24	2.98	2.70	2.56	2.45	2.38	2.34	2.31	2.28	2.26	2.23	2.21	2.20	2.18	2.17	2.16	2.15
20	10.05	5.04	3.86	3.36	3.08	2.78	2.63	2.51	2.44	2.40	2.36	2.33	2.31	2.28	2.26	2.25	2.23	2.22	2.21	2.19
30	11.53	5.51	4.14	3.57	3.25	2.92	2.75	2.63	2.55	2.50	2.46	2.43	2.41	2.38	2.35	2.33	2.32	2.31	2.29	2.28
40	12.71	5.86	4.35	3.72	3.38	3.03	2.84	2.71	2.63	2.57	2.53	2.50	2.48	2.44	2.42	2.40	2.38	2.37	2.35	2.34
50	13.69	6.15	4.52	3.85	3.48	3.11	2.91	2.77	2.69	2.63	2.58	2.55	2.53	2.49	2.46	2.44	2.43	2.42	2.40	2.38
60	14.57	6.39	4.66	3.95	3.57	3.17	2.97	2.82	2.73	2.67	2.63	2.60	2.57	2.53	2.50	2.48	2.47	2.45	2.43	2.42
75	15.70	6.70	4.83	4.07	3.67	3.25	3.04	2.89	2.79	2.73	2.68	2.65	2.62	2.58	2.55	2.53	2.51	2.50	2.48	2.46
100	17.27	7.12	5.06	4.24	3.80	3.36	3.13	2.97	2.87	2.80	2.75	2.71	2.68	2.64	2.60	2.58	2.55	2.54	2.50	2.48
125	18.59	7.46	5.24	4.37	3.91	3.44	3.20	3.03	2.93	2.86	2.80	2.76	2.73	2.69	2.65	2.62	2.60	2.58	2.58	2.56
150	19.77	7.75	5.40	4.48	4.00	3.51	3.26	3.08	2.97	2.90	2.85	2.81	2.77	2.72	2.69	2.66	2.64	2.64	2.61	2.60
175	20.86	8.01	5.54	4.58	4.07	3.56	3.31	3.13	3.02	2.94	2.88	2.84	2.81	2.76	2.72	2.70	2.68	2.67	2.64	2.63
200	21.80	8.24	5.65	4.66	4.14	3.61	3.35	3.16	3.05	2.97	2.92	2.87	2.84	2.79	2.76	2.73	2.71	2.70	2.67	2.65

Table 19-10. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Observations (20 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.42	2.91	2.46	2.24	2.12	1.97	1.90	1.84	1.80	1.78	1.76	1.74	1.73	1.71	1.70	1.69	1.69	1.68	1.67	1.66
2	5.65	3.46	2.85	2.56	2.40	2.22	2.12	2.05	2.00	1.97	1.95	1.93	1.91	1.89	1.88	1.87	1.86	1.85	1.84	1.83
3	6.50	3.81	3.08	2.75	2.57	2.36	2.25	2.17	2.12	2.08	2.05	2.03	2.02	2.00	1.98	1.97	1.96	1.95	1.93	1.92
4	7.18	4.08	3.26	2.89	2.68	2.46	2.34	2.25	2.20	2.16	2.13	2.11	2.09	2.07	2.05	2.04	2.03	2.02	2.00	1.99
5	7.75	4.29	3.40	3.00	2.78	2.54	2.41	2.32	2.26	2.22	2.19	2.16	2.15	2.12	2.10	2.09	2.08	2.07	2.05	2.04
8	9.10	4.77	3.70	3.24	2.98	2.70	2.56	2.45	2.38	2.34	2.31	2.28	2.26	2.23	2.21	2.20	2.18	2.17	2.16	2.15
12	10.44	5.21	3.97	3.44	3.15	2.84	2.68	2.57	2.49	2.44	2.41	2.38	2.36	2.32	2.30	2.29	2.27	2.26	2.24	2.23
16	11.50	5.55	4.18	3.60	3.28	2.95	2.77	2.65	2.57	2.52	2.48	2.45	2.42	2.39	2.37	2.35	2.33	2.32	2.30	2.29
20	12.40	5.83	4.34	3.72	3.38	3.03	2.84	2.71	2.63	2.57	2.53	2.50	2.48	2.44	2.42	2.40	2.38	2.37	2.35	2.34
30	14.22	6.35	4.64	3.94	3.56	3.17	2.97	2.82	2.73	2.67	2.63	2.60	2.57	2.53	2.50	2.48	2.47	2.46	2.43	2.42
40	15.66	6.75	4.87	4.11	3.70	3.28	3.06	2.91	2.81	2.74	2.70	2.66	2.63	2.59	2.56	2.54	2.53	2.51	2.49	2.48
50	16.88	7.08	5.05	4.23	3.80	3.36	3.13	2.97	2.87	2.80	2.75	2.71	2.68	2.64	2.61	2.59	2.56	2.54	2.50	2.48
60	17.93	7.35	5.20	4.34	3.89	3.43	3.19	3.02	2.92	2.84	2.79	2.75	2.72	2.68	2.64	2.61	2.59	2.57	2.54	2.55
75	19.34	7.71	5.39	4.48	4.00	3.51	3.26	3.08	2.97	2.90	2.85	2.81	2.77	2.72	2.69	2.67	2.65	2.64	2.61	2.60
100	21.25	8.18	5.64	4.65	4.14	3.61	3.35	3.16	3.05	2.97	2.92	2.87	2.84	2.79	2.75	2.73	2.71	2.70	2.67	2.65
125	22.97	8.55	5.85	4.79	4.25	3.70	3.42	3.23	3.11	3.03	2.97	2.92	2.89	2.83	2.80	2.77	2.75	2.74	2.71	2.69
150	24.38	8.91	6.02	4.91	4.34	3.77	3.48	3.28	3.15	3.07	3.01	2.97	2.93	2.87	2.84	2.81	2.79	2.77	2.74	2.73
175	25.62	9.18	6.17	5.01	4.42	3.83	3.53	3.33	3.20	3.11	3.05	3.01	2.96	2.91	2.87	2.84	2.81	2.80	2.77	2.76
200	26.88	9.45	6.29	5.10	4.49	3.88	3.57	3.36	3.23	3.14	3.08	3.04	2.99	2.93	2.89	2.86	2.84	2.83	2.80	2.78

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Table 19-10. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Observations (20 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	5.42	3.41	2.83	2.55	2.39	2.21	2.12	2.05	2.00	1.97	1.95	1.93	1.91	1.89	1.88	1.87	1.86	1.85	1.84	1.83
2	6.89	4.02	3.24	2.88	2.68	2.46	2.34	2.25	2.19	2.16	2.13	2.11	2.09	2.07	2.05	2.04	2.03	2.02	2.00	1.99
3	7.92	4.41	3.49	3.08	2.85	2.60	2.47	2.37	2.31	2.26	2.23	2.21	2.19	2.16	2.14	2.13	2.12	2.11	2.09	2.08
4	8.74	4.71	3.68	3.23	2.97	2.70	2.56	2.45	2.38	2.34	2.30	2.28	2.26	2.23	2.21	2.19	2.18	2.17	2.16	2.15
5	9.43	4.95	3.83	3.34	3.07	2.78	2.63	2.51	2.44	2.40	2.36	2.33	2.31	2.28	2.26	2.24	2.23	2.22	2.21	2.19
8	11.06	5.49	4.16	3.59	3.28	2.94	2.77	2.65	2.57	2.52	2.48	2.45	2.42	2.39	2.37	2.35	2.33	2.32	2.30	2.29
12	12.68	5.99	4.45	3.81	3.46	3.09	2.90	2.76	2.68	2.62	2.57	2.54	2.52	2.48	2.45	2.44	2.42	2.41	2.39	2.37
16	13.96	6.37	4.67	3.97	3.59	3.19	2.99	2.84	2.75	2.69	2.64	2.61	2.58	2.54	2.52	2.50	2.48	2.47	2.45	2.43
20	15.06	6.68	4.85	4.10	3.69	3.27	3.06	2.90	2.81	2.74	2.70	2.66	2.63	2.59	2.56	2.54	2.53	2.51	2.49	2.48
30	17.25	7.27	5.18	4.33	3.89	3.42	3.19	3.02	2.91	2.84	2.79	2.75	2.72	2.68	2.64	2.61	2.59	2.57	2.57	2.55
40	18.98	7.72	5.42	4.51	4.02	3.53	3.28	3.10	2.99	2.91	2.86	2.82	2.79	2.74	2.71	2.68	2.67	2.65	2.63	2.61
50	20.47	8.10	5.62	4.64	4.13	3.61	3.35	3.16	3.05	2.97	2.92	2.87	2.84	2.79	2.76	2.73	2.71	2.70	2.67	2.65
60	21.76	8.40	5.79	4.76	4.22	3.68	3.41	3.22	3.10	3.02	2.96	2.92	2.88	2.83	2.79	2.77	2.75	2.73	2.70	2.69
75	23.44	8.81	6.00	4.90	4.34	3.76	3.48	3.28	3.16	3.07	3.01	2.96	2.92	2.87	2.84	2.81	2.79	2.77	2.75	2.73
100	25.78	9.34	6.27	5.09	4.48	3.88	3.57	3.36	3.23	3.14	3.08	3.02	2.99	2.93	2.90	2.87	2.84	2.82	2.78	2.76
125	27.81	9.77	6.48	5.24	4.60	3.96	3.65	3.42	3.29	3.20	3.12	3.08	3.04	2.98	2.94	2.91	2.88	2.86	2.82	2.80
150	29.53	10.16	6.68	5.37	4.70	4.03	3.71	3.48	3.34	3.24	3.17	3.12	3.08	3.02	2.97	2.94	2.92	2.90	2.87	2.85
175	31.09	10.47	6.84	5.47	4.79	4.09	3.75	3.52	3.38	3.28	3.20	3.15	3.11	3.05	3.01	2.98	2.95	2.93	2.90	2.88
200	32.50	10.78	6.97	5.57	4.85	4.15	3.80	3.55	3.41	3.32	3.25	3.18	3.14	3.08	3.04	3.00	2.98	2.96	2.92	2.90

Table 19-10. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Observations (40 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.54	2.94	2.47	2.25	2.12	1.98	1.90	1.84	1.80	1.78	1.76	1.74	1.73	1.71	1.70	1.69	1.69	1.68	1.67	1.66
2	5.79	3.49	2.86	2.57	2.40	2.22	2.12	2.05	2.00	1.97	1.95	1.93	1.92	1.89	1.88	1.87	1.86	1.85	1.84	1.83
3	6.67	3.84	3.10	2.76	2.57	2.36	2.25	2.17	2.12	2.08	2.05	2.03	2.02	2.00	1.98	1.97	1.96	1.95	1.93	1.92
4	7.36	4.11	3.27	2.90	2.69	2.46	2.34	2.25	2.20	2.16	2.13	2.11	2.09	2.07	2.05	2.04	2.03	2.02	2.00	1.99
5	7.95	4.32	3.41	3.01	2.78	2.54	2.41	2.32	2.26	2.22	2.19	2.16	2.15	2.12	2.10	2.09	2.08	2.07	2.05	2.04
8	9.32	4.80	3.71	3.24	2.98	2.70	2.56	2.45	2.38	2.34	2.31	2.28	2.26	2.23	2.21	2.20	2.18	2.17	2.16	2.15
12	10.70	5.25	3.99	3.45	3.16	2.85	2.68	2.57	2.49	2.44	2.41	2.38	2.36	2.32	2.30	2.29	2.27	2.26	2.24	2.23
16	11.79	5.59	4.19	3.60	3.28	2.95	2.77	2.65	2.57	2.52	2.48	2.45	2.42	2.39	2.37	2.35	2.33	2.32	2.31	2.29
20	12.71	5.86	4.35	3.72	3.38	3.03	2.84	2.71	2.63	2.57	2.53	2.50	2.48	2.44	2.41	2.40	2.38	2.37	2.35	2.34
30	14.56	6.39	4.66	3.95	3.57	3.17	2.97	2.82	2.73	2.67	2.63	2.59	2.57	2.53	2.50	2.48	2.47	2.46	2.43	2.42
40	16.04	6.80	4.88	4.11	3.70	3.28	3.06	2.91	2.81	2.74	2.70	2.66	2.63	2.59	2.56	2.54	2.53	2.51	2.49	2.46
50	17.29	7.12	5.06	4.24	3.81	3.36	3.13	2.97	2.87	2.80	2.75	2.71	2.68	2.64	2.60	2.58	2.56	2.54	2.50	2.48
60	18.37	7.40	5.21	4.35	3.89	3.42	3.19	3.02	2.92	2.85	2.79	2.75	2.72	2.68	2.64	2.61	2.59	2.57	2.54	2.56
75	19.80	7.76	5.41	4.48	4.00	3.51	3.26	3.08	2.97	2.90	2.85	2.81	2.77	2.73	2.69	2.66	2.64	2.64	2.61	2.60
100	21.80	8.23	5.66	4.66	4.14	3.61	3.35	3.16	3.05	2.97	2.92	2.87	2.84	2.79	2.76	2.73	2.71	2.70	2.67	2.65
125	23.47	8.61	5.86	4.80	4.25	3.70	3.42	3.23	3.11	3.03	2.97	2.93	2.89	2.84	2.81	2.77	2.76	2.74	2.71	2.69
150	24.96	8.94	6.03	4.92	4.35	3.77	3.48	3.28	3.16	3.07	3.01	2.97	2.93	2.88	2.85	2.80	2.79	2.77	2.75	2.72
175	26.28	9.23	6.17	5.02	4.42	3.83	3.53	3.32	3.20	3.11	3.05	3.00	2.97	2.92	2.89	2.84	2.82	2.80	2.77	2.76
200	27.42	9.49	6.31	5.11	4.49	3.88	3.58	3.36	3.23	3.14	3.08	3.04	3.00	2.95	2.92	2.86	2.84	2.82	2.79	2.78

Table 19-10. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Observations (40 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	5.65	3.46	2.85	2.56	2.40	2.22	2.12	2.05	2.00	1.97	1.95	1.93	1.91	1.89	1.88	1.87	1.86	1.85	1.84	1.83
2	7.18	4.08	3.26	2.89	2.68	2.46	2.34	2.25	2.20	2.16	2.13	2.11	2.09	2.07	2.05	2.04	2.03	2.02	2.00	1.99
3	8.25	4.47	3.51	3.09	2.86	2.60	2.47	2.37	2.31	2.26	2.23	2.21	2.19	2.16	2.14	2.13	2.12	2.11	2.09	2.08
4	9.10	4.77	3.70	3.24	2.98	2.70	2.56	2.45	2.38	2.34	2.31	2.28	2.26	2.23	2.21	2.20	2.18	2.17	2.16	2.15
5	9.81	5.01	3.85	3.35	3.07	2.78	2.63	2.51	2.44	2.40	2.36	2.33	2.31	2.28	2.26	2.25	2.23	2.22	2.21	2.19
8	11.51	5.55	4.18	3.60	3.28	2.95	2.77	2.65	2.57	2.52	2.48	2.45	2.42	2.39	2.37	2.35	2.33	2.32	2.30	2.29
12	13.19	6.06	4.47	3.82	3.46	3.09	2.90	2.76	2.68	2.62	2.57	2.54	2.52	2.48	2.45	2.44	2.42	2.41	2.39	2.37
16	14.53	6.44	4.69	3.98	3.59	3.19	2.99	2.84	2.75	2.69	2.64	2.61	2.58	2.54	2.52	2.50	2.48	2.47	2.45	2.43
20	15.66	6.75	4.87	4.10	3.70	3.28	3.06	2.91	2.81	2.74	2.70	2.66	2.63	2.59	2.56	2.54	2.53	2.51	2.49	2.48
30	17.94	7.35	5.20	4.34	3.89	3.42	3.19	3.02	2.91	2.84	2.79	2.75	2.72	2.68	2.64	2.61	2.59	2.60	2.57	2.55
40	19.75	7.81	5.45	4.52	4.03	3.53	3.28	3.10	2.99	2.92	2.86	2.82	2.79	2.74	2.70	2.68	2.67	2.65	2.63	2.61
50	21.27	8.18	5.64	4.65	4.14	3.61	3.35	3.16	3.05	2.97	2.92	2.87	2.84	2.79	2.75	2.73	2.71	2.70	2.67	2.65
60	22.63	8.49	5.81	4.77	4.23	3.68	3.41	3.22	3.10	3.02	2.96	2.92	2.88	2.83	2.79	2.77	2.75	2.73	2.70	2.69
75	24.39	8.90	6.02	4.91	4.34	3.77	3.48	3.28	3.16	3.07	3.01	2.97	2.93	2.87	2.84	2.81	2.79	2.77	2.75	2.73
100	26.81	9.44	6.30	5.10	4.49	3.88	3.57	3.36	3.23	3.14	3.08	3.04	2.99	2.93	2.89	2.86	2.84	2.82	2.78	2.75
125	28.92	9.89	6.51	5.25	4.60	3.96	3.65	3.42	3.29	3.20	3.14	3.09	3.04	2.98	2.94	2.91	2.88	2.86	2.82	2.80
150	30.76	10.26	6.70	5.37	4.70	4.03	3.71	3.48	3.34	3.24	3.18	3.13	3.10	3.02	2.97	2.94	2.92	2.90	2.86	2.83
175	32.34	10.59	6.87	5.48	4.78	4.09	3.76	3.52	3.38	3.28	3.22	3.17	3.13	3.05	3.01	2.97	2.95	2.93	2.89	2.87
200	33.75	10.88	7.01	5.58	4.86	4.15	3.80	3.56	3.41	3.32	3.25	3.20	3.16	3.08	3.03	3.00	2.98	2.96	2.92	2.90

Table 19-10. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Observations (40 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	6.89	4.02	3.24	2.88	2.68	2.46	2.34	2.25	2.19	2.16	2.13	2.11	2.09	2.07	2.05	2.04	2.03	2.02	2.00	1.99
2	8.74	4.71	3.68	3.23	2.97	2.70	2.56	2.45	2.38	2.34	2.30	2.28	2.26	2.23	2.21	2.19	2.18	2.17	2.16	2.15
3	10.03	5.15	3.95	3.44	3.15	2.84	2.68	2.57	2.49	2.44	2.41	2.38	2.36	2.32	2.30	2.29	2.27	2.26	2.24	2.23
4	11.06	5.49	4.16	3.59	3.28	2.94	2.77	2.65	2.57	2.52	2.48	2.45	2.42	2.39	2.37	2.35	2.33	2.32	2.30	2.29
5	11.92	5.76	4.32	3.71	3.38	3.02	2.84	2.71	2.63	2.57	2.53	2.50	2.48	2.44	2.41	2.40	2.38	2.37	2.35	2.34
8	13.97	6.37	4.67	3.97	3.59	3.19	2.99	2.84	2.75	2.69	2.64	2.61	2.58	2.54	2.52	2.50	2.48	2.47	2.45	2.43
12	16.00	6.94	5.00	4.20	3.78	3.34	3.12	2.96	2.86	2.79	2.74	2.70	2.67	2.63	2.60	2.58	2.56	2.55	2.51	2.51
16	17.62	7.37	5.23	4.37	3.92	3.45	3.21	3.04	2.93	2.86	2.81	2.77	2.74	2.69	2.66	2.63	2.62	2.61	2.58	2.57
20	19.00	7.72	5.42	4.51	4.02	3.53	3.28	3.10	2.99	2.91	2.86	2.82	2.79	2.74	2.71	2.68	2.67	2.65	2.63	2.61
30	21.75	8.40	5.79	4.76	4.22	3.68	3.41	3.22	3.10	3.02	2.96	2.92	2.88	2.83	2.79	2.77	2.75	2.73	2.70	2.69
40	23.95	8.92	6.05	4.94	4.37	3.79	3.50	3.30	3.17	3.09	3.03	2.98	2.94	2.89	2.85	2.82	2.80	2.79	2.76	2.74
50	25.80	9.34	6.27	5.09	4.49	3.88	3.57	3.36	3.23	3.14	3.08	3.02	2.99	2.93	2.89	2.87	2.84	2.82	2.78	2.76
60	27.42	9.70	6.45	5.21	4.58	3.95	3.63	3.41	3.28	3.19	3.12	3.07	3.03	2.97	2.93	2.90	2.87	2.85	2.82	2.79
75	29.53	10.15	6.67	5.37	4.70	4.03	3.71	3.48	3.34	3.25	3.17	3.12	3.08	3.02	2.98	2.94	2.92	2.90	2.87	2.85
100	32.52	10.77	6.98	5.56	4.85	4.14	3.80	3.56	3.41	3.32	3.25	3.18	3.14	3.08	3.03	3.00	2.98	2.96	2.93	2.90
125	35.07	11.27	7.22	5.72	4.98	4.24	3.87	3.62	3.47	3.37	3.30	3.23	3.19	3.13	3.08	3.05	3.02	3.00	2.96	2.94
150	37.27	11.69	7.43	5.86	5.08	4.31	3.93	3.67	3.52	3.41	3.34	3.27	3.23	3.16	3.12	3.09	3.05	3.03	2.99	2.96
175	39.20	12.08	7.60	5.98	5.16	4.37	3.98	3.72	3.56	3.45	3.38	3.32	3.26	3.20	3.15	3.12	3.08	3.06	3.03	3.00
200	40.96	12.39	7.76	6.08	5.24	4.42	4.03	3.76	3.59	3.48	3.41	3.35	3.31	3.22	3.18	3.15	3.11	3.09	3.05	3.03

US EPA ARCHIVE DOCUMENT

Table 19-11. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Observations (1 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.33	0.25	0.21	0.18	0.17	0.15	0.14	0.13	0.12	0.12	0.11	0.11	0.11	0.11	0.10	0.10	0.10	0.10	0.10	0.10
2	0.71	0.57	0.50	0.46	0.44	0.41	0.39	0.38	0.37	0.37	0.36	0.36	0.35	0.35	0.35	0.34	0.34	0.34	0.34	0.34
3	0.95	0.75	0.67	0.62	0.59	0.55	0.53	0.52	0.51	0.50	0.49	0.49	0.48	0.48	0.47	0.47	0.47	0.47	0.46	0.46
4	1.13	0.88	0.78	0.73	0.69	0.65	0.63	0.61	0.60	0.59	0.58	0.58	0.57	0.57	0.56	0.56	0.56	0.55	0.55	0.55
5	1.27	0.98	0.87	0.81	0.77	0.72	0.70	0.68	0.66	0.65	0.65	0.64	0.64	0.63	0.62	0.62	0.62	0.62	0.61	0.61
8	1.60	1.20	1.05	0.98	0.93	0.87	0.84	0.82	0.80	0.79	0.78	0.77	0.77	0.76	0.75	0.75	0.75	0.74	0.74	0.74
12	1.91	1.39	1.21	1.12	1.06	1.00	0.96	0.93	0.91	0.90	0.89	0.88	0.87	0.86	0.86	0.85	0.85	0.85	0.84	0.84
16	2.15	1.54	1.33	1.22	1.16	1.08	1.04	1.01	0.99	0.97	0.96	0.95	0.95	0.94	0.93	0.92	0.92	0.92	0.91	0.91
20	2.35	1.65	1.42	1.30	1.23	1.15	1.10	1.07	1.05	1.03	1.02	1.01	1.00	0.99	0.98	0.98	0.97	0.97	0.96	0.96
30	2.75	1.86	1.58	1.44	1.36	1.27	1.21	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07	1.07	1.06	1.06	1.05
40	3.06	2.02	1.70	1.55	1.45	1.35	1.29	1.25	1.22	1.20	1.19	1.17	1.17	1.15	1.14	1.14	1.13	1.13	1.12	1.11
50	3.32	2.15	1.80	1.63	1.53	1.41	1.35	1.30	1.27	1.25	1.24	1.23	1.22	1.20	1.19	1.19	1.18	1.17	1.17	1.16
60	3.55	2.26	1.87	1.69	1.59	1.47	1.40	1.35	1.32	1.30	1.28	1.27	1.26	1.24	1.23	1.22	1.22	1.21	1.21	1.20
75	3.84	2.39	1.97	1.77	1.66	1.53	1.46	1.40	1.37	1.35	1.33	1.32	1.31	1.29	1.28	1.27	1.27	1.26	1.25	1.25
100	4.26	2.57	2.10	1.88	1.75	1.61	1.53	1.48	1.44	1.41	1.39	1.38	1.37	1.35	1.34	1.33	1.32	1.32	1.31	1.30
125	4.60	2.72	2.20	1.96	1.82	1.67	1.59	1.53	1.49	1.46	1.44	1.43	1.42	1.40	1.39	1.38	1.37	1.36	1.35	1.35
150	4.90	2.84	2.28	2.03	1.88	1.72	1.64	1.57	1.53	1.50	1.48	1.47	1.45	1.44	1.42	1.41	1.41	1.40	1.39	1.38
175	5.17	2.95	2.35	2.09	1.93	1.77	1.68	1.61	1.57	1.54	1.52	1.50	1.49	1.47	1.45	1.44	1.44	1.43	1.42	1.41
200	5.42	3.04	2.42	2.14	1.98	1.80	1.71	1.64	1.60	1.57	1.54	1.53	1.51	1.49	1.48	1.47	1.46	1.46	1.44	1.44

Table 19-11. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Observations (1 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.67	0.54	0.49	0.45	0.43	0.41	0.39	0.38	0.37	0.36	0.36	0.36	0.35	0.35	0.35	0.34	0.34	0.34	0.34	0.34
2	1.08	0.86	0.77	0.72	0.69	0.65	0.62	0.61	0.59	0.59	0.58	0.57	0.57	0.56	0.56	0.56	0.55	0.55	0.55	0.55
3	1.35	1.05	0.93	0.87	0.83	0.78	0.75	0.73	0.71	0.70	0.70	0.69	0.69	0.68	0.68	0.67	0.67	0.67	0.66	0.66
4	1.55	1.18	1.04	0.97	0.92	0.87	0.84	0.81	0.80	0.79	0.78	0.77	0.77	0.76	0.75	0.75	0.75	0.74	0.74	0.74
5	1.71	1.29	1.13	1.05	1.00	0.94	0.90	0.88	0.86	0.85	0.84	0.83	0.83	0.82	0.81	0.81	0.80	0.80	0.80	0.79
8	2.09	1.52	1.32	1.22	1.15	1.08	1.04	1.01	0.99	0.97	0.96	0.95	0.95	0.94	0.93	0.92	0.92	0.92	0.91	0.91
12	2.46	1.73	1.48	1.36	1.29	1.20	1.15	1.12	1.09	1.07	1.06	1.05	1.05	1.03	1.03	1.02	1.02	1.01	1.01	1.00
16	2.75	1.88	1.60	1.46	1.38	1.28	1.23	1.19	1.16	1.15	1.13	1.12	1.11	1.10	1.09	1.09	1.08	1.08	1.07	1.07
20	2.99	2.00	1.69	1.54	1.45	1.35	1.29	1.25	1.22	1.20	1.19	1.17	1.17	1.15	1.14	1.14	1.13	1.13	1.12	1.11
30	3.47	2.24	1.87	1.69	1.58	1.46	1.40	1.35	1.32	1.30	1.28	1.27	1.26	1.24	1.23	1.22	1.22	1.21	1.21	1.20
40	3.84	2.41	1.99	1.79	1.68	1.55	1.47	1.42	1.39	1.36	1.34	1.33	1.32	1.30	1.29	1.28	1.28	1.27	1.26	1.26
50	4.16	2.55	2.09	1.87	1.75	1.61	1.53	1.47	1.44	1.41	1.39	1.38	1.37	1.35	1.34	1.33	1.32	1.32	1.31	1.30
60	4.44	2.67	2.17	1.94	1.81	1.66	1.58	1.52	1.48	1.45	1.43	1.42	1.41	1.39	1.38	1.37	1.36	1.36	1.35	1.34
75	4.80	2.82	2.28	2.03	1.88	1.72	1.64	1.57	1.53	1.50	1.48	1.47	1.45	1.44	1.42	1.41	1.41	1.40	1.39	1.38
100	5.30	3.02	2.41	2.13	1.98	1.80	1.71	1.64	1.60	1.57	1.54	1.53	1.51	1.49	1.48	1.47	1.46	1.46	1.44	1.44
125	5.73	3.19	2.52	2.22	2.05	1.87	1.77	1.69	1.65	1.61	1.59	1.57	1.56	1.54	1.52	1.51	1.50	1.50	1.49	1.48
150	6.10	3.32	2.61	2.29	2.11	1.92	1.81	1.74	1.69	1.65	1.63	1.61	1.60	1.57	1.56	1.55	1.54	1.53	1.52	1.51
175	6.43	3.44	2.69	2.35	2.16	1.96	1.85	1.77	1.72	1.69	1.66	1.64	1.63	1.60	1.59	1.58	1.57	1.56	1.55	1.54
200	6.73	3.55	2.75	2.40	2.21	2.00	1.89	1.80	1.75	1.72	1.69	1.67	1.65	1.63	1.61	1.60	1.59	1.59	1.57	1.56

Table 19-11. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Observations (1 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.01	0.82	0.75	0.70	0.67	0.64	0.62	0.60	0.59	0.58	0.58	0.57	0.57	0.56	0.56	0.56	0.55	0.55	0.55	0.55
2	1.47	1.15	1.02	0.96	0.91	0.86	0.83	0.81	0.79	0.78	0.78	0.77	0.76	0.76	0.75	0.75	0.74	0.74	0.74	0.73
3	1.77	1.34	1.19	1.10	1.05	0.99	0.95	0.93	0.91	0.89	0.89	0.88	0.87	0.86	0.86	0.85	0.85	0.85	0.84	0.84
4	2.00	1.49	1.30	1.21	1.15	1.08	1.04	1.00	0.98	0.97	0.96	0.95	0.95	0.94	0.93	0.92	0.92	0.92	0.91	0.91
5	2.19	1.60	1.39	1.29	1.22	1.14	1.10	1.06	1.04	1.03	1.02	1.01	1.00	0.99	0.98	0.98	0.97	0.97	0.96	0.96
8	2.64	1.85	1.59	1.45	1.37	1.28	1.23	1.19	1.16	1.14	1.13	1.12	1.11	1.10	1.09	1.09	1.08	1.08	1.07	1.07
12	3.07	2.08	1.76	1.60	1.50	1.40	1.34	1.29	1.26	1.24	1.23	1.22	1.21	1.19	1.18	1.18	1.17	1.17	1.16	1.15
16	3.42	2.24	1.88	1.70	1.60	1.48	1.41	1.36	1.33	1.31	1.29	1.28	1.27	1.26	1.25	1.24	1.23	1.23	1.22	1.21
20	3.70	2.38	1.98	1.78	1.67	1.54	1.47	1.42	1.39	1.36	1.34	1.33	1.32	1.30	1.29	1.28	1.28	1.27	1.26	1.26
30	4.28	2.64	2.16	1.93	1.80	1.66	1.58	1.52	1.48	1.45	1.43	1.42	1.41	1.39	1.38	1.37	1.36	1.36	1.35	1.34
40	4.74	2.83	2.29	2.04	1.90	1.74	1.65	1.59	1.55	1.52	1.50	1.48	1.47	1.45	1.44	1.43	1.42	1.41	1.40	1.39
50	5.12	2.99	2.40	2.13	1.97	1.80	1.71	1.64	1.60	1.57	1.54	1.53	1.51	1.49	1.48	1.47	1.46	1.46	1.44	1.44
60	5.45	3.12	2.49	2.20	2.03	1.85	1.76	1.68	1.64	1.61	1.58	1.56	1.55	1.53	1.52	1.51	1.50	1.49	1.48	1.47
75	5.89	3.29	2.60	2.28	2.11	1.92	1.81	1.74	1.69	1.65	1.63	1.61	1.60	1.57	1.56	1.55	1.54	1.53	1.52	1.51
100	6.50	3.51	2.74	2.40	2.21	2.00	1.89	1.80	1.75	1.72	1.69	1.67	1.65	1.63	1.61	1.60	1.59	1.59	1.57	1.56
125	7.02	3.70	2.86	2.49	2.28	2.06	1.94	1.85	1.80	1.76	1.73	1.71	1.70	1.67	1.66	1.64	1.63	1.63	1.61	1.60
150	7.46	3.85	2.95	2.56	2.34	2.11	1.99	1.90	1.84	1.80	1.77	1.75	1.73	1.71	1.69	1.68	1.67	1.66	1.64	1.64
175	7.87	3.98	3.04	2.63	2.40	2.15	2.03	1.93	1.87	1.83	1.80	1.78	1.76	1.74	1.72	1.71	1.69	1.69	1.67	1.66
200	8.23	4.10	3.11	2.68	2.44	2.19	2.06	1.96	1.90	1.86	1.83	1.81	1.79	1.76	1.74	1.73	1.72	1.71	1.69	1.69

Table 19-11. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Observations (2 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.71	0.57	0.50	0.46	0.44	0.41	0.39	0.38	0.37	0.37	0.36	0.36	0.35	0.35	0.35	0.34	0.34	0.34	0.34	0.34
2	1.13	0.88	0.78	0.73	0.69	0.65	0.63	0.61	0.60	0.59	0.58	0.58	0.57	0.57	0.56	0.56	0.55	0.55	0.55	0.55
3	1.39	1.07	0.94	0.87	0.83	0.78	0.75	0.73	0.72	0.71	0.70	0.69	0.69	0.68	0.68	0.67	0.67	0.66	0.66	0.66
4	1.60	1.20	1.05	0.98	0.93	0.87	0.84	0.82	0.80	0.79	0.78	0.77	0.77	0.76	0.75	0.75	0.74	0.74	0.74	0.74
5	1.76	1.31	1.14	1.06	1.00	0.94	0.91	0.88	0.86	0.85	0.84	0.83	0.83	0.82	0.81	0.81	0.80	0.80	0.80	0.79
8	2.15	1.54	1.33	1.22	1.16	1.08	1.04	1.01	0.99	0.97	0.96	0.95	0.95	0.94	0.93	0.92	0.92	0.92	0.91	0.91
12	2.52	1.74	1.49	1.37	1.29	1.20	1.15	1.12	1.09	1.08	1.06	1.05	1.05	1.03	1.03	1.02	1.02	1.01	1.01	1.00
16	2.81	1.90	1.61	1.47	1.38	1.29	1.23	1.19	1.16	1.15	1.13	1.12	1.11	1.10	1.09	1.09	1.08	1.08	1.07	1.07
20	3.06	2.02	1.70	1.55	1.45	1.35	1.29	1.25	1.22	1.20	1.19	1.17	1.17	1.15	1.14	1.14	1.13	1.13	1.12	1.11
30	3.55	2.26	1.87	1.69	1.59	1.47	1.40	1.35	1.32	1.30	1.28	1.27	1.26	1.24	1.23	1.22	1.22	1.21	1.21	1.20
40	3.93	2.43	2.00	1.80	1.68	1.55	1.47	1.42	1.39	1.36	1.34	1.33	1.32	1.30	1.29	1.28	1.28	1.27	1.26	1.26
50	4.26	2.57	2.10	1.88	1.75	1.61	1.53	1.48	1.44	1.41	1.39	1.38	1.37	1.35	1.34	1.33	1.32	1.32	1.31	1.30
60	4.54	2.69	2.18	1.95	1.81	1.66	1.58	1.52	1.48	1.45	1.43	1.42	1.41	1.39	1.38	1.37	1.36	1.36	1.35	1.34
75	4.90	2.84	2.28	2.03	1.88	1.72	1.64	1.57	1.53	1.50	1.48	1.47	1.45	1.44	1.42	1.41	1.41	1.40	1.39	1.38
100	5.42	3.04	2.42	2.14	1.98	1.80	1.71	1.64	1.60	1.57	1.54	1.53	1.51	1.49	1.48	1.47	1.46	1.46	1.44	1.44
125	5.85	3.20	2.53	2.22	2.05	1.87	1.77	1.69	1.65	1.61	1.59	1.57	1.56	1.54	1.52	1.51	1.50	1.50	1.49	1.48
150	6.23	3.34	2.61	2.29	2.11	1.92	1.81	1.74	1.69	1.65	1.63	1.61	1.60	1.57	1.56	1.55	1.54	1.53	1.52	1.51
175	6.56	3.46	2.69	2.35	2.17	1.96	1.85	1.77	1.72	1.69	1.66	1.64	1.63	1.60	1.59	1.58	1.57	1.56	1.55	1.54
200	6.87	3.57	2.76	2.41	2.21	2.00	1.89	1.80	1.75	1.72	1.69	1.67	1.65	1.63	1.61	1.60	1.59	1.59	1.57	1.56

Table 19-11. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Observations (2 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.08	0.86	0.77	0.72	0.69	0.65	0.62	0.61	0.59	0.59	0.58	0.57	0.57	0.56	0.56	0.56	0.55	0.55	0.55	0.55
2	1.55	1.18	1.04	0.97	0.92	0.87	0.84	0.81	0.80	0.79	0.78	0.77	0.77	0.76	0.75	0.75	0.75	0.74	0.74	0.74
3	1.85	1.38	1.20	1.11	1.06	0.99	0.96	0.93	0.91	0.90	0.89	0.88	0.87	0.86	0.86	0.85	0.85	0.85	0.84	0.84
4	2.09	1.52	1.32	1.22	1.15	1.08	1.04	1.01	0.99	0.97	0.96	0.95	0.95	0.94	0.93	0.92	0.92	0.92	0.91	0.91
5	2.29	1.63	1.41	1.30	1.23	1.15	1.10	1.07	1.04	1.03	1.02	1.01	1.00	0.99	0.98	0.98	0.97	0.97	0.96	0.96
8	2.75	1.88	1.60	1.46	1.38	1.28	1.23	1.19	1.16	1.15	1.13	1.12	1.11	1.10	1.09	1.09	1.08	1.08	1.07	1.07
12	3.19	2.11	1.77	1.61	1.51	1.40	1.34	1.29	1.26	1.24	1.23	1.22	1.21	1.19	1.18	1.18	1.17	1.17	1.16	1.15
16	3.55	2.28	1.89	1.71	1.60	1.48	1.42	1.37	1.33	1.31	1.29	1.28	1.27	1.26	1.25	1.24	1.23	1.23	1.22	1.21
20	3.84	2.41	1.99	1.79	1.68	1.55	1.47	1.42	1.39	1.36	1.34	1.33	1.32	1.30	1.29	1.28	1.28	1.27	1.26	1.26
30	4.44	2.67	2.17	1.94	1.81	1.66	1.58	1.52	1.48	1.45	1.43	1.42	1.41	1.39	1.38	1.37	1.36	1.36	1.35	1.34
40	4.91	2.87	2.31	2.05	1.90	1.74	1.65	1.59	1.55	1.52	1.50	1.48	1.47	1.45	1.44	1.43	1.42	1.41	1.40	1.39
50	5.30	3.02	2.41	2.13	1.98	1.80	1.71	1.64	1.60	1.57	1.54	1.53	1.51	1.49	1.48	1.47	1.46	1.46	1.44	1.44
60	5.65	3.15	2.50	2.20	2.04	1.85	1.76	1.68	1.64	1.61	1.58	1.57	1.55	1.53	1.52	1.51	1.50	1.49	1.48	1.47
75	6.10	3.32	2.61	2.29	2.11	1.92	1.81	1.74	1.69	1.65	1.63	1.61	1.60	1.57	1.56	1.55	1.54	1.53	1.52	1.51
100	6.73	3.55	2.75	2.40	2.21	2.00	1.89	1.80	1.75	1.72	1.69	1.67	1.65	1.63	1.61	1.60	1.59	1.59	1.57	1.56
125	7.27	3.73	2.87	2.49	2.29	2.06	1.94	1.85	1.80	1.76	1.73	1.71	1.70	1.67	1.66	1.64	1.63	1.63	1.61	1.60
150	7.73	3.89	2.97	2.57	2.35	2.11	1.99	1.90	1.84	1.80	1.77	1.75	1.73	1.71	1.69	1.68	1.67	1.66	1.64	1.64
175	8.14	4.02	3.05	2.63	2.40	2.16	2.03	1.93	1.87	1.83	1.80	1.78	1.76	1.74	1.72	1.70	1.69	1.69	1.67	1.66
200	8.53	4.15	3.12	2.69	2.45	2.19	2.06	1.96	1.90	1.86	1.83	1.81	1.79	1.76	1.74	1.73	1.72	1.71	1.69	1.68

Table 19-11. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Observations (2 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.47	1.15	1.02	0.96	0.91	0.86	0.83	0.81	0.79	0.78	0.78	0.77	0.76	0.76	0.75	0.75	0.74	0.74	0.74	0.73
2	2.00	1.49	1.30	1.21	1.15	1.08	1.04	1.00	0.98	0.97	0.96	0.95	0.95	0.94	0.93	0.92	0.92	0.92	0.91	0.91
3	2.36	1.70	1.47	1.35	1.28	1.20	1.15	1.11	1.09	1.07	1.06	1.05	1.04	1.03	1.03	1.02	1.02	1.01	1.01	1.00
4	2.64	1.85	1.59	1.45	1.37	1.28	1.23	1.19	1.16	1.14	1.13	1.12	1.11	1.10	1.09	1.09	1.08	1.08	1.07	1.07
5	2.87	1.97	1.68	1.53	1.45	1.34	1.29	1.25	1.22	1.20	1.18	1.17	1.16	1.15	1.14	1.14	1.13	1.13	1.12	1.11
8	3.42	2.24	1.88	1.70	1.60	1.48	1.41	1.36	1.33	1.31	1.29	1.28	1.27	1.26	1.25	1.24	1.23	1.23	1.22	1.21
12	3.95	2.49	2.06	1.85	1.73	1.59	1.52	1.46	1.43	1.40	1.38	1.37	1.36	1.34	1.33	1.32	1.32	1.31	1.30	1.29
16	4.38	2.68	2.19	1.96	1.82	1.68	1.59	1.53	1.49	1.47	1.45	1.43	1.42	1.40	1.39	1.38	1.37	1.37	1.36	1.35
20	4.74	2.83	2.29	2.04	1.90	1.74	1.65	1.59	1.55	1.52	1.50	1.48	1.47	1.45	1.44	1.43	1.42	1.41	1.40	1.39
30	5.45	3.12	2.49	2.20	2.03	1.85	1.76	1.68	1.64	1.61	1.58	1.56	1.55	1.53	1.52	1.51	1.50	1.49	1.48	1.47
40	6.02	3.34	2.63	2.31	2.13	1.93	1.83	1.75	1.70	1.67	1.64	1.62	1.61	1.59	1.57	1.56	1.55	1.54	1.53	1.52
50	6.50	3.51	2.74	2.40	2.21	2.00	1.89	1.80	1.75	1.72	1.69	1.67	1.65	1.63	1.61	1.60	1.59	1.59	1.57	1.56
60	6.92	3.66	2.84	2.47	2.27	2.05	1.93	1.85	1.79	1.75	1.73	1.71	1.69	1.67	1.65	1.64	1.63	1.62	1.60	1.60
75	7.46	3.85	2.95	2.56	2.34	2.11	1.99	1.90	1.84	1.80	1.77	1.75	1.73	1.71	1.69	1.68	1.67	1.66	1.64	1.64
100	8.23	4.10	3.11	2.68	2.44	2.19	2.06	1.96	1.90	1.86	1.83	1.81	1.79	1.76	1.74	1.73	1.72	1.71	1.69	1.69
125	8.88	4.31	3.23	2.78	2.52	2.26	2.12	2.01	1.95	1.91	1.87	1.85	1.83	1.80	1.78	1.77	1.76	1.75	1.73	1.72
150	9.43	4.48	3.34	2.85	2.59	2.31	2.16	2.06	1.99	1.94	1.91	1.89	1.87	1.84	1.82	1.80	1.79	1.78	1.76	1.75
175	9.95	4.64	3.43	2.92	2.64	2.35	2.20	2.09	2.02	1.98	1.94	1.92	1.90	1.86	1.84	1.83	1.82	1.81	1.79	1.78
200	10.40	4.78	3.51	2.98	2.69	2.39	2.23	2.12	2.05	2.00	1.97	1.94	1.92	1.89	1.87	1.85	1.84	1.83	1.81	1.80

Table 19-11. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Observations (5 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.27	0.98	0.87	0.81	0.77	0.72	0.70	0.68	0.66	0.65	0.65	0.64	0.64	0.63	0.62	0.62	0.62	0.62	0.61	0.61
2	1.76	1.31	1.14	1.06	1.00	0.94	0.91	0.88	0.86	0.85	0.84	0.83	0.83	0.82	0.81	0.81	0.80	0.80	0.80	0.79
3	2.09	1.50	1.30	1.20	1.14	1.06	1.02	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.91	0.91	0.90	0.90	0.90	0.89
4	2.35	1.65	1.42	1.30	1.23	1.15	1.10	1.07	1.05	1.03	1.02	1.01	1.00	0.99	0.98	0.98	0.97	0.97	0.96	0.96
5	2.56	1.77	1.51	1.38	1.30	1.21	1.16	1.13	1.10	1.09	1.07	1.06	1.06	1.04	1.04	1.03	1.03	1.02	1.01	1.01
8	3.06	2.02	1.70	1.55	1.45	1.35	1.29	1.25	1.22	1.20	1.19	1.17	1.17	1.15	1.14	1.14	1.13	1.13	1.12	1.11
12	3.55	2.26	1.87	1.69	1.59	1.47	1.40	1.35	1.32	1.30	1.28	1.27	1.26	1.24	1.23	1.22	1.22	1.21	1.21	1.20
16	3.93	2.43	2.00	1.80	1.68	1.55	1.47	1.42	1.39	1.36	1.34	1.33	1.32	1.30	1.29	1.28	1.28	1.27	1.26	1.26
20	4.26	2.57	2.10	1.88	1.75	1.61	1.53	1.48	1.44	1.41	1.39	1.38	1.37	1.35	1.34	1.33	1.32	1.32	1.31	1.30
30	4.90	2.84	2.28	2.03	1.88	1.72	1.64	1.57	1.53	1.50	1.48	1.47	1.45	1.44	1.42	1.41	1.41	1.40	1.39	1.38
40	5.42	3.04	2.42	2.14	1.98	1.80	1.71	1.64	1.60	1.57	1.54	1.53	1.51	1.49	1.48	1.47	1.46	1.46	1.44	1.44
50	5.85	3.20	2.53	2.22	2.05	1.87	1.77	1.69	1.65	1.61	1.59	1.57	1.56	1.54	1.52	1.51	1.50	1.50	1.49	1.48
60	6.23	3.34	2.61	2.29	2.11	1.92	1.81	1.74	1.69	1.65	1.63	1.61	1.60	1.57	1.56	1.55	1.54	1.53	1.52	1.51
75	6.72	3.52	2.73	2.38	2.19	1.98	1.87	1.79	1.74	1.70	1.68	1.66	1.64	1.62	1.60	1.59	1.58	1.57	1.56	1.55
100	7.41	3.76	2.88	2.50	2.29	2.06	1.94	1.85	1.80	1.76	1.74	1.71	1.70	1.67	1.66	1.64	1.63	1.63	1.61	1.60
125	8.00	3.95	3.00	2.59	2.36	2.12	2.00	1.91	1.85	1.81	1.78	1.76	1.74	1.72	1.70	1.68	1.67	1.67	1.65	1.64
150	8.50	4.11	3.09	2.66	2.43	2.18	2.04	1.95	1.89	1.85	1.82	1.79	1.78	1.75	1.73	1.72	1.71	1.70	1.68	1.67
175	8.96	4.25	3.18	2.72	2.48	2.22	2.08	1.98	1.92	1.88	1.85	1.82	1.81	1.78	1.76	1.74	1.74	1.72	1.71	1.70
200	9.38	4.38	3.25	2.78	2.53	2.26	2.12	2.01	1.95	1.91	1.88	1.85	1.83	1.80	1.78	1.77	1.76	1.75	1.73	1.72

Table 19-11. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Observations (5 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.71	1.29	1.13	1.05	1.00	0.94	0.90	0.88	0.86	0.85	0.84	0.83	0.83	0.82	0.81	0.81	0.80	0.80	0.80	0.79
2	2.29	1.63	1.41	1.30	1.23	1.15	1.10	1.07	1.04	1.03	1.02	1.01	1.00	0.99	0.98	0.98	0.97	0.97	0.96	0.96
3	2.68	1.85	1.57	1.44	1.36	1.27	1.21	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07	1.07	1.06	1.06	1.05
4	2.99	2.00	1.69	1.54	1.45	1.35	1.29	1.25	1.22	1.20	1.19	1.17	1.17	1.15	1.14	1.14	1.13	1.13	1.12	1.11
5	3.24	2.13	1.79	1.62	1.52	1.41	1.35	1.30	1.27	1.25	1.24	1.23	1.22	1.20	1.19	1.18	1.18	1.17	1.17	1.16
8	3.84	2.41	1.99	1.79	1.68	1.55	1.47	1.42	1.39	1.36	1.34	1.33	1.32	1.30	1.29	1.28	1.28	1.27	1.26	1.26
12	4.44	2.67	2.17	1.94	1.81	1.66	1.58	1.52	1.48	1.45	1.43	1.42	1.41	1.39	1.38	1.37	1.36	1.36	1.35	1.34
16	4.91	2.87	2.31	2.05	1.90	1.74	1.65	1.59	1.55	1.52	1.50	1.48	1.47	1.45	1.44	1.43	1.42	1.41	1.40	1.39
20	5.30	3.02	2.41	2.13	1.98	1.80	1.71	1.64	1.60	1.57	1.54	1.53	1.51	1.49	1.48	1.47	1.46	1.46	1.44	1.44
30	6.10	3.32	2.61	2.29	2.11	1.92	1.81	1.74	1.69	1.65	1.63	1.61	1.60	1.57	1.56	1.55	1.54	1.53	1.52	1.51
40	6.73	3.55	2.75	2.40	2.21	2.00	1.89	1.80	1.75	1.72	1.69	1.67	1.65	1.63	1.61	1.60	1.59	1.59	1.57	1.56
50	7.27	3.73	2.87	2.49	2.29	2.06	1.94	1.85	1.80	1.76	1.73	1.71	1.70	1.67	1.66	1.64	1.63	1.63	1.61	1.60
60	7.73	3.89	2.97	2.57	2.35	2.11	1.99	1.90	1.84	1.80	1.77	1.75	1.73	1.71	1.69	1.68	1.67	1.66	1.64	1.64
75	8.33	4.09	3.09	2.66	2.42	2.18	2.05	1.95	1.89	1.85	1.82	1.79	1.78	1.75	1.73	1.72	1.71	1.70	1.68	1.67
100	9.20	4.35	3.25	2.78	2.53	2.26	2.12	2.01	1.95	1.91	1.88	1.85	1.83	1.80	1.78	1.77	1.76	1.75	1.73	1.72
125	9.90	4.57	3.38	2.88	2.61	2.32	2.17	2.07	2.00	1.95	1.92	1.89	1.87	1.84	1.82	1.81	1.80	1.79	1.77	1.76
150	10.55	4.75	3.49	2.96	2.67	2.37	2.22	2.11	2.04	1.99	1.96	1.93	1.91	1.88	1.86	1.84	1.83	1.82	1.80	1.79
175	11.07	4.91	3.57	3.02	2.72	2.42	2.26	2.14	2.07	2.02	1.98	1.96	1.94	1.90	1.88	1.87	1.85	1.85	1.83	1.82
200	11.60	5.05	3.65	3.08	2.78	2.45	2.29	2.17	2.10	2.05	2.01	1.98	1.96	1.93	1.91	1.89	1.88	1.87	1.85	1.84

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Table 19-11. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Observations (5 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.19	1.60	1.39	1.29	1.22	1.14	1.10	1.06	1.04	1.03	1.02	1.01	1.00	0.99	0.98	0.98	0.97	0.97	0.96	0.96
2	2.87	1.97	1.68	1.53	1.45	1.34	1.29	1.25	1.22	1.20	1.18	1.17	1.16	1.15	1.14	1.14	1.13	1.13	1.12	1.11
3	3.34	2.21	1.85	1.68	1.58	1.46	1.40	1.35	1.32	1.29	1.28	1.27	1.26	1.24	1.23	1.22	1.22	1.21	1.20	1.20
4	3.70	2.38	1.98	1.78	1.67	1.54	1.47	1.42	1.39	1.36	1.34	1.33	1.32	1.30	1.29	1.28	1.28	1.27	1.26	1.26
5	4.01	2.52	2.08	1.87	1.74	1.61	1.53	1.47	1.44	1.41	1.39	1.38	1.37	1.35	1.34	1.33	1.32	1.32	1.31	1.30
8	4.74	2.83	2.29	2.04	1.90	1.74	1.65	1.59	1.55	1.52	1.50	1.48	1.47	1.45	1.44	1.43	1.42	1.41	1.40	1.39
12	5.45	3.12	2.49	2.20	2.03	1.85	1.76	1.68	1.64	1.61	1.58	1.56	1.55	1.53	1.52	1.51	1.50	1.49	1.48	1.47
16	6.02	3.34	2.63	2.31	2.13	1.93	1.83	1.75	1.70	1.67	1.64	1.62	1.61	1.59	1.57	1.56	1.55	1.54	1.53	1.52
20	6.50	3.51	2.74	2.40	2.21	2.00	1.89	1.80	1.75	1.72	1.69	1.67	1.65	1.63	1.61	1.60	1.59	1.59	1.57	1.56
30	7.46	3.85	2.95	2.56	2.34	2.11	1.99	1.90	1.84	1.80	1.77	1.75	1.73	1.71	1.69	1.68	1.67	1.66	1.64	1.64
40	8.23	4.10	3.11	2.68	2.44	2.19	2.06	1.96	1.90	1.86	1.83	1.81	1.79	1.76	1.74	1.73	1.72	1.71	1.69	1.69
50	8.88	4.31	3.23	2.78	2.52	2.26	2.12	2.01	1.95	1.91	1.87	1.85	1.83	1.80	1.78	1.77	1.76	1.75	1.73	1.72
60	9.43	4.48	3.34	2.85	2.59	2.31	2.16	2.06	1.99	1.94	1.91	1.89	1.87	1.84	1.82	1.80	1.79	1.78	1.76	1.75
75	10.18	4.71	3.47	2.95	2.67	2.37	2.22	2.11	2.04	1.99	1.95	1.93	1.91	1.88	1.86	1.84	1.83	1.82	1.80	1.79
100	11.22	5.01	3.64	3.08	2.77	2.45	2.29	2.17	2.10	2.05	2.01	1.98	1.96	1.93	1.91	1.89	1.88	1.87	1.85	1.84
125	12.07	5.25	3.78	3.18	2.86	2.52	2.35	2.22	2.15	2.09	2.05	2.03	2.00	1.97	1.95	1.93	1.92	1.90	1.89	1.87
150	12.83	5.46	3.90	3.26	2.92	2.57	2.40	2.26	2.18	2.13	2.09	2.06	2.04	2.00	1.98	1.96	1.95	1.94	1.92	1.90
175	13.54	5.64	4.00	3.33	2.98	2.62	2.43	2.30	2.22	2.16	2.12	2.09	2.06	2.03	2.00	1.98	1.97	1.96	1.94	1.93
200	14.18	5.80	4.09	3.40	3.03	2.66	2.47	2.33	2.24	2.19	2.15	2.11	2.09	2.05	2.03	2.01	1.99	1.98	1.96	1.95

Table 19-11. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Observations (10 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.76	1.31	1.14	1.06	1.00	0.94	0.91	0.88	0.86	0.85	0.84	0.83	0.83	0.82	0.81	0.81	0.80	0.80	0.80	0.79
2	2.35	1.65	1.42	1.30	1.23	1.15	1.10	1.07	1.05	1.03	1.02	1.01	1.00	0.99	0.98	0.98	0.97	0.97	0.96	0.96
3	2.75	1.86	1.58	1.44	1.36	1.27	1.21	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07	1.07	1.06	1.06	1.05
4	3.06	2.02	1.70	1.55	1.45	1.35	1.29	1.25	1.22	1.20	1.19	1.17	1.17	1.15	1.14	1.14	1.13	1.13	1.12	1.11
5	3.32	2.15	1.80	1.63	1.53	1.41	1.35	1.30	1.27	1.25	1.24	1.23	1.22	1.20	1.19	1.19	1.18	1.17	1.17	1.16
8	3.93	2.43	2.00	1.80	1.68	1.55	1.47	1.42	1.39	1.36	1.34	1.33	1.32	1.30	1.29	1.29	1.28	1.27	1.26	1.26
12	4.53	2.69	2.18	1.95	1.81	1.66	1.58	1.52	1.48	1.45	1.43	1.42	1.41	1.39	1.38	1.37	1.36	1.36	1.35	1.34
16	5.02	2.88	2.31	2.05	1.90	1.74	1.65	1.59	1.55	1.52	1.50	1.48	1.47	1.45	1.44	1.43	1.42	1.41	1.40	1.39
20	5.42	3.04	2.42	2.14	1.98	1.80	1.71	1.64	1.60	1.57	1.54	1.53	1.51	1.49	1.48	1.47	1.46	1.46	1.44	1.44
30	6.23	3.34	2.62	2.29	2.11	1.92	1.81	1.74	1.69	1.65	1.63	1.61	1.60	1.57	1.56	1.55	1.54	1.53	1.52	1.51
40	6.87	3.57	2.76	2.41	2.21	2.00	1.89	1.80	1.75	1.72	1.69	1.67	1.65	1.63	1.61	1.60	1.59	1.59	1.57	1.56
50	7.42	3.75	2.87	2.50	2.29	2.06	1.94	1.86	1.80	1.76	1.73	1.71	1.70	1.67	1.66	1.64	1.63	1.63	1.61	1.60
60	7.89	3.91	2.97	2.57	2.35	2.11	1.99	1.90	1.84	1.80	1.77	1.75	1.73	1.71	1.69	1.68	1.67	1.66	1.64	1.64
75	8.50	4.11	3.09	2.66	2.43	2.18	2.04	1.95	1.89	1.85	1.82	1.79	1.78	1.75	1.73	1.72	1.71	1.70	1.68	1.67
100	9.38	4.37	3.25	2.78	2.53	2.26	2.12	2.01	1.95	1.91	1.87	1.85	1.83	1.80	1.78	1.77	1.76	1.75	1.73	1.72
125	10.11	4.59	3.38	2.88	2.61	2.32	2.17	2.07	2.00	1.95	1.92	1.89	1.87	1.84	1.82	1.81	1.80	1.79	1.77	1.76
150	10.74	4.79	3.49	2.95	2.67	2.37	2.22	2.11	2.04	1.99	1.95	1.93	1.91	1.88	1.86	1.84	1.83	1.82	1.80	1.79
175	11.33	4.93	3.59	3.03	2.73	2.42	2.26	2.14	2.07	2.02	1.98	1.96	1.93	1.90	1.88	1.87	1.86	1.84	1.83	1.82
200	11.82	5.08	3.66	3.09	2.78	2.45	2.29	2.17	2.10	2.04	2.01	1.98	1.96	1.93	1.90	1.89	1.88	1.87	1.85	1.84

Table 19-11. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Observations (10 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.29	1.63	1.41	1.30	1.23	1.15	1.10	1.07	1.04	1.03	1.02	1.01	1.00	0.99	0.98	0.98	0.97	0.97	0.96	0.96
2	2.99	2.00	1.69	1.54	1.45	1.35	1.29	1.25	1.22	1.20	1.19	1.17	1.17	1.15	1.14	1.14	1.13	1.13	1.12	1.11
3	3.47	2.24	1.87	1.69	1.58	1.46	1.40	1.35	1.32	1.30	1.28	1.27	1.26	1.24	1.23	1.22	1.22	1.21	1.21	1.20
4	3.84	2.41	1.99	1.79	1.68	1.55	1.47	1.42	1.39	1.36	1.34	1.33	1.32	1.30	1.29	1.28	1.28	1.27	1.26	1.26
5	4.16	2.55	2.09	1.87	1.75	1.61	1.53	1.47	1.44	1.41	1.39	1.38	1.37	1.35	1.34	1.33	1.32	1.32	1.31	1.30
8	4.91	2.87	2.31	2.05	1.90	1.74	1.65	1.59	1.55	1.52	1.50	1.48	1.47	1.45	1.44	1.43	1.42	1.41	1.40	1.39
12	5.65	3.16	2.50	2.20	2.04	1.85	1.76	1.68	1.64	1.61	1.58	1.57	1.55	1.53	1.52	1.51	1.50	1.49	1.48	1.47
16	6.24	3.37	2.64	2.32	2.13	1.94	1.83	1.75	1.70	1.67	1.64	1.62	1.61	1.59	1.57	1.56	1.55	1.54	1.53	1.52
20	6.73	3.55	2.75	2.40	2.21	2.00	1.89	1.80	1.75	1.72	1.69	1.67	1.65	1.63	1.61	1.60	1.59	1.59	1.57	1.56
30	7.73	3.89	2.97	2.57	2.35	2.11	1.99	1.90	1.84	1.80	1.77	1.75	1.73	1.71	1.69	1.68	1.67	1.66	1.64	1.63
40	8.52	4.14	3.12	2.69	2.45	2.19	2.06	1.96	1.90	1.86	1.83	1.81	1.79	1.76	1.74	1.73	1.72	1.71	1.70	1.68
50	9.18	4.35	3.25	2.78	2.53	2.26	2.12	2.01	1.95	1.91	1.87	1.85	1.83	1.80	1.78	1.77	1.76	1.75	1.73	1.72
60	9.77	4.53	3.35	2.86	2.59	2.31	2.16	2.06	1.99	1.94	1.91	1.89	1.87	1.84	1.82	1.80	1.79	1.78	1.76	1.75
75	10.55	4.75	3.48	2.95	2.67	2.37	2.22	2.11	2.04	1.99	1.95	1.93	1.91	1.88	1.86	1.84	1.83	1.82	1.80	1.79
100	11.62	5.05	3.66	3.08	2.78	2.46	2.29	2.17	2.10	2.05	2.01	1.98	1.96	1.93	1.91	1.89	1.88	1.87	1.85	1.84
125	12.50	5.30	3.80	3.19	2.86	2.52	2.35	2.22	2.15	2.09	2.05	2.03	2.00	1.97	1.95	1.93	1.92	1.90	1.89	1.87
150	13.28	5.52	3.91	3.27	2.93	2.58	2.39	2.26	2.19	2.13	2.09	2.06	2.04	2.00	1.98	1.96	1.95	1.93	1.92	1.90
175	13.96	5.69	4.00	3.34	2.98	2.62	2.44	2.30	2.22	2.16	2.12	2.09	2.06	2.03	2.00	1.98	1.97	1.96	1.94	1.93
200	14.65	5.86	4.10	3.41	3.04	2.66	2.47	2.33	2.25	2.19	2.14	2.11	2.09	2.05	2.03	2.01	2.00	1.98	1.96	1.95

Table 19-11. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Observations (10 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.87	1.97	1.68	1.53	1.45	1.34	1.29	1.25	1.22	1.20	1.18	1.17	1.16	1.15	1.14	1.14	1.13	1.13	1.12	1.11
2	3.70	2.38	1.98	1.78	1.67	1.54	1.47	1.42	1.39	1.36	1.34	1.33	1.32	1.30	1.29	1.28	1.28	1.27	1.26	1.26
3	4.28	2.64	2.16	1.93	1.80	1.66	1.58	1.52	1.48	1.45	1.43	1.42	1.41	1.39	1.38	1.37	1.36	1.36	1.35	1.34
4	4.74	2.83	2.29	2.04	1.90	1.74	1.65	1.59	1.55	1.52	1.50	1.48	1.47	1.45	1.44	1.43	1.42	1.41	1.40	1.39
5	5.12	2.99	2.40	2.13	1.97	1.80	1.71	1.64	1.60	1.57	1.54	1.53	1.51	1.49	1.48	1.47	1.46	1.46	1.44	1.44
8	6.02	3.34	2.63	2.31	2.13	1.93	1.83	1.75	1.70	1.67	1.64	1.62	1.61	1.59	1.57	1.56	1.55	1.54	1.53	1.52
12	6.92	3.66	2.84	2.47	2.27	2.05	1.93	1.85	1.79	1.75	1.73	1.71	1.69	1.67	1.65	1.64	1.63	1.62	1.61	1.60
16	7.63	3.90	2.99	2.59	2.37	2.13	2.00	1.91	1.85	1.81	1.78	1.76	1.75	1.72	1.70	1.69	1.68	1.67	1.66	1.65
20	8.23	4.10	3.11	2.68	2.44	2.19	2.06	1.96	1.90	1.86	1.83	1.81	1.79	1.76	1.74	1.73	1.72	1.71	1.69	1.68
30	9.44	4.49	3.34	2.85	2.59	2.31	2.16	2.06	1.99	1.94	1.91	1.89	1.87	1.84	1.82	1.80	1.79	1.78	1.76	1.75
40	10.40	4.77	3.51	2.98	2.69	2.39	2.23	2.12	2.05	2.00	1.97	1.94	1.92	1.89	1.87	1.85	1.84	1.83	1.81	1.80
50	11.21	5.00	3.64	3.08	2.77	2.46	2.29	2.17	2.10	2.05	2.01	1.98	1.96	1.93	1.91	1.89	1.88	1.87	1.85	1.84
60	11.91	5.21	3.75	3.16	2.84	2.51	2.34	2.21	2.14	2.08	2.05	2.02	1.99	1.96	1.94	1.92	1.91	1.90	1.88	1.87
75	12.84	5.46	3.89	3.26	2.92	2.57	2.39	2.26	2.18	2.13	2.09	2.06	2.04	2.00	1.98	1.96	1.95	1.93	1.92	1.90
100	14.16	5.80	4.09	3.40	3.03	2.66	2.47	2.33	2.24	2.19	2.15	2.11	2.09	2.05	2.03	2.01	1.99	1.98	1.96	1.95
125	15.23	6.08	4.24	3.50	3.12	2.72	2.52	2.38	2.29	2.23	2.19	2.15	2.13	2.09	2.06	2.04	2.03	2.02	2.00	1.98
150	16.21	6.32	4.37	3.59	3.19	2.78	2.57	2.42	2.33	2.26	2.22	2.19	2.16	2.12	2.09	2.07	2.06	2.05	2.02	2.01
175	17.09	6.52	4.47	3.67	3.25	2.82	2.61	2.45	2.36	2.29	2.25	2.22	2.19	2.15	2.12	2.10	2.08	2.07	2.05	2.03
200	17.77	6.69	4.57	3.74	3.31	2.86	2.64	2.48	2.39	2.33	2.28	2.24	2.21	2.17	2.14	2.12	2.11	2.09	2.07	2.05

Table 19-11. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Observations (20 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.35	1.65	1.42	1.30	1.23	1.15	1.10	1.07	1.05	1.03	1.02	1.01	1.00	0.99	0.98	0.98	0.97	0.97	0.96	0.96
2	3.06	2.02	1.70	1.55	1.45	1.35	1.29	1.25	1.22	1.20	1.19	1.17	1.17	1.15	1.14	1.14	1.13	1.13	1.12	1.11
3	3.55	2.26	1.87	1.69	1.59	1.47	1.40	1.35	1.32	1.30	1.28	1.27	1.26	1.24	1.23	1.22	1.22	1.21	1.21	1.20
4	3.93	2.43	2.00	1.80	1.68	1.55	1.47	1.42	1.39	1.36	1.34	1.33	1.32	1.30	1.29	1.29	1.28	1.27	1.26	1.26
5	4.25	2.57	2.10	1.88	1.75	1.61	1.53	1.48	1.44	1.41	1.39	1.38	1.37	1.35	1.34	1.33	1.32	1.32	1.31	1.30
8	5.02	2.88	2.31	2.05	1.90	1.74	1.65	1.59	1.55	1.52	1.50	1.48	1.47	1.45	1.44	1.43	1.42	1.41	1.40	1.39
12	5.77	3.17	2.51	2.21	2.04	1.86	1.76	1.68	1.64	1.61	1.58	1.57	1.55	1.53	1.52	1.51	1.50	1.49	1.48	1.47
16	6.37	3.39	2.65	2.32	2.14	1.94	1.83	1.75	1.70	1.67	1.64	1.62	1.61	1.59	1.57	1.56	1.55	1.54	1.53	1.52
20	6.87	3.57	2.76	2.41	2.21	2.00	1.89	1.80	1.75	1.72	1.69	1.67	1.65	1.63	1.61	1.60	1.59	1.59	1.57	1.56
30	7.89	3.91	2.97	2.57	2.35	2.11	1.99	1.90	1.84	1.80	1.77	1.75	1.73	1.71	1.69	1.68	1.67	1.66	1.64	1.64
40	8.69	4.17	3.13	2.69	2.45	2.19	2.06	1.96	1.90	1.86	1.83	1.81	1.79	1.76	1.74	1.73	1.72	1.71	1.69	1.68
50	9.38	4.38	3.25	2.78	2.53	2.26	2.12	2.01	1.95	1.91	1.87	1.85	1.83	1.80	1.78	1.77	1.76	1.75	1.73	1.72
60	9.97	4.55	3.36	2.86	2.59	2.31	2.16	2.06	1.99	1.94	1.91	1.89	1.87	1.84	1.82	1.80	1.79	1.78	1.76	1.75
75	10.74	4.78	3.49	2.96	2.67	2.37	2.22	2.11	2.04	1.99	1.95	1.93	1.91	1.88	1.86	1.84	1.83	1.82	1.80	1.79
100	11.84	5.08	3.66	3.09	2.78	2.46	2.29	2.17	2.10	2.05	2.01	1.98	1.96	1.93	1.91	1.89	1.88	1.87	1.85	1.84
125	12.74	5.32	3.80	3.19	2.86	2.52	2.35	2.22	2.15	2.09	2.05	2.02	2.00	1.97	1.95	1.93	1.91	1.90	1.89	1.87
150	13.57	5.54	3.92	3.27	2.93	2.58	2.39	2.26	2.18	2.13	2.09	2.06	2.04	2.00	1.98	1.96	1.95	1.93	1.92	1.90
175	14.26	5.71	4.02	3.34	2.98	2.62	2.43	2.30	2.22	2.16	2.12	2.09	2.06	2.03	2.00	1.98	1.97	1.96	1.94	1.93
200	14.94	5.88	4.11	3.41	3.04	2.66	2.47	2.33	2.24	2.19	2.15	2.11	2.09	2.05	2.03	2.01	1.99	1.98	1.96	1.95

Table 19-11. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Observations (20 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.99	2.00	1.69	1.54	1.45	1.35	1.29	1.25	1.22	1.20	1.19	1.17	1.17	1.15	1.14	1.14	1.13	1.13	1.12	1.11
2	3.84	2.41	1.99	1.79	1.68	1.55	1.47	1.42	1.39	1.36	1.34	1.33	1.32	1.30	1.29	1.28	1.28	1.27	1.26	1.26
3	4.44	2.67	2.17	1.94	1.81	1.66	1.58	1.52	1.48	1.45	1.43	1.42	1.41	1.39	1.38	1.37	1.36	1.36	1.35	1.34
4	4.91	2.87	2.31	2.05	1.90	1.74	1.65	1.59	1.55	1.52	1.50	1.48	1.47	1.45	1.44	1.43	1.42	1.41	1.40	1.39
5	5.30	3.02	2.41	2.13	1.98	1.80	1.71	1.64	1.60	1.57	1.54	1.53	1.51	1.49	1.48	1.47	1.46	1.46	1.44	1.44
8	6.24	3.37	2.64	2.32	2.13	1.94	1.83	1.75	1.70	1.67	1.64	1.62	1.61	1.59	1.57	1.56	1.55	1.54	1.53	1.52
12	7.16	3.70	2.85	2.48	2.27	2.05	1.93	1.85	1.79	1.75	1.73	1.71	1.69	1.67	1.65	1.64	1.63	1.62	1.61	1.60
16	7.90	3.94	3.00	2.59	2.37	2.13	2.00	1.91	1.85	1.81	1.79	1.76	1.75	1.72	1.70	1.69	1.68	1.67	1.66	1.65
20	8.52	4.14	3.12	2.69	2.45	2.19	2.06	1.96	1.90	1.86	1.83	1.81	1.79	1.76	1.74	1.73	1.72	1.71	1.69	1.68
30	9.77	4.53	3.35	2.86	2.59	2.31	2.16	2.06	1.99	1.94	1.91	1.89	1.87	1.84	1.82	1.80	1.79	1.78	1.76	1.75
40	10.77	4.82	3.52	2.98	2.69	2.39	2.24	2.12	2.05	2.00	1.97	1.94	1.92	1.89	1.87	1.85	1.84	1.83	1.81	1.80
50	11.60	5.05	3.66	3.08	2.78	2.46	2.29	2.17	2.10	2.05	2.01	1.98	1.96	1.93	1.91	1.89	1.88	1.87	1.85	1.84
60	12.33	5.26	3.77	3.16	2.84	2.51	2.34	2.21	2.14	2.08	2.05	2.02	2.00	1.96	1.94	1.92	1.91	1.90	1.88	1.87
75	13.28	5.51	3.91	3.27	2.93	2.57	2.39	2.26	2.18	2.13	2.09	2.06	2.04	2.00	1.98	1.96	1.95	1.93	1.92	1.90
100	14.65	5.85	4.10	3.40	3.04	2.66	2.47	2.33	2.24	2.19	2.14	2.11	2.09	2.05	2.03	2.01	1.99	1.98	1.96	1.95
125	15.77	6.14	4.25	3.51	3.12	2.73	2.52	2.38	2.29	2.23	2.19	2.15	2.13	2.09	2.06	2.04	2.03	2.02	1.99	1.98
150	16.80	6.37	4.38	3.60	3.19	2.78	2.57	2.42	2.33	2.27	2.22	2.19	2.16	2.12	2.09	2.07	2.06	2.05	2.03	2.01
175	17.68	6.58	4.49	3.67	3.25	2.83	2.61	2.46	2.36	2.30	2.25	2.22	2.19	2.15	2.12	2.10	2.08	2.07	2.05	2.03
200	18.46	6.76	4.58	3.74	3.31	2.86	2.64	2.48	2.39	2.32	2.28	2.24	2.21	2.17	2.14	2.12	2.10	2.09	2.07	2.05

Table 19-11. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Observations (20 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.70	2.38	1.98	1.78	1.67	1.54	1.47	1.42	1.39	1.36	1.34	1.33	1.32	1.30	1.29	1.28	1.28	1.27	1.26	1.26
2	4.74	2.83	2.29	2.04	1.90	1.74	1.65	1.59	1.55	1.52	1.50	1.48	1.47	1.45	1.44	1.43	1.42	1.41	1.40	1.39
3	5.45	3.12	2.49	2.20	2.03	1.85	1.76	1.68	1.64	1.61	1.58	1.56	1.55	1.53	1.52	1.50	1.50	1.49	1.48	1.47
4	6.02	3.34	2.63	2.31	2.13	1.93	1.83	1.75	1.70	1.67	1.64	1.62	1.61	1.59	1.57	1.56	1.55	1.54	1.53	1.52
5	6.50	3.51	2.74	2.40	2.21	2.00	1.89	1.80	1.75	1.72	1.69	1.67	1.65	1.63	1.61	1.60	1.59	1.59	1.57	1.56
8	7.63	3.91	2.99	2.59	2.37	2.13	2.00	1.91	1.85	1.81	1.78	1.76	1.75	1.72	1.70	1.69	1.68	1.67	1.66	1.65
12	8.76	4.27	3.21	2.76	2.51	2.24	2.11	2.00	1.94	1.90	1.87	1.84	1.82	1.80	1.78	1.76	1.75	1.74	1.73	1.72
16	9.65	4.55	3.38	2.88	2.61	2.33	2.18	2.07	2.00	1.96	1.92	1.90	1.88	1.85	1.83	1.81	1.80	1.79	1.78	1.76
20	10.40	4.77	3.51	2.98	2.69	2.39	2.23	2.12	2.05	2.00	1.97	1.94	1.92	1.89	1.87	1.85	1.84	1.83	1.81	1.80
30	11.93	5.21	3.76	3.16	2.84	2.51	2.34	2.21	2.14	2.08	2.05	2.02	1.99	1.96	1.94	1.92	1.91	1.90	1.88	1.87
40	13.13	5.54	3.94	3.29	2.95	2.59	2.41	2.28	2.20	2.14	2.10	2.07	2.05	2.01	1.99	1.97	1.96	1.95	1.93	1.91
50	14.16	5.80	4.09	3.40	3.03	2.66	2.47	2.33	2.24	2.19	2.14	2.11	2.09	2.05	2.03	2.01	1.99	1.98	1.96	1.95
60	15.04	6.03	4.21	3.49	3.10	2.71	2.51	2.37	2.28	2.22	2.18	2.15	2.12	2.08	2.06	2.04	2.02	2.01	1.99	1.98
75	16.21	6.32	4.36	3.59	3.19	2.78	2.57	2.42	2.33	2.27	2.22	2.19	2.16	2.12	2.09	2.07	2.06	2.04	2.02	2.00
100	17.87	6.70	4.57	3.74	3.30	2.86	2.64	2.49	2.39	2.32	2.28	2.24	2.21	2.17	2.14	2.12	2.10	2.09	2.06	2.04
125	19.24	7.03	4.74	3.85	3.39	2.93	2.70	2.54	2.44	2.37	2.32	2.28	2.25	2.21	2.18	2.16	2.14	2.13	2.10	2.09
150	20.41	7.30	4.87	3.94	3.47	2.98	2.75	2.58	2.47	2.40	2.35	2.31	2.28	2.24	2.21	2.19	2.17	2.15	2.13	2.12
175	21.48	7.53	4.99	4.03	3.53	3.03	2.79	2.61	2.51	2.43	2.38	2.34	2.31	2.27	2.24	2.21	2.19	2.18	2.16	2.14
200	22.46	7.74	5.09	4.10	3.58	3.08	2.82	2.64	2.53	2.46	2.40	2.37	2.33	2.29	2.26	2.23	2.22	2.20	2.18	2.16

Table 19-11. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Observations (40 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.06	2.02	1.70	1.55	1.45	1.35	1.29	1.25	1.22	1.20	1.19	1.17	1.17	1.15	1.14	1.14	1.13	1.13	1.12	1.11
2	3.93	2.43	2.00	1.80	1.68	1.55	1.47	1.42	1.39	1.36	1.34	1.33	1.32	1.30	1.29	1.29	1.28	1.27	1.26	1.26
3	4.54	2.69	2.18	1.95	1.81	1.66	1.58	1.52	1.48	1.45	1.43	1.42	1.41	1.39	1.38	1.37	1.36	1.36	1.35	1.34
4	5.02	2.88	2.31	2.05	1.90	1.74	1.65	1.59	1.55	1.52	1.50	1.48	1.47	1.45	1.44	1.43	1.42	1.41	1.40	1.39
5	5.42	3.04	2.42	2.14	1.98	1.80	1.71	1.64	1.60	1.57	1.54	1.53	1.51	1.49	1.48	1.47	1.46	1.46	1.44	1.44
8	6.37	3.39	2.65	2.32	2.14	1.94	1.83	1.75	1.70	1.67	1.64	1.62	1.61	1.59	1.57	1.56	1.55	1.54	1.53	1.52
12	7.31	3.72	2.86	2.48	2.27	2.05	1.93	1.85	1.79	1.75	1.73	1.71	1.69	1.67	1.65	1.64	1.63	1.62	1.61	1.60
16	8.06	3.97	3.01	2.60	2.37	2.13	2.01	1.91	1.85	1.81	1.79	1.76	1.75	1.72	1.70	1.69	1.68	1.67	1.66	1.65
20	8.69	4.17	3.13	2.69	2.45	2.19	2.06	1.96	1.90	1.86	1.83	1.81	1.79	1.76	1.74	1.73	1.72	1.71	1.69	1.68
30	9.97	4.55	3.36	2.86	2.59	2.31	2.16	2.06	1.99	1.94	1.91	1.89	1.87	1.84	1.82	1.80	1.79	1.78	1.76	1.75
40	10.98	4.84	3.53	2.99	2.70	2.39	2.24	2.12	2.05	2.00	1.97	1.94	1.92	1.89	1.87	1.85	1.84	1.83	1.81	1.80
50	11.84	5.08	3.66	3.09	2.78	2.46	2.29	2.17	2.10	2.05	2.01	1.98	1.96	1.93	1.91	1.89	1.88	1.87	1.85	1.84
60	12.58	5.28	3.77	3.17	2.84	2.51	2.34	2.21	2.14	2.08	2.05	2.02	1.99	1.96	1.94	1.92	1.91	1.90	1.88	1.87
75	13.55	5.54	3.92	3.27	2.93	2.57	2.39	2.26	2.18	2.13	2.09	2.06	2.04	2.00	1.98	1.96	1.95	1.93	1.92	1.90
100	14.92	5.88	4.11	3.41	3.04	2.66	2.47	2.33	2.24	2.19	2.14	2.11	2.09	2.05	2.03	2.01	1.99	1.98	1.96	1.94
125	16.09	6.17	4.26	3.52	3.12	2.72	2.52	2.38	2.29	2.23	2.19	2.15	2.13	2.09	2.06	2.04	2.03	2.02	1.99	1.98
150	17.11	6.41	4.38	3.60	3.19	2.78	2.57	2.42	2.33	2.27	2.22	2.19	2.16	2.12	2.09	2.07	2.06	2.05	2.03	2.01
175	17.97	6.60	4.49	3.67	3.25	2.82	2.61	2.46	2.36	2.29	2.25	2.22	2.19	2.15	2.12	2.10	2.08	2.07	2.05	2.04
200	18.75	6.80	4.59	3.75	3.30	2.86	2.65	2.49	2.39	2.32	2.28	2.24	2.21	2.17	2.14	2.12	2.10	2.09	2.09	2.06

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Table 19-11. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Observations (40 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.84	2.41	1.99	1.79	1.68	1.55	1.47	1.42	1.39	1.36	1.34	1.33	1.32	1.30	1.29	1.28	1.28	1.27	1.26	1.26
2	4.91	2.87	2.31	2.05	1.90	1.74	1.65	1.59	1.55	1.52	1.50	1.48	1.47	1.45	1.44	1.43	1.42	1.41	1.40	1.39
3	5.65	3.16	2.50	2.20	2.04	1.85	1.76	1.68	1.64	1.61	1.58	1.57	1.55	1.53	1.52	1.51	1.50	1.49	1.48	1.47
4	6.24	3.37	2.64	2.32	2.13	1.94	1.83	1.75	1.70	1.67	1.64	1.62	1.61	1.59	1.57	1.56	1.55	1.54	1.53	1.52
5	6.73	3.55	2.75	2.40	2.21	2.00	1.89	1.80	1.75	1.72	1.69	1.67	1.65	1.63	1.61	1.60	1.59	1.59	1.57	1.56
8	7.90	3.94	3.00	2.59	2.37	2.13	2.00	1.91	1.85	1.81	1.79	1.76	1.75	1.72	1.70	1.69	1.68	1.67	1.66	1.65
12	9.06	4.31	3.22	2.76	2.51	2.25	2.11	2.01	1.94	1.90	1.87	1.84	1.82	1.80	1.78	1.76	1.75	1.74	1.73	1.72
16	9.98	4.59	3.39	2.89	2.61	2.33	2.18	2.07	2.00	1.96	1.92	1.90	1.88	1.85	1.83	1.81	1.80	1.79	1.78	1.76
20	10.76	4.82	3.52	2.98	2.69	2.39	2.24	2.12	2.05	2.00	1.97	1.94	1.92	1.89	1.87	1.85	1.84	1.83	1.81	1.80
30	12.33	5.25	3.77	3.17	2.84	2.51	2.34	2.21	2.14	2.08	2.05	2.02	1.99	1.96	1.94	1.92	1.91	1.90	1.88	1.87
40	13.59	5.59	3.95	3.30	2.95	2.59	2.41	2.28	2.20	2.14	2.10	2.07	2.05	2.01	1.99	1.97	1.96	1.95	1.93	1.91
50	14.65	5.85	4.10	3.40	3.03	2.66	2.47	2.33	2.24	2.19	2.14	2.11	2.09	2.05	2.03	2.01	1.99	1.98	1.96	1.95
60	15.55	6.08	4.22	3.49	3.11	2.71	2.51	2.37	2.28	2.22	2.18	2.15	2.12	2.08	2.06	2.04	2.02	2.01	1.99	1.97
75	16.80	6.37	4.38	3.60	3.19	2.78	2.57	2.42	2.33	2.27	2.22	2.19	2.16	2.12	2.09	2.07	2.06	2.04	2.02	2.00
100	18.44	6.76	4.58	3.74	3.31	2.87	2.64	2.49	2.39	2.32	2.28	2.24	2.21	2.17	2.14	2.12	2.10	2.09	2.06	2.04
125	19.84	7.09	4.75	3.86	3.40	2.93	2.70	2.53	2.44	2.37	2.32	2.28	2.25	2.21	2.18	2.16	2.14	2.12	2.10	2.08
150	21.09	7.34	4.88	3.95	3.47	2.99	2.74	2.58	2.47	2.40	2.35	2.31	2.29	2.24	2.21	2.19	2.17	2.16	2.13	2.12
175	22.19	7.58	5.00	4.03	3.54	3.04	2.79	2.61	2.50	2.43	2.38	2.34	2.31	2.27	2.24	2.21	2.19	2.18	2.16	2.14
200	23.28	7.81	5.12	4.10	3.59	3.08	2.82	2.64	2.53	2.46	2.41	2.36	2.33	2.29	2.26	2.24	2.22	2.20	2.18	2.16

Table 19-11. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Observations (40 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.74	2.83	2.29	2.04	1.90	1.74	1.65	1.59	1.55	1.52	1.50	1.48	1.47	1.45	1.44	1.43	1.42	1.41	1.40	1.39
2	6.02	3.34	2.63	2.31	2.13	1.93	1.83	1.75	1.70	1.67	1.64	1.62	1.61	1.59	1.57	1.56	1.55	1.54	1.53	1.52
3	6.92	3.66	2.84	2.47	2.27	2.05	1.93	1.85	1.79	1.75	1.73	1.71	1.69	1.67	1.65	1.64	1.63	1.62	1.61	1.60
4	7.63	3.91	2.99	2.59	2.37	2.13	2.00	1.91	1.85	1.81	1.78	1.76	1.75	1.72	1.70	1.69	1.68	1.67	1.66	1.65
5	8.23	4.10	3.11	2.68	2.44	2.19	2.06	1.96	1.90	1.86	1.83	1.81	1.79	1.76	1.74	1.73	1.72	1.71	1.69	1.68
8	9.65	4.55	3.38	2.88	2.61	2.33	2.18	2.07	2.00	1.96	1.92	1.90	1.88	1.85	1.83	1.81	1.80	1.79	1.78	1.76
12	11.06	4.96	3.62	3.06	2.76	2.44	2.28	2.16	2.09	2.04	2.00	1.98	1.95	1.92	1.90	1.88	1.87	1.86	1.84	1.83
16	12.19	5.28	3.80	3.19	2.86	2.53	2.35	2.23	2.15	2.10	2.06	2.03	2.01	1.97	1.95	1.93	1.92	1.91	1.89	1.88
20	13.13	5.53	3.94	3.29	2.95	2.59	2.41	2.28	2.20	2.14	2.10	2.07	2.05	2.01	1.99	1.97	1.96	1.95	1.93	1.91
30	15.04	6.03	4.21	3.48	3.10	2.71	2.51	2.37	2.28	2.22	2.18	2.15	2.12	2.08	2.06	2.04	2.02	2.01	1.99	1.98
40	16.56	6.40	4.41	3.63	3.22	2.80	2.59	2.44	2.34	2.28	2.23	2.20	2.17	2.13	2.10	2.08	2.07	2.05	2.03	2.01
50	17.85	6.71	4.57	3.74	3.30	2.86	2.64	2.49	2.39	2.32	2.28	2.24	2.21	2.17	2.14	2.12	2.10	2.09	2.06	2.04
60	18.98	6.96	4.70	3.83	3.38	2.92	2.69	2.53	2.43	2.36	2.31	2.27	2.24	2.20	2.17	2.15	2.13	2.12	2.10	2.08
75	20.47	7.29	4.87	3.95	3.47	2.99	2.75	2.58	2.47	2.40	2.35	2.31	2.28	2.24	2.21	2.19	2.17	2.16	2.13	2.12
100	22.50	7.73	5.10	4.10	3.58	3.08	2.82	2.64	2.53	2.46	2.40	2.37	2.33	2.29	2.26	2.23	2.22	2.20	2.18	2.16
125	24.22	8.11	5.27	4.22	3.68	3.14	2.88	2.69	2.58	2.50	2.45	2.41	2.37	2.33	2.29	2.27	2.25	2.24	2.21	2.19
150	25.78	8.40	5.43	4.32	3.76	3.20	2.92	2.73	2.62	2.54	2.48	2.44	2.40	2.36	2.32	2.30	2.28	2.26	2.24	2.22
175	27.19	8.67	5.55	4.40	3.83	3.25	2.97	2.77	2.65	2.57	2.51	2.47	2.43	2.38	2.35	2.32	2.31	2.29	2.26	2.24
200	28.44	8.91	5.66	4.47	3.89	3.29	3.00	2.80	2.68	2.59	2.53	2.49	2.46	2.41	2.37	2.35	2.33	2.31	2.28	2.26

Table 19-12. κ -Multipliers for 1-of-4 Intrawell Prediction Limits on Observations (1 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.06	-0.01	-0.04	-0.07	-0.08	-0.10	-0.11	-0.12	-0.13	-0.13	-0.13	-0.14	-0.14	-0.14	-0.14	-0.15	-0.15	-0.15	-0.15	-0.15
2	0.39	0.28	0.22	0.19	0.17	0.14	0.12	0.11	0.10	0.10	0.09	0.09	0.09	0.08	0.08	0.08	0.07	0.07	0.07	0.07
3	0.59	0.44	0.37	0.33	0.30	0.27	0.25	0.23	0.22	0.22	0.21	0.21	0.20	0.20	0.20	0.19	0.19	0.19	0.19	0.18
4	0.74	0.55	0.47	0.42	0.39	0.36	0.33	0.32	0.31	0.30	0.29	0.29	0.28	0.28	0.27	0.27	0.27	0.27	0.26	0.26
5	0.85	0.63	0.54	0.49	0.46	0.42	0.40	0.38	0.37	0.36	0.35	0.35	0.34	0.34	0.33	0.33	0.33	0.32	0.32	0.32
8	1.11	0.82	0.70	0.64	0.60	0.55	0.52	0.50	0.49	0.48	0.47	0.46	0.46	0.45	0.45	0.44	0.44	0.44	0.43	0.43
12	1.36	0.98	0.84	0.76	0.72	0.66	0.63	0.60	0.59	0.58	0.57	0.56	0.56	0.55	0.54	0.54	0.53	0.53	0.53	0.52
16	1.54	1.10	0.94	0.85	0.80	0.74	0.70	0.67	0.66	0.64	0.63	0.63	0.62	0.61	0.61	0.60	0.60	0.59	0.59	0.59
20	1.70	1.19	1.01	0.92	0.86	0.80	0.76	0.73	0.71	0.69	0.68	0.68	0.67	0.66	0.65	0.65	0.65	0.64	0.64	0.63
30	2.01	1.37	1.15	1.04	0.98	0.90	0.86	0.82	0.80	0.78	0.77	0.76	0.76	0.75	0.74	0.73	0.73	0.73	0.72	0.72
40	2.25	1.49	1.25	1.13	1.06	0.97	0.92	0.89	0.86	0.85	0.83	0.82	0.82	0.81	0.80	0.79	0.79	0.78	0.78	0.77
50	2.45	1.60	1.33	1.20	1.12	1.03	0.98	0.94	0.91	0.89	0.88	0.87	0.86	0.85	0.84	0.84	0.83	0.83	0.82	0.81
60	2.62	1.68	1.39	1.25	1.17	1.07	1.02	0.98	0.95	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.87	0.86	0.85	0.85
75	2.85	1.79	1.47	1.32	1.23	1.13	1.07	1.02	1.00	0.98	0.96	0.95	0.94	0.93	0.92	0.91	0.91	0.90	0.90	0.89
100	3.16	1.94	1.58	1.41	1.31	1.20	1.13	1.09	1.06	1.03	1.02	1.01	1.00	0.98	0.97	0.97	0.96	0.96	0.95	0.94
125	3.42	2.05	1.66	1.48	1.37	1.25	1.18	1.13	1.10	1.08	1.06	1.05	1.04	1.02	1.01	1.01	1.00	1.00	0.99	0.98
150	3.65	2.15	1.73	1.54	1.42	1.29	1.22	1.17	1.14	1.11	1.10	1.08	1.07	1.06	1.05	1.04	1.03	1.03	1.02	1.01
175	3.85	2.24	1.79	1.58	1.46	1.33	1.26	1.20	1.17	1.14	1.13	1.11	1.10	1.09	1.07	1.07	1.06	1.05	1.04	1.04
200	4.04	2.31	1.84	1.63	1.50	1.36	1.29	1.23	1.20	1.17	1.15	1.14	1.13	1.11	1.10	1.09	1.08	1.08	1.07	1.06

Table 19-12. κ -Multipliers for 1-of-4 Intrawell Prediction Limits on Observations (1 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.36	0.25	0.21	0.18	0.16	0.13	0.12	0.11	0.10	0.09	0.09	0.09	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07
2	0.70	0.53	0.46	0.41	0.39	0.35	0.33	0.31	0.30	0.30	0.29	0.29	0.28	0.28	0.27	0.27	0.27	0.27	0.26	0.26
3	0.91	0.69	0.60	0.54	0.51	0.47	0.44	0.43	0.41	0.40	0.40	0.39	0.39	0.38	0.38	0.37	0.37	0.37	0.36	0.36
4	1.07	0.80	0.69	0.63	0.60	0.55	0.52	0.50	0.49	0.48	0.47	0.46	0.46	0.45	0.45	0.44	0.44	0.44	0.43	0.43
5	1.21	0.89	0.77	0.70	0.66	0.61	0.58	0.56	0.54	0.53	0.52	0.52	0.51	0.50	0.50	0.50	0.49	0.49	0.49	0.48
8	1.50	1.08	0.93	0.85	0.80	0.74	0.70	0.67	0.66	0.64	0.63	0.63	0.62	0.61	0.61	0.60	0.60	0.59	0.59	0.59
12	1.79	1.26	1.07	0.97	0.91	0.84	0.80	0.77	0.75	0.73	0.72	0.72	0.71	0.70	0.69	0.69	0.68	0.68	0.67	0.67
16	2.01	1.38	1.17	1.06	0.99	0.91	0.87	0.84	0.81	0.80	0.79	0.78	0.77	0.76	0.75	0.75	0.74	0.74	0.73	0.73
20	2.20	1.48	1.24	1.13	1.05	0.97	0.92	0.89	0.86	0.85	0.83	0.82	0.82	0.81	0.80	0.79	0.79	0.78	0.78	0.77
30	2.56	1.67	1.39	1.25	1.17	1.07	1.02	0.98	0.95	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.86	0.86	0.85	0.85
40	2.85	1.81	1.49	1.34	1.25	1.14	1.08	1.04	1.01	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90
50	3.10	1.92	1.57	1.41	1.31	1.19	1.13	1.09	1.06	1.03	1.02	1.01	1.00	0.98	0.97	0.97	0.96	0.96	0.95	0.94
60	3.31	2.02	1.64	1.46	1.36	1.24	1.17	1.12	1.09	1.07	1.05	1.04	1.03	1.02	1.01	1.00	0.99	0.99	0.98	0.97
75	3.58	2.14	1.73	1.53	1.42	1.29	1.22	1.17	1.14	1.11	1.10	1.08	1.07	1.06	1.05	1.04	1.03	1.03	1.02	1.01
100	3.96	2.30	1.84	1.62	1.50	1.36	1.29	1.23	1.19	1.17	1.15	1.14	1.13	1.11	1.10	1.09	1.08	1.08	1.07	1.06
125	4.28	2.43	1.93	1.70	1.56	1.42	1.34	1.28	1.24	1.21	1.19	1.18	1.17	1.15	1.14	1.13	1.12	1.11	1.10	1.10
150	4.57	2.54	2.00	1.75	1.61	1.46	1.38	1.31	1.27	1.25	1.23	1.21	1.20	1.18	1.17	1.16	1.15	1.15	1.14	1.13
175	4.82	2.63	2.06	1.80	1.66	1.50	1.41	1.35	1.30	1.28	1.25	1.24	1.23	1.21	1.19	1.18	1.18	1.17	1.16	1.15
200	5.04	2.72	2.12	1.85	1.70	1.53	1.44	1.37	1.33	1.30	1.28	1.26	1.25	1.23	1.22	1.21	1.20	1.19	1.18	1.17

Table 19-12. κ -Multipliers for 1-of-4 Intrawell Prediction Limits on Observations (1 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.64	0.50	0.44	0.40	0.37	0.34	0.32	0.31	0.30	0.29	0.29	0.28	0.28	0.27	0.27	0.27	0.27	0.26	0.26	0.26
2	1.01	0.78	0.68	0.62	0.59	0.54	0.52	0.50	0.48	0.47	0.47	0.46	0.46	0.45	0.45	0.44	0.44	0.44	0.43	0.43
3	1.25	0.94	0.82	0.75	0.71	0.65	0.62	0.60	0.58	0.57	0.57	0.56	0.55	0.55	0.54	0.54	0.53	0.53	0.53	0.52
4	1.44	1.06	0.92	0.84	0.79	0.73	0.70	0.67	0.65	0.64	0.63	0.63	0.62	0.61	0.61	0.60	0.60	0.59	0.59	0.59
5	1.59	1.15	0.99	0.91	0.85	0.79	0.75	0.72	0.71	0.69	0.68	0.68	0.67	0.66	0.65	0.65	0.64	0.64	0.64	0.63
8	1.93	1.36	1.16	1.05	0.99	0.91	0.87	0.83	0.81	0.80	0.79	0.78	0.77	0.76	0.75	0.75	0.74	0.74	0.73	0.73
12	2.27	1.54	1.30	1.17	1.10	1.01	0.96	0.93	0.90	0.88	0.87	0.86	0.85	0.84	0.83	0.83	0.82	0.82	0.81	0.81
16	2.53	1.68	1.40	1.26	1.18	1.08	1.03	0.99	0.96	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.88	0.87	0.87	0.86
20	2.75	1.79	1.48	1.33	1.24	1.14	1.08	1.04	1.01	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90
30	3.20	2.00	1.63	1.46	1.35	1.24	1.17	1.12	1.09	1.07	1.05	1.04	1.03	1.02	1.01	1.00	0.99	0.99	0.98	0.97
40	3.54	2.15	1.74	1.55	1.43	1.31	1.24	1.18	1.15	1.13	1.11	1.10	1.08	1.07	1.06	1.05	1.04	1.04	1.03	1.02
50	3.83	2.27	1.83	1.62	1.50	1.36	1.29	1.23	1.19	1.17	1.15	1.14	1.13	1.11	1.10	1.09	1.08	1.08	1.07	1.06
60	4.09	2.38	1.90	1.68	1.55	1.40	1.33	1.27	1.23	1.20	1.19	1.17	1.16	1.14	1.13	1.12	1.11	1.11	1.10	1.09
75	4.42	2.51	1.99	1.75	1.61	1.46	1.38	1.31	1.27	1.25	1.23	1.21	1.20	1.18	1.17	1.16	1.15	1.15	1.14	1.13
100	4.89	2.69	2.11	1.84	1.69	1.53	1.44	1.37	1.33	1.30	1.28	1.26	1.25	1.23	1.22	1.21	1.20	1.19	1.18	1.17
125	5.27	2.84	2.20	1.92	1.76	1.58	1.49	1.42	1.37	1.34	1.32	1.30	1.29	1.27	1.25	1.24	1.24	1.23	1.22	1.21
150	5.62	2.96	2.28	1.98	1.81	1.63	1.53	1.45	1.41	1.38	1.35	1.33	1.32	1.30	1.28	1.27	1.26	1.26	1.25	1.24
175	5.92	3.06	2.35	2.03	1.86	1.66	1.56	1.48	1.44	1.40	1.38	1.36	1.35	1.32	1.31	1.30	1.29	1.28	1.27	1.26
200	6.19	3.16	2.41	2.08	1.89	1.70	1.59	1.51	1.46	1.43	1.40	1.38	1.37	1.35	1.33	1.32	1.31	1.30	1.29	1.28

Table 19-12. κ -Multipliers for 1-of-4 Intrawell Prediction Limits on Observations (2 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.39	0.28	0.22	0.19	0.17	0.14	0.12	0.11	0.10	0.10	0.09	0.09	0.09	0.08	0.08	0.08	0.07	0.07	0.07	0.07
2	0.74	0.55	0.47	0.42	0.39	0.36	0.33	0.32	0.31	0.30	0.29	0.29	0.28	0.28	0.27	0.27	0.27	0.27	0.26	0.26
3	0.95	0.70	0.61	0.55	0.51	0.47	0.45	0.43	0.41	0.41	0.40	0.39	0.39	0.38	0.38	0.37	0.37	0.37	0.37	0.36
4	1.11	0.82	0.70	0.64	0.60	0.55	0.52	0.50	0.49	0.48	0.47	0.46	0.46	0.45	0.45	0.44	0.44	0.44	0.43	0.43
5	1.24	0.91	0.78	0.71	0.67	0.61	0.58	0.56	0.54	0.53	0.52	0.52	0.51	0.51	0.50	0.50	0.49	0.49	0.49	0.48
8	1.54	1.10	0.94	0.85	0.80	0.74	0.70	0.67	0.66	0.64	0.63	0.63	0.62	0.61	0.61	0.60	0.60	0.59	0.59	0.59
12	1.83	1.27	1.07	0.97	0.91	0.84	0.80	0.77	0.75	0.74	0.72	0.72	0.71	0.70	0.69	0.69	0.68	0.68	0.67	0.67
16	2.06	1.39	1.17	1.06	0.99	0.92	0.87	0.84	0.81	0.80	0.79	0.78	0.77	0.76	0.75	0.75	0.74	0.74	0.73	0.73
20	2.25	1.49	1.25	1.13	1.06	0.97	0.92	0.89	0.86	0.85	0.83	0.82	0.82	0.81	0.80	0.79	0.79	0.78	0.78	0.77
30	2.62	1.68	1.39	1.25	1.17	1.07	1.02	0.98	0.95	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.87	0.86	0.85	0.85
40	2.91	1.82	1.50	1.34	1.25	1.14	1.08	1.04	1.01	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90
50	3.16	1.94	1.58	1.41	1.31	1.20	1.13	1.09	1.06	1.03	1.02	1.01	1.00	0.98	0.97	0.97	0.96	0.96	0.95	0.94
60	3.37	2.03	1.65	1.47	1.36	1.24	1.17	1.12	1.09	1.07	1.05	1.04	1.03	1.02	1.01	1.00	0.99	0.99	0.98	0.97
75	3.65	2.15	1.73	1.54	1.42	1.29	1.22	1.17	1.14	1.11	1.10	1.08	1.07	1.06	1.05	1.04	1.03	1.03	1.02	1.01
100	4.04	2.31	1.84	1.63	1.50	1.36	1.29	1.23	1.19	1.17	1.15	1.14	1.13	1.11	1.10	1.09	1.08	1.08	1.07	1.06
125	4.37	2.44	1.93	1.70	1.56	1.42	1.34	1.28	1.24	1.21	1.19	1.18	1.17	1.15	1.14	1.13	1.12	1.11	1.11	1.10
150	4.65	2.55	2.01	1.76	1.62	1.46	1.38	1.31	1.27	1.25	1.23	1.21	1.20	1.18	1.17	1.16	1.15	1.15	1.14	1.13
175	4.91	2.65	2.07	1.81	1.66	1.50	1.41	1.35	1.30	1.28	1.25	1.24	1.23	1.21	1.19	1.18	1.18	1.17	1.16	1.15
200	5.14	2.73	2.12	1.85	1.70	1.53	1.44	1.37	1.33	1.30	1.28	1.26	1.25	1.23	1.22	1.21	1.20	1.19	1.18	1.17

Table 19-12. κ -Multipliers for 1-of-4 Intrawell Prediction Limits on Observations (2 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.70	0.53	0.46	0.41	0.39	0.35	0.33	0.31	0.30	0.30	0.29	0.29	0.28	0.28	0.27	0.27	0.27	0.27	0.26	0.26
2	1.07	0.80	0.69	0.63	0.60	0.55	0.52	0.50	0.49	0.48	0.47	0.46	0.46	0.45	0.45	0.44	0.44	0.44	0.43	0.43
3	1.32	0.97	0.83	0.76	0.71	0.66	0.63	0.60	0.59	0.58	0.57	0.56	0.55	0.55	0.54	0.54	0.53	0.53	0.53	0.52
4	1.50	1.08	0.93	0.85	0.80	0.74	0.70	0.67	0.66	0.64	0.63	0.63	0.62	0.61	0.61	0.60	0.60	0.59	0.59	0.59
5	1.66	1.18	1.01	0.92	0.86	0.79	0.76	0.73	0.71	0.69	0.68	0.68	0.67	0.66	0.65	0.65	0.65	0.64	0.64	0.63
8	2.01	1.38	1.17	1.06	0.99	0.91	0.87	0.84	0.81	0.80	0.79	0.78	0.77	0.76	0.75	0.75	0.74	0.74	0.73	0.73
12	2.36	1.57	1.31	1.18	1.10	1.01	0.96	0.93	0.90	0.88	0.87	0.86	0.85	0.84	0.83	0.83	0.82	0.82	0.81	0.81
16	2.63	1.70	1.41	1.27	1.18	1.09	1.03	0.99	0.96	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.88	0.87	0.87	0.86
20	2.85	1.81	1.49	1.34	1.25	1.14	1.08	1.04	1.01	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90
30	3.31	2.02	1.64	1.46	1.36	1.24	1.17	1.12	1.09	1.07	1.05	1.04	1.03	1.02	1.01	1.00	0.99	0.99	0.98	0.97
40	3.66	2.17	1.75	1.55	1.44	1.31	1.24	1.18	1.15	1.13	1.11	1.10	1.09	1.07	1.06	1.05	1.04	1.04	1.03	1.02
50	3.96	2.30	1.84	1.62	1.50	1.36	1.29	1.23	1.19	1.17	1.15	1.14	1.13	1.11	1.10	1.09	1.08	1.08	1.07	1.06
60	4.22	2.41	1.91	1.68	1.55	1.41	1.33	1.27	1.23	1.20	1.19	1.17	1.16	1.14	1.13	1.12	1.11	1.11	1.10	1.09
75	4.56	2.54	2.00	1.75	1.61	1.46	1.38	1.31	1.27	1.25	1.23	1.21	1.20	1.18	1.17	1.16	1.15	1.15	1.14	1.13
100	5.04	2.72	2.12	1.85	1.70	1.53	1.44	1.37	1.33	1.30	1.28	1.26	1.25	1.23	1.22	1.21	1.20	1.19	1.18	1.17
125	5.45	2.86	2.21	1.92	1.76	1.58	1.49	1.42	1.37	1.34	1.32	1.30	1.29	1.27	1.25	1.24	1.24	1.23	1.22	1.21
150	5.79	2.99	2.29	1.98	1.81	1.63	1.53	1.45	1.41	1.38	1.35	1.33	1.32	1.30	1.28	1.27	1.26	1.26	1.25	1.24
175	6.11	3.09	2.36	2.04	1.86	1.66	1.56	1.48	1.44	1.40	1.38	1.36	1.35	1.32	1.31	1.30	1.29	1.28	1.27	1.26
200	6.39	3.19	2.42	2.08	1.90	1.70	1.59	1.51	1.46	1.43	1.40	1.38	1.37	1.35	1.33	1.32	1.31	1.30	1.29	1.28

Table 19-12. κ -Multipliers for 1-of-4 Intrawell Prediction Limits on Observations (2 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.01	0.78	0.68	0.62	0.59	0.54	0.52	0.50	0.48	0.47	0.47	0.46	0.46	0.45	0.45	0.44	0.44	0.44	0.43	0.43
2	1.44	1.06	0.92	0.84	0.79	0.73	0.70	0.67	0.65	0.64	0.63	0.63	0.62	0.61	0.61	0.60	0.60	0.59	0.59	0.59
3	1.72	1.23	1.06	0.96	0.91	0.84	0.80	0.77	0.75	0.73	0.72	0.72	0.71	0.70	0.69	0.69	0.68	0.68	0.67	0.67
4	1.93	1.36	1.16	1.05	0.99	0.91	0.87	0.83	0.81	0.80	0.79	0.78	0.77	0.76	0.75	0.75	0.74	0.74	0.73	0.73
5	2.11	1.46	1.23	1.12	1.05	0.97	0.92	0.88	0.86	0.84	0.83	0.82	0.82	0.80	0.80	0.79	0.79	0.78	0.78	0.77
8	2.53	1.68	1.40	1.26	1.18	1.08	1.03	0.99	0.96	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.88	0.87	0.87	0.86
12	2.95	1.88	1.55	1.39	1.29	1.18	1.12	1.08	1.05	1.03	1.01	1.00	0.99	0.98	0.97	0.96	0.95	0.95	0.94	0.93
16	3.27	2.03	1.66	1.48	1.37	1.25	1.19	1.14	1.11	1.08	1.07	1.05	1.04	1.03	1.02	1.01	1.00	1.00	0.99	0.98
20	3.54	2.15	1.74	1.55	1.43	1.31	1.24	1.18	1.15	1.13	1.11	1.10	1.08	1.07	1.06	1.05	1.04	1.04	1.03	1.02
30	4.09	2.38	1.90	1.68	1.55	1.40	1.33	1.27	1.23	1.20	1.19	1.17	1.16	1.14	1.13	1.12	1.11	1.11	1.10	1.09
40	4.52	2.55	2.02	1.77	1.63	1.47	1.39	1.33	1.29	1.26	1.24	1.22	1.21	1.19	1.18	1.17	1.16	1.16	1.15	1.14
50	4.89	2.69	2.11	1.84	1.69	1.53	1.44	1.37	1.33	1.30	1.28	1.26	1.25	1.23	1.22	1.21	1.20	1.19	1.18	1.17
60	5.20	2.81	2.19	1.90	1.75	1.57	1.48	1.41	1.36	1.33	1.31	1.29	1.28	1.26	1.25	1.24	1.23	1.22	1.21	1.20
75	5.62	2.96	2.28	1.98	1.81	1.63	1.53	1.45	1.41	1.38	1.35	1.33	1.32	1.30	1.28	1.27	1.26	1.26	1.25	1.24
100	6.20	3.16	2.41	2.08	1.89	1.69	1.59	1.51	1.46	1.43	1.40	1.38	1.37	1.35	1.33	1.32	1.31	1.30	1.29	1.28
125	6.69	3.32	2.51	2.16	1.96	1.75	1.64	1.56	1.50	1.47	1.44	1.42	1.41	1.38	1.37	1.35	1.35	1.34	1.33	1.32
150	7.11	3.46	2.59	2.22	2.01	1.79	1.68	1.59	1.54	1.50	1.47	1.45	1.44	1.41	1.40	1.38	1.37	1.37	1.35	1.34
175	7.49	3.58	2.67	2.28	2.06	1.83	1.71	1.62	1.57	1.53	1.50	1.48	1.46	1.44	1.42	1.41	1.40	1.39	1.38	1.37
200	7.84	3.69	2.73	2.32	2.10	1.86	1.74	1.65	1.59	1.55	1.52	1.50	1.48	1.46	1.44	1.43	1.42	1.41	1.40	1.39

Table 19-12. κ -Multipliers for 1-of-4 Intrawell Prediction Limits on Observations (5 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.85	0.63	0.54	0.49	0.46	0.42	0.40	0.38	0.37	0.36	0.35	0.35	0.34	0.34	0.33	0.33	0.33	0.32	0.32	0.32
2	1.24	0.91	0.78	0.71	0.67	0.61	0.58	0.56	0.54	0.53	0.52	0.52	0.51	0.51	0.50	0.50	0.49	0.49	0.49	0.48
3	1.50	1.07	0.91	0.83	0.78	0.72	0.69	0.66	0.64	0.63	0.62	0.61	0.61	0.60	0.59	0.59	0.58	0.58	0.58	0.57
4	1.70	1.19	1.01	0.92	0.86	0.80	0.76	0.73	0.71	0.69	0.68	0.68	0.67	0.66	0.65	0.65	0.65	0.64	0.64	0.63
5	1.86	1.29	1.09	0.99	0.92	0.85	0.81	0.78	0.76	0.74	0.73	0.73	0.72	0.71	0.70	0.70	0.69	0.69	0.68	0.68
8	2.25	1.49	1.25	1.13	1.06	0.97	0.92	0.89	0.86	0.85	0.83	0.82	0.82	0.81	0.80	0.79	0.79	0.78	0.78	0.77
12	2.62	1.68	1.39	1.25	1.17	1.07	1.02	0.98	0.95	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.87	0.86	0.85	0.85
16	2.91	1.82	1.50	1.34	1.25	1.14	1.08	1.04	1.01	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90
20	3.16	1.94	1.58	1.41	1.31	1.20	1.13	1.09	1.06	1.03	1.02	1.01	1.00	0.98	0.97	0.97	0.96	0.96	0.95	0.94
30	3.65	2.15	1.73	1.54	1.42	1.29	1.22	1.17	1.14	1.11	1.10	1.08	1.07	1.06	1.05	1.04	1.03	1.03	1.02	1.01
40	4.04	2.31	1.84	1.63	1.50	1.36	1.29	1.23	1.19	1.17	1.15	1.14	1.13	1.11	1.10	1.09	1.08	1.08	1.07	1.06
50	4.37	2.44	1.93	1.70	1.56	1.42	1.34	1.28	1.24	1.21	1.19	1.18	1.17	1.15	1.14	1.13	1.12	1.11	1.11	1.10
60	4.65	2.55	2.01	1.76	1.62	1.46	1.38	1.31	1.27	1.25	1.23	1.21	1.20	1.18	1.17	1.16	1.15	1.15	1.14	1.13
75	5.02	2.69	2.10	1.83	1.68	1.51	1.43	1.36	1.32	1.29	1.27	1.25	1.24	1.22	1.21	1.20	1.19	1.18	1.17	1.16
100	5.55	2.88	2.22	1.92	1.76	1.58	1.49	1.42	1.37	1.34	1.32	1.30	1.29	1.27	1.25	1.24	1.24	1.23	1.22	1.21
125	5.99	3.03	2.31	2.00	1.83	1.64	1.54	1.46	1.42	1.38	1.36	1.34	1.33	1.31	1.29	1.28	1.27	1.26	1.25	1.25
150	6.37	3.16	2.40	2.06	1.88	1.68	1.58	1.50	1.45	1.42	1.39	1.37	1.36	1.34	1.32	1.31	1.30	1.29	1.28	1.27
175	6.71	3.27	2.46	2.12	1.92	1.72	1.61	1.53	1.48	1.44	1.42	1.40	1.38	1.36	1.35	1.33	1.32	1.32	1.30	1.30
200	7.03	3.37	2.52	2.16	1.96	1.75	1.64	1.56	1.50	1.47	1.44	1.42	1.41	1.38	1.37	1.35	1.35	1.34	1.33	1.32

Table 19-12. κ -Multipliers for 1-of-4 Intrawell Prediction Limits on Observations (5 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.21	0.89	0.77	0.70	0.66	0.61	0.58	0.56	0.54	0.53	0.52	0.52	0.51	0.50	0.50	0.50	0.49	0.49	0.49	0.48
2	1.66	1.18	1.01	0.92	0.86	0.79	0.76	0.73	0.71	0.69	0.68	0.68	0.67	0.66	0.65	0.65	0.65	0.64	0.64	0.63
3	1.96	1.35	1.14	1.04	0.97	0.90	0.85	0.82	0.80	0.78	0.77	0.76	0.76	0.75	0.74	0.73	0.73	0.73	0.72	0.72
4	2.20	1.48	1.24	1.13	1.05	0.97	0.92	0.89	0.86	0.85	0.83	0.82	0.82	0.81	0.80	0.79	0.79	0.78	0.78	0.77
5	2.39	1.58	1.32	1.19	1.11	1.02	0.97	0.94	0.91	0.89	0.88	0.87	0.86	0.85	0.84	0.84	0.83	0.83	0.82	0.81
8	2.85	1.81	1.49	1.34	1.25	1.14	1.08	1.04	1.01	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90
12	3.31	2.02	1.64	1.46	1.36	1.24	1.17	1.12	1.09	1.07	1.05	1.04	1.03	1.02	1.01	1.00	0.99	0.99	0.98	0.97
16	3.66	2.17	1.75	1.55	1.44	1.31	1.24	1.18	1.15	1.13	1.11	1.10	1.09	1.07	1.06	1.05	1.04	1.04	1.03	1.02
20	3.96	2.30	1.84	1.62	1.50	1.36	1.29	1.23	1.19	1.17	1.15	1.14	1.13	1.11	1.10	1.09	1.08	1.08	1.07	1.06
30	4.56	2.54	2.00	1.75	1.61	1.46	1.38	1.31	1.27	1.25	1.23	1.21	1.20	1.18	1.17	1.16	1.15	1.15	1.14	1.13
40	5.04	2.72	2.12	1.85	1.70	1.53	1.44	1.37	1.33	1.30	1.28	1.26	1.25	1.23	1.22	1.21	1.20	1.19	1.18	1.17
50	5.45	2.86	2.21	1.92	1.76	1.58	1.49	1.42	1.37	1.34	1.32	1.30	1.29	1.27	1.25	1.24	1.24	1.23	1.22	1.21
60	5.79	2.99	2.29	1.98	1.81	1.63	1.53	1.45	1.41	1.38	1.35	1.33	1.32	1.30	1.28	1.27	1.26	1.26	1.25	1.24
75	6.25	3.14	2.39	2.06	1.88	1.68	1.58	1.50	1.45	1.42	1.39	1.37	1.36	1.34	1.32	1.31	1.30	1.29	1.28	1.27
100	6.90	3.35	2.52	2.16	1.96	1.75	1.64	1.56	1.50	1.47	1.44	1.42	1.41	1.38	1.37	1.35	1.35	1.34	1.32	1.32
125	7.44	3.52	2.62	2.24	2.03	1.80	1.69	1.60	1.55	1.51	1.48	1.46	1.44	1.42	1.40	1.39	1.38	1.37	1.36	1.35
150	7.91	3.67	2.71	2.30	2.08	1.85	1.72	1.64	1.58	1.54	1.51	1.49	1.47	1.45	1.43	1.42	1.41	1.40	1.39	1.38
175	8.33	3.79	2.78	2.36	2.13	1.89	1.76	1.67	1.61	1.57	1.54	1.52	1.50	1.47	1.45	1.44	1.43	1.42	1.41	1.40
200	8.73	3.90	2.85	2.41	2.17	1.92	1.79	1.69	1.63	1.59	1.56	1.54	1.52	1.49	1.48	1.46	1.45	1.44	1.43	1.42

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Table 19-12. κ -Multipliers for 1-of-4 Intrawell Prediction Limits on Observations (5 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.59	1.15	0.99	0.91	0.85	0.79	0.75	0.72	0.71	0.69	0.68	0.68	0.67	0.66	0.65	0.65	0.64	0.64	0.64	0.63
2	2.11	1.46	1.23	1.12	1.05	0.97	0.92	0.88	0.86	0.84	0.83	0.82	0.82	0.80	0.80	0.79	0.79	0.78	0.78	0.77
3	2.47	1.65	1.38	1.24	1.16	1.07	1.01	0.97	0.95	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.86	0.86	0.85	0.85
4	2.75	1.79	1.48	1.33	1.24	1.14	1.08	1.04	1.01	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90
5	2.99	1.90	1.56	1.40	1.30	1.19	1.13	1.08	1.05	1.03	1.02	1.01	1.00	0.98	0.97	0.97	0.96	0.96	0.95	0.94
8	3.54	2.15	1.74	1.55	1.43	1.31	1.24	1.18	1.15	1.13	1.11	1.10	1.08	1.07	1.06	1.05	1.04	1.04	1.03	1.02
12	4.09	2.38	1.90	1.68	1.55	1.40	1.33	1.27	1.23	1.20	1.19	1.17	1.16	1.14	1.13	1.12	1.11	1.11	1.10	1.09
16	4.52	2.55	2.02	1.77	1.63	1.47	1.39	1.33	1.29	1.26	1.24	1.22	1.21	1.19	1.18	1.17	1.16	1.16	1.15	1.14
20	4.89	2.69	2.11	1.84	1.69	1.53	1.44	1.37	1.33	1.30	1.28	1.26	1.25	1.23	1.22	1.21	1.20	1.19	1.18	1.17
30	5.62	2.96	2.28	1.98	1.81	1.63	1.53	1.45	1.41	1.38	1.35	1.33	1.32	1.30	1.28	1.27	1.26	1.26	1.25	1.24
40	6.20	3.16	2.41	2.08	1.89	1.69	1.59	1.51	1.46	1.43	1.40	1.38	1.37	1.35	1.33	1.32	1.31	1.30	1.29	1.28
50	6.69	3.32	2.51	2.16	1.96	1.75	1.64	1.56	1.50	1.47	1.44	1.42	1.41	1.38	1.37	1.35	1.35	1.34	1.33	1.32
60	7.11	3.46	2.59	2.22	2.01	1.79	1.68	1.59	1.54	1.50	1.47	1.45	1.44	1.41	1.40	1.38	1.37	1.37	1.35	1.34
75	7.68	3.64	2.70	2.30	2.08	1.85	1.72	1.64	1.58	1.54	1.51	1.49	1.47	1.45	1.43	1.42	1.41	1.40	1.39	1.38
100	8.45	3.87	2.84	2.41	2.17	1.92	1.79	1.69	1.63	1.59	1.56	1.54	1.52	1.49	1.48	1.46	1.45	1.44	1.43	1.42
125	9.11	4.06	2.95	2.49	2.24	1.97	1.83	1.73	1.67	1.63	1.60	1.57	1.56	1.53	1.51	1.50	1.48	1.48	1.46	1.45
150	9.70	4.23	3.05	2.56	2.29	2.02	1.88	1.77	1.71	1.66	1.63	1.60	1.59	1.56	1.54	1.52	1.51	1.50	1.49	1.48
175	10.20	4.37	3.13	2.61	2.34	2.05	1.91	1.80	1.73	1.69	1.66	1.63	1.61	1.58	1.56	1.55	1.53	1.53	1.51	1.50
200	10.66	4.50	3.20	2.67	2.38	2.09	1.94	1.83	1.76	1.71	1.68	1.65	1.63	1.60	1.58	1.57	1.55	1.54	1.53	1.52

Table 19-12. κ -Multipliers for 1-of-4 Intrawell Prediction Limits on Observations (10 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.24	0.91	0.78	0.71	0.67	0.61	0.58	0.56	0.54	0.53	0.52	0.52	0.51	0.51	0.50	0.50	0.49	0.49	0.49	0.48
2	1.70	1.19	1.01	0.92	0.86	0.80	0.76	0.73	0.71	0.69	0.68	0.67	0.66	0.65	0.65	0.65	0.64	0.64	0.64	0.63
3	2.01	1.37	1.15	1.04	0.98	0.90	0.86	0.82	0.80	0.78	0.77	0.76	0.76	0.75	0.74	0.73	0.73	0.73	0.72	0.72
4	2.25	1.49	1.25	1.13	1.06	0.97	0.92	0.89	0.86	0.85	0.83	0.82	0.82	0.81	0.80	0.79	0.79	0.78	0.78	0.77
5	2.45	1.60	1.33	1.20	1.12	1.03	0.98	0.94	0.91	0.89	0.88	0.87	0.86	0.85	0.84	0.84	0.83	0.83	0.82	0.81
8	2.91	1.82	1.50	1.34	1.25	1.14	1.08	1.04	1.01	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90
12	3.37	2.03	1.65	1.47	1.36	1.24	1.17	1.12	1.09	1.07	1.05	1.04	1.03	1.02	1.01	1.00	0.99	0.99	0.98	0.97
16	3.74	2.19	1.76	1.56	1.44	1.31	1.24	1.18	1.15	1.13	1.11	1.10	1.09	1.07	1.06	1.05	1.04	1.04	1.03	1.02
20	4.04	2.31	1.84	1.63	1.50	1.36	1.29	1.23	1.19	1.17	1.15	1.14	1.13	1.11	1.10	1.09	1.08	1.08	1.07	1.06
30	4.65	2.55	2.00	1.76	1.62	1.46	1.38	1.31	1.27	1.25	1.23	1.21	1.20	1.18	1.17	1.16	1.15	1.15	1.14	1.13
40	5.14	2.73	2.12	1.85	1.70	1.53	1.44	1.37	1.33	1.30	1.28	1.26	1.25	1.23	1.22	1.21	1.20	1.19	1.18	1.17
50	5.55	2.88	2.22	1.92	1.76	1.58	1.49	1.42	1.37	1.34	1.32	1.30	1.29	1.27	1.25	1.24	1.24	1.23	1.22	1.21
60	5.90	3.00	2.30	1.99	1.81	1.63	1.53	1.45	1.41	1.38	1.35	1.33	1.32	1.30	1.28	1.27	1.26	1.26	1.25	1.24
75	6.37	3.16	2.39	2.06	1.88	1.68	1.58	1.50	1.45	1.42	1.39	1.37	1.36	1.34	1.32	1.31	1.30	1.29	1.28	1.27
100	7.03	3.37	2.52	2.16	1.96	1.75	1.64	1.56	1.50	1.47	1.44	1.42	1.41	1.38	1.37	1.35	1.35	1.34	1.32	1.32
125	7.59	3.54	2.63	2.24	2.03	1.80	1.69	1.60	1.55	1.51	1.48	1.46	1.44	1.42	1.40	1.39	1.38	1.37	1.36	1.35
150	8.06	3.68	2.71	2.31	2.08	1.85	1.72	1.64	1.58	1.54	1.51	1.49	1.47	1.45	1.43	1.42	1.41	1.40	1.38	1.38
175	8.50	3.81	2.79	2.36	2.13	1.89	1.76	1.67	1.61	1.57	1.54	1.52	1.50	1.47	1.45	1.44	1.43	1.42	1.41	1.40
200	8.88	3.93	2.86	2.41	2.17	1.92	1.79	1.69	1.63	1.59	1.56	1.54	1.52	1.49	1.48	1.46	1.45	1.44	1.43	1.42

Table 19-12. κ -Multipliers for 1-of-4 Intrawell Prediction Limits on Observations (10 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.66	1.18	1.01	0.92	0.86	0.79	0.76	0.73	0.71	0.69	0.68	0.68	0.67	0.66	0.65	0.65	0.65	0.64	0.64	0.63
2	2.20	1.48	1.24	1.13	1.05	0.97	0.92	0.89	0.86	0.85	0.83	0.82	0.82	0.81	0.80	0.79	0.79	0.78	0.78	0.77
3	2.56	1.67	1.39	1.25	1.17	1.07	1.02	0.98	0.95	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.86	0.86	0.85	0.85
4	2.85	1.81	1.49	1.34	1.25	1.14	1.08	1.04	1.01	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90
5	3.10	1.92	1.57	1.41	1.31	1.19	1.13	1.09	1.06	1.03	1.02	1.01	1.00	0.98	0.97	0.97	0.96	0.96	0.95	0.94
8	3.66	2.17	1.75	1.55	1.44	1.31	1.24	1.18	1.15	1.13	1.11	1.10	1.09	1.07	1.06	1.05	1.04	1.04	1.03	1.02
12	4.22	2.41	1.91	1.68	1.55	1.41	1.33	1.27	1.23	1.20	1.19	1.17	1.16	1.14	1.13	1.12	1.11	1.11	1.10	1.09
16	4.67	2.58	2.03	1.78	1.63	1.48	1.39	1.33	1.29	1.26	1.24	1.22	1.21	1.19	1.18	1.17	1.16	1.16	1.15	1.14
20	5.04	2.72	2.12	1.85	1.70	1.53	1.44	1.37	1.33	1.30	1.28	1.26	1.25	1.23	1.22	1.21	1.20	1.19	1.18	1.17
30	5.79	2.99	2.29	1.98	1.81	1.63	1.53	1.45	1.41	1.38	1.35	1.33	1.32	1.30	1.28	1.27	1.26	1.26	1.25	1.24
40	6.39	3.19	2.42	2.08	1.90	1.70	1.59	1.51	1.46	1.43	1.40	1.38	1.37	1.35	1.33	1.32	1.31	1.30	1.29	1.28
50	6.90	3.35	2.52	2.16	1.96	1.75	1.64	1.56	1.50	1.47	1.44	1.42	1.41	1.38	1.37	1.35	1.35	1.34	1.32	1.32
60	7.34	3.49	2.60	2.22	2.02	1.79	1.68	1.59	1.54	1.50	1.47	1.45	1.44	1.41	1.40	1.38	1.37	1.37	1.35	1.34
75	7.91	3.67	2.71	2.30	2.08	1.85	1.72	1.64	1.58	1.54	1.51	1.49	1.47	1.45	1.43	1.42	1.41	1.40	1.39	1.38
100	8.72	3.90	2.85	2.41	2.17	1.92	1.79	1.69	1.63	1.59	1.56	1.54	1.52	1.49	1.48	1.46	1.45	1.44	1.43	1.42
125	9.40	4.10	2.96	2.49	2.24	1.97	1.83	1.74	1.67	1.63	1.60	1.57	1.56	1.53	1.51	1.50	1.48	1.48	1.46	1.45
150	9.99	4.26	3.05	2.56	2.30	2.02	1.88	1.77	1.71	1.66	1.63	1.60	1.59	1.56	1.54	1.52	1.51	1.50	1.49	1.48
175	10.55	4.41	3.13	2.62	2.34	2.05	1.91	1.80	1.73	1.69	1.66	1.63	1.61	1.58	1.56	1.55	1.53	1.53	1.51	1.50
200	11.02	4.54	3.21	2.67	2.39	2.09	1.94	1.83	1.76	1.71	1.68	1.65	1.63	1.60	1.58	1.57	1.55	1.55	1.53	1.52

Table 19-12. κ -Multipliers for 1-of-4 Intrawell Prediction Limits on Observations (10 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.11	1.46	1.23	1.12	1.05	0.97	0.92	0.88	0.86	0.84	0.83	0.82	0.82	0.80	0.80	0.79	0.79	0.78	0.78	0.77
2	2.75	1.79	1.48	1.33	1.24	1.14	1.08	1.04	1.01	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90
3	3.20	2.00	1.63	1.46	1.35	1.24	1.17	1.12	1.09	1.07	1.05	1.04	1.03	1.02	1.01	1.00	0.99	0.99	0.98	0.97
4	3.54	2.15	1.74	1.55	1.43	1.31	1.24	1.18	1.15	1.13	1.11	1.10	1.08	1.07	1.06	1.05	1.04	1.04	1.03	1.02
5	3.83	2.27	1.83	1.62	1.50	1.36	1.29	1.23	1.19	1.17	1.15	1.14	1.13	1.11	1.10	1.09	1.08	1.08	1.07	1.06
8	4.52	2.55	2.02	1.77	1.63	1.47	1.39	1.33	1.29	1.26	1.24	1.22	1.21	1.19	1.18	1.17	1.16	1.16	1.15	1.14
12	5.20	2.81	2.19	1.90	1.75	1.57	1.48	1.41	1.36	1.33	1.31	1.29	1.28	1.26	1.25	1.24	1.23	1.22	1.21	1.20
16	5.74	3.00	2.31	2.00	1.83	1.64	1.54	1.47	1.42	1.39	1.36	1.34	1.33	1.31	1.29	1.28	1.28	1.27	1.26	1.25
20	6.20	3.16	2.41	2.08	1.89	1.69	1.59	1.51	1.46	1.43	1.40	1.38	1.37	1.35	1.33	1.32	1.31	1.30	1.29	1.28
30	7.11	3.46	2.59	2.22	2.01	1.79	1.68	1.59	1.54	1.50	1.47	1.45	1.44	1.41	1.40	1.38	1.37	1.37	1.35	1.34
40	7.84	3.69	2.73	2.32	2.10	1.86	1.74	1.65	1.59	1.55	1.52	1.50	1.48	1.46	1.44	1.43	1.42	1.41	1.40	1.39
50	8.45	3.87	2.84	2.41	2.17	1.92	1.79	1.69	1.63	1.59	1.56	1.54	1.52	1.49	1.48	1.46	1.45	1.44	1.43	1.42
60	8.99	4.03	2.93	2.47	2.22	1.96	1.83	1.73	1.66	1.62	1.59	1.57	1.55	1.52	1.50	1.49	1.48	1.47	1.45	1.44
75	9.70	4.23	3.05	2.56	2.29	2.02	1.87	1.77	1.71	1.66	1.63	1.60	1.59	1.56	1.54	1.52	1.51	1.50	1.49	1.48
100	10.66	4.50	3.20	2.67	2.38	2.09	1.94	1.83	1.76	1.71	1.68	1.65	1.63	1.60	1.58	1.57	1.55	1.54	1.53	1.52
125	11.51	4.72	3.32	2.75	2.45	2.14	1.98	1.87	1.80	1.75	1.71	1.69	1.67	1.64	1.61	1.60	1.59	1.58	1.56	1.55
150	12.25	4.91	3.42	2.83	2.51	2.19	2.03	1.90	1.83	1.78	1.74	1.72	1.70	1.66	1.64	1.62	1.61	1.60	1.58	1.57
175	12.89	5.07	3.51	2.89	2.56	2.23	2.06	1.94	1.86	1.81	1.77	1.74	1.72	1.69	1.66	1.65	1.64	1.62	1.61	1.59
200	13.48	5.21	3.59	2.94	2.61	2.26	2.09	1.96	1.88	1.83	1.79	1.76	1.74	1.71	1.68	1.67	1.65	1.64	1.62	1.61

Table 19-12. κ -Multipliers for 1-of-4 Intrawell Prediction Limits on Observations (20 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.70	1.19	1.01	0.92	0.86	0.80	0.76	0.73	0.71	0.69	0.68	0.68	0.67	0.66	0.65	0.65	0.65	0.64	0.64	0.63
2	2.25	1.49	1.25	1.13	1.06	0.97	0.92	0.89	0.86	0.85	0.83	0.82	0.82	0.81	0.80	0.79	0.79	0.78	0.78	0.77
3	2.62	1.68	1.39	1.25	1.17	1.07	1.02	0.98	0.95	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.87	0.86	0.85	0.85
4	2.91	1.82	1.50	1.34	1.25	1.14	1.08	1.04	1.01	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90
5	3.16	1.94	1.58	1.41	1.31	1.20	1.13	1.09	1.06	1.03	1.02	1.01	1.00	0.98	0.97	0.97	0.96	0.96	0.95	0.94
8	3.74	2.19	1.76	1.56	1.44	1.31	1.24	1.18	1.15	1.13	1.11	1.10	1.09	1.07	1.06	1.05	1.04	1.04	1.03	1.02
12	4.31	2.42	1.91	1.68	1.55	1.41	1.33	1.27	1.23	1.20	1.19	1.17	1.16	1.14	1.13	1.12	1.11	1.11	1.10	1.09
16	4.76	2.59	2.03	1.78	1.63	1.48	1.39	1.33	1.29	1.26	1.24	1.22	1.21	1.19	1.18	1.17	1.16	1.16	1.15	1.14
20	5.14	2.73	2.12	1.85	1.70	1.53	1.44	1.37	1.33	1.30	1.28	1.26	1.25	1.23	1.22	1.21	1.20	1.19	1.18	1.17
30	5.90	3.00	2.30	1.99	1.81	1.63	1.53	1.45	1.41	1.38	1.35	1.33	1.32	1.30	1.28	1.27	1.26	1.26	1.25	1.24
40	6.51	3.20	2.42	2.08	1.90	1.70	1.59	1.51	1.46	1.43	1.40	1.38	1.37	1.35	1.33	1.32	1.31	1.30	1.29	1.28
50	7.02	3.37	2.52	2.16	1.96	1.75	1.64	1.56	1.50	1.47	1.44	1.42	1.41	1.38	1.37	1.35	1.35	1.34	1.32	1.32
60	7.47	3.51	2.61	2.23	2.02	1.79	1.68	1.59	1.54	1.50	1.47	1.45	1.44	1.41	1.40	1.38	1.37	1.37	1.35	1.34
75	8.06	3.68	2.71	2.31	2.08	1.85	1.72	1.64	1.58	1.54	1.51	1.49	1.47	1.45	1.43	1.42	1.41	1.40	1.39	1.37
100	8.88	3.93	2.85	2.41	2.17	1.92	1.79	1.69	1.63	1.59	1.56	1.54	1.52	1.49	1.48	1.46	1.45	1.44	1.43	1.42
125	9.58	4.12	2.97	2.49	2.24	1.97	1.83	1.74	1.67	1.63	1.60	1.57	1.56	1.53	1.51	1.50	1.48	1.48	1.46	1.45
150	10.20	4.28	3.06	2.56	2.30	2.02	1.88	1.77	1.71	1.66	1.63	1.60	1.59	1.56	1.54	1.52	1.51	1.50	1.49	1.48
175	10.72	4.42	3.14	2.62	2.34	2.06	1.91	1.80	1.73	1.69	1.66	1.63	1.61	1.58	1.56	1.55	1.53	1.53	1.51	1.50
200	11.19	4.56	3.21	2.67	2.39	2.09	1.94	1.83	1.76	1.71	1.68	1.65	1.63	1.60	1.58	1.57	1.55	1.55	1.53	1.52

Table 19-12. κ -Multipliers for 1-of-4 Intrawell Prediction Limits on Observations (20 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.20	1.48	1.24	1.13	1.05	0.97	0.92	0.89	0.86	0.85	0.83	0.82	0.82	0.81	0.80	0.79	0.79	0.78	0.78	0.77
2	2.85	1.81	1.49	1.34	1.25	1.14	1.08	1.04	1.01	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90
3	3.31	2.02	1.64	1.46	1.36	1.24	1.17	1.12	1.09	1.07	1.05	1.04	1.03	1.02	1.01	1.00	0.99	0.99	0.98	0.97
4	3.66	2.17	1.75	1.55	1.44	1.31	1.24	1.18	1.15	1.13	1.11	1.10	1.09	1.07	1.06	1.05	1.04	1.04	1.03	1.02
5	3.96	2.30	1.84	1.62	1.50	1.36	1.29	1.23	1.19	1.17	1.15	1.14	1.13	1.11	1.10	1.09	1.08	1.08	1.07	1.06
8	4.67	2.58	2.03	1.78	1.63	1.48	1.39	1.33	1.29	1.26	1.24	1.22	1.21	1.19	1.18	1.17	1.16	1.16	1.15	1.14
12	5.37	2.84	2.19	1.91	1.75	1.57	1.48	1.41	1.36	1.33	1.31	1.29	1.28	1.26	1.25	1.24	1.23	1.22	1.21	1.20
16	5.93	3.03	2.32	2.01	1.83	1.64	1.54	1.47	1.42	1.39	1.36	1.34	1.33	1.31	1.29	1.28	1.28	1.27	1.26	1.25
20	6.39	3.19	2.42	2.08	1.90	1.70	1.59	1.51	1.46	1.43	1.40	1.38	1.37	1.35	1.33	1.32	1.31	1.30	1.29	1.28
30	7.34	3.49	2.60	2.22	2.02	1.79	1.68	1.59	1.54	1.50	1.47	1.45	1.44	1.41	1.40	1.38	1.37	1.37	1.35	1.34
40	8.09	3.72	2.74	2.33	2.10	1.86	1.74	1.65	1.59	1.55	1.52	1.50	1.48	1.46	1.44	1.43	1.42	1.41	1.40	1.39
50	8.72	3.91	2.85	2.41	2.17	1.92	1.79	1.69	1.63	1.59	1.56	1.54	1.52	1.49	1.48	1.46	1.45	1.44	1.43	1.42
60	9.27	4.06	2.94	2.48	2.23	1.96	1.83	1.73	1.67	1.62	1.59	1.57	1.55	1.52	1.50	1.49	1.48	1.47	1.45	1.44
75	9.99	4.26	3.05	2.56	2.29	2.02	1.88	1.77	1.71	1.66	1.63	1.60	1.59	1.56	1.54	1.52	1.51	1.50	1.49	1.48
100	11.02	4.53	3.21	2.67	2.39	2.09	1.94	1.83	1.76	1.71	1.68	1.65	1.63	1.60	1.58	1.57	1.55	1.54	1.53	1.52
125	11.87	4.75	3.33	2.76	2.46	2.14	1.98	1.87	1.80	1.75	1.71	1.69	1.67	1.64	1.61	1.60	1.59	1.58	1.56	1.55
150	12.60	4.94	3.43	2.83	2.52	2.19	2.03	1.90	1.83	1.78	1.74	1.72	1.70	1.66	1.64	1.62	1.61	1.60	1.58	1.57
175	13.30	5.10	3.52	2.89	2.56	2.23	2.06	1.94	1.86	1.81	1.77	1.74	1.72	1.69	1.66	1.65	1.63	1.62	1.61	1.59
200	13.89	5.24	3.60	2.95	2.61	2.26	2.09	1.96	1.88	1.83	1.79	1.76	1.74	1.71	1.68	1.67	1.65	1.64	1.62	1.61

Table 19-12. κ -Multipliers for 1-of-4 Intrawell Prediction Limits on Observations (20 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.75	1.79	1.48	1.33	1.24	1.14	1.08	1.04	1.01	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90
2	3.54	2.15	1.74	1.55	1.43	1.31	1.24	1.18	1.15	1.13	1.11	1.10	1.08	1.07	1.06	1.05	1.04	1.04	1.03	1.02
3	4.09	2.38	1.90	1.68	1.55	1.40	1.33	1.27	1.23	1.20	1.19	1.17	1.16	1.14	1.13	1.12	1.11	1.11	1.10	1.09
4	4.52	2.55	2.02	1.77	1.63	1.47	1.39	1.33	1.29	1.26	1.24	1.22	1.21	1.19	1.18	1.17	1.16	1.16	1.15	1.14
5	4.88	2.69	2.11	1.84	1.69	1.53	1.44	1.37	1.33	1.30	1.28	1.26	1.25	1.23	1.22	1.21	1.20	1.19	1.18	1.17
8	5.74	3.00	2.31	2.00	1.83	1.64	1.54	1.47	1.42	1.39	1.36	1.34	1.33	1.31	1.29	1.28	1.28	1.27	1.26	1.25
12	6.59	3.29	2.49	2.14	1.95	1.74	1.63	1.55	1.50	1.46	1.43	1.41	1.40	1.38	1.36	1.35	1.34	1.33	1.32	1.31
16	7.27	3.51	2.62	2.24	2.03	1.81	1.69	1.60	1.55	1.51	1.48	1.46	1.45	1.42	1.41	1.39	1.38	1.38	1.36	1.35
20	7.84	3.69	2.73	2.32	2.10	1.86	1.74	1.65	1.59	1.55	1.52	1.50	1.48	1.46	1.44	1.43	1.42	1.41	1.40	1.39
30	8.99	4.03	2.93	2.47	2.22	1.96	1.83	1.73	1.66	1.62	1.59	1.57	1.55	1.52	1.50	1.49	1.48	1.47	1.45	1.44
40	9.90	4.29	3.08	2.58	2.31	2.03	1.89	1.78	1.72	1.67	1.64	1.62	1.60	1.57	1.55	1.53	1.52	1.51	1.50	1.49
50	10.68	4.50	3.20	2.67	2.38	2.09	1.94	1.83	1.76	1.71	1.68	1.65	1.63	1.60	1.58	1.57	1.55	1.54	1.53	1.52
60	11.35	4.68	3.30	2.74	2.44	2.13	1.98	1.86	1.79	1.74	1.71	1.68	1.66	1.63	1.61	1.59	1.58	1.57	1.55	1.54
75	12.23	4.90	3.42	2.83	2.51	2.19	2.02	1.91	1.83	1.78	1.74	1.72	1.70	1.66	1.64	1.63	1.61	1.60	1.58	1.57
100	13.48	5.21	3.59	2.94	2.61	2.26	2.09	1.96	1.88	1.83	1.79	1.76	1.74	1.71	1.68	1.67	1.65	1.64	1.62	1.61
125	14.53	5.46	3.72	3.04	2.68	2.32	2.14	2.00	1.92	1.87	1.83	1.80	1.77	1.74	1.72	1.70	1.68	1.67	1.65	1.64
150	15.41	5.67	3.83	3.11	2.74	2.37	2.18	2.04	1.96	1.90	1.86	1.83	1.80	1.77	1.74	1.72	1.71	1.70	1.68	1.67
175	16.23	5.86	3.93	3.18	2.79	2.41	2.21	2.07	1.98	1.92	1.88	1.85	1.83	1.79	1.76	1.74	1.73	1.72	1.70	1.69
200	16.99	6.02	4.01	3.24	2.84	2.44	2.24	2.09	2.01	1.95	1.90	1.87	1.85	1.81	1.78	1.76	1.75	1.74	1.72	1.70

Table 19-12. κ -Multipliers for 1-of-4 Intrawell Prediction Limits on Observations (40 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.25	1.49	1.25	1.13	1.06	0.97	0.92	0.89	0.86	0.85	0.83	0.82	0.82	0.81	0.80	0.79	0.79	0.78	0.78	0.77
2	2.91	1.82	1.50	1.34	1.25	1.14	1.08	1.04	1.01	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90
3	3.37	2.03	1.65	1.47	1.36	1.24	1.17	1.12	1.09	1.07	1.05	1.04	1.03	1.02	1.01	1.00	0.99	0.99	0.98	0.97
4	3.74	2.19	1.76	1.56	1.44	1.31	1.24	1.18	1.15	1.13	1.11	1.10	1.09	1.07	1.06	1.05	1.04	1.04	1.03	1.02
5	4.04	2.31	1.84	1.63	1.50	1.36	1.29	1.23	1.19	1.17	1.15	1.14	1.13	1.11	1.10	1.09	1.08	1.08	1.07	1.06
8	4.76	2.59	2.03	1.78	1.63	1.48	1.39	1.33	1.29	1.26	1.24	1.22	1.21	1.19	1.18	1.17	1.16	1.16	1.15	1.14
12	5.47	2.85	2.20	1.91	1.75	1.57	1.48	1.41	1.37	1.33	1.31	1.29	1.28	1.26	1.25	1.24	1.23	1.22	1.21	1.20
16	6.04	3.05	2.32	2.01	1.83	1.64	1.54	1.47	1.42	1.39	1.36	1.34	1.33	1.31	1.29	1.28	1.28	1.27	1.26	1.25
20	6.51	3.20	2.42	2.08	1.90	1.70	1.59	1.51	1.46	1.43	1.40	1.38	1.37	1.35	1.33	1.32	1.31	1.30	1.29	1.28
30	7.47	3.51	2.61	2.23	2.02	1.79	1.68	1.59	1.54	1.50	1.47	1.45	1.44	1.41	1.40	1.38	1.37	1.37	1.35	1.34
40	8.23	3.74	2.74	2.33	2.10	1.86	1.74	1.65	1.59	1.55	1.52	1.50	1.48	1.46	1.44	1.43	1.42	1.41	1.39	1.38
50	8.88	3.93	2.85	2.41	2.17	1.92	1.79	1.69	1.63	1.59	1.56	1.54	1.52	1.49	1.48	1.46	1.45	1.44	1.43	1.42
60	9.43	4.08	2.94	2.48	2.23	1.96	1.83	1.73	1.66	1.62	1.59	1.57	1.55	1.52	1.50	1.49	1.48	1.47	1.45	1.44
75	10.20	4.28	3.06	2.56	2.30	2.02	1.88	1.77	1.71	1.66	1.63	1.60	1.59	1.56	1.54	1.52	1.51	1.50	1.49	1.48
100	11.19	4.56	3.21	2.67	2.39	2.09	1.94	1.83	1.76	1.71	1.68	1.65	1.63	1.60	1.58	1.57	1.55	1.55	1.53	1.52
125	12.07	4.78	3.33	2.76	2.46	2.15	1.98	1.87	1.80	1.75	1.71	1.69	1.67	1.64	1.61	1.60	1.59	1.58	1.56	1.55
150	12.89	4.95	3.44	2.83	2.52	2.19	2.03	1.90	1.83	1.78	1.74	1.72	1.70	1.66	1.64	1.63	1.61	1.60	1.59	1.57
175	13.48	5.13	3.52	2.90	2.56	2.23	2.06	1.93	1.86	1.81	1.77	1.74	1.72	1.69	1.66	1.65	1.63	1.62	1.60	1.59
200	14.18	5.27	3.60	2.94	2.61	2.26	2.09	1.96	1.88	1.83	1.79	1.77	1.74	1.71	1.68	1.67	1.65	1.64	1.62	1.61

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Table 19-12. κ -Multipliers for 1-of-4 Intrawell Prediction Limits on Observations (40 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.85	1.81	1.49	1.34	1.25	1.14	1.08	1.04	1.01	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90
2	3.66	2.17	1.75	1.55	1.44	1.31	1.24	1.18	1.15	1.13	1.11	1.10	1.09	1.07	1.06	1.05	1.04	1.04	1.03	1.02
3	4.22	2.41	1.91	1.68	1.55	1.41	1.33	1.27	1.23	1.20	1.19	1.17	1.16	1.14	1.13	1.12	1.11	1.11	1.10	1.09
4	4.67	2.58	2.03	1.78	1.63	1.48	1.39	1.33	1.29	1.26	1.24	1.22	1.21	1.19	1.18	1.17	1.16	1.16	1.15	1.14
5	5.04	2.72	2.12	1.85	1.70	1.53	1.44	1.37	1.33	1.30	1.28	1.26	1.25	1.23	1.22	1.21	1.20	1.19	1.18	1.17
8	5.93	3.03	2.32	2.01	1.83	1.64	1.54	1.47	1.42	1.39	1.36	1.34	1.33	1.31	1.29	1.28	1.28	1.27	1.26	1.25
12	6.80	3.32	2.50	2.15	1.95	1.74	1.63	1.55	1.50	1.46	1.43	1.41	1.40	1.38	1.36	1.35	1.34	1.33	1.32	1.31
16	7.50	3.54	2.63	2.25	2.04	1.81	1.69	1.60	1.55	1.51	1.48	1.46	1.45	1.42	1.41	1.39	1.38	1.38	1.36	1.35
20	8.09	3.72	2.74	2.33	2.10	1.86	1.74	1.65	1.59	1.55	1.52	1.50	1.48	1.46	1.44	1.43	1.42	1.41	1.40	1.39
30	9.27	4.06	2.94	2.48	2.23	1.96	1.83	1.73	1.67	1.62	1.59	1.57	1.55	1.52	1.50	1.49	1.48	1.47	1.45	1.44
40	10.21	4.32	3.09	2.59	2.31	2.03	1.89	1.78	1.72	1.67	1.64	1.61	1.60	1.57	1.55	1.53	1.52	1.51	1.50	1.49
50	11.02	4.53	3.21	2.67	2.39	2.09	1.94	1.83	1.76	1.71	1.68	1.65	1.63	1.60	1.58	1.57	1.55	1.54	1.53	1.52
60	11.72	4.72	3.31	2.74	2.44	2.14	1.98	1.86	1.79	1.74	1.71	1.68	1.66	1.63	1.61	1.59	1.58	1.57	1.55	1.54
75	12.60	4.94	3.43	2.83	2.52	2.19	2.03	1.90	1.83	1.78	1.74	1.72	1.70	1.66	1.64	1.62	1.61	1.60	1.58	1.57
100	13.89	5.24	3.60	2.95	2.61	2.26	2.09	1.96	1.88	1.83	1.79	1.76	1.74	1.71	1.68	1.67	1.65	1.64	1.62	1.61
125	15.00	5.51	3.73	3.04	2.68	2.32	2.14	2.00	1.92	1.87	1.83	1.80	1.77	1.74	1.72	1.70	1.68	1.67	1.65	1.64
150	15.94	5.71	3.84	3.12	2.75	2.37	2.18	2.04	1.96	1.90	1.86	1.83	1.80	1.77	1.74	1.72	1.71	1.70	1.68	1.67
175	16.76	5.89	3.94	3.18	2.80	2.40	2.21	2.07	1.98	1.93	1.88	1.85	1.83	1.79	1.77	1.75	1.73	1.72	1.70	1.69
200	17.58	6.06	4.01	3.24	2.84	2.44	2.24	2.09	2.01	1.95	1.90	1.87	1.85	1.81	1.78	1.77	1.75	1.74	1.72	1.70

Table 19-12. κ -Multipliers for 1-of-4 Intrawell Prediction Limits on Observations (40 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.54	2.15	1.74	1.55	1.43	1.31	1.24	1.18	1.15	1.13	1.11	1.10	1.08	1.07	1.06	1.05	1.04	1.04	1.03	1.02
2	4.52	2.55	2.02	1.77	1.63	1.47	1.39	1.33	1.29	1.26	1.24	1.22	1.21	1.19	1.18	1.17	1.16	1.16	1.15	1.14
3	5.20	2.81	2.19	1.90	1.75	1.57	1.48	1.41	1.36	1.33	1.31	1.29	1.28	1.26	1.25	1.24	1.23	1.22	1.21	1.20
4	5.74	3.00	2.31	2.00	1.83	1.64	1.54	1.47	1.42	1.39	1.36	1.34	1.33	1.31	1.29	1.28	1.28	1.27	1.26	1.25
5	6.20	3.16	2.41	2.08	1.89	1.69	1.59	1.51	1.46	1.43	1.40	1.38	1.37	1.35	1.33	1.32	1.31	1.30	1.29	1.28
8	7.27	3.51	2.62	2.24	2.03	1.81	1.69	1.60	1.55	1.51	1.48	1.46	1.45	1.42	1.41	1.39	1.38	1.38	1.36	1.35
12	8.34	3.84	2.82	2.39	2.16	1.91	1.78	1.68	1.62	1.58	1.55	1.53	1.51	1.49	1.47	1.46	1.45	1.44	1.42	1.41
16	9.18	4.09	2.96	2.50	2.24	1.98	1.84	1.74	1.68	1.63	1.60	1.58	1.56	1.53	1.51	1.50	1.49	1.48	1.46	1.45
20	9.90	4.29	3.08	2.58	2.31	2.03	1.89	1.78	1.72	1.67	1.64	1.62	1.60	1.57	1.55	1.53	1.52	1.51	1.50	1.49
30	11.35	4.68	3.30	2.74	2.44	2.13	1.98	1.86	1.79	1.74	1.71	1.68	1.66	1.63	1.61	1.59	1.58	1.57	1.55	1.54
40	12.51	4.97	3.46	2.85	2.53	2.21	2.04	1.92	1.84	1.79	1.76	1.73	1.71	1.67	1.65	1.63	1.62	1.61	1.59	1.58
50	13.48	5.21	3.59	2.94	2.61	2.26	2.09	1.96	1.88	1.83	1.79	1.76	1.74	1.71	1.68	1.67	1.65	1.64	1.62	1.61
60	14.33	5.41	3.69	3.02	2.67	2.31	2.13	2.00	1.92	1.86	1.82	1.79	1.77	1.73	1.71	1.69	1.68	1.67	1.65	1.63
75	15.41	5.67	3.83	3.11	2.74	2.37	2.18	2.04	1.96	1.90	1.86	1.83	1.80	1.77	1.74	1.72	1.71	1.70	1.68	1.66
100	16.99	6.02	4.01	3.24	2.84	2.44	2.24	2.09	2.01	1.95	1.90	1.87	1.85	1.81	1.78	1.76	1.75	1.74	1.72	1.70
125	18.28	6.30	4.15	3.34	2.92	2.50	2.29	2.14	2.05	1.98	1.94	1.91	1.88	1.84	1.81	1.79	1.78	1.77	1.74	1.73
150	19.45	6.56	4.28	3.42	2.98	2.55	2.33	2.18	2.08	2.01	1.97	1.93	1.91	1.87	1.84	1.82	1.81	1.79	1.77	1.76
175	20.51	6.77	4.38	3.49	3.03	2.59	2.36	2.20	2.11	2.04	1.99	1.96	1.93	1.89	1.86	1.84	1.83	1.81	1.79	1.78
200	21.33	6.94	4.47	3.54	3.08	2.62	2.39	2.23	2.13	2.07	2.01	1.98	1.95	1.91	1.88	1.86	1.85	1.83	1.81	1.79

Table 19-13. κ -Multipliers for Modified Calif. Intrawell Prediction Limits on Observations (1 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.71	0.59	0.53	0.50	0.48	0.45	0.44	0.43	0.42	0.41	0.41	0.41	0.40	0.40	0.40	0.40	0.39	0.39	0.39	0.39
2	1.14	0.92	0.83	0.78	0.74	0.71	0.68	0.66	0.65	0.64	0.64	0.63	0.63	0.62	0.62	0.62	0.61	0.61	0.61	0.61
3	1.42	1.11	0.99	0.93	0.89	0.84	0.81	0.79	0.78	0.77	0.76	0.75	0.75	0.74	0.74	0.73	0.73	0.73	0.73	0.72
4	1.63	1.25	1.11	1.04	0.99	0.94	0.90	0.88	0.86	0.85	0.84	0.84	0.83	0.82	0.82	0.81	0.81	0.81	0.80	0.80
5	1.80	1.36	1.20	1.12	1.07	1.01	0.97	0.94	0.93	0.91	0.90	0.90	0.89	0.88	0.88	0.87	0.87	0.87	0.86	0.86
8	2.19	1.60	1.40	1.29	1.23	1.15	1.11	1.08	1.05	1.04	1.03	1.02	1.01	1.00	1.00	0.99	0.99	0.98	0.98	0.97
12	2.58	1.82	1.57	1.44	1.36	1.27	1.22	1.19	1.16	1.14	1.13	1.12	1.11	1.10	1.09	1.09	1.08	1.08	1.07	1.07
16	2.88	1.98	1.69	1.54	1.46	1.36	1.30	1.26	1.23	1.22	1.20	1.19	1.18	1.17	1.16	1.15	1.15	1.14	1.14	1.13
20	3.13	2.11	1.78	1.63	1.53	1.42	1.37	1.32	1.29	1.27	1.26	1.24	1.23	1.22	1.21	1.20	1.20	1.19	1.19	1.18
30	3.63	2.35	1.96	1.78	1.67	1.54	1.47	1.42	1.39	1.37	1.35	1.34	1.33	1.31	1.30	1.29	1.29	1.28	1.27	1.27
40	4.02	2.53	2.09	1.88	1.76	1.63	1.55	1.49	1.46	1.43	1.41	1.40	1.39	1.37	1.36	1.35	1.35	1.34	1.33	1.32
50	4.36	2.68	2.20	1.97	1.84	1.69	1.61	1.55	1.51	1.48	1.46	1.45	1.44	1.42	1.41	1.40	1.39	1.39	1.38	1.37
60	4.65	2.80	2.28	2.04	1.90	1.74	1.66	1.59	1.55	1.53	1.50	1.49	1.48	1.46	1.45	1.44	1.43	1.42	1.41	1.40
75	5.02	2.96	2.39	2.12	1.97	1.81	1.72	1.65	1.60	1.58	1.55	1.54	1.52	1.50	1.49	1.48	1.47	1.47	1.46	1.45
100	5.55	3.17	2.53	2.24	2.07	1.89	1.79	1.72	1.67	1.64	1.62	1.60	1.58	1.56	1.55	1.54	1.53	1.52	1.51	1.50
125	5.99	3.34	2.64	2.32	2.15	1.95	1.85	1.77	1.72	1.69	1.66	1.64	1.63	1.61	1.59	1.58	1.57	1.56	1.55	1.54
150	6.38	3.48	2.73	2.40	2.21	2.00	1.89	1.81	1.76	1.73	1.70	1.68	1.67	1.64	1.63	1.61	1.61	1.60	1.58	1.58
175	6.72	3.60	2.81	2.46	2.26	2.05	1.93	1.85	1.80	1.76	1.73	1.71	1.70	1.67	1.66	1.64	1.63	1.63	1.61	1.60
200	7.04	3.72	2.88	2.51	2.31	2.09	1.97	1.88	1.83	1.79	1.76	1.74	1.72	1.70	1.68	1.67	1.66	1.65	1.64	1.63

Table 19-13. κ -Multipliers for Modified Calif. Intrawell Prediction Limits on Observations (1 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.07	0.88	0.81	0.76	0.73	0.70	0.68	0.66	0.65	0.64	0.64	0.63	0.63	0.62	0.62	0.62	0.61	0.61	0.61	0.61
2	1.55	1.22	1.09	1.02	0.98	0.93	0.90	0.88	0.86	0.85	0.84	0.83	0.83	0.82	0.82	0.81	0.81	0.81	0.80	0.80
3	1.86	1.42	1.26	1.18	1.12	1.06	1.02	0.99	0.97	0.96	0.95	0.94	0.94	0.93	0.92	0.92	0.91	0.91	0.91	0.90
4	2.10	1.57	1.38	1.28	1.22	1.15	1.11	1.07	1.05	1.04	1.03	1.02	1.01	1.00	1.00	0.99	0.99	0.98	0.98	0.97
5	2.30	1.69	1.47	1.36	1.29	1.21	1.17	1.13	1.11	1.10	1.08	1.08	1.07	1.06	1.05	1.04	1.04	1.04	1.03	1.03
8	2.77	1.95	1.67	1.54	1.45	1.36	1.30	1.26	1.23	1.21	1.20	1.19	1.18	1.17	1.16	1.15	1.15	1.14	1.14	1.13
12	3.23	2.18	1.85	1.69	1.59	1.47	1.41	1.36	1.33	1.31	1.30	1.29	1.28	1.26	1.25	1.24	1.24	1.23	1.22	1.22
16	3.59	2.36	1.98	1.79	1.68	1.56	1.49	1.44	1.40	1.38	1.36	1.35	1.34	1.32	1.31	1.31	1.30	1.29	1.29	1.28
20	3.89	2.50	2.08	1.88	1.76	1.62	1.55	1.49	1.46	1.43	1.41	1.40	1.39	1.37	1.36	1.35	1.35	1.34	1.33	1.32
30	4.49	2.77	2.27	2.03	1.89	1.74	1.66	1.59	1.55	1.53	1.50	1.49	1.48	1.46	1.45	1.44	1.43	1.42	1.41	1.40
40	4.97	2.97	2.40	2.14	1.99	1.82	1.73	1.66	1.62	1.59	1.57	1.55	1.54	1.52	1.50	1.49	1.48	1.48	1.47	1.46
50	5.37	3.13	2.51	2.23	2.07	1.89	1.79	1.72	1.67	1.64	1.61	1.60	1.58	1.56	1.55	1.54	1.53	1.52	1.51	1.50
60	5.72	3.27	2.60	2.30	2.13	1.94	1.84	1.76	1.71	1.68	1.65	1.63	1.62	1.60	1.58	1.57	1.56	1.56	1.54	1.54
75	6.17	3.44	2.72	2.39	2.20	2.00	1.89	1.81	1.76	1.73	1.70	1.68	1.67	1.64	1.63	1.61	1.61	1.60	1.58	1.58
100	6.81	3.68	2.87	2.51	2.30	2.08	1.97	1.88	1.83	1.79	1.76	1.74	1.72	1.70	1.68	1.67	1.66	1.65	1.64	1.63
125	7.35	3.87	2.99	2.60	2.38	2.15	2.02	1.93	1.87	1.83	1.81	1.78	1.77	1.74	1.72	1.71	1.70	1.69	1.68	1.67
150	7.82	4.03	3.09	2.68	2.45	2.20	2.07	1.97	1.91	1.87	1.84	1.82	1.80	1.78	1.76	1.74	1.73	1.72	1.71	1.70
175	8.25	4.17	3.17	2.74	2.50	2.24	2.11	2.01	1.95	1.91	1.87	1.85	1.83	1.80	1.78	1.77	1.76	1.75	1.74	1.72
200	8.63	4.29	3.25	2.80	2.55	2.28	2.14	2.04	1.98	1.93	1.90	1.88	1.86	1.83	1.81	1.79	1.78	1.77	1.76	1.75

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Table 19-13. κ -Multipliers for Modified Calif. Intrawell Prediction Limits on Observations (1 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.43	1.17	1.06	1.00	0.96	0.92	0.89	0.87	0.85	0.84	0.84	0.83	0.83	0.82	0.81	0.81	0.81	0.81	0.80	0.80
2	1.97	1.52	1.35	1.26	1.20	1.14	1.10	1.07	1.05	1.04	1.02	1.02	1.01	1.00	0.99	0.99	0.99	0.98	0.98	0.97
3	2.33	1.74	1.52	1.41	1.34	1.26	1.22	1.18	1.16	1.14	1.13	1.12	1.11	1.10	1.09	1.09	1.08	1.08	1.07	1.07
4	2.61	1.90	1.65	1.52	1.44	1.35	1.30	1.26	1.23	1.21	1.20	1.19	1.18	1.17	1.16	1.15	1.15	1.14	1.14	1.13
5	2.84	2.02	1.74	1.60	1.52	1.41	1.36	1.32	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20	1.20	1.19	1.19	1.18
8	3.39	2.31	1.95	1.78	1.67	1.55	1.49	1.44	1.40	1.38	1.36	1.35	1.34	1.32	1.31	1.31	1.30	1.29	1.28	1.28
12	3.93	2.56	2.14	1.93	1.81	1.67	1.59	1.54	1.50	1.47	1.45	1.44	1.43	1.41	1.40	1.39	1.38	1.38	1.37	1.36
16	4.35	2.76	2.27	2.04	1.91	1.75	1.67	1.61	1.57	1.54	1.52	1.50	1.49	1.47	1.46	1.45	1.44	1.43	1.42	1.42
20	4.71	2.91	2.38	2.13	1.98	1.82	1.73	1.66	1.62	1.59	1.57	1.55	1.54	1.52	1.50	1.49	1.48	1.48	1.47	1.46
30	5.42	3.21	2.58	2.29	2.12	1.93	1.83	1.76	1.71	1.68	1.65	1.63	1.62	1.60	1.58	1.57	1.56	1.56	1.54	1.54
40	5.99	3.43	2.73	2.40	2.22	2.02	1.91	1.83	1.77	1.74	1.71	1.69	1.68	1.65	1.64	1.63	1.62	1.61	1.60	1.59
50	6.47	3.61	2.84	2.50	2.30	2.08	1.96	1.88	1.82	1.79	1.76	1.74	1.72	1.70	1.68	1.67	1.66	1.65	1.64	1.63
60	6.89	3.77	2.94	2.57	2.36	2.13	2.01	1.92	1.86	1.83	1.80	1.78	1.76	1.73	1.72	1.70	1.69	1.68	1.67	1.66
75	7.43	3.96	3.06	2.66	2.44	2.20	2.07	1.97	1.91	1.87	1.84	1.82	1.80	1.77	1.76	1.74	1.73	1.72	1.71	1.70
100	8.20	4.22	3.23	2.79	2.54	2.28	2.14	2.04	1.98	1.93	1.90	1.88	1.86	1.83	1.81	1.79	1.78	1.77	1.76	1.75
125	8.84	4.43	3.35	2.88	2.62	2.35	2.20	2.09	2.02	1.98	1.95	1.92	1.90	1.87	1.85	1.83	1.82	1.81	1.80	1.79
150	9.40	4.62	3.46	2.96	2.69	2.40	2.25	2.13	2.06	2.02	1.98	1.95	1.93	1.90	1.88	1.87	1.85	1.84	1.83	1.82
175	9.90	4.77	3.55	3.03	2.75	2.44	2.29	2.17	2.10	2.05	2.01	1.98	1.96	1.93	1.91	1.89	1.88	1.87	1.85	1.84
200	10.36	4.91	3.64	3.09	2.80	2.48	2.32	2.20	2.13	2.07	2.04	2.01	1.99	1.96	1.93	1.92	1.90	1.89	1.88	1.86

Table 19-13. κ -Multipliers for Modified Calif. Intrawell Prediction Limits on Observations (2 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.14	0.92	0.83	0.78	0.74	0.71	0.68	0.66	0.65	0.64	0.64	0.63	0.63	0.62	0.62	0.62	0.61	0.61	0.61	0.61
2	1.63	1.25	1.11	1.04	0.99	0.94	0.90	0.88	0.86	0.85	0.84	0.84	0.83	0.82	0.82	0.81	0.81	0.81	0.80	0.80
3	1.95	1.46	1.28	1.19	1.13	1.06	1.03	1.00	0.98	0.96	0.95	0.95	0.94	0.93	0.92	0.92	0.92	0.91	0.91	0.90
4	2.19	1.60	1.40	1.29	1.23	1.15	1.11	1.08	1.05	1.04	1.03	1.02	1.01	1.00	1.00	0.99	0.99	0.98	0.98	0.97
5	2.40	1.72	1.49	1.37	1.30	1.22	1.17	1.14	1.11	1.10	1.09	1.08	1.07	1.06	1.05	1.04	1.04	1.04	1.03	1.03
8	2.88	1.98	1.69	1.54	1.46	1.36	1.30	1.26	1.23	1.22	1.20	1.19	1.18	1.17	1.16	1.15	1.15	1.14	1.14	1.13
12	3.35	2.22	1.86	1.69	1.59	1.48	1.41	1.37	1.34	1.31	1.30	1.29	1.28	1.26	1.25	1.24	1.24	1.23	1.23	1.22
16	3.72	2.39	1.99	1.80	1.69	1.56	1.49	1.44	1.41	1.38	1.36	1.35	1.34	1.32	1.31	1.31	1.30	1.29	1.29	1.28
20	4.02	2.53	2.09	1.88	1.76	1.63	1.55	1.49	1.46	1.43	1.41	1.40	1.39	1.37	1.36	1.35	1.35	1.34	1.33	1.32
30	4.65	2.80	2.28	2.04	1.90	1.74	1.66	1.59	1.55	1.53	1.50	1.49	1.48	1.46	1.45	1.44	1.43	1.42	1.41	1.40
40	5.14	3.00	2.42	2.15	1.99	1.82	1.73	1.66	1.62	1.59	1.57	1.55	1.54	1.52	1.50	1.49	1.48	1.48	1.47	1.46
50	5.55	3.17	2.53	2.24	2.07	1.89	1.79	1.72	1.67	1.64	1.62	1.60	1.58	1.56	1.55	1.54	1.53	1.52	1.51	1.50
60	5.91	3.31	2.62	2.31	2.13	1.94	1.84	1.76	1.71	1.68	1.65	1.64	1.62	1.60	1.58	1.57	1.56	1.56	1.54	1.54
75	6.38	3.48	2.73	2.40	2.21	2.00	1.89	1.81	1.76	1.73	1.70	1.68	1.67	1.64	1.63	1.61	1.61	1.60	1.58	1.58
100	7.04	3.72	2.88	2.51	2.31	2.09	1.97	1.88	1.83	1.79	1.76	1.74	1.72	1.70	1.68	1.67	1.66	1.65	1.64	1.63
125	7.60	3.91	3.00	2.61	2.39	2.15	2.03	1.93	1.88	1.83	1.81	1.78	1.77	1.74	1.72	1.71	1.70	1.69	1.68	1.67
150	8.09	4.07	3.10	2.68	2.45	2.20	2.07	1.98	1.92	1.87	1.84	1.82	1.80	1.78	1.76	1.74	1.73	1.72	1.71	1.70
175	8.51	4.21	3.19	2.75	2.50	2.25	2.11	2.01	1.95	1.91	1.87	1.85	1.83	1.80	1.79	1.77	1.76	1.75	1.74	1.72
200	8.91	4.34	3.26	2.81	2.55	2.29	2.14	2.04	1.98	1.93	1.90	1.88	1.86	1.83	1.81	1.79	1.78	1.77	1.76	1.75

Table 19-13. κ -Multipliers for Modified Calif. Intrawell Prediction Limits on Observations (2 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.55	1.22	1.09	1.02	0.98	0.93	0.90	0.88	0.86	0.85	0.84	0.83	0.83	0.82	0.82	0.81	0.81	0.81	0.80	0.80
2	2.10	1.57	1.38	1.28	1.22	1.15	1.11	1.07	1.05	1.04	1.03	1.02	1.01	1.00	1.00	0.99	0.99	0.98	0.98	0.97
3	2.48	1.79	1.55	1.43	1.36	1.27	1.22	1.18	1.16	1.14	1.13	1.12	1.11	1.10	1.09	1.09	1.08	1.08	1.07	1.07
4	2.77	1.95	1.67	1.54	1.45	1.36	1.30	1.26	1.23	1.21	1.20	1.19	1.18	1.17	1.16	1.15	1.15	1.14	1.14	1.13
5	3.01	2.08	1.77	1.62	1.53	1.42	1.36	1.32	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20	1.20	1.19	1.19	1.18
8	3.59	2.36	1.98	1.79	1.68	1.56	1.49	1.44	1.40	1.38	1.36	1.35	1.34	1.32	1.31	1.31	1.30	1.29	1.29	1.28
12	4.15	2.62	2.16	1.95	1.82	1.68	1.60	1.54	1.50	1.47	1.46	1.44	1.43	1.41	1.40	1.39	1.38	1.38	1.37	1.36
16	4.59	2.81	2.30	2.06	1.91	1.76	1.67	1.61	1.57	1.54	1.52	1.50	1.49	1.47	1.46	1.45	1.44	1.43	1.42	1.42
20	4.97	2.97	2.40	2.14	1.99	1.82	1.73	1.66	1.62	1.59	1.57	1.55	1.54	1.52	1.50	1.49	1.48	1.48	1.47	1.46
30	5.72	3.27	2.60	2.30	2.13	1.94	1.84	1.76	1.71	1.68	1.65	1.63	1.62	1.60	1.58	1.57	1.56	1.56	1.54	1.54
40	6.31	3.50	2.75	2.42	2.23	2.02	1.91	1.83	1.78	1.74	1.71	1.69	1.68	1.65	1.64	1.63	1.62	1.61	1.60	1.59
50	6.81	3.68	2.87	2.51	2.30	2.08	1.97	1.88	1.83	1.79	1.76	1.74	1.72	1.70	1.68	1.67	1.66	1.65	1.64	1.63
60	7.25	3.83	2.97	2.58	2.37	2.14	2.01	1.92	1.87	1.83	1.80	1.78	1.76	1.73	1.72	1.70	1.69	1.68	1.67	1.66
75	7.82	4.03	3.09	2.68	2.45	2.20	2.07	1.97	1.91	1.87	1.84	1.82	1.80	1.78	1.76	1.74	1.73	1.72	1.71	1.70
100	8.63	4.29	3.25	2.80	2.55	2.28	2.14	2.04	1.98	1.93	1.90	1.88	1.86	1.83	1.81	1.79	1.78	1.77	1.76	1.75
125	9.30	4.51	3.38	2.89	2.63	2.35	2.20	2.09	2.03	1.98	1.95	1.92	1.90	1.87	1.85	1.83	1.82	1.81	1.80	1.79
150	9.89	4.69	3.49	2.98	2.70	2.40	2.25	2.14	2.06	2.02	1.98	1.95	1.93	1.90	1.88	1.87	1.85	1.84	1.83	1.82
175	10.43	4.85	3.58	3.04	2.75	2.45	2.29	2.17	2.10	2.05	2.01	1.98	1.96	1.93	1.91	1.89	1.88	1.87	1.85	1.84
200	10.90	5.00	3.66	3.11	2.80	2.48	2.32	2.20	2.13	2.07	2.04	2.01	1.99	1.96	1.93	1.92	1.90	1.89	1.88	1.86

Table 19-13. κ -Multipliers for Modified Calif. Intrawell Prediction Limits on Observations (2 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.97	1.52	1.35	1.26	1.20	1.14	1.10	1.07	1.05	1.04	1.02	1.02	1.01	1.00	0.99	0.99	0.99	0.98	0.98	0.97
2	2.61	1.90	1.65	1.52	1.44	1.35	1.30	1.26	1.23	1.21	1.20	1.19	1.18	1.17	1.16	1.15	1.15	1.14	1.14	1.13
3	3.04	2.13	1.82	1.67	1.58	1.47	1.41	1.36	1.33	1.31	1.30	1.28	1.27	1.26	1.25	1.24	1.24	1.23	1.22	1.22
4	3.39	2.31	1.95	1.78	1.67	1.55	1.49	1.44	1.40	1.38	1.36	1.35	1.34	1.32	1.31	1.31	1.30	1.29	1.28	1.28
5	3.68	2.45	2.05	1.86	1.75	1.62	1.55	1.49	1.46	1.43	1.41	1.40	1.39	1.37	1.36	1.35	1.35	1.34	1.33	1.32
8	4.35	2.76	2.27	2.04	1.91	1.75	1.67	1.61	1.57	1.54	1.52	1.50	1.49	1.47	1.46	1.45	1.44	1.43	1.42	1.42
12	5.02	3.04	2.47	2.20	2.04	1.87	1.78	1.70	1.66	1.63	1.61	1.59	1.57	1.55	1.54	1.53	1.52	1.51	1.50	1.49
16	5.55	3.26	2.61	2.31	2.14	1.95	1.85	1.77	1.72	1.69	1.67	1.65	1.63	1.61	1.60	1.58	1.58	1.57	1.56	1.55
20	5.99	3.43	2.73	2.40	2.22	2.02	1.91	1.83	1.77	1.74	1.71	1.69	1.68	1.65	1.64	1.63	1.62	1.61	1.60	1.59
30	6.89	3.77	2.94	2.57	2.36	2.13	2.01	1.92	1.86	1.83	1.80	1.78	1.76	1.73	1.72	1.70	1.69	1.68	1.67	1.66
40	7.60	4.02	3.10	2.69	2.46	2.22	2.09	1.99	1.93	1.89	1.86	1.83	1.81	1.79	1.77	1.75	1.74	1.73	1.72	1.71
50	8.20	4.22	3.23	2.79	2.54	2.28	2.14	2.04	1.98	1.93	1.90	1.88	1.86	1.83	1.81	1.79	1.78	1.77	1.76	1.75
60	8.72	4.40	3.33	2.87	2.61	2.33	2.19	2.08	2.02	1.97	1.94	1.91	1.89	1.86	1.84	1.83	1.82	1.81	1.79	1.78
75	9.40	4.62	3.46	2.96	2.69	2.40	2.25	2.13	2.06	2.02	1.98	1.95	1.93	1.90	1.88	1.87	1.85	1.84	1.83	1.82
100	10.36	4.91	3.64	3.09	2.80	2.48	2.32	2.20	2.13	2.07	2.04	2.01	1.99	1.96	1.93	1.92	1.90	1.89	1.88	1.86
125	11.18	5.16	3.78	3.20	2.88	2.55	2.38	2.25	2.17	2.12	2.08	2.05	2.03	1.99	1.97	1.95	1.94	1.93	1.91	1.90
150	11.88	5.36	3.89	3.28	2.95	2.60	2.42	2.29	2.21	2.16	2.12	2.09	2.06	2.03	2.00	1.98	1.97	1.96	1.94	1.93
175	12.51	5.54	4.00	3.35	3.01	2.65	2.46	2.33	2.24	2.19	2.15	2.11	2.09	2.05	2.03	2.01	2.00	1.99	1.97	1.95
200	13.10	5.70	4.08	3.42	3.06	2.69	2.50	2.36	2.27	2.21	2.17	2.14	2.11	2.08	2.05	2.03	2.02	2.01	1.99	1.97

Table 19-13. κ -Multipliers for Modified Calif. Intrawell Prediction Limits on Observations (5 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.80	1.36	1.20	1.12	1.07	1.01	0.97	0.94	0.93	0.91	0.90	0.90	0.89	0.88	0.88	0.87	0.87	0.87	0.86	0.86
2	2.40	1.72	1.49	1.37	1.30	1.22	1.17	1.14	1.11	1.10	1.09	1.08	1.07	1.06	1.05	1.04	1.04	1.04	1.03	1.03
3	2.81	1.94	1.66	1.52	1.44	1.34	1.29	1.25	1.22	1.20	1.19	1.18	1.17	1.15	1.15	1.14	1.13	1.13	1.12	1.12
4	3.13	2.11	1.78	1.63	1.53	1.42	1.37	1.32	1.29	1.27	1.26	1.24	1.23	1.22	1.21	1.20	1.20	1.19	1.19	1.18
5	3.40	2.24	1.88	1.71	1.61	1.49	1.43	1.38	1.35	1.32	1.31	1.30	1.29	1.27	1.26	1.25	1.25	1.24	1.23	1.23
8	4.02	2.53	2.09	1.88	1.76	1.63	1.55	1.49	1.46	1.43	1.41	1.40	1.39	1.37	1.36	1.35	1.35	1.34	1.33	1.32
12	4.65	2.80	2.28	2.04	1.90	1.74	1.66	1.59	1.55	1.53	1.50	1.49	1.48	1.46	1.45	1.44	1.43	1.42	1.41	1.40
16	5.14	3.00	2.42	2.15	1.99	1.82	1.73	1.66	1.62	1.59	1.57	1.55	1.54	1.52	1.50	1.49	1.48	1.48	1.47	1.46
20	5.55	3.17	2.53	2.24	2.07	1.89	1.79	1.72	1.67	1.64	1.62	1.60	1.58	1.56	1.55	1.54	1.53	1.52	1.51	1.50
30	6.38	3.48	2.73	2.40	2.21	2.00	1.89	1.81	1.76	1.73	1.70	1.68	1.67	1.64	1.63	1.61	1.61	1.60	1.59	1.58
40	7.04	3.72	2.88	2.51	2.31	2.09	1.97	1.88	1.83	1.79	1.76	1.74	1.72	1.70	1.68	1.67	1.66	1.65	1.64	1.63
50	7.60	3.91	3.00	2.60	2.39	2.15	2.03	1.93	1.88	1.83	1.81	1.78	1.77	1.74	1.72	1.71	1.70	1.69	1.68	1.67
60	8.09	4.07	3.10	2.68	2.45	2.20	2.07	1.98	1.91	1.87	1.84	1.82	1.80	1.77	1.76	1.74	1.73	1.72	1.71	1.70
75	8.71	4.28	3.23	2.78	2.53	2.27	2.13	2.03	1.96	1.92	1.89	1.86	1.84	1.82	1.80	1.78	1.77	1.76	1.75	1.74
100	9.61	4.55	3.39	2.90	2.63	2.35	2.20	2.09	2.03	1.98	1.95	1.92	1.90	1.87	1.85	1.83	1.82	1.81	1.80	1.78
125	10.35	4.78	3.53	3.00	2.71	2.41	2.26	2.14	2.07	2.02	1.99	1.96	1.94	1.91	1.89	1.87	1.86	1.85	1.83	1.82
150	11.02	4.96	3.63	3.08	2.78	2.47	2.30	2.19	2.11	2.06	2.03	2.00	1.98	1.94	1.92	1.90	1.89	1.88	1.87	1.85
175	11.60	5.14	3.73	3.15	2.84	2.51	2.34	2.22	2.14	2.09	2.06	2.03	2.00	1.97	1.95	1.93	1.92	1.91	1.89	1.88
200	12.11	5.27	3.82	3.21	2.89	2.55	2.38	2.25	2.17	2.12	2.08	2.05	2.03	1.99	1.97	1.95	1.94	1.93	1.91	1.90

Table 19-13. κ -Multipliers for Modified Calif. Intrawell Prediction Limits on Observations (5 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.30	1.69	1.47	1.36	1.29	1.21	1.17	1.13	1.11	1.10	1.08	1.08	1.07	1.06	1.05	1.04	1.04	1.04	1.03	1.03
2	3.01	2.08	1.77	1.62	1.53	1.42	1.36	1.32	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20	1.20	1.19	1.19	1.18
3	3.50	2.32	1.95	1.77	1.66	1.54	1.47	1.42	1.39	1.37	1.35	1.34	1.33	1.31	1.30	1.29	1.29	1.28	1.27	1.27
4	3.89	2.50	2.08	1.88	1.76	1.62	1.55	1.49	1.46	1.43	1.41	1.40	1.39	1.37	1.36	1.35	1.35	1.34	1.33	1.32
5	4.21	2.65	2.18	1.96	1.83	1.69	1.61	1.55	1.51	1.48	1.46	1.45	1.44	1.42	1.41	1.40	1.39	1.39	1.38	1.37
8	4.97	2.97	2.40	2.14	1.99	1.82	1.73	1.66	1.62	1.59	1.57	1.55	1.54	1.52	1.50	1.49	1.48	1.48	1.47	1.46
12	5.72	3.27	2.60	2.30	2.13	1.94	1.84	1.76	1.71	1.68	1.65	1.63	1.62	1.60	1.58	1.57	1.56	1.56	1.54	1.54
16	6.31	3.49	2.75	2.42	2.23	2.02	1.91	1.83	1.78	1.74	1.71	1.69	1.68	1.65	1.64	1.63	1.62	1.61	1.60	1.59
20	6.81	3.68	2.87	2.51	2.30	2.08	1.97	1.88	1.83	1.79	1.76	1.74	1.72	1.70	1.68	1.67	1.66	1.65	1.64	1.63
30	7.82	4.03	3.09	2.68	2.45	2.20	2.07	1.97	1.91	1.87	1.84	1.82	1.80	1.77	1.76	1.74	1.73	1.72	1.71	1.70
40	8.62	4.29	3.25	2.80	2.55	2.28	2.14	2.04	1.98	1.93	1.90	1.88	1.86	1.83	1.81	1.79	1.78	1.77	1.76	1.75
50	9.30	4.51	3.38	2.90	2.63	2.35	2.20	2.09	2.03	1.98	1.95	1.92	1.90	1.87	1.85	1.83	1.82	1.81	1.80	1.79
60	9.88	4.69	3.49	2.98	2.70	2.40	2.25	2.14	2.06	2.02	1.98	1.95	1.93	1.90	1.88	1.87	1.85	1.84	1.83	1.82
75	10.66	4.92	3.62	3.08	2.78	2.47	2.30	2.19	2.11	2.06	2.03	2.00	1.98	1.94	1.92	1.90	1.89	1.88	1.86	1.85
100	11.76	5.23	3.80	3.21	2.89	2.55	2.38	2.25	2.17	2.12	2.08	2.05	2.03	1.99	1.97	1.95	1.94	1.93	1.91	1.90
125	12.66	5.49	3.95	3.31	2.97	2.62	2.43	2.30	2.22	2.17	2.12	2.09	2.07	2.03	2.01	1.99	1.98	1.97	1.95	1.93
150	13.44	5.70	4.06	3.40	3.04	2.67	2.48	2.34	2.26	2.20	2.16	2.13	2.10	2.07	2.04	2.02	2.01	2.00	1.98	1.96
175	14.14	5.90	4.17	3.47	3.10	2.71	2.52	2.38	2.29	2.23	2.19	2.16	2.13	2.09	2.07	2.05	2.03	2.02	2.00	1.99
200	14.84	6.05	4.26	3.54	3.15	2.75	2.55	2.41	2.32	2.26	2.21	2.18	2.16	2.12	2.09	2.07	2.06	2.04	2.02	2.01

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Table 19-13. κ -Multipliers for Modified Calif. Intrawell Prediction Limits on Observations (5 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.84	2.02	1.74	1.60	1.52	1.41	1.36	1.32	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20	1.20	1.19	1.19	1.18
2	3.68	2.45	2.05	1.86	1.75	1.62	1.55	1.49	1.46	1.43	1.41	1.40	1.39	1.37	1.36	1.35	1.35	1.34	1.33	1.32
3	4.25	2.71	2.24	2.02	1.88	1.74	1.65	1.59	1.55	1.52	1.50	1.49	1.48	1.46	1.44	1.44	1.43	1.42	1.41	1.40
4	4.71	2.91	2.38	2.13	1.98	1.82	1.73	1.66	1.62	1.59	1.57	1.55	1.54	1.52	1.50	1.49	1.48	1.48	1.47	1.46
5	5.09	3.07	2.49	2.22	2.06	1.88	1.79	1.71	1.67	1.64	1.61	1.60	1.58	1.56	1.55	1.54	1.53	1.52	1.51	1.50
8	5.99	3.43	2.73	2.40	2.22	2.02	1.91	1.83	1.77	1.74	1.71	1.69	1.68	1.65	1.64	1.63	1.62	1.61	1.60	1.59
12	6.89	3.77	2.94	2.57	2.36	2.13	2.01	1.92	1.86	1.83	1.80	1.78	1.76	1.73	1.71	1.70	1.69	1.68	1.67	1.66
16	7.60	4.02	3.10	2.69	2.46	2.22	2.09	1.99	1.93	1.89	1.86	1.83	1.81	1.79	1.77	1.75	1.74	1.73	1.72	1.71
20	8.20	4.22	3.23	2.79	2.54	2.28	2.14	2.04	1.98	1.93	1.90	1.88	1.86	1.83	1.81	1.79	1.78	1.77	1.76	1.75
30	9.40	4.62	3.46	2.97	2.69	2.40	2.25	2.13	2.06	2.02	1.98	1.95	1.93	1.90	1.88	1.87	1.85	1.84	1.83	1.82
40	10.36	4.91	3.64	3.09	2.80	2.48	2.32	2.20	2.13	2.07	2.04	2.01	1.99	1.96	1.93	1.92	1.90	1.89	1.88	1.86
50	11.17	5.16	3.78	3.20	2.88	2.55	2.38	2.25	2.17	2.12	2.08	2.05	2.03	2.00	1.97	1.95	1.94	1.93	1.91	1.90
60	11.88	5.36	3.89	3.28	2.95	2.60	2.42	2.29	2.21	2.16	2.12	2.09	2.06	2.03	2.00	1.98	1.97	1.96	1.94	1.93
75	12.81	5.62	4.04	3.39	3.03	2.67	2.48	2.34	2.26	2.20	2.16	2.13	2.10	2.07	2.04	2.02	2.01	2.00	1.98	1.96
100	14.10	5.98	4.23	3.53	3.15	2.75	2.55	2.41	2.32	2.26	2.21	2.18	2.16	2.12	2.09	2.07	2.06	2.04	2.02	2.00
125	15.20	6.26	4.39	3.63	3.23	2.82	2.61	2.46	2.37	2.30	2.26	2.22	2.19	2.16	2.13	2.11	2.09	2.08	2.05	2.04
150	16.17	6.50	4.52	3.73	3.31	2.88	2.66	2.50	2.40	2.34	2.29	2.26	2.23	2.19	2.16	2.14	2.12	2.11	2.08	2.07
175	17.03	6.72	4.63	3.81	3.37	2.92	2.70	2.54	2.44	2.37	2.32	2.29	2.26	2.21	2.18	2.16	2.15	2.13	2.11	2.09
200	17.81	6.91	4.74	3.88	3.43	2.96	2.73	2.57	2.47	2.40	2.35	2.31	2.28	2.24	2.21	2.18	2.17	2.15	2.13	2.11

Table 19-13. κ -Multipliers for Modified Calif. Intrawell Prediction Limits on Observations (10 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.40	1.72	1.49	1.37	1.30	1.22	1.17	1.14	1.11	1.10	1.09	1.08	1.07	1.06	1.05	1.04	1.04	1.04	1.03	1.03
2	3.13	2.11	1.78	1.63	1.53	1.42	1.37	1.32	1.29	1.27	1.26	1.24	1.23	1.22	1.21	1.20	1.20	1.19	1.19	1.18
3	3.63	2.35	1.96	1.78	1.67	1.54	1.47	1.42	1.39	1.37	1.35	1.34	1.33	1.31	1.30	1.29	1.29	1.28	1.27	1.27
4	4.02	2.53	2.09	1.88	1.76	1.63	1.55	1.49	1.46	1.43	1.41	1.40	1.39	1.37	1.36	1.35	1.35	1.34	1.33	1.32
5	4.36	2.68	2.20	1.97	1.84	1.69	1.61	1.55	1.51	1.48	1.46	1.45	1.44	1.42	1.41	1.40	1.39	1.39	1.38	1.37
8	5.14	3.00	2.42	2.15	1.99	1.82	1.73	1.66	1.62	1.59	1.57	1.55	1.54	1.52	1.50	1.49	1.49	1.48	1.47	1.46
12	5.91	3.31	2.62	2.31	2.13	1.94	1.84	1.76	1.71	1.68	1.65	1.63	1.62	1.60	1.58	1.57	1.56	1.56	1.54	1.54
16	6.52	3.53	2.76	2.42	2.23	2.02	1.91	1.83	1.78	1.74	1.71	1.69	1.68	1.65	1.64	1.63	1.62	1.61	1.60	1.59
20	7.04	3.72	2.88	2.51	2.31	2.09	1.97	1.88	1.83	1.79	1.76	1.74	1.72	1.70	1.68	1.67	1.66	1.65	1.64	1.63
30	8.08	4.07	3.10	2.68	2.45	2.20	2.07	1.97	1.91	1.87	1.84	1.82	1.80	1.78	1.76	1.74	1.73	1.72	1.71	1.70
40	8.91	4.33	3.26	2.80	2.55	2.29	2.15	2.04	1.98	1.93	1.90	1.88	1.86	1.83	1.81	1.79	1.78	1.77	1.76	1.75
50	9.62	4.55	3.39	2.90	2.63	2.35	2.20	2.09	2.02	1.98	1.95	1.92	1.90	1.87	1.85	1.83	1.82	1.81	1.80	1.79
60	10.21	4.74	3.50	2.98	2.70	2.40	2.25	2.13	2.06	2.02	1.98	1.95	1.93	1.90	1.88	1.87	1.85	1.84	1.83	1.82
75	11.04	4.97	3.64	3.08	2.78	2.47	2.30	2.19	2.11	2.06	2.03	2.00	1.97	1.94	1.92	1.90	1.89	1.88	1.86	1.85
100	12.11	5.27	3.82	3.21	2.89	2.55	2.38	2.25	2.17	2.12	2.08	2.05	2.03	2.00	1.97	1.95	1.94	1.93	1.91	1.90
125	13.09	5.54	3.96	3.32	2.97	2.62	2.44	2.30	2.22	2.17	2.12	2.09	2.07	2.04	2.01	1.99	1.98	1.97	1.95	1.93
150	13.87	5.76	4.08	3.41	3.04	2.67	2.48	2.34	2.26	2.20	2.16	2.13	2.11	2.07	2.04	2.02	2.01	2.00	1.98	1.96
175	14.65	5.96	4.17	3.48	3.10	2.72	2.52	2.38	2.29	2.23	2.19	2.15	2.13	2.09	2.07	2.05	2.03	2.02	2.00	1.99
200	15.23	6.10	4.27	3.54	3.15	2.76	2.55	2.41	2.32	2.26	2.22	2.18	2.15	2.12	2.09	2.07	2.05	2.04	2.02	2.01

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Table 19-13. κ -Multipliers for Modified Calif. Intrawell Prediction Limits on Observations (10 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.01	2.08	1.77	1.62	1.53	1.42	1.36	1.32	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20	1.20	1.19	1.19	1.18
2	3.89	2.50	2.08	1.88	1.76	1.62	1.55	1.49	1.46	1.43	1.41	1.40	1.39	1.37	1.36	1.35	1.35	1.34	1.33	1.32
3	4.49	2.77	2.27	2.03	1.89	1.74	1.66	1.59	1.55	1.53	1.50	1.49	1.48	1.46	1.45	1.44	1.43	1.42	1.41	1.40
4	4.97	2.97	2.40	2.14	1.99	1.82	1.73	1.66	1.62	1.59	1.57	1.55	1.54	1.52	1.50	1.49	1.48	1.48	1.47	1.46
5	5.37	3.13	2.51	2.23	2.07	1.89	1.79	1.72	1.67	1.64	1.61	1.60	1.58	1.56	1.55	1.54	1.53	1.52	1.51	1.50
8	6.31	3.50	2.75	2.42	2.23	2.02	1.91	1.83	1.78	1.74	1.71	1.69	1.68	1.65	1.64	1.63	1.62	1.61	1.60	1.59
12	7.25	3.83	2.97	2.58	2.37	2.14	2.01	1.92	1.87	1.83	1.80	1.78	1.76	1.73	1.72	1.70	1.69	1.68	1.67	1.66
16	8.00	4.09	3.12	2.70	2.47	2.22	2.09	1.99	1.93	1.89	1.86	1.83	1.81	1.79	1.77	1.75	1.74	1.73	1.72	1.71
20	8.63	4.29	3.25	2.80	2.55	2.28	2.14	2.04	1.98	1.93	1.90	1.88	1.86	1.83	1.81	1.79	1.78	1.77	1.76	1.75
30	9.89	4.69	3.49	2.98	2.70	2.40	2.25	2.13	2.06	2.02	1.98	1.95	1.93	1.90	1.88	1.87	1.85	1.84	1.83	1.82
40	10.89	4.99	3.66	3.10	2.80	2.48	2.32	2.20	2.13	2.08	2.04	2.01	1.99	1.96	1.93	1.92	1.90	1.89	1.88	1.86
50	11.77	5.24	3.80	3.21	2.89	2.55	2.38	2.25	2.17	2.12	2.08	2.05	2.03	2.00	1.97	1.95	1.94	1.93	1.91	1.90
60	12.50	5.44	3.92	3.29	2.95	2.60	2.42	2.29	2.21	2.16	2.12	2.09	2.06	2.03	2.00	1.99	1.97	1.96	1.94	1.93
75	13.48	5.71	4.06	3.40	3.04	2.67	2.48	2.34	2.26	2.20	2.16	2.13	2.10	2.07	2.04	2.02	2.01	2.00	1.98	1.96
100	14.84	6.05	4.26	3.54	3.15	2.76	2.55	2.41	2.32	2.26	2.22	2.18	2.15	2.12	2.09	2.07	2.06	2.04	2.02	2.00
125	16.02	6.35	4.42	3.65	3.24	2.82	2.61	2.46	2.37	2.30	2.26	2.22	2.20	2.15	2.13	2.11	2.09	2.08	2.05	2.04
150	16.99	6.59	4.54	3.74	3.31	2.88	2.66	2.50	2.40	2.34	2.29	2.26	2.23	2.19	2.16	2.14	2.12	2.11	2.09	2.07
175	17.97	6.84	4.66	3.81	3.37	2.93	2.70	2.54	2.44	2.37	2.32	2.28	2.26	2.22	2.19	2.16	2.15	2.13	2.11	2.09
200	18.75	7.03	4.76	3.88	3.43	2.97	2.73	2.56	2.47	2.39	2.34	2.31	2.28	2.23	2.20	2.19	2.17	2.15	2.13	2.11

Table 19-13. κ -Multipliers for Modified Calif. Intrawell Prediction Limits on Observations (10 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.68	2.45	2.05	1.86	1.75	1.62	1.55	1.49	1.46	1.43	1.41	1.40	1.39	1.37	1.36	1.35	1.35	1.34	1.33	1.32
2	4.71	2.91	2.38	2.13	1.98	1.82	1.73	1.66	1.62	1.59	1.57	1.55	1.54	1.52	1.50	1.49	1.48	1.48	1.47	1.46
3	5.42	3.21	2.58	2.29	2.12	1.93	1.83	1.76	1.71	1.68	1.65	1.63	1.62	1.60	1.58	1.57	1.56	1.56	1.54	1.54
4	5.99	3.43	2.73	2.40	2.22	2.02	1.91	1.83	1.77	1.74	1.71	1.69	1.68	1.65	1.64	1.63	1.62	1.61	1.60	1.59
5	6.47	3.61	2.84	2.50	2.30	2.08	1.96	1.88	1.82	1.79	1.76	1.74	1.72	1.70	1.68	1.67	1.66	1.65	1.64	1.63
8	7.60	4.02	3.10	2.69	2.46	2.22	2.09	1.99	1.93	1.89	1.86	1.83	1.81	1.79	1.77	1.75	1.74	1.73	1.72	1.71
12	8.72	4.40	3.33	2.87	2.61	2.33	2.19	2.08	2.02	1.97	1.94	1.91	1.89	1.86	1.84	1.83	1.82	1.81	1.79	1.78
16	9.61	4.68	3.50	2.99	2.71	2.42	2.26	2.15	2.08	2.03	1.99	1.97	1.95	1.91	1.89	1.88	1.87	1.86	1.84	1.83
20	10.36	4.91	3.64	3.09	2.80	2.48	2.32	2.20	2.13	2.07	2.04	2.01	1.99	1.96	1.93	1.92	1.90	1.89	1.87	1.86
30	11.89	5.36	3.89	3.28	2.95	2.60	2.42	2.29	2.21	2.16	2.12	2.09	2.06	2.03	2.00	1.99	1.97	1.96	1.94	1.93
40	13.09	5.70	4.08	3.42	3.06	2.69	2.50	2.36	2.27	2.21	2.17	2.14	2.11	2.08	2.05	2.03	2.02	2.01	1.99	1.97
50	14.11	5.97	4.24	3.52	3.15	2.75	2.55	2.41	2.32	2.26	2.21	2.18	2.15	2.12	2.09	2.07	2.06	2.04	2.02	2.00
60	14.99	6.20	4.36	3.61	3.22	2.81	2.60	2.45	2.36	2.29	2.25	2.22	2.19	2.15	2.12	2.10	2.08	2.07	2.04	2.04
75	16.16	6.49	4.52	3.73	3.31	2.87	2.66	2.50	2.40	2.34	2.29	2.26	2.23	2.19	2.16	2.14	2.12	2.11	2.09	2.07
100	17.77	6.91	4.74	3.88	3.42	2.97	2.73	2.57	2.47	2.40	2.35	2.31	2.28	2.24	2.21	2.19	2.17	2.15	2.13	2.11
125	19.14	7.23	4.91	3.99	3.52	3.03	2.79	2.62	2.51	2.44	2.39	2.35	2.32	2.27	2.24	2.22	2.20	2.19	2.16	2.15
150	20.31	7.52	5.05	4.09	3.59	3.09	2.84	2.66	2.55	2.48	2.42	2.38	2.35	2.30	2.27	2.25	2.23	2.22	2.19	2.17
175	21.48	7.76	5.18	4.17	3.66	3.14	2.88	2.69	2.58	2.50	2.45	2.41	2.38	2.33	2.29	2.27	2.26	2.24	2.22	2.20
200	22.46	7.96	5.27	4.25	3.71	3.17	2.92	2.72	2.61	2.53	2.48	2.44	2.40	2.35	2.32	2.29	2.28	2.26	2.23	2.22

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Table 19-13. κ -Multipliers for Modified Calif. Intrawell Prediction Limits on Observations (20 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.13	2.11	1.78	1.63	1.53	1.42	1.37	1.32	1.29	1.27	1.26	1.24	1.23	1.22	1.21	1.20	1.20	1.19	1.19	1.18
2	4.02	2.53	2.09	1.88	1.76	1.63	1.55	1.49	1.46	1.43	1.41	1.40	1.39	1.37	1.36	1.35	1.35	1.34	1.33	1.32
3	4.65	2.80	2.28	2.04	1.90	1.74	1.66	1.59	1.55	1.53	1.50	1.49	1.48	1.46	1.45	1.44	1.43	1.42	1.41	1.40
4	5.14	3.00	2.42	2.15	1.99	1.82	1.73	1.66	1.62	1.59	1.57	1.55	1.54	1.52	1.50	1.49	1.49	1.48	1.47	1.46
5	5.55	3.17	2.53	2.24	2.07	1.89	1.79	1.72	1.67	1.64	1.62	1.60	1.58	1.56	1.55	1.54	1.53	1.52	1.51	1.50
8	6.52	3.53	2.76	2.42	2.23	2.02	1.91	1.83	1.78	1.74	1.71	1.69	1.68	1.66	1.64	1.63	1.62	1.61	1.60	1.59
12	7.49	3.87	2.98	2.59	2.37	2.14	2.01	1.92	1.87	1.83	1.80	1.78	1.76	1.73	1.72	1.70	1.69	1.68	1.67	1.66
16	8.26	4.13	3.14	2.71	2.47	2.22	2.09	1.99	1.93	1.89	1.86	1.83	1.81	1.79	1.77	1.75	1.74	1.73	1.72	1.71
20	8.91	4.34	3.26	2.81	2.55	2.29	2.14	2.04	1.98	1.93	1.90	1.88	1.86	1.83	1.81	1.79	1.78	1.77	1.76	1.75
30	10.22	4.74	3.50	2.98	2.70	2.40	2.25	2.14	2.06	2.02	1.98	1.95	1.93	1.90	1.88	1.87	1.85	1.84	1.83	1.82
40	11.25	5.04	3.68	3.11	2.81	2.49	2.32	2.20	2.13	2.07	2.04	2.01	1.99	1.96	1.93	1.92	1.90	1.89	1.88	1.86
50	12.13	5.29	3.82	3.21	2.89	2.55	2.38	2.25	2.17	2.12	2.08	2.05	2.03	2.00	1.97	1.95	1.94	1.93	1.91	1.90
60	12.89	5.49	3.93	3.30	2.96	2.60	2.42	2.29	2.21	2.16	2.12	2.09	2.06	2.03	2.00	1.98	1.97	1.96	1.94	1.93
75	13.89	5.76	4.08	3.41	3.04	2.67	2.48	2.34	2.26	2.20	2.16	2.13	2.10	2.07	2.04	2.02	2.01	2.00	1.98	1.96
100	15.35	6.12	4.28	3.54	3.16	2.76	2.56	2.41	2.32	2.26	2.22	2.18	2.16	2.12	2.09	2.07	2.05	2.04	2.02	2.00
125	16.52	6.42	4.42	3.65	3.24	2.83	2.61	2.46	2.37	2.30	2.26	2.22	2.20	2.15	2.13	2.11	2.09	2.08	2.05	2.03
150	17.58	6.65	4.57	3.75	3.31	2.88	2.66	2.50	2.40	2.34	2.29	2.26	2.23	2.19	2.16	2.14	2.12	2.11	2.08	2.07
175	18.52	6.86	4.69	3.82	3.38	2.93	2.70	2.53	2.44	2.37	2.32	2.29	2.26	2.21	2.18	2.16	2.15	2.13	2.11	2.09
200	19.22	7.09	4.78	3.90	3.43	2.97	2.73	2.56	2.47	2.40	2.34	2.31	2.28	2.23	2.20	2.18	2.17	2.15	2.13	2.12

Table 19-13. κ -Multipliers for Modified Calif. Intrawell Prediction Limits on Observations (20 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.89	2.50	2.08	1.88	1.76	1.62	1.55	1.49	1.46	1.43	1.41	1.40	1.39	1.37	1.36	1.35	1.35	1.34	1.33	1.32
2	4.97	2.97	2.40	2.14	1.99	1.82	1.73	1.66	1.62	1.59	1.57	1.55	1.54	1.52	1.50	1.49	1.48	1.48	1.47	1.46
3	5.72	3.27	2.60	2.30	2.13	1.94	1.84	1.76	1.71	1.68	1.65	1.63	1.62	1.60	1.58	1.57	1.56	1.56	1.54	1.54
4	6.31	3.50	2.75	2.42	2.23	2.02	1.91	1.83	1.78	1.74	1.71	1.69	1.68	1.65	1.64	1.63	1.62	1.61	1.60	1.59
5	6.81	3.68	2.87	2.51	2.30	2.08	1.97	1.88	1.83	1.79	1.76	1.74	1.72	1.70	1.68	1.67	1.66	1.65	1.64	1.63
8	8.00	4.09	3.12	2.70	2.47	2.22	2.09	1.99	1.93	1.89	1.86	1.83	1.81	1.79	1.77	1.75	1.74	1.73	1.72	1.71
12	9.18	4.47	3.35	2.88	2.61	2.34	2.19	2.08	2.02	1.97	1.94	1.91	1.89	1.86	1.84	1.83	1.82	1.81	1.79	1.78
16	10.11	4.76	3.52	3.00	2.72	2.42	2.26	2.15	2.08	2.03	1.99	1.97	1.95	1.92	1.89	1.88	1.86	1.86	1.84	1.83
20	10.90	4.99	3.66	3.10	2.80	2.48	2.32	2.20	2.13	2.07	2.04	2.01	1.99	1.96	1.93	1.92	1.90	1.89	1.88	1.86
30	12.48	5.44	3.92	3.29	2.96	2.60	2.42	2.29	2.21	2.16	2.12	2.09	2.06	2.03	2.00	1.98	1.97	1.96	1.94	1.93
40	13.77	5.79	4.11	3.43	3.07	2.69	2.50	2.36	2.27	2.21	2.17	2.14	2.11	2.08	2.05	2.03	2.02	2.01	1.99	1.97
50	14.82	6.06	4.26	3.54	3.15	2.76	2.55	2.41	2.32	2.26	2.22	2.18	2.16	2.12	2.09	2.07	2.06	2.04	2.02	2.00
60	15.76	6.30	4.39	3.63	3.22	2.81	2.60	2.45	2.36	2.30	2.25	2.22	2.19	2.15	2.12	2.10	2.08	2.07	2.04	2.04
75	16.99	6.59	4.55	3.74	3.31	2.88	2.66	2.50	2.41	2.34	2.29	2.26	2.23	2.19	2.16	2.14	2.12	2.11	2.09	2.07
100	18.75	7.00	4.76	3.88	3.43	2.97	2.73	2.57	2.46	2.40	2.35	2.31	2.28	2.24	2.20	2.18	2.17	2.15	2.13	2.11
125	20.16	7.32	4.94	4.00	3.52	3.03	2.79	2.62	2.51	2.44	2.39	2.35	2.32	2.27	2.24	2.22	2.20	2.19	2.16	2.15
150	21.33	7.62	5.07	4.10	3.60	3.09	2.84	2.66	2.55	2.48	2.42	2.38	2.35	2.31	2.27	2.25	2.23	2.22	2.19	2.18
175	22.50	7.85	5.20	4.19	3.66	3.13	2.88	2.70	2.58	2.50	2.45	2.41	2.38	2.33	2.30	2.27	2.26	2.24	2.22	2.20
200	23.44	8.09	5.30	4.25	3.72	3.18	2.92	2.72	2.61	2.53	2.48	2.43	2.40	2.35	2.32	2.29	2.28	2.26	2.23	2.22

Table 19-13. κ -Multipliers for Modified Calif. Intrawell Prediction Limits on Observations (20 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.71	2.91	2.38	2.13	1.98	1.82	1.73	1.66	1.62	1.59	1.57	1.55	1.54	1.52	1.50	1.49	1.48	1.48	1.47	1.46
2	5.99	3.43	2.73	2.40	2.22	2.02	1.91	1.83	1.77	1.74	1.71	1.69	1.68	1.65	1.64	1.63	1.62	1.61	1.60	1.59
3	6.89	3.77	2.94	2.57	2.36	2.13	2.01	1.92	1.86	1.83	1.80	1.78	1.76	1.73	1.71	1.70	1.69	1.68	1.67	1.66
4	7.60	4.02	3.10	2.69	2.46	2.22	2.09	1.99	1.93	1.89	1.86	1.83	1.81	1.79	1.77	1.75	1.74	1.73	1.72	1.71
5	8.20	4.22	3.23	2.79	2.54	2.28	2.14	2.04	1.98	1.93	1.90	1.88	1.86	1.83	1.81	1.79	1.78	1.77	1.76	1.75
8	9.61	4.68	3.50	2.99	2.71	2.42	2.26	2.15	2.08	2.03	1.99	1.97	1.95	1.91	1.89	1.88	1.86	1.86	1.84	1.83
12	11.02	5.11	3.75	3.18	2.86	2.54	2.37	2.24	2.16	2.11	2.07	2.04	2.02	1.99	1.96	1.95	1.93	1.92	1.90	1.89
16	12.14	5.43	3.93	3.31	2.97	2.62	2.44	2.31	2.23	2.17	2.13	2.10	2.07	2.04	2.01	2.00	1.98	1.97	1.95	1.94
20	13.08	5.70	4.08	3.42	3.06	2.69	2.50	2.36	2.27	2.21	2.17	2.14	2.11	2.08	2.05	2.03	2.02	2.01	1.99	1.97
30	15.00	6.20	4.36	3.61	3.22	2.81	2.60	2.45	2.36	2.30	2.25	2.21	2.19	2.15	2.12	2.10	2.08	2.07	2.04	2.04
40	16.52	6.59	4.57	3.76	3.33	2.90	2.68	2.52	2.42	2.35	2.30	2.27	2.24	2.20	2.17	2.15	2.13	2.12	2.10	2.08
50	17.81	6.90	4.73	3.87	3.42	2.96	2.73	2.57	2.46	2.40	2.35	2.31	2.28	2.24	2.21	2.18	2.17	2.15	2.13	2.11
60	18.93	7.18	4.87	3.97	3.50	3.02	2.78	2.61	2.50	2.43	2.38	2.34	2.31	2.27	2.24	2.21	2.20	2.18	2.16	2.14
75	20.39	7.50	5.05	4.09	3.59	3.09	2.84	2.66	2.55	2.48	2.42	2.38	2.35	2.30	2.27	2.25	2.23	2.22	2.19	2.18
100	22.50	7.97	5.27	4.25	3.71	3.18	2.92	2.72	2.61	2.53	2.48	2.44	2.40	2.35	2.32	2.29	2.27	2.26	2.23	2.22
125	24.14	8.35	5.46	4.37	3.81	3.25	2.97	2.78	2.66	2.57	2.52	2.48	2.44	2.39	2.35	2.33	2.31	2.30	2.27	2.25
150	25.78	8.67	5.62	4.48	3.90	3.31	3.02	2.82	2.70	2.61	2.55	2.50	2.47	2.42	2.38	2.36	2.34	2.32	2.29	2.27
175	27.19	8.96	5.77	4.57	3.96	3.35	3.06	2.85	2.72	2.64	2.58	2.53	2.50	2.45	2.41	2.38	2.36	2.34	2.32	2.30
200	28.12	9.20	5.86	4.64	4.01	3.40	3.10	2.89	2.75	2.67	2.60	2.56	2.52	2.47	2.43	2.40	2.38	2.37	2.34	2.32

Table 19-13. κ -Multipliers for Modified Calif. Intrawell Prediction Limits on Observations (40 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.02	2.53	2.09	1.88	1.76	1.63	1.55	1.49	1.46	1.43	1.41	1.40	1.39	1.37	1.36	1.35	1.35	1.34	1.33	1.32
2	5.14	3.00	2.42	2.15	1.99	1.82	1.73	1.66	1.62	1.59	1.57	1.55	1.54	1.52	1.50	1.49	1.49	1.48	1.47	1.46
3	5.91	3.31	2.62	2.31	2.13	1.94	1.84	1.76	1.71	1.68	1.65	1.64	1.62	1.60	1.58	1.57	1.56	1.56	1.54	1.54
4	6.52	3.53	2.76	2.42	2.23	2.02	1.91	1.83	1.78	1.74	1.71	1.69	1.68	1.66	1.64	1.63	1.62	1.61	1.60	1.59
5	7.04	3.72	2.88	2.51	2.31	2.09	1.97	1.88	1.83	1.79	1.76	1.74	1.72	1.70	1.68	1.67	1.66	1.65	1.64	1.63
8	8.26	4.13	3.14	2.71	2.47	2.22	2.09	1.99	1.93	1.89	1.86	1.83	1.81	1.79	1.77	1.75	1.74	1.74	1.72	1.71
12	9.48	4.51	3.37	2.88	2.62	2.34	2.19	2.08	2.02	1.97	1.94	1.91	1.89	1.86	1.84	1.83	1.82	1.81	1.79	1.78
16	10.44	4.80	3.54	3.01	2.72	2.42	2.26	2.15	2.08	2.03	1.99	1.97	1.95	1.92	1.89	1.88	1.86	1.86	1.84	1.83
20	11.25	5.04	3.68	3.11	2.81	2.49	2.32	2.20	2.13	2.07	2.04	2.01	1.99	1.96	1.93	1.92	1.90	1.89	1.87	1.86
30	12.90	5.49	3.93	3.30	2.96	2.60	2.42	2.29	2.21	2.16	2.12	2.09	2.06	2.03	2.00	1.99	1.97	1.96	1.94	1.93
40	14.20	5.84	4.12	3.43	3.07	2.69	2.50	2.36	2.27	2.21	2.17	2.14	2.11	2.08	2.05	2.03	2.02	2.01	1.99	1.97
50	15.31	6.12	4.27	3.54	3.15	2.76	2.55	2.41	2.32	2.26	2.21	2.18	2.16	2.12	2.09	2.07	2.05	2.04	2.02	2.00
60	16.27	6.36	4.40	3.63	3.23	2.81	2.60	2.45	2.36	2.29	2.25	2.21	2.19	2.15	2.12	2.10	2.08	2.07	2.04	2.02
75	17.54	6.66	4.57	3.74	3.32	2.88	2.66	2.50	2.40	2.34	2.29	2.26	2.23	2.19	2.16	2.14	2.12	2.11	2.08	2.07
100	19.30	7.07	4.78	3.89	3.43	2.97	2.73	2.57	2.46	2.40	2.35	2.31	2.28	2.24	2.21	2.18	2.17	2.15	2.13	2.11
125	20.78	7.40	4.95	4.01	3.53	3.03	2.79	2.62	2.51	2.44	2.39	2.35	2.32	2.27	2.24	2.22	2.20	2.19	2.16	2.15
150	22.11	7.70	5.09	4.11	3.60	3.09	2.84	2.66	2.55	2.48	2.42	2.38	2.35	2.30	2.27	2.25	2.23	2.22	2.19	2.18
175	23.28	7.93	5.21	4.19	3.66	3.14	2.88	2.70	2.58	2.50	2.45	2.41	2.38	2.33	2.30	2.28	2.26	2.25	2.21	2.20
200	24.38	8.16	5.32	4.26	3.72	3.18	2.92	2.72	2.61	2.53	2.48	2.43	2.40	2.35	2.32	2.30	2.28	2.27	2.23	2.22

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Table 19-13. κ -Multipliers for Modified Calif. Intrawell Prediction Limits on Observations (40 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.97	2.97	2.40	2.14	1.99	1.82	1.73	1.66	1.62	1.59	1.57	1.55	1.54	1.52	1.50	1.49	1.48	1.48	1.47	1.46
2	6.31	3.49	2.75	2.42	2.23	2.02	1.91	1.83	1.78	1.74	1.71	1.69	1.68	1.65	1.64	1.63	1.62	1.61	1.60	1.59
3	7.25	3.83	2.97	2.58	2.37	2.14	2.01	1.92	1.87	1.83	1.80	1.78	1.76	1.73	1.72	1.70	1.69	1.68	1.67	1.66
4	8.00	4.09	3.12	2.70	2.47	2.22	2.09	1.99	1.93	1.89	1.86	1.83	1.81	1.79	1.77	1.75	1.74	1.73	1.72	1.71
5	8.63	4.29	3.25	2.80	2.55	2.28	2.14	2.04	1.98	1.93	1.90	1.88	1.86	1.83	1.81	1.79	1.78	1.77	1.76	1.75
8	10.11	4.76	3.53	3.00	2.72	2.42	2.26	2.15	2.08	2.03	1.99	1.97	1.95	1.91	1.89	1.88	1.86	1.86	1.84	1.83
12	11.59	5.19	3.78	3.19	2.87	2.54	2.37	2.24	2.16	2.11	2.07	2.04	2.02	1.99	1.96	1.95	1.93	1.92	1.90	1.89
16	12.76	5.52	3.96	3.32	2.98	2.62	2.44	2.31	2.23	2.17	2.13	2.10	2.07	2.04	2.01	2.00	1.98	1.97	1.95	1.94
20	13.76	5.79	4.11	3.43	3.07	2.69	2.50	2.36	2.27	2.21	2.17	2.14	2.11	2.08	2.05	2.03	2.02	2.01	1.99	1.97
30	15.76	6.30	4.39	3.63	3.22	2.81	2.60	2.45	2.36	2.29	2.25	2.21	2.19	2.15	2.12	2.10	2.08	2.07	2.04	2.02
40	17.34	6.69	4.59	3.77	3.34	2.90	2.68	2.52	2.42	2.35	2.30	2.27	2.24	2.20	2.17	2.15	2.13	2.12	2.10	2.08
50	18.71	7.01	4.76	3.89	3.43	2.97	2.73	2.57	2.46	2.40	2.35	2.31	2.28	2.24	2.21	2.18	2.17	2.15	2.13	2.11
60	19.88	7.28	4.90	3.98	3.51	3.02	2.78	2.61	2.50	2.43	2.38	2.34	2.31	2.27	2.24	2.21	2.20	2.18	2.16	2.14
75	21.41	7.62	5.08	4.10	3.60	3.09	2.84	2.66	2.55	2.48	2.42	2.38	2.35	2.30	2.27	2.25	2.23	2.22	2.19	2.18
100	23.59	8.09	5.31	4.26	3.72	3.18	2.92	2.72	2.61	2.53	2.48	2.43	2.40	2.35	2.32	2.29	2.28	2.26	2.23	2.22
125	25.47	8.48	5.49	4.38	3.82	3.25	2.97	2.77	2.66	2.57	2.52	2.47	2.44	2.39	2.36	2.33	2.31	2.29	2.27	2.25
150	27.03	8.79	5.64	4.49	3.90	3.31	3.02	2.82	2.70	2.61	2.55	2.50	2.47	2.42	2.39	2.36	2.34	2.32	2.29	2.28
175	28.44	9.06	5.78	4.57	3.96	3.36	3.06	2.85	2.72	2.64	2.58	2.53	2.50	2.45	2.41	2.39	2.36	2.34	2.32	2.30
200	29.69	9.30	5.90	4.65	4.02	3.40	3.10	2.88	2.75	2.67	2.60	2.56	2.52	2.47	2.43	2.41	2.39	2.36	2.34	2.32

Table 19-13. κ -Multipliers for Modified Calif. Intrawell Prediction Limits on Observations (40 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	5.99	3.43	2.73	2.40	2.22	2.02	1.91	1.83	1.77	1.74	1.71	1.69	1.68	1.65	1.64	1.63	1.62	1.61	1.60	1.59
2	7.60	4.02	3.10	2.69	2.46	2.22	2.09	1.99	1.93	1.89	1.86	1.83	1.81	1.79	1.77	1.75	1.74	1.73	1.72	1.71
3	8.72	4.40	3.33	2.87	2.61	2.33	2.19	2.08	2.02	1.97	1.94	1.91	1.89	1.86	1.84	1.83	1.82	1.81	1.79	1.78
4	9.61	4.68	3.50	2.99	2.71	2.42	2.26	2.15	2.08	2.03	1.99	1.97	1.95	1.91	1.89	1.88	1.86	1.86	1.84	1.83
5	10.36	4.91	3.64	3.09	2.80	2.48	2.32	2.20	2.13	2.07	2.04	2.01	1.99	1.96	1.93	1.92	1.90	1.89	1.87	1.86
8	12.14	5.43	3.93	3.31	2.97	2.62	2.44	2.31	2.23	2.17	2.13	2.10	2.07	2.04	2.01	2.00	1.98	1.97	1.95	1.94
12	13.91	5.92	4.21	3.51	3.13	2.74	2.54	2.40	2.31	2.25	2.21	2.17	2.15	2.11	2.08	2.06	2.05	2.04	2.02	2.00
16	15.32	6.29	4.41	3.65	3.24	2.83	2.62	2.47	2.37	2.31	2.26	2.23	2.20	2.16	2.13	2.11	2.09	2.08	2.06	2.05
20	16.50	6.59	4.57	3.76	3.33	2.90	2.67	2.52	2.42	2.35	2.30	2.27	2.24	2.20	2.17	2.15	2.13	2.12	2.10	2.08
30	18.91	7.17	4.87	3.97	3.50	3.02	2.78	2.61	2.50	2.43	2.38	2.34	2.31	2.27	2.24	2.21	2.20	2.18	2.16	2.14
40	20.82	7.61	5.10	4.12	3.62	3.11	2.85	2.67	2.56	2.49	2.43	2.39	2.36	2.32	2.28	2.26	2.24	2.23	2.20	2.18
50	22.42	7.97	5.28	4.25	3.72	3.18	2.91	2.72	2.61	2.53	2.48	2.43	2.40	2.35	2.32	2.29	2.28	2.26	2.23	2.22
60	23.83	8.28	5.43	4.35	3.79	3.24	2.96	2.77	2.65	2.57	2.51	2.47	2.43	2.38	2.35	2.32	2.30	2.29	2.26	2.24
75	25.70	8.67	5.62	4.47	3.89	3.31	3.02	2.82	2.69	2.61	2.55	2.51	2.47	2.42	2.38	2.36	2.34	2.32	2.29	2.27
100	28.28	9.18	5.88	4.64	4.02	3.40	3.10	2.88	2.75	2.67	2.60	2.56	2.52	2.47	2.43	2.40	2.38	2.36	2.33	2.31
125	30.47	9.61	6.07	4.78	4.12	3.47	3.15	2.93	2.80	2.71	2.64	2.60	2.56	2.50	2.47	2.44	2.41	2.40	2.37	2.34
150	32.34	10.00	6.25	4.88	4.20	3.54	3.20	2.97	2.84	2.74	2.68	2.63	2.59	2.53	2.50	2.47	2.44	2.42	2.39	2.37
175	34.06	10.31	6.41	4.98	4.28	3.58	3.25	3.01	2.87	2.77	2.71	2.66	2.62	2.56	2.52	2.49	2.47	2.45	2.42	2.40
200	35.62	10.59	6.52	5.06	4.34	3.62	3.28	3.04	2.90	2.80	2.73	2.68	2.64	2.58	2.54	2.51	2.49	2.47	2.44	2.41

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D STATISTICAL TABLES

D.3 TABLES FROM CHAPTER 19: INTRAWELL PREDICTION LIMITS FOR FUTURE MEANS

TABLE 19-14 κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Mean Order 2.....D-156

TABLE 19-15 κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Mean Order 2..... D-165

TABLE 19-16 κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Mean Order 2..... D-174

TABLE 19-17 κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Mean Order 3..... D-183

TABLE 19-18 κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Mean Order 3..... D-192

Table 19-14. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 2 (1 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.42	1.20	1.12	1.07	1.04	1.01	0.98	0.97	0.96	0.95	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.92	0.92	0.92
2	2.01	1.63	1.48	1.41	1.36	1.30	1.27	1.25	1.23	1.22	1.21	1.20	1.20	1.19	1.19	1.18	1.18	1.18	1.17	1.17
3	2.41	1.88	1.70	1.60	1.54	1.47	1.43	1.40	1.38	1.37	1.35	1.35	1.34	1.33	1.32	1.32	1.32	1.31	1.31	1.30
4	2.71	2.07	1.85	1.73	1.66	1.58	1.54	1.50	1.48	1.46	1.45	1.44	1.44	1.43	1.42	1.41	1.41	1.40	1.40	1.39
5	2.97	2.22	1.97	1.84	1.76	1.67	1.62	1.58	1.56	1.54	1.53	1.52	1.51	1.50	1.49	1.48	1.48	1.47	1.47	1.46
8	3.55	2.55	2.22	2.06	1.96	1.85	1.79	1.74	1.71	1.69	1.67	1.66	1.65	1.64	1.63	1.62	1.62	1.61	1.60	1.60
12	4.13	2.85	2.45	2.25	2.13	2.00	1.93	1.88	1.84	1.82	1.80	1.78	1.77	1.76	1.75	1.74	1.73	1.73	1.72	1.71
16	4.59	3.07	2.61	2.39	2.26	2.11	2.03	1.97	1.93	1.90	1.88	1.87	1.86	1.84	1.83	1.82	1.81	1.80	1.79	1.79
20	4.97	3.25	2.74	2.49	2.35	2.19	2.10	2.04	2.00	1.97	1.95	1.93	1.92	1.90	1.89	1.88	1.87	1.86	1.85	1.84
30	5.74	3.59	2.98	2.69	2.52	2.34	2.24	2.17	2.12	2.09	2.06	2.04	2.03	2.01	1.99	1.98	1.97	1.97	1.95	1.95
40	6.34	3.85	3.15	2.83	2.65	2.45	2.34	2.26	2.20	2.17	2.14	2.12	2.11	2.08	2.07	2.05	2.05	2.04	2.02	2.02
50	6.85	4.06	3.29	2.94	2.75	2.53	2.41	2.32	2.27	2.23	2.20	2.18	2.16	2.14	2.12	2.11	2.10	2.09	2.08	2.07
60	7.30	4.23	3.41	3.04	2.83	2.59	2.47	2.38	2.32	2.28	2.25	2.23	2.21	2.19	2.17	2.15	2.14	2.14	2.12	2.11
75	7.88	4.46	3.56	3.15	2.92	2.68	2.54	2.45	2.38	2.34	2.31	2.29	2.27	2.24	2.22	2.21	2.20	2.19	2.17	2.16
100	8.69	4.76	3.75	3.30	3.05	2.78	2.64	2.53	2.47	2.42	2.39	2.36	2.34	2.31	2.29	2.28	2.26	2.26	2.24	2.23
125	9.38	5.00	3.90	3.42	3.15	2.86	2.71	2.60	2.53	2.48	2.44	2.42	2.40	2.37	2.34	2.33	2.32	2.31	2.29	2.28
150	9.98	5.21	4.03	3.52	3.23	2.93	2.77	2.65	2.58	2.53	2.49	2.46	2.44	2.41	2.39	2.37	2.36	2.35	2.33	2.32
175	10.51	5.39	4.14	3.60	3.30	2.99	2.82	2.70	2.62	2.57	2.53	2.50	2.48	2.45	2.42	2.41	2.39	2.38	2.36	2.35
200	11.00	5.54	4.24	3.67	3.36	3.04	2.86	2.74	2.66	2.60	2.56	2.53	2.51	2.48	2.45	2.44	2.42	2.41	2.39	2.38

Table 19-14. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 2 (1 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.89	1.58	1.45	1.38	1.34	1.29	1.26	1.24	1.23	1.22	1.21	1.20	1.20	1.19	1.18	1.18	1.18	1.18	1.17	1.17
2	2.57	2.02	1.82	1.71	1.65	1.57	1.53	1.50	1.48	1.46	1.45	1.44	1.43	1.42	1.42	1.41	1.41	1.40	1.40	1.39
3	3.03	2.29	2.04	1.91	1.83	1.73	1.68	1.64	1.61	1.60	1.58	1.57	1.56	1.55	1.54	1.54	1.53	1.53	1.52	1.52
4	3.39	2.50	2.19	2.04	1.95	1.84	1.78	1.74	1.71	1.69	1.67	1.66	1.65	1.64	1.63	1.62	1.62	1.61	1.60	1.60
5	3.68	2.66	2.32	2.15	2.04	1.93	1.86	1.81	1.78	1.76	1.74	1.73	1.72	1.70	1.69	1.69	1.68	1.67	1.67	1.66
8	4.38	3.02	2.58	2.37	2.25	2.10	2.03	1.97	1.93	1.90	1.88	1.87	1.86	1.84	1.83	1.82	1.81	1.80	1.79	1.79
12	5.07	3.35	2.82	2.57	2.42	2.25	2.16	2.09	2.05	2.02	2.00	1.98	1.97	1.95	1.93	1.92	1.92	1.91	1.90	1.89
16	5.61	3.59	2.99	2.71	2.54	2.36	2.26	2.18	2.14	2.10	2.08	2.06	2.05	2.02	2.01	2.00	1.99	1.98	1.97	1.96
20	6.07	3.79	3.13	2.82	2.64	2.44	2.33	2.25	2.20	2.17	2.14	2.12	2.11	2.08	2.07	2.05	2.05	2.04	2.02	2.02
30	6.99	4.17	3.39	3.02	2.82	2.59	2.47	2.38	2.32	2.28	2.25	2.23	2.21	2.19	2.17	2.15	2.14	2.14	2.12	2.11
40	7.72	4.46	3.57	3.17	2.94	2.70	2.56	2.46	2.40	2.36	2.33	2.30	2.28	2.26	2.24	2.22	2.21	2.20	2.19	2.18
50	8.33	4.69	3.72	3.29	3.04	2.78	2.64	2.53	2.46	2.42	2.39	2.36	2.34	2.31	2.29	2.28	2.26	2.26	2.24	2.23
60	8.87	4.89	3.85	3.39	3.13	2.84	2.70	2.59	2.52	2.47	2.43	2.41	2.39	2.36	2.33	2.32	2.31	2.30	2.28	2.27
75	9.57	5.14	4.01	3.51	3.23	2.93	2.77	2.65	2.58	2.53	2.49	2.46	2.44	2.41	2.39	2.37	2.36	2.35	2.33	2.32
100	10.55	5.47	4.21	3.66	3.36	3.03	2.86	2.74	2.66	2.60	2.56	2.53	2.51	2.48	2.45	2.44	2.42	2.41	2.39	2.38
125	11.38	5.75	4.38	3.79	3.46	3.12	2.93	2.80	2.72	2.66	2.62	2.59	2.57	2.53	2.50	2.48	2.47	2.46	2.44	2.43
150	12.10	5.98	4.52	3.89	3.55	3.18	2.99	2.85	2.77	2.71	2.67	2.63	2.61	2.57	2.54	2.53	2.51	2.50	2.48	2.46
175	12.74	6.18	4.64	3.98	3.62	3.24	3.04	2.90	2.81	2.75	2.70	2.67	2.64	2.61	2.58	2.56	2.54	2.53	2.51	2.50
200	13.33	6.36	4.74	4.06	3.68	3.29	3.09	2.94	2.85	2.78	2.74	2.70	2.68	2.64	2.61	2.59	2.57	2.56	2.54	2.52

Table 19-14. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 2 (1 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.37	1.94	1.77	1.68	1.62	1.56	1.52	1.49	1.47	1.45	1.44	1.44	1.43	1.42	1.41	1.41	1.40	1.40	1.40	1.39
2	3.14	2.41	2.15	2.01	1.93	1.83	1.77	1.73	1.70	1.68	1.67	1.66	1.65	1.64	1.63	1.62	1.61	1.61	1.60	1.60
3	3.67	2.71	2.37	2.21	2.10	1.98	1.92	1.87	1.83	1.81	1.79	1.78	1.77	1.75	1.74	1.74	1.73	1.72	1.72	1.71
4	4.09	2.93	2.54	2.34	2.23	2.09	2.02	1.96	1.92	1.90	1.88	1.86	1.85	1.84	1.82	1.82	1.81	1.80	1.79	1.79
5	4.43	3.10	2.67	2.45	2.32	2.18	2.09	2.03	1.99	1.96	1.94	1.93	1.92	1.90	1.88	1.88	1.87	1.86	1.85	1.84
8	5.25	3.50	2.95	2.68	2.53	2.35	2.25	2.18	2.13	2.10	2.08	2.06	2.05	2.02	2.01	2.00	1.99	1.98	1.97	1.96
12	6.06	3.86	3.20	2.89	2.70	2.50	2.39	2.31	2.25	2.22	2.19	2.17	2.15	2.13	2.11	2.10	2.09	2.08	2.07	2.06
16	6.70	4.13	3.39	3.03	2.83	2.61	2.48	2.39	2.34	2.30	2.27	2.24	2.23	2.20	2.18	2.17	2.16	2.15	2.14	2.13
20	7.24	4.35	3.53	3.15	2.93	2.69	2.56	2.46	2.40	2.36	2.33	2.30	2.28	2.26	2.24	2.22	2.21	2.20	2.19	2.18
30	8.32	4.78	3.81	3.36	3.11	2.84	2.69	2.58	2.51	2.47	2.43	2.41	2.39	2.36	2.33	2.32	2.31	2.30	2.28	2.27
40	9.18	5.10	4.01	3.52	3.24	2.94	2.79	2.67	2.59	2.54	2.51	2.48	2.46	2.42	2.40	2.38	2.37	2.36	2.34	2.33
50	9.90	5.35	4.17	3.64	3.35	3.03	2.86	2.73	2.66	2.60	2.56	2.53	2.51	2.48	2.45	2.43	2.42	2.41	2.39	2.38
60	10.54	5.57	4.30	3.74	3.43	3.09	2.92	2.79	2.71	2.65	2.61	2.58	2.55	2.52	2.49	2.48	2.46	2.45	2.43	2.42
75	11.36	5.85	4.47	3.87	3.54	3.18	2.99	2.85	2.77	2.71	2.67	2.63	2.61	2.57	2.54	2.53	2.51	2.50	2.48	2.46
100	12.52	6.23	4.70	4.04	3.67	3.29	3.08	2.94	2.85	2.78	2.74	2.70	2.68	2.64	2.61	2.59	2.57	2.56	2.54	2.52
125	13.50	6.53	4.88	4.17	3.78	3.37	3.16	3.00	2.91	2.84	2.79	2.76	2.73	2.69	2.66	2.64	2.62	2.61	2.58	2.57
150	14.35	6.79	5.03	4.28	3.87	3.44	3.22	3.06	2.96	2.89	2.84	2.80	2.77	2.73	2.70	2.67	2.66	2.65	2.62	2.60
175	15.11	7.02	5.16	4.37	3.94	3.50	3.27	3.10	3.00	2.93	2.87	2.84	2.81	2.76	2.73	2.71	2.69	2.68	2.65	2.63
200	15.80	7.22	5.27	4.45	4.01	3.55	3.31	3.14	3.03	2.96	2.91	2.87	2.84	2.79	2.76	2.74	2.72	2.70	2.68	2.66

Table 19-14. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 2 (2 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.01	1.63	1.48	1.41	1.36	1.30	1.27	1.25	1.23	1.22	1.21	1.20	1.20	1.19	1.19	1.18	1.18	1.18	1.17	1.17
2	2.71	2.07	1.85	1.73	1.66	1.58	1.54	1.50	1.48	1.46	1.45	1.44	1.44	1.43	1.42	1.41	1.41	1.40	1.40	1.39
3	3.18	2.35	2.06	1.92	1.84	1.74	1.69	1.64	1.62	1.60	1.58	1.57	1.57	1.55	1.54	1.54	1.53	1.53	1.52	1.52
4	3.55	2.55	2.22	2.06	1.96	1.85	1.79	1.74	1.71	1.69	1.67	1.66	1.65	1.64	1.63	1.62	1.62	1.61	1.60	1.60
5	3.86	2.71	2.34	2.16	2.06	1.93	1.87	1.82	1.78	1.76	1.74	1.73	1.72	1.71	1.69	1.69	1.68	1.68	1.67	1.66
8	4.59	3.07	2.61	2.39	2.26	2.11	2.03	1.97	1.93	1.90	1.88	1.87	1.86	1.84	1.83	1.82	1.81	1.80	1.79	1.79
12	5.30	3.40	2.84	2.58	2.43	2.26	2.17	2.10	2.05	2.02	2.00	1.98	1.97	1.95	1.93	1.92	1.92	1.91	1.90	1.89
16	5.87	3.65	3.02	2.72	2.55	2.36	2.26	2.19	2.14	2.11	2.08	2.06	2.05	2.03	2.01	2.00	1.99	1.98	1.97	1.96
20	6.34	3.85	3.15	2.83	2.65	2.45	2.34	2.26	2.20	2.17	2.14	2.12	2.11	2.08	2.07	2.05	2.05	2.04	2.02	2.02
30	7.30	4.23	3.41	3.04	2.83	2.59	2.47	2.38	2.32	2.28	2.25	2.23	2.21	2.19	2.17	2.15	2.14	2.14	2.12	2.11
40	8.05	4.52	3.60	3.18	2.95	2.70	2.56	2.47	2.40	2.36	2.33	2.30	2.29	2.26	2.24	2.22	2.21	2.20	2.19	2.18
50	8.69	4.76	3.75	3.30	3.05	2.78	2.64	2.53	2.47	2.42	2.39	2.36	2.34	2.31	2.29	2.28	2.26	2.26	2.24	2.23
60	9.25	4.95	3.87	3.40	3.13	2.85	2.70	2.59	2.52	2.47	2.43	2.41	2.39	2.36	2.33	2.32	2.31	2.30	2.28	2.27
75	9.98	5.21	4.03	3.52	3.23	2.93	2.77	2.65	2.58	2.53	2.49	2.46	2.44	2.41	2.39	2.37	2.36	2.35	2.33	2.32
100	11.00	5.54	4.24	3.67	3.36	3.04	2.86	2.74	2.66	2.60	2.56	2.53	2.51	2.48	2.45	2.44	2.42	2.41	2.39	2.38
125	11.86	5.82	4.40	3.80	3.47	3.12	2.94	2.80	2.72	2.66	2.62	2.59	2.57	2.53	2.50	2.48	2.47	2.46	2.44	2.43
150	12.61	6.05	4.54	3.90	3.55	3.19	2.99	2.86	2.77	2.71	2.67	2.63	2.61	2.57	2.55	2.53	2.51	2.50	2.48	2.46
175	13.28	6.26	4.66	3.99	3.63	3.24	3.04	2.90	2.81	2.75	2.70	2.67	2.65	2.61	2.58	2.56	2.54	2.53	2.51	2.50
200	13.89	6.44	4.77	4.07	3.69	3.29	3.09	2.94	2.85	2.78	2.74	2.70	2.68	2.64	2.61	2.59	2.57	2.56	2.54	2.51

Table 19-14. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 2 (2 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.57	2.02	1.82	1.71	1.65	1.57	1.53	1.50	1.48	1.46	1.45	1.44	1.43	1.42	1.42	1.41	1.41	1.40	1.40	1.39
2	3.39	2.50	2.19	2.04	1.95	1.84	1.78	1.74	1.71	1.69	1.67	1.66	1.65	1.64	1.63	1.62	1.62	1.61	1.60	1.60
3	3.94	2.80	2.42	2.23	2.12	2.00	1.93	1.87	1.84	1.81	1.80	1.78	1.77	1.76	1.75	1.74	1.73	1.73	1.72	1.71
4	4.38	3.02	2.58	2.37	2.25	2.10	2.03	1.97	1.93	1.90	1.88	1.87	1.86	1.84	1.83	1.82	1.81	1.80	1.79	1.79
5	4.75	3.20	2.71	2.48	2.34	2.19	2.10	2.04	2.00	1.97	1.95	1.93	1.92	1.90	1.89	1.88	1.87	1.86	1.85	1.84
8	5.61	3.59	2.99	2.71	2.54	2.36	2.26	2.18	2.14	2.10	2.08	2.06	2.05	2.02	2.01	2.00	1.99	1.98	1.97	1.96
12	6.47	3.96	3.24	2.91	2.72	2.51	2.39	2.31	2.26	2.22	2.19	2.17	2.15	2.13	2.11	2.10	2.09	2.08	2.07	2.06
16	7.15	4.24	3.43	3.06	2.85	2.61	2.49	2.40	2.34	2.30	2.27	2.25	2.23	2.20	2.18	2.17	2.16	2.15	2.14	2.13
20	7.72	4.46	3.57	3.17	2.94	2.70	2.56	2.46	2.40	2.36	2.33	2.30	2.28	2.26	2.24	2.22	2.21	2.20	2.19	2.18
30	8.87	4.89	3.85	3.39	3.13	2.84	2.70	2.59	2.52	2.47	2.43	2.41	2.39	2.36	2.33	2.32	2.31	2.30	2.28	2.27
40	9.78	5.21	4.05	3.54	3.26	2.95	2.79	2.67	2.60	2.54	2.51	2.48	2.46	2.42	2.40	2.38	2.37	2.36	2.34	2.33
50	10.55	5.47	4.21	3.66	3.36	3.03	2.86	2.74	2.66	2.60	2.56	2.53	2.51	2.48	2.45	2.44	2.42	2.41	2.39	2.38
60	11.22	5.70	4.35	3.76	3.44	3.10	2.92	2.79	2.71	2.65	2.61	2.58	2.56	2.52	2.49	2.48	2.46	2.45	2.43	2.42
75	12.10	5.98	4.52	3.89	3.55	3.18	2.99	2.85	2.77	2.71	2.67	2.63	2.61	2.57	2.54	2.53	2.51	2.50	2.48	2.46
100	13.33	6.36	4.74	4.06	3.68	3.29	3.09	2.94	2.85	2.78	2.74	2.70	2.68	2.64	2.61	2.59	2.57	2.56	2.54	2.52
125	14.36	6.67	4.92	4.19	3.79	3.37	3.16	3.00	2.91	2.84	2.79	2.76	2.73	2.69	2.66	2.64	2.62	2.61	2.58	2.57
150	15.25	6.93	5.07	4.30	3.88	3.44	3.22	3.06	2.96	2.89	2.84	2.80	2.77	2.73	2.70	2.68	2.66	2.65	2.62	2.60
175	16.05	7.16	5.20	4.39	3.96	3.50	3.27	3.10	3.00	2.93	2.87	2.84	2.81	2.76	2.73	2.71	2.69	2.68	2.65	2.63
200	16.80	7.37	5.31	4.47	4.02	3.55	3.31	3.14	3.03	2.96	2.91	2.87	2.84	2.79	2.76	2.74	2.72	2.70	2.68	2.66

Table 19-14. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 2 (2 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.14	2.41	2.15	2.01	1.93	1.83	1.77	1.73	1.70	1.68	1.67	1.66	1.65	1.64	1.63	1.62	1.61	1.61	1.60	1.60
2	4.09	2.93	2.54	2.34	2.23	2.09	2.02	1.96	1.92	1.90	1.88	1.86	1.85	1.84	1.82	1.82	1.81	1.80	1.79	1.79
3	4.74	3.25	2.78	2.54	2.40	2.24	2.16	2.09	2.05	2.02	2.00	1.98	1.97	1.95	1.93	1.92	1.92	1.91	1.90	1.89
4	5.25	3.50	2.95	2.68	2.53	2.35	2.25	2.18	2.13	2.10	2.08	2.06	2.05	2.02	2.01	2.00	1.99	1.98	1.97	1.96
5	5.68	3.69	3.09	2.80	2.62	2.43	2.33	2.25	2.20	2.17	2.14	2.12	2.10	2.08	2.07	2.05	2.04	2.04	2.02	2.02
8	6.70	4.13	3.39	3.03	2.83	2.61	2.48	2.39	2.34	2.30	2.27	2.24	2.23	2.20	2.18	2.17	2.16	2.15	2.14	2.13
12	7.71	4.54	3.65	3.25	3.01	2.76	2.62	2.52	2.45	2.41	2.37	2.35	2.33	2.30	2.28	2.27	2.25	2.25	2.23	2.22
16	8.51	4.85	3.85	3.40	3.14	2.86	2.71	2.60	2.53	2.48	2.45	2.42	2.40	2.37	2.35	2.33	2.32	2.31	2.29	2.28
20	9.18	5.10	4.01	3.52	3.24	2.94	2.79	2.67	2.59	2.54	2.51	2.48	2.46	2.42	2.40	2.38	2.37	2.36	2.34	2.33
30	10.54	5.57	4.30	3.74	3.43	3.09	2.92	2.79	2.71	2.65	2.61	2.58	2.55	2.52	2.49	2.48	2.46	2.45	2.43	2.42
40	11.61	5.93	4.52	3.91	3.57	3.20	3.01	2.87	2.79	2.73	2.68	2.65	2.62	2.59	2.56	2.54	2.52	2.51	2.49	2.48
50	12.52	6.23	4.70	4.04	3.67	3.29	3.08	2.94	2.85	2.78	2.74	2.70	2.68	2.64	2.61	2.59	2.57	2.56	2.54	2.52
60	13.32	6.48	4.84	4.14	3.76	3.35	3.14	2.99	2.90	2.83	2.78	2.75	2.72	2.68	2.65	2.63	2.61	2.60	2.57	2.56
75	14.35	6.79	5.03	4.28	3.87	3.44	3.22	3.06	2.96	2.89	2.84	2.80	2.77	2.73	2.70	2.67	2.66	2.65	2.62	2.60
100	15.80	7.22	5.27	4.45	4.01	3.55	3.31	3.14	3.03	2.96	2.91	2.87	2.84	2.79	2.76	2.74	2.72	2.70	2.68	2.66
125	17.02	7.57	5.46	4.59	4.12	3.63	3.38	3.20	3.09	3.02	2.96	2.92	2.89	2.84	2.81	2.78	2.76	2.75	2.72	2.70
150	18.10	7.87	5.63	4.71	4.22	3.70	3.44	3.26	3.14	3.06	3.01	2.96	2.93	2.88	2.84	2.82	2.80	2.78	2.76	2.74
175	19.02	8.12	5.77	4.81	4.29	3.76	3.49	3.30	3.18	3.10	3.04	3.00	2.96	2.91	2.88	2.85	2.83	2.82	2.79	2.77
200	19.90	8.35	5.89	4.89	4.36	3.82	3.54	3.34	3.22	3.13	3.07	3.03	2.99	2.94	2.91	2.88	2.85	2.84	2.81	2.79

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Table 19-14. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 2 (5 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.97	2.22	1.97	1.84	1.76	1.67	1.62	1.58	1.56	1.54	1.53	1.52	1.51	1.50	1.49	1.48	1.48	1.47	1.47	1.46
2	3.86	2.71	2.34	2.16	2.06	1.93	1.87	1.82	1.78	1.76	1.74	1.73	1.72	1.71	1.69	1.69	1.68	1.68	1.67	1.66
3	4.48	3.02	2.57	2.36	2.23	2.09	2.01	1.95	1.91	1.88	1.86	1.85	1.84	1.82	1.81	1.80	1.79	1.79	1.78	1.77
4	4.97	3.25	2.74	2.49	2.35	2.19	2.10	2.04	2.00	1.97	1.95	1.93	1.92	1.90	1.89	1.88	1.87	1.86	1.85	1.84
5	5.38	3.44	2.87	2.60	2.45	2.27	2.18	2.11	2.07	2.03	2.01	1.99	1.98	1.96	1.95	1.94	1.93	1.92	1.91	1.90
8	6.34	3.85	3.15	2.83	2.65	2.45	2.34	2.26	2.20	2.17	2.14	2.12	2.11	2.08	2.07	2.05	2.05	2.04	2.02	2.02
12	7.30	4.23	3.41	3.04	2.83	2.59	2.47	2.38	2.32	2.28	2.25	2.23	2.21	2.19	2.17	2.15	2.14	2.14	2.12	2.11
16	8.05	4.52	3.60	3.18	2.95	2.70	2.56	2.47	2.40	2.36	2.33	2.30	2.29	2.26	2.24	2.22	2.21	2.20	2.19	2.18
20	8.69	4.76	3.75	3.30	3.05	2.78	2.64	2.53	2.47	2.42	2.39	2.36	2.34	2.31	2.29	2.28	2.26	2.26	2.24	2.23
30	9.98	5.21	4.03	3.52	3.23	2.93	2.77	2.65	2.58	2.53	2.49	2.46	2.44	2.41	2.39	2.37	2.36	2.35	2.33	2.32
40	10.99	5.54	4.24	3.67	3.36	3.04	2.86	2.74	2.66	2.60	2.56	2.54	2.51	2.48	2.45	2.44	2.42	2.41	2.39	2.38
50	11.86	5.82	4.40	3.80	3.47	3.12	2.94	2.80	2.72	2.66	2.62	2.59	2.57	2.53	2.50	2.48	2.47	2.46	2.44	2.43
60	12.61	6.05	4.54	3.90	3.55	3.19	2.99	2.86	2.77	2.71	2.67	2.63	2.61	2.57	2.55	2.53	2.51	2.50	2.48	2.46
75	13.59	6.35	4.71	4.03	3.66	3.27	3.07	2.92	2.83	2.77	2.72	2.69	2.66	2.62	2.59	2.57	2.56	2.55	2.52	2.51
100	14.97	6.75	4.94	4.20	3.80	3.38	3.16	3.00	2.91	2.84	2.79	2.76	2.73	2.69	2.66	2.64	2.62	2.60	2.58	2.57
125	16.14	7.08	5.13	4.33	3.90	3.46	3.23	3.07	2.97	2.90	2.85	2.81	2.78	2.74	2.71	2.68	2.67	2.65	2.62	2.61
150	17.14	7.35	5.28	4.44	4.00	3.53	3.29	3.12	3.01	2.95	2.89	2.85	2.82	2.78	2.75	2.72	2.70	2.69	2.66	2.65
175	18.05	7.59	5.41	4.53	4.06	3.59	3.34	3.16	3.05	2.98	2.92	2.89	2.86	2.81	2.78	2.75	2.74	2.72	2.70	2.68
200	18.87	7.81	5.53	4.61	4.13	3.64	3.39	3.20	3.09	3.02	2.96	2.92	2.89	2.84	2.81	2.78	2.76	2.75	2.72	2.70

Table 19-14. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 2 (5 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.68	2.66	2.32	2.15	2.04	1.93	1.86	1.81	1.78	1.76	1.74	1.73	1.72	1.70	1.69	1.69	1.68	1.67	1.67	1.66
2	4.75	3.20	2.71	2.48	2.34	2.19	2.10	2.04	2.00	1.97	1.95	1.93	1.92	1.90	1.89	1.88	1.87	1.86	1.85	1.84
3	5.49	3.54	2.95	2.68	2.52	2.34	2.24	2.16	2.12	2.09	2.06	2.04	2.03	2.01	1.99	1.98	1.97	1.97	1.95	1.95
4	6.07	3.79	3.13	2.82	2.64	2.44	2.33	2.25	2.20	2.17	2.14	2.12	2.11	2.08	2.07	2.05	2.05	2.04	2.02	2.02
5	6.56	4.00	3.27	2.93	2.74	2.52	2.41	2.32	2.27	2.23	2.20	2.18	2.16	2.14	2.12	2.11	2.10	2.09	2.08	2.07
8	7.72	4.46	3.57	3.17	2.94	2.70	2.56	2.46	2.40	2.36	2.33	2.30	2.28	2.26	2.24	2.22	2.21	2.20	2.19	2.18
12	8.87	4.89	3.85	3.39	3.13	2.84	2.70	2.59	2.52	2.47	2.43	2.41	2.39	2.36	2.33	2.32	2.31	2.30	2.28	2.27
16	9.78	5.21	4.05	3.54	3.26	2.95	2.79	2.67	2.60	2.54	2.51	2.48	2.46	2.42	2.40	2.38	2.37	2.36	2.34	2.33
20	10.55	5.47	4.21	3.66	3.36	3.03	2.86	2.74	2.66	2.60	2.56	2.53	2.51	2.48	2.45	2.44	2.42	2.41	2.39	2.38
30	12.10	5.98	4.52	3.89	3.55	3.18	2.99	2.85	2.77	2.71	2.67	2.63	2.61	2.57	2.54	2.53	2.51	2.50	2.48	2.46
40	13.33	6.36	4.74	4.06	3.68	3.29	3.09	2.94	2.85	2.78	2.74	2.70	2.68	2.64	2.61	2.59	2.57	2.56	2.54	2.52
50	14.36	6.67	4.92	4.19	3.79	3.37	3.16	3.00	2.91	2.84	2.79	2.76	2.73	2.69	2.66	2.64	2.62	2.61	2.58	2.57
60	15.26	6.93	5.07	4.30	3.88	3.44	3.22	3.06	2.96	2.89	2.84	2.80	2.77	2.73	2.70	2.68	2.66	2.65	2.62	2.60
75	16.44	7.27	5.26	4.43	3.99	3.53	3.29	3.12	3.02	2.94	2.89	2.85	2.82	2.78	2.75	2.72	2.70	2.68	2.66	2.65
100	18.11	7.72	5.51	4.61	4.13	3.64	3.39	3.20	3.09	3.02	2.96	2.92	2.89	2.84	2.81	2.78	2.76	2.75	2.72	2.70
125	19.51	8.09	5.71	4.75	4.24	3.72	3.46	3.27	3.15	3.07	3.01	2.97	2.94	2.89	2.85	2.83	2.81	2.79	2.77	2.75
150	20.74	8.41	5.88	4.87	4.34	3.79	3.52	3.32	3.20	3.12	3.06	3.01	2.98	2.93	2.89	2.87	2.85	2.83	2.80	2.78
175	21.80	8.67	6.03	4.97	4.42	3.85	3.57	3.36	3.24	3.15	3.09	3.05	3.01	2.96	2.92	2.90	2.88	2.86	2.83	2.81
200	22.85	8.91	6.15	5.06	4.49	3.91	3.61	3.40	3.28	3.19	3.13	3.08	3.04	2.99	2.95	2.92	2.90	2.89	2.86	2.84

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Table 19-14. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 2 (5 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.43	3.10	2.67	2.45	2.32	2.18	2.09	2.03	1.99	1.96	1.94	1.93	1.92	1.90	1.88	1.88	1.87	1.86	1.85	1.84
2	5.68	3.69	3.09	2.80	2.62	2.43	2.33	2.25	2.20	2.17	2.14	2.12	2.10	2.08	2.07	2.05	2.04	2.04	2.02	2.02
3	6.55	4.07	3.34	3.00	2.80	2.58	2.46	2.37	2.32	2.28	2.25	2.23	2.21	2.19	2.17	2.15	2.14	2.14	2.12	2.11
4	7.24	4.35	3.53	3.15	2.93	2.69	2.56	2.46	2.40	2.36	2.33	2.30	2.28	2.26	2.24	2.22	2.21	2.20	2.19	2.18
5	7.81	4.58	3.68	3.27	3.03	2.77	2.63	2.53	2.46	2.42	2.39	2.36	2.34	2.31	2.29	2.28	2.26	2.25	2.24	2.23
8	9.18	5.10	4.01	3.52	3.24	2.94	2.79	2.67	2.59	2.54	2.51	2.48	2.46	2.42	2.40	2.38	2.37	2.36	2.34	2.33
12	10.54	5.57	4.30	3.74	3.43	3.09	2.92	2.79	2.71	2.65	2.61	2.58	2.55	2.52	2.49	2.48	2.46	2.45	2.43	2.42
16	11.61	5.93	4.52	3.91	3.57	3.20	3.01	2.87	2.79	2.73	2.68	2.65	2.62	2.59	2.56	2.54	2.52	2.51	2.49	2.48
20	12.52	6.23	4.70	4.04	3.67	3.29	3.08	2.94	2.85	2.78	2.74	2.70	2.68	2.64	2.61	2.59	2.57	2.56	2.54	2.52
30	14.35	6.79	5.03	4.28	3.87	3.44	3.22	3.06	2.96	2.89	2.84	2.80	2.77	2.73	2.70	2.67	2.66	2.65	2.62	2.60
40	15.81	7.22	5.27	4.45	4.01	3.55	3.31	3.14	3.03	2.96	2.91	2.87	2.84	2.79	2.76	2.74	2.72	2.70	2.68	2.66
50	17.02	7.57	5.46	4.59	4.12	3.63	3.38	3.20	3.09	3.02	2.96	2.92	2.89	2.84	2.81	2.78	2.76	2.75	2.72	2.70
60	18.09	7.87	5.63	4.71	4.22	3.70	3.44	3.26	3.14	3.06	3.01	2.96	2.93	2.88	2.84	2.82	2.80	2.78	2.76	2.74
75	19.48	8.24	5.83	4.85	4.33	3.79	3.52	3.32	3.20	3.12	3.06	3.01	2.98	2.93	2.89	2.87	2.85	2.83	2.80	2.78
100	21.45	8.75	6.10	5.04	4.48	3.90	3.61	3.40	3.28	3.19	3.13	3.08	3.04	2.99	2.95	2.93	2.90	2.89	2.86	2.84
125	23.09	9.15	6.32	5.19	4.60	3.99	3.68	3.47	3.34	3.25	3.18	3.13	3.09	3.04	3.00	2.97	2.95	2.93	2.90	2.88
150	24.55	9.49	6.50	5.32	4.69	4.06	3.74	3.52	3.39	3.29	3.22	3.18	3.13	3.07	3.03	3.00	2.98	2.96	2.93	2.91
175	25.84	9.79	6.67	5.43	4.78	4.12	3.80	3.57	3.43	3.33	3.26	3.21	3.17	3.11	3.07	3.04	3.01	2.99	2.96	2.94
200	27.07	10.03	6.80	5.52	4.85	4.18	3.84	3.61	3.46	3.36	3.29	3.24	3.20	3.13	3.09	3.06	3.04	3.02	2.99	2.96

Table 19-14. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 2 (10 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.86	2.71	2.34	2.16	2.06	1.93	1.87	1.82	1.78	1.76	1.74	1.73	1.72	1.71	1.69	1.69	1.68	1.68	1.67	1.66
2	4.97	3.25	2.74	2.49	2.35	2.19	2.10	2.04	2.00	1.97	1.95	1.93	1.92	1.90	1.89	1.88	1.87	1.86	1.85	1.84
3	5.74	3.59	2.98	2.69	2.52	2.34	2.24	2.17	2.12	2.09	2.06	2.04	2.03	2.01	1.99	1.98	1.97	1.97	1.95	1.95
4	6.34	3.85	3.15	2.83	2.65	2.45	2.34	2.26	2.20	2.17	2.14	2.12	2.11	2.08	2.07	2.05	2.05	2.04	2.02	2.02
5	6.85	4.06	3.29	2.94	2.75	2.53	2.41	2.32	2.27	2.23	2.20	2.18	2.16	2.14	2.12	2.11	2.10	2.09	2.08	2.07
8	8.05	4.52	3.60	3.18	2.95	2.70	2.56	2.47	2.40	2.36	2.33	2.30	2.29	2.26	2.24	2.22	2.21	2.20	2.19	2.18
12	9.25	4.95	3.87	3.40	3.13	2.85	2.70	2.59	2.52	2.47	2.43	2.41	2.39	2.36	2.33	2.32	2.31	2.30	2.28	2.27
16	10.20	5.28	4.08	3.55	3.26	2.95	2.79	2.67	2.60	2.55	2.51	2.48	2.46	2.42	2.40	2.38	2.37	2.36	2.34	2.33
20	11.00	5.54	4.24	3.67	3.36	3.04	2.86	2.74	2.66	2.60	2.56	2.53	2.51	2.48	2.45	2.44	2.42	2.41	2.39	2.38
30	12.61	6.05	4.54	3.90	3.55	3.19	2.99	2.86	2.77	2.71	2.67	2.63	2.61	2.57	2.55	2.53	2.51	2.50	2.48	2.46
40	13.89	6.44	4.77	4.07	3.69	3.29	3.09	2.94	2.85	2.78	2.74	2.70	2.68	2.64	2.61	2.59	2.57	2.56	2.54	2.52
50	14.96	6.75	4.94	4.20	3.80	3.38	3.16	3.00	2.91	2.84	2.79	2.76	2.73	2.69	2.66	2.64	2.62	2.60	2.58	2.57
60	15.90	7.01	5.09	4.31	3.88	3.44	3.22	3.06	2.96	2.89	2.84	2.80	2.77	2.73	2.69	2.67	2.66	2.64	2.62	2.60
75	17.15	7.35	5.28	4.44	3.99	3.53	3.29	3.12	3.02	2.95	2.89	2.85	2.82	2.78	2.75	2.72	2.70	2.69	2.66	2.65
100	18.91	7.82	5.53	4.61	4.13	3.64	3.39	3.20	3.09	3.02	2.96	2.92	2.89	2.84	2.81	2.78	2.76	2.75	2.72	2.70
125	20.31	8.19	5.74	4.76	4.25	3.73	3.46	3.27	3.15	3.07	3.02	2.97	2.94	2.89	2.85	2.83	2.81	2.79	2.77	2.75
150	21.64	8.51	5.91	4.88	4.35	3.80	3.52	3.32	3.20	3.12	3.06	3.01	2.98	2.93	2.89	2.87	2.85	2.83	2.80	2.78
175	22.81	8.78	6.05	4.98	4.42	3.86	3.57	3.37	3.24	3.16	3.10	3.05	3.01	2.96	2.91	2.90	2.88	2.86	2.83	2.81
200	23.83	9.03	6.18	5.07	4.49	3.91	3.61	3.41	3.28	3.19	3.13	3.08	3.04	2.99	2.95	2.92	2.90	2.89	2.86	2.84

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Table 19-14. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 2 (10 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.75	3.20	2.71	2.48	2.34	2.19	2.10	2.04	2.00	1.97	1.95	1.93	1.92	1.90	1.89	1.88	1.87	1.86	1.85	1.84
2	6.07	3.79	3.13	2.82	2.64	2.44	2.33	2.25	2.20	2.17	2.14	2.12	2.11	2.08	2.07	2.05	2.05	2.04	2.02	2.02
3	6.99	4.17	3.39	3.02	2.82	2.59	2.47	2.38	2.32	2.28	2.25	2.23	2.21	2.19	2.17	2.15	2.14	2.14	2.12	2.11
4	7.72	4.46	3.57	3.17	2.94	2.70	2.56	2.46	2.40	2.36	2.33	2.30	2.28	2.26	2.24	2.22	2.21	2.20	2.19	2.18
5	8.33	4.69	3.72	3.29	3.04	2.78	2.64	2.53	2.46	2.42	2.39	2.36	2.34	2.31	2.29	2.28	2.26	2.26	2.24	2.23
8	9.78	5.21	4.05	3.54	3.26	2.95	2.79	2.67	2.60	2.54	2.51	2.48	2.46	2.42	2.40	2.38	2.37	2.36	2.34	2.33
12	11.22	5.70	4.35	3.76	3.44	3.10	2.92	2.79	2.71	2.65	2.61	2.58	2.56	2.52	2.49	2.48	2.46	2.45	2.43	2.42
16	12.36	6.06	4.57	3.93	3.58	3.21	3.01	2.87	2.79	2.73	2.68	2.65	2.62	2.59	2.56	2.54	2.52	2.51	2.49	2.48
20	13.33	6.36	4.74	4.06	3.68	3.29	3.09	2.94	2.85	2.78	2.74	2.70	2.68	2.64	2.61	2.59	2.57	2.56	2.54	2.52
30	15.25	6.93	5.07	4.30	3.88	3.44	3.22	3.06	2.96	2.89	2.84	2.80	2.77	2.73	2.70	2.68	2.66	2.65	2.62	2.60
40	16.80	7.37	5.31	4.47	4.02	3.55	3.31	3.14	3.03	2.96	2.91	2.87	2.84	2.79	2.76	2.74	2.72	2.70	2.68	2.66
50	18.09	7.72	5.51	4.61	4.13	3.64	3.39	3.20	3.09	3.02	2.96	2.92	2.89	2.84	2.81	2.78	2.76	2.75	2.72	2.70
60	19.22	8.03	5.67	4.73	4.22	3.71	3.44	3.26	3.14	3.06	3.00	2.96	2.93	2.88	2.85	2.82	2.80	2.78	2.76	2.74
75	20.70	8.40	5.88	4.87	4.34	3.79	3.52	3.32	3.20	3.12	3.06	3.01	2.98	2.93	2.89	2.87	2.85	2.83	2.80	2.78
100	22.81	8.91	6.15	5.06	4.49	3.91	3.61	3.40	3.28	3.19	3.12	3.08	3.04	2.99	2.95	2.92	2.90	2.89	2.86	2.84
125	24.61	9.30	6.38	5.21	4.61	3.99	3.69	3.47	3.34	3.25	3.17	3.13	3.09	3.04	3.00	2.97	2.95	2.93	2.90	2.88
150	26.09	9.65	6.56	5.34	4.71	4.07	3.75	3.52	3.39	3.30	3.22	3.17	3.13	3.07	3.03	3.00	2.98	2.96	2.93	2.91
175	27.50	9.96	6.72	5.45	4.79	4.13	3.80	3.57	3.43	3.33	3.26	3.21	3.17	3.11	3.07	3.04	3.01	2.99	2.96	2.94
200	28.75	10.23	6.86	5.55	4.86	4.18	3.84	3.61	3.46	3.35	3.29	3.24	3.20	3.13	3.09	3.06	3.04	3.02	2.99	2.96

Table 19-14. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 2 (10 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	5.68	3.69	3.09	2.80	2.62	2.43	2.33	2.25	2.20	2.17	2.14	2.12	2.10	2.08	2.07	2.05	2.04	2.04	2.02	2.02
2	7.24	4.35	3.53	3.15	2.93	2.69	2.56	2.46	2.40	2.36	2.33	2.30	2.28	2.26	2.24	2.22	2.21	2.20	2.19	2.18
3	8.32	4.78	3.81	3.36	3.11	2.84	2.69	2.58	2.51	2.47	2.43	2.41	2.39	2.36	2.33	2.32	2.31	2.30	2.28	2.27
4	9.18	5.10	4.01	3.52	3.24	2.94	2.79	2.67	2.59	2.54	2.51	2.48	2.46	2.42	2.40	2.38	2.37	2.36	2.34	2.33
5	9.90	5.35	4.17	3.64	3.35	3.03	2.86	2.73	2.66	2.60	2.56	2.53	2.51	2.48	2.45	2.43	2.42	2.41	2.39	2.38
8	11.61	5.93	4.52	3.91	3.57	3.20	3.01	2.87	2.79	2.73	2.68	2.65	2.62	2.59	2.56	2.54	2.52	2.51	2.49	2.48
12	13.32	6.48	4.84	4.14	3.76	3.35	3.14	2.99	2.90	2.83	2.78	2.75	2.72	2.68	2.65	2.63	2.61	2.60	2.57	2.56
16	14.67	6.89	5.08	4.32	3.90	3.46	3.24	3.07	2.97	2.90	2.85	2.81	2.79	2.74	2.71	2.69	2.67	2.66	2.63	2.62
20	15.80	7.22	5.27	4.45	4.01	3.55	3.31	3.14	3.03	2.96	2.91	2.87	2.84	2.79	2.76	2.74	2.72	2.70	2.68	2.66
30	18.10	7.87	5.63	4.71	4.22	3.70	3.44	3.26	3.14	3.06	3.01	2.96	2.93	2.88	2.84	2.82	2.80	2.78	2.76	2.74
40	19.90	8.35	5.89	4.89	4.36	3.82	3.54	3.34	3.22	3.13	3.07	3.03	2.99	2.94	2.91	2.88	2.86	2.84	2.81	2.79
50	21.45	8.75	6.10	5.04	4.48	3.90	3.61	3.40	3.28	3.19	3.13	3.08	3.04	2.99	2.95	2.92	2.90	2.89	2.86	2.84
60	22.81	9.08	6.28	5.16	4.58	3.97	3.67	3.46	3.33	3.23	3.17	3.12	3.08	3.03	2.99	2.96	2.94	2.92	2.89	2.87
75	24.53	9.49	6.50	5.32	4.70	4.06	3.75	3.52	3.39	3.29	3.22	3.17	3.13	3.07	3.03	3.00	2.98	2.96	2.93	2.91
100	27.03	10.04	6.81	5.52	4.85	4.18	3.84	3.61	3.46	3.36	3.29	3.24	3.20	3.13	3.09	3.06	3.04	3.02	2.99	2.96
125	29.14	10.51	7.03	5.68	4.98	4.27	3.92	3.67	3.52	3.42	3.34	3.29	3.24	3.18	3.14	3.11	3.08	3.06	3.03	3.00
150	30.94	10.90	7.21	5.81	5.08	4.35	3.97	3.73	3.57	3.46	3.38	3.33	3.28	3.22	3.17	3.14	3.12	3.10	3.06	3.04
175	32.66	11.25	7.36	5.93	5.17	4.40	4.03	3.77	3.60	3.50	3.42	3.36	3.32	3.25	3.20	3.17	3.14	3.12	3.09	3.06
200	34.06	11.56	7.46	6.04	5.24	4.46	4.07	3.81	3.64	3.53	3.45	3.39	3.35	3.28	3.23	3.20	3.17	3.15	3.11	3.09

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Table 19-14. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 2 (20 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.97	3.25	2.74	2.49	2.35	2.19	2.10	2.04	2.00	1.97	1.95	1.93	1.92	1.90	1.89	1.88	1.87	1.86	1.85	1.84
2	6.34	3.85	3.15	2.83	2.65	2.45	2.34	2.26	2.20	2.17	2.14	2.12	2.11	2.08	2.07	2.05	2.05	2.04	2.02	2.02
3	7.30	4.23	3.41	3.04	2.82	2.59	2.47	2.38	2.32	2.28	2.25	2.23	2.21	2.19	2.17	2.15	2.14	2.14	2.12	2.11
4	8.05	4.52	3.60	3.18	2.95	2.70	2.56	2.47	2.40	2.36	2.33	2.30	2.29	2.26	2.24	2.22	2.21	2.20	2.19	2.18
5	8.69	4.76	3.75	3.30	3.05	2.78	2.64	2.53	2.47	2.42	2.39	2.36	2.34	2.31	2.29	2.28	2.26	2.26	2.24	2.23
8	10.20	5.28	4.08	3.55	3.26	2.95	2.79	2.67	2.60	2.55	2.51	2.48	2.46	2.42	2.40	2.38	2.37	2.36	2.34	2.33
12	11.69	5.77	4.37	3.78	3.45	3.10	2.92	2.79	2.71	2.65	2.61	2.58	2.56	2.52	2.49	2.48	2.46	2.45	2.43	2.42
16	12.89	6.14	4.59	3.94	3.58	3.21	3.02	2.87	2.79	2.73	2.68	2.65	2.62	2.59	2.56	2.54	2.52	2.51	2.49	2.48
20	13.89	6.44	4.77	4.07	3.69	3.29	3.09	2.94	2.85	2.78	2.74	2.70	2.68	2.64	2.61	2.59	2.57	2.56	2.54	2.52
30	15.92	7.02	5.10	4.31	3.88	3.45	3.22	3.06	2.96	2.89	2.84	2.80	2.77	2.73	2.70	2.67	2.66	2.64	2.62	2.60
40	17.53	7.46	5.34	4.48	4.03	3.56	3.31	3.14	3.03	2.96	2.91	2.87	2.84	2.79	2.76	2.74	2.72	2.70	2.68	2.66
50	18.90	7.81	5.54	4.62	4.14	3.64	3.39	3.20	3.09	3.02	2.96	2.92	2.89	2.84	2.81	2.78	2.76	2.75	2.72	2.70
60	20.12	8.12	5.70	4.74	4.23	3.71	3.45	3.26	3.14	3.06	3.01	2.96	2.93	2.88	2.84	2.82	2.80	2.78	2.76	2.74
75	21.68	8.50	5.91	4.88	4.35	3.80	3.52	3.32	3.20	3.12	3.06	3.02	2.98	2.93	2.89	2.87	2.84	2.83	2.80	2.78
100	23.83	9.03	6.18	5.08	4.49	3.91	3.61	3.41	3.28	3.19	3.12	3.08	3.04	2.99	2.95	2.92	2.90	2.89	2.86	2.84
125	25.59	9.47	6.40	5.22	4.61	4.00	3.69	3.47	3.33	3.25	3.18	3.13	3.09	3.04	3.00	2.97	2.95	2.93	2.90	2.88
150	27.34	9.81	6.59	5.35	4.71	4.06	3.75	3.52	3.38	3.29	3.22	3.17	3.13	3.08	3.03	3.00	2.98	2.97	2.93	2.91
175	28.71	10.16	6.74	5.46	4.80	4.13	3.80	3.56	3.42	3.33	3.26	3.21	3.17	3.11	3.06	3.03	3.02	2.99	2.96	2.94
200	30.08	10.45	6.88	5.54	4.86	4.19	3.85	3.60	3.45	3.36	3.29	3.23	3.20	3.14	3.09	3.06	3.04	3.02	2.99	2.96

Table 19-14. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 2 (20 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	6.07	3.79	3.13	2.82	2.64	2.44	2.33	2.25	2.20	2.17	2.14	2.12	2.11	2.08	2.07	2.05	2.05	2.04	2.02	2.02
2	7.72	4.46	3.57	3.17	2.94	2.70	2.56	2.46	2.40	2.36	2.33	2.30	2.29	2.26	2.24	2.22	2.21	2.20	2.19	2.18
3	8.87	4.89	3.85	3.39	3.13	2.84	2.70	2.59	2.52	2.47	2.43	2.41	2.39	2.36	2.33	2.32	2.31	2.30	2.28	2.27
4	9.78	5.21	4.05	3.54	3.26	2.95	2.79	2.67	2.60	2.54	2.51	2.48	2.46	2.42	2.40	2.38	2.37	2.36	2.34	2.33
5	10.55	5.47	4.21	3.66	3.36	3.03	2.86	2.74	2.66	2.60	2.56	2.53	2.51	2.48	2.45	2.44	2.42	2.41	2.39	2.38
8	12.37	6.06	4.57	3.93	3.58	3.21	3.01	2.87	2.79	2.73	2.68	2.65	2.62	2.59	2.56	2.54	2.52	2.51	2.49	2.48
12	14.17	6.61	4.89	4.16	3.77	3.36	3.15	2.99	2.90	2.83	2.78	2.75	2.72	2.68	2.65	2.63	2.61	2.60	2.57	2.56
16	15.61	7.03	5.12	4.34	3.91	3.47	3.24	3.08	2.97	2.90	2.85	2.82	2.79	2.74	2.71	2.69	2.67	2.66	2.63	2.62
20	16.82	7.37	5.32	4.47	4.02	3.55	3.31	3.14	3.03	2.96	2.91	2.87	2.84	2.79	2.76	2.74	2.72	2.70	2.68	2.66
30	19.29	8.02	5.68	4.73	4.22	3.71	3.45	3.26	3.14	3.06	3.01	2.96	2.93	2.88	2.85	2.82	2.80	2.78	2.76	2.74
40	21.24	8.52	5.94	4.91	4.37	3.82	3.54	3.34	3.22	3.13	3.07	3.03	2.99	2.94	2.91	2.88	2.86	2.84	2.81	2.78
50	22.85	8.92	6.15	5.06	4.49	3.91	3.61	3.41	3.28	3.19	3.13	3.08	3.04	2.99	2.95	2.92	2.90	2.89	2.86	2.84
60	24.32	9.27	6.34	5.19	4.58	3.98	3.67	3.46	3.32	3.23	3.17	3.12	3.08	3.03	2.99	2.96	2.94	2.92	2.89	2.87
75	26.17	9.72	6.56	5.33	4.71	4.06	3.75	3.52	3.38	3.29	3.22	3.17	3.13	3.07	3.03	3.01	2.98	2.96	2.93	2.91
100	28.91	10.30	6.86	5.54	4.86	4.18	3.85	3.61	3.46	3.36	3.29	3.23	3.20	3.13	3.09	3.06	3.04	3.01	2.99	2.96
125	31.05	10.79	7.10	5.70	4.98	4.27	3.92	3.67	3.52	3.42	3.34	3.29	3.24	3.18	3.14	3.11	3.08	3.06	3.03	3.00
150	33.01	11.18	7.30	5.83	5.09	4.35	3.98	3.72	3.56	3.46	3.39	3.33	3.28	3.22	3.17	3.14	3.12	3.10	3.06	3.04
175	34.77	11.52	7.47	5.96	5.18	4.41	4.03	3.77	3.61	3.50	3.42	3.36	3.31	3.25	3.20	3.17	3.14	3.12	3.09	3.06
200	36.33	11.87	7.62	6.05	5.25	4.47	4.08	3.81	3.64	3.53	3.45	3.39	3.34	3.28	3.23	3.20	3.17	3.15	3.11	3.09

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Table 19-14. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 2 (20 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	7.24	4.35	3.53	3.15	2.93	2.69	2.56	2.46	2.40	2.36	2.33	2.30	2.28	2.26	2.24	2.22	2.21	2.20	2.19	2.18
2	9.18	5.10	4.01	3.52	3.24	2.94	2.79	2.67	2.59	2.54	2.51	2.48	2.46	2.42	2.40	2.38	2.37	2.36	2.34	2.33
3	0.54	5.57	4.30	3.74	3.43	3.09	2.92	2.79	2.71	2.65	2.61	2.58	2.55	2.52	2.49	2.48	2.46	2.45	2.43	2.42
4	11.61	5.93	4.52	3.91	3.57	3.20	3.01	2.87	2.79	2.73	2.68	2.65	2.62	2.59	2.56	2.54	2.52	2.51	2.49	2.48
5	12.52	6.23	4.70	4.04	3.67	3.29	3.08	2.94	2.85	2.78	2.74	2.70	2.68	2.64	2.61	2.59	2.57	2.56	2.54	2.52
8	14.67	6.89	5.08	4.32	3.90	3.46	3.24	3.07	2.97	2.90	2.85	2.81	2.79	2.74	2.71	2.69	2.67	2.66	2.63	2.62
12	16.81	7.50	5.43	4.57	4.10	3.62	3.37	3.19	3.08	3.01	2.95	2.91	2.88	2.83	2.80	2.77	2.75	2.74	2.71	2.70
16	18.52	7.97	5.69	4.75	4.25	3.73	3.47	3.27	3.16	3.08	3.02	2.98	2.94	2.89	2.86	2.83	2.81	2.80	2.77	2.75
20	19.95	8.35	5.89	4.89	4.36	3.82	3.54	3.34	3.22	3.13	3.07	3.03	2.99	2.94	2.91	2.88	2.86	2.84	2.81	2.79
30	22.85	9.09	6.28	5.16	4.57	3.98	3.67	3.46	3.32	3.23	3.17	3.12	3.08	3.03	2.99	2.96	2.94	2.92	2.89	2.87
40	25.20	9.64	6.57	5.36	4.73	4.09	3.77	3.54	3.40	3.31	3.24	3.19	3.15	3.09	3.05	3.02	3.00	2.98	2.94	2.92
50	27.15	10.11	6.80	5.52	4.85	4.18	3.84	3.60	3.46	3.36	3.29	3.24	3.20	3.13	3.09	3.06	3.04	3.02	2.99	2.96
60	28.81	10.47	6.99	5.65	4.96	4.25	3.91	3.66	3.51	3.41	3.33	3.28	3.23	3.17	3.13	3.10	3.07	3.05	3.02	3.00
75	31.05	10.99	7.25	5.81	5.08	4.35	3.98	3.72	3.56	3.46	3.38	3.33	3.28	3.22	3.17	3.14	3.11	3.10	3.06	3.04
100	34.18	11.62	7.57	6.03	5.25	4.46	4.08	3.81	3.64	3.53	3.45	3.39	3.34	3.28	3.23	3.20	3.17	3.15	3.11	3.09
125	36.72	12.21	7.84	6.20	5.37	4.55	4.15	3.87	3.70	3.58	3.50	3.44	3.39	3.32	3.27	3.24	3.21	3.19	3.15	3.13
150	39.06	12.65	8.06	6.35	5.48	4.63	4.21	3.92	3.75	3.63	3.55	3.48	3.43	3.36	3.31	3.27	3.25	3.22	3.19	3.16
175	41.41	13.09	8.25	6.47	5.57	4.70	4.27	3.97	3.78	3.67	3.58	3.52	3.47	3.39	3.34	3.30	3.27	3.25	3.21	3.19
200	42.97	13.38	8.40	6.59	5.66	4.76	4.32	4.00	3.82	3.70	3.61	3.55	3.49	3.42	3.37	3.33	3.30	3.28	3.24	3.21

Table 19-14. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 2 (40 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	6.34	3.85	3.15	2.83	2.65	2.45	2.34	2.26	2.20	2.17	2.14	2.12	2.11	2.08	2.07	2.05	2.05	2.04	2.02	2.02
2	8.05	4.52	3.60	3.18	2.95	2.70	2.56	2.47	2.40	2.36	2.33	2.30	2.29	2.26	2.24	2.22	2.21	2.20	2.19	2.18
3	9.25	4.95	3.87	3.40	3.13	2.85	2.70	2.59	2.52	2.47	2.43	2.41	2.39	2.36	2.33	2.32	2.31	2.30	2.28	2.27
4	10.20	5.28	4.08	3.55	3.26	2.95	2.79	2.67	2.60	2.55	2.51	2.48	2.46	2.42	2.40	2.38	2.37	2.36	2.34	2.33
5	11.00	5.55	4.24	3.67	3.36	3.04	2.86	2.74	2.66	2.60	2.56	2.54	2.51	2.48	2.45	2.44	2.42	2.41	2.39	2.38
8	12.89	6.14	4.59	3.94	3.58	3.21	3.02	2.87	2.79	2.73	2.68	2.65	2.62	2.59	2.56	2.54	2.52	2.51	2.49	2.48
12	14.77	6.70	4.91	4.17	3.78	3.36	3.15	2.99	2.90	2.83	2.78	2.75	2.72	2.68	2.65	2.63	2.61	2.60	2.57	2.56
16	16.27	7.12	5.15	4.35	3.92	3.47	3.24	3.08	2.97	2.90	2.85	2.82	2.79	2.74	2.71	2.69	2.67	2.66	2.63	2.62
20	17.53	7.46	5.34	4.48	4.03	3.55	3.31	3.14	3.03	2.96	2.91	2.87	2.84	2.79	2.76	2.74	2.72	2.70	2.68	2.66
30	20.08	8.12	5.70	4.74	4.23	3.71	3.45	3.26	3.14	3.06	3.01	2.96	2.93	2.88	2.85	2.82	2.80	2.79	2.76	2.74
40	22.12	8.62	5.97	4.92	4.38	3.82	3.54	3.34	3.22	3.13	3.07	3.03	2.99	2.94	2.90	2.88	2.86	2.84	2.81	2.79
50	23.82	9.03	6.18	5.07	4.50	3.91	3.61	3.40	3.28	3.19	3.13	3.08	3.04	2.99	2.95	2.92	2.90	2.89	2.86	2.84
60	25.31	9.38	6.36	5.20	4.59	3.98	3.67	3.46	3.33	3.23	3.17	3.12	3.08	3.03	2.99	2.96	2.94	2.92	2.89	2.87
75	27.30	9.81	6.58	5.35	4.71	4.07	3.75	3.52	3.38	3.29	3.22	3.17	3.13	3.07	3.03	2.98	2.96	2.93	2.91	2.91
100	30.06	10.42	6.88	5.55	4.87	4.18	3.85	3.61	3.46	3.36	3.29	3.24	3.20	3.13	3.09	3.06	3.04	3.02	2.99	2.96
125	32.34	10.90	7.13	5.71	4.99	4.27	3.92	3.67	3.52	3.42	3.34	3.29	3.24	3.18	3.14	3.11	3.08	3.06	3.03	3.00
150	34.45	11.31	7.32	5.84	5.10	4.35	3.98	3.72	3.57	3.46	3.38	3.33	3.28	3.22	3.17	3.14	3.12	3.10	3.06	3.04
175	36.21	11.69	7.50	5.96	5.19	4.41	4.04	3.77	3.61	3.50	3.42	3.36	3.32	3.25	3.20	3.17	3.15	3.12	3.09	3.06
200	37.85	12.01	7.66	6.06	5.26	4.47	4.08	3.81	3.64	3.53	3.45	3.39	3.35	3.28	3.23	3.20	3.17	3.15	3.11	3.09

Table 19-14. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 2 (40 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	7.72	4.46	3.57	3.17	2.94	2.70	2.56	2.46	2.40	2.36	2.33	2.30	2.29	2.26	2.24	2.22	2.21	2.20	2.19	2.18
2	9.78	5.21	4.05	3.54	3.26	2.95	2.79	2.67	2.60	2.54	2.51	2.48	2.46	2.42	2.40	2.38	2.37	2.36	2.34	2.33
3	11.22	5.70	4.35	3.76	3.44	3.10	2.92	2.79	2.71	2.65	2.61	2.58	2.56	2.52	2.49	2.48	2.46	2.45	2.43	2.42
4	12.36	6.06	4.57	3.93	3.58	3.21	3.01	2.87	2.79	2.73	2.68	2.65	2.62	2.59	2.56	2.54	2.52	2.51	2.49	2.48
5	13.33	6.36	4.74	4.06	3.68	3.29	3.09	2.94	2.85	2.78	2.74	2.70	2.68	2.64	2.61	2.59	2.57	2.56	2.54	2.52
8	15.61	7.03	5.13	4.34	3.91	3.47	3.24	3.08	2.97	2.90	2.85	2.82	2.79	2.74	2.71	2.69	2.67	2.66	2.63	2.62
12	17.89	7.66	5.47	4.59	4.11	3.62	3.37	3.19	3.08	3.01	2.95	2.91	2.88	2.83	2.80	2.77	2.75	2.74	2.71	2.70
16	19.70	8.13	5.73	4.77	4.26	3.73	3.47	3.28	3.16	3.08	3.02	2.98	2.94	2.89	2.86	2.83	2.81	2.80	2.77	2.75
20	21.23	8.52	5.94	4.91	4.37	3.82	3.54	3.34	3.22	3.13	3.07	3.03	2.99	2.94	2.90	2.88	2.86	2.84	2.81	2.78
30	24.32	9.27	6.33	5.18	4.59	3.98	3.67	3.46	3.32	3.23	3.17	3.12	3.08	3.03	2.99	2.96	2.94	2.92	2.88	2.87
40	26.78	9.83	6.62	5.38	4.74	4.09	3.77	3.54	3.40	3.31	3.24	3.19	3.15	3.09	3.05	3.02	2.99	2.98	2.94	2.92
50	28.83	10.30	6.86	5.54	4.86	4.18	3.85	3.61	3.46	3.36	3.29	3.24	3.20	3.13	3.09	3.06	3.04	3.01	2.99	2.96
60	30.64	10.69	7.05	5.67	4.96	4.26	3.91	3.66	3.51	3.41	3.33	3.28	3.23	3.17	3.13	3.10	3.07	3.05	3.02	3.00
75	33.05	11.19	7.30	5.83	5.09	4.35	3.98	3.72	3.57	3.46	3.38	3.33	3.28	3.22	3.17	3.14	3.12	3.10	3.06	3.04
100	36.33	11.87	7.62	6.05	5.26	4.46	4.08	3.81	3.64	3.53	3.45	3.39	3.35	3.28	3.23	3.20	3.17	3.15	3.11	3.09
125	39.14	12.42	7.90	6.23	5.38	4.56	4.15	3.87	3.70	3.59	3.50	3.44	3.39	3.32	3.27	3.24	3.21	3.19	3.15	3.13
150	41.60	12.89	8.12	6.36	5.49	4.64	4.22	3.93	3.75	3.63	3.54	3.48	3.43	3.36	3.31	3.27	3.25	3.22	3.19	3.16
175	43.83	13.30	8.31	6.49	5.59	4.70	4.27	3.97	3.79	3.67	3.58	3.52	3.46	3.39	3.34	3.30	3.27	3.25	3.21	3.19
200	45.70	13.65	8.47	6.60	5.67	4.76	4.31	4.01	3.82	3.70	3.61	3.54	3.49	3.42	3.37	3.33	3.30	3.28	3.24	3.21

Table 19-14. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 2 (40 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	9.18	5.10	4.01	3.52	3.24	2.94	2.79	2.67	2.59	2.54	2.51	2.48	2.46	2.42	2.40	2.38	2.37	2.36	2.34	2.33
2	11.61	5.93	4.52	3.91	3.57	3.20	3.01	2.87	2.79	2.73	2.68	2.65	2.62	2.59	2.56	2.54	2.52	2.51	2.49	2.48
3	13.32	6.48	4.84	4.14	3.76	3.35	3.14	2.99	2.89	2.83	2.78	2.75	2.72	2.68	2.65	2.63	2.61	2.60	2.57	2.56
4	14.67	6.89	5.08	4.32	3.90	3.46	3.24	3.07	2.97	2.90	2.85	2.81	2.79	2.74	2.71	2.69	2.67	2.66	2.63	2.62
5	15.81	7.22	5.27	4.45	4.01	3.55	3.31	3.14	3.03	2.96	2.91	2.87	2.84	2.79	2.76	2.74	2.72	2.70	2.68	2.66
8	18.52	7.97	5.69	4.75	4.25	3.73	3.47	3.27	3.16	3.08	3.02	2.98	2.94	2.89	2.86	2.83	2.81	2.80	2.77	2.75
12	21.21	8.68	6.07	5.01	4.46	3.89	3.60	3.39	3.26	3.18	3.12	3.07	3.03	2.98	2.94	2.92	2.89	2.88	2.85	2.83
16	23.36	9.21	6.35	5.21	4.61	4.00	3.69	3.48	3.34	3.25	3.19	3.14	3.10	3.04	3.00	2.97	2.95	2.93	2.90	2.88
20	25.17	9.65	6.57	5.36	4.73	4.09	3.77	3.54	3.40	3.31	3.24	3.19	3.15	3.09	3.05	3.02	2.99	2.98	2.94	2.92
30	28.81	10.48	7.00	5.65	4.95	4.25	3.90	3.66	3.51	3.41	3.33	3.28	3.24	3.17	3.13	3.10	3.07	3.04	3.02	3.00
40	31.73	11.13	7.32	5.86	5.12	4.37	4.00	3.74	3.58	3.48	3.40	3.34	3.30	3.23	3.19	3.15	3.12	3.11	3.07	3.05
50	34.16	11.65	7.57	6.03	5.24	4.46	4.08	3.81	3.64	3.53	3.45	3.39	3.35	3.28	3.23	3.20	3.17	3.15	3.11	3.09
60	36.33	12.08	7.79	6.17	5.35	4.54	4.14	3.86	3.69	3.58	3.49	3.43	3.38	3.32	3.27	3.23	3.20	3.18	3.15	3.12
75	39.14	12.64	8.05	6.35	5.48	4.63	4.22	3.92	3.75	3.63	3.54	3.48	3.43	3.36	3.31	3.27	3.25	3.22	3.19	3.16
100	43.12	13.42	8.41	6.58	5.66	4.75	4.31	4.01	3.82	3.70	3.61	3.54	3.49	3.42	3.37	3.33	3.30	3.28	3.24	3.21
125	46.41	14.03	8.70	6.76	5.79	4.85	4.39	4.07	3.88	3.75	3.66	3.59	3.54	3.46	3.41	3.37	3.34	3.32	3.28	3.25
150	49.34	14.56	8.94	6.91	5.91	4.93	4.46	4.13	3.93	3.80	3.70	3.63	3.58	3.50	3.44	3.40	3.37	3.35	3.31	3.28
175	52.03	15.03	9.14	7.05	6.01	5.00	4.51	4.17	3.97	3.83	3.74	3.67	3.61	3.53	3.47	3.43	3.40	3.38	3.33	3.30
200	54.38	15.44	9.33	7.16	6.09	5.05	4.56	4.21	4.01	3.87	3.77	3.70	3.64	3.56	3.50	3.46	3.43	3.40	3.36	3.33

Table 19-15. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 2 (1 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.69	0.56	0.50	0.47	0.45	0.42	0.40	0.39	0.38	0.37	0.37	0.37	0.36	0.36	0.36	0.35	0.35	0.35	0.35	0.35
2	1.10	0.87	0.77	0.72	0.69	0.65	0.62	0.60	0.59	0.58	0.58	0.57	0.57	0.56	0.56	0.55	0.55	0.55	0.55	0.54
3	1.36	1.05	0.93	0.86	0.82	0.77	0.74	0.72	0.70	0.69	0.69	0.68	0.68	0.67	0.66	0.66	0.66	0.65	0.65	0.65
4	1.56	1.18	1.04	0.96	0.91	0.86	0.82	0.80	0.78	0.77	0.76	0.75	0.75	0.74	0.73	0.73	0.73	0.72	0.72	0.72
5	1.72	1.28	1.12	1.04	0.98	0.92	0.88	0.86	0.84	0.83	0.82	0.81	0.80	0.79	0.79	0.78	0.78	0.78	0.77	0.77
8	2.10	1.51	1.30	1.19	1.13	1.05	1.01	0.98	0.95	0.94	0.93	0.92	0.91	0.90	0.89	0.89	0.88	0.88	0.88	0.87
12	2.46	1.71	1.46	1.33	1.25	1.16	1.11	1.08	1.05	1.03	1.02	1.01	1.00	0.99	0.98	0.98	0.97	0.97	0.96	0.96
16	2.75	1.86	1.57	1.43	1.34	1.24	1.19	1.14	1.12	1.10	1.08	1.07	1.06	1.05	1.04	1.04	1.03	1.03	1.02	1.01
20	2.99	1.98	1.66	1.50	1.41	1.30	1.24	1.20	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07	1.07	1.06	1.06
30	3.46	2.21	1.82	1.64	1.53	1.41	1.34	1.29	1.26	1.23	1.22	1.20	1.19	1.18	1.17	1.16	1.15	1.15	1.14	1.13
40	3.84	2.38	1.94	1.74	1.62	1.49	1.41	1.36	1.32	1.29	1.28	1.26	1.25	1.23	1.22	1.21	1.21	1.20	1.19	1.19
50	4.16	2.51	2.04	1.82	1.69	1.54	1.46	1.40	1.37	1.34	1.32	1.31	1.29	1.28	1.26	1.25	1.25	1.24	1.23	1.23
60	4.43	2.63	2.12	1.88	1.74	1.59	1.51	1.45	1.41	1.38	1.36	1.34	1.33	1.31	1.30	1.29	1.28	1.27	1.26	1.26
75	4.79	2.77	2.22	1.96	1.81	1.65	1.56	1.49	1.45	1.42	1.40	1.38	1.37	1.35	1.34	1.33	1.32	1.31	1.30	1.30
100	5.29	2.97	2.35	2.06	1.90	1.72	1.63	1.56	1.51	1.48	1.46	1.44	1.42	1.40	1.39	1.38	1.37	1.36	1.35	1.34
125	5.71	3.13	2.45	2.14	1.97	1.78	1.68	1.60	1.56	1.52	1.50	1.48	1.47	1.44	1.43	1.42	1.41	1.40	1.39	1.38
150	6.08	3.26	2.54	2.21	2.03	1.83	1.72	1.64	1.59	1.56	1.53	1.51	1.50	1.48	1.46	1.45	1.44	1.43	1.42	1.41
175	6.42	3.38	2.61	2.27	2.08	1.87	1.76	1.68	1.62	1.59	1.56	1.54	1.53	1.50	1.49	1.47	1.46	1.46	1.44	1.43
200	6.71	3.48	2.68	2.32	2.12	1.90	1.79	1.70	1.65	1.61	1.59	1.57	1.55	1.53	1.51	1.50	1.49	1.48	1.46	1.46

Table 19-15. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 2 (1 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.02	0.83	0.75	0.70	0.67	0.64	0.62	0.60	0.59	0.58	0.57	0.57	0.56	0.56	0.55	0.55	0.55	0.55	0.54	0.54
2	1.47	1.14	1.02	0.95	0.90	0.85	0.82	0.79	0.78	0.77	0.76	0.75	0.75	0.74	0.73	0.73	0.73	0.72	0.72	0.72
3	1.77	1.33	1.17	1.09	1.03	0.97	0.93	0.90	0.88	0.87	0.86	0.85	0.84	0.84	0.83	0.82	0.82	0.82	0.81	0.81
4	2.00	1.47	1.28	1.18	1.12	1.05	1.01	0.97	0.95	0.94	0.93	0.92	0.91	0.90	0.89	0.89	0.88	0.88	0.87	0.87
5	2.19	1.58	1.37	1.26	1.19	1.11	1.06	1.03	1.01	0.99	0.98	0.97	0.96	0.95	0.94	0.94	0.93	0.93	0.92	0.92
8	2.63	1.82	1.55	1.42	1.33	1.24	1.18	1.14	1.12	1.10	1.08	1.07	1.06	1.05	1.04	1.04	1.03	1.03	1.02	1.01
12	3.06	2.04	1.72	1.56	1.46	1.35	1.29	1.24	1.21	1.19	1.17	1.16	1.15	1.13	1.12	1.12	1.11	1.11	1.10	1.09
16	3.40	2.21	1.84	1.65	1.55	1.42	1.36	1.30	1.27	1.25	1.23	1.22	1.21	1.19	1.18	1.17	1.17	1.16	1.15	1.14
20	3.68	2.34	1.93	1.73	1.61	1.48	1.41	1.35	1.32	1.29	1.28	1.26	1.25	1.23	1.22	1.21	1.21	1.20	1.19	1.19
30	4.26	2.59	2.10	1.87	1.74	1.59	1.51	1.44	1.40	1.38	1.36	1.34	1.33	1.31	1.30	1.29	1.28	1.27	1.26	1.26
40	4.71	2.78	2.23	1.98	1.83	1.66	1.57	1.51	1.46	1.43	1.41	1.40	1.38	1.36	1.35	1.34	1.33	1.32	1.31	1.31
50	5.09	2.93	2.33	2.06	1.90	1.72	1.63	1.56	1.51	1.48	1.46	1.44	1.42	1.40	1.39	1.38	1.37	1.36	1.35	1.34
60	5.42	3.06	2.42	2.12	1.95	1.77	1.67	1.59	1.55	1.51	1.49	1.47	1.46	1.44	1.42	1.41	1.40	1.39	1.38	1.37
75	5.85	3.22	2.52	2.20	2.02	1.83	1.72	1.64	1.59	1.56	1.53	1.51	1.50	1.48	1.46	1.45	1.44	1.43	1.42	1.41
100	6.46	3.44	2.66	2.31	2.12	1.90	1.79	1.70	1.65	1.61	1.59	1.57	1.55	1.53	1.51	1.50	1.49	1.48	1.46	1.46
125	6.97	3.62	2.77	2.40	2.19	1.96	1.84	1.75	1.69	1.66	1.63	1.61	1.59	1.56	1.55	1.53	1.52	1.51	1.50	1.49
150	7.41	3.77	2.86	2.47	2.25	2.01	1.88	1.79	1.73	1.69	1.66	1.64	1.62	1.59	1.58	1.56	1.55	1.54	1.53	1.52
175	7.81	3.90	2.94	2.53	2.30	2.05	1.92	1.82	1.76	1.72	1.69	1.67	1.65	1.62	1.60	1.59	1.58	1.57	1.55	1.54
200	8.17	4.02	3.01	2.58	2.34	2.08	1.95	1.85	1.79	1.74	1.71	1.69	1.67	1.64	1.62	1.61	1.60	1.59	1.57	1.56

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Table 19-15. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 2 (1 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.34	1.09	0.98	0.92	0.88	0.84	0.81	0.79	0.77	0.76	0.75	0.75	0.74	0.74	0.73	0.73	0.72	0.72	0.72	0.71
2	1.85	1.42	1.25	1.16	1.10	1.04	1.00	0.97	0.95	0.93	0.92	0.92	0.91	0.90	0.89	0.89	0.88	0.88	0.87	0.87
3	2.19	1.62	1.41	1.30	1.23	1.15	1.11	1.07	1.05	1.03	1.02	1.01	1.00	0.99	0.98	0.97	0.97	0.97	0.96	0.96
4	2.45	1.77	1.52	1.40	1.32	1.23	1.18	1.14	1.11	1.09	1.08	1.07	1.06	1.05	1.04	1.03	1.03	1.03	1.02	1.01
5	2.67	1.89	1.61	1.48	1.39	1.29	1.24	1.19	1.16	1.14	1.13	1.12	1.11	1.10	1.09	1.08	1.07	1.07	1.06	1.06
8	3.19	2.15	1.81	1.64	1.54	1.42	1.35	1.30	1.27	1.25	1.23	1.22	1.21	1.19	1.18	1.17	1.16	1.16	1.15	1.14
12	3.69	2.39	1.98	1.78	1.66	1.52	1.45	1.39	1.36	1.33	1.31	1.30	1.28	1.27	1.26	1.25	1.24	1.23	1.22	1.22
16	4.09	2.57	2.11	1.88	1.75	1.60	1.52	1.46	1.42	1.39	1.37	1.35	1.34	1.32	1.31	1.30	1.29	1.29	1.28	1.27
20	4.43	2.71	2.20	1.96	1.82	1.66	1.57	1.51	1.46	1.43	1.41	1.40	1.38	1.36	1.35	1.34	1.33	1.32	1.31	1.31
30	5.10	2.99	2.39	2.11	1.95	1.77	1.67	1.59	1.55	1.51	1.49	1.47	1.46	1.44	1.42	1.41	1.40	1.39	1.38	1.37
40	5.64	3.20	2.53	2.22	2.04	1.84	1.73	1.65	1.60	1.57	1.54	1.52	1.51	1.49	1.47	1.46	1.45	1.44	1.43	1.42
50	6.09	3.37	2.63	2.30	2.11	1.90	1.79	1.70	1.65	1.61	1.59	1.57	1.55	1.52	1.51	1.50	1.49	1.48	1.46	1.46
60	6.48	3.51	2.72	2.37	2.17	1.95	1.83	1.74	1.69	1.65	1.62	1.60	1.58	1.56	1.54	1.53	1.52	1.51	1.49	1.48
75	7.00	3.69	2.84	2.45	2.24	2.01	1.88	1.79	1.73	1.69	1.66	1.64	1.62	1.59	1.58	1.56	1.55	1.54	1.53	1.52
100	7.71	3.94	2.99	2.57	2.33	2.08	1.95	1.85	1.79	1.74	1.71	1.69	1.67	1.64	1.62	1.61	1.60	1.59	1.57	1.56
125	8.32	4.14	3.11	2.66	2.41	2.14	2.00	1.89	1.83	1.78	1.75	1.73	1.71	1.68	1.66	1.64	1.63	1.62	1.61	1.60
150	8.85	4.31	3.21	2.73	2.47	2.19	2.04	1.93	1.86	1.82	1.78	1.76	1.74	1.71	1.69	1.67	1.66	1.65	1.63	1.62
175	9.33	4.45	3.29	2.80	2.52	2.23	2.08	1.96	1.89	1.85	1.81	1.79	1.76	1.73	1.71	1.70	1.68	1.67	1.66	1.65
200	9.76	4.58	3.37	2.85	2.57	2.26	2.11	1.99	1.92	1.87	1.84	1.81	1.79	1.75	1.73	1.72	1.70	1.69	1.68	1.67

Table 19-15. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 2 (2 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.10	0.87	0.77	0.72	0.69	0.65	0.62	0.60	0.59	0.58	0.58	0.57	0.57	0.56	0.56	0.55	0.55	0.55	0.55	0.54
2	1.56	1.18	1.04	0.96	0.91	0.86	0.82	0.80	0.78	0.77	0.76	0.75	0.75	0.74	0.73	0.73	0.73	0.72	0.72	0.72
3	1.86	1.37	1.19	1.10	1.04	0.97	0.93	0.90	0.88	0.87	0.86	0.85	0.85	0.84	0.83	0.82	0.82	0.82	0.81	0.81
4	2.10	1.51	1.30	1.19	1.13	1.05	1.01	0.98	0.95	0.94	0.93	0.92	0.91	0.90	0.89	0.89	0.88	0.88	0.88	0.87
5	2.29	1.62	1.39	1.27	1.20	1.11	1.07	1.03	1.01	0.99	0.98	0.97	0.96	0.95	0.94	0.94	0.93	0.93	0.92	0.92
8	2.75	1.86	1.57	1.43	1.34	1.24	1.19	1.14	1.12	1.10	1.08	1.07	1.06	1.05	1.04	1.04	1.03	1.03	1.02	1.01
12	3.19	2.08	1.73	1.56	1.46	1.35	1.29	1.24	1.21	1.19	1.17	1.16	1.15	1.13	1.12	1.12	1.11	1.11	1.10	1.09
16	3.54	2.24	1.85	1.66	1.55	1.43	1.36	1.30	1.27	1.25	1.23	1.22	1.21	1.19	1.18	1.17	1.17	1.16	1.15	1.15
20	3.84	2.38	1.94	1.74	1.62	1.49	1.41	1.36	1.32	1.29	1.28	1.26	1.25	1.23	1.22	1.21	1.21	1.20	1.19	1.19
30	4.43	2.63	2.12	1.88	1.74	1.59	1.51	1.45	1.41	1.38	1.36	1.34	1.33	1.31	1.30	1.29	1.28	1.27	1.26	1.26
40	4.90	2.82	2.25	1.98	1.83	1.67	1.58	1.51	1.46	1.44	1.41	1.40	1.38	1.36	1.35	1.34	1.33	1.32	1.31	1.31
50	5.29	2.97	2.35	2.06	1.90	1.72	1.63	1.56	1.51	1.48	1.46	1.44	1.42	1.40	1.39	1.38	1.37	1.36	1.35	1.34
60	5.64	3.10	2.43	2.13	1.96	1.77	1.67	1.60	1.55	1.51	1.49	1.47	1.46	1.44	1.42	1.41	1.40	1.39	1.38	1.37
75	6.09	3.26	2.54	2.21	2.03	1.83	1.72	1.64	1.59	1.56	1.53	1.51	1.50	1.48	1.46	1.45	1.44	1.43	1.42	1.41
100	6.71	3.48	2.68	2.32	2.12	1.90	1.79	1.70	1.65	1.61	1.59	1.57	1.55	1.53	1.51	1.50	1.49	1.48	1.46	1.46
125	7.24	3.66	2.79	2.40	2.19	1.96	1.84	1.75	1.69	1.66	1.63	1.61	1.59	1.56	1.55	1.53	1.52	1.51	1.50	1.49
150	7.71	3.82	2.88	2.48	2.25	2.01	1.88	1.79	1.73	1.69	1.66	1.64	1.62	1.59	1.58	1.56	1.55	1.54	1.53	1.52
175	8.12	3.95	2.96	2.53	2.30	2.05	1.92	1.82	1.76	1.72	1.69	1.67	1.65	1.62	1.60	1.59	1.58	1.57	1.55	1.54
200	8.50	4.06	3.03	2.59	2.34	2.09	1.95	1.85	1.79	1.74	1.71	1.69	1.67	1.64	1.62	1.61	1.60	1.59	1.57	1.56

Table 19-15. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 2 (2 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.47	1.14	1.02	0.95	0.90	0.85	0.82	0.79	0.78	0.77	0.76	0.75	0.75	0.74	0.73	0.73	0.73	0.72	0.72	0.72
2	2.00	1.47	1.28	1.18	1.12	1.05	1.01	0.97	0.95	0.94	0.93	0.92	0.91	0.90	0.89	0.89	0.88	0.88	0.87	0.87
3	2.35	1.68	1.44	1.32	1.25	1.16	1.11	1.07	1.05	1.03	1.02	1.01	1.00	0.99	0.98	0.98	0.97	0.97	0.96	0.96
4	2.63	1.82	1.55	1.42	1.33	1.24	1.18	1.14	1.12	1.10	1.08	1.07	1.06	1.05	1.04	1.04	1.03	1.03	1.02	1.01
5	2.86	1.94	1.64	1.49	1.40	1.30	1.24	1.20	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07	1.07	1.06	1.06
8	3.40	2.21	1.84	1.65	1.55	1.42	1.36	1.30	1.27	1.25	1.23	1.22	1.21	1.19	1.18	1.17	1.17	1.16	1.15	1.14
12	3.93	2.45	2.01	1.79	1.67	1.53	1.45	1.39	1.36	1.33	1.31	1.30	1.29	1.27	1.26	1.25	1.24	1.23	1.22	1.22
16	4.35	2.63	2.13	1.90	1.76	1.61	1.52	1.46	1.42	1.39	1.37	1.35	1.34	1.32	1.31	1.30	1.29	1.29	1.28	1.27
20	4.71	2.78	2.23	1.98	1.83	1.66	1.57	1.51	1.46	1.43	1.41	1.40	1.38	1.36	1.35	1.34	1.33	1.32	1.31	1.31
30	5.42	3.06	2.42	2.12	1.95	1.77	1.67	1.59	1.55	1.51	1.49	1.47	1.46	1.44	1.42	1.41	1.40	1.39	1.38	1.37
40	5.98	3.27	2.55	2.23	2.04	1.84	1.74	1.66	1.61	1.57	1.54	1.52	1.51	1.49	1.47	1.46	1.45	1.44	1.43	1.42
50	6.46	3.44	2.66	2.31	2.12	1.90	1.79	1.70	1.65	1.61	1.59	1.57	1.55	1.53	1.51	1.50	1.49	1.48	1.46	1.46
60	6.87	3.59	2.75	2.38	2.17	1.95	1.83	1.74	1.69	1.65	1.62	1.60	1.58	1.56	1.54	1.53	1.52	1.51	1.49	1.48
75	7.41	3.77	2.86	2.47	2.25	2.01	1.88	1.79	1.73	1.69	1.66	1.64	1.62	1.59	1.58	1.56	1.55	1.54	1.53	1.52
100	8.17	4.02	3.01	2.58	2.34	2.08	1.95	1.85	1.79	1.74	1.71	1.69	1.67	1.64	1.62	1.61	1.60	1.59	1.57	1.56
125	8.82	4.22	3.13	2.67	2.42	2.14	2.00	1.90	1.83	1.79	1.75	1.73	1.71	1.68	1.66	1.64	1.63	1.62	1.61	1.60
150	9.38	4.39	3.23	2.74	2.48	2.19	2.04	1.93	1.86	1.82	1.78	1.76	1.74	1.71	1.69	1.67	1.66	1.65	1.63	1.62
175	9.87	4.53	3.32	2.81	2.53	2.23	2.08	1.96	1.90	1.85	1.81	1.79	1.76	1.73	1.71	1.70	1.68	1.67	1.66	1.65
200	10.34	4.67	3.39	2.86	2.57	2.27	2.11	1.99	1.92	1.87	1.83	1.81	1.79	1.76	1.73	1.72	1.70	1.69	1.68	1.66

Table 19-15. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 2 (2 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.85	1.42	1.25	1.16	1.10	1.04	1.00	0.97	0.95	0.93	0.92	0.92	0.91	0.90	0.89	0.89	0.88	0.88	0.87	0.87
2	2.45	1.77	1.52	1.40	1.32	1.23	1.18	1.14	1.11	1.09	1.08	1.07	1.06	1.05	1.04	1.03	1.03	1.02	1.02	1.01
3	2.86	1.99	1.69	1.54	1.45	1.34	1.28	1.23	1.20	1.18	1.17	1.16	1.15	1.13	1.12	1.12	1.11	1.10	1.10	1.09
4	3.19	2.15	1.81	1.64	1.54	1.42	1.35	1.30	1.27	1.25	1.23	1.22	1.21	1.19	1.18	1.17	1.16	1.16	1.15	1.14
5	3.46	2.28	1.90	1.72	1.60	1.48	1.41	1.35	1.32	1.29	1.27	1.26	1.25	1.23	1.22	1.21	1.21	1.20	1.19	1.19
8	4.09	2.57	2.11	1.88	1.75	1.60	1.52	1.46	1.42	1.39	1.37	1.35	1.34	1.32	1.31	1.30	1.29	1.29	1.28	1.27
12	4.72	2.84	2.29	2.03	1.88	1.71	1.61	1.54	1.50	1.47	1.45	1.43	1.42	1.40	1.38	1.37	1.36	1.36	1.34	1.34
16	5.22	3.04	2.42	2.13	1.97	1.78	1.68	1.61	1.56	1.53	1.50	1.48	1.47	1.45	1.43	1.42	1.41	1.40	1.39	1.38
20	5.64	3.20	2.53	2.22	2.04	1.84	1.73	1.65	1.60	1.57	1.54	1.52	1.51	1.49	1.47	1.46	1.45	1.44	1.43	1.42
30	6.48	3.51	2.72	2.37	2.17	1.95	1.83	1.74	1.69	1.65	1.62	1.60	1.58	1.56	1.54	1.53	1.52	1.51	1.49	1.48
40	7.15	3.75	2.87	2.48	2.26	2.02	1.90	1.80	1.74	1.70	1.67	1.65	1.63	1.60	1.59	1.57	1.56	1.55	1.54	1.53
50	7.72	3.94	2.99	2.57	2.33	2.08	1.95	1.85	1.79	1.74	1.71	1.69	1.67	1.64	1.62	1.61	1.60	1.59	1.57	1.56
60	8.21	4.10	3.08	2.64	2.39	2.13	1.99	1.89	1.82	1.78	1.74	1.72	1.70	1.67	1.65	1.64	1.63	1.62	1.60	1.59
75	8.85	4.31	3.21	2.73	2.47	2.19	2.04	1.93	1.86	1.82	1.78	1.76	1.74	1.71	1.69	1.67	1.66	1.65	1.63	1.62
100	9.76	4.58	3.37	2.85	2.57	2.27	2.11	1.99	1.92	1.87	1.84	1.81	1.79	1.76	1.73	1.72	1.70	1.69	1.68	1.66
125	10.52	4.81	3.50	2.94	2.64	2.32	2.16	2.04	1.96	1.91	1.87	1.85	1.82	1.79	1.77	1.75	1.74	1.73	1.71	1.70
150	11.19	5.00	3.61	3.02	2.71	2.37	2.20	2.08	2.00	1.94	1.91	1.88	1.85	1.82	1.80	1.78	1.77	1.75	1.74	1.72
175	11.78	5.16	3.70	3.09	2.76	2.42	2.24	2.11	2.03	1.97	1.93	1.90	1.88	1.84	1.82	1.80	1.79	1.78	1.76	1.74
200	12.30	5.32	3.78	3.15	2.81	2.45	2.27	2.14	2.05	2.00	1.96	1.92	1.90	1.86	1.84	1.82	1.81	1.80	1.78	1.76

Table 19-15. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 2 (5 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.72	1.28	1.12	1.04	0.98	0.92	0.88	0.86	0.84	0.83	0.82	0.81	0.80	0.79	0.79	0.78	0.78	0.78	0.77	0.77
2	2.29	1.62	1.39	1.27	1.20	1.11	1.07	1.03	1.01	0.99	0.98	0.97	0.96	0.95	0.94	0.94	0.93	0.93	0.92	0.92
3	2.68	1.82	1.55	1.41	1.32	1.23	1.17	1.13	1.10	1.08	1.07	1.06	1.05	1.04	1.03	1.02	1.02	1.01	1.01	1.00
4	2.99	1.98	1.66	1.50	1.41	1.30	1.24	1.20	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07	1.07	1.06	1.06
5	3.24	2.10	1.75	1.58	1.48	1.36	1.30	1.25	1.22	1.20	1.18	1.17	1.16	1.14	1.13	1.12	1.12	1.11	1.10	1.10
8	3.84	2.38	1.94	1.74	1.62	1.49	1.41	1.36	1.32	1.29	1.28	1.26	1.25	1.23	1.22	1.21	1.21	1.20	1.19	1.19
12	4.43	2.63	2.12	1.88	1.74	1.59	1.51	1.45	1.41	1.38	1.36	1.34	1.33	1.31	1.30	1.29	1.28	1.27	1.26	1.26
16	4.90	2.82	2.25	1.98	1.83	1.67	1.58	1.51	1.46	1.43	1.41	1.40	1.38	1.36	1.35	1.34	1.33	1.33	1.31	1.31
20	5.29	2.97	2.35	2.06	1.90	1.72	1.63	1.56	1.51	1.48	1.46	1.44	1.42	1.40	1.39	1.38	1.37	1.36	1.35	1.34
30	6.08	3.26	2.54	2.21	2.03	1.83	1.72	1.64	1.59	1.56	1.53	1.51	1.50	1.48	1.46	1.45	1.44	1.43	1.42	1.41
40	6.71	3.48	2.68	2.32	2.12	1.90	1.79	1.70	1.65	1.61	1.59	1.57	1.55	1.53	1.51	1.50	1.49	1.48	1.46	1.46
50	7.25	3.66	2.79	2.40	2.19	1.96	1.84	1.75	1.69	1.66	1.63	1.61	1.59	1.56	1.55	1.53	1.52	1.51	1.50	1.49
60	7.71	3.81	2.88	2.48	2.25	2.01	1.88	1.79	1.73	1.69	1.66	1.64	1.62	1.59	1.58	1.56	1.55	1.54	1.53	1.52
75	8.30	4.00	3.00	2.56	2.32	2.07	1.93	1.84	1.77	1.73	1.70	1.68	1.66	1.63	1.61	1.60	1.59	1.58	1.56	1.55
100	9.16	4.27	3.15	2.68	2.42	2.14	2.00	1.90	1.83	1.78	1.75	1.73	1.71	1.68	1.66	1.64	1.63	1.62	1.61	1.60
125	9.88	4.47	3.27	2.77	2.49	2.20	2.05	1.94	1.87	1.83	1.79	1.77	1.75	1.72	1.69	1.68	1.67	1.66	1.64	1.63
150	10.51	4.66	3.37	2.84	2.55	2.25	2.09	1.98	1.91	1.86	1.82	1.80	1.77	1.75	1.72	1.71	1.69	1.68	1.67	1.66
175	11.05	4.80	3.47	2.91	2.61	2.29	2.13	2.01	1.94	1.89	1.85	1.82	1.80	1.77	1.75	1.73	1.72	1.71	1.69	1.68
200	11.56	4.96	3.54	2.96	2.65	2.33	2.16	2.04	1.96	1.91	1.88	1.85	1.82	1.79	1.77	1.75	1.74	1.73	1.71	1.70

Table 19-15. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 2 (5 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.19	1.58	1.37	1.26	1.19	1.11	1.06	1.03	1.01	0.99	0.98	0.97	0.96	0.95	0.94	0.94	0.93	0.93	0.92	0.92
2	2.86	1.94	1.64	1.49	1.40	1.30	1.24	1.20	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07	1.07	1.06	1.06
3	3.32	2.17	1.81	1.63	1.53	1.41	1.34	1.29	1.26	1.23	1.22	1.20	1.19	1.18	1.17	1.16	1.15	1.15	1.14	1.13
4	3.68	2.34	1.93	1.73	1.61	1.48	1.41	1.35	1.32	1.29	1.28	1.26	1.25	1.23	1.22	1.21	1.21	1.20	1.19	1.19
5	3.99	2.48	2.02	1.81	1.68	1.54	1.46	1.40	1.37	1.34	1.32	1.31	1.29	1.28	1.26	1.25	1.25	1.24	1.23	1.23
8	4.71	2.78	2.23	1.98	1.83	1.66	1.57	1.51	1.46	1.43	1.41	1.40	1.38	1.36	1.35	1.34	1.33	1.32	1.31	1.31
12	5.42	3.06	2.42	2.12	1.95	1.77	1.67	1.59	1.55	1.51	1.49	1.47	1.46	1.44	1.42	1.41	1.40	1.39	1.38	1.37
16	5.98	3.27	2.55	2.23	2.04	1.84	1.74	1.66	1.61	1.57	1.54	1.52	1.51	1.49	1.47	1.46	1.45	1.44	1.43	1.42
20	6.46	3.44	2.66	2.31	2.12	1.90	1.79	1.70	1.65	1.61	1.59	1.57	1.55	1.53	1.51	1.50	1.49	1.48	1.46	1.46
30	7.41	3.77	2.86	2.47	2.25	2.01	1.88	1.79	1.73	1.69	1.66	1.64	1.62	1.59	1.58	1.56	1.55	1.54	1.53	1.52
40	8.17	4.02	3.01	2.58	2.34	2.08	1.95	1.85	1.79	1.74	1.71	1.69	1.67	1.64	1.62	1.61	1.60	1.59	1.57	1.56
50	8.82	4.22	3.13	2.67	2.41	2.14	2.00	1.90	1.83	1.78	1.75	1.73	1.71	1.68	1.66	1.64	1.63	1.62	1.61	1.60
60	9.38	4.39	3.23	2.74	2.48	2.19	2.04	1.93	1.87	1.82	1.78	1.76	1.74	1.71	1.69	1.67	1.66	1.65	1.63	1.62
75	10.12	4.60	3.36	2.84	2.55	2.25	2.09	1.98	1.91	1.86	1.82	1.80	1.78	1.74	1.72	1.71	1.69	1.68	1.67	1.66
100	11.13	4.89	3.53	2.96	2.65	2.33	2.16	2.04	1.96	1.91	1.88	1.85	1.82	1.79	1.77	1.75	1.74	1.73	1.71	1.70
125	11.99	5.14	3.66	3.05	2.73	2.39	2.21	2.08	2.01	1.95	1.91	1.88	1.86	1.83	1.80	1.78	1.77	1.76	1.74	1.73
150	12.73	5.33	3.77	3.13	2.79	2.44	2.25	2.12	2.04	1.98	1.94	1.91	1.89	1.86	1.83	1.81	1.80	1.79	1.77	1.75
175	13.44	5.51	3.87	3.20	2.85	2.48	2.29	2.15	2.07	2.01	1.97	1.94	1.91	1.88	1.85	1.84	1.82	1.81	1.79	1.77
200	14.06	5.66	3.96	3.26	2.89	2.51	2.32	2.18	2.09	2.04	1.99	1.96	1.94	1.90	1.88	1.86	1.84	1.83	1.80	1.79

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Table 19-15. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 2 (5 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.67	1.89	1.61	1.48	1.39	1.29	1.24	1.19	1.16	1.14	1.13	1.12	1.11	1.10	1.09	1.08	1.07	1.07	1.06	1.06
2	3.46	2.28	1.90	1.72	1.60	1.48	1.41	1.35	1.32	1.29	1.27	1.26	1.25	1.23	1.22	1.21	1.21	1.20	1.19	1.19
3	4.00	2.53	2.08	1.86	1.73	1.58	1.50	1.44	1.40	1.38	1.36	1.34	1.33	1.31	1.30	1.29	1.28	1.27	1.26	1.26
4	4.43	2.71	2.20	1.96	1.82	1.66	1.57	1.51	1.46	1.43	1.41	1.40	1.38	1.36	1.35	1.34	1.33	1.32	1.31	1.31
5	4.79	2.87	2.31	2.04	1.89	1.72	1.62	1.55	1.51	1.48	1.46	1.44	1.42	1.40	1.39	1.38	1.37	1.36	1.35	1.34
8	5.64	3.20	2.53	2.22	2.04	1.84	1.73	1.65	1.60	1.57	1.54	1.52	1.51	1.49	1.47	1.46	1.45	1.44	1.43	1.42
12	6.48	3.51	2.72	2.37	2.17	1.95	1.83	1.74	1.69	1.65	1.62	1.60	1.58	1.56	1.54	1.53	1.52	1.51	1.49	1.48
16	7.15	3.75	2.87	2.48	2.26	2.02	1.90	1.80	1.74	1.70	1.67	1.65	1.63	1.60	1.59	1.57	1.56	1.55	1.54	1.53
20	7.71	3.94	2.99	2.57	2.33	2.08	1.95	1.85	1.79	1.74	1.71	1.69	1.67	1.64	1.62	1.61	1.60	1.59	1.57	1.56
30	8.85	4.31	3.27	2.73	2.47	2.19	2.04	1.93	1.86	1.82	1.78	1.76	1.74	1.71	1.69	1.67	1.66	1.65	1.63	1.62
40	9.76	4.58	3.37	2.85	2.57	2.26	2.11	1.99	1.92	1.87	1.84	1.81	1.79	1.75	1.73	1.72	1.70	1.69	1.68	1.67
50	10.52	4.81	3.50	2.94	2.64	2.32	2.16	2.04	1.96	1.91	1.87	1.85	1.82	1.79	1.77	1.75	1.74	1.73	1.71	1.70
60	11.19	5.00	3.61	3.02	2.71	2.37	2.20	2.08	2.00	1.94	1.91	1.88	1.85	1.82	1.80	1.78	1.77	1.75	1.74	1.72
75	12.05	5.24	3.74	3.12	2.79	2.43	2.25	2.12	2.04	1.98	1.94	1.91	1.89	1.85	1.83	1.81	1.80	1.79	1.77	1.75
100	13.28	5.57	3.92	3.25	2.89	2.51	2.32	2.18	2.09	2.04	1.99	1.96	1.94	1.90	1.87	1.85	1.84	1.83	1.80	1.78
125	14.30	5.84	4.07	3.35	2.97	2.57	2.37	2.23	2.14	2.08	2.03	2.00	1.97	1.93	1.91	1.88	1.87	1.85	1.84	1.82
150	15.23	6.07	4.19	3.43	3.04	2.62	2.42	2.26	2.17	2.11	2.06	2.03	2.00	1.96	1.93	1.91	1.90	1.89	1.86	1.85
175	16.02	6.27	4.30	3.51	3.09	2.67	2.45	2.30	2.20	2.14	2.09	2.06	2.03	1.99	1.96	1.94	1.92	1.91	1.88	1.87
200	16.72	6.45	4.38	3.57	3.14	2.71	2.48	2.32	2.23	2.16	2.11	2.08	2.05	2.01	1.98	1.96	1.94	1.93	1.90	1.89

Table 19-15. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 2 (10 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.29	1.62	1.39	1.27	1.20	1.11	1.07	1.03	1.01	0.99	0.98	0.97	0.96	0.95	0.94	0.94	0.93	0.93	0.92	0.92
2	2.99	1.98	1.66	1.50	1.41	1.30	1.24	1.20	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07	1.07	1.06	1.06
3	3.46	2.21	1.82	1.64	1.53	1.41	1.34	1.29	1.26	1.23	1.22	1.20	1.19	1.18	1.17	1.16	1.15	1.15	1.14	1.13
4	3.84	2.38	1.94	1.74	1.62	1.49	1.41	1.36	1.32	1.29	1.28	1.26	1.25	1.23	1.22	1.21	1.21	1.20	1.19	1.19
5	4.15	2.51	2.04	1.82	1.69	1.54	1.46	1.40	1.37	1.34	1.32	1.31	1.29	1.28	1.26	1.25	1.25	1.24	1.23	1.23
8	4.90	2.82	2.25	1.98	1.83	1.67	1.58	1.51	1.46	1.44	1.41	1.40	1.38	1.36	1.35	1.34	1.33	1.33	1.31	1.31
12	5.63	3.10	2.43	2.13	1.96	1.77	1.67	1.60	1.55	1.51	1.49	1.47	1.46	1.44	1.42	1.41	1.40	1.39	1.38	1.37
16	6.22	3.31	2.57	2.24	2.05	1.85	1.74	1.66	1.61	1.57	1.54	1.53	1.51	1.49	1.47	1.46	1.45	1.44	1.43	1.42
20	6.71	3.48	2.68	2.32	2.12	1.90	1.79	1.70	1.65	1.61	1.59	1.57	1.55	1.53	1.51	1.50	1.49	1.48	1.46	1.46
30	7.70	3.81	2.88	2.47	2.25	2.01	1.88	1.79	1.73	1.69	1.66	1.64	1.62	1.59	1.58	1.56	1.55	1.54	1.53	1.52
40	8.50	4.06	3.03	2.59	2.34	2.09	1.95	1.85	1.79	1.74	1.71	1.69	1.67	1.64	1.62	1.61	1.60	1.59	1.57	1.56
50	9.16	4.27	3.15	2.68	2.42	2.15	2.00	1.90	1.83	1.79	1.75	1.73	1.71	1.68	1.66	1.64	1.63	1.62	1.61	1.59
60	9.74	4.44	3.25	2.75	2.48	2.19	2.04	1.93	1.86	1.82	1.79	1.76	1.74	1.71	1.69	1.67	1.66	1.65	1.63	1.62
75	10.50	4.66	3.38	2.84	2.55	2.25	2.09	1.98	1.91	1.86	1.82	1.80	1.78	1.75	1.72	1.71	1.69	1.68	1.67	1.66
100	11.57	4.96	3.54	2.97	2.66	2.33	2.16	2.04	1.96	1.91	1.87	1.85	1.82	1.79	1.77	1.75	1.74	1.73	1.71	1.70
125	12.50	5.20	3.67	3.06	2.73	2.39	2.21	2.09	2.01	1.95	1.91	1.88	1.86	1.82	1.80	1.79	1.77	1.76	1.74	1.73
150	13.28	5.40	3.78	3.14	2.80	2.44	2.26	2.12	2.04	1.98	1.94	1.91	1.89	1.86	1.83	1.81	1.80	1.79	1.77	1.75
175	13.96	5.57	3.88	3.21	2.84	2.48	2.29	2.15	2.07	2.01	1.97	1.94	1.92	1.88	1.86	1.84	1.82	1.81	1.79	1.77
200	14.65	5.71	3.98	3.27	2.89	2.51	2.32	2.19	2.10	2.04	2.00	1.96	1.93	1.90	1.87	1.85	1.84	1.83	1.81	1.79

Table 19-15. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 2 (10 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.86	1.94	1.64	1.49	1.40	1.30	1.24	1.20	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07	1.07	1.06	1.06
2	3.68	2.34	1.93	1.73	1.61	1.48	1.41	1.35	1.32	1.29	1.28	1.26	1.25	1.23	1.22	1.21	1.21	1.20	1.19	1.19
3	4.26	2.59	2.10	1.87	1.74	1.59	1.51	1.44	1.40	1.38	1.36	1.34	1.33	1.31	1.30	1.29	1.28	1.27	1.26	1.26
4	4.71	2.78	2.23	1.98	1.83	1.66	1.57	1.51	1.46	1.43	1.41	1.40	1.38	1.36	1.35	1.34	1.33	1.32	1.31	1.31
5	5.09	2.93	2.33	2.06	1.90	1.72	1.63	1.56	1.51	1.48	1.46	1.44	1.42	1.40	1.39	1.38	1.37	1.36	1.35	1.34
8	5.98	3.27	2.55	2.23	2.05	1.84	1.74	1.66	1.61	1.57	1.54	1.52	1.51	1.49	1.47	1.46	1.45	1.44	1.43	1.42
12	6.87	3.59	2.75	2.38	2.17	1.95	1.83	1.74	1.69	1.65	1.62	1.60	1.58	1.56	1.54	1.53	1.52	1.51	1.49	1.48
16	7.58	3.82	2.90	2.49	2.27	2.02	1.90	1.80	1.74	1.70	1.67	1.65	1.63	1.60	1.59	1.57	1.56	1.55	1.54	1.53
20	8.18	4.02	3.01	2.58	2.34	2.08	1.95	1.85	1.79	1.74	1.71	1.69	1.67	1.64	1.62	1.61	1.60	1.59	1.57	1.56
30	9.38	4.39	3.23	2.74	2.47	2.19	2.04	1.93	1.87	1.82	1.78	1.76	1.74	1.71	1.69	1.67	1.66	1.65	1.63	1.62
40	10.33	4.67	3.40	2.86	2.57	2.27	2.11	1.99	1.92	1.87	1.84	1.81	1.79	1.75	1.73	1.72	1.70	1.69	1.68	1.66
50	11.13	4.90	3.53	2.96	2.65	2.33	2.16	2.04	1.96	1.91	1.87	1.85	1.82	1.79	1.77	1.75	1.74	1.73	1.71	1.70
60	11.84	5.09	3.63	3.03	2.71	2.38	2.20	2.08	2.00	1.94	1.91	1.88	1.85	1.82	1.80	1.78	1.77	1.75	1.73	1.72
75	12.74	5.33	3.77	3.13	2.79	2.44	2.26	2.12	2.04	1.98	1.94	1.91	1.89	1.86	1.83	1.81	1.80	1.79	1.77	1.75
100	14.06	5.66	3.96	3.26	2.89	2.51	2.32	2.18	2.09	2.04	1.99	1.96	1.94	1.90	1.87	1.86	1.84	1.83	1.80	1.77
125	15.14	5.96	4.10	3.36	2.97	2.58	2.37	2.23	2.14	2.08	2.03	2.00	1.97	1.93	1.90	1.88	1.87	1.85	1.84	1.82
150	16.11	6.18	4.22	3.44	3.04	2.62	2.42	2.26	2.17	2.11	2.06	2.03	2.00	1.96	1.93	1.91	1.89	1.89	1.86	1.85
175	16.99	6.40	4.32	3.52	3.10	2.67	2.45	2.29	2.20	2.14	2.09	2.06	2.03	1.99	1.96	1.93	1.92	1.91	1.89	1.87
200	17.77	6.54	4.42	3.59	3.15	2.71	2.48	2.33	2.23	2.16	2.11	2.08	2.05	2.01	1.98	1.95	1.94	1.93	1.90	1.89

Table 19-15. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 2 (10 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.46	2.28	1.90	1.72	1.60	1.48	1.41	1.35	1.32	1.29	1.27	1.26	1.25	1.23	1.22	1.21	1.21	1.20	1.19	1.19
2	4.43	2.71	2.20	1.96	1.82	1.66	1.57	1.51	1.46	1.43	1.41	1.40	1.38	1.36	1.35	1.34	1.33	1.32	1.31	1.31
3	5.11	2.99	2.39	2.11	1.95	1.77	1.67	1.59	1.55	1.51	1.49	1.47	1.46	1.44	1.42	1.41	1.40	1.39	1.38	1.37
4	5.64	3.20	2.53	2.22	2.04	1.84	1.73	1.65	1.60	1.57	1.54	1.52	1.51	1.49	1.47	1.46	1.45	1.44	1.43	1.42
5	6.09	3.37	2.63	2.30	2.11	1.90	1.79	1.70	1.65	1.61	1.59	1.56	1.55	1.52	1.51	1.50	1.49	1.48	1.46	1.46
8	7.15	3.75	2.87	2.48	2.26	2.02	1.90	1.80	1.74	1.70	1.67	1.65	1.63	1.60	1.59	1.57	1.56	1.55	1.54	1.53
12	8.21	4.10	3.08	2.64	2.39	2.13	1.99	1.89	1.82	1.78	1.74	1.72	1.70	1.67	1.65	1.64	1.63	1.62	1.60	1.59
16	9.05	4.37	3.24	2.76	2.49	2.20	2.06	1.95	1.88	1.83	1.80	1.77	1.75	1.72	1.70	1.68	1.67	1.66	1.64	1.63
20	9.75	4.58	3.37	2.85	2.57	2.26	2.11	1.99	1.92	1.87	1.83	1.81	1.79	1.75	1.73	1.72	1.70	1.69	1.68	1.66
30	11.18	5.00	3.61	3.02	2.71	2.37	2.20	2.08	2.00	1.94	1.91	1.88	1.85	1.82	1.80	1.78	1.76	1.75	1.74	1.72
40	12.30	5.32	3.78	3.15	2.81	2.45	2.27	2.13	2.05	2.00	1.96	1.92	1.90	1.86	1.84	1.82	1.81	1.80	1.78	1.76
50	13.28	5.57	3.92	3.25	2.89	2.51	2.32	2.18	2.10	2.04	1.99	1.96	1.94	1.90	1.87	1.85	1.84	1.83	1.80	1.78
60	14.11	5.79	4.04	3.33	2.95	2.56	2.36	2.22	2.13	2.07	2.02	1.99	1.97	1.93	1.90	1.88	1.86	1.85	1.83	1.82
75	15.23	6.07	4.19	3.44	3.03	2.62	2.42	2.26	2.17	2.11	2.06	2.03	2.00	1.96	1.93	1.91	1.90	1.89	1.86	1.85
100	16.80	6.45	4.38	3.57	3.14	2.70	2.48	2.33	2.23	2.16	2.11	2.08	2.05	2.01	1.98	1.96	1.94	1.93	1.90	1.89
125	18.07	6.74	4.54	3.67	3.22	2.76	2.53	2.37	2.27	2.20	2.15	2.11	2.09	2.04	2.01	1.99	1.97	1.96	1.93	1.92
150	19.14	7.01	4.68	3.77	3.30	2.82	2.58	2.41	2.30	2.23	2.19	2.15	2.12	2.07	2.04	2.01	2.00	1.98	1.96	1.94
175	20.12	7.23	4.79	3.85	3.36	2.86	2.61	2.44	2.33	2.26	2.21	2.17	2.14	2.09	2.06	2.03	2.02	2.00	1.98	1.96
200	21.09	7.42	4.88	3.91	3.41	2.91	2.65	2.47	2.36	2.28	2.23	2.19	2.15	2.11	2.08	2.05	2.04	2.02	1.99	1.98

Table 19-15. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 2 (20 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.99	1.98	1.66	1.50	1.41	1.30	1.24	1.20	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07	1.07	1.06	1.06
2	3.84	2.38	1.94	1.74	1.62	1.49	1.41	1.36	1.32	1.29	1.28	1.26	1.25	1.23	1.22	1.21	1.21	1.20	1.19	1.19
3	4.43	2.63	2.12	1.88	1.74	1.59	1.51	1.45	1.41	1.38	1.36	1.34	1.33	1.31	1.30	1.29	1.28	1.27	1.26	1.26
4	4.90	2.82	2.25	1.98	1.83	1.67	1.58	1.51	1.46	1.44	1.41	1.40	1.38	1.36	1.35	1.34	1.33	1.32	1.31	1.31
5	5.29	2.97	2.35	2.06	1.90	1.72	1.63	1.56	1.51	1.48	1.46	1.44	1.42	1.40	1.39	1.38	1.37	1.36	1.35	1.34
8	6.22	3.31	2.57	2.24	2.05	1.85	1.74	1.66	1.61	1.57	1.54	1.53	1.51	1.49	1.47	1.46	1.45	1.44	1.43	1.42
12	7.14	3.63	2.77	2.39	2.18	1.95	1.83	1.74	1.69	1.65	1.62	1.60	1.58	1.56	1.54	1.53	1.52	1.51	1.49	1.48
16	7.88	3.87	2.91	2.50	2.27	2.03	1.90	1.80	1.74	1.70	1.67	1.65	1.63	1.60	1.59	1.57	1.56	1.55	1.54	1.53
20	8.49	4.06	3.03	2.59	2.34	2.08	1.95	1.85	1.79	1.74	1.71	1.69	1.67	1.64	1.62	1.61	1.60	1.59	1.57	1.56
30	9.74	4.44	3.25	2.75	2.48	2.19	2.04	1.93	1.86	1.82	1.78	1.76	1.74	1.71	1.69	1.67	1.66	1.65	1.63	1.62
40	10.73	4.72	3.41	2.87	2.58	2.27	2.11	1.99	1.92	1.87	1.84	1.81	1.79	1.75	1.73	1.72	1.70	1.69	1.68	1.67
50	11.55	4.96	3.54	2.97	2.65	2.33	2.16	2.04	1.96	1.91	1.87	1.85	1.82	1.79	1.77	1.75	1.74	1.73	1.71	1.70
60	12.30	5.14	3.65	3.04	2.72	2.38	2.20	2.08	2.00	1.94	1.91	1.88	1.85	1.82	1.80	1.78	1.76	1.75	1.73	1.72
75	13.26	5.40	3.79	3.14	2.79	2.44	2.26	2.12	2.04	1.98	1.94	1.91	1.89	1.85	1.83	1.81	1.80	1.79	1.77	1.75
100	14.63	5.74	3.96	3.26	2.90	2.52	2.32	2.18	2.10	2.04	2.00	1.96	1.94	1.90	1.87	1.85	1.83	1.82	1.79	1.77
125	15.72	6.02	4.12	3.37	2.97	2.58	2.38	2.23	2.14	2.08	2.03	2.00	1.97	1.93	1.91	1.88	1.87	1.85	1.82	1.80
150	16.68	6.22	4.24	3.45	3.04	2.62	2.42	2.26	2.17	2.11	2.06	2.03	2.00	1.96	1.93	1.91	1.89	1.88	1.86	1.85
175	17.64	6.43	4.34	3.52	3.10	2.67	2.45	2.30	2.20	2.14	2.09	2.06	2.03	1.99	1.96	1.94	1.92	1.91	1.88	1.87
200	18.32	6.63	4.44	3.59	3.14	2.71	2.49	2.32	2.23	2.16	2.11	2.08	2.05	2.01	1.98	1.96	1.94	1.93	1.91	1.89

Table 19-15. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 2 (20 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.68	2.34	1.93	1.73	1.61	1.48	1.41	1.35	1.32	1.29	1.28	1.26	1.25	1.23	1.22	1.21	1.21	1.20	1.19	1.19
2	4.71	2.78	2.23	1.98	1.83	1.66	1.57	1.51	1.46	1.43	1.41	1.40	1.38	1.36	1.35	1.34	1.33	1.32	1.31	1.31
3	5.42	3.06	2.42	2.12	1.95	1.77	1.67	1.59	1.55	1.51	1.49	1.47	1.46	1.44	1.42	1.41	1.40	1.39	1.38	1.37
4	5.98	3.27	2.55	2.23	2.04	1.84	1.74	1.66	1.61	1.57	1.54	1.52	1.51	1.49	1.47	1.46	1.45	1.44	1.43	1.42
5	6.46	3.44	2.66	2.31	2.12	1.90	1.79	1.70	1.65	1.61	1.59	1.57	1.55	1.53	1.51	1.50	1.49	1.48	1.46	1.46
8	7.58	3.82	2.90	2.49	2.27	2.03	1.90	1.80	1.74	1.70	1.67	1.65	1.63	1.60	1.59	1.57	1.56	1.55	1.54	1.53
12	8.70	4.18	3.11	2.65	2.40	2.13	1.99	1.89	1.82	1.78	1.75	1.72	1.70	1.67	1.65	1.64	1.63	1.62	1.60	1.59
16	9.59	4.45	3.27	2.77	2.50	2.21	2.06	1.95	1.88	1.83	1.80	1.77	1.75	1.72	1.70	1.68	1.67	1.66	1.64	1.63
20	10.33	4.67	3.40	2.86	2.57	2.27	2.11	1.99	1.92	1.87	1.84	1.81	1.79	1.75	1.73	1.72	1.70	1.69	1.68	1.67
30	11.84	5.09	3.64	3.04	2.71	2.38	2.20	2.08	2.00	1.95	1.91	1.88	1.85	1.82	1.80	1.78	1.77	1.75	1.74	1.72
40	13.06	5.41	3.81	3.16	2.81	2.45	2.27	2.14	2.05	2.00	1.96	1.92	1.90	1.86	1.84	1.82	1.81	1.80	1.78	1.76
50	14.05	5.67	3.95	3.26	2.89	2.51	2.32	2.18	2.10	2.04	1.99	1.96	1.94	1.90	1.87	1.85	1.84	1.83	1.80	1.77
60	14.94	5.90	4.07	3.34	2.96	2.56	2.36	2.22	2.13	2.07	2.03	1.99	1.97	1.93	1.90	1.88	1.86	1.85	1.82	1.82
75	16.13	6.17	4.22	3.44	3.04	2.63	2.42	2.26	2.17	2.11	2.06	2.03	2.00	1.96	1.93	1.91	1.89	1.89	1.86	1.85
100	17.77	6.56	4.41	3.58	3.14	2.70	2.48	2.32	2.23	2.16	2.11	2.08	2.05	2.01	1.98	1.95	1.94	1.93	1.90	1.89
125	19.14	6.87	4.58	3.69	3.23	2.77	2.54	2.37	2.27	2.20	2.15	2.11	2.08	2.04	2.01	1.99	1.97	1.96	1.93	1.92
150	20.23	7.11	4.72	3.78	3.30	2.82	2.58	2.41	2.31	2.23	2.18	2.14	2.11	2.07	2.03	2.01	2.00	1.98	1.96	1.94
175	21.33	7.38	4.82	3.86	3.37	2.86	2.61	2.44	2.33	2.26	2.21	2.17	2.14	2.09	2.06	2.03	2.01	2.00	1.98	1.96
200	22.42	7.59	4.92	3.93	3.42	2.91	2.65	2.47	2.36	2.29	2.23	2.20	2.16	2.11	2.08	2.05	2.03	2.02	1.99	1.98

Table 19-15. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 2 (20 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.43	2.71	2.20	1.96	1.82	1.66	1.57	1.51	1.46	1.43	1.41	1.40	1.38	1.36	1.35	1.34	1.33	1.32	1.31	1.31
2	5.64	3.20	2.53	2.22	2.04	1.84	1.73	1.65	1.60	1.57	1.54	1.52	1.51	1.49	1.47	1.46	1.45	1.44	1.43	1.42
3	6.48	3.51	2.72	2.37	2.17	1.95	1.83	1.74	1.69	1.65	1.62	1.60	1.58	1.56	1.54	1.53	1.52	1.51	1.49	1.48
4	7.15	3.75	2.87	2.48	2.26	2.02	1.90	1.80	1.74	1.70	1.67	1.65	1.63	1.60	1.59	1.57	1.56	1.55	1.54	1.53
5	7.72	3.94	2.99	2.57	2.33	2.08	1.95	1.85	1.79	1.74	1.71	1.69	1.67	1.64	1.62	1.61	1.60	1.59	1.57	1.56
8	9.05	4.37	3.24	2.76	2.49	2.21	2.06	1.95	1.88	1.83	1.80	1.77	1.75	1.72	1.70	1.68	1.67	1.66	1.64	1.63
12	10.37	4.77	3.47	2.93	2.63	2.31	2.15	2.03	1.96	1.90	1.87	1.84	1.82	1.78	1.76	1.74	1.73	1.72	1.70	1.69
16	11.43	5.07	3.64	3.05	2.73	2.39	2.22	2.09	2.01	1.96	1.92	1.89	1.86	1.83	1.81	1.79	1.77	1.76	1.74	1.73
20	12.32	5.31	3.78	3.15	2.81	2.45	2.27	2.14	2.05	2.00	1.96	1.92	1.90	1.86	1.84	1.82	1.81	1.80	1.78	1.76
30	14.12	5.79	4.04	3.33	2.95	2.56	2.36	2.22	2.13	2.07	2.03	1.99	1.97	1.93	1.90	1.88	1.86	1.85	1.83	1.82
40	15.55	6.15	4.23	3.46	3.06	2.64	2.43	2.28	2.18	2.12	2.07	2.04	2.01	1.97	1.94	1.92	1.91	1.89	1.87	1.86
50	16.75	6.44	4.38	3.57	3.14	2.70	2.48	2.32	2.23	2.16	2.11	2.08	2.05	2.01	1.98	1.95	1.94	1.93	1.90	1.89
60	17.77	6.68	4.51	3.66	3.21	2.76	2.53	2.36	2.26	2.19	2.14	2.11	2.08	2.03	2.00	1.98	1.96	1.95	1.93	1.91
75	19.14	7.01	4.67	3.77	3.30	2.82	2.58	2.41	2.30	2.23	2.18	2.14	2.11	2.07	2.04	2.01	2.00	1.98	1.96	1.94
100	21.05	7.43	4.89	3.91	3.41	2.90	2.65	2.47	2.36	2.29	2.23	2.19	2.16	2.11	2.08	2.05	2.04	2.02	1.99	1.98
125	22.70	7.79	5.06	4.03	3.49	2.97	2.70	2.51	2.40	2.32	2.27	2.23	2.19	2.14	2.11	2.08	2.06	2.05	2.02	2.00
150	24.20	8.07	5.21	4.12	3.57	3.02	2.74	2.55	2.44	2.36	2.30	2.26	2.22	2.17	2.14	2.11	2.09	2.07	2.05	2.03
175	25.43	8.34	5.33	4.20	3.63	3.06	2.79	2.58	2.47	2.38	2.33	2.29	2.24	2.19	2.16	2.13	2.11	2.10	2.07	2.05
200	26.52	8.54	5.43	4.27	3.69	3.10	2.81	2.61	2.49	2.41	2.35	2.31	2.26	2.21	2.18	2.15	2.13	2.11	2.08	2.07

Table 19-15. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 2 (40 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.84	2.38	1.94	1.74	1.62	1.49	1.41	1.36	1.32	1.29	1.28	1.26	1.25	1.23	1.22	1.21	1.21	1.20	1.19	1.19
2	4.90	2.82	2.25	1.98	1.83	1.67	1.58	1.51	1.46	1.43	1.41	1.40	1.38	1.36	1.35	1.34	1.33	1.33	1.31	1.31
3	5.63	3.10	2.43	2.13	1.96	1.77	1.67	1.60	1.55	1.51	1.49	1.47	1.46	1.44	1.42	1.41	1.40	1.39	1.38	1.37
4	6.22	3.31	2.57	2.24	2.05	1.85	1.74	1.66	1.61	1.57	1.54	1.53	1.51	1.49	1.47	1.46	1.45	1.44	1.43	1.42
5	6.71	3.48	2.68	2.32	2.12	1.90	1.79	1.70	1.65	1.61	1.59	1.57	1.55	1.53	1.51	1.50	1.49	1.48	1.46	1.46
8	7.88	3.87	2.91	2.50	2.27	2.03	1.90	1.80	1.74	1.70	1.67	1.65	1.63	1.61	1.59	1.57	1.56	1.55	1.54	1.53
12	9.03	4.23	3.13	2.66	2.40	2.13	1.99	1.89	1.82	1.78	1.74	1.72	1.70	1.67	1.65	1.64	1.63	1.62	1.60	1.59
16	9.96	4.50	3.29	2.78	2.50	2.21	2.06	1.95	1.88	1.83	1.80	1.77	1.75	1.72	1.70	1.68	1.67	1.66	1.64	1.63
20	10.74	4.72	3.41	2.87	2.58	2.27	2.11	1.99	1.92	1.87	1.84	1.81	1.79	1.76	1.73	1.72	1.70	1.69	1.68	1.67
30	12.30	5.15	3.65	3.04	2.71	2.38	2.20	2.08	2.00	1.95	1.91	1.88	1.85	1.82	1.80	1.78	1.77	1.75	1.74	1.72
40	13.52	5.47	3.83	3.16	2.82	2.46	2.27	2.14	2.05	2.00	1.96	1.92	1.90	1.87	1.84	1.82	1.81	1.80	1.78	1.76
50	14.61	5.74	3.96	3.27	2.90	2.51	2.32	2.18	2.09	2.04	1.99	1.96	1.94	1.90	1.88	1.86	1.84	1.83	1.81	1.79
60	15.47	5.96	4.08	3.35	2.96	2.56	2.36	2.22	2.13	2.07	2.03	1.99	1.97	1.93	1.90	1.88	1.87	1.86	1.83	1.82
75	16.72	6.25	4.24	3.46	3.05	2.63	2.42	2.27	2.17	2.11	2.06	2.03	2.00	1.96	1.93	1.91	1.90	1.88	1.87	1.85
100	18.44	6.64	4.43	3.59	3.14	2.71	2.48	2.32	2.23	2.16	2.11	2.08	2.05	2.01	1.98	1.95	1.94	1.92	1.90	1.89
125	19.69	6.95	4.59	3.69	3.24	2.77	2.54	2.37	2.27	2.20	2.15	2.11	2.08	2.04	2.01	1.99	1.97	1.96	1.93	1.92
150	21.25	7.19	4.73	3.79	3.30	2.81	2.58	2.40	2.30	2.23	2.18	2.14	2.11	2.07	2.04	2.01	1.99	1.98	1.96	1.94
175	22.19	7.42	4.84	3.87	3.36	2.87	2.62	2.44	2.32	2.26	2.21	2.17	2.14	2.09	2.06	2.03	2.02	2.00	1.98	1.96
200	23.12	7.66	4.92	3.95	3.42	2.91	2.65	2.46	2.35	2.29	2.23	2.19	2.16	2.11	2.08	2.05	2.03	2.02	1.99	1.98

Table 19-15. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 2 (40 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.71	2.78	2.23	1.98	1.83	1.66	1.57	1.51	1.46	1.43	1.41	1.40	1.38	1.36	1.35	1.34	1.33	1.32	1.31	1.31
2	5.98	3.27	2.55	2.23	2.04	1.84	1.74	1.66	1.61	1.57	1.54	1.52	1.51	1.49	1.47	1.46	1.45	1.44	1.43	1.42
3	6.87	3.59	2.75	2.38	2.17	1.95	1.83	1.74	1.69	1.65	1.62	1.60	1.58	1.56	1.54	1.53	1.52	1.51	1.49	1.48
4	7.58	3.82	2.90	2.49	2.27	2.03	1.90	1.80	1.74	1.70	1.67	1.65	1.63	1.60	1.59	1.57	1.56	1.55	1.54	1.53
5	8.17	4.02	3.01	2.58	2.34	2.08	1.95	1.85	1.79	1.74	1.71	1.69	1.67	1.64	1.62	1.61	1.60	1.59	1.57	1.56
8	9.58	4.45	3.27	2.77	2.50	2.21	2.06	1.95	1.88	1.83	1.80	1.77	1.75	1.72	1.70	1.68	1.67	1.66	1.64	1.63
12	10.98	4.85	3.50	2.94	2.63	2.32	2.15	2.03	1.96	1.90	1.87	1.84	1.82	1.78	1.76	1.74	1.73	1.72	1.70	1.69
16	12.11	5.16	3.67	3.06	2.73	2.39	2.22	2.09	2.01	1.96	1.92	1.89	1.86	1.83	1.81	1.79	1.77	1.76	1.74	1.73
20	13.05	5.41	3.81	3.16	2.81	2.45	2.27	2.14	2.05	2.00	1.96	1.93	1.90	1.87	1.84	1.82	1.81	1.80	1.78	1.76
30	14.92	5.90	4.07	3.34	2.96	2.56	2.36	2.22	2.13	2.07	2.02	1.99	1.97	1.93	1.90	1.88	1.87	1.85	1.83	1.82
40	16.48	6.25	4.26	3.48	3.07	2.64	2.43	2.28	2.18	2.12	2.07	2.04	2.01	1.97	1.94	1.92	1.91	1.89	1.87	1.86
50	17.73	6.56	4.41	3.58	3.14	2.71	2.48	2.32	2.23	2.16	2.11	2.08	2.05	2.00	1.98	1.96	1.94	1.93	1.90	1.89
60	18.91	6.80	4.55	3.67	3.21	2.75	2.52	2.36	2.26	2.19	2.14	2.10	2.08	2.03	2.00	1.98	1.97	1.95	1.93	1.91
75	20.31	7.11	4.71	3.78	3.30	2.82	2.58	2.41	2.30	2.23	2.18	2.14	2.11	2.07	2.04	2.01	2.00	1.98	1.96	1.94
100	22.34	7.58	4.92	3.93	3.42	2.90	2.65	2.47	2.36	2.28	2.23	2.19	2.15	2.11	2.08	2.05	2.04	2.02	2.00	1.98
125	24.06	7.89	5.08	4.04	3.50	2.97	2.70	2.51	2.39	2.32	2.27	2.22	2.19	2.14	2.11	2.08	2.07	2.05	2.03	2.01
150	25.62	8.20	5.23	4.14	3.57	3.02	2.74	2.55	2.43	2.35	2.29	2.25	2.22	2.17	2.14	2.11	2.09	2.08	2.05	2.03
175	26.88	8.44	5.39	4.22	3.63	3.07	2.77	2.58	2.46	2.38	2.32	2.28	2.25	2.19	2.16	2.13	2.11	2.10	2.07	2.05
200	28.12	8.75	5.47	4.30	3.69	3.11	2.81	2.61	2.48	2.40	2.34	2.29	2.27	2.21	2.18	2.15	2.13	2.11	2.09	2.07

Table 19-15. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 2 (40 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	5.64	3.20	2.53	2.22	2.04	1.84	1.73	1.65	1.60	1.57	1.54	1.52	1.51	1.49	1.47	1.46	1.45	1.44	1.43	1.42
2	7.15	3.75	2.87	2.48	2.26	2.02	1.90	1.80	1.74	1.70	1.67	1.65	1.63	1.60	1.59	1.57	1.56	1.55	1.54	1.53
3	8.21	4.10	3.08	2.64	2.39	2.13	1.99	1.89	1.82	1.78	1.74	1.72	1.70	1.67	1.65	1.64	1.63	1.62	1.60	1.59
4	9.05	4.37	3.24	2.76	2.49	2.21	2.06	1.95	1.88	1.83	1.80	1.77	1.75	1.72	1.70	1.68	1.67	1.66	1.64	1.63
5	9.76	4.58	3.37	2.85	2.57	2.26	2.11	1.99	1.92	1.87	1.84	1.81	1.79	1.76	1.73	1.72	1.70	1.69	1.68	1.67
8	11.43	5.07	3.65	3.05	2.73	2.39	2.22	2.09	2.01	1.96	1.92	1.89	1.86	1.83	1.81	1.79	1.77	1.76	1.74	1.73
12	13.11	5.52	3.90	3.23	2.87	2.50	2.31	2.17	2.09	2.03	1.99	1.95	1.93	1.89	1.87	1.85	1.83	1.82	1.80	1.79
16	14.41	5.87	4.08	3.36	2.98	2.58	2.38	2.23	2.14	2.08	2.04	2.00	1.98	1.94	1.91	1.89	1.88	1.86	1.84	1.83
20	15.55	6.15	4.23	3.46	3.06	2.64	2.43	2.28	2.18	2.12	2.07	2.04	2.01	1.97	1.94	1.92	1.91	1.89	1.87	1.86
30	17.81	6.69	4.51	3.66	3.21	2.75	2.52	2.36	2.26	2.19	2.14	2.10	2.08	2.03	2.00	1.98	1.96	1.95	1.93	1.91
40	19.61	7.11	4.73	3.80	3.32	2.84	2.59	2.42	2.31	2.24	2.19	2.15	2.12	2.08	2.05	2.02	2.00	1.99	1.97	1.95
50	21.09	7.42	4.88	3.92	3.41	2.90	2.65	2.47	2.36	2.28	2.23	2.19	2.16	2.11	2.08	2.05	2.04	2.02	1.99	1.98
60	22.50	7.73	5.03	4.00	3.48	2.95	2.69	2.50	2.39	2.31	2.26	2.22	2.18	2.14	2.10	2.08	2.06	2.05	2.02	2.00
75	24.22	8.09	5.21	4.12	3.56	3.02	2.74	2.55	2.43	2.35	2.29	2.25	2.22	2.17	2.13	2.11	2.09	2.08	2.05	2.03
100	26.56	8.59	5.43	4.28	3.69	3.10	2.81	2.61	2.49	2.40	2.34	2.29	2.26	2.21	2.18	2.15	2.13	2.11	2.08	2.07
125	28.75	8.98	5.62	4.39	3.77	3.16	2.86	2.66	2.53	2.44	2.38	2.33	2.29	2.25	2.21	2.18	2.16	2.14	2.11	2.09
150	30.62	9.30	5.78	4.49	3.87	3.22	2.91	2.70	2.56	2.47	2.41	2.36	2.32	2.27	2.23	2.21	2.18	2.17	2.14	2.12
175	31.88	9.61	5.94	4.59	3.93	3.26	2.95	2.72	2.59	2.50	2.43	2.38	2.34	2.29	2.26	2.23	2.21	2.19	2.16	2.14
200	33.75	9.84	6.02	4.69	3.98	3.30	2.99	2.75	2.62	2.52	2.46	2.40	2.36	2.31	2.28	2.25	2.22	2.21	2.18	2.15

Table 19-16. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Means of Order 2 (1 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.37	0.27	0.22	0.19	0.17	0.14	0.13	0.11	0.11	0.10	0.10	0.09	0.09	0.08	0.08	0.08	0.08	0.08	0.07	0.07
2	0.71	0.53	0.45	0.41	0.38	0.34	0.32	0.30	0.29	0.28	0.28	0.27	0.27	0.26	0.26	0.25	0.25	0.25	0.25	0.24
3	0.92	0.68	0.58	0.53	0.49	0.45	0.42	0.40	0.39	0.38	0.37	0.37	0.36	0.35	0.35	0.35	0.34	0.34	0.34	0.33
4	1.07	0.79	0.67	0.61	0.57	0.52	0.49	0.47	0.45	0.44	0.44	0.43	0.42	0.42	0.41	0.41	0.40	0.40	0.40	0.39
5	1.20	0.87	0.74	0.67	0.63	0.58	0.54	0.52	0.50	0.49	0.48	0.48	0.47	0.46	0.46	0.45	0.45	0.45	0.44	0.44
8	1.49	1.05	0.89	0.81	0.75	0.69	0.65	0.62	0.60	0.59	0.58	0.57	0.57	0.56	0.55	0.54	0.54	0.54	0.53	0.53
12	1.77	1.22	1.02	0.92	0.86	0.78	0.74	0.71	0.69	0.67	0.66	0.65	0.64	0.63	0.62	0.62	0.61	0.61	0.61	0.60
16	1.98	1.34	1.11	1.00	0.93	0.85	0.80	0.77	0.74	0.73	0.71	0.70	0.70	0.68	0.68	0.67	0.67	0.66	0.65	0.65
20	2.17	1.43	1.19	1.06	0.99	0.90	0.85	0.81	0.78	0.77	0.75	0.74	0.74	0.72	0.72	0.71	0.70	0.70	0.69	0.69
30	2.52	1.61	1.32	1.18	1.09	0.99	0.93	0.89	0.86	0.84	0.83	0.81	0.81	0.79	0.78	0.78	0.77	0.77	0.76	0.75
40	2.81	1.74	1.42	1.26	1.16	1.05	0.99	0.94	0.91	0.89	0.88	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.80	0.80
50	3.04	1.85	1.49	1.32	1.22	1.10	1.04	0.99	0.95	0.93	0.91	0.90	0.89	0.88	0.87	0.86	0.85	0.85	0.84	0.83
60	3.25	1.94	1.56	1.37	1.26	1.14	1.07	1.02	0.99	0.96	0.94	0.93	0.92	0.91	0.89	0.89	0.88	0.87	0.86	0.86
75	3.52	2.06	1.63	1.44	1.32	1.19	1.12	1.06	1.02	1.00	0.98	0.97	0.96	0.94	0.93	0.92	0.91	0.91	0.90	0.89
100	3.89	2.21	1.74	1.52	1.39	1.25	1.17	1.11	1.07	1.05	1.03	1.01	1.00	0.98	0.97	0.96	0.96	0.95	0.94	0.93
125	4.21	2.33	1.82	1.58	1.45	1.30	1.21	1.15	1.11	1.08	1.06	1.05	1.04	1.02	1.00	0.99	0.99	0.98	0.97	0.96
150	4.49	2.43	1.89	1.64	1.49	1.34	1.25	1.18	1.14	1.11	1.09	1.08	1.06	1.04	1.03	1.02	1.01	1.01	1.00	0.99
175	4.73	2.52	1.94	1.68	1.53	1.37	1.28	1.21	1.17	1.14	1.12	1.10	1.09	1.07	1.05	1.04	1.04	1.03	1.02	1.01
200	4.96	2.61	2.00	1.72	1.57	1.40	1.30	1.24	1.19	1.16	1.14	1.12	1.11	1.09	1.07	1.06	1.05	1.05	1.04	1.03

Table 19-16. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Means of Order 2 (1 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.64	0.50	0.43	0.39	0.36	0.33	0.31	0.30	0.29	0.28	0.27	0.27	0.26	0.26	0.25	0.25	0.25	0.25	0.24	0.24
2	1.00	0.76	0.66	0.60	0.56	0.51	0.49	0.47	0.45	0.44	0.43	0.43	0.42	0.41	0.41	0.41	0.40	0.40	0.40	0.39
3	1.23	0.91	0.79	0.72	0.67	0.62	0.58	0.56	0.54	0.53	0.52	0.51	0.51	0.50	0.49	0.49	0.48	0.48	0.48	0.47
4	1.41	1.03	0.88	0.80	0.75	0.68	0.65	0.62	0.60	0.59	0.58	0.57	0.56	0.56	0.55	0.54	0.54	0.54	0.53	0.53
5	1.56	1.11	0.95	0.86	0.80	0.74	0.70	0.67	0.65	0.63	0.62	0.61	0.61	0.60	0.59	0.59	0.58	0.58	0.57	0.57
8	1.89	1.31	1.10	0.99	0.92	0.85	0.80	0.76	0.74	0.72	0.71	0.70	0.70	0.68	0.68	0.67	0.67	0.66	0.65	0.65
12	2.22	1.48	1.23	1.11	1.03	0.94	0.88	0.84	0.82	0.80	0.79	0.78	0.77	0.75	0.75	0.74	0.73	0.73	0.72	0.72
16	2.48	1.61	1.33	1.19	1.10	1.00	0.94	0.90	0.87	0.85	0.84	0.83	0.82	0.80	0.79	0.79	0.78	0.78	0.77	0.76
20	2.69	1.72	1.40	1.25	1.16	1.05	0.99	0.94	0.91	0.89	0.88	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.80	0.80
30	3.12	1.91	1.54	1.36	1.26	1.14	1.07	1.02	0.99	0.96	0.94	0.93	0.92	0.90	0.89	0.89	0.88	0.87	0.86	0.86
40	3.46	2.06	1.65	1.45	1.33	1.20	1.13	1.07	1.04	1.01	0.99	0.98	0.97	0.95	0.94	0.93	0.92	0.92	0.91	0.90
50	3.75	2.18	1.73	1.51	1.39	1.25	1.17	1.11	1.07	1.05	1.03	1.01	1.00	0.98	0.97	0.96	0.96	0.95	0.94	0.93
60	3.99	2.28	1.79	1.57	1.43	1.29	1.21	1.14	1.10	1.08	1.06	1.04	1.03	1.01	1.00	0.99	0.98	0.98	0.96	0.96
75	4.32	2.40	1.88	1.63	1.49	1.33	1.25	1.18	1.14	1.11	1.09	1.08	1.06	1.04	1.03	1.02	1.01	1.01	1.00	0.99
100	4.77	2.57	1.99	1.72	1.56	1.40	1.30	1.24	1.19	1.16	1.14	1.12	1.11	1.09	1.07	1.06	1.05	1.05	1.04	1.03
125	5.16	2.71	2.08	1.79	1.62	1.44	1.35	1.27	1.23	1.20	1.17	1.15	1.14	1.12	1.10	1.09	1.08	1.08	1.07	1.06
150	5.47	2.82	2.15	1.84	1.67	1.48	1.38	1.31	1.26	1.23	1.20	1.18	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08
175	5.78	2.93	2.21	1.89	1.71	1.52	1.41	1.33	1.28	1.25	1.22	1.20	1.19	1.17	1.15	1.14	1.13	1.12	1.11	1.10
200	6.05	3.02	2.27	1.93	1.75	1.54	1.44	1.36	1.30	1.27	1.25	1.22	1.21	1.19	1.17	1.16	1.15	1.14	1.13	1.12

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Table 19-16. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Means of Order 2 (1 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.90	0.71	0.62	0.57	0.54	0.50	0.48	0.46	0.45	0.44	0.43	0.42	0.42	0.41	0.41	0.40	0.40	0.40	0.39	0.39
2	1.30	0.98	0.85	0.78	0.73	0.68	0.64	0.62	0.60	0.59	0.58	0.57	0.56	0.55	0.55	0.54	0.54	0.54	0.53	0.53
3	1.56	1.14	0.98	0.89	0.84	0.77	0.73	0.70	0.68	0.67	0.66	0.65	0.64	0.63	0.62	0.62	0.61	0.61	0.60	0.60
4	1.76	1.26	1.08	0.98	0.91	0.84	0.79	0.76	0.74	0.72	0.71	0.70	0.69	0.68	0.67	0.67	0.66	0.66	0.65	0.65
5	1.93	1.36	1.15	1.04	0.97	0.89	0.84	0.81	0.78	0.76	0.75	0.74	0.73	0.72	0.71	0.71	0.70	0.70	0.69	0.69
8	2.32	1.57	1.31	1.17	1.09	0.99	0.94	0.90	0.87	0.85	0.84	0.82	0.82	0.80	0.79	0.79	0.78	0.78	0.77	0.76
12	2.71	1.76	1.44	1.29	1.19	1.08	1.02	0.97	0.94	0.92	0.91	0.89	0.88	0.87	0.86	0.85	0.84	0.84	0.83	0.83
16	3.01	1.90	1.54	1.37	1.27	1.15	1.08	1.03	1.00	0.97	0.95	0.94	0.93	0.91	0.90	0.90	0.89	0.88	0.87	0.87
20	3.26	2.01	1.62	1.44	1.32	1.20	1.12	1.07	1.03	1.01	0.99	0.98	0.97	0.95	0.94	0.93	0.92	0.92	0.91	0.90
30	3.76	2.23	1.77	1.56	1.43	1.28	1.20	1.14	1.10	1.08	1.06	1.04	1.03	1.01	1.00	0.99	0.98	0.98	0.96	0.96
40	4.17	2.39	1.88	1.64	1.50	1.35	1.26	1.19	1.15	1.12	1.10	1.09	1.07	1.05	1.04	1.03	1.02	1.02	1.01	1.00
50	4.50	2.52	1.97	1.71	1.56	1.39	1.30	1.23	1.19	1.16	1.14	1.12	1.11	1.09	1.07	1.06	1.05	1.05	1.04	1.03
60	4.79	2.63	2.04	1.76	1.61	1.43	1.34	1.27	1.22	1.19	1.17	1.15	1.13	1.11	1.10	1.09	1.08	1.07	1.06	1.05
75	5.18	2.77	2.13	1.83	1.67	1.48	1.38	1.30	1.26	1.22	1.20	1.18	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08
100	5.72	2.96	2.25	1.92	1.74	1.54	1.44	1.35	1.30	1.27	1.24	1.22	1.21	1.19	1.17	1.16	1.15	1.14	1.13	1.12
125	6.17	3.12	2.34	1.99	1.80	1.59	1.48	1.39	1.34	1.30	1.28	1.26	1.24	1.22	1.20	1.19	1.18	1.17	1.16	1.15
150	6.56	3.24	2.42	2.06	1.85	1.63	1.51	1.43	1.37	1.33	1.30	1.28	1.27	1.24	1.22	1.21	1.20	1.19	1.18	1.17
175	6.91	3.36	2.49	2.10	1.89	1.66	1.54	1.45	1.39	1.35	1.33	1.31	1.29	1.26	1.25	1.23	1.22	1.21	1.20	1.19
200	7.23	3.46	2.54	2.15	1.93	1.69	1.57	1.47	1.42	1.38	1.35	1.32	1.31	1.28	1.26	1.25	1.24	1.23	1.22	1.21

Table 19-16. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Means of Order 2 (2 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.71	0.53	0.45	0.41	0.38	0.34	0.32	0.30	0.29	0.28	0.28	0.27	0.27	0.26	0.26	0.25	0.25	0.25	0.25	0.24
2	1.07	0.79	0.67	0.61	0.57	0.52	0.49	0.47	0.45	0.44	0.44	0.43	0.42	0.42	0.41	0.41	0.40	0.40	0.40	0.39
3	1.31	0.94	0.80	0.73	0.68	0.62	0.59	0.56	0.54	0.53	0.52	0.51	0.51	0.50	0.49	0.49	0.49	0.48	0.48	0.47
4	1.49	1.05	0.89	0.81	0.75	0.69	0.65	0.62	0.60	0.59	0.58	0.57	0.57	0.56	0.55	0.54	0.54	0.54	0.53	0.53
5	1.64	1.14	0.96	0.87	0.81	0.74	0.70	0.67	0.65	0.63	0.62	0.62	0.61	0.60	0.59	0.59	0.58	0.58	0.57	0.57
8	1.98	1.34	1.11	1.00	0.93	0.85	0.80	0.77	0.74	0.73	0.71	0.70	0.70	0.68	0.68	0.67	0.67	0.66	0.65	0.65
12	2.32	1.51	1.25	1.11	1.03	0.94	0.89	0.85	0.82	0.80	0.79	0.78	0.77	0.76	0.75	0.74	0.73	0.73	0.72	0.72
16	2.59	1.64	1.34	1.19	1.10	1.00	0.95	0.90	0.87	0.85	0.84	0.83	0.82	0.80	0.79	0.79	0.78	0.78	0.77	0.76
20	2.81	1.74	1.42	1.26	1.16	1.05	0.99	0.94	0.91	0.89	0.88	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.80	0.80
30	3.25	1.94	1.56	1.37	1.26	1.14	1.07	1.02	0.99	0.96	0.94	0.93	0.92	0.91	0.89	0.89	0.88	0.87	0.86	0.86
40	3.60	2.09	1.66	1.45	1.34	1.20	1.13	1.07	1.04	1.01	0.99	0.98	0.97	0.95	0.94	0.93	0.92	0.92	0.91	0.90
50	3.89	2.21	1.74	1.52	1.39	1.25	1.17	1.11	1.07	1.05	1.03	1.01	1.00	0.98	0.97	0.96	0.96	0.95	0.94	0.93
60	4.15	2.30	1.80	1.57	1.44	1.29	1.21	1.15	1.11	1.08	1.06	1.04	1.03	1.01	1.00	0.99	0.98	0.98	0.97	0.96
75	4.49	2.43	1.89	1.64	1.49	1.34	1.25	1.18	1.14	1.11	1.09	1.08	1.06	1.04	1.03	1.02	1.01	1.01	1.00	0.99
100	4.96	2.67	2.00	1.72	1.57	1.40	1.30	1.24	1.19	1.16	1.14	1.12	1.11	1.09	1.07	1.06	1.05	1.05	1.04	1.03
125	5.35	2.74	2.09	1.79	1.63	1.45	1.35	1.27	1.23	1.20	1.17	1.15	1.14	1.12	1.10	1.09	1.08	1.08	1.06	1.06
150	5.70	2.85	2.16	1.85	1.67	1.48	1.38	1.31	1.26	1.23	1.20	1.18	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08
175	6.02	2.97	2.23	1.89	1.72	1.52	1.41	1.33	1.28	1.25	1.23	1.21	1.19	1.17	1.15	1.14	1.13	1.12	1.11	1.10
200	6.25	3.05	2.28	1.93	1.75	1.54	1.44	1.36	1.30	1.27	1.25	1.23	1.21	1.19	1.17	1.16	1.15	1.14	1.13	1.12

Table 19-16. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Means of Order 2 (2 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.00	0.76	0.66	0.60	0.56	0.51	0.49	0.47	0.45	0.44	0.43	0.43	0.42	0.41	0.41	0.41	0.40	0.40	0.40	0.39
2	1.41	1.03	0.88	0.80	0.75	0.68	0.65	0.62	0.60	0.59	0.58	0.57	0.56	0.56	0.55	0.54	0.54	0.54	0.53	0.53
3	1.68	1.19	1.01	0.91	0.85	0.78	0.74	0.71	0.68	0.67	0.66	0.65	0.64	0.63	0.62	0.62	0.61	0.61	0.60	0.60
4	1.89	1.31	1.10	0.99	0.92	0.85	0.80	0.76	0.74	0.72	0.71	0.70	0.70	0.68	0.68	0.67	0.67	0.66	0.65	0.65
5	2.07	1.40	1.17	1.05	0.98	0.90	0.85	0.81	0.78	0.77	0.75	0.74	0.74	0.72	0.71	0.71	0.70	0.70	0.69	0.69
8	2.48	1.61	1.33	1.19	1.10	1.00	0.94	0.90	0.87	0.85	0.84	0.83	0.82	0.80	0.79	0.79	0.78	0.78	0.77	0.76
12	2.88	1.80	1.47	1.30	1.20	1.09	1.03	0.98	0.95	0.92	0.91	0.89	0.88	0.87	0.86	0.85	0.84	0.84	0.83	0.83
16	3.20	1.94	1.57	1.38	1.27	1.15	1.08	1.03	1.00	0.97	0.96	0.94	0.93	0.91	0.90	0.90	0.89	0.88	0.87	0.87
20	3.46	2.06	1.65	1.45	1.33	1.20	1.13	1.07	1.04	1.01	0.99	0.98	0.97	0.95	0.94	0.93	0.92	0.92	0.91	0.90
30	3.99	2.28	1.79	1.57	1.43	1.29	1.21	1.14	1.10	1.08	1.06	1.04	1.03	1.01	1.00	0.99	0.98	0.98	0.96	0.96
40	4.41	2.44	1.90	1.65	1.51	1.35	1.26	1.20	1.15	1.12	1.10	1.09	1.07	1.05	1.04	1.03	1.02	1.02	1.01	1.00
50	4.77	2.57	1.99	1.72	1.56	1.40	1.30	1.24	1.19	1.16	1.14	1.12	1.11	1.09	1.07	1.06	1.05	1.05	1.04	1.03
60	5.08	2.69	2.06	1.77	1.61	1.44	1.34	1.27	1.22	1.19	1.17	1.15	1.13	1.11	1.10	1.09	1.08	1.07	1.06	1.05
75	5.47	2.82	2.15	1.84	1.67	1.48	1.38	1.31	1.26	1.23	1.20	1.18	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08
100	6.05	3.02	2.27	1.93	1.75	1.54	1.44	1.36	1.30	1.27	1.25	1.22	1.21	1.19	1.17	1.16	1.15	1.14	1.13	1.12
125	6.52	3.16	2.36	2.00	1.81	1.59	1.48	1.40	1.34	1.30	1.28	1.26	1.24	1.22	1.20	1.19	1.18	1.17	1.16	1.15
150	6.95	3.30	2.44	2.06	1.86	1.63	1.51	1.43	1.37	1.33	1.30	1.28	1.26	1.24	1.23	1.21	1.20	1.19	1.18	1.17
175	7.34	3.42	2.50	2.11	1.89	1.67	1.54	1.45	1.40	1.36	1.33	1.30	1.29	1.26	1.25	1.23	1.22	1.21	1.20	1.19
200	7.66	3.52	2.56	2.16	1.93	1.69	1.57	1.47	1.42	1.38	1.35	1.32	1.31	1.28	1.26	1.25	1.24	1.23	1.22	1.21

Table 19-16. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Means of Order 2 (2 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.30	0.98	0.85	0.78	0.73	0.68	0.64	0.62	0.60	0.59	0.58	0.57	0.56	0.55	0.55	0.54	0.54	0.54	0.53	0.53
2	1.76	1.26	1.08	0.98	0.91	0.84	0.79	0.76	0.74	0.72	0.71	0.70	0.69	0.68	0.67	0.67	0.66	0.66	0.65	0.65
3	2.08	1.44	1.21	1.09	1.02	0.93	0.88	0.84	0.82	0.80	0.78	0.77	0.77	0.75	0.74	0.74	0.73	0.73	0.72	0.72
4	2.32	1.57	1.31	1.17	1.09	0.99	0.94	0.90	0.87	0.85	0.84	0.82	0.82	0.80	0.79	0.79	0.78	0.78	0.77	0.76
5	2.53	1.67	1.38	1.24	1.15	1.04	0.99	0.94	0.91	0.89	0.87	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.80	0.80
8	3.01	1.90	1.54	1.37	1.27	1.15	1.08	1.03	1.00	0.97	0.95	0.94	0.93	0.91	0.90	0.90	0.89	0.88	0.87	0.87
12	3.48	2.11	1.69	1.49	1.37	1.24	1.16	1.10	1.07	1.04	1.02	1.01	0.99	0.98	0.97	0.96	0.95	0.94	0.93	0.93
16	3.85	2.26	1.80	1.57	1.44	1.30	1.22	1.15	1.12	1.09	1.07	1.05	1.04	1.02	1.01	1.00	0.99	0.98	0.97	0.97
20	4.17	2.39	1.88	1.64	1.50	1.35	1.26	1.19	1.15	1.12	1.10	1.09	1.07	1.05	1.04	1.03	1.02	1.02	1.01	1.00
30	4.79	2.63	2.04	1.76	1.61	1.43	1.34	1.27	1.22	1.19	1.17	1.15	1.13	1.11	1.10	1.09	1.08	1.07	1.06	1.05
40	5.29	2.81	2.15	1.85	1.68	1.49	1.39	1.32	1.27	1.23	1.21	1.19	1.18	1.15	1.14	1.13	1.12	1.11	1.10	1.09
50	5.72	2.96	2.25	1.92	1.74	1.54	1.44	1.35	1.30	1.27	1.24	1.22	1.21	1.19	1.17	1.16	1.15	1.14	1.13	1.12
60	6.09	3.09	2.32	1.98	1.79	1.58	1.47	1.39	1.33	1.30	1.27	1.25	1.23	1.21	1.19	1.18	1.17	1.16	1.15	1.14
75	6.56	3.24	2.42	2.06	1.85	1.63	1.51	1.43	1.37	1.33	1.30	1.28	1.27	1.24	1.22	1.21	1.20	1.19	1.18	1.17
100	7.23	3.46	2.54	2.15	1.93	1.69	1.57	1.47	1.42	1.38	1.35	1.32	1.31	1.28	1.26	1.25	1.24	1.23	1.22	1.21
125	7.81	3.63	2.65	2.23	1.99	1.74	1.61	1.51	1.45	1.41	1.38	1.35	1.34	1.31	1.29	1.28	1.27	1.26	1.24	1.23
150	8.28	3.77	2.73	2.29	2.04	1.78	1.65	1.54	1.48	1.44	1.41	1.38	1.36	1.33	1.31	1.30	1.29	1.28	1.26	1.25
175	8.75	3.91	2.80	2.34	2.08	1.82	1.67	1.57	1.50	1.46	1.43	1.40	1.38	1.35	1.33	1.32	1.31	1.30	1.28	1.27
200	9.14	4.02	2.87	2.38	2.12	1.85	1.70	1.59	1.52	1.48	1.45	1.42	1.40	1.37	1.35	1.34	1.32	1.31	1.30	1.29

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Table 19-16. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Means of Order 2 (5 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.20	0.87	0.74	0.67	0.63	0.58	0.54	0.52	0.50	0.49	0.48	0.48	0.47	0.46	0.46	0.45	0.45	0.45	0.44	0.44
2	1.64	1.14	0.96	0.87	0.81	0.74	0.70	0.67	0.65	0.63	0.62	0.62	0.61	0.60	0.59	0.59	0.58	0.58	0.57	0.57
3	1.93	1.31	1.09	0.98	0.91	0.83	0.79	0.75	0.73	0.71	0.70	0.69	0.68	0.67	0.66	0.66	0.65	0.65	0.64	0.64
4	2.16	1.43	1.19	1.06	0.99	0.90	0.85	0.81	0.78	0.77	0.75	0.74	0.74	0.72	0.71	0.71	0.70	0.70	0.69	0.69
5	2.36	1.53	1.26	1.12	1.04	0.95	0.90	0.85	0.83	0.81	0.79	0.78	0.77	0.76	0.75	0.75	0.74	0.74	0.73	0.72
8	2.81	1.74	1.42	1.26	1.16	1.05	0.99	0.94	0.91	0.89	0.88	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.80	0.80
12	3.25	1.94	1.56	1.37	1.26	1.14	1.07	1.02	0.99	0.96	0.94	0.93	0.92	0.91	0.89	0.89	0.88	0.87	0.86	0.86
16	3.60	2.09	1.66	1.45	1.34	1.20	1.13	1.07	1.04	1.01	0.99	0.98	0.97	0.95	0.94	0.93	0.92	0.92	0.91	0.90
20	3.89	2.21	1.74	1.52	1.39	1.25	1.17	1.11	1.07	1.05	1.03	1.01	1.00	0.98	0.97	0.96	0.96	0.95	0.94	0.93
30	4.48	2.43	1.89	1.64	1.49	1.34	1.25	1.18	1.14	1.11	1.09	1.08	1.06	1.04	1.03	1.02	1.01	1.01	1.00	0.99
40	4.95	2.60	2.00	1.72	1.57	1.40	1.30	1.24	1.19	1.16	1.14	1.12	1.11	1.09	1.07	1.06	1.05	1.05	1.04	1.03
50	5.34	2.74	2.08	1.79	1.63	1.45	1.35	1.27	1.23	1.20	1.17	1.15	1.14	1.12	1.10	1.09	1.08	1.08	1.07	1.06
60	5.68	2.86	2.16	1.85	1.67	1.48	1.38	1.31	1.26	1.22	1.20	1.18	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08
75	6.13	3.01	2.25	1.92	1.73	1.53	1.42	1.35	1.30	1.26	1.23	1.21	1.20	1.18	1.16	1.15	1.14	1.13	1.12	1.11
100	6.76	3.21	2.37	2.01	1.81	1.59	1.48	1.39	1.34	1.30	1.28	1.26	1.24	1.22	1.20	1.19	1.18	1.17	1.16	1.15
125	7.30	3.37	2.47	2.08	1.87	1.64	1.52	1.43	1.38	1.34	1.31	1.29	1.27	1.25	1.23	1.22	1.21	1.20	1.18	1.17
150	7.77	3.51	2.55	2.14	1.92	1.68	1.56	1.46	1.41	1.37	1.34	1.32	1.30	1.27	1.25	1.24	1.23	1.22	1.21	1.20
175	8.16	3.63	2.62	2.19	1.96	1.71	1.59	1.49	1.43	1.39	1.36	1.34	1.32	1.29	1.27	1.26	1.25	1.24	1.23	1.22
200	8.55	3.73	2.68	2.24	2.00	1.74	1.61	1.51	1.45	1.41	1.38	1.35	1.34	1.31	1.29	1.28	1.27	1.26	1.24	1.23

Table 19-16. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Means of Order 2 (5 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.56	1.11	0.95	0.86	0.80	0.74	0.70	0.67	0.65	0.63	0.62	0.61	0.61	0.60	0.59	0.59	0.58	0.58	0.57	0.57
2	2.07	1.40	1.17	1.05	0.98	0.90	0.85	0.81	0.78	0.77	0.75	0.74	0.74	0.72	0.71	0.71	0.70	0.70	0.69	0.69
3	2.42	1.58	1.31	1.17	1.08	0.99	0.93	0.89	0.86	0.84	0.83	0.81	0.81	0.79	0.78	0.78	0.77	0.77	0.76	0.75
4	2.69	1.72	1.40	1.25	1.16	1.05	0.99	0.94	0.91	0.89	0.88	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.80	0.80
5	2.92	1.82	1.48	1.31	1.21	1.10	1.03	0.98	0.95	0.93	0.91	0.90	0.89	0.88	0.87	0.86	0.85	0.85	0.84	0.83
8	3.46	2.06	1.65	1.45	1.33	1.20	1.13	1.07	1.04	1.01	0.99	0.98	0.97	0.95	0.94	0.93	0.92	0.92	0.91	0.90
12	3.99	2.28	1.79	1.57	1.43	1.29	1.21	1.14	1.11	1.08	1.06	1.04	1.03	1.01	1.00	0.99	0.98	0.98	0.97	0.96
16	4.41	2.44	1.90	1.65	1.51	1.35	1.26	1.20	1.15	1.12	1.10	1.09	1.07	1.05	1.04	1.03	1.02	1.02	1.01	1.00
20	4.77	2.57	1.99	1.72	1.57	1.40	1.30	1.24	1.19	1.16	1.14	1.12	1.11	1.09	1.07	1.06	1.05	1.05	1.04	1.03
30	5.48	2.83	2.15	1.84	1.67	1.48	1.38	1.31	1.26	1.22	1.20	1.18	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08
40	6.04	3.02	2.27	1.93	1.75	1.54	1.44	1.36	1.30	1.27	1.24	1.22	1.21	1.19	1.17	1.16	1.15	1.14	1.13	1.12
50	6.52	3.17	2.36	2.00	1.81	1.59	1.48	1.39	1.34	1.30	1.28	1.26	1.24	1.22	1.20	1.19	1.18	1.17	1.16	1.15
60	6.93	3.30	2.44	2.06	1.86	1.63	1.51	1.43	1.37	1.33	1.30	1.28	1.27	1.24	1.22	1.21	1.20	1.19	1.18	1.17
75	7.48	3.47	2.54	2.14	1.92	1.68	1.56	1.46	1.41	1.37	1.34	1.31	1.30	1.27	1.25	1.24	1.23	1.22	1.21	1.20
100	8.24	3.69	2.67	2.23	1.99	1.74	1.61	1.51	1.45	1.41	1.38	1.36	1.34	1.31	1.29	1.28	1.27	1.26	1.24	1.23
125	8.91	3.88	2.77	2.31	2.06	1.79	1.65	1.55	1.49	1.44	1.41	1.39	1.37	1.34	1.32	1.31	1.29	1.29	1.27	1.26
150	9.45	4.03	2.86	2.37	2.11	1.83	1.69	1.58	1.52	1.47	1.44	1.41	1.39	1.36	1.34	1.33	1.32	1.31	1.29	1.28
175	9.96	4.17	2.93	2.43	2.15	1.87	1.72	1.61	1.54	1.49	1.46	1.43	1.41	1.38	1.36	1.35	1.34	1.33	1.31	1.30
200	10.39	4.30	3.00	2.47	2.19	1.89	1.74	1.63	1.56	1.51	1.48	1.45	1.43	1.40	1.38	1.36	1.35	1.34	1.33	1.31

Table 19-16. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Means of Order 2 (5 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.93	1.36	1.15	1.04	0.97	0.89	0.84	0.81	0.78	0.76	0.75	0.74	0.73	0.72	0.71	0.71	0.70	0.70	0.69	0.69
2	2.53	1.67	1.38	1.24	1.15	1.04	0.99	0.94	0.91	0.89	0.87	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.80	0.80
3	2.94	1.86	1.52	1.35	1.25	1.13	1.07	1.02	0.98	0.96	0.94	0.93	0.92	0.90	0.89	0.89	0.88	0.87	0.86	0.86
4	3.26	2.01	1.62	1.44	1.32	1.20	1.12	1.07	1.03	1.01	0.99	0.98	0.97	0.95	0.94	0.93	0.92	0.92	0.91	0.90
5	3.53	2.13	1.71	1.50	1.38	1.24	1.17	1.11	1.07	1.05	1.03	1.01	1.00	0.98	0.97	0.96	0.96	0.95	0.94	0.93
8	4.17	2.39	1.88	1.64	1.50	1.35	1.26	1.19	1.15	1.12	1.10	1.09	1.07	1.05	1.04	1.03	1.02	1.02	1.01	1.00
12	4.79	2.63	2.04	1.76	1.61	1.43	1.34	1.27	1.22	1.19	1.17	1.15	1.13	1.11	1.10	1.09	1.08	1.07	1.06	1.05
16	5.30	2.81	2.15	1.85	1.68	1.49	1.39	1.32	1.27	1.23	1.21	1.19	1.18	1.15	1.14	1.13	1.12	1.11	1.10	1.09
20	5.72	2.96	2.24	1.92	1.74	1.54	1.44	1.36	1.30	1.27	1.24	1.22	1.21	1.19	1.17	1.16	1.15	1.14	1.13	1.12
30	6.56	3.24	2.42	2.05	1.85	1.63	1.51	1.43	1.37	1.33	1.30	1.28	1.27	1.24	1.22	1.21	1.20	1.19	1.18	1.17
40	7.24	3.45	2.54	2.15	1.93	1.69	1.57	1.47	1.42	1.38	1.35	1.32	1.31	1.28	1.26	1.25	1.24	1.23	1.21	1.21
50	7.80	3.63	2.65	2.22	1.99	1.74	1.61	1.51	1.45	1.41	1.38	1.36	1.34	1.31	1.29	1.28	1.27	1.26	1.24	1.23
60	8.30	3.77	2.73	2.29	2.04	1.78	1.64	1.54	1.48	1.44	1.41	1.38	1.36	1.33	1.31	1.30	1.29	1.28	1.26	1.25
75	8.95	3.96	2.84	2.36	2.10	1.83	1.69	1.58	1.52	1.47	1.44	1.41	1.39	1.36	1.34	1.33	1.32	1.31	1.29	1.28
100	9.84	4.22	2.98	2.46	2.19	1.89	1.74	1.63	1.56	1.51	1.48	1.45	1.43	1.40	1.38	1.36	1.35	1.34	1.33	1.31
125	10.62	4.42	3.09	2.54	2.25	1.94	1.78	1.67	1.60	1.55	1.51	1.48	1.46	1.43	1.41	1.39	1.38	1.37	1.35	1.34
150	11.29	4.59	3.18	2.61	2.30	1.98	1.82	1.70	1.62	1.57	1.54	1.51	1.49	1.45	1.43	1.41	1.40	1.39	1.37	1.36
175	11.88	4.75	3.27	2.67	2.35	2.02	1.85	1.72	1.65	1.60	1.56	1.53	1.51	1.47	1.45	1.43	1.42	1.41	1.39	1.38
200	12.42	4.88	3.34	2.71	2.39	2.05	1.87	1.75	1.67	1.62	1.58	1.55	1.52	1.49	1.47	1.45	1.44	1.43	1.41	1.39

Table 19-16. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Means of Order 2 (10 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.64	1.14	0.96	0.87	0.81	0.74	0.70	0.67	0.65	0.63	0.62	0.62	0.61	0.60	0.59	0.59	0.58	0.58	0.57	0.57
2	2.16	1.43	1.19	1.06	0.99	0.90	0.85	0.81	0.78	0.77	0.75	0.74	0.74	0.72	0.71	0.71	0.70	0.70	0.69	0.69
3	2.52	1.61	1.32	1.18	1.09	0.99	0.93	0.89	0.86	0.84	0.83	0.82	0.81	0.79	0.78	0.78	0.77	0.77	0.76	0.75
4	2.81	1.74	1.42	1.26	1.16	1.05	0.99	0.94	0.91	0.89	0.88	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.80	0.80
5	3.04	1.85	1.49	1.32	1.22	1.10	1.04	0.99	0.95	0.93	0.91	0.90	0.89	0.88	0.87	0.86	0.85	0.85	0.84	0.83
8	3.60	2.09	1.66	1.45	1.34	1.20	1.13	1.07	1.04	1.01	0.99	0.98	0.97	0.95	0.94	0.93	0.92	0.92	0.91	0.90
12	4.15	2.31	1.80	1.57	1.44	1.29	1.21	1.15	1.11	1.08	1.06	1.04	1.03	1.01	1.00	0.99	0.98	0.98	0.97	0.96
16	4.58	2.47	1.91	1.66	1.51	1.35	1.26	1.20	1.15	1.12	1.10	1.09	1.07	1.05	1.04	1.03	1.02	1.02	1.01	1.00
20	4.95	2.60	2.00	1.72	1.57	1.40	1.30	1.24	1.19	1.16	1.14	1.12	1.11	1.09	1.07	1.06	1.05	1.05	1.04	1.03
30	5.68	2.86	2.16	1.85	1.67	1.48	1.38	1.31	1.26	1.22	1.20	1.18	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08
40	6.27	3.05	2.28	1.94	1.75	1.55	1.44	1.36	1.30	1.27	1.24	1.22	1.21	1.19	1.17	1.16	1.15	1.14	1.13	1.12
50	6.76	3.21	2.37	2.01	1.81	1.59	1.48	1.39	1.34	1.30	1.28	1.26	1.24	1.22	1.20	1.19	1.18	1.17	1.16	1.15
60	7.19	3.34	2.45	2.07	1.86	1.63	1.51	1.43	1.37	1.33	1.30	1.28	1.27	1.24	1.22	1.21	1.20	1.19	1.18	1.17
75	7.77	3.51	2.55	2.14	1.92	1.68	1.56	1.46	1.41	1.37	1.34	1.32	1.30	1.27	1.25	1.24	1.23	1.22	1.21	1.20
100	8.55	3.73	2.68	2.24	2.00	1.74	1.61	1.51	1.45	1.41	1.38	1.35	1.34	1.31	1.29	1.28	1.27	1.26	1.24	1.23
125	9.22	3.93	2.78	2.31	2.06	1.79	1.66	1.55	1.49	1.44	1.41	1.39	1.37	1.34	1.32	1.31	1.29	1.28	1.27	1.26
150	9.84	4.08	2.87	2.37	2.11	1.83	1.69	1.58	1.52	1.47	1.44	1.41	1.39	1.36	1.34	1.33	1.32	1.31	1.29	1.28
175	10.31	4.22	2.95	2.43	2.16	1.87	1.72	1.61	1.54	1.49	1.46	1.44	1.42	1.38	1.36	1.35	1.34	1.33	1.31	1.30
200	10.78	4.34	3.01	2.48	2.19	1.89	1.74	1.63	1.56	1.51	1.48	1.46	1.43	1.40	1.38	1.36	1.35	1.34	1.33	1.31

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Table 19-16. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Means of Order 2 (10 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.07	1.40	1.17	1.05	0.98	0.90	0.85	0.81	0.78	0.77	0.75	0.74	0.74	0.72	0.71	0.71	0.70	0.70	0.69	0.69
2	2.69	1.72	1.40	1.25	1.16	1.05	0.99	0.94	0.91	0.89	0.88	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.80	0.80
3	3.12	1.91	1.54	1.36	1.26	1.14	1.07	1.02	0.98	0.96	0.94	0.93	0.92	0.90	0.89	0.89	0.88	0.87	0.86	0.86
4	3.46	2.06	1.65	1.45	1.33	1.20	1.13	1.07	1.04	1.01	0.99	0.98	0.97	0.95	0.94	0.93	0.92	0.92	0.91	0.90
5	3.75	2.18	1.73	1.51	1.39	1.25	1.17	1.11	1.07	1.05	1.03	1.01	1.00	0.98	0.97	0.96	0.96	0.95	0.94	0.93
8	4.41	2.44	1.90	1.65	1.51	1.35	1.26	1.20	1.15	1.12	1.10	1.09	1.07	1.05	1.04	1.03	1.02	1.02	1.01	1.00
12	5.08	2.68	2.06	1.77	1.61	1.43	1.34	1.27	1.22	1.19	1.17	1.15	1.13	1.11	1.10	1.09	1.08	1.07	1.06	1.05
16	5.60	2.87	2.17	1.86	1.69	1.50	1.39	1.32	1.27	1.23	1.21	1.19	1.18	1.15	1.14	1.13	1.12	1.11	1.10	1.09
20	6.04	3.02	2.27	1.93	1.75	1.54	1.44	1.36	1.30	1.27	1.24	1.22	1.21	1.19	1.17	1.16	1.15	1.14	1.13	1.12
30	6.93	3.30	2.44	2.06	1.86	1.63	1.51	1.43	1.37	1.33	1.30	1.28	1.27	1.24	1.22	1.21	1.20	1.19	1.18	1.17
40	7.66	3.52	2.56	2.16	1.93	1.69	1.57	1.47	1.42	1.38	1.35	1.32	1.31	1.28	1.26	1.25	1.24	1.23	1.21	1.20
50	8.24	3.69	2.67	2.23	1.99	1.74	1.61	1.51	1.45	1.41	1.38	1.36	1.34	1.31	1.29	1.28	1.27	1.26	1.24	1.23
60	8.77	3.85	2.75	2.29	2.05	1.78	1.65	1.54	1.48	1.44	1.41	1.38	1.36	1.33	1.31	1.30	1.29	1.28	1.26	1.25
75	9.45	4.03	2.86	2.37	2.11	1.83	1.69	1.58	1.52	1.47	1.44	1.41	1.39	1.36	1.34	1.33	1.32	1.31	1.29	1.28
100	10.39	4.30	3.00	2.47	2.19	1.89	1.74	1.63	1.56	1.51	1.48	1.45	1.43	1.40	1.38	1.36	1.35	1.34	1.33	1.31
125	11.25	4.49	3.12	2.55	2.26	1.94	1.78	1.67	1.60	1.55	1.51	1.48	1.46	1.43	1.41	1.39	1.38	1.37	1.35	1.34
150	11.88	4.67	3.20	2.62	2.30	1.98	1.82	1.70	1.63	1.57	1.54	1.51	1.48	1.46	1.43	1.41	1.40	1.39	1.37	1.36
175	12.50	4.84	3.28	2.68	2.35	2.02	1.85	1.72	1.65	1.60	1.56	1.53	1.51	1.47	1.45	1.43	1.42	1.41	1.39	1.38
200	13.12	4.96	3.36	2.73	2.39	2.05	1.88	1.75	1.67	1.62	1.58	1.55	1.52	1.49	1.46	1.45	1.44	1.43	1.41	1.39

Table 19-16. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Means of Order 2 (10 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.53	1.67	1.38	1.24	1.15	1.04	0.99	0.94	0.91	0.89	0.87	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.80	0.80
2	3.26	2.01	1.62	1.44	1.32	1.20	1.12	1.07	1.03	1.01	0.99	0.98	0.97	0.95	0.94	0.93	0.92	0.92	0.91	0.90
3	3.77	2.23	1.77	1.56	1.43	1.28	1.20	1.14	1.10	1.08	1.06	1.04	1.03	1.01	1.00	0.99	0.98	0.98	0.97	0.96
4	4.17	2.39	1.88	1.64	1.50	1.35	1.26	1.19	1.15	1.12	1.10	1.09	1.07	1.05	1.04	1.03	1.02	1.02	1.01	1.00
5	4.50	2.52	1.97	1.71	1.56	1.39	1.30	1.23	1.19	1.16	1.14	1.12	1.11	1.09	1.07	1.06	1.05	1.05	1.04	1.03
8	5.30	2.81	2.15	1.85	1.68	1.49	1.39	1.32	1.27	1.23	1.21	1.19	1.18	1.15	1.14	1.13	1.12	1.11	1.10	1.09
12	6.08	3.08	2.32	1.98	1.79	1.58	1.47	1.39	1.33	1.30	1.27	1.25	1.23	1.21	1.19	1.18	1.17	1.16	1.15	1.14
16	6.71	3.29	2.45	2.08	1.87	1.64	1.52	1.44	1.38	1.34	1.31	1.29	1.28	1.25	1.23	1.22	1.21	1.20	1.19	1.18
20	7.24	3.45	2.54	2.15	1.93	1.69	1.57	1.47	1.42	1.38	1.35	1.32	1.31	1.28	1.26	1.25	1.24	1.23	1.21	1.21
30	8.30	3.77	2.73	2.29	2.04	1.78	1.64	1.54	1.48	1.44	1.41	1.38	1.36	1.33	1.31	1.30	1.29	1.28	1.26	1.25
40	9.14	4.02	2.87	2.39	2.12	1.84	1.70	1.59	1.53	1.48	1.45	1.42	1.40	1.37	1.35	1.34	1.32	1.32	1.30	1.29
50	9.84	4.22	2.98	2.46	2.19	1.89	1.74	1.63	1.56	1.51	1.48	1.45	1.43	1.40	1.38	1.36	1.35	1.34	1.33	1.31
60	10.47	4.38	3.07	2.53	2.24	1.93	1.77	1.66	1.59	1.54	1.50	1.48	1.46	1.42	1.40	1.39	1.37	1.36	1.35	1.34
75	11.29	4.59	3.18	2.61	2.30	1.98	1.82	1.70	1.62	1.57	1.54	1.51	1.49	1.45	1.43	1.41	1.40	1.39	1.37	1.36
100	12.42	4.88	3.34	2.71	2.39	2.05	1.87	1.75	1.67	1.62	1.58	1.55	1.52	1.49	1.47	1.45	1.44	1.43	1.41	1.39
125	13.44	5.12	3.46	2.80	2.46	2.10	1.91	1.78	1.70	1.65	1.61	1.58	1.55	1.52	1.49	1.47	1.46	1.45	1.43	1.42
150	14.22	5.31	3.56	2.87	2.51	2.14	1.95	1.82	1.73	1.67	1.63	1.60	1.58	1.54	1.52	1.50	1.48	1.47	1.45	1.44
175	15.00	5.49	3.65	2.93	2.56	2.18	1.98	1.84	1.75	1.69	1.66	1.62	1.60	1.56	1.53	1.51	1.50	1.49	1.46	1.45
200	15.62	5.62	3.73	2.99	2.60	2.21	2.01	1.87	1.78	1.71	1.67	1.64	1.62	1.58	1.55	1.53	1.51	1.50	1.48	1.47

Table 19-16. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Means of Order 2 (20 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.16	1.43	1.19	1.06	0.99	0.90	0.85	0.81	0.78	0.77	0.75	0.74	0.74	0.72	0.71	0.71	0.70	0.70	0.69	0.69
2	2.81	1.74	1.42	1.26	1.16	1.05	0.99	0.94	0.91	0.89	0.88	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.80	0.80
3	3.25	1.94	1.56	1.37	1.26	1.14	1.07	1.02	0.99	0.96	0.94	0.93	0.92	0.91	0.89	0.89	0.88	0.87	0.86	0.86
4	3.60	2.09	1.66	1.45	1.34	1.20	1.13	1.07	1.04	1.01	0.99	0.98	0.97	0.95	0.94	0.93	0.92	0.92	0.91	0.90
5	3.89	2.21	1.74	1.52	1.39	1.25	1.17	1.11	1.07	1.05	1.03	1.01	1.00	0.98	0.97	0.96	0.96	0.95	0.94	0.93
8	4.58	2.47	1.91	1.66	1.51	1.35	1.26	1.20	1.15	1.12	1.10	1.09	1.07	1.05	1.04	1.03	1.02	1.02	1.01	1.00
12	5.27	2.72	2.07	1.78	1.62	1.44	1.34	1.27	1.22	1.19	1.17	1.15	1.13	1.11	1.10	1.09	1.08	1.07	1.06	1.05
16	5.82	2.90	2.19	1.87	1.69	1.50	1.39	1.32	1.27	1.24	1.21	1.19	1.18	1.15	1.14	1.13	1.12	1.11	1.10	1.09
20	6.27	3.05	2.28	1.94	1.75	1.55	1.44	1.36	1.31	1.27	1.24	1.22	1.21	1.19	1.17	1.16	1.15	1.14	1.13	1.12
30	7.20	3.34	2.45	2.07	1.86	1.63	1.51	1.43	1.37	1.33	1.30	1.28	1.27	1.24	1.22	1.21	1.20	1.19	1.18	1.17
40	7.93	3.56	2.58	2.16	1.94	1.70	1.57	1.48	1.42	1.38	1.35	1.32	1.31	1.28	1.26	1.25	1.24	1.23	1.21	1.21
50	8.54	3.74	2.68	2.24	2.00	1.74	1.61	1.51	1.45	1.41	1.38	1.36	1.34	1.31	1.29	1.28	1.27	1.26	1.24	1.23
60	9.08	3.88	2.76	2.30	2.05	1.78	1.64	1.54	1.48	1.44	1.41	1.38	1.36	1.34	1.32	1.30	1.29	1.28	1.26	1.25
75	9.81	4.08	2.87	2.37	2.11	1.83	1.69	1.58	1.52	1.47	1.44	1.41	1.39	1.36	1.34	1.33	1.32	1.31	1.29	1.28
100	10.79	4.33	3.02	2.48	2.19	1.90	1.74	1.63	1.56	1.51	1.48	1.45	1.43	1.40	1.38	1.36	1.35	1.34	1.32	1.32
125	11.62	4.54	3.12	2.56	2.26	1.95	1.79	1.67	1.60	1.55	1.51	1.48	1.46	1.43	1.41	1.39	1.38	1.37	1.35	1.34
150	12.40	4.71	3.22	2.62	2.31	1.98	1.82	1.70	1.62	1.57	1.54	1.51	1.49	1.45	1.43	1.41	1.40	1.39	1.37	1.36
175	13.09	4.88	3.30	2.69	2.36	2.02	1.85	1.73	1.65	1.60	1.56	1.53	1.51	1.47	1.45	1.43	1.42	1.41	1.39	1.38
200	13.67	5.03	3.37	2.73	2.39	2.05	1.87	1.75	1.67	1.62	1.57	1.55	1.53	1.49	1.46	1.45	1.43	1.42	1.41	1.39

Table 19-16. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Means of Order 2 (20 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.69	1.72	1.40	1.25	1.16	1.05	0.99	0.94	0.91	0.89	0.88	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.80	0.80
2	3.46	2.06	1.65	1.45	1.33	1.20	1.13	1.07	1.04	1.01	0.99	0.98	0.97	0.95	0.94	0.93	0.92	0.92	0.91	0.90
3	3.99	2.28	1.79	1.57	1.43	1.29	1.21	1.14	1.11	1.08	1.06	1.04	1.03	1.01	1.00	0.99	0.98	0.98	0.97	0.96
4	4.41	2.44	1.90	1.65	1.51	1.35	1.26	1.20	1.15	1.12	1.10	1.09	1.07	1.05	1.04	1.03	1.02	1.02	1.01	1.00
5	4.77	2.57	1.99	1.72	1.57	1.40	1.30	1.24	1.19	1.16	1.14	1.12	1.11	1.09	1.07	1.06	1.05	1.05	1.04	1.03
8	5.60	2.87	2.17	1.86	1.69	1.50	1.39	1.32	1.27	1.23	1.21	1.19	1.18	1.15	1.14	1.13	1.12	1.11	1.10	1.09
12	6.43	3.14	2.34	1.99	1.80	1.58	1.47	1.39	1.33	1.30	1.27	1.25	1.23	1.21	1.19	1.18	1.17	1.16	1.15	1.14
16	7.09	3.35	2.47	2.08	1.87	1.65	1.53	1.44	1.38	1.34	1.31	1.29	1.28	1.25	1.23	1.22	1.21	1.20	1.19	1.18
20	7.65	3.52	2.57	2.16	1.93	1.69	1.57	1.47	1.42	1.38	1.35	1.32	1.31	1.28	1.26	1.25	1.24	1.23	1.21	1.21
30	8.76	3.85	2.75	2.29	2.05	1.78	1.64	1.54	1.48	1.44	1.41	1.38	1.36	1.33	1.32	1.30	1.29	1.28	1.26	1.25
40	9.67	4.09	2.89	2.39	2.13	1.84	1.70	1.59	1.53	1.48	1.45	1.42	1.40	1.37	1.35	1.34	1.32	1.32	1.30	1.29
50	10.40	4.28	3.00	2.47	2.19	1.90	1.74	1.63	1.56	1.51	1.48	1.45	1.43	1.40	1.38	1.36	1.35	1.34	1.33	1.31
60	11.08	4.46	3.09	2.54	2.24	1.93	1.78	1.66	1.59	1.54	1.50	1.48	1.46	1.43	1.40	1.39	1.37	1.36	1.35	1.34
75	11.91	4.68	3.21	2.62	2.31	1.98	1.82	1.70	1.62	1.57	1.54	1.51	1.49	1.45	1.43	1.41	1.40	1.39	1.37	1.36
100	13.13	4.96	3.36	2.73	2.39	2.05	1.87	1.75	1.67	1.61	1.58	1.55	1.52	1.49	1.47	1.45	1.43	1.43	1.41	1.39
125	14.16	5.20	3.49	2.81	2.46	2.10	1.92	1.79	1.70	1.65	1.61	1.58	1.55	1.52	1.49	1.47	1.46	1.45	1.43	1.42
150	15.04	5.40	3.59	2.88	2.51	2.14	1.95	1.82	1.73	1.67	1.63	1.60	1.58	1.54	1.52	1.50	1.48	1.47	1.45	1.44
175	15.82	5.57	3.69	2.94	2.56	2.17	1.98	1.84	1.75	1.70	1.65	1.62	1.60	1.56	1.54	1.51	1.50	1.49	1.47	1.45
200	16.60	5.74	3.76	3.00	2.60	2.21	2.01	1.86	1.78	1.72	1.67	1.64	1.61	1.57	1.55	1.53	1.51	1.50	1.48	1.47

Table 19-16. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Means of Order 2 (20 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.26	2.01	1.62	1.44	1.32	1.20	1.12	1.07	1.03	1.01	0.99	0.98	0.97	0.95	0.94	0.93	0.92	0.92	0.91	0.90
2	4.17	2.39	1.88	1.64	1.50	1.35	1.26	1.19	1.15	1.12	1.10	1.09	1.07	1.05	1.04	1.03	1.02	1.02	1.01	1.00
3	4.80	2.63	2.04	1.76	1.61	1.43	1.34	1.27	1.22	1.19	1.17	1.15	1.13	1.11	1.10	1.09	1.08	1.07	1.06	1.05
4	5.29	2.81	2.15	1.85	1.68	1.49	1.39	1.32	1.27	1.23	1.21	1.19	1.18	1.15	1.14	1.13	1.12	1.11	1.10	1.09
5	5.72	2.96	2.24	1.92	1.74	1.54	1.44	1.36	1.30	1.27	1.24	1.22	1.21	1.19	1.17	1.16	1.15	1.14	1.13	1.12
8	6.71	3.29	2.45	2.08	1.87	1.64	1.52	1.44	1.38	1.34	1.31	1.29	1.28	1.25	1.23	1.22	1.21	1.20	1.19	1.18
12	7.70	3.60	2.63	2.21	1.98	1.73	1.60	1.51	1.45	1.40	1.37	1.35	1.33	1.30	1.29	1.27	1.26	1.25	1.24	1.23
16	8.48	3.83	2.76	2.31	2.06	1.79	1.66	1.55	1.49	1.45	1.41	1.39	1.37	1.34	1.32	1.31	1.30	1.29	1.27	1.26
20	9.14	4.02	2.87	2.38	2.12	1.84	1.70	1.59	1.53	1.48	1.45	1.42	1.40	1.37	1.35	1.34	1.32	1.32	1.30	1.29
30	10.47	4.38	3.07	2.53	2.24	1.93	1.78	1.66	1.59	1.54	1.50	1.48	1.46	1.43	1.40	1.39	1.37	1.36	1.35	1.34
40	11.55	4.66	3.22	2.63	2.32	2.00	1.83	1.71	1.63	1.58	1.54	1.52	1.49	1.46	1.44	1.42	1.41	1.40	1.38	1.37
50	12.45	4.88	3.34	2.72	2.39	2.05	1.87	1.75	1.67	1.61	1.58	1.55	1.52	1.49	1.47	1.45	1.44	1.43	1.41	1.39
60	13.23	5.07	3.44	2.79	2.44	2.09	1.91	1.78	1.70	1.64	1.60	1.57	1.55	1.51	1.49	1.47	1.46	1.45	1.43	1.41
75	14.26	5.31	3.56	2.87	2.51	2.14	1.95	1.82	1.73	1.67	1.63	1.60	1.58	1.54	1.52	1.50	1.48	1.47	1.45	1.43
100	15.72	5.64	3.74	2.99	2.60	2.20	2.01	1.86	1.78	1.72	1.67	1.64	1.61	1.58	1.55	1.53	1.52	1.50	1.48	1.46
125	16.89	5.91	3.87	3.08	2.67	2.26	2.05	1.90	1.81	1.75	1.70	1.67	1.64	1.61	1.58	1.56	1.54	1.53	1.51	1.49
150	17.97	6.15	3.98	3.15	2.73	2.30	2.08	1.93	1.84	1.77	1.73	1.69	1.67	1.63	1.60	1.58	1.56	1.55	1.53	1.51
175	18.95	6.35	4.08	3.22	2.78	2.33	2.11	1.96	1.86	1.79	1.75	1.72	1.68	1.64	1.62	1.60	1.58	1.57	1.54	1.53
200	19.73	6.49	4.15	3.27	2.82	2.37	2.14	1.98	1.88	1.81	1.77	1.73	1.70	1.66	1.63	1.61	1.60	1.58	1.56	1.54

Table 19-16. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Means of Order 2 (40 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.81	1.74	1.42	1.26	1.16	1.05	0.99	0.94	0.91	0.89	0.88	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.80	0.80
2	3.60	2.09	1.66	1.45	1.34	1.20	1.13	1.07	1.04	1.01	0.99	0.98	0.97	0.95	0.94	0.93	0.92	0.92	0.91	0.90
3	4.15	2.31	1.80	1.57	1.44	1.29	1.21	1.15	1.11	1.08	1.06	1.04	1.03	1.01	1.00	0.99	0.98	0.98	0.97	0.96
4	4.58	2.47	1.91	1.66	1.51	1.35	1.26	1.20	1.15	1.12	1.10	1.09	1.07	1.05	1.04	1.03	1.02	1.02	1.01	1.00
5	4.95	2.60	2.00	1.72	1.57	1.40	1.31	1.24	1.19	1.16	1.14	1.12	1.11	1.09	1.07	1.06	1.05	1.05	1.04	1.03
8	5.82	2.90	2.18	1.87	1.69	1.50	1.39	1.32	1.27	1.24	1.21	1.19	1.18	1.15	1.14	1.13	1.12	1.11	1.10	1.09
12	6.68	3.18	2.35	2.00	1.80	1.59	1.47	1.39	1.33	1.30	1.27	1.25	1.23	1.21	1.19	1.18	1.17	1.16	1.15	1.14
16	7.36	3.39	2.48	2.09	1.88	1.65	1.53	1.44	1.38	1.34	1.31	1.29	1.28	1.25	1.23	1.22	1.21	1.20	1.19	1.18
20	7.93	3.56	2.58	2.16	1.94	1.70	1.57	1.48	1.42	1.38	1.35	1.32	1.31	1.28	1.26	1.25	1.24	1.23	1.21	1.21
30	9.10	3.89	2.76	2.30	2.05	1.78	1.65	1.54	1.48	1.44	1.41	1.38	1.36	1.33	1.32	1.30	1.29	1.28	1.26	1.25
40	10.02	4.13	2.90	2.40	2.13	1.85	1.70	1.59	1.53	1.48	1.45	1.42	1.40	1.37	1.35	1.34	1.32	1.32	1.30	1.29
50	10.81	4.34	3.01	2.48	2.19	1.90	1.74	1.63	1.56	1.51	1.48	1.45	1.43	1.40	1.38	1.36	1.35	1.34	1.33	1.31
60	11.48	4.50	3.11	2.54	2.24	1.94	1.78	1.66	1.59	1.54	1.51	1.48	1.46	1.42	1.40	1.39	1.37	1.36	1.35	1.33
75	12.36	4.72	3.22	2.63	2.31	1.98	1.82	1.70	1.62	1.57	1.54	1.51	1.49	1.45	1.43	1.41	1.40	1.39	1.37	1.36
100	13.59	5.01	3.38	2.73	2.40	2.05	1.88	1.75	1.67	1.61	1.58	1.55	1.52	1.49	1.47	1.45	1.44	1.42	1.40	1.39
125	14.65	5.24	3.50	2.82	2.46	2.10	1.92	1.78	1.70	1.65	1.61	1.58	1.55	1.52	1.49	1.48	1.46	1.45	1.43	1.42
150	15.59	5.45	3.60	2.89	2.52	2.14	1.95	1.82	1.73	1.67	1.63	1.60	1.58	1.54	1.52	1.50	1.48	1.47	1.45	1.44
175	16.41	5.62	3.69	2.94	2.56	2.18	1.98	1.84	1.75	1.70	1.66	1.62	1.60	1.56	1.53	1.52	1.50	1.49	1.47	1.45
200	17.11	5.80	3.76	3.00	2.61	2.20	2.01	1.86	1.78	1.71	1.67	1.64	1.61	1.57	1.55	1.53	1.52	1.51	1.48	1.47

Table 19-16. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Means of Order 2 (40 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.46	2.06	1.65	1.45	1.33	1.20	1.13	1.07	1.04	1.01	0.99	0.98	0.97	0.95	0.94	0.93	0.92	0.92	0.91	0.90
2	4.41	2.44	1.90	1.65	1.51	1.35	1.26	1.20	1.15	1.12	1.10	1.09	1.07	1.05	1.04	1.03	1.02	1.02	1.01	1.00
3	5.08	2.68	2.06	1.77	1.61	1.44	1.34	1.27	1.22	1.19	1.17	1.15	1.13	1.11	1.10	1.09	1.08	1.07	1.06	1.05
4	5.60	2.87	2.17	1.86	1.69	1.50	1.39	1.32	1.27	1.23	1.21	1.19	1.18	1.15	1.14	1.13	1.12	1.11	1.10	1.09
5	6.05	3.02	2.27	1.93	1.75	1.54	1.44	1.36	1.30	1.27	1.24	1.22	1.21	1.19	1.17	1.16	1.15	1.14	1.13	1.12
8	7.09	3.35	2.47	2.08	1.87	1.65	1.53	1.44	1.38	1.34	1.31	1.29	1.28	1.25	1.23	1.22	1.21	1.20	1.19	1.18
12	8.13	3.66	2.65	2.22	1.98	1.73	1.60	1.51	1.45	1.40	1.37	1.35	1.33	1.30	1.29	1.27	1.26	1.25	1.24	1.23
16	8.96	3.90	2.78	2.32	2.06	1.80	1.66	1.56	1.49	1.45	1.41	1.39	1.37	1.34	1.32	1.31	1.30	1.29	1.27	1.26
20	9.66	4.09	2.89	2.39	2.13	1.85	1.70	1.59	1.53	1.48	1.45	1.42	1.40	1.37	1.35	1.34	1.32	1.32	1.30	1.29
30	11.07	4.46	3.09	2.54	2.24	1.93	1.78	1.66	1.59	1.54	1.50	1.48	1.46	1.43	1.40	1.39	1.37	1.36	1.35	1.34
40	12.19	4.74	3.24	2.64	2.33	2.00	1.83	1.71	1.63	1.58	1.55	1.52	1.49	1.46	1.44	1.42	1.41	1.40	1.38	1.37
50	13.12	4.97	3.36	2.73	2.39	2.05	1.87	1.75	1.67	1.61	1.58	1.55	1.52	1.49	1.47	1.45	1.44	1.42	1.41	1.39
60	13.95	5.16	3.46	2.80	2.45	2.09	1.91	1.78	1.70	1.64	1.60	1.57	1.55	1.51	1.49	1.47	1.46	1.44	1.42	1.41
75	15.06	5.41	3.59	2.88	2.52	2.14	1.95	1.81	1.73	1.67	1.63	1.60	1.58	1.54	1.52	1.50	1.48	1.47	1.45	1.43
100	16.58	5.74	3.76	3.00	2.60	2.21	2.01	1.86	1.78	1.72	1.67	1.64	1.61	1.58	1.55	1.53	1.52	1.50	1.48	1.47
125	17.81	6.01	3.90	3.09	2.67	2.26	2.05	1.90	1.81	1.75	1.70	1.67	1.64	1.60	1.58	1.56	1.54	1.53	1.51	1.49
150	18.98	6.24	4.00	3.16	2.73	2.30	2.08	1.93	1.84	1.77	1.73	1.69	1.67	1.63	1.60	1.58	1.56	1.55	1.53	1.51
175	19.92	6.45	4.10	3.22	2.78	2.34	2.12	1.96	1.86	1.79	1.75	1.71	1.68	1.64	1.62	1.60	1.58	1.57	1.55	1.53
200	20.86	6.62	4.19	3.28	2.83	2.37	2.14	1.98	1.88	1.82	1.77	1.73	1.70	1.66	1.63	1.61	1.60	1.58	1.56	1.55

Table 19-16. κ -Multipliers for 1-of-3 Intrawell Prediction Limits on Means of Order 2 (40 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.17	2.39	1.88	1.64	1.50	1.35	1.26	1.19	1.15	1.12	1.10	1.09	1.07	1.05	1.04	1.03	1.02	1.02	1.01	1.00
2	5.29	2.81	2.15	1.85	1.68	1.49	1.39	1.32	1.27	1.23	1.21	1.19	1.18	1.15	1.14	1.13	1.12	1.11	1.10	1.09
3	6.08	3.08	2.32	1.98	1.79	1.58	1.47	1.39	1.33	1.30	1.27	1.25	1.23	1.21	1.19	1.18	1.17	1.16	1.15	1.14
4	6.71	3.29	2.45	2.08	1.87	1.64	1.52	1.44	1.38	1.34	1.31	1.29	1.28	1.25	1.23	1.22	1.21	1.20	1.19	1.18
5	7.23	3.46	2.54	2.15	1.93	1.69	1.57	1.47	1.42	1.38	1.35	1.32	1.31	1.28	1.26	1.25	1.24	1.23	1.21	1.21
8	8.48	3.83	2.76	2.31	2.06	1.79	1.66	1.55	1.49	1.45	1.41	1.39	1.37	1.34	1.32	1.31	1.30	1.29	1.27	1.26
12	9.72	4.18	2.96	2.45	2.17	1.88	1.73	1.62	1.55	1.51	1.47	1.45	1.43	1.40	1.37	1.36	1.35	1.34	1.32	1.31
16	10.71	4.44	3.10	2.55	2.26	1.95	1.79	1.67	1.60	1.55	1.51	1.49	1.46	1.43	1.41	1.39	1.38	1.37	1.35	1.34
20	11.54	4.66	3.22	2.63	2.32	2.00	1.83	1.71	1.63	1.58	1.54	1.52	1.49	1.46	1.44	1.42	1.41	1.40	1.38	1.37
30	13.21	5.07	3.44	2.79	2.44	2.09	1.91	1.78	1.70	1.64	1.60	1.57	1.55	1.51	1.49	1.47	1.46	1.45	1.43	1.41
40	14.56	5.38	3.60	2.90	2.53	2.15	1.96	1.83	1.74	1.68	1.64	1.61	1.58	1.55	1.52	1.50	1.49	1.48	1.46	1.44
50	15.70	5.64	3.73	2.99	2.60	2.20	2.01	1.86	1.78	1.72	1.67	1.64	1.61	1.58	1.55	1.53	1.52	1.50	1.48	1.47
60	16.67	5.86	3.84	3.06	2.66	2.25	2.04	1.89	1.80	1.74	1.70	1.66	1.64	1.60	1.57	1.55	1.54	1.52	1.50	1.49
75	17.99	6.14	3.98	3.15	2.73	2.30	2.08	1.93	1.84	1.77	1.73	1.69	1.67	1.63	1.60	1.58	1.56	1.55	1.53	1.51
100	19.80	6.50	4.16	3.27	2.82	2.37	2.14	1.98	1.88	1.81	1.77	1.73	1.70	1.66	1.63	1.61	1.59	1.58	1.56	1.54
125	21.33	6.83	4.31	3.37	2.89	2.42	2.18	2.02	1.92	1.85	1.80	1.76	1.73	1.69	1.66	1.64	1.62	1.61	1.58	1.57
150	22.62	7.09	4.42	3.45	2.96	2.46	2.22	2.05	1.94	1.87	1.82	1.78	1.75	1.71	1.68	1.66	1.64	1.63	1.60	1.59
175	23.91	7.29	4.54	3.52	3.01	2.50	2.25	2.07	1.97	1.89	1.84	1.80	1.77	1.73	1.70	1.68	1.66	1.64	1.62	1.60
200	24.84	7.50	4.63	3.57	3.05	2.53	2.28	2.09	1.99	1.91	1.86	1.82	1.79	1.74	1.71	1.69	1.67	1.66	1.64	1.62

Table 19-17. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 3 (1 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.25	1.04	0.96	0.91	0.88	0.84	0.82	0.81	0.79	0.79	0.78	0.78	0.77	0.77	0.76	0.76	0.76	0.76	0.75	0.75
2	1.78	1.41	1.27	1.20	1.15	1.09	1.06	1.04	1.02	1.01	1.00	0.99	0.99	0.98	0.98	0.97	0.97	0.97	0.96	0.96
3	2.12	1.63	1.45	1.36	1.30	1.23	1.19	1.16	1.14	1.13	1.12	1.11	1.11	1.10	1.09	1.08	1.08	1.08	1.07	1.07
4	2.39	1.79	1.58	1.47	1.41	1.33	1.28	1.25	1.23	1.21	1.20	1.19	1.18	1.17	1.17	1.16	1.16	1.15	1.15	1.14
5	2.62	1.92	1.68	1.56	1.49	1.40	1.35	1.31	1.29	1.27	1.26	1.25	1.24	1.23	1.22	1.22	1.21	1.21	1.20	1.20
8	3.14	2.21	1.90	1.75	1.66	1.55	1.49	1.45	1.42	1.40	1.38	1.37	1.36	1.35	1.34	1.33	1.33	1.32	1.31	1.31
12	3.64	2.47	2.09	1.91	1.80	1.68	1.61	1.56	1.53	1.50	1.49	1.47	1.46	1.45	1.44	1.43	1.42	1.42	1.41	1.40
16	4.05	2.66	2.23	2.03	1.91	1.77	1.69	1.64	1.60	1.57	1.56	1.54	1.53	1.51	1.50	1.49	1.49	1.48	1.47	1.46
20	4.38	2.82	2.34	2.12	1.99	1.84	1.76	1.70	1.66	1.63	1.61	1.59	1.58	1.56	1.55	1.54	1.53	1.53	1.52	1.51
30	5.06	3.11	2.55	2.29	2.13	1.96	1.87	1.80	1.76	1.73	1.70	1.69	1.67	1.65	1.64	1.63	1.62	1.61	1.60	1.59
40	5.59	3.33	2.70	2.41	2.24	2.05	1.95	1.88	1.83	1.79	1.77	1.75	1.74	1.71	1.70	1.69	1.68	1.67	1.66	1.65
50	6.04	3.51	2.82	2.50	2.32	2.12	2.01	1.93	1.88	1.85	1.82	1.80	1.78	1.76	1.75	1.73	1.72	1.72	1.70	1.69
60	6.43	3.67	2.92	2.58	2.39	2.18	2.06	1.98	1.92	1.89	1.86	1.84	1.82	1.80	1.78	1.77	1.76	1.75	1.74	1.73
75	6.95	3.86	3.04	2.68	2.47	2.24	2.12	2.03	1.98	1.94	1.91	1.89	1.87	1.85	1.83	1.81	1.80	1.80	1.78	1.77
100	7.66	4.12	3.21	2.81	2.58	2.33	2.20	2.11	2.04	2.00	1.97	1.95	1.93	1.90	1.88	1.87	1.86	1.85	1.84	1.82
125	8.27	4.33	3.34	2.91	2.66	2.40	2.26	2.16	2.10	2.05	2.02	2.00	1.98	1.95	1.93	1.91	1.90	1.89	1.88	1.87
150	8.80	4.51	3.45	2.99	2.73	2.46	2.31	2.21	2.14	2.09	2.06	2.03	2.01	1.98	1.96	1.95	1.94	1.93	1.91	1.90
175	9.27	4.66	3.54	3.06	2.79	2.50	2.35	2.24	2.17	2.13	2.09	2.06	2.04	2.01	1.99	1.98	1.96	1.95	1.94	1.93
200	9.70	4.80	3.63	3.12	2.84	2.55	2.39	2.28	2.20	2.15	2.12	2.09	2.07	2.04	2.02	2.00	1.99	1.98	1.96	1.95

Table 19-17. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 3 (1 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.65	1.35	1.24	1.17	1.13	1.08	1.05	1.03	1.01	1.00	1.00	0.99	0.99	0.98	0.97	0.97	0.97	0.96	0.96	0.96
2	2.24	1.74	1.55	1.45	1.39	1.32	1.28	1.24	1.22	1.21	1.20	1.19	1.18	1.17	1.16	1.16	1.15	1.15	1.15	1.14
3	2.64	1.98	1.74	1.62	1.54	1.45	1.40	1.36	1.34	1.32	1.31	1.30	1.29	1.28	1.27	1.26	1.26	1.25	1.25	1.24
4	2.96	2.15	1.87	1.73	1.64	1.54	1.49	1.44	1.42	1.40	1.38	1.37	1.36	1.35	1.34	1.33	1.33	1.32	1.31	1.31
5	3.22	2.29	1.98	1.82	1.73	1.62	1.55	1.51	1.48	1.45	1.44	1.43	1.42	1.40	1.39	1.38	1.38	1.37	1.37	1.36
8	3.83	2.60	2.21	2.01	1.90	1.76	1.69	1.63	1.60	1.57	1.55	1.54	1.53	1.51	1.50	1.49	1.48	1.48	1.47	1.46
12	4.43	2.89	2.41	2.18	2.04	1.89	1.81	1.74	1.70	1.67	1.65	1.64	1.62	1.60	1.59	1.58	1.57	1.57	1.56	1.55
16	4.91	3.10	2.56	2.30	2.15	1.98	1.89	1.82	1.77	1.74	1.72	1.70	1.69	1.67	1.65	1.64	1.63	1.63	1.61	1.61
20	5.31	3.27	2.67	2.39	2.23	2.05	1.95	1.87	1.83	1.79	1.77	1.75	1.74	1.71	1.70	1.69	1.68	1.67	1.66	1.65
30	6.11	3.60	2.89	2.57	2.38	2.17	2.06	1.98	1.92	1.89	1.86	1.84	1.82	1.80	1.78	1.77	1.76	1.75	1.74	1.73
40	6.75	3.85	3.05	2.69	2.49	2.26	2.14	2.05	1.99	1.95	1.92	1.90	1.88	1.86	1.84	1.83	1.82	1.81	1.79	1.78
50	7.28	4.05	3.18	2.79	2.57	2.33	2.20	2.10	2.04	2.00	1.97	1.95	1.93	1.90	1.88	1.87	1.86	1.85	1.84	1.82
60	7.75	4.22	3.29	2.87	2.64	2.39	2.25	2.15	2.09	2.04	2.01	1.99	1.97	1.94	1.92	1.90	1.89	1.88	1.87	1.86
75	8.36	4.43	3.42	2.98	2.73	2.45	2.31	2.20	2.14	2.09	2.06	2.03	2.01	1.98	1.96	1.95	1.94	1.93	1.91	1.90
100	9.22	4.72	3.60	3.11	2.84	2.54	2.39	2.27	2.20	2.15	2.12	2.09	2.07	2.04	2.02	2.00	1.99	1.98	1.96	1.95
125	9.95	4.96	3.74	3.22	2.92	2.61	2.45	2.33	2.25	2.20	2.17	2.14	2.11	2.08	2.06	2.04	2.03	2.02	2.00	1.99
150	10.58	5.16	3.86	3.30	3.00	2.67	2.50	2.37	2.30	2.24	2.20	2.17	2.15	2.12	2.09	2.07	2.06	2.05	2.03	2.02
175	11.14	5.33	3.96	3.38	3.06	2.72	2.54	2.41	2.33	2.27	2.23	2.20	2.18	2.14	2.12	2.10	2.09	2.08	2.06	2.04
200	11.65	5.49	4.05	3.44	3.11	2.76	2.58	2.44	2.36	2.30	2.26	2.23	2.21	2.17	2.14	2.13	2.11	2.10	2.08	2.07

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Table 19-17. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 3 (1 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.03	1.65	1.50	1.42	1.36	1.30	1.26	1.23	1.22	1.20	1.19	1.18	1.18	1.17	1.16	1.16	1.15	1.15	1.14	1.14
2	2.71	2.06	1.82	1.70	1.62	1.53	1.48	1.44	1.41	1.39	1.38	1.37	1.36	1.35	1.34	1.33	1.33	1.32	1.31	1.31
3	3.17	2.32	2.02	1.86	1.77	1.66	1.60	1.55	1.52	1.50	1.48	1.47	1.46	1.44	1.43	1.43	1.42	1.41	1.41	1.40
4	3.53	2.51	2.16	1.98	1.88	1.75	1.68	1.63	1.59	1.57	1.55	1.54	1.53	1.51	1.50	1.49	1.48	1.48	1.47	1.46
5	3.83	2.66	2.27	2.08	1.96	1.82	1.75	1.69	1.65	1.62	1.61	1.59	1.58	1.56	1.55	1.54	1.53	1.53	1.52	1.51
8	4.54	3.00	2.51	2.27	2.13	1.97	1.88	1.81	1.77	1.74	1.72	1.70	1.69	1.67	1.65	1.64	1.63	1.63	1.61	1.61
12	5.24	3.31	2.73	2.45	2.28	2.09	1.99	1.92	1.87	1.83	1.81	1.79	1.77	1.75	1.74	1.72	1.72	1.71	1.70	1.69
16	5.80	3.55	2.88	2.57	2.39	2.18	2.07	1.99	1.94	1.90	1.87	1.85	1.84	1.81	1.79	1.78	1.77	1.76	1.75	1.74
20	6.26	3.74	3.01	2.67	2.47	2.25	2.13	2.05	1.99	1.95	1.92	1.90	1.88	1.86	1.84	1.83	1.82	1.81	1.79	1.78
30	7.20	4.10	3.24	2.85	2.63	2.38	2.25	2.15	2.08	2.04	2.01	1.99	1.97	1.94	1.92	1.90	1.89	1.88	1.87	1.86
40	7.95	4.38	3.42	2.98	2.74	2.47	2.32	2.22	2.15	2.10	2.07	2.05	2.02	2.00	1.97	1.96	1.95	1.94	1.92	1.91
50	8.58	4.60	3.56	3.09	2.82	2.54	2.39	2.27	2.20	2.15	2.12	2.09	2.07	2.04	2.02	2.00	1.99	1.98	1.96	1.95
60	9.12	4.79	3.67	3.17	2.90	2.59	2.43	2.32	2.24	2.19	2.16	2.13	2.11	2.07	2.05	2.03	2.02	2.01	1.99	1.98
75	9.84	5.03	3.81	3.28	2.98	2.66	2.50	2.37	2.29	2.24	2.20	2.17	2.15	2.12	2.09	2.07	2.06	2.05	2.03	2.02
100	10.84	5.35	4.01	3.42	3.10	2.75	2.57	2.44	2.36	2.30	2.26	2.23	2.21	2.17	2.14	2.13	2.11	2.10	2.08	2.07
125	11.69	5.62	4.16	3.53	3.19	2.83	2.63	2.50	2.41	2.35	2.31	2.27	2.25	2.21	2.18	2.17	2.15	2.14	2.12	2.10
150	12.43	5.84	4.29	3.63	3.27	2.88	2.68	2.54	2.45	2.39	2.34	2.31	2.28	2.24	2.22	2.20	2.18	2.17	2.15	2.13
175	13.09	6.03	4.40	3.71	3.33	2.93	2.73	2.58	2.48	2.42	2.37	2.34	2.31	2.27	2.24	2.22	2.21	2.20	2.17	2.16
200	13.68	6.21	4.50	3.78	3.39	2.97	2.76	2.61	2.51	2.45	2.40	2.37	2.34	2.30	2.27	2.25	2.23	2.22	2.20	2.18

Table 19-17. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 3 (2 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.78	1.41	1.27	1.20	1.15	1.09	1.06	1.04	1.02	1.01	1.00	0.99	0.99	0.98	0.98	0.97	0.97	0.97	0.96	0.96
2	2.39	1.79	1.58	1.47	1.41	1.33	1.28	1.25	1.23	1.21	1.20	1.19	1.18	1.17	1.17	1.16	1.16	1.15	1.15	1.14
3	2.81	2.03	1.77	1.63	1.55	1.46	1.41	1.37	1.34	1.32	1.31	1.30	1.29	1.28	1.27	1.26	1.26	1.25	1.25	1.24
4	3.14	2.21	1.90	1.75	1.66	1.55	1.49	1.45	1.42	1.40	1.38	1.37	1.36	1.35	1.34	1.33	1.33	1.32	1.31	1.31
5	3.41	2.35	2.01	1.84	1.74	1.62	1.56	1.51	1.48	1.46	1.44	1.43	1.42	1.40	1.39	1.39	1.38	1.37	1.37	1.36
8	4.05	2.66	2.23	2.03	1.91	1.77	1.69	1.64	1.60	1.57	1.56	1.54	1.53	1.51	1.50	1.49	1.49	1.48	1.47	1.46
12	4.68	2.95	2.44	2.19	2.05	1.89	1.81	1.74	1.70	1.67	1.65	1.64	1.62	1.60	1.59	1.58	1.57	1.57	1.56	1.55
16	5.17	3.16	2.58	2.31	2.16	1.98	1.89	1.82	1.77	1.74	1.72	1.70	1.69	1.67	1.65	1.64	1.63	1.63	1.62	1.61
20	5.59	3.33	2.70	2.41	2.24	2.05	1.95	1.88	1.83	1.79	1.77	1.75	1.74	1.71	1.70	1.69	1.68	1.67	1.66	1.65
30	6.43	3.67	2.92	2.58	2.39	2.18	2.06	1.98	1.92	1.89	1.86	1.84	1.82	1.80	1.78	1.77	1.76	1.75	1.74	1.73
40	7.10	3.92	3.08	2.71	2.49	2.26	2.14	2.05	1.99	1.95	1.92	1.90	1.88	1.86	1.84	1.83	1.82	1.81	1.79	1.78
50	7.66	4.12	3.21	2.81	2.58	2.33	2.20	2.11	2.04	2.00	1.97	1.95	1.93	1.90	1.88	1.87	1.86	1.85	1.84	1.82
60	8.15	4.29	3.32	2.89	2.65	2.39	2.25	2.15	2.09	2.04	2.01	1.99	1.97	1.94	1.92	1.90	1.89	1.88	1.87	1.86
75	8.80	4.51	3.45	2.99	2.73	2.46	2.31	2.21	2.14	2.09	2.06	2.03	2.01	1.98	1.96	1.95	1.94	1.93	1.91	1.90
100	9.70	4.80	3.63	3.12	2.84	2.55	2.39	2.28	2.20	2.15	2.12	2.09	2.07	2.04	2.02	2.00	1.99	1.98	1.96	1.95
125	10.46	5.04	3.77	3.23	2.93	2.62	2.45	2.33	2.25	2.20	2.17	2.14	2.11	2.08	2.06	2.04	2.03	2.02	2.00	1.99
150	11.12	5.24	3.89	3.32	3.00	2.67	2.50	2.37	2.30	2.24	2.20	2.17	2.15	2.12	2.09	2.07	2.06	2.05	2.03	2.02
175	11.71	5.42	3.99	3.39	3.06	2.72	2.54	2.41	2.33	2.28	2.23	2.20	2.18	2.15	2.12	2.10	2.09	2.08	2.06	2.04
200	12.26	5.58	4.08	3.46	3.12	2.76	2.58	2.44	2.36	2.30	2.26	2.23	2.21	2.17	2.14	2.13	2.11	2.10	2.08	2.07

Table 19-17. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 3 (2 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.24	1.74	1.55	1.45	1.39	1.32	1.28	1.24	1.22	1.21	1.20	1.19	1.18	1.17	1.16	1.16	1.15	1.15	1.15	1.14
2	2.96	2.15	1.87	1.73	1.64	1.54	1.49	1.44	1.42	1.40	1.38	1.37	1.36	1.35	1.34	1.33	1.33	1.32	1.31	1.31
3	3.44	2.41	2.07	1.89	1.79	1.67	1.61	1.56	1.52	1.50	1.48	1.47	1.46	1.45	1.43	1.43	1.42	1.42	1.41	1.40
4	3.83	2.60	2.21	2.01	1.90	1.76	1.69	1.63	1.60	1.57	1.55	1.54	1.53	1.51	1.50	1.49	1.48	1.48	1.47	1.46
5	4.15	2.76	2.32	2.10	1.98	1.83	1.75	1.69	1.65	1.63	1.61	1.59	1.58	1.56	1.55	1.54	1.53	1.53	1.52	1.51
8	4.91	3.10	2.56	2.30	2.15	1.98	1.89	1.82	1.77	1.74	1.72	1.70	1.69	1.67	1.65	1.64	1.63	1.63	1.61	1.61
12	5.65	3.42	2.77	2.47	2.30	2.10	2.00	1.92	1.87	1.84	1.81	1.79	1.78	1.75	1.74	1.72	1.72	1.71	1.70	1.69
16	6.25	3.65	2.93	2.59	2.40	2.19	2.08	1.99	1.94	1.90	1.87	1.85	1.84	1.81	1.80	1.78	1.77	1.76	1.75	1.74
20	6.75	3.85	3.05	2.69	2.49	2.26	2.14	2.05	1.99	1.95	1.92	1.90	1.88	1.86	1.84	1.83	1.82	1.81	1.79	1.78
30	7.75	4.22	3.29	2.87	2.64	2.39	2.25	2.15	2.09	2.04	2.01	1.99	1.97	1.94	1.92	1.90	1.89	1.88	1.87	1.86
40	8.55	4.50	3.46	3.01	2.75	2.47	2.33	2.22	2.15	2.11	2.07	2.05	2.03	2.00	1.97	1.96	1.95	1.94	1.92	1.91
50	9.22	4.72	3.60	3.11	2.84	2.54	2.39	2.27	2.20	2.15	2.12	2.09	2.07	2.04	2.02	2.00	1.99	1.98	1.96	1.95
60	9.81	4.92	3.72	3.20	2.91	2.60	2.44	2.32	2.24	2.19	2.16	2.13	2.11	2.07	2.05	2.03	2.02	2.01	1.99	1.98
75	10.58	5.16	3.86	3.30	3.00	2.67	2.50	2.37	2.30	2.24	2.20	2.17	2.15	2.12	2.09	2.07	2.06	2.05	2.03	2.02
100	11.65	5.49	4.05	3.44	3.11	2.76	2.58	2.44	2.36	2.30	2.26	2.23	2.21	2.17	2.14	2.13	2.11	2.10	2.08	2.07
125	12.55	5.76	4.21	3.56	3.20	2.83	2.64	2.50	2.41	2.35	2.31	2.27	2.25	2.21	2.19	2.17	2.15	2.14	2.12	2.10
150	13.33	5.98	4.34	3.65	3.28	2.89	2.69	2.54	2.45	2.39	2.34	2.31	2.28	2.24	2.22	2.20	2.18	2.17	2.15	2.13
175	14.04	6.18	4.45	3.73	3.34	2.94	2.73	2.58	2.48	2.42	2.38	2.34	2.31	2.27	2.24	2.22	2.21	2.20	2.17	2.16
200	14.69	6.36	4.54	3.80	3.40	2.98	2.76	2.61	2.51	2.45	2.40	2.37	2.34	2.30	2.27	2.25	2.23	2.22	2.20	2.18

Table 19-17. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 3 (2 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.71	2.06	1.82	1.70	1.62	1.53	1.48	1.44	1.41	1.39	1.38	1.37	1.36	1.35	1.34	1.33	1.33	1.32	1.31	1.31
2	3.53	2.51	2.16	1.98	1.88	1.75	1.68	1.63	1.59	1.57	1.55	1.54	1.53	1.51	1.50	1.49	1.48	1.48	1.47	1.46
3	4.10	2.79	2.36	2.15	2.02	1.88	1.80	1.74	1.70	1.67	1.65	1.63	1.62	1.60	1.59	1.58	1.57	1.57	1.56	1.55
4	4.54	3.00	2.51	2.27	2.13	1.97	1.88	1.81	1.77	1.74	1.72	1.70	1.69	1.67	1.65	1.64	1.63	1.63	1.61	1.61
5	4.92	3.17	2.63	2.37	2.21	2.04	1.94	1.87	1.82	1.79	1.77	1.75	1.73	1.71	1.70	1.69	1.68	1.67	1.66	1.65
8	5.80	3.55	2.88	2.57	2.39	2.18	2.07	1.99	1.94	1.90	1.87	1.85	1.84	1.81	1.79	1.78	1.77	1.76	1.75	1.74
12	6.67	3.90	3.11	2.75	2.54	2.31	2.18	2.09	2.03	1.99	1.96	1.94	1.92	1.89	1.88	1.86	1.85	1.84	1.83	1.82
16	7.36	4.16	3.28	2.88	2.65	2.40	2.26	2.16	2.10	2.06	2.02	2.00	1.98	1.95	1.93	1.92	1.91	1.90	1.88	1.87
20	7.95	4.38	3.42	2.98	2.74	2.47	2.32	2.22	2.15	2.10	2.07	2.05	2.03	2.00	1.97	1.96	1.95	1.94	1.92	1.91
30	9.12	4.79	3.67	3.17	2.90	2.59	2.43	2.32	2.24	2.19	2.16	2.13	2.11	2.07	2.05	2.03	2.02	2.01	1.99	1.98
40	10.06	5.10	3.86	3.31	3.01	2.68	2.51	2.39	2.31	2.26	2.22	2.19	2.16	2.13	2.10	2.09	2.07	2.06	2.04	2.03
50	10.84	5.35	4.01	3.42	3.10	2.75	2.57	2.44	2.36	2.30	2.26	2.23	2.21	2.17	2.14	2.13	2.11	2.10	2.08	2.07
60	11.53	5.57	4.13	3.51	3.17	2.81	2.62	2.49	2.40	2.34	2.30	2.27	2.24	2.20	2.18	2.16	2.14	2.13	2.11	2.10
75	12.43	5.84	4.29	3.63	3.27	2.88	2.68	2.54	2.45	2.39	2.34	2.31	2.28	2.24	2.22	2.20	2.18	2.17	2.15	2.13
100	13.68	6.21	4.50	3.78	3.39	2.97	2.76	2.61	2.51	2.45	2.40	2.37	2.34	2.30	2.27	2.25	2.23	2.22	2.20	2.18
125	14.75	6.51	4.66	3.89	3.48	3.05	2.82	2.66	2.56	2.50	2.45	2.41	2.38	2.34	2.31	2.29	2.27	2.25	2.23	2.22
150	15.66	6.76	4.80	3.99	3.56	3.11	2.87	2.71	2.60	2.53	2.48	2.44	2.41	2.37	2.34	2.32	2.30	2.29	2.26	2.24
175	16.49	6.98	4.92	4.08	3.62	3.16	2.92	2.74	2.64	2.57	2.51	2.47	2.44	2.40	2.37	2.34	2.32	2.31	2.28	2.27
200	17.24	7.18	5.03	4.15	3.68	3.20	2.95	2.77	2.67	2.59	2.54	2.50	2.47	2.42	2.39	2.36	2.35	2.33	2.31	2.29

Table 19-17. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 3 (5 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.62	1.92	1.68	1.56	1.49	1.40	1.35	1.31	1.29	1.27	1.26	1.25	1.24	1.23	1.22	1.22	1.21	1.21	1.20	1.20
2	3.41	2.35	2.01	1.84	1.74	1.62	1.56	1.51	1.48	1.46	1.44	1.43	1.42	1.40	1.39	1.39	1.38	1.37	1.37	1.36
3	3.95	2.62	2.20	2.00	1.88	1.75	1.68	1.62	1.58	1.56	1.54	1.53	1.51	1.50	1.49	1.48	1.47	1.47	1.46	1.45
4	4.38	2.82	2.34	2.12	1.99	1.84	1.76	1.70	1.66	1.63	1.61	1.59	1.58	1.56	1.55	1.54	1.53	1.53	1.52	1.51
5	4.74	2.98	2.46	2.21	2.07	1.91	1.82	1.75	1.71	1.68	1.66	1.65	1.63	1.61	1.60	1.59	1.58	1.58	1.56	1.56
8	5.59	3.33	2.70	2.41	2.24	2.05	1.95	1.88	1.83	1.79	1.77	1.75	1.74	1.71	1.70	1.69	1.68	1.67	1.66	1.65
12	6.43	3.67	2.92	2.58	2.39	2.18	2.06	1.98	1.92	1.89	1.86	1.84	1.82	1.80	1.78	1.77	1.76	1.75	1.74	1.73
16	7.10	3.92	3.08	2.71	2.49	2.26	2.14	2.05	1.99	1.95	1.92	1.90	1.88	1.86	1.84	1.83	1.82	1.81	1.79	1.78
20	7.66	4.12	3.21	2.81	2.58	2.33	2.20	2.11	2.04	2.00	1.97	1.95	1.93	1.90	1.88	1.87	1.86	1.85	1.84	1.82
30	8.80	4.51	3.45	2.99	2.73	2.46	2.31	2.21	2.14	2.09	2.06	2.03	2.01	1.98	1.96	1.95	1.94	1.93	1.91	1.90
40	9.70	4.80	3.63	3.12	2.84	2.55	2.39	2.28	2.20	2.15	2.12	2.09	2.07	2.04	2.02	2.00	1.99	1.98	1.96	1.95
50	10.46	5.04	3.77	3.23	2.93	2.62	2.45	2.33	2.25	2.20	2.17	2.14	2.11	2.08	2.06	2.04	2.03	2.02	2.00	1.99
60	11.12	5.24	3.89	3.32	3.00	2.67	2.50	2.37	2.30	2.24	2.20	2.17	2.15	2.12	2.09	2.07	2.06	2.05	2.03	2.02
75	11.99	5.50	4.04	3.43	3.09	2.74	2.56	2.43	2.35	2.29	2.25	2.22	2.19	2.16	2.13	2.11	2.10	2.09	2.07	2.06
100	13.21	5.85	4.23	3.57	3.21	2.83	2.64	2.50	2.41	2.35	2.31	2.27	2.25	2.21	2.19	2.17	2.15	2.14	2.12	2.10
125	14.23	6.13	4.39	3.68	3.30	2.90	2.70	2.55	2.46	2.40	2.35	2.32	2.29	2.25	2.24	2.19	2.19	2.18	2.15	2.14
150	15.14	6.36	4.52	3.77	3.37	2.96	2.75	2.60	2.50	2.44	2.39	2.35	2.33	2.29	2.26	2.24	2.22	2.21	2.18	2.17
175	15.92	6.57	4.63	3.85	3.44	3.01	2.79	2.63	2.53	2.47	2.42	2.38	2.36	2.31	2.28	2.26	2.25	2.23	2.21	2.19
200	16.65	6.75	4.73	3.92	3.49	3.05	2.83	2.66	2.56	2.49	2.45	2.41	2.38	2.34	2.31	2.29	2.27	2.25	2.23	2.22

Table 19-17. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 3 (5 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.22	2.29	1.98	1.82	1.73	1.62	1.55	1.51	1.48	1.45	1.44	1.43	1.42	1.40	1.39	1.38	1.38	1.37	1.37	1.36
2	4.15	2.76	2.32	2.10	1.98	1.83	1.75	1.69	1.65	1.63	1.61	1.59	1.58	1.56	1.55	1.54	1.53	1.53	1.52	1.51
3	4.80	3.05	2.52	2.27	2.12	1.96	1.87	1.80	1.76	1.73	1.70	1.69	1.67	1.65	1.64	1.63	1.62	1.61	1.60	1.59
4	5.31	3.27	2.67	2.39	2.23	2.05	1.95	1.87	1.83	1.79	1.77	1.75	1.74	1.71	1.70	1.69	1.68	1.67	1.66	1.65
5	5.74	3.45	2.79	2.49	2.31	2.12	2.01	1.93	1.88	1.84	1.82	1.80	1.78	1.76	1.75	1.73	1.72	1.72	1.70	1.69
8	6.75	3.85	3.05	2.69	2.49	2.26	2.14	2.05	1.99	1.95	1.92	1.90	1.88	1.86	1.84	1.83	1.82	1.81	1.79	1.78
12	7.75	4.22	3.29	2.87	2.64	2.39	2.25	2.15	2.09	2.04	2.01	1.99	1.97	1.94	1.92	1.90	1.89	1.88	1.87	1.86
16	8.55	4.50	3.46	3.01	2.75	2.47	2.33	2.22	2.15	2.11	2.07	2.05	2.03	2.00	1.97	1.96	1.95	1.94	1.92	1.91
20	9.22	4.72	3.60	3.11	2.84	2.54	2.39	2.27	2.20	2.15	2.12	2.09	2.07	2.04	2.02	2.00	1.99	1.98	1.96	1.95
30	10.58	5.16	3.86	3.30	3.00	2.67	2.50	2.37	2.30	2.24	2.20	2.17	2.15	2.12	2.09	2.07	2.06	2.05	2.03	2.02
40	11.65	5.49	4.05	3.44	3.11	2.76	2.58	2.44	2.36	2.30	2.26	2.23	2.21	2.17	2.14	2.13	2.11	2.10	2.08	2.07
50	12.55	5.76	4.21	3.56	3.20	2.83	2.64	2.50	2.41	2.35	2.31	2.27	2.25	2.21	2.19	2.17	2.15	2.14	2.12	2.10
60	13.33	5.98	4.34	3.65	3.28	2.89	2.69	2.54	2.45	2.39	2.34	2.31	2.28	2.24	2.22	2.20	2.18	2.17	2.15	2.13
75	14.38	6.27	4.50	3.76	3.37	2.96	2.75	2.59	2.50	2.44	2.39	2.35	2.33	2.29	2.26	2.24	2.22	2.21	2.18	2.17
100	15.82	6.67	4.71	3.92	3.49	3.05	2.83	2.66	2.56	2.50	2.45	2.41	2.38	2.34	2.31	2.29	2.27	2.25	2.23	2.22
125	17.04	6.98	4.88	4.04	3.59	3.12	2.89	2.72	2.61	2.54	2.49	2.45	2.42	2.38	2.35	2.31	2.31	2.29	2.27	2.25
150	18.12	7.25	5.03	4.14	3.67	3.18	2.94	2.76	2.65	2.58	2.53	2.49	2.46	2.41	2.37	2.35	2.34	2.32	2.30	2.28
175	19.09	7.47	5.15	4.22	3.74	3.23	2.98	2.80	2.69	2.61	2.56	2.51	2.48	2.44	2.40	2.38	2.36	2.35	2.32	2.30
200	19.97	7.67	5.26	4.30	3.79	3.28	3.02	2.83	2.72	2.64	2.59	2.54	2.51	2.46	2.43	2.40	2.38	2.37	2.34	2.32

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Table 19-17. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 3 (5 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.83	2.66	2.27	2.08	1.96	1.82	1.75	1.69	1.65	1.62	1.61	1.59	1.58	1.56	1.55	1.54	1.53	1.53	1.52	1.51
2	4.92	3.17	2.63	2.37	2.21	2.04	1.94	1.87	1.82	1.79	1.77	1.75	1.73	1.71	1.70	1.69	1.68	1.67	1.66	1.65
3	5.67	3.49	2.85	2.54	2.36	2.16	2.06	1.97	1.92	1.89	1.86	1.84	1.82	1.80	1.78	1.77	1.76	1.75	1.74	1.73
4	6.26	3.74	3.01	2.67	2.47	2.25	2.13	2.05	1.99	1.95	1.92	1.90	1.88	1.86	1.84	1.83	1.82	1.81	1.79	1.78
5	6.76	3.94	3.14	2.77	2.56	2.32	2.20	2.10	2.04	2.00	1.97	1.95	1.93	1.90	1.88	1.87	1.86	1.85	1.83	1.82
8	7.95	4.38	3.42	2.98	2.74	2.47	2.32	2.22	2.15	2.10	2.07	2.05	2.03	2.00	1.97	1.96	1.95	1.94	1.92	1.91
12	9.12	4.79	3.67	3.17	2.90	2.59	2.43	2.32	2.24	2.19	2.16	2.13	2.11	2.07	2.05	2.03	2.02	2.01	1.99	1.98
16	10.06	5.10	3.86	3.31	3.01	2.68	2.51	2.39	2.31	2.26	2.22	2.19	2.16	2.13	2.10	2.09	2.07	2.06	2.04	2.03
20	10.84	5.35	4.01	3.42	3.10	2.75	2.57	2.44	2.36	2.30	2.26	2.23	2.21	2.17	2.14	2.13	2.11	2.10	2.08	2.07
30	12.43	5.84	4.29	3.63	3.27	2.88	2.68	2.54	2.45	2.39	2.34	2.31	2.28	2.24	2.22	2.20	2.18	2.17	2.15	2.13
40	13.68	6.21	4.50	3.78	3.39	2.97	2.76	2.61	2.51	2.45	2.40	2.37	2.34	2.30	2.27	2.25	2.23	2.22	2.20	2.18
50	14.75	6.51	4.66	3.89	3.48	3.05	2.82	2.66	2.56	2.50	2.45	2.41	2.38	2.34	2.31	2.29	2.27	2.25	2.23	2.22
60	15.66	6.76	4.80	3.99	3.56	3.11	2.87	2.71	2.60	2.53	2.48	2.44	2.41	2.37	2.34	2.32	2.30	2.29	2.26	2.24
75	16.87	7.08	4.98	4.11	3.65	3.18	2.94	2.76	2.65	2.58	2.53	2.49	2.45	2.41	2.38	2.35	2.34	2.32	2.30	2.28
100	18.58	7.52	5.21	4.28	3.78	3.27	3.01	2.83	2.72	2.64	2.58	2.54	2.51	2.46	2.43	2.40	2.38	2.37	2.34	2.32
125	20.02	7.86	5.40	4.40	3.88	3.35	3.08	2.88	2.77	2.69	2.63	2.58	2.55	2.49	2.46	2.44	2.42	2.40	2.38	2.36
150	21.29	8.15	5.55	4.51	3.96	3.41	3.13	2.93	2.81	2.73	2.66	2.62	2.58	2.53	2.49	2.47	2.45	2.43	2.40	2.39
175	22.41	8.40	5.69	4.60	4.03	3.46	3.17	2.96	2.84	2.75	2.69	2.64	2.60	2.56	2.52	2.49	2.47	2.46	2.43	2.41
200	23.44	8.64	5.80	4.68	4.10	3.50	3.21	2.99	2.87	2.78	2.72	2.67	2.63	2.58	2.54	2.52	2.49	2.48	2.45	2.43

Table 19-17. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 3 (10 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.41	2.35	2.01	1.84	1.74	1.62	1.56	1.51	1.48	1.46	1.44	1.43	1.42	1.40	1.39	1.39	1.38	1.37	1.37	1.36
2	4.38	2.82	2.34	2.12	1.99	1.84	1.76	1.70	1.66	1.63	1.61	1.59	1.58	1.56	1.55	1.54	1.53	1.53	1.52	1.51
3	5.06	3.11	2.55	2.29	2.13	1.96	1.87	1.80	1.76	1.73	1.70	1.69	1.67	1.65	1.64	1.63	1.62	1.61	1.60	1.59
4	5.59	3.33	2.70	2.41	2.24	2.05	1.95	1.88	1.83	1.79	1.77	1.75	1.74	1.71	1.70	1.69	1.68	1.67	1.66	1.65
5	6.04	3.51	2.82	2.50	2.32	2.12	2.01	1.93	1.88	1.85	1.82	1.80	1.78	1.76	1.75	1.73	1.72	1.72	1.70	1.69
8	7.10	3.92	3.08	2.71	2.49	2.26	2.14	2.05	1.99	1.95	1.92	1.90	1.88	1.86	1.84	1.83	1.82	1.81	1.79	1.78
12	8.16	4.29	3.32	2.89	2.65	2.39	2.25	2.15	2.09	2.04	2.01	1.99	1.97	1.94	1.92	1.90	1.89	1.88	1.87	1.86
16	8.99	4.57	3.49	3.02	2.76	2.48	2.33	2.22	2.15	2.11	2.07	2.05	2.03	2.00	1.97	1.96	1.95	1.94	1.92	1.91
20	9.70	4.80	3.63	3.12	2.84	2.55	2.39	2.28	2.20	2.15	2.12	2.09	2.07	2.04	2.02	2.00	1.99	1.98	1.96	1.95
30	11.12	5.24	3.89	3.32	3.00	2.67	2.50	2.37	2.30	2.24	2.20	2.17	2.15	2.12	2.09	2.07	2.06	2.05	2.03	2.02
40	12.25	5.57	4.08	3.46	3.12	2.76	2.58	2.44	2.36	2.30	2.26	2.23	2.21	2.17	2.15	2.13	2.11	2.10	2.08	2.07
50	13.20	5.84	4.23	3.57	3.21	2.83	2.64	2.50	2.41	2.35	2.31	2.27	2.25	2.21	2.19	2.17	2.15	2.14	2.12	2.10
60	14.03	6.07	4.36	3.66	3.28	2.89	2.69	2.54	2.45	2.39	2.34	2.31	2.28	2.24	2.22	2.19	2.18	2.17	2.15	2.13
75	15.12	6.36	4.53	3.78	3.37	2.96	2.75	2.59	2.50	2.44	2.39	2.35	2.33	2.29	2.26	2.24	2.22	2.21	2.18	2.17
100	16.66	6.77	4.74	3.93	3.50	3.05	2.83	2.66	2.56	2.49	2.45	2.41	2.38	2.34	2.31	2.29	2.27	2.25	2.23	2.22
125	17.96	7.09	4.91	4.05	3.59	3.13	2.89	2.70	2.61	2.54	2.49	2.45	2.42	2.38	2.35	2.32	2.31	2.29	2.27	2.25
150	19.09	7.37	5.06	4.15	3.67	3.18	2.94	2.76	2.65	2.58	2.53	2.49	2.46	2.41	2.38	2.35	2.34	2.32	2.30	2.28
175	20.10	7.61	5.18	4.24	3.74	3.24	2.98	2.80	2.69	2.61	2.56	2.52	2.48	2.44	2.40	2.38	2.36	2.35	2.32	2.30
200	21.01	7.82	5.29	4.31	3.80	3.28	3.02	2.83	2.72	2.64	2.58	2.54	2.51	2.46	2.43	2.40	2.38	2.37	2.34	2.32

Table 19-17. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 3 (10 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.15	2.76	2.32	2.10	1.98	1.83	1.75	1.69	1.65	1.63	1.61	1.59	1.58	1.56	1.55	1.54	1.53	1.53	1.52	1.51
2	5.31	3.27	2.67	2.39	2.23	2.05	1.95	1.87	1.83	1.79	1.77	1.75	1.74	1.71	1.70	1.69	1.68	1.67	1.66	1.65
3	6.11	3.60	2.89	2.57	2.38	2.17	2.06	1.98	1.92	1.89	1.86	1.84	1.82	1.80	1.78	1.77	1.76	1.75	1.74	1.73
4	6.75	3.85	3.05	2.69	2.49	2.26	2.14	2.05	1.99	1.95	1.92	1.90	1.88	1.86	1.84	1.83	1.82	1.81	1.79	1.78
5	7.28	4.05	3.18	2.79	2.57	2.33	2.20	2.10	2.04	2.00	1.97	1.95	1.93	1.90	1.88	1.87	1.86	1.85	1.83	1.82
8	8.55	4.50	3.46	3.01	2.75	2.47	2.33	2.22	2.15	2.11	2.07	2.05	2.03	2.00	1.97	1.96	1.95	1.94	1.92	1.91
12	9.81	4.92	3.72	3.20	2.91	2.60	2.44	2.32	2.24	2.19	2.16	2.13	2.11	2.07	2.05	2.03	2.02	2.01	1.99	1.98
16	10.81	5.23	3.90	3.33	3.02	2.69	2.52	2.39	2.31	2.26	2.22	2.19	2.16	2.13	2.10	2.09	2.07	2.06	2.04	2.03
20	11.65	5.49	4.05	3.44	3.11	2.76	2.58	2.44	2.36	2.30	2.26	2.23	2.21	2.17	2.14	2.13	2.11	2.10	2.08	2.07
30	13.33	5.98	4.34	3.65	3.28	2.89	2.69	2.54	2.45	2.39	2.34	2.31	2.28	2.24	2.22	2.20	2.18	2.17	2.15	2.13
40	14.68	6.36	4.54	3.80	3.40	2.98	2.76	2.61	2.51	2.45	2.40	2.37	2.34	2.30	2.27	2.25	2.23	2.22	2.20	2.18
50	15.82	6.67	4.71	3.91	3.49	3.05	2.83	2.66	2.56	2.50	2.45	2.41	2.38	2.34	2.31	2.29	2.27	2.25	2.23	2.22
60	16.82	6.92	4.85	4.01	3.57	3.11	2.88	2.71	2.60	2.53	2.48	2.44	2.41	2.37	2.34	2.32	2.30	2.29	2.26	2.24
75	18.13	7.25	5.03	4.14	3.67	3.18	2.94	2.76	2.65	2.58	2.53	2.49	2.45	2.41	2.38	2.35	2.34	2.32	2.30	2.28
100	19.98	7.66	5.27	4.30	3.79	3.28	3.02	2.83	2.72	2.64	2.59	2.54	2.51	2.46	2.43	2.40	2.38	2.37	2.34	2.32
125	21.50	8.03	5.45	4.42	3.89	3.35	3.08	2.88	2.77	2.69	2.63	2.58	2.55	2.50	2.46	2.44	2.42	2.40	2.38	2.36
150	22.85	8.33	5.61	4.53	3.98	3.41	3.13	2.93	2.81	2.72	2.66	2.62	2.58	2.53	2.49	2.47	2.45	2.43	2.40	2.39
175	24.02	8.61	5.74	4.63	4.04	3.46	3.17	2.96	2.84	2.76	2.69	2.65	2.61	2.56	2.52	2.49	2.47	2.46	2.43	2.41
200	25.20	8.85	5.80	4.70	4.11	3.51	3.21	3.00	2.87	2.79	2.72	2.67	2.63	2.58	2.54	2.52	2.49	2.48	2.45	2.43

Table 19-17. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 3 (10 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.92	3.17	2.63	2.37	2.21	2.04	1.94	1.87	1.82	1.79	1.77	1.75	1.73	1.71	1.70	1.69	1.68	1.67	1.66	1.65
2	6.26	3.74	3.01	2.67	2.47	2.25	2.13	2.05	1.99	1.95	1.92	1.90	1.88	1.86	1.84	1.83	1.82	1.81	1.79	1.78
3	7.20	4.10	3.24	2.85	2.63	2.38	2.25	2.15	2.08	2.04	2.01	1.99	1.97	1.94	1.92	1.90	1.89	1.88	1.87	1.86
4	7.95	4.38	3.42	2.98	2.74	2.47	2.32	2.22	2.15	2.10	2.07	2.05	2.03	2.00	1.97	1.96	1.95	1.94	1.92	1.91
5	8.57	4.60	3.56	3.09	2.82	2.54	2.39	2.27	2.20	2.15	2.12	2.09	2.07	2.04	2.02	2.00	1.99	1.98	1.96	1.95
8	10.06	5.10	3.86	3.31	3.01	2.68	2.51	2.39	2.31	2.26	2.22	2.19	2.16	2.13	2.10	2.09	2.07	2.06	2.04	2.03
12	11.53	5.57	4.13	3.51	3.17	2.81	2.62	2.49	2.40	2.34	2.30	2.27	2.24	2.20	2.18	2.16	2.14	2.13	2.11	2.10
16	12.70	5.92	4.33	3.66	3.29	2.90	2.70	2.56	2.46	2.40	2.36	2.32	2.30	2.26	2.23	2.21	2.19	2.18	2.16	2.14
20	13.68	6.21	4.50	3.78	3.39	2.98	2.76	2.61	2.51	2.45	2.40	2.37	2.34	2.30	2.27	2.25	2.23	2.22	2.20	2.18
30	15.66	6.76	4.80	3.99	3.56	3.11	2.87	2.71	2.60	2.53	2.48	2.44	2.41	2.37	2.34	2.32	2.30	2.29	2.26	2.24
40	17.24	7.18	5.03	4.15	3.68	3.20	2.95	2.77	2.67	2.59	2.54	2.50	2.47	2.42	2.39	2.36	2.35	2.33	2.31	2.29
50	18.57	7.51	5.21	4.28	3.78	3.27	3.01	2.83	2.72	2.64	2.58	2.54	2.51	2.46	2.43	2.40	2.38	2.37	2.34	2.32
60	19.75	7.80	5.36	4.38	3.86	3.33	3.07	2.87	2.76	2.68	2.62	2.57	2.54	2.49	2.46	2.43	2.41	2.40	2.37	2.35
75	21.27	8.16	5.55	4.51	3.97	3.41	3.13	2.92	2.81	2.72	2.66	2.62	2.58	2.53	2.49	2.47	2.45	2.43	2.40	2.39
100	23.44	8.64	5.80	4.68	4.10	3.50	3.21	2.99	2.87	2.78	2.72	2.67	2.63	2.58	2.54	2.52	2.49	2.48	2.45	2.43
125	25.25	9.04	5.99	4.82	4.20	3.58	3.27	3.05	2.92	2.83	2.76	2.71	2.67	2.62	2.58	2.55	2.53	2.51	2.48	2.46
150	26.84	9.38	6.14	4.94	4.29	3.64	3.32	3.11	2.96	2.86	2.80	2.75	2.71	2.65	2.61	2.58	2.56	2.54	2.51	2.49
175	28.24	9.70	6.27	5.03	4.37	3.70	3.36	3.14	3.00	2.89	2.83	2.77	2.73	2.67	2.63	2.60	2.58	2.56	2.53	2.51
200	29.53	9.96	6.39	5.11	4.43	3.74	3.40	3.18	3.02	2.92	2.85	2.80	2.76	2.70	2.66	2.63	2.60	2.58	2.55	2.53

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Table 19-17. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 3 (20 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.38	2.82	2.34	2.12	1.99	1.84	1.76	1.70	1.66	1.63	1.61	1.59	1.58	1.56	1.55	1.54	1.53	1.53	1.52	1.51
2	5.59	3.33	2.70	2.41	2.24	2.05	1.95	1.88	1.83	1.79	1.77	1.75	1.74	1.71	1.70	1.69	1.68	1.67	1.66	1.65
3	6.44	3.67	2.92	2.58	2.39	2.18	2.06	1.98	1.92	1.89	1.86	1.84	1.82	1.80	1.78	1.77	1.76	1.75	1.74	1.73
4	7.10	3.92	3.08	2.71	2.49	2.26	2.14	2.05	1.99	1.95	1.92	1.90	1.88	1.86	1.84	1.83	1.82	1.81	1.79	1.78
5	7.67	4.12	3.21	2.81	2.58	2.33	2.20	2.11	2.04	2.00	1.97	1.95	1.93	1.90	1.88	1.87	1.86	1.85	1.84	1.82
8	8.99	4.57	3.49	3.02	2.76	2.48	2.33	2.22	2.15	2.11	2.07	2.05	2.03	2.00	1.97	1.96	1.95	1.94	1.92	1.91
12	10.32	5.00	3.74	3.21	2.92	2.60	2.44	2.32	2.25	2.19	2.16	2.13	2.11	2.07	2.05	2.03	2.02	2.01	1.99	1.98
16	11.37	5.32	3.93	3.35	3.03	2.69	2.52	2.39	2.31	2.26	2.22	2.19	2.16	2.13	2.10	2.09	2.07	2.06	2.04	2.03
20	12.25	5.58	4.08	3.46	3.12	2.76	2.58	2.44	2.36	2.30	2.26	2.23	2.21	2.17	2.14	2.13	2.11	2.10	2.08	2.07
30	14.04	6.08	4.36	3.66	3.28	2.89	2.69	2.54	2.45	2.39	2.34	2.31	2.28	2.24	2.22	2.20	2.18	2.17	2.15	2.13
40	15.47	6.46	4.58	3.81	3.40	2.98	2.77	2.61	2.51	2.45	2.40	2.37	2.34	2.30	2.27	2.25	2.23	2.22	2.19	2.18
50	16.66	6.77	4.74	3.93	3.50	3.05	2.83	2.66	2.57	2.50	2.45	2.41	2.38	2.34	2.31	2.29	2.27	2.25	2.23	2.22
60	17.71	7.03	4.88	4.03	3.58	3.11	2.88	2.71	2.60	2.54	2.48	2.44	2.41	2.37	2.34	2.32	2.30	2.29	2.26	2.24
75	19.07	7.36	5.05	4.15	3.67	3.19	2.94	2.76	2.65	2.58	2.53	2.49	2.46	2.41	2.38	2.35	2.33	2.32	2.30	2.28
100	21.01	7.82	5.30	4.31	3.80	3.28	3.02	2.83	2.72	2.64	2.58	2.54	2.51	2.46	2.43	2.40	2.38	2.37	2.34	2.32
125	22.68	8.17	5.48	4.44	3.90	3.35	3.08	2.88	2.77	2.69	2.63	2.58	2.55	2.50	2.46	2.44	2.42	2.40	2.38	2.36
150	24.08	8.53	5.65	4.55	3.98	3.42	3.13	2.93	2.81	2.72	2.66	2.61	2.58	2.53	2.49	2.47	2.45	2.43	2.40	2.38
175	25.31	8.79	5.78	4.64	4.05	3.46	3.18	2.97	2.84	2.75	2.69	2.65	2.61	2.56	2.52	2.49	2.47	2.46	2.43	2.41
200	26.37	9.05	5.89	4.72	4.11	3.52	3.21	3.00	2.87	2.78	2.72	2.67	2.64	2.58	2.54	2.52	2.49	2.48	2.45	2.43

Table 19-17. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 3 (20 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	5.31	3.27	2.67	2.39	2.23	2.05	1.95	1.87	1.83	1.79	1.77	1.75	1.74	1.71	1.70	1.69	1.68	1.67	1.66	1.65
2	6.75	3.85	3.05	2.69	2.49	2.26	2.14	2.05	1.99	1.95	1.92	1.90	1.88	1.86	1.84	1.83	1.82	1.81	1.79	1.78
3	7.75	4.22	3.29	2.87	2.64	2.39	2.25	2.15	2.09	2.04	2.01	1.99	1.97	1.94	1.92	1.90	1.89	1.88	1.87	1.86
4	8.55	4.50	3.46	3.01	2.75	2.47	2.33	2.22	2.15	2.11	2.07	2.05	2.03	2.00	1.97	1.96	1.95	1.94	1.92	1.91
5	9.22	4.72	3.60	3.11	2.84	2.54	2.39	2.27	2.20	2.15	2.12	2.09	2.07	2.04	2.02	2.00	1.99	1.98	1.96	1.95
8	10.81	5.23	3.90	3.34	3.02	2.69	2.52	2.39	2.31	2.26	2.22	2.19	2.16	2.13	2.10	2.09	2.07	2.06	2.04	2.03
12	12.39	5.71	4.18	3.54	3.19	2.82	2.63	2.49	2.40	2.34	2.30	2.27	2.24	2.20	2.18	2.16	2.14	2.13	2.11	2.10
16	13.66	6.07	4.38	3.68	3.30	2.91	2.70	2.56	2.47	2.40	2.36	2.32	2.30	2.26	2.23	2.21	2.19	2.18	2.16	2.14
20	14.72	6.36	4.55	3.80	3.40	2.98	2.77	2.61	2.51	2.45	2.40	2.37	2.34	2.30	2.27	2.25	2.23	2.22	2.20	2.18
30	16.85	6.93	4.85	4.02	3.57	3.11	2.88	2.71	2.60	2.53	2.48	2.44	2.41	2.37	2.34	2.32	2.30	2.29	2.26	2.24
40	18.54	7.35	5.08	4.17	3.69	3.20	2.96	2.78	2.67	2.59	2.54	2.50	2.47	2.42	2.39	2.36	2.35	2.33	2.31	2.29
50	20.00	7.70	5.26	4.30	3.79	3.28	3.02	2.83	2.72	2.64	2.58	2.54	2.51	2.46	2.43	2.40	2.38	2.37	2.34	2.32
60	21.27	8.00	5.42	4.41	3.87	3.34	3.07	2.88	2.76	2.68	2.62	2.58	2.54	2.49	2.46	2.43	2.41	2.40	2.37	2.35
75	22.85	8.37	5.60	4.54	3.98	3.41	3.13	2.93	2.80	2.72	2.66	2.62	2.58	2.53	2.49	2.47	2.45	2.43	2.40	2.39
100	25.22	8.88	5.87	4.70	4.11	3.51	3.21	3.00	2.87	2.78	2.72	2.67	2.63	2.58	2.54	2.52	2.49	2.48	2.45	2.43
125	27.07	9.32	6.06	4.84	4.22	3.58	3.27	3.05	2.92	2.83	2.76	2.71	2.68	2.62	2.58	2.55	2.53	2.51	2.48	2.46
150	28.83	9.67	6.24	4.95	4.31	3.65	3.32	3.10	2.96	2.86	2.80	2.75	2.71	2.65	2.61	2.58	2.56	2.54	2.51	2.49
175	30.23	9.98	6.39	5.05	4.37	3.70	3.37	3.13	2.99	2.89	2.82	2.77	2.74	2.68	2.64	2.60	2.58	2.56	2.53	2.51
200	31.64	10.28	6.53	5.14	4.44	3.75	3.41	3.16	3.02	2.92	2.85	2.80	2.76	2.70	2.66	2.63	2.60	2.58	2.55	2.53

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Table 19-17. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 3 (20 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	6.26	3.74	3.01	2.67	2.47	2.25	2.13	2.05	1.99	1.95	1.92	1.90	1.88	1.86	1.84	1.83	1.82	1.81	1.79	1.78
2	7.95	4.38	3.42	2.98	2.74	2.47	2.32	2.22	2.15	2.10	2.07	2.05	2.03	2.00	1.97	1.96	1.95	1.94	1.92	1.91
3	9.12	4.79	3.67	3.17	2.90	2.59	2.44	2.32	2.24	2.19	2.16	2.13	2.11	2.07	2.05	2.03	2.02	2.01	1.99	1.98
4	10.06	5.10	3.86	3.31	3.01	2.68	2.51	2.39	2.31	2.25	2.22	2.19	2.16	2.13	2.10	2.09	2.07	2.06	2.04	2.03
5	10.85	5.35	4.01	3.42	3.10	2.75	2.57	2.44	2.36	2.30	2.26	2.23	2.21	2.17	2.14	2.13	2.11	2.10	2.08	2.07
8	12.71	5.92	4.33	3.66	3.29	2.90	2.70	2.56	2.46	2.40	2.36	2.32	2.30	2.26	2.23	2.21	2.19	2.18	2.16	2.14
12	14.57	6.45	4.63	3.87	3.46	3.03	2.81	2.65	2.55	2.49	2.44	2.40	2.37	2.33	2.30	2.28	2.26	2.25	2.22	2.21
16	16.04	6.86	4.85	4.03	3.59	3.13	2.89	2.72	2.62	2.55	2.50	2.46	2.43	2.38	2.35	2.33	2.31	2.30	2.27	2.25
20	17.29	7.18	5.03	4.15	3.68	3.20	2.95	2.78	2.67	2.59	2.54	2.50	2.47	2.42	2.39	2.36	2.35	2.33	2.31	2.29
30	19.80	7.81	5.36	4.38	3.86	3.33	3.07	2.87	2.76	2.68	2.62	2.57	2.54	2.49	2.46	2.43	2.41	2.40	2.37	2.35
40	21.80	8.29	5.61	4.55	3.99	3.43	3.14	2.94	2.82	2.74	2.68	2.63	2.59	2.54	2.50	2.48	2.46	2.44	2.41	2.39
50	23.47	8.68	5.81	4.68	4.10	3.50	3.21	3.00	2.87	2.78	2.72	2.67	2.63	2.58	2.54	2.51	2.49	2.48	2.45	2.43
60	24.96	9.01	5.98	4.80	4.19	3.57	3.26	3.04	2.91	2.82	2.75	2.71	2.67	2.61	2.57	2.54	2.52	2.50	2.48	2.46
75	26.89	9.45	6.19	4.93	4.29	3.64	3.32	3.10	2.96	2.86	2.80	2.75	2.71	2.65	2.61	2.58	2.56	2.54	2.51	2.49
100	29.53	10.02	6.46	5.12	4.43	3.74	3.41	3.16	3.02	2.92	2.85	2.80	2.76	2.70	2.66	2.63	2.60	2.58	2.55	2.53
125	31.99	10.46	6.68	5.26	4.54	3.82	3.47	3.22	3.07	2.97	2.89	2.84	2.80	2.74	2.69	2.66	2.64	2.62	2.58	2.56
150	33.75	10.90	6.88	5.38	4.64	3.89	3.52	3.26	3.11	3.00	2.93	2.87	2.83	2.77	2.72	2.69	2.66	2.65	2.61	2.59
175	35.86	11.25	7.03	5.49	4.70	3.94	3.56	3.30	3.14	3.03	2.96	2.90	2.86	2.79	2.75	2.71	2.69	2.67	2.63	2.61
200	37.27	11.51	7.16	5.58	4.77	3.99	3.60	3.33	3.17	3.06	2.98	2.92	2.88	2.81	2.77	2.73	2.71	2.69	2.65	2.63

Table 19-17. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 3 (40 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	5.59	3.33	2.70	2.41	2.24	2.05	1.95	1.88	1.83	1.79	1.77	1.75	1.74	1.71	1.70	1.69	1.68	1.67	1.66	1.65
2	7.10	3.92	3.08	2.71	2.49	2.26	2.14	2.05	1.99	1.95	1.92	1.90	1.88	1.86	1.84	1.83	1.82	1.81	1.79	1.78
3	8.16	4.29	3.32	2.89	2.65	2.39	2.25	2.15	2.09	2.04	2.01	1.99	1.97	1.94	1.92	1.90	1.89	1.88	1.87	1.86
4	8.99	4.57	3.49	3.02	2.76	2.48	2.33	2.22	2.15	2.11	2.07	2.05	2.03	2.00	1.97	1.96	1.95	1.94	1.92	1.91
5	9.70	4.80	3.63	3.12	2.84	2.55	2.39	2.28	2.20	2.15	2.12	2.09	2.07	2.04	2.02	2.00	1.99	1.98	1.96	1.95
8	11.37	5.32	3.93	3.35	3.03	2.69	2.52	2.39	2.31	2.26	2.22	2.19	2.16	2.13	2.10	2.09	2.07	2.06	2.04	2.03
12	13.03	5.80	4.21	3.55	3.19	2.82	2.63	2.49	2.40	2.34	2.30	2.27	2.24	2.20	2.18	2.16	2.14	2.13	2.11	2.10
16	14.35	6.16	4.41	3.69	3.31	2.91	2.71	2.56	2.47	2.40	2.36	2.32	2.30	2.26	2.23	2.21	2.19	2.18	2.16	2.14
20	15.46	6.46	4.57	3.81	3.40	2.98	2.77	2.61	2.51	2.45	2.40	2.37	2.34	2.30	2.27	2.25	2.23	2.22	2.19	2.18
30	17.71	7.03	4.88	4.03	3.58	3.11	2.88	2.71	2.60	2.53	2.48	2.44	2.41	2.37	2.34	2.32	2.30	2.28	2.26	2.24
40	19.51	7.46	5.11	4.19	3.70	3.21	2.96	2.78	2.67	2.59	2.54	2.50	2.47	2.42	2.39	2.36	2.35	2.33	2.31	2.29
50	21.01	7.82	5.30	4.31	3.80	3.28	3.02	2.83	2.72	2.64	2.58	2.54	2.51	2.46	2.43	2.40	2.38	2.37	2.34	2.32
60	22.32	8.12	5.45	4.42	3.88	3.34	3.07	2.87	2.76	2.68	2.62	2.58	2.54	2.49	2.46	2.43	2.41	2.40	2.37	2.35
75	24.08	8.50	5.64	4.54	3.98	3.41	3.13	2.93	2.81	2.72	2.66	2.62	2.58	2.53	2.49	2.47	2.45	2.43	2.40	2.39
100	26.48	9.02	5.90	4.72	4.11	3.51	3.21	3.00	2.87	2.78	2.72	2.67	2.63	2.58	2.54	2.51	2.49	2.48	2.45	2.43
125	28.54	9.43	6.11	4.86	4.22	3.59	3.27	3.05	2.92	2.83	2.76	2.71	2.67	2.62	2.58	2.55	2.53	2.51	2.48	2.46
150	30.35	9.80	6.28	4.97	4.31	3.65	3.33	3.09	2.96	2.86	2.80	2.75	2.71	2.65	2.61	2.58	2.56	2.54	2.51	2.49
175	31.88	10.11	6.43	5.07	4.38	3.70	3.37	3.13	2.99	2.89	2.83	2.77	2.73	2.68	2.63	2.60	2.58	2.56	2.53	2.51
200	33.40	10.40	6.56	5.16	4.45	3.75	3.41	3.16	3.02	2.92	2.85	2.80	2.76	2.70	2.66	2.63	2.60	2.58	2.55	2.53

Table 19-17. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 3 (40 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	6.75	3.85	3.05	2.69	2.49	2.26	2.14	2.05	1.99	1.95	1.92	1.90	1.88	1.86	1.84	1.83	1.82	1.81	1.79	1.78
2	8.55	4.50	3.46	3.01	2.75	2.47	2.33	2.22	2.15	2.11	2.07	2.05	2.03	2.00	1.97	1.96	1.95	1.94	1.92	1.91
3	9.81	4.92	3.72	3.20	2.91	2.60	2.44	2.32	2.24	2.19	2.16	2.13	2.11	2.07	2.05	2.03	2.02	2.01	1.99	1.98
4	10.81	5.23	3.90	3.33	3.02	2.69	2.52	2.39	2.31	2.26	2.22	2.19	2.16	2.13	2.10	2.09	2.07	2.06	2.04	2.03
5	11.66	5.49	4.05	3.44	3.11	2.76	2.58	2.44	2.36	2.30	2.26	2.23	2.21	2.17	2.14	2.13	2.11	2.10	2.08	2.07
8	13.65	6.07	4.38	3.68	3.30	2.91	2.70	2.56	2.47	2.40	2.36	2.32	2.30	2.26	2.23	2.21	2.19	2.18	2.16	2.14
12	15.64	6.61	4.68	3.89	3.47	3.04	2.82	2.65	2.56	2.49	2.44	2.40	2.37	2.33	2.30	2.28	2.26	2.25	2.22	2.21
16	17.23	7.02	4.90	4.05	3.60	3.13	2.89	2.72	2.62	2.55	2.50	2.46	2.43	2.38	2.35	2.33	2.31	2.30	2.27	2.25
20	18.56	7.35	5.08	4.17	3.69	3.20	2.96	2.78	2.67	2.59	2.54	2.50	2.47	2.42	2.39	2.36	2.35	2.33	2.31	2.29
30	21.25	8.00	5.42	4.40	3.87	3.34	3.07	2.87	2.76	2.68	2.62	2.58	2.54	2.49	2.46	2.43	2.41	2.40	2.37	2.35
40	23.41	8.49	5.67	4.57	4.00	3.43	3.15	2.94	2.82	2.74	2.68	2.63	2.59	2.54	2.51	2.48	2.46	2.44	2.41	2.39
50	25.22	8.89	5.86	4.71	4.11	3.51	3.21	3.00	2.87	2.78	2.72	2.67	2.63	2.58	2.54	2.51	2.49	2.48	2.45	2.43
60	26.81	9.23	6.03	4.82	4.19	3.57	3.26	3.04	2.91	2.82	2.75	2.70	2.67	2.61	2.57	2.54	2.52	2.51	2.48	2.46
75	28.89	9.66	6.24	4.95	4.30	3.65	3.32	3.10	2.96	2.86	2.80	2.75	2.71	2.65	2.61	2.58	2.56	2.54	2.51	2.49
100	31.76	10.24	6.53	5.14	4.44	3.75	3.40	3.16	3.02	2.92	2.85	2.80	2.76	2.70	2.66	2.63	2.60	2.58	2.55	2.53
125	34.22	10.72	6.75	5.29	4.55	3.82	3.47	3.22	3.07	2.97	2.89	2.84	2.80	2.74	2.69	2.66	2.64	2.62	2.58	2.56
150	36.33	11.13	6.94	5.41	4.64	3.89	3.52	3.26	3.11	3.00	2.93	2.87	2.83	2.76	2.72	2.69	2.66	2.65	2.61	2.59
175	38.32	11.48	7.10	5.51	4.72	3.94	3.56	3.30	3.14	3.03	2.96	2.90	2.86	2.79	2.75	2.71	2.69	2.67	2.63	2.61
200	40.08	11.81	7.25	5.60	4.79	3.99	3.60	3.33	3.17	3.06	2.98	2.93	2.88	2.81	2.77	2.73	2.71	2.69	2.65	2.63

Table 19-17. κ -Multipliers for 1-of-1 Intrawell Prediction Limits on Means of Order 3 (40 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	7.95	4.38	3.42	2.98	2.74	2.47	2.32	2.22	2.15	2.10	2.07	2.05	2.03	2.00	1.97	1.96	1.95	1.94	1.92	1.91
2	10.06	5.10	3.86	3.31	3.01	2.68	2.51	2.39	2.31	2.26	2.22	2.19	2.16	2.13	2.10	2.09	2.07	2.06	2.04	2.03
3	11.53	5.57	4.13	3.51	3.17	2.81	2.62	2.49	2.40	2.34	2.30	2.27	2.24	2.20	2.18	2.16	2.14	2.13	2.11	2.10
4	12.71	5.92	4.33	3.66	3.29	2.90	2.70	2.56	2.46	2.40	2.36	2.32	2.30	2.26	2.23	2.21	2.19	2.18	2.16	2.14
5	13.70	6.21	4.50	3.78	3.39	2.98	2.76	2.61	2.51	2.45	2.40	2.37	2.34	2.30	2.27	2.25	2.23	2.22	2.19	2.18
8	16.04	6.85	4.85	4.03	3.59	3.13	2.89	2.72	2.62	2.55	2.50	2.46	2.43	2.38	2.35	2.33	2.31	2.30	2.27	2.25
12	18.37	7.46	5.18	4.25	3.76	3.26	3.00	2.82	2.71	2.63	2.58	2.53	2.50	2.45	2.42	2.39	2.38	2.36	2.33	2.32
16	20.23	7.92	5.42	4.42	3.89	3.35	3.08	2.89	2.77	2.69	2.63	2.59	2.55	2.50	2.47	2.44	2.42	2.41	2.38	2.36
20	21.80	8.29	5.61	4.55	3.99	3.43	3.15	2.94	2.82	2.74	2.67	2.63	2.59	2.54	2.51	2.48	2.46	2.44	2.41	2.39
30	24.96	9.02	5.97	4.79	4.18	3.57	3.26	3.04	2.91	2.82	2.75	2.70	2.67	2.61	2.57	2.54	2.52	2.51	2.48	2.46
40	27.48	9.57	6.24	4.97	4.32	3.66	3.34	3.11	2.97	2.88	2.81	2.76	2.72	2.66	2.62	2.59	2.57	2.55	2.52	2.50
50	29.59	10.01	6.46	5.12	4.43	3.74	3.40	3.16	3.02	2.92	2.85	2.80	2.76	2.70	2.66	2.63	2.60	2.58	2.55	2.53
60	31.46	10.39	6.64	5.24	4.52	3.81	3.46	3.21	3.06	2.96	2.89	2.83	2.79	2.73	2.69	2.65	2.63	2.61	2.58	2.56
75	33.87	10.88	6.87	5.38	4.63	3.88	3.52	3.26	3.11	3.00	2.93	2.87	2.83	2.77	2.72	2.69	2.66	2.65	2.61	2.59
100	37.32	11.53	7.18	5.58	4.78	3.99	3.60	3.33	3.17	3.06	2.98	2.93	2.88	2.81	2.77	2.73	2.71	2.69	2.65	2.63
125	40.20	12.07	7.43	5.73	4.89	4.07	3.67	3.39	3.22	3.11	3.02	2.96	2.92	2.85	2.80	2.77	2.74	2.72	2.68	2.66
150	42.66	12.51	7.63	5.87	4.99	4.13	3.72	3.43	3.26	3.14	3.06	3.00	2.95	2.88	2.83	2.80	2.77	2.75	2.71	2.68
175	45.00	12.92	7.81	5.98	5.07	4.19	3.76	3.47	3.29	3.18	3.09	3.02	2.98	2.91	2.86	2.82	2.79	2.77	2.73	2.71
200	47.11	13.27	7.97	6.08	5.14	4.24	3.80	3.50	3.32	3.20	3.11	3.05	3.00	2.93	2.89	2.84	2.81	2.79	2.75	2.73

Table 19-18. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 3 (1 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.67	0.53	0.46	0.42	0.40	0.37	0.35	0.34	0.33	0.32	0.31	0.31	0.31	0.30	0.30	0.29	0.29	0.29	0.29	0.29
2	1.04	0.80	0.70	0.64	0.61	0.56	0.54	0.52	0.50	0.49	0.49	0.48	0.47	0.47	0.46	0.46	0.46	0.45	0.45	0.45
3	1.28	0.96	0.84	0.77	0.72	0.67	0.64	0.61	0.60	0.59	0.58	0.57	0.56	0.56	0.55	0.55	0.54	0.54	0.54	0.53
4	1.47	1.08	0.93	0.85	0.80	0.74	0.71	0.68	0.66	0.65	0.64	0.63	0.62	0.62	0.61	0.60	0.60	0.60	0.59	0.59
5	1.62	1.17	1.01	0.92	0.86	0.80	0.76	0.73	0.71	0.70	0.68	0.68	0.67	0.66	0.65	0.65	0.64	0.64	0.64	0.63
8	1.97	1.38	1.17	1.06	0.99	0.91	0.87	0.83	0.81	0.79	0.78	0.77	0.76	0.75	0.74	0.74	0.73	0.73	0.72	0.72
12	2.31	1.56	1.31	1.18	1.10	1.01	0.95	0.91	0.89	0.87	0.86	0.84	0.84	0.82	0.81	0.81	0.80	0.80	0.79	0.79
16	2.58	1.69	1.41	1.26	1.17	1.07	1.02	0.97	0.94	0.92	0.91	0.90	0.89	0.87	0.86	0.86	0.85	0.85	0.84	0.83
20	2.80	1.80	1.48	1.33	1.23	1.12	1.06	1.02	0.99	0.96	0.95	0.94	0.93	0.91	0.90	0.89	0.89	0.88	0.88	0.87
30	3.24	2.01	1.63	1.45	1.34	1.22	1.15	1.09	1.06	1.04	1.02	1.01	1.00	0.98	0.97	0.96	0.95	0.95	0.94	0.93
40	3.60	2.16	1.74	1.53	1.42	1.28	1.21	1.15	1.11	1.09	1.07	1.05	1.04	1.03	1.01	1.00	1.00	0.99	0.98	0.98
50	3.89	2.28	1.82	1.60	1.47	1.33	1.25	1.19	1.15	1.13	1.11	1.09	1.08	1.06	1.05	1.04	1.03	1.03	1.01	1.01
60	4.15	2.39	1.89	1.66	1.52	1.37	1.29	1.23	1.18	1.16	1.14	1.12	1.11	1.09	1.08	1.07	1.06	1.05	1.04	1.03
75	4.48	2.52	1.98	1.73	1.58	1.42	1.33	1.27	1.22	1.19	1.17	1.16	1.14	1.12	1.11	1.10	1.09	1.08	1.07	1.07
100	4.95	2.70	2.09	1.82	1.66	1.48	1.39	1.32	1.27	1.24	1.22	1.20	1.19	1.17	1.15	1.14	1.13	1.12	1.11	1.11
125	5.35	2.84	2.19	1.89	1.72	1.53	1.43	1.36	1.31	1.28	1.25	1.24	1.22	1.20	1.18	1.17	1.16	1.16	1.14	1.14
150	5.69	2.96	2.26	1.95	1.77	1.58	1.47	1.39	1.34	1.31	1.28	1.26	1.25	1.23	1.21	1.20	1.19	1.18	1.17	1.16
175	6.00	3.07	2.33	2.00	1.81	1.61	1.50	1.42	1.37	1.33	1.31	1.29	1.27	1.25	1.23	1.22	1.21	1.20	1.19	1.18
200	6.28	3.16	2.39	2.04	1.85	1.64	1.53	1.44	1.39	1.35	1.33	1.31	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20

Table 19-18. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 3 (1 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	0.95	0.75	0.67	0.62	0.59	0.55	0.53	0.51	0.50	0.49	0.48	0.48	0.47	0.47	0.46	0.46	0.45	0.45	0.45	0.45
2	1.36	1.04	0.91	0.84	0.79	0.73	0.70	0.67	0.66	0.64	0.64	0.63	0.62	0.61	0.61	0.60	0.60	0.60	0.59	0.59
3	1.64	1.21	1.05	0.96	0.90	0.83	0.80	0.76	0.74	0.73	0.72	0.71	0.70	0.69	0.69	0.68	0.68	0.67	0.67	0.66
4	1.85	1.33	1.14	1.04	0.98	0.90	0.86	0.83	0.80	0.79	0.78	0.77	0.76	0.75	0.74	0.74	0.73	0.73	0.72	0.72
5	2.02	1.43	1.22	1.11	1.04	0.96	0.91	0.87	0.85	0.83	0.82	0.81	0.80	0.79	0.78	0.78	0.77	0.77	0.76	0.76
8	2.43	1.65	1.38	1.25	1.17	1.07	1.01	0.97	0.94	0.92	0.91	0.90	0.89	0.87	0.86	0.86	0.85	0.85	0.84	0.83
12	2.83	1.85	1.53	1.37	1.27	1.16	1.10	1.05	1.02	1.00	0.98	0.97	0.96	0.94	0.93	0.92	0.92	0.91	0.90	0.90
16	3.14	2.00	1.63	1.46	1.35	1.23	1.16	1.11	1.07	1.05	1.03	1.02	1.01	0.99	0.98	0.97	0.96	0.96	0.95	0.94
20	3.41	2.12	1.72	1.52	1.41	1.28	1.20	1.15	1.11	1.09	1.07	1.05	1.04	1.02	1.01	1.00	1.00	0.99	0.98	0.97
30	3.94	2.34	1.87	1.65	1.52	1.37	1.29	1.22	1.18	1.16	1.14	1.12	1.11	1.09	1.08	1.07	1.06	1.05	1.04	1.03
40	4.35	2.51	1.98	1.74	1.59	1.43	1.34	1.28	1.23	1.20	1.18	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07
50	4.70	2.65	2.07	1.81	1.65	1.48	1.39	1.32	1.27	1.24	1.22	1.20	1.19	1.17	1.15	1.14	1.13	1.12	1.11	1.10
60	5.01	2.76	2.15	1.87	1.70	1.52	1.42	1.35	1.30	1.27	1.25	1.23	1.21	1.19	1.18	1.17	1.16	1.15	1.14	1.13
75	5.41	2.91	2.24	1.94	1.76	1.57	1.47	1.39	1.34	1.31	1.28	1.26	1.25	1.23	1.21	1.20	1.19	1.18	1.17	1.16
100	5.97	3.11	2.37	2.03	1.84	1.64	1.53	1.44	1.39	1.35	1.33	1.31	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20
125	6.45	3.27	2.46	2.11	1.91	1.69	1.57	1.48	1.43	1.39	1.36	1.34	1.32	1.30	1.28	1.27	1.26	1.25	1.24	1.23
150	6.86	3.40	2.55	2.17	1.96	1.73	1.61	1.52	1.46	1.42	1.39	1.37	1.35	1.32	1.31	1.29	1.28	1.27	1.26	1.25
175	7.22	3.52	2.62	2.22	2.00	1.76	1.64	1.54	1.48	1.44	1.41	1.39	1.37	1.34	1.33	1.31	1.30	1.29	1.28	1.27
200	7.56	3.63	2.68	2.27	2.04	1.79	1.66	1.57	1.51	1.46	1.43	1.41	1.39	1.36	1.34	1.33	1.32	1.31	1.30	1.28

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Table 19-18. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 3 (1 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.22	0.97	0.86	0.80	0.77	0.72	0.69	0.67	0.65	0.64	0.63	0.62	0.62	0.61	0.61	0.60	0.60	0.60	0.59	0.59
2	1.68	1.27	1.11	1.02	0.96	0.89	0.85	0.82	0.80	0.78	0.77	0.76	0.76	0.75	0.74	0.73	0.73	0.73	0.72	0.72
3	1.99	1.45	1.25	1.14	1.07	0.99	0.94	0.91	0.88	0.86	0.85	0.84	0.83	0.82	0.81	0.81	0.80	0.80	0.79	0.79
4	2.23	1.58	1.35	1.23	1.15	1.06	1.01	0.96	0.94	0.92	0.90	0.89	0.89	0.87	0.86	0.86	0.85	0.85	0.84	0.83
5	2.43	1.69	1.43	1.29	1.21	1.11	1.05	1.01	0.98	0.96	0.95	0.93	0.92	0.91	0.90	0.89	0.89	0.88	0.87	0.87
8	2.91	1.93	1.60	1.44	1.34	1.22	1.15	1.10	1.07	1.05	1.03	1.01	1.00	0.99	0.98	0.97	0.96	0.96	0.95	0.94
12	3.37	2.14	1.75	1.56	1.44	1.31	1.24	1.18	1.14	1.12	1.10	1.08	1.07	1.05	1.04	1.03	1.02	1.02	1.01	1.00
16	3.73	2.31	1.86	1.65	1.52	1.38	1.30	1.23	1.19	1.17	1.14	1.13	1.12	1.10	1.08	1.07	1.07	1.06	1.05	1.04
20	4.04	2.44	1.95	1.72	1.58	1.43	1.34	1.27	1.23	1.20	1.18	1.16	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07
30	4.66	2.69	2.12	1.85	1.69	1.52	1.42	1.35	1.30	1.27	1.25	1.23	1.21	1.19	1.18	1.17	1.16	1.15	1.14	1.13
40	5.14	2.87	2.24	1.94	1.77	1.58	1.48	1.40	1.35	1.32	1.29	1.27	1.26	1.23	1.22	1.21	1.20	1.19	1.18	1.17
50	5.55	3.02	2.33	2.02	1.83	1.63	1.52	1.44	1.39	1.35	1.33	1.31	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20
60	5.91	3.15	2.41	2.08	1.89	1.67	1.56	1.47	1.42	1.38	1.35	1.33	1.32	1.29	1.27	1.26	1.25	1.24	1.23	1.22
75	6.38	3.32	2.51	2.15	1.95	1.72	1.60	1.51	1.46	1.42	1.39	1.37	1.35	1.32	1.31	1.29	1.28	1.27	1.26	1.25
100	7.04	3.53	2.65	2.25	2.03	1.79	1.66	1.56	1.50	1.46	1.43	1.41	1.39	1.36	1.34	1.33	1.32	1.31	1.30	1.28
125	7.59	3.71	2.75	2.33	2.09	1.84	1.70	1.60	1.54	1.50	1.47	1.44	1.42	1.39	1.37	1.36	1.35	1.34	1.32	1.31
150	8.07	3.86	2.84	2.40	2.15	1.88	1.74	1.64	1.57	1.53	1.49	1.47	1.45	1.42	1.40	1.38	1.37	1.36	1.35	1.33
175	8.51	4.00	2.92	2.45	2.19	1.92	1.77	1.66	1.60	1.55	1.52	1.49	1.47	1.44	1.42	1.40	1.39	1.38	1.36	1.35
200	8.90	4.11	2.98	2.50	2.23	1.95	1.80	1.69	1.62	1.57	1.53	1.51	1.49	1.46	1.44	1.42	1.41	1.40	1.38	1.37

Table 19-18. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 3 (2 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.04	0.80	0.70	0.64	0.61	0.56	0.54	0.52	0.50	0.49	0.49	0.48	0.47	0.47	0.46	0.46	0.46	0.45	0.45	0.45
2	1.47	1.08	0.93	0.85	0.80	0.74	0.71	0.68	0.66	0.65	0.64	0.63	0.62	0.62	0.61	0.60	0.60	0.60	0.59	0.59
3	1.75	1.25	1.07	0.97	0.91	0.84	0.80	0.77	0.75	0.73	0.72	0.71	0.70	0.69	0.68	0.68	0.68	0.68	0.67	0.67
4	1.97	1.38	1.17	1.06	0.99	0.91	0.87	0.83	0.81	0.79	0.78	0.77	0.76	0.75	0.74	0.74	0.73	0.73	0.72	0.72
5	2.15	1.48	1.24	1.12	1.05	0.96	0.91	0.88	0.85	0.83	0.82	0.81	0.80	0.79	0.78	0.78	0.77	0.77	0.76	0.76
8	2.58	1.69	1.41	1.26	1.17	1.07	1.02	0.97	0.94	0.92	0.91	0.90	0.89	0.87	0.86	0.86	0.85	0.85	0.84	0.83
12	2.99	1.89	1.55	1.38	1.28	1.17	1.10	1.05	1.02	1.00	0.98	0.97	0.96	0.94	0.93	0.92	0.92	0.91	0.90	0.90
16	3.32	2.04	1.65	1.47	1.36	1.23	1.16	1.11	1.07	1.05	1.03	1.02	1.01	0.99	0.98	0.97	0.96	0.96	0.95	0.94
20	3.60	2.16	1.74	1.53	1.42	1.28	1.21	1.15	1.11	1.09	1.07	1.05	1.04	1.03	1.01	1.00	1.00	0.99	0.98	0.98
30	4.15	2.39	1.89	1.66	1.52	1.37	1.29	1.23	1.18	1.16	1.14	1.12	1.11	1.09	1.08	1.07	1.06	1.05	1.04	1.03
40	4.58	2.56	2.00	1.75	1.60	1.44	1.35	1.28	1.24	1.20	1.18	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07
50	4.95	2.70	2.09	1.82	1.66	1.48	1.39	1.32	1.27	1.24	1.22	1.20	1.19	1.17	1.15	1.14	1.13	1.12	1.11	1.11
60	5.27	2.81	2.17	1.88	1.71	1.53	1.43	1.35	1.30	1.27	1.25	1.23	1.21	1.19	1.18	1.17	1.16	1.15	1.14	1.13
75	5.69	2.96	2.26	1.95	1.77	1.58	1.47	1.39	1.34	1.31	1.28	1.26	1.25	1.23	1.21	1.20	1.19	1.18	1.17	1.16
100	6.28	3.16	2.39	2.04	1.85	1.64	1.53	1.44	1.39	1.35	1.33	1.31	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20
125	6.77	3.33	2.48	2.12	1.91	1.69	1.57	1.48	1.43	1.39	1.36	1.34	1.32	1.30	1.28	1.27	1.26	1.25	1.24	1.23
150	7.21	3.46	2.57	2.18	1.96	1.73	1.61	1.52	1.46	1.42	1.39	1.37	1.35	1.32	1.31	1.29	1.28	1.27	1.26	1.25
175	7.59	3.58	2.64	2.23	2.01	1.77	1.64	1.54	1.48	1.44	1.41	1.39	1.37	1.34	1.33	1.31	1.30	1.29	1.28	1.27
200	7.94	3.69	2.70	2.28	2.04	1.79	1.66	1.57	1.51	1.46	1.43	1.41	1.39	1.36	1.34	1.33	1.32	1.31	1.30	1.28

Table 19-18. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 3 (2 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.36	1.04	0.91	0.84	0.79	0.73	0.70	0.67	0.66	0.64	0.64	0.63	0.62	0.61	0.61	0.60	0.60	0.60	0.59	0.59
2	1.85	1.33	1.14	1.04	0.98	0.90	0.86	0.83	0.80	0.79	0.78	0.77	0.76	0.75	0.74	0.74	0.73	0.73	0.72	0.72
3	2.18	1.52	1.28	1.16	1.09	1.00	0.95	0.91	0.89	0.87	0.85	0.84	0.84	0.82	0.81	0.81	0.80	0.80	0.79	0.79
4	2.43	1.65	1.38	1.25	1.17	1.07	1.01	0.97	0.94	0.92	0.91	0.90	0.89	0.87	0.86	0.86	0.85	0.85	0.84	0.83
5	2.64	1.76	1.46	1.31	1.22	1.12	1.06	1.01	0.98	0.96	0.95	0.94	0.93	0.91	0.90	0.89	0.89	0.88	0.87	0.87
8	3.14	2.00	1.63	1.46	1.35	1.23	1.16	1.11	1.07	1.05	1.03	1.02	1.01	0.99	0.98	0.97	0.96	0.96	0.95	0.94
12	3.64	2.22	1.79	1.58	1.46	1.32	1.24	1.18	1.14	1.12	1.10	1.08	1.07	1.05	1.04	1.03	1.02	1.02	1.01	1.00
16	4.03	2.38	1.90	1.67	1.53	1.38	1.30	1.24	1.20	1.17	1.15	1.13	1.12	1.10	1.08	1.07	1.07	1.06	1.05	1.04
20	4.35	2.51	1.98	1.74	1.59	1.43	1.34	1.28	1.23	1.20	1.18	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07
30	5.01	2.76	2.15	1.87	1.70	1.52	1.42	1.35	1.30	1.27	1.25	1.23	1.21	1.19	1.18	1.17	1.16	1.15	1.14	1.13
40	5.53	2.95	2.27	1.96	1.78	1.59	1.48	1.40	1.35	1.32	1.29	1.27	1.26	1.23	1.22	1.21	1.20	1.19	1.18	1.17
50	5.97	3.11	2.37	2.03	1.84	1.64	1.53	1.44	1.39	1.35	1.33	1.31	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20
60	6.36	3.24	2.45	2.09	1.89	1.68	1.56	1.48	1.42	1.38	1.35	1.33	1.32	1.29	1.27	1.26	1.25	1.24	1.23	1.22
75	6.86	3.40	2.55	2.17	1.96	1.73	1.61	1.52	1.46	1.42	1.39	1.37	1.35	1.32	1.31	1.29	1.28	1.27	1.26	1.25
100	7.56	3.63	2.68	2.27	2.04	1.79	1.66	1.57	1.51	1.46	1.43	1.41	1.39	1.36	1.34	1.33	1.32	1.31	1.30	1.28
125	8.15	3.81	2.79	2.35	2.10	1.84	1.71	1.60	1.54	1.50	1.47	1.44	1.42	1.39	1.37	1.36	1.35	1.34	1.32	1.31
150	8.67	3.96	2.87	2.41	2.16	1.88	1.74	1.64	1.57	1.53	1.49	1.47	1.45	1.42	1.40	1.38	1.37	1.36	1.35	1.33
175	9.14	4.10	2.95	2.47	2.20	1.92	1.77	1.66	1.60	1.55	1.52	1.49	1.47	1.44	1.42	1.40	1.39	1.38	1.36	1.35
200	9.55	4.22	3.02	2.52	2.24	1.95	1.80	1.69	1.62	1.57	1.54	1.51	1.49	1.46	1.44	1.42	1.41	1.40	1.38	1.37

Table 19-18. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 3 (2 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.68	1.27	1.11	1.02	0.96	0.89	0.85	0.82	0.80	0.78	0.77	0.76	0.76	0.75	0.74	0.73	0.73	0.73	0.72	0.72
2	2.23	1.58	1.35	1.23	1.15	1.06	1.01	0.96	0.94	0.92	0.90	0.89	0.89	0.87	0.86	0.86	0.85	0.85	0.84	0.83
3	2.61	1.78	1.49	1.35	1.26	1.15	1.09	1.05	1.02	0.99	0.98	0.97	0.96	0.94	0.93	0.92	0.92	0.91	0.90	0.90
4	2.91	1.93	1.60	1.44	1.34	1.22	1.15	1.10	1.07	1.05	1.03	1.01	1.00	0.99	0.98	0.97	0.96	0.96	0.95	0.94
5	3.15	2.04	1.68	1.50	1.40	1.27	1.20	1.14	1.11	1.08	1.07	1.05	1.04	1.02	1.01	1.00	1.00	0.99	0.98	0.97
8	3.73	2.31	1.86	1.65	1.52	1.38	1.30	1.23	1.19	1.17	1.14	1.13	1.12	1.10	1.08	1.07	1.07	1.06	1.05	1.04
12	4.31	2.55	2.03	1.78	1.63	1.47	1.38	1.31	1.26	1.23	1.21	1.19	1.18	1.16	1.14	1.13	1.13	1.12	1.11	1.10
16	4.76	2.73	2.14	1.87	1.71	1.53	1.43	1.36	1.31	1.28	1.26	1.24	1.22	1.20	1.19	1.17	1.17	1.16	1.15	1.14
20	5.14	2.87	2.24	1.94	1.77	1.58	1.48	1.40	1.35	1.32	1.29	1.27	1.26	1.23	1.22	1.21	1.20	1.19	1.18	1.17
30	5.91	3.15	2.41	2.08	1.89	1.67	1.56	1.47	1.42	1.38	1.35	1.33	1.32	1.29	1.27	1.26	1.25	1.24	1.23	1.22
40	6.52	3.36	2.54	2.17	1.97	1.74	1.62	1.53	1.47	1.43	1.40	1.38	1.36	1.33	1.31	1.30	1.29	1.28	1.27	1.26
50	7.04	3.53	2.65	2.25	2.03	1.79	1.66	1.56	1.50	1.46	1.43	1.41	1.39	1.36	1.34	1.33	1.32	1.31	1.30	1.28
60	7.49	3.68	2.73	2.32	2.08	1.83	1.70	1.60	1.53	1.49	1.46	1.44	1.42	1.39	1.37	1.35	1.34	1.33	1.32	1.31
75	8.07	3.86	2.84	2.40	2.15	1.88	1.74	1.64	1.57	1.53	1.49	1.47	1.45	1.42	1.40	1.38	1.37	1.36	1.35	1.33
100	8.90	4.11	2.98	2.50	2.23	1.95	1.80	1.69	1.62	1.57	1.53	1.51	1.49	1.46	1.44	1.42	1.41	1.40	1.38	1.37
125	9.59	4.31	3.10	2.58	2.30	2.00	1.84	1.72	1.65	1.60	1.57	1.54	1.52	1.49	1.46	1.45	1.44	1.43	1.41	1.40
150	10.20	4.49	3.19	2.65	2.35	2.04	1.88	1.76	1.68	1.63	1.59	1.57	1.54	1.51	1.49	1.47	1.46	1.45	1.43	1.42
175	10.75	4.64	3.28	2.71	2.40	2.08	1.91	1.78	1.71	1.65	1.62	1.59	1.56	1.53	1.51	1.49	1.48	1.47	1.45	1.43
200	11.25	4.77	3.35	2.76	2.44	2.11	1.93	1.81	1.73	1.67	1.64	1.61	1.58	1.55	1.52	1.51	1.49	1.48	1.46	1.45

Table 19-18. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 3 (5 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	1.62	1.17	1.01	0.92	0.86	0.80	0.76	0.73	0.71	0.70	0.68	0.68	0.67	0.66	0.65	0.65	0.64	0.64	0.64	0.63
2	2.15	1.48	1.24	1.12	1.05	0.96	0.91	0.88	0.85	0.83	0.82	0.81	0.80	0.79	0.78	0.78	0.77	0.77	0.76	0.76
3	2.51	1.66	1.38	1.24	1.16	1.06	1.00	0.96	0.93	0.91	0.90	0.89	0.88	0.86	0.85	0.85	0.84	0.84	0.83	0.82
4	2.80	1.80	1.48	1.33	1.23	1.12	1.06	1.02	0.99	0.96	0.95	0.94	0.93	0.91	0.90	0.89	0.89	0.88	0.88	0.87
5	3.04	1.91	1.56	1.39	1.29	1.17	1.11	1.06	1.03	1.00	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.90
8	3.60	2.16	1.74	1.53	1.42	1.28	1.21	1.15	1.11	1.09	1.07	1.05	1.04	1.03	1.01	1.00	1.00	0.99	0.98	0.98
12	4.15	2.39	1.89	1.66	1.52	1.37	1.29	1.23	1.18	1.16	1.14	1.12	1.11	1.09	1.08	1.07	1.06	1.05	1.04	1.03
16	4.58	2.56	2.00	1.75	1.60	1.44	1.35	1.28	1.24	1.20	1.18	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07
20	4.95	2.70	2.09	1.82	1.66	1.48	1.39	1.32	1.27	1.24	1.22	1.20	1.19	1.17	1.15	1.14	1.13	1.12	1.11	1.11
30	5.69	2.96	2.26	1.95	1.77	1.58	1.47	1.39	1.34	1.31	1.28	1.26	1.25	1.23	1.21	1.20	1.19	1.18	1.17	1.16
40	6.28	3.16	2.39	2.04	1.85	1.64	1.53	1.44	1.39	1.35	1.33	1.31	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20
50	6.78	3.33	2.48	2.12	1.91	1.69	1.57	1.48	1.43	1.39	1.36	1.34	1.32	1.30	1.28	1.27	1.26	1.25	1.24	1.23
60	7.21	3.46	2.57	2.18	1.96	1.73	1.61	1.52	1.46	1.42	1.39	1.37	1.35	1.32	1.31	1.29	1.28	1.27	1.26	1.25
75	7.77	3.64	2.67	2.26	2.03	1.78	1.65	1.56	1.49	1.45	1.42	1.40	1.38	1.35	1.34	1.32	1.31	1.30	1.29	1.28
100	8.55	3.87	2.87	2.35	2.11	1.85	1.71	1.61	1.54	1.50	1.47	1.44	1.42	1.39	1.37	1.36	1.35	1.34	1.32	1.31
125	9.22	4.06	2.92	2.44	2.17	1.89	1.75	1.65	1.58	1.53	1.50	1.47	1.45	1.42	1.40	1.39	1.38	1.37	1.35	1.34
150	9.84	4.22	3.01	2.50	2.23	1.94	1.79	1.68	1.61	1.56	1.53	1.50	1.48	1.45	1.43	1.41	1.40	1.39	1.37	1.36
175	10.35	4.37	3.09	2.56	2.27	1.97	1.82	1.70	1.63	1.58	1.55	1.52	1.50	1.47	1.45	1.43	1.42	1.41	1.39	1.38
200	10.82	4.49	3.15	2.61	2.31	2.00	1.84	1.73	1.65	1.60	1.57	1.54	1.52	1.49	1.46	1.45	1.44	1.43	1.41	1.40

Table 19-18. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 3 (5 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.02	1.43	1.22	1.11	1.04	0.96	0.91	0.87	0.85	0.83	0.82	0.81	0.80	0.79	0.78	0.78	0.77	0.77	0.76	0.76
2	2.64	1.76	1.46	1.31	1.22	1.12	1.06	1.01	0.98	0.96	0.95	0.94	0.93	0.91	0.90	0.89	0.89	0.88	0.87	0.87
3	3.07	1.96	1.61	1.44	1.33	1.21	1.14	1.09	1.06	1.04	1.02	1.01	0.99	0.98	0.97	0.96	0.95	0.95	0.94	0.93
4	3.41	2.12	1.72	1.52	1.41	1.28	1.20	1.15	1.11	1.09	1.07	1.05	1.04	1.02	1.01	1.00	1.00	0.99	0.98	0.97
5	3.69	2.24	1.80	1.59	1.47	1.33	1.25	1.19	1.15	1.12	1.11	1.09	1.08	1.06	1.05	1.04	1.03	1.02	1.01	1.01
8	4.35	2.51	1.98	1.74	1.59	1.43	1.34	1.28	1.23	1.20	1.18	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07
12	5.01	2.76	2.15	1.87	1.70	1.52	1.42	1.35	1.30	1.27	1.25	1.23	1.21	1.19	1.18	1.17	1.16	1.15	1.14	1.13
16	5.53	2.95	2.27	1.96	1.78	1.59	1.48	1.40	1.35	1.32	1.29	1.27	1.26	1.23	1.22	1.21	1.20	1.19	1.18	1.17
20	5.97	3.11	2.37	2.03	1.84	1.64	1.53	1.44	1.39	1.35	1.33	1.31	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20
30	6.86	3.40	2.55	2.17	1.96	1.73	1.61	1.51	1.46	1.42	1.39	1.37	1.35	1.32	1.31	1.29	1.28	1.27	1.26	1.25
40	7.56	3.63	2.68	2.27	2.04	1.79	1.66	1.57	1.51	1.46	1.43	1.41	1.39	1.36	1.34	1.33	1.32	1.31	1.30	1.28
50	8.15	3.81	2.79	2.35	2.10	1.84	1.71	1.61	1.54	1.50	1.47	1.44	1.42	1.39	1.37	1.36	1.35	1.34	1.32	1.31
60	8.67	3.96	2.88	2.41	2.16	1.88	1.74	1.64	1.57	1.53	1.49	1.47	1.45	1.42	1.40	1.38	1.37	1.36	1.35	1.33
75	9.34	4.16	2.99	2.49	2.22	1.94	1.79	1.68	1.61	1.56	1.53	1.50	1.48	1.45	1.43	1.41	1.40	1.39	1.37	1.36
100	10.31	4.42	3.13	2.60	2.31	2.00	1.84	1.73	1.65	1.60	1.57	1.54	1.52	1.49	1.46	1.45	1.44	1.42	1.41	1.40
125	11.09	4.64	3.25	2.68	2.37	2.05	1.89	1.77	1.69	1.64	1.60	1.57	1.55	1.52	1.49	1.48	1.46	1.45	1.43	1.42
150	11.80	4.82	3.35	2.75	2.43	2.09	1.92	1.80	1.72	1.67	1.63	1.60	1.57	1.54	1.52	1.50	1.48	1.47	1.46	1.44
175	12.42	4.98	3.44	2.81	2.48	2.13	1.95	1.82	1.74	1.69	1.65	1.62	1.59	1.56	1.54	1.52	1.50	1.49	1.47	1.46
200	12.97	5.12	3.52	2.86	2.52	2.16	1.98	1.85	1.76	1.71	1.67	1.64	1.61	1.58	1.55	1.53	1.52	1.51	1.49	1.47

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Table 19-18. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 3 (5 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.43	1.69	1.43	1.29	1.21	1.11	1.05	1.01	0.98	0.96	0.95	0.93	0.92	0.91	0.90	0.89	0.89	0.88	0.87	0.87
2	3.15	2.04	1.68	1.50	1.40	1.27	1.20	1.14	1.11	1.08	1.07	1.05	1.04	1.02	1.01	1.00	1.00	0.99	0.98	0.97
3	3.65	2.27	1.84	1.63	1.50	1.36	1.28	1.22	1.18	1.15	1.13	1.12	1.11	1.09	1.07	1.06	1.06	1.05	1.04	1.03
4	4.04	2.44	1.95	1.72	1.58	1.43	1.34	1.27	1.23	1.20	1.18	1.16	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07
5	4.37	2.57	2.04	1.79	1.64	1.48	1.39	1.32	1.27	1.24	1.22	1.20	1.19	1.17	1.15	1.14	1.13	1.12	1.11	1.10
8	5.14	2.87	2.24	1.94	1.77	1.58	1.48	1.40	1.35	1.32	1.29	1.27	1.26	1.23	1.22	1.21	1.20	1.19	1.18	1.17
12	5.91	3.15	2.41	2.08	1.89	1.67	1.56	1.47	1.42	1.38	1.35	1.33	1.32	1.29	1.27	1.26	1.25	1.24	1.23	1.22
16	6.52	3.36	2.54	2.17	1.97	1.74	1.62	1.53	1.47	1.43	1.40	1.38	1.36	1.33	1.31	1.30	1.29	1.28	1.27	1.26
20	7.04	3.54	2.65	2.25	2.03	1.79	1.66	1.56	1.50	1.46	1.43	1.41	1.39	1.36	1.34	1.33	1.32	1.31	1.30	1.28
30	8.08	3.86	2.84	2.40	2.15	1.88	1.74	1.64	1.57	1.53	1.49	1.47	1.45	1.42	1.40	1.38	1.37	1.36	1.35	1.33
40	8.90	4.11	2.98	2.50	2.23	1.95	1.80	1.69	1.62	1.57	1.53	1.51	1.49	1.46	1.44	1.42	1.41	1.40	1.38	1.37
50	9.59	4.32	3.10	2.58	2.30	2.00	1.84	1.72	1.65	1.60	1.57	1.54	1.52	1.49	1.46	1.45	1.43	1.43	1.41	1.40
60	10.20	4.49	3.19	2.65	2.35	2.04	1.88	1.76	1.68	1.63	1.59	1.57	1.54	1.51	1.49	1.47	1.46	1.45	1.43	1.42
75	11.00	4.71	3.32	2.74	2.42	2.09	1.92	1.80	1.72	1.67	1.63	1.60	1.57	1.54	1.52	1.50	1.48	1.47	1.46	1.44
100	12.11	5.00	3.48	2.85	2.51	2.16	1.98	1.85	1.76	1.71	1.67	1.64	1.61	1.58	1.55	1.53	1.52	1.51	1.49	1.47
125	13.05	5.24	3.60	2.94	2.58	2.21	2.02	1.88	1.80	1.74	1.70	1.67	1.64	1.61	1.58	1.56	1.54	1.53	1.51	1.50
150	13.91	5.45	3.71	3.01	2.64	2.26	2.06	1.92	1.83	1.77	1.72	1.69	1.67	1.63	1.60	1.58	1.57	1.56	1.53	1.52
175	14.61	5.62	3.80	3.08	2.69	2.29	2.09	1.94	1.85	1.79	1.75	1.71	1.69	1.65	1.62	1.60	1.58	1.57	1.55	1.54
200	15.31	5.78	3.89	3.13	2.73	2.32	2.12	1.97	1.88	1.81	1.77	1.73	1.71	1.67	1.64	1.62	1.60	1.59	1.57	1.55

Table 19-18. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 3 (10 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.15	1.48	1.24	1.12	1.05	0.96	0.91	0.88	0.85	0.83	0.82	0.81	0.80	0.79	0.78	0.78	0.77	0.77	0.76	0.76
2	2.80	1.80	1.48	1.33	1.23	1.12	1.06	1.02	0.99	0.96	0.95	0.94	0.93	0.91	0.90	0.89	0.89	0.88	0.87	0.87
3	3.24	2.01	1.63	1.45	1.34	1.22	1.15	1.09	1.06	1.04	1.02	1.01	0.99	0.98	0.97	0.96	0.95	0.95	0.94	0.93
4	3.60	2.16	1.74	1.53	1.42	1.28	1.21	1.15	1.11	1.09	1.07	1.05	1.04	1.03	1.01	1.00	1.00	0.99	0.98	0.98
5	3.89	2.28	1.82	1.60	1.47	1.33	1.25	1.19	1.15	1.13	1.11	1.09	1.08	1.06	1.05	1.04	1.03	1.03	1.01	1.01
8	4.59	2.56	2.00	1.75	1.60	1.44	1.35	1.28	1.23	1.20	1.18	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07
12	5.27	2.81	2.17	1.88	1.71	1.53	1.43	1.35	1.30	1.27	1.25	1.23	1.21	1.19	1.18	1.17	1.16	1.15	1.14	1.13
16	5.82	3.01	2.29	1.97	1.79	1.59	1.48	1.40	1.35	1.32	1.29	1.27	1.26	1.23	1.22	1.21	1.20	1.19	1.18	1.17
20	6.28	3.16	2.39	2.04	1.85	1.64	1.53	1.44	1.39	1.35	1.33	1.31	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20
30	7.21	3.46	2.57	2.18	1.96	1.73	1.61	1.52	1.46	1.42	1.39	1.37	1.35	1.32	1.31	1.29	1.28	1.27	1.26	1.25
40	7.95	3.69	2.70	2.28	2.04	1.79	1.66	1.57	1.51	1.46	1.43	1.41	1.39	1.36	1.34	1.33	1.32	1.31	1.30	1.28
50	8.57	3.87	2.81	2.36	2.11	1.84	1.71	1.61	1.54	1.50	1.47	1.44	1.42	1.39	1.37	1.36	1.35	1.34	1.32	1.31
60	9.11	4.03	2.90	2.42	2.16	1.89	1.74	1.64	1.57	1.53	1.49	1.47	1.45	1.42	1.40	1.38	1.37	1.36	1.35	1.33
75	9.81	4.22	3.01	2.50	2.23	1.94	1.79	1.68	1.61	1.56	1.53	1.50	1.48	1.45	1.43	1.41	1.40	1.39	1.37	1.36
100	10.82	4.49	3.16	2.61	2.31	2.00	1.84	1.73	1.65	1.60	1.57	1.54	1.52	1.49	1.46	1.45	1.44	1.43	1.41	1.40
125	11.67	4.71	3.27	2.69	2.38	2.05	1.89	1.77	1.69	1.64	1.60	1.57	1.55	1.52	1.49	1.48	1.46	1.45	1.43	1.42
150	12.40	4.90	3.37	2.76	2.44	2.10	1.92	1.80	1.72	1.67	1.63	1.60	1.57	1.54	1.52	1.50	1.48	1.47	1.46	1.44
175	13.09	5.05	3.45	2.82	2.48	2.13	1.95	1.82	1.74	1.69	1.65	1.62	1.59	1.56	1.54	1.52	1.50	1.49	1.47	1.46
200	13.67	5.20	3.53	2.87	2.52	2.16	1.98	1.85	1.76	1.71	1.67	1.64	1.61	1.58	1.55	1.53	1.52	1.51	1.49	1.47

Table 19-18. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 3 (10 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.64	1.76	1.46	1.31	1.22	1.12	1.06	1.01	0.98	0.96	0.95	0.94	0.93	0.91	0.90	0.89	0.89	0.88	0.87	0.87
2	3.41	2.12	1.72	1.52	1.41	1.28	1.20	1.15	1.11	1.09	1.07	1.05	1.04	1.02	1.01	1.00	1.00	0.99	0.98	0.97
3	3.94	2.34	1.87	1.65	1.52	1.37	1.29	1.22	1.18	1.16	1.14	1.12	1.11	1.09	1.08	1.07	1.06	1.05	1.04	1.03
4	4.35	2.51	1.98	1.74	1.59	1.43	1.34	1.28	1.23	1.20	1.18	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07
5	4.71	2.65	2.07	1.81	1.65	1.48	1.39	1.32	1.27	1.24	1.22	1.20	1.19	1.17	1.15	1.14	1.13	1.12	1.11	1.10
8	5.53	2.95	2.27	1.96	1.78	1.59	1.48	1.40	1.35	1.32	1.29	1.27	1.26	1.23	1.22	1.21	1.20	1.19	1.18	1.17
12	6.36	3.24	2.45	2.09	1.89	1.68	1.56	1.48	1.42	1.38	1.35	1.33	1.32	1.29	1.27	1.26	1.25	1.24	1.23	1.22
16	7.01	3.45	2.58	2.19	1.98	1.74	1.62	1.53	1.47	1.43	1.40	1.38	1.36	1.33	1.31	1.30	1.29	1.28	1.27	1.26
20	7.56	3.63	2.68	2.27	2.04	1.79	1.66	1.57	1.50	1.46	1.43	1.41	1.39	1.36	1.34	1.33	1.32	1.31	1.30	1.28
30	8.67	3.96	2.87	2.41	2.16	1.88	1.74	1.64	1.57	1.53	1.49	1.47	1.45	1.42	1.40	1.38	1.37	1.36	1.35	1.33
40	9.55	4.22	3.02	2.51	2.24	1.95	1.80	1.69	1.62	1.57	1.54	1.51	1.49	1.46	1.44	1.42	1.41	1.40	1.38	1.37
50	10.30	4.43	3.13	2.60	2.31	2.00	1.84	1.73	1.65	1.60	1.57	1.54	1.52	1.49	1.46	1.45	1.44	1.43	1.41	1.40
60	10.94	4.60	3.23	2.67	2.36	2.04	1.88	1.76	1.68	1.63	1.59	1.57	1.54	1.51	1.49	1.47	1.46	1.45	1.43	1.42
75	11.79	4.82	3.35	2.75	2.43	2.10	1.92	1.80	1.72	1.66	1.63	1.60	1.57	1.54	1.52	1.50	1.48	1.47	1.45	1.44
100	12.99	5.12	3.51	2.86	2.52	2.16	1.98	1.85	1.76	1.71	1.67	1.64	1.61	1.58	1.55	1.53	1.52	1.51	1.49	1.46
125	14.01	5.37	3.64	2.95	2.59	2.22	2.02	1.89	1.80	1.74	1.70	1.67	1.64	1.61	1.58	1.56	1.54	1.53	1.51	1.49
150	14.89	5.58	3.75	3.03	2.65	2.26	2.06	1.92	1.83	1.77	1.73	1.69	1.67	1.63	1.60	1.58	1.57	1.55	1.54	1.52
175	15.67	5.76	3.85	3.09	2.70	2.29	2.09	1.94	1.85	1.79	1.75	1.72	1.69	1.65	1.62	1.60	1.59	1.57	1.55	1.54
200	16.41	5.91	3.92	3.15	2.74	2.33	2.12	1.97	1.87	1.81	1.77	1.73	1.71	1.67	1.64	1.62	1.60	1.59	1.57	1.55

Table 19-18. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 3 (10 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.15	2.04	1.68	1.50	1.40	1.27	1.20	1.14	1.11	1.08	1.07	1.05	1.04	1.02	1.01	1.00	1.00	0.99	0.98	0.97
2	4.04	2.44	1.95	1.72	1.58	1.43	1.34	1.27	1.23	1.20	1.18	1.16	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07
3	4.66	2.68	2.12	1.85	1.69	1.52	1.42	1.35	1.30	1.27	1.25	1.23	1.21	1.19	1.18	1.17	1.16	1.15	1.14	1.13
4	5.14	2.87	2.24	1.94	1.77	1.58	1.48	1.40	1.35	1.32	1.29	1.27	1.26	1.23	1.22	1.21	1.20	1.19	1.18	1.17
5	5.55	3.02	2.33	2.02	1.83	1.63	1.52	1.44	1.39	1.35	1.33	1.31	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20
8	6.52	3.36	2.54	2.17	1.97	1.74	1.62	1.53	1.47	1.43	1.40	1.38	1.36	1.33	1.31	1.30	1.29	1.28	1.27	1.26
12	7.49	3.68	2.73	2.32	2.08	1.83	1.70	1.60	1.53	1.49	1.46	1.44	1.42	1.39	1.37	1.35	1.34	1.33	1.32	1.31
16	8.25	3.92	2.87	2.42	2.17	1.90	1.75	1.65	1.58	1.54	1.50	1.48	1.46	1.43	1.41	1.39	1.38	1.37	1.35	1.34
20	8.90	4.11	2.98	2.50	2.23	1.95	1.80	1.69	1.62	1.57	1.53	1.51	1.49	1.46	1.44	1.42	1.41	1.40	1.38	1.37
30	10.21	4.49	3.20	2.65	2.35	2.04	1.88	1.76	1.68	1.63	1.59	1.57	1.54	1.51	1.49	1.47	1.46	1.45	1.43	1.42
40	11.23	4.77	3.35	2.76	2.44	2.11	1.93	1.81	1.73	1.67	1.63	1.61	1.58	1.55	1.52	1.51	1.49	1.48	1.46	1.45
50	12.11	5.00	3.48	2.85	2.51	2.16	1.98	1.85	1.76	1.71	1.67	1.64	1.61	1.58	1.55	1.53	1.52	1.51	1.49	1.47
60	12.87	5.19	3.58	2.92	2.57	2.20	2.01	1.88	1.79	1.73	1.69	1.66	1.64	1.60	1.57	1.56	1.54	1.53	1.50	1.50
75	13.87	5.44	3.71	3.01	2.64	2.26	2.06	1.92	1.83	1.77	1.72	1.69	1.67	1.63	1.60	1.58	1.57	1.56	1.53	1.52
100	15.28	5.79	3.88	3.13	2.73	2.32	2.12	1.97	1.88	1.81	1.77	1.73	1.71	1.67	1.64	1.62	1.60	1.59	1.57	1.55
125	16.46	6.05	4.03	3.22	2.81	2.38	2.16	2.01	1.91	1.85	1.80	1.76	1.74	1.70	1.66	1.64	1.63	1.61	1.59	1.58
150	17.48	6.30	4.14	3.30	2.87	2.42	2.20	2.04	1.94	1.87	1.82	1.79	1.76	1.72	1.69	1.66	1.65	1.63	1.61	1.60
175	18.46	6.49	4.25	3.37	2.92	2.46	2.23	2.06	1.96	1.90	1.85	1.81	1.78	1.73	1.70	1.68	1.66	1.65	1.63	1.61
200	19.24	6.67	4.33	3.43	2.97	2.49	2.26	2.09	1.98	1.92	1.86	1.83	1.80	1.75	1.72	1.70	1.68	1.67	1.64	1.63

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Table 19-18. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 3 (20 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	2.80	1.80	1.48	1.33	1.23	1.12	1.06	1.02	0.99	0.96	0.95	0.94	0.93	0.91	0.90	0.89	0.89	0.88	0.87	0.87
2	3.60	2.16	1.74	1.53	1.42	1.28	1.21	1.15	1.11	1.09	1.07	1.05	1.04	1.03	1.01	1.00	1.00	0.99	0.98	0.98
3	4.15	2.39	1.89	1.66	1.52	1.37	1.29	1.23	1.18	1.16	1.14	1.12	1.11	1.09	1.08	1.07	1.06	1.05	1.04	1.03
4	4.58	2.56	2.00	1.75	1.60	1.44	1.35	1.28	1.23	1.20	1.18	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07
5	4.95	2.70	2.09	1.82	1.66	1.48	1.39	1.32	1.27	1.24	1.22	1.20	1.19	1.17	1.15	1.14	1.13	1.12	1.11	1.11
8	5.82	3.01	2.29	1.97	1.79	1.59	1.48	1.40	1.35	1.32	1.29	1.27	1.26	1.23	1.22	1.21	1.20	1.19	1.18	1.17
12	6.68	3.29	2.47	2.10	1.90	1.68	1.56	1.48	1.42	1.38	1.36	1.33	1.32	1.29	1.27	1.26	1.25	1.24	1.23	1.22
16	7.37	3.51	2.60	2.20	1.98	1.74	1.62	1.53	1.47	1.43	1.40	1.38	1.36	1.33	1.31	1.30	1.29	1.28	1.27	1.26
20	7.95	3.69	2.70	2.28	2.04	1.79	1.66	1.57	1.51	1.46	1.43	1.41	1.39	1.36	1.34	1.33	1.32	1.31	1.30	1.28
30	9.11	4.03	2.89	2.42	2.16	1.89	1.74	1.64	1.57	1.53	1.49	1.47	1.45	1.42	1.40	1.38	1.37	1.36	1.35	1.33
40	10.05	4.28	3.04	2.52	2.24	1.95	1.80	1.69	1.62	1.57	1.54	1.51	1.49	1.46	1.44	1.42	1.41	1.40	1.38	1.37
50	10.81	4.49	3.16	2.61	2.31	2.00	1.84	1.73	1.65	1.60	1.57	1.54	1.52	1.49	1.46	1.45	1.44	1.42	1.41	1.40
60	11.48	4.67	3.25	2.67	2.37	2.05	1.88	1.76	1.68	1.63	1.59	1.57	1.54	1.51	1.49	1.47	1.46	1.45	1.43	1.42
75	12.42	4.89	3.37	2.76	2.44	2.10	1.92	1.80	1.72	1.67	1.63	1.60	1.57	1.54	1.52	1.50	1.48	1.47	1.46	1.44
100	13.65	5.20	3.53	2.87	2.52	2.16	1.98	1.85	1.77	1.71	1.67	1.64	1.61	1.58	1.55	1.53	1.52	1.51	1.49	1.47
125	14.77	5.45	3.66	2.96	2.59	2.22	2.03	1.89	1.80	1.74	1.70	1.67	1.64	1.60	1.58	1.56	1.54	1.53	1.51	1.50
150	15.70	5.65	3.78	3.03	2.65	2.26	2.06	1.92	1.83	1.77	1.72	1.69	1.67	1.63	1.60	1.58	1.57	1.55	1.53	1.52
175	16.41	5.86	3.87	3.11	2.70	2.29	2.09	1.94	1.85	1.79	1.75	1.71	1.69	1.65	1.62	1.60	1.59	1.57	1.55	1.54
200	17.11	6.01	3.96	3.15	2.74	2.33	2.12	1.97	1.88	1.81	1.77	1.73	1.71	1.67	1.64	1.62	1.60	1.59	1.57	1.55

Table 19-18. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 3 (20 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.41	2.12	1.72	1.52	1.41	1.28	1.20	1.15	1.11	1.09	1.07	1.05	1.04	1.02	1.01	1.00	1.00	0.99	0.98	0.97
2	4.35	2.51	1.98	1.74	1.59	1.43	1.34	1.28	1.23	1.20	1.18	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07
3	5.01	2.76	2.15	1.87	1.70	1.52	1.42	1.35	1.30	1.27	1.25	1.23	1.21	1.19	1.18	1.17	1.16	1.15	1.14	1.13
4	5.53	2.95	2.27	1.96	1.78	1.59	1.48	1.40	1.35	1.32	1.29	1.27	1.26	1.23	1.22	1.21	1.20	1.19	1.18	1.17
5	5.97	3.11	2.37	2.03	1.84	1.64	1.53	1.44	1.39	1.35	1.33	1.31	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20
8	7.01	3.45	2.58	2.19	1.98	1.74	1.62	1.53	1.47	1.43	1.40	1.38	1.36	1.33	1.31	1.30	1.29	1.28	1.27	1.26
12	8.04	3.78	2.77	2.33	2.09	1.83	1.70	1.60	1.53	1.49	1.46	1.44	1.42	1.39	1.37	1.35	1.34	1.33	1.32	1.31
16	8.86	4.02	2.91	2.43	2.18	1.90	1.75	1.65	1.58	1.54	1.50	1.48	1.46	1.43	1.41	1.39	1.38	1.37	1.35	1.34
20	9.55	4.22	3.02	2.52	2.24	1.95	1.80	1.69	1.62	1.57	1.53	1.51	1.49	1.46	1.44	1.42	1.41	1.40	1.38	1.37
30	10.96	4.60	3.23	2.67	2.36	2.04	1.88	1.76	1.68	1.63	1.59	1.57	1.54	1.51	1.49	1.47	1.46	1.45	1.43	1.42
40	12.07	4.89	3.39	2.78	2.45	2.11	1.94	1.81	1.73	1.67	1.64	1.61	1.58	1.55	1.52	1.51	1.49	1.48	1.46	1.45
50	13.01	5.12	3.51	2.86	2.52	2.16	1.98	1.85	1.76	1.71	1.67	1.64	1.61	1.58	1.55	1.53	1.52	1.51	1.49	1.46
60	13.83	5.32	3.62	2.94	2.58	2.20	2.02	1.88	1.79	1.74	1.69	1.66	1.64	1.60	1.57	1.55	1.54	1.53	1.50	1.50
75	14.88	5.58	3.75	3.02	2.65	2.26	2.06	1.92	1.83	1.77	1.73	1.69	1.67	1.63	1.60	1.58	1.57	1.55	1.53	1.52
100	16.41	5.92	3.93	3.15	2.74	2.33	2.12	1.97	1.88	1.81	1.77	1.73	1.71	1.67	1.64	1.62	1.60	1.59	1.57	1.55
125	17.70	6.21	4.06	3.24	2.81	2.38	2.16	2.01	1.91	1.85	1.80	1.77	1.74	1.70	1.67	1.64	1.63	1.61	1.59	1.58
150	18.75	6.45	4.19	3.33	2.87	2.42	2.20	2.04	1.94	1.88	1.82	1.79	1.76	1.72	1.69	1.66	1.65	1.63	1.61	1.60
175	19.69	6.65	4.28	3.38	2.93	2.46	2.23	2.07	1.96	1.90	1.85	1.81	1.78	1.74	1.70	1.68	1.66	1.65	1.63	1.61
200	20.62	6.86	4.37	3.44	2.97	2.49	2.26	2.09	1.98	1.92	1.87	1.83	1.80	1.76	1.72	1.70	1.68	1.67	1.64	1.63

Table 19-18. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 3 (20 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.04	2.44	1.95	1.72	1.58	1.43	1.34	1.27	1.23	1.20	1.18	1.16	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07
2	5.14	2.87	2.24	1.94	1.77	1.58	1.48	1.40	1.35	1.32	1.29	1.27	1.26	1.23	1.22	1.21	1.20	1.19	1.18	1.17
3	5.91	3.15	2.41	2.08	1.89	1.67	1.56	1.47	1.42	1.38	1.35	1.33	1.32	1.29	1.27	1.26	1.25	1.24	1.23	1.22
4	6.52	3.36	2.54	2.17	1.97	1.74	1.62	1.53	1.47	1.43	1.40	1.38	1.36	1.33	1.31	1.30	1.29	1.28	1.27	1.26
5	7.04	3.53	2.65	2.25	2.03	1.79	1.66	1.56	1.50	1.46	1.43	1.41	1.39	1.36	1.34	1.33	1.32	1.31	1.30	1.28
8	8.25	3.92	2.87	2.42	2.17	1.90	1.75	1.65	1.58	1.54	1.50	1.48	1.46	1.43	1.41	1.39	1.38	1.37	1.35	1.34
12	9.46	4.28	3.08	2.57	2.29	1.99	1.83	1.72	1.65	1.60	1.56	1.53	1.51	1.48	1.46	1.44	1.43	1.42	1.40	1.39
16	10.43	4.55	3.23	2.68	2.37	2.05	1.89	1.77	1.69	1.64	1.60	1.57	1.55	1.52	1.50	1.48	1.47	1.45	1.44	1.42
20	11.24	4.77	3.35	2.76	2.44	2.11	1.93	1.81	1.73	1.67	1.64	1.61	1.58	1.55	1.52	1.51	1.49	1.48	1.46	1.45
30	12.88	5.20	3.58	2.92	2.57	2.20	2.01	1.88	1.79	1.73	1.69	1.66	1.64	1.60	1.57	1.56	1.54	1.53	1.50	1.50
40	14.18	5.52	3.75	3.04	2.66	2.27	2.07	1.93	1.84	1.78	1.73	1.70	1.68	1.64	1.61	1.59	1.57	1.56	1.54	1.53
50	15.29	5.79	3.89	3.13	2.73	2.32	2.12	1.97	1.88	1.81	1.77	1.73	1.71	1.67	1.64	1.62	1.60	1.59	1.57	1.55
60	16.23	6.01	4.00	3.21	2.79	2.37	2.15	2.00	1.90	1.84	1.79	1.76	1.73	1.69	1.66	1.64	1.62	1.61	1.59	1.57
75	17.46	6.30	4.15	3.30	2.87	2.42	2.20	2.04	1.94	1.87	1.83	1.79	1.76	1.72	1.69	1.66	1.65	1.64	1.61	1.60
100	19.22	6.68	4.34	3.43	2.97	2.49	2.26	2.09	1.98	1.92	1.87	1.83	1.80	1.75	1.72	1.70	1.68	1.67	1.64	1.63
125	20.74	6.97	4.48	3.53	3.04	2.55	2.30	2.13	2.02	1.95	1.90	1.86	1.83	1.78	1.75	1.72	1.71	1.69	1.67	1.65
150	22.03	7.27	4.61	3.62	3.11	2.59	2.34	2.16	2.05	1.98	1.92	1.88	1.85	1.80	1.77	1.74	1.73	1.71	1.68	1.67
175	23.20	7.50	4.72	3.69	3.16	2.63	2.37	2.19	2.07	2.00	1.94	1.90	1.88	1.82	1.79	1.77	1.74	1.73	1.70	1.68
200	24.38	7.68	4.83	3.75	3.21	2.67	2.40	2.21	2.09	2.02	1.96	1.92	1.89	1.84	1.80	1.78	1.76	1.74	1.72	1.70

Table 19-18. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 3 (40 COC, Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	3.60	2.16	1.74	1.53	1.42	1.28	1.21	1.15	1.11	1.09	1.07	1.05	1.04	1.03	1.01	1.00	1.00	0.99	0.98	0.98
2	4.59	2.56	2.00	1.75	1.60	1.44	1.35	1.28	1.23	1.20	1.18	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07
3	5.27	2.87	2.17	1.88	1.71	1.53	1.43	1.35	1.30	1.27	1.25	1.23	1.21	1.19	1.18	1.17	1.16	1.15	1.14	1.13
4	5.82	3.01	2.29	1.97	1.79	1.59	1.48	1.40	1.35	1.32	1.29	1.27	1.26	1.23	1.22	1.21	1.20	1.19	1.18	1.17
5	6.28	3.16	2.39	2.04	1.85	1.64	1.53	1.44	1.39	1.35	1.33	1.31	1.29	1.27	1.25	1.24	1.23	1.22	1.21	1.20
8	7.37	3.51	2.60	2.20	1.98	1.74	1.62	1.53	1.47	1.43	1.40	1.38	1.36	1.33	1.31	1.30	1.29	1.28	1.27	1.26
12	8.45	3.84	2.79	2.34	2.10	1.84	1.70	1.60	1.54	1.49	1.46	1.44	1.42	1.39	1.37	1.35	1.34	1.33	1.32	1.31
16	9.31	4.08	2.93	2.44	2.18	1.90	1.76	1.65	1.58	1.54	1.50	1.48	1.46	1.43	1.41	1.39	1.38	1.37	1.35	1.34
20	10.03	4.28	3.04	2.52	2.25	1.95	1.80	1.69	1.62	1.57	1.54	1.51	1.49	1.46	1.44	1.42	1.41	1.40	1.38	1.37
30	11.50	4.67	3.25	2.67	2.37	2.05	1.88	1.76	1.68	1.63	1.59	1.57	1.54	1.51	1.49	1.47	1.46	1.45	1.43	1.42
40	12.66	4.96	3.41	2.79	2.45	2.11	1.94	1.81	1.73	1.67	1.64	1.61	1.58	1.55	1.52	1.51	1.49	1.48	1.46	1.45
50	13.64	5.20	3.53	2.87	2.52	2.16	1.98	1.85	1.76	1.71	1.67	1.64	1.61	1.58	1.55	1.53	1.52	1.50	1.48	1.46
60	14.49	5.40	3.64	2.94	2.58	2.21	2.02	1.88	1.79	1.74	1.69	1.66	1.64	1.60	1.57	1.55	1.54	1.53	1.50	1.48
75	15.65	5.66	3.77	3.03	2.65	2.26	2.06	1.92	1.83	1.77	1.73	1.69	1.67	1.63	1.60	1.58	1.57	1.55	1.53	1.52
100	17.23	6.02	3.95	3.15	2.74	2.33	2.12	1.97	1.88	1.81	1.77	1.73	1.71	1.67	1.64	1.62	1.60	1.59	1.57	1.55
125	18.59	6.29	4.08	3.25	2.82	2.38	2.16	2.01	1.91	1.85	1.80	1.76	1.74	1.70	1.67	1.65	1.63	1.62	1.59	1.58
150	19.69	6.53	4.20	3.33	2.88	2.43	2.20	2.04	1.94	1.87	1.82	1.79	1.76	1.72	1.69	1.67	1.66	1.64	1.61	1.60
175	20.78	6.73	4.31	3.40	2.93	2.46	2.23	2.06	1.97	1.90	1.85	1.81	1.78	1.74	1.71	1.69	1.67	1.66	1.63	1.61
200	21.60	6.94	4.41	3.45	2.97	2.50	2.26	2.09	1.99	1.91	1.87	1.83	1.80	1.76	1.73	1.71	1.69	1.68	1.64	1.62

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Table 19-18. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 3 (40 COC, Semi-Annual)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	4.35	2.51	1.98	1.74	1.59	1.43	1.34	1.28	1.23	1.20	1.18	1.17	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.07
2	5.53	2.95	2.27	1.96	1.78	1.59	1.48	1.40	1.35	1.32	1.29	1.27	1.26	1.23	1.22	1.21	1.20	1.19	1.18	1.17
3	6.36	3.24	2.45	2.09	1.89	1.68	1.56	1.48	1.42	1.38	1.36	1.33	1.32	1.29	1.27	1.26	1.25	1.24	1.23	1.22
4	7.01	3.45	2.58	2.19	1.98	1.74	1.62	1.53	1.47	1.43	1.40	1.38	1.36	1.33	1.31	1.30	1.29	1.28	1.27	1.26
5	7.56	3.63	2.68	2.27	2.04	1.79	1.66	1.57	1.50	1.46	1.43	1.41	1.39	1.36	1.34	1.33	1.32	1.31	1.30	1.28
8	8.86	4.02	2.97	2.43	2.18	1.90	1.75	1.65	1.58	1.54	1.50	1.48	1.46	1.43	1.41	1.39	1.38	1.37	1.35	1.34
12	10.16	4.38	3.11	2.58	2.29	1.99	1.83	1.72	1.65	1.60	1.56	1.53	1.51	1.48	1.46	1.44	1.43	1.42	1.40	1.39
16	11.19	4.66	3.27	2.69	2.38	2.06	1.89	1.77	1.69	1.64	1.60	1.57	1.55	1.52	1.50	1.48	1.47	1.46	1.44	1.42
20	12.06	4.89	3.39	2.78	2.45	2.11	1.94	1.81	1.73	1.67	1.64	1.61	1.58	1.55	1.52	1.51	1.49	1.48	1.46	1.45
30	13.81	5.32	3.62	2.94	2.58	2.20	2.02	1.88	1.79	1.74	1.69	1.66	1.64	1.60	1.57	1.55	1.54	1.53	1.50	1.48
40	15.21	5.65	3.79	3.05	2.67	2.27	2.07	1.93	1.84	1.78	1.74	1.70	1.68	1.64	1.61	1.59	1.57	1.56	1.54	1.53
50	16.41	5.92	3.92	3.14	2.74	2.33	2.12	1.97	1.88	1.81	1.77	1.73	1.71	1.67	1.64	1.62	1.60	1.59	1.57	1.55
60	17.43	6.15	4.04	3.22	2.80	2.37	2.15	2.00	1.90	1.84	1.79	1.76	1.73	1.69	1.66	1.64	1.62	1.61	1.59	1.57
75	18.80	6.44	4.18	3.32	2.88	2.42	2.20	2.04	1.94	1.87	1.82	1.79	1.76	1.72	1.69	1.66	1.65	1.63	1.61	1.60
100	20.64	6.84	4.38	3.44	2.97	2.50	2.26	2.09	1.98	1.92	1.86	1.83	1.80	1.76	1.72	1.70	1.68	1.67	1.64	1.62
125	22.29	7.14	4.53	3.55	3.05	2.55	2.30	2.13	2.02	1.95	1.90	1.86	1.83	1.79	1.75	1.72	1.70	1.69	1.67	1.65
150	23.65	7.42	4.66	3.63	3.11	2.59	2.34	2.16	2.05	1.98	1.92	1.88	1.85	1.81	1.78	1.75	1.73	1.71	1.69	1.67
175	24.88	7.66	4.77	3.71	3.16	2.63	2.37	2.19	2.07	2.00	1.94	1.91	1.87	1.83	1.80	1.76	1.74	1.73	1.70	1.69
200	25.98	7.86	4.87	3.76	3.21	2.67	2.40	2.21	2.09	2.02	1.97	1.92	1.89	1.85	1.82	1.78	1.76	1.75	1.72	1.70

Table 19-18. κ -Multipliers for 1-of-2 Intrawell Prediction Limits on Means of Order 3 (40 COC, Quarterly)

w/n	4	6	8	10	12	16	20	25	30	35	40	45	50	60	70	80	90	100	125	150
1	5.14	2.87	2.24	1.94	1.77	1.58	1.48	1.40	1.35	1.32	1.29	1.27	1.26	1.23	1.22	1.21	1.20	1.19	1.18	1.17
2	6.52	3.36	2.54	2.17	1.97	1.74	1.62	1.53	1.47	1.43	1.40	1.38	1.36	1.33	1.31	1.30	1.29	1.28	1.27	1.26
3	7.49	3.68	2.73	2.32	2.08	1.83	1.70	1.60	1.53	1.49	1.46	1.44	1.42	1.39	1.37	1.35	1.34	1.33	1.32	1.31
4	8.25	3.92	2.87	2.42	2.17	1.90	1.75	1.65	1.58	1.54	1.50	1.48	1.46	1.43	1.41	1.39	1.38	1.37	1.35	1.34
5	8.90	4.11	2.98	2.50	2.23	1.95	1.80	1.69	1.62	1.57	1.53	1.51	1.49	1.46	1.44	1.42	1.41	1.40	1.38	1.37
8	10.42	4.55	3.23	2.68	2.37	2.06	1.89	1.77	1.69	1.64	1.60	1.57	1.55	1.52	1.50	1.48	1.47	1.45	1.44	1.42
12	11.95	4.96	3.45	2.83	2.50	2.15	1.97	1.84	1.76	1.70	1.66	1.63	1.61	1.57	1.55	1.53	1.51	1.50	1.48	1.47
16	13.16	5.27	3.62	2.95	2.59	2.22	2.03	1.89	1.80	1.74	1.70	1.67	1.64	1.61	1.58	1.56	1.55	1.53	1.52	1.50
20	14.18	5.52	3.75	3.04	2.66	2.27	2.07	1.93	1.84	1.78	1.73	1.70	1.68	1.64	1.61	1.59	1.57	1.56	1.54	1.53
30	16.24	6.01	4.00	3.21	2.79	2.37	2.15	2.00	1.90	1.84	1.79	1.76	1.73	1.69	1.66	1.64	1.62	1.61	1.59	1.57
40	17.88	6.37	4.18	3.33	2.89	2.44	2.21	2.05	1.95	1.88	1.83	1.80	1.77	1.72	1.69	1.67	1.66	1.64	1.62	1.60
50	19.28	6.67	4.33	3.43	2.96	2.49	2.26	2.09	1.98	1.92	1.87	1.83	1.80	1.75	1.72	1.70	1.68	1.67	1.64	1.62
60	20.47	6.93	4.46	3.51	3.02	2.54	2.29	2.12	2.01	1.94	1.89	1.85	1.82	1.77	1.74	1.72	1.70	1.69	1.66	1.64
75	22.08	7.26	4.61	3.61	3.10	2.59	2.34	2.16	2.05	1.98	1.92	1.88	1.85	1.80	1.77	1.75	1.73	1.71	1.68	1.67
100	24.34	7.69	4.82	3.75	3.20	2.67	2.40	2.21	2.09	2.02	1.96	1.92	1.89	1.84	1.80	1.78	1.76	1.75	1.72	1.70
125	26.11	8.07	4.99	3.86	3.29	2.72	2.44	2.25	2.13	2.05	2.00	1.95	1.92	1.86	1.83	1.81	1.79	1.77	1.74	1.72
150	27.89	8.37	5.13	3.95	3.35	2.77	2.48	2.28	2.16	2.08	2.02	1.98	1.94	1.89	1.85	1.83	1.81	1.79	1.76	1.74
175	29.26	8.61	5.25	4.02	3.41	2.81	2.51	2.31	2.18	2.10	2.04	2.00	1.96	1.91	1.87	1.85	1.83	1.81	1.77	1.76
200	30.62	8.89	5.37	4.09	3.46	2.85	2.54	2.33	2.20	2.12	2.06	2.01	1.98	1.93	1.90	1.86	1.84	1.83	1.79	1.77

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D STATISTICAL TABLES

D.4 TABLES FROM CHAPTER 19: NONPARAMETRIC RETESTING PLANS

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D.4.2 PLANS ON MEDIANS

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Table 19-19. Per-Constituent Significance Levels (α) for Non-Parametric 1-of-2 Plan ($PL=X_n$)

$w \setminus n$	4	6	8	10	12	16	20	25	30	35	40
1	0.6667-1	0.3571-1	0.2222-1	0.1515-1	0.1099-1	0.6536-2	0.4329-2	0.2849-2	0.2016-2	0.1502-2	0.1161-2
2	0.1190	0.6667-1	0.4242-1	0.2930-1	0.2143-1	0.1287-1	0.8564-2	0.5656-2	0.4011-2	0.2991-2	0.2316-2
3	0.1619	0.9394-1	0.6094-1	0.4258-1	0.3137-1	0.1900-1	0.1271-1	0.8422-2	0.5984-2	0.4468-2	0.3462-2
4	0.1980	0.1183	0.7802-1	0.5509-1	0.4087-1	0.2496-1	0.1677-1	0.1115-1	0.7937-2	0.5934-2	0.4602-2
5	0.2290	0.1402	0.9387-1	0.6691-1	0.4995-1	0.3074-1	0.2075-1	0.1384-1	0.9870-2	0.7388-2	0.5735-2
8	0.3016	0.1954	0.1355	0.9890-1	0.7507-1	0.4717-1	0.3222-1	0.2168-1	0.1555-1	0.1168-1	0.9091-2
10	0.3386	0.2255	0.1594	0.1178	0.9028-1	0.5744-1	0.3952-1	0.2674-1	0.1925-1	0.1449-1	0.1130-1
12	0.3696	0.2519	0.1808	0.1352	0.1045	0.6721-1	0.4656-1	0.3168-1	0.2287-1	0.1726-1	0.1347-1
15	0.4080	0.2859	0.2094	0.1589	0.1241	0.8105-1	0.5667-1	0.3885-1	0.2819-1	0.2134-1	0.1669-1
20	0.4576	0.3320	0.2496	0.1932	0.1532	0.1022	0.7248-1	0.5025-1	0.3673-1	0.2794-1	0.2194-1
25	0.4955	0.3690	0.2830	0.2225	0.1787	0.1214	0.8714-1	0.6102-1	0.4491-1	0.3433-1	0.2704-1
30	0.5259	0.3997	0.3116	0.2482	0.2014	0.1390	0.1008	0.7125-1	0.5276-1	0.4051-1	0.3201-1
35	0.5509	0.4257	0.3363	0.2708	0.2218	0.1551	0.1136	0.8097-1	0.6030-1	0.4649-1	0.3685-1
40	0.5721	0.4483	0.3582	0.2911	0.2403	0.1701	0.1257	0.9024-1	0.6757-1	0.5230-1	0.4157-1
45	0.5904	0.4680	0.3776	0.3095	0.2572	0.1840	0.1370	0.9910-1	0.7458-1	0.5793-1	0.4618-1
50	0.6063	0.4856	0.3951	0.3262	0.2727	0.1970	0.1478	0.1076	0.8134-1	0.6341-1	0.5068-1
60	0.6330	0.5155	0.4256	0.3556	0.3005	0.2208	0.1677	0.1235	0.9422-1	0.7393-1	0.5938-1
70	0.6546	0.5403	0.4512	0.3809	0.3246	0.2420	0.1858	0.1383	0.1063	0.8391-1	0.6770-1
80	0.6726	0.5613	0.4733	0.4029	0.3460	0.2611	0.2024	0.1521	0.1177	0.9340-1	0.7568-1
90	0.6880	0.5795	0.4927	0.4224	0.3651	0.2785	0.2178	0.1650	0.1285	0.1025	0.8334-1
100	0.7012	0.5954	0.5098	0.4399	0.3823	0.2944	0.2320	0.1771	0.1387	0.1111	0.9072-1
120	0.7231	0.6221	0.5389	0.4699	0.4122	0.3226	0.2576	0.1992	0.1577	0.1274	0.1047
140	0.7407	0.6438	0.5629	0.4950	0.4376	0.3471	0.2802	0.2191	0.1751	0.1424	0.1177
160	0.7552	0.6619	0.5832	0.5165	0.4595	0.3686	0.3004	0.2372	0.1910	0.1564	0.1300
180	0.7674	0.6773	0.6007	0.5351	0.4787	0.3877	0.3185	0.2537	0.2057	0.1694	0.1415
200	0.7778	0.6907	0.6160	0.5516	0.4958	0.4049	0.3351	0.2689	0.2194	0.1817	0.1524

Footnote. PL = Prediction Limit; X_n = Maximum order statistic

Table 19-19. Per-Constituent Significance Levels (α) for Non-Parametric 1-of-2 Plan ($PL=X_n$)

$w \backslash n$	50	60	70	80	90	100	120	140	160	180	200
1	0.7541-3	0.5288-3	0.3912-3	0.3011-3	0.2389-3	0.1941-3	0.1355-3	0.9989-4	0.7668-4	0.6071-4	0.4926-4
2	0.1505-2	0.1056-2	0.7816-3	0.6017-3	0.4775-3	0.3881-3	0.2709-3	0.1997-3	0.1533-3	0.1214-3	0.9850-4
3	0.2253-2	0.1582-2	0.1171-2	0.9018-3	0.7157-3	0.5818-3	0.4061-3	0.2995-3	0.2299-3	0.1821-3	0.1477-3
4	0.2998-2	0.2106-2	0.1560-2	0.1201-2	0.9536-3	0.7752-3	0.5413-3	0.3992-3	0.3065-3	0.2427-3	0.1969-3
5	0.3739-2	0.2628-2	0.1948-2	0.1500-2	0.1191-2	0.9685-3	0.6764-3	0.4989-3	0.3831-3	0.3033-3	0.2462-3
8	0.5946-2	0.4187-2	0.3106-2	0.2395-2	0.1902-2	0.1547-2	0.1081-2	0.7975-3	0.6125-3	0.4851-3	0.3937-3
10	0.7403-2	0.5219-2	0.3874-2	0.2988-2	0.2374-2	0.1932-2	0.1350-2	0.9963-3	0.7653-3	0.6062-3	0.4919-3
12	0.8848-2	0.6244-2	0.4638-2	0.3580-2	0.2845-2	0.2315-2	0.1619-2	0.1195-2	0.9179-3	0.7271-3	0.5902-3
15	0.1099-1	0.7772-2	0.5779-2	0.4463-2	0.3549-2	0.2889-2	0.2021-2	0.1492-2	0.1147-2	0.9084-3	0.7374-3
20	0.1451-1	0.1029-1	0.7665-2	0.5926-2	0.4717-2	0.3842-2	0.2690-2	0.1987-2	0.1527-2	0.1210-2	0.9825-3
25	0.1797-1	0.1277-1	0.9530-2	0.7377-2	0.5876-2	0.4789-2	0.3356-2	0.2480-2	0.1907-2	0.1511-2	0.1227-2
30	0.2136-1	0.1522-1	0.1138-1	0.8816-2	0.7028-2	0.5732-2	0.4019-2	0.2972-2	0.2286-2	0.1812-2	0.1472-2
35	0.2469-1	0.1764-1	0.1320-1	0.1024-1	0.8173-2	0.6669-2	0.4680-2	0.3462-2	0.2664-2	0.2112-2	0.1716-2
40	0.2796-1	0.2002-1	0.1501-1	0.1166-1	0.9310-2	0.7601-2	0.5338-2	0.3951-2	0.3041-2	0.2412-2	0.1959-2
45	0.3118-1	0.2238-1	0.1680-1	0.1307-1	0.1044-1	0.8529-2	0.5994-2	0.4439-2	0.3417-2	0.2711-2	0.2203-2
50	0.3434-1	0.2470-1	0.1858-1	0.1446-1	0.1156-1	0.9451-2	0.6647-2	0.4925-2	0.3793-2	0.3009-2	0.2446-2
60	0.4051-1	0.2927-1	0.2207-1	0.1722-1	0.1379-1	0.1128-1	0.7947-2	0.5893-2	0.4541-2	0.3605-2	0.2931-2
70	0.4648-1	0.3372-1	0.2551-1	0.1993-1	0.1598-1	0.1309-1	0.9237-2	0.6856-2	0.5287-2	0.4199-2	0.3414-2
80	0.5227-1	0.3807-1	0.2887-1	0.2261-1	0.1815-1	0.1489-1	0.1052-1	0.7814-2	0.6029-2	0.4790-2	0.3896-2
90	0.5789-1	0.4232-1	0.3218-1	0.2524-1	0.2030-1	0.1666-1	0.1179-1	0.8766-2	0.6768-2	0.5380-2	0.4377-2
100	0.6335-1	0.4648-1	0.3543-1	0.2784-1	0.2242-1	0.1842-1	0.1305-1	0.9713-2	0.7504-2	0.5967-2	0.4857-2
120	0.7382-1	0.5453-1	0.4176-1	0.3293-1	0.2659-1	0.2189-1	0.1555-1	0.1159-1	0.8966-2	0.7136-2	0.5812-2
140	0.8376-1	0.6225-1	0.4789-1	0.3788-1	0.3066-1	0.2529-1	0.1801-1	0.1345-1	0.1042-1	0.8297-2	0.6762-2
160	0.9322-1	0.6967-1	0.5382-1	0.4270-1	0.3464-1	0.2863-1	0.2044-1	0.1529-1	0.1185-1	0.9451-2	0.7706-2
180	0.1022	0.7682-1	0.5957-1	0.4741-1	0.3854-1	0.3191-1	0.2284-1	0.1711-1	0.1328-1	0.1060-1	0.8646-2
200	0.1109	0.8371-1	0.6515-1	0.5199-1	0.4236-1	0.3513-1	0.2520-1	0.1892-1	0.1470-1	0.1173-1	0.9580-2

Footnote. PL = Prediction Limit; X_n = Maximum order statistic

Table 19-19. Per-Constituent Significance Levels (α) for Non-Parametric 1-of-2 Plan ($PL=X_{n-1}$)

$w \setminus n$	4	6	8	10	12	16	20	25	30	35	40
1	0.2000	0.1071	0.6667-1	0.4545-1	0.3297-1	0.1961-1	0.1299-1	0.8547-2	0.6048-2	0.4505-2	0.3484-2
2	0.3286	0.1905	0.1232	0.8591-1	0.6319-1	0.3818-1	0.2550-1	0.1688-1	0.1199-1	0.8948-2	0.6932-2
3	0.4190	0.2576	0.1720	0.1223	0.9104-1	0.5582-1	0.3758-1	0.2502-1	0.1783-1	0.1333-1	0.1034-1
4	0.4866	0.3130	0.2147	0.1551	0.1168	0.7260-1	0.4924-1	0.3296-1	0.2356-1	0.1766-1	0.1372-1
5	0.5391	0.3598	0.2524	0.1851	0.1408	0.8860-1	0.6052-1	0.4072-1	0.2920-1	0.2193-1	0.1706-1
8	0.6450	0.4651	0.3436	0.2612	0.2038	0.1325	0.9224-1	0.6297-1	0.4556-1	0.3442-1	0.2688-1
10	0.6911	0.5163	0.3914	0.3030	0.2397	0.1588	0.1118	0.7702-1	0.5603-1	0.4248-1	0.3327-1
12	0.7261	0.5577	0.4317	0.3396	0.2719	0.1831	0.1303	0.9048-1	0.6617-1	0.5036-1	0.3953-1
15	0.7653	0.6071	0.4820	0.3867	0.3144	0.2163	0.1561	0.1097	0.8082-1	0.6182-1	0.4871-1
20	0.8099	0.6672	0.5466	0.4499	0.3733	0.2648	0.1950	0.1394	0.1039	0.8006-1	0.6344-1
25	0.8398	0.7103	0.5955	0.4997	0.4214	0.3063	0.2295	0.1665	0.1253	0.9732-1	0.7752-1
30	0.8613	0.7429	0.6340	0.5402	0.4616	0.3424	0.2605	0.1914	0.1454	0.1137	0.9101-1
35	0.8776	0.7686	0.6652	0.5739	0.4957	0.3743	0.2884	0.2145	0.1643	0.1293	0.1039
40	0.8903	0.7893	0.6910	0.6024	0.5252	0.4026	0.3138	0.2358	0.1821	0.1441	0.1164
45	0.9006	0.8064	0.7129	0.6270	0.5510	0.4280	0.3370	0.2558	0.1989	0.1582	0.1283
50	0.9091	0.8208	0.7316	0.6484	0.5738	0.4509	0.3584	0.2744	0.2149	0.1717	0.1398
60	0.9222	0.8438	0.7621	0.6840	0.6123	0.4909	0.3965	0.3084	0.2443	0.1971	0.1616
70	0.9320	0.8613	0.7860	0.7125	0.6438	0.5246	0.4295	0.3385	0.2711	0.2205	0.1820
80	0.9395	0.8751	0.8053	0.7359	0.6700	0.5535	0.4584	0.3656	0.2955	0.2421	0.2010
90	0.9455	0.8864	0.8212	0.7555	0.6923	0.5787	0.4841	0.3901	0.3179	0.2622	0.2189
100	0.9505	0.8957	0.8345	0.7722	0.7115	0.6008	0.5070	0.4124	0.3386	0.2810	0.2358
120	0.9580	0.9102	0.8558	0.7991	0.7430	0.6380	0.5464	0.4515	0.3756	0.3151	0.2668
140	0.9635	0.9211	0.8720	0.8200	0.7678	0.6681	0.5792	0.4849	0.4079	0.3454	0.2947
160	0.9677	0.9296	0.8847	0.8367	0.7879	0.6931	0.6069	0.5138	0.4363	0.3725	0.3201
180	0.9710	0.9364	0.8951	0.8505	0.8046	0.7143	0.6308	0.5391	0.4616	0.3970	0.3432
200	0.9737	0.9419	0.9037	0.8619	0.8186	0.7325	0.6516	0.5615	0.4844	0.4192	0.3644

Footnote. PL = Prediction Limit; X_{n-1} = 2nd largest order statistic

Table 19-19. Per-Constituent Significance Levels (α) for Non-Parametric 1-of-2 Plan ($PL=X_{n-1}$)

$w \setminus n$	50	60	70	80	90	100	120	140	160	180	200
1	0.2262-2	0.1586-2	0.1174-2	0.9033-3	0.7167-3	0.5824-3	0.4064-3	0.2997-3	0.2300-3	0.1821-3	0.1478-3
2	0.4509-2	0.3165-2	0.2343-2	0.1804-2	0.1432-2	0.1164-2	0.8124-3	0.5990-3	0.4599-3	0.3642-3	0.2955-3
3	0.6740-2	0.4736-2	0.3508-2	0.2702-2	0.2145-2	0.1744-2	0.1218-2	0.8981-3	0.6896-3	0.5461-3	0.4431-3
4	0.8956-2	0.6299-2	0.4669-2	0.3598-2	0.2857-2	0.2323-2	0.1623-2	0.1197-2	0.9191-3	0.7279-3	0.5907-3
5	0.1116-1	0.7854-2	0.5825-2	0.4491-2	0.3567-2	0.2901-2	0.2027-2	0.1495-2	0.1149-2	0.9096-3	0.7382-3
8	0.1767-1	0.1248-1	0.9270-2	0.7155-2	0.5688-2	0.4629-2	0.3237-2	0.2389-2	0.1836-2	0.1454-2	0.1180-2
10	0.2194-1	0.1552-1	0.1155-1	0.8919-2	0.7094-2	0.5776-2	0.4041-2	0.2984-2	0.2293-2	0.1817-2	0.1475-2
12	0.2615-1	0.1853-1	0.1380-1	0.1067-1	0.8494-2	0.6918-2	0.4843-2	0.3577-2	0.2749-2	0.2179-2	0.1769-2
15	0.3237-1	0.2300-1	0.1716-1	0.1328-1	0.1058-1	0.8624-2	0.6041-2	0.4465-2	0.3433-2	0.2721-2	0.2209-2
20	0.4247-1	0.3032-1	0.2268-1	0.1759-1	0.1403-1	0.1145-1	0.8029-2	0.5939-2	0.4568-2	0.3622-2	0.2942-2
25	0.5226-1	0.3746-1	0.2811-1	0.2184-1	0.1744-1	0.1424-1	0.1000-1	0.7406-2	0.5700-2	0.4521-2	0.3673-2
30	0.6176-1	0.4445-1	0.3344-1	0.2603-1	0.2082-1	0.1702-1	0.1197-1	0.8866-2	0.6827-2	0.5418-2	0.4403-2
35	0.7098-1	0.5129-1	0.3869-1	0.3017-1	0.2415-1	0.1976-1	0.1392-1	0.1032-1	0.7951-2	0.6311-2	0.5130-2
40	0.7994-1	0.5799-1	0.4384-1	0.3425-1	0.2746-1	0.2249-1	0.1586-1	0.1177-1	0.9070-2	0.7202-2	0.5856-2
45	0.8866-1	0.6454-1	0.4892-1	0.3828-1	0.3073-1	0.2519-1	0.1778-1	0.1320-1	0.1019-1	0.8091-2	0.6580-2
50	0.9714-1	0.7096-1	0.5391-1	0.4226-1	0.3396-1	0.2786-1	0.1970-1	0.1464-1	0.1130-1	0.8977-2	0.7303-2
60	0.1134	0.8342-1	0.6367-1	0.5006-1	0.4033-1	0.3315-1	0.2349-1	0.1748-1	0.1351-1	0.1074-1	0.8743-2
70	0.1289	0.9540-1	0.7313-1	0.5768-1	0.4658-1	0.3835-1	0.2724-1	0.2030-1	0.1570-1	0.1250-1	0.1018-1
80	0.1437	0.1069	0.8231-1	0.6512-1	0.5270-1	0.4346-1	0.3094-1	0.2310-1	0.1788-1	0.1424-1	0.1160-1
90	0.1577	0.1181	0.9123-1	0.7238-1	0.5870-1	0.4849-1	0.3460-1	0.2587-1	0.2004-1	0.1597-1	0.1302-1
100	0.1712	0.1288	0.9990-1	0.7948-1	0.6459-1	0.5344-1	0.3821-1	0.2861-1	0.2219-1	0.1770-1	0.1444-1
120	0.1963	0.1492	0.1165	0.9320-1	0.7604-1	0.6310-1	0.4532-1	0.3403-1	0.2645-1	0.2112-1	0.1724-1
140	0.2196	0.1683	0.1323	0.1063	0.8708-1	0.7248-1	0.5227-1	0.3935-1	0.3064-1	0.2450-1	0.2002-1
160	0.2410	0.1863	0.1473	0.1189	0.9774-1	0.8158-1	0.5907-1	0.4459-1	0.3478-1	0.2785-1	0.2278-1
180	0.2610	0.2032	0.1616	0.1310	0.1080	0.9041-1	0.6572-1	0.4973-1	0.3886-1	0.3116-1	0.2551-1
200	0.2797	0.2192	0.1753	0.1427	0.1180	0.9900-1	0.7222-1	0.5480-1	0.4289-1	0.3443-1	0.2822-1

Footnote. PL = Prediction Limit; X_{n-1} = 2nd largest order statistic

Table 19-20. Per-Constituent Significance Levels (α) for Non-Parametric 1-of-3 Plan (PL= X_n)

$w \setminus n$	4	6	8	10	12	16	20	25	30	35	40
1	0.2857-1	0.1190-1	0.6061-2	0.3497-2	0.2198-2	0.1032-2	0.5647-3	0.3053-3	0.1833-3	0.1185-3	0.8103-4
2	0.5238-1	0.2273-1	0.1179-1	0.6868-2	0.4342-2	0.2051-2	0.1125-2	0.6091-3	0.3661-3	0.2369-3	0.1620-3
3	0.7283-1	0.3267-1	0.1722-1	0.1013-1	0.6435-2	0.3056-2	0.1681-2	0.9117-3	0.5483-3	0.3550-3	0.2428-3
4	0.9076-1	0.4187-1	0.2240-1	0.1328-1	0.8481-2	0.4049-2	0.2233-2	0.1213-2	0.7301-3	0.4728-3	0.3235-3
5	0.1067	0.5045-1	0.2735-1	0.1633-1	0.1048-1	0.5031-2	0.2781-2	0.1513-2	0.9113-3	0.5905-3	0.4041-3
8	0.1463	0.7320-1	0.4101-1	0.2499-1	0.1624-1	0.7906-2	0.4401-2	0.2405-2	0.1452-2	0.9422-3	0.6453-3
10	0.1678	0.8643-1	0.4929-1	0.3038-1	0.1990-1	0.9769-2	0.5462-2	0.2994-2	0.1810-2	0.1176-2	0.8056-3
12	0.1865	0.9846-1	0.5704-1	0.3552-1	0.2342-1	0.1159-1	0.6509-2	0.3577-2	0.2167-2	0.1408-2	0.9654-3
15	0.2107	0.1147	0.6780-1	0.4279-1	0.2848-1	0.1426-1	0.8054-2	0.4444-2	0.2697-2	0.1755-2	0.1204-2
20	0.2437	0.1380	0.8386-1	0.5396-1	0.3640-1	0.1853-1	0.1056-1	0.5866-2	0.3573-2	0.2330-2	0.1601-2
25	0.2704	0.1580	0.9810-1	0.6412-1	0.4376-1	0.2261-1	0.1300-1	0.7262-2	0.4438-2	0.2900-2	0.1995-2
30	0.2928	0.1754	0.1109	0.7348-1	0.5065-1	0.2652-1	0.1537-1	0.8632-2	0.5292-2	0.3465-2	0.2386-2
35	0.3121	0.1908	0.1225	0.8215-1	0.5713-1	0.3028-1	0.1767-1	0.9978-2	0.6136-2	0.4025-2	0.2776-2
40	0.3289	0.2046	0.1332	0.9024-1	0.6326-1	0.3389-1	0.1991-1	0.1130-1	0.6971-2	0.4581-2	0.3162-2
45	0.3438	0.2172	0.1431	0.9783-1	0.6907-1	0.3738-1	0.2210-1	0.1260-1	0.7796-2	0.5132-2	0.3547-2
50	0.3573	0.2287	0.1523	0.1050	0.7461-1	0.4075-1	0.2423-1	0.1388-1	0.8612-2	0.5679-2	0.3929-2
60	0.3805	0.2492	0.1689	0.1181	0.8494-1	0.4717-1	0.2836-1	0.1639-1	0.1022-1	0.6760-2	0.4688-2
70	0.4001	0.2669	0.1837	0.1301	0.9445-1	0.5323-1	0.3231-1	0.1882-1	0.1179-1	0.7824-2	0.5437-2
80	0.4171	0.2826	0.1970	0.1410	0.1033	0.5895-1	0.3610-1	0.2118-1	0.1333-1	0.8874-2	0.6179-2
90	0.4319	0.2966	0.2091	0.1510	0.1115	0.6439-1	0.3975-1	0.2347-1	0.1484-1	0.9908-2	0.6913-2
100	0.4451	0.3093	0.2202	0.1603	0.1192	0.6957-1	0.4327-1	0.2571-1	0.1632-1	0.1093-1	0.7639-2
120	0.4677	0.3314	0.2399	0.1771	0.1333	0.7926-1	0.4996-1	0.3003-1	0.1921-1	0.1293-1	0.9069-2
140	0.4865	0.3502	0.2570	0.1920	0.1459	0.8819-1	0.5624-1	0.3415-1	0.2200-1	0.1488-1	0.1047-1
160	0.5026	0.3666	0.2722	0.2054	0.1574	0.9648-1	0.6216-1	0.3810-1	0.2470-1	0.1678-1	0.1185-1
180	0.5166	0.3811	0.2858	0.2175	0.1680	0.1042	0.6777-1	0.4189-1	0.2732-1	0.1864-1	0.1320-1
200	0.5289	0.3941	0.2980	0.2286	0.1777	0.1115	0.7311-1	0.4554-1	0.2987-1	0.2045-1	0.1453-1

Footnote. PL = Prediction Limit; X_n = Maximum order statistic

Table 19-20. Per-Constituent Significance Levels (α) for Non-Parametric 1-of-3 Plan ($PL=X_n$)

$w \setminus n$	50	60	70	80	90	100	120	140	160	180	200
1	0.4269-4	0.2518-4	0.1608-4	0.1088-4	0.7706-5	0.5654-5	0.3304-5	0.2096-5	0.1411-5	0.9953-6	0.7280-6
2	0.8534-4	0.5035-4	0.3215-4	0.2177-4	0.1541-4	0.1131-4	0.6609-5	0.4191-5	0.2823-5	0.1991-5	0.1456-5
3	0.1280-3	0.7551-4	0.4822-4	0.3264-4	0.2312-4	0.1696-4	0.9913-5	0.6287-5	0.4234-5	0.2986-5	0.2184-5
4	0.1706-3	0.1007-3	0.6429-4	0.4352-4	0.3082-4	0.2261-4	0.1322-4	0.8382-5	0.5645-5	0.3981-5	0.2912-5
5	0.2131-3	0.1258-3	0.8035-4	0.5440-4	0.3852-4	0.2827-4	0.1652-4	0.1048-4	0.7056-5	0.4976-5	0.3640-5
8	0.3406-3	0.2011-3	0.1285-3	0.8701-4	0.6162-4	0.4522-4	0.2643-4	0.1676-4	0.1129-4	0.7962-5	0.5823-5
10	0.4255-3	0.2513-3	0.1606-3	0.1087-3	0.7701-4	0.5652-4	0.3304-4	0.2095-4	0.1411-4	0.9952-5	0.7279-5
12	0.5102-3	0.3015-3	0.1926-3	0.1305-3	0.9240-4	0.6782-4	0.3964-4	0.2514-4	0.1693-4	0.1194-4	0.8735-5
15	0.6371-3	0.3766-3	0.2407-3	0.1630-3	0.1155-3	0.8476-4	0.4955-4	0.3143-4	0.2117-4	0.1493-4	0.1092-4
20	0.8480-3	0.5016-3	0.3207-3	0.2173-3	0.1539-3	0.1130-3	0.6605-4	0.4190-4	0.2822-4	0.1990-4	0.1456-4
25	0.1058-2	0.6263-3	0.4006-3	0.2715-3	0.1923-3	0.1412-3	0.8255-4	0.5237-4	0.3527-4	0.2488-4	0.1820-4
30	0.1268-2	0.7507-3	0.4804-3	0.3256-3	0.2307-3	0.1694-3	0.9905-4	0.6283-4	0.4232-4	0.2985-4	0.2183-4
35	0.1476-2	0.8749-3	0.5600-3	0.3797-3	0.2691-3	0.1976-3	0.1155-3	0.7330-4	0.4937-4	0.3482-4	0.2547-4
40	0.1684-2	0.9989-3	0.6396-3	0.4337-3	0.3074-3	0.2257-3	0.1320-3	0.8376-4	0.5642-4	0.3980-4	0.2911-4
45	0.1892-2	0.1123-2	0.7191-3	0.4877-3	0.3457-3	0.2539-3	0.1485-3	0.9422-4	0.6347-4	0.4477-4	0.3275-4
50	0.2098-2	0.1246-2	0.7984-3	0.5416-3	0.3840-3	0.2820-3	0.1650-3	0.1047-3	0.7052-4	0.4974-4	0.3639-4
60	0.2509-2	0.1492-2	0.9568-3	0.6493-3	0.4605-3	0.3382-3	0.1979-3	0.1256-3	0.8461-4	0.5968-4	0.4366-4
70	0.2918-2	0.1737-2	0.1115-2	0.7568-3	0.5369-3	0.3944-3	0.2308-3	0.1465-3	0.9870-4	0.6962-4	0.5093-4
80	0.3324-2	0.1981-2	0.1272-2	0.8641-3	0.6131-3	0.4505-3	0.2637-3	0.1674-3	0.1128-3	0.7956-4	0.5820-4
90	0.3727-2	0.2224-2	0.1429-2	0.9712-3	0.6893-3	0.5066-3	0.2966-3	0.1883-3	0.1269-3	0.8950-4	0.6548-4
100	0.4128-2	0.2466-2	0.1586-2	0.1078-2	0.7654-3	0.5626-3	0.3294-3	0.2092-3	0.1409-3	0.9944-4	0.7275-4
120	0.4922-2	0.2948-2	0.1898-2	0.1291-2	0.9172-3	0.6744-3	0.3951-3	0.2509-3	0.1691-3	0.1193-3	0.8728-4
140	0.5707-2	0.3425-2	0.2208-2	0.1504-2	0.1069-2	0.7860-3	0.4607-3	0.2926-3	0.1972-3	0.1392-3	0.1018-3
160	0.6482-2	0.3900-2	0.2517-2	0.1715-2	0.1220-2	0.8974-3	0.5262-3	0.3343-3	0.2253-3	0.1590-3	0.1163-3
180	0.7249-2	0.4370-2	0.2825-2	0.1926-2	0.1370-2	0.1009-2	0.5916-3	0.3759-3	0.2534-3	0.1788-3	0.1309-3
200	0.8007-2	0.4837-2	0.3130-2	0.2136-2	0.1520-2	0.1120-2	0.6569-3	0.4175-3	0.2815-3	0.1987-3	0.1454-3

Footnote. PL = Prediction Limit; X_n = Maximum order statistic

Table 19-20. Per-Constituent Significance Levels (α) for Non-parametric 1-of-3 Plan ($PL=X_{n-1}$)

w\n	4	6	8	10	12	16	20	25	30	35	40
1	0.1143	0.4762-1	0.2424-1	0.1399-1	0.8791-2	0.4128-2	0.2259-2	0.1221-2	0.7331-3	0.4742-3	0.3241-3
2	0.1952	0.8766-1	0.4615-1	0.2710-1	0.1721-1	0.8162-2	0.4487-2	0.2432-2	0.1463-2	0.9468-3	0.6475-3
3	0.2568	0.1221	0.6615-1	0.3944-1	0.2528-1	0.1211-1	0.6686-2	0.3635-2	0.2189-2	0.1418-2	0.9701-3
4	0.3059	0.1523	0.8453-1	0.5111-1	0.3303-1	0.1597-1	0.8856-2	0.4828-2	0.2911-2	0.1887-2	0.1292-2
5	0.3464	0.1791	0.1015	0.6218-1	0.4050-1	0.1975-1	0.1100-1	0.6012-2	0.3630-2	0.2355-2	0.1613-2
8	0.4353	0.2448	0.1460	0.9230-1	0.6139-1	0.3064-1	0.1727-1	0.9512-2	0.5767-2	0.3750-2	0.2572-2
10	0.4780	0.2799	0.1714	0.1103	0.7421-1	0.3757-1	0.2133-1	0.1180-1	0.7175-2	0.4673-2	0.3208-2
12	0.5124	0.3101	0.1942	0.1269	0.8628-1	0.4424-1	0.2529-1	0.1406-1	0.8570-2	0.5590-2	0.3841-2
15	0.5536	0.3485	0.2244	0.1496	0.1032	0.5384-1	0.3107-1	0.1739-1	0.1064-1	0.6955-2	0.4786-2
20	0.6046	0.3997	0.2670	0.1827	0.1286	0.6883-1	0.4031-1	0.2280-1	0.1403-1	0.9202-2	0.6346-2
25	0.6419	0.4399	0.3023	0.2114	0.1512	0.8274-1	0.4910-1	0.2804-1	0.1735-1	0.1142-1	0.7889-2
30	0.6708	0.4728	0.3323	0.2366	0.1716	0.9573-1	0.5749-1	0.3312-1	0.2060-1	0.1360-1	0.9417-2
35	0.6940	0.5004	0.3584	0.2591	0.1901	0.1079	0.6550-1	0.3805-1	0.2378-1	0.1575-1	0.1093-1
40	0.7132	0.5240	0.3814	0.2793	0.2072	0.1194	0.7319-1	0.4285-1	0.2690-1	0.1787-1	0.1243-1
45	0.7294	0.5445	0.4018	0.2977	0.2229	0.1302	0.8058-1	0.4751-1	0.2997-1	0.1997-1	0.1391-1
50	0.7433	0.5626	0.4202	0.3145	0.2375	0.1405	0.8768-1	0.5206-1	0.3298-1	0.2203-1	0.1537-1
60	0.7661	0.5932	0.4521	0.3443	0.2638	0.1596	0.1011	0.6082-1	0.3884-1	0.2608-1	0.1827-1
70	0.7842	0.6182	0.4790	0.3701	0.2871	0.1771	0.1137	0.6917-1	0.4450-1	0.3004-1	0.2110-1
80	0.7989	0.6392	0.5021	0.3927	0.3079	0.1931	0.1255	0.7715-1	0.4998-1	0.3389-1	0.2389-1
90	0.8112	0.6571	0.5223	0.4128	0.3266	0.2080	0.1367	0.8480-1	0.5529-1	0.3766-1	0.2663-1
100	0.8216	0.6727	0.5402	0.4309	0.3437	0.2218	0.1472	0.9214-1	0.6045-1	0.4135-1	0.2932-1
120	0.8385	0.6987	0.5705	0.4621	0.3738	0.2468	0.1667	0.1060	0.7032-1	0.4848-1	0.3457-1
140	0.8518	0.7195	0.5955	0.4885	0.3996	0.2690	0.1844	0.1189	0.7968-1	0.5532-1	0.3966-1
160	0.8625	0.7367	0.6165	0.5111	0.4221	0.2889	0.2006	0.1310	0.8857-1	0.6190-1	0.4459-1
180	0.8713	0.7512	0.6346	0.5308	0.4421	0.3069	0.2156	0.1424	0.9705-1	0.6824-1	0.4937-1
200	0.8788	0.7637	0.6504	0.5482	0.4599	0.3233	0.2295	0.1531	0.1052	0.7436-1	0.5403-1

Footnote. PL = Prediction Limit; X_{n-1} = 2nd largest order statistic

Table 19-20. Per-Constituent Significance Levels (α) for Non-parametric 1-of-3 Plan (PL= X_{n-1})

$w \setminus n$	50	60	70	80	90	100	120	140	160	180	200
1	0.1708-3	0.1007-3	0.6431-4	0.4353-4	0.3082-4	0.2262-4	0.1322-4	0.8382-5	0.5645-5	0.3981-5	0.2912-5
2	0.3413-3	0.2014-3	0.1286-3	0.8705-4	0.6164-4	0.4523-4	0.2643-4	0.1676-4	0.1129-4	0.7962-5	0.5824-5
3	0.5116-3	0.3020-3	0.1928-3	0.1306-3	0.9245-4	0.6784-4	0.3965-4	0.2515-4	0.1693-4	0.1194-4	0.8735-5
4	0.6817-3	0.4024-3	0.2571-3	0.1740-3	0.1233-3	0.9045-4	0.5286-4	0.3353-4	0.2258-4	0.1592-4	0.1165-4
5	0.8516-3	0.5029-3	0.3212-3	0.2175-3	0.1540-3	0.1130-3	0.6608-4	0.4191-4	0.2822-4	0.1990-4	0.1456-4
8	0.1360-2	0.8037-3	0.5136-3	0.3479-3	0.2464-3	0.1808-3	0.1057-3	0.6704-4	0.4515-4	0.3185-4	0.2329-4
10	0.1698-2	0.1004-2	0.6417-3	0.4347-3	0.3079-3	0.2260-3	0.1321-3	0.8380-4	0.5644-4	0.3981-4	0.2912-4
12	0.2035-2	0.1204-2	0.7697-3	0.5214-3	0.3694-3	0.2711-3	0.1585-3	0.1006-3	0.6773-4	0.4777-4	0.3494-4
15	0.2539-2	0.1503-2	0.9614-3	0.6515-3	0.4616-3	0.3388-3	0.1981-3	0.1257-3	0.8465-4	0.5970-4	0.4367-4
20	0.3375-2	0.2000-2	0.1280-2	0.8679-3	0.6151-3	0.4516-3	0.2641-3	0.1675-3	0.1129-3	0.7960-4	0.5822-4
25	0.4206-2	0.2495-2	0.1598-2	0.1084-2	0.7684-3	0.5642-3	0.3300-3	0.2094-3	0.1411-3	0.9949-4	0.7277-4
30	0.5032-2	0.2989-2	0.1916-2	0.1300-2	0.9215-3	0.6768-3	0.3959-3	0.2512-3	0.1692-3	0.1194-3	0.8732-4
35	0.5853-2	0.3481-2	0.2232-2	0.1515-2	0.1074-2	0.7892-3	0.4618-3	0.2930-3	0.1974-3	0.1393-3	0.1019-3
40	0.6669-2	0.3971-2	0.2548-2	0.1730-2	0.1227-2	0.9015-3	0.5276-3	0.3348-3	0.2256-3	0.1591-3	0.1164-3
45	0.7481-2	0.4459-2	0.2863-2	0.1945-2	0.1380-2	0.1014-2	0.5934-3	0.3766-3	0.2538-3	0.1790-3	0.1310-3
50	0.8288-2	0.4945-2	0.3177-2	0.2159-2	0.1532-2	0.1126-2	0.6592-3	0.4184-3	0.2819-3	0.1989-3	0.1455-3
60	0.9888-2	0.5913-2	0.3804-2	0.2586-2	0.1836-2	0.1350-2	0.7906-3	0.5019-3	0.3382-3	0.2386-3	0.1746-3
70	0.1147-1	0.6874-2	0.4427-2	0.3012-2	0.2140-2	0.1573-2	0.9218-3	0.5854-3	0.3945-3	0.2784-3	0.2037-3
80	0.1304-1	0.7828-2	0.5048-2	0.3437-2	0.2443-2	0.1797-2	0.1053-2	0.6688-3	0.4508-3	0.3181-3	0.2327-3
90	0.1458-1	0.8776-2	0.5665-2	0.3860-2	0.2745-2	0.2019-2	0.1184-2	0.7521-3	0.5070-3	0.3578-3	0.2618-3
100	0.1612-1	0.9717-2	0.6280-2	0.4282-2	0.3046-2	0.2242-2	0.1315-2	0.8354-3	0.5632-3	0.3975-3	0.2908-3
120	0.1914-1	0.1158-1	0.7501-2	0.5122-2	0.3647-2	0.2685-2	0.1576-2	0.1002-2	0.6756-3	0.4768-3	0.3489-3
140	0.2209-1	0.1342-1	0.8712-2	0.5957-2	0.4244-2	0.3128-2	0.1837-2	0.1168-2	0.7878-3	0.5561-3	0.4070-3
160	0.2500-1	0.1524-1	0.9912-2	0.6786-2	0.4840-2	0.3568-2	0.2097-2	0.1334-2	0.8999-3	0.6353-3	0.4650-3
180	0.2784-1	0.1703-1	0.1110-1	0.7610-2	0.5432-2	0.4007-2	0.2357-2	0.1500-2	0.1012-2	0.7145-3	0.5230-3
200	0.3064-1	0.1880-1	0.1228-1	0.8429-2	0.6022-2	0.4445-2	0.2616-2	0.1665-2	0.1124-2	0.7936-3	0.5810-3

Footnote. PL = Prediction Limit; X_{n-1} = 2nd largest order statistic

Table 19-21. Per-Constituent Significance Levels (α) for Non-Parametric 1-of-4 Plan ($PL=X_n$)

$w \setminus n$	4	6	8	10	12	16	20	25	30	35	40
1	0.1429-1	0.4762-2	0.2020-2	0.9990-3	0.5495-3	0.2064-3	0.9411-4	0.4210-4	0.2156-4	0.1216-4	0.7366-5
2	0.2655-1	0.9191-2	0.3963-2	0.1975-2	0.1091-2	0.4114-3	0.1879-3	0.8413-4	0.4311-4	0.2431-4	0.1473-4
3	0.3735-1	0.1334-1	0.5835-2	0.2930-2	0.1625-2	0.6151-3	0.2814-3	0.1261-3	0.6463-4	0.3645-4	0.2209-4
4	0.4701-1	0.1725-1	0.7645-2	0.3865-2	0.2152-2	0.8176-3	0.3745-3	0.1680-3	0.8613-4	0.4859-4	0.2945-4
5	0.5578-1	0.2096-1	0.9397-2	0.4781-2	0.2671-2	0.1019-2	0.4674-3	0.2098-3	0.1076-3	0.6072-4	0.3681-4
8	0.7815-1	0.3105-1	0.1435-1	0.7427-2	0.4192-2	0.1615-2	0.7441-3	0.3348-3	0.1719-3	0.9707-4	0.5886-4
10	0.9067-1	0.3710-1	0.1744-1	0.9115-2	0.5176-2	0.2006-2	0.9271-3	0.4179-3	0.2147-3	0.1213-3	0.7355-4
12	0.1018	0.4271-1	0.2038-1	0.1075-1	0.6137-2	0.2394-2	0.1109-2	0.5006-3	0.2574-3	0.1454-3	0.8822-4
15	0.1165	0.5045-1	0.2454-1	0.1310-1	0.7542-2	0.2966-2	0.1380-2	0.6242-3	0.3213-3	0.1817-3	0.1102-3
20	0.1372	0.6193-1	0.3095-1	0.1682-1	0.9790-2	0.3901-2	0.1826-2	0.8290-3	0.4275-3	0.2419-3	0.1468-3
25	0.1545	0.7203-1	0.3680-1	0.2030-1	0.1194-1	0.4812-2	0.2265-2	0.1032-2	0.5331-3	0.3019-3	0.1834-3
30	0.1693	0.8109-1	0.4221-1	0.2358-1	0.1399-1	0.5702-2	0.2698-2	0.1234-2	0.6383-3	0.3618-3	0.2199-3
35	0.1823	0.8931-1	0.4724-1	0.2670-1	0.1597-1	0.6571-2	0.3126-2	0.1434-2	0.7431-3	0.4215-3	0.2563-3
40	0.1939	0.9684-1	0.5195-1	0.2966-1	0.1787-1	0.7423-2	0.3548-2	0.1633-2	0.8474-3	0.4811-3	0.2926-3
45	0.2043	0.1038	0.5639-1	0.3249-1	0.1971-1	0.8256-2	0.3965-2	0.1830-2	0.9512-3	0.5405-3	0.3289-3
50	0.2138	0.1103	0.6059-1	0.3521-1	0.2149-1	0.9074-2	0.4376-2	0.2026-2	0.1055-2	0.5998-3	0.3652-3
60	0.2306	0.1220	0.6837-1	0.4032-1	0.2489-1	0.1066-1	0.5186-2	0.2414-2	0.1260-2	0.7179-3	0.4375-3
70	0.2451	0.1325	0.7547-1	0.4508-1	0.2810-1	0.1220-1	0.5977-2	0.2796-2	0.1464-2	0.8353-3	0.5095-3
80	0.2578	0.1419	0.8201-1	0.4954-1	0.3115-1	0.1368-1	0.6751-2	0.3174-2	0.1667-2	0.9522-3	0.5813-3
90	0.2692	0.1505	0.8807-1	0.5373-1	0.3405-1	0.1512-1	0.7509-2	0.3548-2	0.1867-2	0.1069-2	0.6529-3
100	0.2794	0.1584	0.9374-1	0.5770-1	0.3683-1	0.1651-1	0.8253-2	0.3917-2	0.2067-2	0.1184-2	0.7242-3
120	0.2973	0.1725	0.1041	0.6506-1	0.4204-1	0.1919-1	0.9700-2	0.4642-2	0.2461-2	0.1414-2	0.8662-3
140	0.3125	0.1849	0.1133	0.7177-1	0.4688-1	0.2174-1	0.1110-1	0.5352-2	0.2850-2	0.1642-2	0.1007-2
160	0.3258	0.1959	0.1217	0.7796-1	0.5140-1	0.2416-1	0.1245-1	0.6047-2	0.3234-2	0.1868-2	0.1148-2
180	0.3375	0.2058	0.1294	0.8370-1	0.5564-1	0.2649-1	0.1376-1	0.6728-2	0.3612-2	0.2092-2	0.1287-2
200	0.3480	0.2148	0.1365	0.8907-1	0.5965-1	0.2872-1	0.1503-1	0.7396-2	0.3986-2	0.2313-2	0.1426-2

Footnote. PL = Prediction Limit; X_n = Maximum order statistic

Table 19-21. Per-Constituent Significance Levels (α) for Non-Parametric 1-of-4 Plan ($PL=X_n$)

$w \setminus n$	50	60	70	80	90	100	120	140	160	180	200
1	0.3162-5	0.1574-5	0.8691-6	0.5183-6	0.3279-6	0.2175-6	0.1066-6	0.5821-7	0.3442-7	0.2164-7	0.1427-7
2	0.6324-5	0.3148-5	0.1738-5	0.1037-5	0.6558-6	0.4350-6	0.2132-6	0.1164-6	0.6884-7	0.4327-7	0.2855-7
3	0.9485-5	0.4721-5	0.2607-5	0.1555-5	0.9837-6	0.6524-6	0.3198-6	0.1746-6	0.1033-6	0.6491-7	0.4282-7
4	0.1265-4	0.6295-5	0.3476-5	0.2073-5	0.1312-5	0.8699-6	0.4264-6	0.2328-6	0.1377-6	0.8655-7	0.5709-7
5	0.1581-4	0.7868-5	0.4345-5	0.2591-5	0.1640-5	0.1087-5	0.5330-6	0.2911-6	0.1721-6	0.1082-6	0.7137-7
8	0.2528-4	0.1259-4	0.6952-5	0.4146-5	0.2623-5	0.1740-5	0.8527-6	0.4657-6	0.2754-6	0.1731-6	0.1142-6
10	0.3160-4	0.1573-4	0.8689-5	0.5182-5	0.3279-5	0.2175-5	0.1066-5	0.5821-6	0.3442-6	0.2164-6	0.1427-6
12	0.3791-4	0.1888-4	0.1043-4	0.6218-5	0.3935-5	0.2610-5	0.1279-5	0.6985-6	0.4131-6	0.2596-6	0.1713-6
15	0.4738-4	0.2359-4	0.1303-4	0.7772-5	0.4918-5	0.3262-5	0.1599-5	0.8731-6	0.5163-6	0.3245-6	0.2141-6
20	0.6314-4	0.3145-4	0.1737-4	0.1036-4	0.6557-5	0.4349-5	0.2132-5	0.1164-5	0.6884-6	0.4327-6	0.2855-6
25	0.7890-4	0.3931-4	0.2171-4	0.1295-4	0.8196-5	0.5436-5	0.2665-5	0.1455-5	0.8605-6	0.5409-6	0.3568-6
30	0.9464-4	0.4716-4	0.2605-4	0.1554-4	0.9835-5	0.6523-5	0.3198-5	0.1746-5	0.1033-5	0.6491-6	0.4282-6
35	0.1104-3	0.5501-4	0.3039-4	0.1813-4	0.1147-4	0.7610-5	0.3730-5	0.2037-5	0.1205-5	0.7573-6	0.4996-6
40	0.1261-3	0.6285-4	0.3473-4	0.2072-4	0.1311-4	0.8697-5	0.4263-5	0.2328-5	0.1377-5	0.8654-6	0.5709-6
45	0.1418-3	0.7069-4	0.3907-4	0.2331-4	0.1475-4	0.9784-5	0.4796-5	0.2619-5	0.1549-5	0.9736-6	0.6423-6
50	0.1575-3	0.7853-4	0.4340-4	0.2589-4	0.1639-4	0.1087-4	0.5329-5	0.2910-5	0.1721-5	0.1082-5	0.7137-6
60	0.1888-3	0.9420-4	0.5207-4	0.3107-4	0.1966-4	0.1304-4	0.6394-5	0.3492-5	0.2065-5	0.1298-5	0.8564-6
70	0.2201-3	0.1098-3	0.6073-4	0.3624-4	0.2294-4	0.1522-4	0.7460-5	0.4074-5	0.2409-5	0.1515-5	0.9991-6
80	0.2514-3	0.1255-3	0.6939-4	0.4141-4	0.2621-4	0.1739-4	0.8525-5	0.4656-5	0.2754-5	0.1731-5	0.1142-5
90	0.2825-3	0.1411-3	0.7805-4	0.4658-4	0.2949-4	0.1956-4	0.9591-5	0.5238-5	0.3098-5	0.1947-5	0.1285-5
100	0.3137-3	0.1567-3	0.8670-4	0.5175-4	0.3276-4	0.2173-4	0.1066-4	0.5820-5	0.3442-5	0.2164-5	0.1427-5
120	0.3758-3	0.1879-3	0.1040-3	0.6208-4	0.3931-4	0.2608-4	0.1279-4	0.6984-5	0.4130-5	0.2596-5	0.1713-5
140	0.4378-3	0.2191-3	0.1213-3	0.7241-4	0.4585-4	0.3042-4	0.1492-4	0.8147-5	0.4818-5	0.3029-5	0.1998-5
160	0.4996-3	0.2501-3	0.1385-3	0.8273-4	0.5239-4	0.3476-4	0.1705-4	0.9311-5	0.5507-5	0.3462-5	0.2284-5
180	0.5612-3	0.2812-3	0.1558-3	0.9304-4	0.5892-4	0.3910-4	0.1918-4	0.1047-4	0.6195-5	0.3894-5	0.2569-5
200	0.6226-3	0.3122-3	0.1730-3	0.1033-3	0.6546-4	0.4344-4	0.2131-4	0.1164-4	0.6883-5	0.4327-5	0.2854-5

Footnote. PL = Prediction Limit; X_n = Maximum order statistic

Table 19-21. Per-Constituent Significance Levels (α) for Non-Parametric 1-of-4 Plan ($PL=X_{n-1}$)

$w \setminus n$	4	6	8	10	12	16	20	25	30	35	40
1	0.7143-1	0.2381-1	0.1010-1	0.4995-2	0.2747-2	0.1032-2	0.4705-3	0.2105-3	0.1078-3	0.6079-4	0.3683-4
2	0.1247	0.4462-1	0.1950-1	0.9784-2	0.5423-2	0.2052-2	0.9382-3	0.4204-3	0.2154-3	0.1215-3	0.7364-4
3	0.1669	0.6314-1	0.2831-1	0.1439-1	0.8032-2	0.3060-2	0.1403-2	0.6296-3	0.3229-3	0.1822-3	0.1104-3
4	0.2017	0.7983-1	0.3660-1	0.1882-1	0.1058-1	0.4056-2	0.1865-2	0.8382-3	0.4302-3	0.2428-3	0.1472-3
5	0.2312	0.9503-1	0.4444-1	0.2310-1	0.1307-1	0.5042-2	0.2324-2	0.1046-2	0.5372-3	0.3033-3	0.1839-3
8	0.2991	0.1339	0.6571-1	0.3514-1	0.2021-1	0.7935-2	0.3686-2	0.1666-2	0.8574-3	0.4846-3	0.2940-3
10	0.3333	0.1557	0.7837-1	0.4258-1	0.2474-1	0.9815-2	0.4582-2	0.2077-2	0.1070-2	0.6051-3	0.3673-3
12	0.3619	0.1750	0.9006-1	0.4962-1	0.2909-1	0.1166-1	0.5467-2	0.2485-2	0.1282-2	0.7254-3	0.4404-3
15	0.3972	0.2004	0.1061	0.5954-1	0.3534-1	0.1436-1	0.6778-2	0.3093-2	0.1598-2	0.9054-3	0.5500-3
20	0.4427	0.2357	0.1296	0.7463-1	0.4508-1	0.1870-1	0.8917-2	0.4094-2	0.2123-2	0.1204-2	0.7322-3
25	0.4776	0.2649	0.1500	0.8825-1	0.5411-1	0.2286-1	0.1100-1	0.5083-2	0.2643-2	0.1502-2	0.9138-3
30	0.5057	0.2897	0.1681	0.1007	0.6255-1	0.2686-1	0.1304-1	0.6058-2	0.3159-2	0.1798-2	0.1095-2
35	0.5289	0.3112	0.1843	0.1121	0.7048-1	0.3071-1	0.1504-1	0.7021-2	0.3671-2	0.2092-2	0.1275-2
40	0.5487	0.3301	0.1991	0.1228	0.7795-1	0.3443-1	0.1699-1	0.7973-2	0.4179-2	0.2385-2	0.1455-2
45	0.5658	0.3470	0.2125	0.1327	0.8504-1	0.3803-1	0.1889-1	0.8912-2	0.4684-2	0.2677-2	0.1635-2
50	0.5807	0.3623	0.2250	0.1420	0.9177-1	0.4152-1	0.2077-1	0.9841-2	0.5185-2	0.2968-2	0.1814-2
60	0.6060	0.3888	0.2472	0.1590	0.1043	0.4818-1	0.2440-1	0.1167-1	0.6177-2	0.3545-2	0.2170-2
70	0.6266	0.4114	0.2667	0.1743	0.1158	0.5449-1	0.2791-1	0.1345-1	0.7155-2	0.4117-2	0.2524-2
80	0.6439	0.4309	0.2840	0.1882	0.1265	0.6048-1	0.3130-1	0.1520-1	0.8120-2	0.4684-2	0.2876-2
90	0.6587	0.4480	0.2996	0.2009	0.1364	0.6618-1	0.3457-1	0.1692-1	0.9073-2	0.5247-2	0.3226-2
100	0.6715	0.4633	0.3137	0.2127	0.1457	0.7163-1	0.3775-1	0.1860-1	0.1001-1	0.5805-2	0.3574-2
120	0.6930	0.4895	0.3386	0.2338	0.1626	0.8187-1	0.4384-1	0.2187-1	0.1186-1	0.6907-2	0.4265-2
140	0.7103	0.5113	0.3599	0.2523	0.1778	0.9135-1	0.4960-1	0.2502-1	0.1367-1	0.7993-2	0.4948-2
160	0.7247	0.5300	0.3785	0.2688	0.1916	0.1002	0.5508-1	0.2807-1	0.1543-1	0.9062-2	0.5624-2
180	0.7370	0.5462	0.3950	0.2837	0.2042	0.1085	0.6031-1	0.3103-1	0.1716-1	0.1012-1	0.6293-2
200	0.7476	0.5605	0.4097	0.2972	0.2158	0.1163	0.6531-1	0.3390-1	0.1886-1	0.1115-1	0.6956-2

Footnote. PL = Prediction Limit; X_{n-1} = 2nd largest order statistic

Table 19-21. Per-Constituent Significance Levels (α) for Non-Parametric 1-of-4 Plan (PL= X_{n-1})

w\ n	50	60	70	80	90	100	120	140	160	180	200
1	0.1581-4	0.7869-5	0.4345-5	0.2591-5	0.1640-5	0.1087-5	0.5330-6	0.2911-6	0.1721-6	0.1082-6	0.7137-7
2	0.3162-4	0.1574-4	0.8691-5	0.5183-5	0.3279-5	0.2175-5	0.1066-5	0.5821-6	0.3442-6	0.2164-6	0.1427-6
3	0.4742-4	0.2360-4	0.1304-4	0.7774-5	0.4919-5	0.3262-5	0.1599-5	0.8732-6	0.5163-6	0.3246-6	0.2141-6
4	0.6321-4	0.3147-4	0.1738-4	0.1036-4	0.6558-5	0.4349-5	0.2132-5	0.1164-5	0.6884-6	0.4327-6	0.2855-6
5	0.7900-4	0.3933-4	0.2172-4	0.1296-4	0.8197-5	0.5437-5	0.2665-5	0.1455-5	0.8605-6	0.5409-6	0.3568-6
8	0.1264-3	0.6292-4	0.3475-4	0.2073-4	0.1312-4	0.8698-5	0.4264-5	0.2328-5	0.1377-5	0.8655-6	0.5709-6
10	0.1579-3	0.7864-4	0.4344-4	0.2591-4	0.1639-4	0.1087-4	0.5329-5	0.2910-5	0.1721-5	0.1082-5	0.7137-6
12	0.1894-3	0.9435-4	0.5212-4	0.3109-4	0.1967-4	0.1305-4	0.6395-5	0.3493-5	0.2065-5	0.1298-5	0.8564-6
15	0.2367-3	0.1179-3	0.6514-4	0.3886-4	0.2459-4	0.1631-4	0.7994-5	0.4366-5	0.2582-5	0.1623-5	0.1071-5
20	0.3153-3	0.1572-3	0.8684-4	0.5180-4	0.3278-4	0.2174-4	0.1066-4	0.5821-5	0.3442-5	0.2164-5	0.1427-5
25	0.3939-3	0.1964-3	0.1085-3	0.6474-4	0.4097-4	0.2718-4	0.1332-4	0.7276-5	0.4303-5	0.2705-5	0.1784-5
30	0.4723-3	0.2356-3	0.1302-3	0.7768-4	0.4916-4	0.3261-4	0.1599-4	0.8731-5	0.5163-5	0.3245-5	0.2141-5
35	0.5506-3	0.2747-3	0.1519-3	0.9061-4	0.5735-4	0.3804-4	0.1865-4	0.1019-4	0.6023-5	0.3786-5	0.2498-5
40	0.6288-3	0.3138-3	0.1735-3	0.1035-3	0.6554-4	0.4348-4	0.2131-4	0.1164-4	0.6884-5	0.4327-5	0.2855-5
45	0.7069-3	0.3529-3	0.1952-3	0.1165-3	0.7373-4	0.4891-4	0.2398-4	0.1310-4	0.7744-5	0.4868-5	0.3211-5
50	0.7849-3	0.3920-3	0.2168-3	0.1294-3	0.8191-4	0.5434-4	0.2664-4	0.1455-4	0.8605-5	0.5409-5	0.3568-5
60	0.9405-3	0.4700-3	0.2601-3	0.1552-3	0.9828-4	0.6520-4	0.3197-4	0.1746-4	0.1033-4	0.6491-5	0.4282-5
70	0.1096-2	0.5480-3	0.3033-3	0.1811-3	0.1146-3	0.7606-4	0.3729-4	0.2037-4	0.1205-4	0.7572-5	0.4996-5
80	0.1250-2	0.6258-3	0.3464-3	0.2069-3	0.1310-3	0.8691-4	0.4262-4	0.2328-4	0.1377-4	0.8654-5	0.5709-5
90	0.1405-2	0.7035-3	0.3896-3	0.2327-3	0.1473-3	0.9776-4	0.4794-4	0.2619-4	0.1549-4	0.9735-5	0.6423-5
100	0.1559-2	0.7810-3	0.4327-3	0.2584-3	0.1637-3	0.1086-3	0.5327-4	0.2910-4	0.1721-4	0.1082-4	0.7136-5
120	0.1865-2	0.9359-3	0.5188-3	0.3100-3	0.1963-3	0.1303-3	0.6391-4	0.3491-4	0.2065-4	0.1298-4	0.8563-5
140	0.2170-2	0.1090-2	0.6047-3	0.3614-3	0.2290-3	0.1520-3	0.7456-4	0.4073-4	0.2409-4	0.1514-4	0.9990-5
160	0.2474-2	0.1244-2	0.6905-3	0.4129-3	0.2616-3	0.1737-3	0.8520-4	0.4654-4	0.2753-4	0.1731-4	0.1142-4
180	0.2775-2	0.1398-2	0.7761-3	0.4642-3	0.2942-3	0.1953-3	0.9583-4	0.5236-4	0.3097-4	0.1947-4	0.1284-4
200	0.3075-2	0.1551-2	0.8616-3	0.5155-3	0.3268-3	0.2170-3	0.1065-3	0.5817-4	0.3441-4	0.2163-4	0.1427-4

Footnote. PL = Prediction Limit; X_{n-1} = 2nd largest order statistic

Table 19-22. Per-Constituent Significance Levels (α) for Non-Parametric Modified California Plan (PL= X_n)

w\ n	4	6	8	10	12	16	20	25	30	35	40
1	0.5714-1	0.2619-1	0.1414-1	0.8492-2	0.5495-2	0.2683-2	0.1506-2	0.8315-3	0.5067-3	0.3313-3	0.2284-3
2	0.9971-1	0.4830-1	0.2684-1	0.1638-1	0.1071-1	0.5289-2	0.2985-2	0.1654-2	0.1010-2	0.6610-3	0.4559-3
3	0.1335	0.6746-1	0.3838-1	0.2377-1	0.1568-1	0.7824-2	0.4438-2	0.2468-2	0.1510-2	0.9892-3	0.6827-3
4	0.1614	0.8438-1	0.4898-1	0.3072-1	0.2043-1	0.1029-1	0.5867-2	0.3274-2	0.2006-2	0.1316-2	0.9088-3
5	0.1852	0.9954-1	0.5879-1	0.3728-1	0.2498-1	0.1270-1	0.7272-2	0.4071-2	0.2499-2	0.1641-2	0.1134-2
8	0.2402	0.1374	0.8449-1	0.5507-1	0.3762-1	0.1958-1	0.1136-1	0.6416-2	0.3959-2	0.2607-2	0.1805-2
10	0.2682	0.1580	0.9925-1	0.6565-1	0.4532-1	0.2391-1	0.1398-1	0.7943-2	0.4916-2	0.3244-2	0.2249-2
12	0.2917	0.1761	0.1126	0.7541-1	0.5255-1	0.2807-1	0.1653-1	0.9442-2	0.5862-2	0.3876-2	0.2691-2
15	0.3211	0.1996	0.1304	0.8878-1	0.6263-1	0.3401-1	0.2023-1	0.1164-1	0.7260-2	0.4813-2	0.3347-2
20	0.3593	0.2319	0.1558	0.1084	0.7777-1	0.4323-1	0.2610-1	0.1519-1	0.9535-2	0.6349-2	0.4428-2
25	0.3891	0.2581	0.1772	0.1255	0.9125-1	0.5173-1	0.3163-1	0.1859-1	0.1175-1	0.7854-2	0.5492-2
30	0.4133	0.2802	0.1958	0.1406	0.1034	0.5962-1	0.3687-1	0.2187-1	0.1390-1	0.9330-2	0.6542-2
35	0.4336	0.2992	0.2121	0.1541	0.1145	0.6701-1	0.4186-1	0.2504-1	0.1600-1	0.1078-1	0.7576-2
40	0.4510	0.3158	0.2267	0.1665	0.1247	0.7395-1	0.4662-1	0.2811-1	0.1805-1	0.1220-1	0.8596-2
45	0.4662	0.3307	0.2399	0.1778	0.1342	0.8051-1	0.5118-1	0.3107-1	0.2006-1	0.1360-1	0.9603-2
50	0.4796	0.3440	0.2520	0.1882	0.1431	0.8672-1	0.5555-1	0.3395-1	0.2201-1	0.1497-1	0.1060-1
60	0.5025	0.3671	0.2732	0.2069	0.1591	0.9825-1	0.6380-1	0.3947-1	0.2580-1	0.1766-1	0.1255-1
70	0.5214	0.3867	0.2916	0.2233	0.1734	0.1088	0.7148-1	0.4470-1	0.2944-1	0.2025-1	0.1445-1
80	0.5374	0.4036	0.3077	0.2379	0.1863	0.1185	0.7868-1	0.4968-1	0.3295-1	0.2278-1	0.1631-1
90	0.5514	0.4185	0.3221	0.2510	0.1981	0.1275	0.8545-1	0.5442-1	0.3633-1	0.2523-1	0.1812-1
100	0.5636	0.4318	0.3350	0.2630	0.2089	0.1359	0.9185-1	0.5897-1	0.3959-1	0.2762-1	0.1990-1
120	0.5842	0.4545	0.3575	0.2841	0.2281	0.1512	0.1037	0.6752-1	0.4581-1	0.3221-1	0.2335-1
140	0.6011	0.4734	0.3765	0.3023	0.2449	0.1649	0.1145	0.7545-1	0.5167-1	0.3658-1	0.2667-1
160	0.6154	0.4896	0.3931	0.3183	0.2598	0.1772	0.1244	0.8286-1	0.5721-1	0.4077-1	0.2986-1
180	0.6277	0.5038	0.4076	0.3324	0.2732	0.1885	0.1335	0.8981-1	0.6248-1	0.4478-1	0.3295-1
200	0.6384	0.5162	0.4206	0.3452	0.2853	0.1988	0.1421	0.9637-1	0.6749-1	0.4863-1	0.3594-1

Footnote. PL = Prediction Limit; X_n = Maximum order statistic

Table 19-22. Per-Constituent Significance Levels (α) for Non-Parametric Modified California Plan (PL= X_n)

w\ n	50	60	70	80	90	100	120	140	160	180	200
1	0.1217-3	0.7240-4	0.4650-4	0.3161-4	0.2246-4	0.1653-4	0.9700-5	0.6170-5	0.4165-5	0.2943-5	0.2155-5
2	0.2432-3	0.1447-3	0.9296-4	0.6321-4	0.4492-4	0.3305-4	0.1940-4	0.1234-4	0.8330-5	0.5885-5	0.4311-5
3	0.3645-3	0.2169-3	0.1394-3	0.9479-4	0.6736-4	0.4957-4	0.2910-4	0.1851-4	0.1249-4	0.8827-5	0.6466-5
4	0.4856-3	0.2891-3	0.1858-3	0.1264-3	0.8980-4	0.6608-4	0.3879-4	0.2468-4	0.1666-4	0.1177-4	0.8621-5
5	0.6064-3	0.3611-3	0.2321-3	0.1579-3	0.1122-3	0.8259-4	0.4848-4	0.3084-4	0.2082-4	0.1471-4	0.1078-4
8	0.9674-3	0.5768-3	0.3710-3	0.2524-3	0.1795-3	0.1321-3	0.7755-4	0.4934-4	0.3331-4	0.2354-4	0.1724-4
10	0.1207-2	0.7202-3	0.4633-3	0.3154-3	0.2242-3	0.1651-3	0.9693-4	0.6167-4	0.4164-4	0.2942-4	0.2155-4
12	0.1446-2	0.8632-3	0.5556-3	0.3782-3	0.2690-3	0.1980-3	0.1163-3	0.7400-4	0.4996-4	0.3530-4	0.2586-4
15	0.1802-2	0.1077-2	0.6937-3	0.4724-3	0.3360-3	0.2474-3	0.1453-3	0.9248-4	0.6244-4	0.4412-4	0.3232-4
20	0.2392-2	0.1432-2	0.9231-3	0.6291-3	0.4476-3	0.3297-3	0.1937-3	0.1233-3	0.8324-4	0.5882-4	0.4309-4
25	0.2977-2	0.1785-2	0.1152-2	0.7853-3	0.5590-3	0.4118-3	0.2420-3	0.1541-3	0.1040-3	0.7352-4	0.5386-4
30	0.3556-2	0.2136-2	0.1379-2	0.9411-3	0.6701-3	0.4938-3	0.2903-3	0.1848-3	0.1248-3	0.8821-4	0.6462-4
35	0.4131-2	0.2485-2	0.1606-2	0.1097-2	0.7810-3	0.5757-3	0.3385-3	0.2156-3	0.1456-3	0.1029-3	0.7538-4
40	0.4700-2	0.2832-2	0.1832-2	0.1252-2	0.8918-3	0.6574-3	0.3867-3	0.2463-3	0.1664-3	0.1176-3	0.8615-4
45	0.5266-2	0.3178-2	0.2058-2	0.1406-2	0.1002-2	0.7391-3	0.4348-3	0.2770-3	0.1871-3	0.1323-3	0.9690-4
50	0.5826-2	0.3521-2	0.2282-2	0.1560-2	0.1113-2	0.8206-3	0.4830-3	0.3077-3	0.2079-3	0.1469-3	0.1077-3
60	0.6934-2	0.4203-2	0.2729-2	0.1868-2	0.1333-2	0.9833-3	0.5790-3	0.3690-3	0.2493-3	0.1763-3	0.1292-3
70	0.8025-2	0.4878-2	0.3172-2	0.2173-2	0.1552-2	0.1146-2	0.6750-3	0.4303-3	0.2908-3	0.2056-3	0.1507-3
80	0.9100-2	0.5546-2	0.3612-2	0.2478-2	0.1770-2	0.1307-2	0.7707-3	0.4915-3	0.3322-3	0.2349-3	0.1722-3
90	0.1016-1	0.6207-2	0.4050-2	0.2780-2	0.1988-2	0.1469-2	0.8664-3	0.5526-3	0.3736-3	0.2642-3	0.1936-3
100	0.1120-1	0.6863-2	0.4484-2	0.3081-2	0.2205-2	0.1630-2	0.9618-3	0.6136-3	0.4149-3	0.2935-3	0.2151-3
120	0.1325-1	0.8155-2	0.5344-2	0.3680-2	0.2636-2	0.1950-2	0.1152-2	0.7356-3	0.4975-3	0.3520-3	0.2580-3
140	0.1524-1	0.9424-2	0.6194-2	0.4272-2	0.3064-2	0.2269-2	0.1342-2	0.8572-3	0.5800-3	0.4104-3	0.3009-3
160	0.1719-1	0.1067-1	0.7032-2	0.4860-2	0.3490-2	0.2586-2	0.1531-2	0.9786-3	0.6624-3	0.4688-3	0.3438-3
180	0.1909-1	0.1190-1	0.7861-2	0.5442-2	0.3912-2	0.2902-2	0.1720-2	0.1100-2	0.7446-3	0.5271-3	0.3866-3
200	0.2094-1	0.1310-1	0.8680-2	0.6018-2	0.4332-2	0.3216-2	0.1908-2	0.1221-2	0.8268-3	0.5854-3	0.4293-3

Footnote. PL = Prediction Limit; X_n = Maximum order statistic

Table 19-22. Per-Constituent Significance Levels (α) for Non-Parametric Modified California Plan (PL= X_{n-1})

w\n	4	6	8	10	12	16	20	25	30	35	40
1	0.2000	0.9524-1	0.5253-1	0.3197-1	0.2088-1	0.1032-1	0.5835-2	0.3242-2	0.1984-2	0.1301-2	0.8987-3
2	0.3182	0.1663	0.9619-1	0.6018-1	0.3998-1	0.2014-1	0.1149-1	0.6424-2	0.3944-2	0.2591-2	0.1792-2
3	0.3981	0.2221	0.1334	0.8541-1	0.5760-1	0.2950-1	0.1698-1	0.9550-2	0.5881-2	0.3871-2	0.2680-2
4	0.4567	0.2677	0.1658	0.1082	0.7393-1	0.3846-1	0.2232-1	0.1262-1	0.7795-2	0.5140-2	0.3563-2
5	0.5019	0.3059	0.1943	0.1290	0.8916-1	0.4705-1	0.2751-1	0.1564-1	0.9688-2	0.6400-2	0.4441-2
8	0.5932	0.3920	0.2635	0.1821	0.1295	0.7085-1	0.4230-1	0.2440-1	0.1524-1	0.1012-1	0.7046-2
10	0.6335	0.4343	0.3000	0.2116	0.1528	0.8534-1	0.5157-1	0.3001-1	0.1885-1	0.1255-1	0.8758-2
12	0.6647	0.4689	0.3313	0.2377	0.1739	0.9889-1	0.6042-1	0.3545-1	0.2238-1	0.1495-1	0.1045-1
15	0.7004	0.5107	0.3707	0.2717	0.2022	0.1177	0.7300-1	0.4333-1	0.2754-1	0.1848-1	0.1296-1
20	0.7422	0.5632	0.4228	0.3185	0.2424	0.1458	0.9234-1	0.5576-1	0.3582-1	0.2421-1	0.1705-1
25	0.7715	0.6022	0.4635	0.3566	0.2761	0.1705	0.1100	0.6742-1	0.4373-1	0.2974-1	0.2104-1
30	0.7934	0.6327	0.4964	0.3884	0.3051	0.1926	0.1262	0.7840-1	0.5131-1	0.3510-1	0.2494-1
35	0.8105	0.6574	0.5239	0.4157	0.3304	0.2126	0.1412	0.8880-1	0.5858-1	0.4030-1	0.2874-1
40	0.8244	0.6780	0.5474	0.4393	0.3528	0.2308	0.1552	0.9866-1	0.6558-1	0.4535-1	0.3246-1
45	0.8358	0.6954	0.5677	0.4602	0.3729	0.2475	0.1683	0.1080	0.7232-1	0.5026-1	0.3610-1
50	0.8455	0.7104	0.5855	0.4789	0.3910	0.2630	0.1806	0.1170	0.7882-1	0.5504-1	0.3967-1
60	0.8611	0.7352	0.6155	0.5108	0.4227	0.2907	0.2032	0.1338	0.9119-1	0.6422-1	0.4658-1
70	0.8732	0.7549	0.6400	0.5374	0.4496	0.3150	0.2234	0.1492	0.1028	0.7296-1	0.5322-1
80	0.8829	0.7710	0.6604	0.5600	0.4728	0.3366	0.2419	0.1636	0.1138	0.8130-1	0.5962-1
90	0.8909	0.7845	0.6778	0.5796	0.4931	0.3559	0.2587	0.1770	0.1241	0.8928-1	0.6580-1
100	0.8976	0.7961	0.6929	0.5968	0.5112	0.3735	0.2742	0.1895	0.1339	0.9693-1	0.7177-1
120	0.9083	0.8149	0.7179	0.6257	0.5421	0.4042	0.3020	0.2124	0.1522	0.1114	0.8315-1
140	0.9165	0.8297	0.7379	0.6492	0.5676	0.4304	0.3262	0.2329	0.1689	0.1248	0.9386-1
160	0.9231	0.8417	0.7543	0.6689	0.5893	0.4531	0.3477	0.2514	0.1843	0.1373	0.1040
180	0.9285	0.8516	0.7682	0.6857	0.6079	0.4731	0.3669	0.2684	0.1985	0.1490	0.1136
200	0.9330	0.8601	0.7801	0.7002	0.6243	0.4909	0.3843	0.2839	0.2118	0.1601	0.1227

Footnote. PL = Prediction Limit; X_{n-1} = 2nd largest order statistic

Table 19-22. Per-Constituent Significance Levels (α) for Non-Parametric Modified California Plan (PL= X_{n-1})

w\ n	50	60	70	80	90	100	120	140	160	180	200
1	0.4806-3	0.2864-3	0.1842-3	0.1254-3	0.8919-4	0.6568-4	0.3859-4	0.2457-4	0.1659-4	0.1173-4	0.8593-5
2	0.9597-3	0.5723-3	0.3682-3	0.2507-3	0.1783-3	0.1313-3	0.7716-4	0.4913-4	0.3318-4	0.2345-4	0.1718-4
3	0.1437-2	0.8576-3	0.5520-3	0.3759-3	0.2674-3	0.1969-3	0.1157-3	0.7368-4	0.4977-4	0.3518-4	0.2578-4
4	0.1913-2	0.1142-2	0.7355-3	0.5010-3	0.3564-3	0.2625-3	0.1543-3	0.9823-4	0.6635-4	0.4690-4	0.3437-4
5	0.2387-2	0.1426-2	0.9187-3	0.6259-3	0.4454-3	0.3281-3	0.1928-3	0.1228-3	0.8294-4	0.5862-4	0.4296-4
8	0.3801-2	0.2275-2	0.1467-2	0.1000-2	0.7119-3	0.5245-3	0.3084-3	0.1964-3	0.1327-3	0.9379-4	0.6873-4
10	0.4736-2	0.2838-2	0.1831-2	0.1249-2	0.8892-3	0.6553-3	0.3853-3	0.2454-3	0.1658-3	0.1172-3	0.8590-4
12	0.5665-2	0.3399-2	0.2195-2	0.1497-2	0.1066-2	0.7860-3	0.4623-3	0.2945-3	0.1990-3	0.1407-3	0.1031-3
15	0.7048-2	0.4236-2	0.2738-2	0.1869-2	0.1332-2	0.9817-3	0.5776-3	0.3680-3	0.2486-3	0.1758-3	0.1288-3
20	0.9325-2	0.5621-2	0.3639-2	0.2486-2	0.1773-2	0.1307-2	0.7695-3	0.4904-3	0.3314-3	0.2343-3	0.1717-3
25	0.1157-1	0.6992-2	0.4533-2	0.3101-2	0.2212-2	0.1632-2	0.9612-3	0.6127-3	0.4141-3	0.2928-3	0.2146-3
30	0.1378-1	0.8351-2	0.5423-2	0.3713-2	0.2650-2	0.1956-2	0.1153-2	0.7349-3	0.4968-3	0.3513-3	0.2575-3
35	0.1596-1	0.9696-2	0.6306-2	0.4322-2	0.3086-2	0.2279-2	0.1344-2	0.8569-3	0.5794-3	0.4098-3	0.3004-3
40	0.1810-1	0.1103-1	0.7184-2	0.4928-2	0.3522-2	0.2602-2	0.1534-2	0.9789-3	0.6619-3	0.4682-3	0.3432-3
45	0.2022-1	0.1235-1	0.8057-2	0.5531-2	0.3955-2	0.2923-2	0.1725-2	0.1101-2	0.7444-3	0.5266-3	0.3861-3
50	0.2231-1	0.1366-1	0.8924-2	0.6132-2	0.4388-2	0.3244-2	0.1915-2	0.1222-2	0.8269-3	0.5850-3	0.4289-3
60	0.2642-1	0.1625-1	0.1064-1	0.7327-2	0.5248-2	0.3883-2	0.2295-2	0.1465-2	0.9916-3	0.7017-3	0.5145-3
70	0.3041-1	0.1879-1	0.1234-1	0.8511-2	0.6103-2	0.4520-2	0.2673-2	0.1708-2	0.1156-2	0.8182-3	0.6000-3
80	0.3432-1	0.2129-1	0.1402-1	0.9685-2	0.6953-2	0.5153-2	0.3051-2	0.1950-2	0.1320-2	0.9347-3	0.6855-3
90	0.3813-1	0.2375-1	0.1568-1	0.1085-1	0.7798-2	0.5783-2	0.3427-2	0.2192-2	0.1484-2	0.1051-2	0.7709-3
100	0.4185-1	0.2617-1	0.1732-1	0.1200-1	0.8637-2	0.6411-2	0.3802-2	0.2433-2	0.1648-2	0.1167-2	0.8563-3
120	0.4906-1	0.3091-1	0.2055-1	0.1429-1	0.1030-1	0.7657-2	0.4550-2	0.2914-2	0.1975-2	0.1399-2	0.1027-2
140	0.5598-1	0.3551-1	0.2372-1	0.1653-1	0.1195-1	0.8891-2	0.5293-2	0.3393-2	0.2302-2	0.1631-2	0.1197-2
160	0.6262-1	0.3998-1	0.2681-1	0.1875-1	0.1357-1	0.1012-1	0.6032-2	0.3871-2	0.2627-2	0.1862-2	0.1367-2
180	0.6902-1	0.4433-1	0.2985-1	0.2093-1	0.1518-1	0.1133-1	0.6766-2	0.4347-2	0.2951-2	0.2093-2	0.1537-2
200	0.7520-1	0.4856-1	0.3283-1	0.2308-1	0.1677-1	0.1253-1	0.7497-2	0.4821-2	0.3275-2	0.2324-2	0.1707-2

Footnote. PL = Prediction Limit; X_{n-1} = 2nd largest order statistic

D.4.2 PLANS ON MEDIANS OF ORDER 3

Table 19-23. Per-Constituent Significance Levels (α) for Non-Parametric 1-of-1 Plan for Median (PL= X_n)

w/n	4	6	8	10	12	16	20	25	30	35	40
1	0.1429	0.8333-1	0.5455-1	0.3846-1	0.2857-1	0.1754-1	0.1186-1	0.7937-2	0.5682-2	0.4267-2	0.3322-2
2	0.2333	0.1455	0.9890-1	0.7143-1	0.5392-1	0.3377-1	0.2308-1	0.1557-1	0.1120-1	0.8443-2	0.6588-2
3	0.2979	0.1945	0.1361	0.1002	0.7669-1	0.4885-1	0.3372-1	0.2293-1	0.1658-1	0.1253-1	0.9798-2
4	0.3473	0.2347	0.1681	0.1258	0.9735-1	0.6295-1	0.4386-1	0.3003-1	0.2181-1	0.1653-1	0.1296-1
5	0.3867	0.2686	0.1961	0.1487	0.1162	0.7619-1	0.5353-1	0.3690-1	0.2691-1	0.2046-1	0.1606-1
8	0.4704	0.3458	0.2630	0.2057	0.1647	0.1116	0.8012-1	0.5621-1	0.4147-1	0.3178-1	0.2509-1
10	0.5094	0.3841	0.2980	0.2367	0.1918	0.1323	0.9614-1	0.6815-1	0.5062-1	0.3898-1	0.3089-1
12	0.5404	0.4157	0.3277	0.2636	0.2158	0.1512	0.1110	0.7943-1	0.5937-1	0.4593-1	0.3652-1
15	0.5770	0.4544	0.3650	0.2982	0.2473	0.1767	0.1315	0.9527-1	0.7184-1	0.5592-1	0.4467-1
20	0.6218	0.5035	0.4139	0.3448	0.2907	0.2132	0.1618	0.1192	0.9105-1	0.7154-1	0.5756-1
25	0.6543	0.5405	0.4520	0.3821	0.3262	0.2441	0.1882	0.1407	0.1086	0.8604-1	0.6965-1
30	0.6794	0.5698	0.4828	0.4128	0.3560	0.2708	0.2115	0.1601	0.1248	0.9956-1	0.8106-1
35	0.6996	0.5938	0.5084	0.4388	0.3816	0.2943	0.2324	0.1779	0.1397	0.1122	0.9185-1
40	0.7162	0.6139	0.5303	0.4613	0.4039	0.3153	0.2513	0.1942	0.1537	0.1242	0.1021
45	0.7303	0.6312	0.5492	0.4809	0.4236	0.3341	0.2685	0.2092	0.1667	0.1354	0.1118
50	0.7424	0.6462	0.5658	0.4984	0.4413	0.3511	0.2844	0.2232	0.1790	0.1461	0.1211
60	0.7623	0.6711	0.5939	0.5280	0.4716	0.3810	0.3125	0.2486	0.2014	0.1658	0.1385
70	0.7781	0.6912	0.6167	0.5526	0.4970	0.4065	0.3369	0.2710	0.2216	0.1838	0.1545
80	0.7911	0.7079	0.6359	0.5733	0.5187	0.4286	0.3585	0.2910	0.2398	0.2003	0.1693
90	0.8019	0.7220	0.6523	0.5912	0.5375	0.4481	0.3777	0.3091	0.2566	0.2155	0.1831
100	0.8112	0.7342	0.6665	0.6068	0.5540	0.4655	0.3949	0.3256	0.2719	0.2296	0.1959
120	0.8264	0.7542	0.6902	0.6330	0.5820	0.4952	0.4249	0.3547	0.2993	0.2551	0.2194
140	0.8383	0.7702	0.7092	0.6543	0.6049	0.5200	0.4503	0.3797	0.3232	0.2776	0.2404
160	0.8481	0.7833	0.7249	0.6721	0.6242	0.5411	0.4721	0.4015	0.3443	0.2977	0.2593
180	0.8562	0.7944	0.7382	0.6872	0.6407	0.5594	0.4912	0.4207	0.3632	0.3158	0.2764
200	0.8632	0.8039	0.7497	0.7003	0.6550	0.5754	0.5081	0.4380	0.3802	0.3323	0.2922

Footnote. PL = Prediction Limit; X_n = Maximum order statistic

Table 19-23. Per-Constituent Significance Levels (α) for Non-Parametric 1-of-1 Plan for Median (PL= X_n)

$w \setminus n$	50	60	70	80	90	100	120	140	160	180	200
1	0.2177-2	0.1536-2	0.1142-2	0.8816-3	0.7013-3	0.5711-3	0.3998-3	0.2955-3	0.2272-3	0.1801-3	0.1463-3
2	0.4329-2	0.3059-2	0.2276-2	0.1759-2	0.1400-2	0.1140-2	0.7988-3	0.5905-3	0.4541-3	0.3601-3	0.2925-3
3	0.6456-2	0.4570-2	0.3403-2	0.2632-2	0.2096-2	0.1708-2	0.1197-2	0.8849-3	0.6808-3	0.5399-3	0.4386-3
4	0.8560-2	0.6069-2	0.4524-2	0.3501-2	0.2789-2	0.2273-2	0.1594-2	0.1179-2	0.9071-3	0.7195-3	0.5845-3
5	0.1064-1	0.7555-2	0.5637-2	0.4365-2	0.3479-2	0.2837-2	0.1990-2	0.1472-2	0.1133-2	0.8989-3	0.7304-3
8	0.1675-1	0.1194-1	0.8938-2	0.6935-2	0.5535-2	0.4518-2	0.3174-2	0.2350-2	0.1809-2	0.1436-2	0.1167-2
10	0.2071-1	0.1481-1	0.1111-1	0.8628-2	0.6892-2	0.5630-2	0.3958-2	0.2933-2	0.2259-2	0.1793-2	0.1458-2
12	0.2460-1	0.1764-1	0.1325-1	0.1030-1	0.8239-2	0.6735-2	0.4739-2	0.3513-2	0.2707-2	0.2149-2	0.1748-2
15	0.3028-1	0.2180-1	0.1642-1	0.1279-1	0.1024-1	0.8380-2	0.5904-2	0.4381-2	0.3378-2	0.2683-2	0.2182-2
20	0.3939-1	0.2854-1	0.2158-1	0.1686-1	0.1353-1	0.1109-1	0.7829-2	0.5817-2	0.4489-2	0.3568-2	0.2903-2
25	0.4809-1	0.3505-1	0.2660-1	0.2085-1	0.1676-1	0.1376-1	0.9734-2	0.7241-2	0.5593-2	0.4448-2	0.3621-2
30	0.5642-1	0.4134-1	0.3150-1	0.2475-1	0.1993-1	0.1639-1	0.1162-1	0.8655-2	0.6691-2	0.5325-2	0.4337-2
35	0.6441-1	0.4743-1	0.3627-1	0.2857-1	0.2306-1	0.1898-1	0.1348-1	0.1006-1	0.7782-2	0.6196-2	0.5049-2
40	0.7209-1	0.5334-1	0.4092-1	0.3231-1	0.2612-1	0.2153-1	0.1533-1	0.1145-1	0.8866-2	0.7064-2	0.5758-2
45	0.7948-1	0.5907-1	0.4546-1	0.3598-1	0.2914-1	0.2406-1	0.1716-1	0.1283-1	0.9943-2	0.7927-2	0.6465-2
50	0.8661-1	0.6464-1	0.4990-1	0.3958-1	0.3211-1	0.2654-1	0.1897-1	0.1420-1	0.1101-1	0.8786-2	0.7169-2
60	0.1001	0.7531-1	0.5847-1	0.4659-1	0.3792-1	0.3142-1	0.2253-1	0.1691-1	0.1314-1	0.1049-1	0.8567-2
70	0.1128	0.8544-1	0.6668-1	0.5334-1	0.4355-1	0.3617-1	0.2603-1	0.1957-1	0.1523-1	0.1218-1	0.9955-2
80	0.1247	0.9507-1	0.7456-1	0.5986-1	0.4901-1	0.4080-1	0.2946-1	0.2220-1	0.1731-1	0.1385-1	0.1133-1
90	0.1359	0.1043	0.8213-1	0.6617-1	0.5433-1	0.4532-1	0.3282-1	0.2480-1	0.1936-1	0.1551-1	0.1270-1
100	0.1466	0.1130	0.8942-1	0.7228-1	0.5949-1	0.4974-1	0.3613-1	0.2735-1	0.2138-1	0.1715-1	0.1405-1
120	0.1662	0.1295	0.1032	0.8395-1	0.6943-1	0.5827-1	0.4258-1	0.3236-1	0.2537-1	0.2039-1	0.1674-1
140	0.1841	0.1447	0.1161	0.9496-1	0.7888-1	0.6644-1	0.4881-1	0.3723-1	0.2927-1	0.2358-1	0.1938-1
160	0.2006	0.1588	0.1282	0.1054	0.8789-1	0.7428-1	0.5484-1	0.4198-1	0.3309-1	0.2670-1	0.2198-1
180	0.2157	0.1719	0.1397	0.1153	0.9651-1	0.8181-1	0.6068-1	0.4661-1	0.3683-1	0.2978-1	0.2455-1
200	0.2297	0.1843	0.1504	0.1247	0.1048	0.8905-1	0.6635-1	0.5113-1	0.4050-1	0.3280-1	0.2708-1

Footnote. PL = Prediction Limit; X_n = Maximum order statistic

Table 19-23. Per-Constituent Significance Levels (α) for Non-Parametric 1-of-1 Plan for Median ($PL=X_{n-1}$)

$w \setminus n$	4	6	8	10	12	16	20	25	30	35	40
1	0.3714	0.2262	0.1515	0.1084	0.8132-1	0.5057-1	0.3444-1	0.2320-1	0.1668-1	0.1257-1	0.9805-2
2	0.5381	0.3636	0.2587	0.1923	0.1480	0.9501-1	0.6589-1	0.4497-1	0.3259-1	0.2469-1	0.1933-1
3	0.6336	0.4570	0.3394	0.2597	0.2041	0.1345	0.9476-1	0.6546-1	0.4781-1	0.3639-1	0.2860-1
4	0.6957	0.5251	0.4026	0.3152	0.2520	0.1699	0.1214	0.8481-1	0.6238-1	0.4771-1	0.3762-1
5	0.7395	0.5771	0.4537	0.3620	0.2935	0.2019	0.1461	0.1031	0.7634-1	0.5866-1	0.4640-1
8	0.8173	0.6796	0.5622	0.4672	0.3913	0.2821	0.2107	0.1527	0.1151	0.8950-1	0.7144-1
10	0.8474	0.7232	0.6120	0.5183	0.4410	0.3257	0.2474	0.1820	0.1385	0.1086	0.8714-1
12	0.8689	0.7559	0.6509	0.5595	0.4822	0.3634	0.2801	0.2088	0.1604	0.1266	0.1021
15	0.8916	0.7922	0.6957	0.6087	0.5327	0.4115	0.3232	0.2450	0.1907	0.1519	0.1234
20	0.9158	0.8329	0.7483	0.6685	0.5962	0.4754	0.3827	0.2971	0.2353	0.1899	0.1559
25	0.9311	0.8600	0.7847	0.7115	0.6432	0.5251	0.4310	0.3410	0.2741	0.2238	0.1854
30	0.9416	0.8792	0.8115	0.7439	0.6796	0.5653	0.4713	0.3788	0.3083	0.2542	0.2122
35	0.9493	0.8937	0.8321	0.7694	0.7087	0.5984	0.5054	0.4117	0.3387	0.2817	0.2369
40	0.9552	0.9051	0.8484	0.7900	0.7326	0.6264	0.5348	0.4407	0.3660	0.3068	0.2596
45	0.9599	0.9141	0.8618	0.8071	0.7527	0.6503	0.5604	0.4665	0.3907	0.3298	0.2807
50	0.9637	0.9216	0.8729	0.8214	0.7697	0.6711	0.5831	0.4896	0.4131	0.3509	0.3003
60	0.9694	0.9332	0.8903	0.8443	0.7972	0.7054	0.6213	0.5295	0.4526	0.3887	0.3357
70	0.9736	0.9417	0.9034	0.8617	0.8185	0.7328	0.6523	0.5628	0.4862	0.4215	0.3670
80	0.9767	0.9482	0.9137	0.8755	0.8356	0.7551	0.6782	0.5912	0.5153	0.4503	0.3948
90	0.9792	0.9535	0.9219	0.8867	0.8495	0.7737	0.7002	0.6156	0.5409	0.4759	0.4198
100	0.9812	0.9577	0.9286	0.8960	0.8612	0.7895	0.7191	0.6370	0.5635	0.4988	0.4425
120	0.9843	0.9642	0.9391	0.9105	0.8797	0.8149	0.7500	0.6726	0.6018	0.5382	0.4819
140	0.9864	0.9689	0.9468	0.9213	0.8936	0.8346	0.7743	0.7012	0.6331	0.5711	0.5153
160	0.9881	0.9726	0.9527	0.9297	0.9045	0.8502	0.7940	0.7248	0.6594	0.5990	0.5440
180	0.9894	0.9754	0.9575	0.9365	0.9134	0.8630	0.8103	0.7447	0.6818	0.6230	0.5690
200	0.9904	0.9777	0.9613	0.9420	0.9206	0.8737	0.8241	0.7616	0.7011	0.6440	0.5910

Footnote. PL = Prediction Limit; X_{n-1} = 2nd largest order statistic

Table 19-23. Per-Constituent Significance Levels (α) for Non-Parametric 1-of-1 Plan for Median ($PL=X_{n-1}$)

w/n	50	60	70	80	90	100	120	140	160	180	200
1	0.6446-2	0.4558-2	0.3393-2	0.2623-2	0.2088-2	0.1702-2	0.1193-2	0.8822-3	0.6788-3	0.5385-3	0.4375-3
2	0.1277-1	0.9053-2	0.6750-2	0.5225-2	0.4163-2	0.3395-2	0.2381-2	0.1762-2	0.1356-2	0.1076-2	0.8744-3
3	0.1897-1	0.1349-1	0.1007-1	0.7806-2	0.6225-2	0.5079-2	0.3565-2	0.2639-2	0.2032-2	0.1613-2	0.1311-2
4	0.2507-1	0.1786-1	0.1336-1	0.1037-1	0.8273-2	0.6754-2	0.4745-2	0.3514-2	0.2707-2	0.2148-2	0.1746-2
5	0.3105-1	0.2218-1	0.1662-1	0.1291-1	0.1031-1	0.8420-2	0.5920-2	0.4387-2	0.3380-2	0.2683-2	0.2181-2
8	0.4837-1	0.3480-1	0.2620-1	0.2041-1	0.1634-1	0.1337-1	0.9419-2	0.6989-2	0.5390-2	0.4282-2	0.3483-2
10	0.5942-1	0.4295-1	0.3243-1	0.2531-1	0.2029-1	0.1662-1	0.1173-1	0.8713-2	0.6723-2	0.5343-2	0.4347-2
12	0.7012-1	0.5090-1	0.3854-1	0.3015-1	0.2420-1	0.1985-1	0.1403-1	0.1043-1	0.8050-2	0.6401-2	0.5210-2
15	0.8553-1	0.6247-1	0.4750-1	0.3726-1	0.2998-1	0.2462-1	0.1744-1	0.1298-1	0.1003-1	0.7980-2	0.6499-2
20	0.1097	0.8088-1	0.6189-1	0.4878-1	0.3937-1	0.3242-1	0.2304-1	0.1719-1	0.1330-1	0.1060-1	0.8635-2
25	0.1321	0.9829-1	0.7566-1	0.5989-1	0.4850-1	0.4003-1	0.2855-1	0.2134-1	0.1654-1	0.1319-1	0.1076-1
30	0.1531	0.1148	0.8887-1	0.7063-1	0.5738-1	0.4747-1	0.3396-1	0.2544-1	0.1975-1	0.1576-1	0.1286-1
35	0.1727	0.1305	0.1015	0.8102-1	0.6601-1	0.5473-1	0.3928-1	0.2949-1	0.2292-1	0.1831-1	0.1496-1
40	0.1911	0.1454	0.1137	0.9107-1	0.7441-1	0.6183-1	0.4451-1	0.3348-1	0.2606-1	0.2084-1	0.1704-1
45	0.2085	0.1596	0.1254	0.1008	0.8259-1	0.6877-1	0.4966-1	0.3743-1	0.2917-1	0.2335-1	0.1910-1
50	0.2249	0.1732	0.1367	0.1103	0.9056-1	0.7556-1	0.5472-1	0.4132-1	0.3225-1	0.2584-1	0.2115-1
60	0.2552	0.1987	0.1582	0.1283	0.1059	0.8872-1	0.6460-1	0.4897-1	0.3832-1	0.3076-1	0.2521-1
70	0.2826	0.2222	0.1782	0.1454	0.1206	0.1013	0.7419-1	0.5644-1	0.4427-1	0.3560-1	0.2922-1
80	0.3075	0.2439	0.1969	0.1616	0.1345	0.1135	0.8348-1	0.6373-1	0.5011-1	0.4037-1	0.3318-1
90	0.3304	0.2641	0.2146	0.1769	0.1479	0.1252	0.9251-1	0.7085-1	0.5585-1	0.4507-1	0.3709-1
100	0.3514	0.2830	0.2312	0.1915	0.1607	0.1364	0.1013	0.7782-1	0.6148-1	0.4970-1	0.4095-1
120	0.3889	0.3172	0.2619	0.2187	0.1848	0.1577	0.1181	0.9129-1	0.7244-1	0.5875-1	0.4853-1
140	0.4214	0.3475	0.2895	0.2436	0.2070	0.1776	0.1341	0.1042	0.8302-1	0.6754-1	0.5593-1
160	0.4500	0.3747	0.3146	0.2665	0.2277	0.1963	0.1492	0.1166	0.9326-1	0.7609-1	0.6315-1
180	0.4754	0.3992	0.3375	0.2876	0.2470	0.2138	0.1636	0.1285	0.1032	0.8441-1	0.7021-1
200	0.4981	0.4214	0.3586	0.3072	0.2651	0.2304	0.1774	0.1400	0.1128	0.9251-1	0.7711-1

Footnote. PL = Prediction Limit; X_{n-1} = 2nd largest order statistic

Table 19-24. Per-Constituent Significance Levels (α) for Non-Parametric 1-of-2 Plan for Median (PL= X_n)

w\ n	4	6	8	10	12	16	20	25	30	35	40
1	0.5238-1	0.2121-1	0.1019-1	0.5495-2	0.3221-2	0.1321-2	0.6385-3	0.3002-3	0.1592-3	0.9207-4	0.5690-4
2	0.8898-1	0.3853-1	0.1918-1	0.1055-1	0.6265-2	0.2605-2	0.1266-2	0.5976-3	0.3174-3	0.1838-3	0.1137-3
3	0.1171	0.5324-1	0.2725-1	0.1526-1	0.9157-2	0.3853-2	0.1884-2	0.8923-3	0.4749-3	0.2753-3	0.1703-3
4	0.1400	0.6608-1	0.3461-1	0.1966-1	0.1191-1	0.5069-2	0.2492-2	0.1185-2	0.6315-3	0.3664-3	0.2268-3
5	0.1593	0.7747-1	0.4138-1	0.2381-1	0.1455-1	0.6255-2	0.3092-2	0.1474-2	0.7873-3	0.4573-3	0.2832-3
8	0.2035	0.1057	0.5901-1	0.3502-1	0.2187-1	0.9651-2	0.4839-2	0.2329-2	0.1250-2	0.7280-3	0.4517-3
10	0.2259	0.1210	0.6910-1	0.4167-1	0.2633-1	0.1180-1	0.5965-2	0.2888-2	0.1555-2	0.9071-3	0.5634-3
12	0.2448	0.1344	0.7820-1	0.4781-1	0.3052-1	0.1386-1	0.7062-2	0.3438-2	0.1856-2	0.1085-2	0.6746-3
15	0.2683	0.1518	0.9038-1	0.5623-1	0.3638-1	0.1682-1	0.8661-2	0.4248-2	0.2304-2	0.1350-2	0.8406-3
20	0.2991	0.1758	0.1078	0.6863-1	0.4521-1	0.2143-1	0.1121-1	0.5562-2	0.3036-2	0.1786-2	0.1115-2
25	0.3232	0.1954	0.1226	0.7947-1	0.5312-1	0.2571-1	0.1363-1	0.6834-2	0.3753-2	0.2216-2	0.1387-2
30	0.3430	0.2120	0.1354	0.8913-1	0.6030-1	0.2972-1	0.1594-1	0.8067-2	0.4456-2	0.2640-2	0.1656-2
35	0.3597	0.2264	0.1468	0.9786-1	0.6690-1	0.3349-1	0.1815-1	0.9265-2	0.5145-2	0.3059-2	0.1922-2
40	0.3741	0.2391	0.1571	0.1058	0.7301-1	0.3706-1	0.2028-1	0.1043-1	0.5821-2	0.3472-2	0.2186-2
45	0.3867	0.2505	0.1664	0.1132	0.7871-1	0.4044-1	0.2233-1	0.1157-1	0.6486-2	0.3879-2	0.2448-2
50	0.3980	0.2608	0.1749	0.1200	0.8404-1	0.4367-1	0.2430-1	0.1268-1	0.7139-2	0.4282-2	0.2707-2
60	0.4173	0.2787	0.1901	0.1323	0.9382-1	0.4972-1	0.2806-1	0.1482-1	0.8413-2	0.5074-2	0.3219-2
70	0.4334	0.2941	0.2034	0.1432	0.1026	0.5530-1	0.3160-1	0.1687-1	0.9649-2	0.5849-2	0.3723-2
80	0.4473	0.3075	0.2151	0.1530	0.1106	0.6049-1	0.3494-1	0.1884-1	0.1085-1	0.6607-2	0.4220-2
90	0.4593	0.3194	0.2257	0.1620	0.1180	0.6535-1	0.3812-1	0.2074-1	0.1202-1	0.7349-2	0.4708-2
100	0.4700	0.3300	0.2352	0.1702	0.1248	0.6993-1	0.4115-1	0.2257-1	0.1315-1	0.8078-2	0.5190-2
120	0.4882	0.3484	0.2520	0.1847	0.1371	0.7835-1	0.4683-1	0.2606-1	0.1535-1	0.9495-2	0.6133-2
140	0.5034	0.3640	0.2665	0.1975	0.1480	0.8598-1	0.5207-1	0.2934-1	0.1744-1	0.1086-1	0.7051-2
160	0.5163	0.3775	0.2792	0.2087	0.1578	0.9296-1	0.5695-1	0.3245-1	0.1945-1	0.1219-1	0.7947-2
180	0.5274	0.3893	0.2904	0.2189	0.1666	0.9941-1	0.6151-1	0.3540-1	0.2138-1	0.1347-1	0.8822-2
200	0.5373	0.3999	0.3006	0.2281	0.1748	0.1054	0.6582-1	0.3822-1	0.2324-1	0.1472-1	0.9677-2

Footnote. PL = Prediction Limit; X_n = Maximum order statistic

Table 19-24. Per-Constituent Significance Levels (α) for Non-Parametric 1-of-2 Plan for Median (PL= X_n)

w\ n	50	60	70	80	90	100	120	140	160	180	200
1	0.2513-4	0.1276-4	0.7145-5	0.4307-5	0.2749-5	0.1835-5	0.9090-6	0.5001-6	0.2974-6	0.1878-6	0.1243-6
2	0.5024-4	0.2550-4	0.1429-4	0.8613-5	0.5497-5	0.3671-5	0.1818-5	0.1000-5	0.5949-6	0.3756-6	0.2487-6
3	0.7531-4	0.3825-4	0.2143-4	0.1292-4	0.8244-5	0.5506-5	0.2727-5	0.1500-5	0.8923-6	0.5634-6	0.3730-6
4	0.1004-3	0.5098-4	0.2856-4	0.1722-4	0.1099-4	0.7340-5	0.3636-5	0.2000-5	0.1190-5	0.7511-6	0.4973-6
5	0.1254-3	0.6370-4	0.3570-4	0.2153-4	0.1374-4	0.9175-5	0.4545-5	0.2501-5	0.1487-5	0.9389-6	0.6216-6
8	0.2003-3	0.1018-3	0.5709-4	0.3443-4	0.2198-4	0.1468-4	0.7271-5	0.4001-5	0.2379-5	0.1502-5	0.9946-6
10	0.2501-3	0.1272-3	0.7134-4	0.4303-4	0.2747-4	0.1835-4	0.9088-5	0.5001-5	0.2974-5	0.1878-5	0.1243-5
12	0.2998-3	0.1526-3	0.8557-4	0.5162-4	0.3296-4	0.2201-4	0.1090-4	0.6001-5	0.3569-5	0.2253-5	0.1492-5
15	0.3741-3	0.1905-3	0.1069-3	0.6451-4	0.4119-4	0.2751-4	0.1363-4	0.7501-5	0.4461-5	0.2817-5	0.1865-5
20	0.4975-3	0.2537-3	0.1424-3	0.8596-4	0.5489-4	0.3667-4	0.1817-4	0.1000-4	0.5948-5	0.3755-5	0.2486-5
25	0.6203-3	0.3167-3	0.1779-3	0.1074-3	0.6859-4	0.4583-4	0.2271-4	0.1250-4	0.7434-5	0.4694-5	0.3108-5
30	0.7424-3	0.3794-3	0.2133-3	0.1288-3	0.8228-4	0.5498-4	0.2725-4	0.1500-4	0.8921-5	0.5633-5	0.3729-5
35	0.8640-3	0.4420-3	0.2486-3	0.1502-3	0.9596-4	0.6413-4	0.3179-4	0.1750-4	0.1041-4	0.6571-5	0.4351-5
40	0.9849-3	0.5045-3	0.2839-3	0.1715-3	0.1096-3	0.7327-4	0.3632-4	0.1999-4	0.1189-4	0.7510-5	0.4972-5
45	0.1105-2	0.5667-3	0.3191-3	0.1929-3	0.1233-3	0.8241-4	0.4086-4	0.2249-4	0.1338-4	0.8448-5	0.5594-5
50	0.1225-2	0.6288-3	0.3542-3	0.2142-3	0.1369-3	0.9155-4	0.4539-4	0.2499-4	0.1487-4	0.9387-5	0.6215-5
60	0.1463-2	0.7525-3	0.4244-3	0.2568-3	0.1642-3	0.1098-3	0.5446-4	0.2998-4	0.1784-4	0.1126-4	0.7458-5
70	0.1699-2	0.8755-3	0.4943-3	0.2992-3	0.1914-3	0.1280-3	0.6352-4	0.3497-4	0.2081-4	0.1314-4	0.8701-5
80	0.1933-2	0.9979-3	0.5639-3	0.3416-3	0.2186-3	0.1463-3	0.7257-4	0.3997-4	0.2378-4	0.1502-4	0.9943-5
90	0.2164-2	0.1120-2	0.6334-3	0.3839-3	0.2458-3	0.1645-3	0.8162-4	0.4495-4	0.2675-4	0.1689-4	0.1119-4
100	0.2394-2	0.1241-2	0.7026-3	0.4261-3	0.2729-3	0.1826-3	0.9067-4	0.4994-4	0.2972-4	0.1877-4	0.1243-4
120	0.2848-2	0.1481-2	0.8405-3	0.5103-3	0.3270-3	0.2190-3	0.1087-3	0.5991-4	0.3565-4	0.2252-4	0.1491-4
140	0.3295-2	0.1720-2	0.9775-3	0.5941-3	0.3810-3	0.2552-3	0.1268-3	0.6988-4	0.4159-4	0.2627-4	0.1740-4
160	0.3735-2	0.1956-2	0.1114-2	0.6776-3	0.4348-3	0.2914-3	0.1449-3	0.7984-4	0.4752-4	0.3002-4	0.1988-4
180	0.4169-2	0.2189-2	0.1249-2	0.7608-3	0.4885-3	0.3275-3	0.1629-3	0.8979-4	0.5345-4	0.3377-4	0.2236-4
200	0.4596-2	0.2421-2	0.1384-2	0.8437-3	0.5421-3	0.3635-3	0.1809-3	0.9974-4	0.5938-4	0.3752-4	0.2485-4

Footnote. PL = Prediction Limit; X_n = Maximum order statistic

Table 19-24. Per-Constituent Significance Levels (α) for Non-Parametric 1-of-2 Plan for Median ($PL=X_{n-1}$)

w\n	4	6	8	10	12	16	20	25	30	35	40
1	0.2048	0.8874-1	0.4429-1	0.2448-1	0.1460-1	0.6125-2	0.3001-2	0.1427-2	0.7629-3	0.4439-3	0.2755-3
2	0.3138	0.1515	0.8008-1	0.4576-1	0.2786-1	0.1195-1	0.5917-2	0.2832-2	0.1519-2	0.8852-3	0.5500-3
3	0.3849	0.1996	0.1101	0.6462-1	0.4003-1	0.1751-1	0.8754-2	0.4216-2	0.2267-2	0.1324-2	0.8234-3
4	0.4363	0.2383	0.1360	0.8158-1	0.5129-1	0.2283-1	0.1152-1	0.5579-2	0.3009-2	0.1760-2	0.1096-2
5	0.4758	0.2705	0.1586	0.9698-1	0.6178-1	0.2794-1	0.1421-1	0.6922-2	0.3745-2	0.2194-2	0.1367-2
8	0.5558	0.3429	0.2135	0.1363	0.8957-1	0.4215-1	0.2193-1	0.1084-1	0.5913-2	0.3480-2	0.2175-2
10	0.5914	0.3785	0.2425	0.1582	0.1057	0.5085-1	0.2679-1	0.1337-1	0.7329-2	0.4326-2	0.2708-2
12	0.6192	0.4079	0.2674	0.1776	0.1204	0.5902-1	0.3146-1	0.1583-1	0.8722-2	0.5163-2	0.3238-2
15	0.6515	0.4437	0.2990	0.2031	0.1401	0.7045-1	0.3814-1	0.1942-1	0.1077-1	0.6402-2	0.4025-2
20	0.6902	0.4892	0.3413	0.2386	0.1684	0.8764-1	0.4852-1	0.2514-1	0.1409-1	0.8427-2	0.5319-2
25	0.7178	0.5237	0.3748	0.2678	0.1925	0.1030	0.5810-1	0.3057-1	0.1729-1	0.1040-1	0.6592-2
30	0.7389	0.5511	0.4024	0.2925	0.2135	0.1169	0.6702-1	0.3574-1	0.2039-1	0.1233-1	0.7844-2
35	0.7557	0.5736	0.4257	0.3140	0.2321	0.1296	0.7538-1	0.4068-1	0.2339-1	0.1422-1	0.9076-2
40	0.7694	0.5926	0.4459	0.3329	0.2487	0.1413	0.8324-1	0.4542-1	0.2631-1	0.1607-1	0.1029-1
45	0.7810	0.6090	0.4635	0.3498	0.2638	0.1522	0.9067-1	0.4997-1	0.2914-1	0.1789-1	0.1149-1
50	0.7910	0.6232	0.4792	0.3650	0.2775	0.1623	0.9771-1	0.5436-1	0.3190-1	0.1967-1	0.1266-1
60	0.8072	0.6471	0.5061	0.3915	0.3019	0.1808	0.1108	0.6268-1	0.3721-1	0.2312-1	0.1497-1
70	0.8201	0.6665	0.5283	0.4139	0.3229	0.1973	0.1228	0.7047-1	0.4227-1	0.2646-1	0.1722-1
80	0.8306	0.6827	0.5473	0.4334	0.3414	0.2121	0.1339	0.7781-1	0.4711-1	0.2969-1	0.1942-1
90	0.8394	0.6965	0.5637	0.4504	0.3579	0.2257	0.1441	0.8475-1	0.5175-1	0.3281-1	0.2156-1
100	0.8469	0.7085	0.5781	0.4656	0.3727	0.2381	0.1537	0.9134-1	0.5621-1	0.3584-1	0.2365-1
120	0.8592	0.7283	0.6025	0.4917	0.3985	0.2604	0.1712	0.1036	0.6464-1	0.4166-1	0.2770-1
140	0.8688	0.7443	0.6224	0.5135	0.4204	0.2797	0.1868	0.1148	0.7252-1	0.4717-1	0.3158-1
160	0.8767	0.7575	0.6392	0.5320	0.4393	0.2969	0.2009	0.1252	0.7993-1	0.5242-1	0.3532-1
180	0.8832	0.7687	0.6536	0.5481	0.4560	0.3123	0.2138	0.1349	0.8692-1	0.5743-1	0.3892-1
200	0.8888	0.7783	0.6662	0.5623	0.4708	0.3263	0.2257	0.1439	0.9354-1	0.6223-1	0.4240-1

Footnote. PL = Prediction Limit; X_{n-1} = 2nd largest order statistic

Table 19-24. Per-Constituent Significance Levels (α) for Non-Parametric 1-of-2 Plan for Median (PL= X_{n-1})

w\ n	50	60	70	80	90	100	120	140	160	180	200
1	0.1225-3	0.6242-4	0.3507-4	0.2119-4	0.1354-4	0.9057-5	0.4495-5	0.2477-5	0.1475-5	0.9321-6	0.6175-6
2	0.2447-3	0.1248-3	0.7011-4	0.4236-4	0.2708-4	0.1811-4	0.8991-5	0.4954-5	0.2950-5	0.1864-5	0.1235-5
3	0.3667-3	0.1870-3	0.1051-3	0.6353-4	0.4062-4	0.2717-4	0.1349-4	0.7431-5	0.4425-5	0.2796-5	0.1853-5
4	0.4884-3	0.2493-3	0.1401-3	0.8470-4	0.5416-4	0.3622-4	0.1798-4	0.9908-5	0.5900-5	0.3728-5	0.2470-5
5	0.6099-3	0.3114-3	0.1751-3	0.1058-3	0.6769-4	0.4527-4	0.2247-4	0.1239-4	0.7374-5	0.4660-5	0.3088-5
8	0.9731-3	0.4975-3	0.2799-3	0.1693-3	0.1083-3	0.7241-4	0.3595-4	0.1981-4	0.1180-4	0.7456-5	0.4940-5
10	0.1214-2	0.6212-3	0.3497-3	0.2115-3	0.1353-3	0.9050-4	0.4494-4	0.2477-4	0.1475-4	0.9320-5	0.6175-5
12	0.1454-2	0.7447-3	0.4194-3	0.2537-3	0.1623-3	0.1086-3	0.5392-4	0.2972-4	0.1770-4	0.1118-4	0.7410-5
15	0.1813-2	0.9294-3	0.5237-3	0.3169-3	0.2028-3	0.1357-3	0.6739-4	0.3715-4	0.2212-4	0.1398-4	0.9262-5
20	0.2406-2	0.1236-2	0.6972-3	0.4222-3	0.2702-3	0.1808-3	0.8983-4	0.4952-4	0.2949-4	0.1864-4	0.1235-4
25	0.2994-2	0.1541-2	0.8702-3	0.5272-3	0.3376-3	0.2260-3	0.1123-3	0.6189-4	0.3686-4	0.2330-4	0.1544-4
30	0.3577-2	0.1845-2	0.1043-2	0.6320-3	0.4048-3	0.2710-3	0.1347-3	0.7426-4	0.4423-4	0.2795-4	0.1852-4
35	0.4155-2	0.2147-2	0.1215-2	0.7367-3	0.4720-3	0.3161-3	0.1571-3	0.8663-4	0.5160-4	0.3261-4	0.2161-4
40	0.4728-2	0.2448-2	0.1386-2	0.8411-3	0.5391-3	0.3610-3	0.1795-3	0.9899-4	0.5896-4	0.3727-4	0.2469-4
45	0.5297-2	0.2747-2	0.1557-2	0.9453-3	0.6061-3	0.4060-3	0.2019-3	0.1114-3	0.6633-4	0.4192-4	0.2778-4
50	0.5861-2	0.3045-2	0.1727-2	0.1049-2	0.6730-3	0.4509-3	0.2243-3	0.1237-3	0.7369-4	0.4658-4	0.3087-4
60	0.6976-2	0.3636-2	0.2067-2	0.1257-2	0.8066-3	0.5406-3	0.2690-3	0.1484-3	0.8841-4	0.5589-4	0.3704-4
70	0.8074-2	0.4223-2	0.2404-2	0.1464-2	0.9398-3	0.6302-3	0.3137-3	0.1731-3	0.1031-3	0.6520-4	0.4321-4
80	0.9156-2	0.4804-2	0.2740-2	0.1670-2	0.1073-2	0.7196-3	0.3583-3	0.1978-3	0.1178-3	0.7451-4	0.4938-4
90	0.1022-1	0.5380-2	0.3074-2	0.1875-2	0.1205-2	0.8088-3	0.4030-3	0.2224-3	0.1326-3	0.8381-4	0.5554-4
100	0.1128-1	0.5951-2	0.3406-2	0.2079-2	0.1338-2	0.8980-3	0.4475-3	0.2471-3	0.1473-3	0.9311-4	0.6171-4
120	0.1334-1	0.7080-2	0.4065-2	0.2486-2	0.1601-2	0.1076-2	0.5366-3	0.2964-3	0.1767-3	0.1117-3	0.7404-4
140	0.1535-1	0.8190-2	0.4717-2	0.2891-2	0.1864-2	0.1253-2	0.6254-3	0.3456-3	0.2060-3	0.1303-3	0.8637-4
160	0.1731-1	0.9284-2	0.5362-2	0.3292-2	0.2125-2	0.1429-2	0.7141-3	0.3947-3	0.2354-3	0.1489-3	0.9870-4
180	0.1923-1	0.1036-1	0.6001-2	0.3691-2	0.2385-2	0.1605-2	0.8027-3	0.4439-3	0.2647-3	0.1675-3	0.1110-3
200	0.2111-1	0.1142-1	0.6634-2	0.4087-2	0.2643-2	0.1781-2	0.8911-3	0.4929-3	0.2941-3	0.1860-3	0.1233-3

Footnote. PL = Prediction Limit; X_{n-1} = 2nd largest order statistic

D STATISTICAL TABLES

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Table 21-1. Land's Factors ($H_{.01}$) for Confidence Bounds on Lognormal Arithmetic Mean for $n =$
 3(1)19(2)25(3)31(5)36

$s_y \backslash n$	3	4	5	6	7	8	9	10	11	12	13	14
0.10	-4.435	-3.437	-3.047	-2.849	-2.730	-2.653	-2.598	-2.558	-2.527	-2.503	-2.484	-2.467
0.20	-3.720	-3.089	-2.819	-2.677	-2.590	-2.534	-2.494	-2.465	-2.442	-2.425	-2.411	-2.400
0.30	-3.260	-2.836	-2.646	-2.544	-2.482	-2.441	-2.413	-2.393	-2.378	-2.366	2.357	-2.350
0.40	-2.943	-2.649	-2.514	-2.442	-2.399	-2.371	-2.353	-2.340	-2.330	-2.324	-2.319	-2.315
0.50	-2.714	-2.508	-2.414	-2.364	-2.337	-2.320	-2.309	-2.302	-2.298	-2.295	-2.294	-2.293
0.60	-2.544	-2.402	-2.338	-2.307	-2.292	-2.283	-2.279	-2.278	-2.278	-2.279	-2.281	-2.283
0.70	-2.415	-2.321	-2.282	-2.266	-2.261	-2.260	-2.262	-2.265	-2.269	-2.274	-2.278	-2.283
0.80	-2.317	-2.260	-2.242	-2.238	-2.241	-2.247	-2.255	-2.262	-2.270	-2.277	-2.284	-2.291
0.90	-2.242	-2.216	-2.214	-2.221	-2.232	-2.244	-2.256	-2.268	-2.279	-2.289	-2.298	-2.308
1.00	-2.185	-2.184	-2.196	-2.214	-2.232	-2.249	-2.265	-2.280	-2.295	-2.308	-2.320	-2.331
1.25	-2.099	-2.147	-2.189	-2.227	-2.260	-2.290	-2.316	-2.339	-2.361	-2.380	-2.398	-2.414
1.50	-2.069	-2.153	-2.220	-2.275	-2.322	-2.362	-2.397	-2.428	-2.456	-2.481	-2.504	-2.525
1.75	-2.075	-2.190	-2.277	-2.348	-2.407	-2.457	-2.501	-2.540	-2.574	-2.605	-2.633	-2.659
2.00	-2.106	-2.247	-2.355	-2.440	-2.511	-2.571	-2.623	-2.668	-2.709	-2.746	-2.778	-2.809
2.50	-2.217	-2.408	-2.552	-2.665	-2.758	-2.836	-2.904	-2.964	-3.017	-3.064	-3.107	-3.147
3.00	-2.371	-2.610	-2.788	-2.927	-3.042	-3.140	-3.223	-3.296	-3.361	-3.419	-3.472	-3.521
3.50	-2.553	-2.839	-3.050	-3.216	-3.352	-3.467	-3.566	-3.652	-3.729	-3.799	-3.861	-3.918
4.00	-2.756	-3.087	-3.331	-3.523	-3.680	-3.812	-3.926	-4.026	-4.115	-4.195	-4.267	-4.333
4.50	-2.973	-3.349	-3.626	-3.842	-4.020	-4.170	-4.299	-4.412	-4.513	-4.603	-4.685	-4.760
5.00	-3.202	-3.622	-3.930	-4.171	-4.370	-4.537	-4.681	-4.808	-4.920	-5.021	-5.112	-5.195
6.00	-3.683	-4.189	-4.559	-4.850	-5.089	-5.291	-5.465	-5.618	-5.754	-5.875	-5.986	-6.087
7.00	-4.185	-4.775	-5.208	-5.548	-5.827	-6.064	-6.267	-6.446	-6.605	-6.748	-6.877	-6.995
8.00	-4.700	-5.374	-5.868	-6.258	-6.577	-6.847	-7.081	-7.286	-7.468	-7.632	-7.780	-7.916
9.00	-5.223	-5.980	-6.536	-6.975	-7.334	-7.639	-7.902	-8.133	-8.339	-8.523	-8.690	-8.843
10.00	-5.753	-6.593	-7.211	-7.698	-8.098	-8.437	-8.730	-8.987	-9.215	-9.420	-9.607	-9.776

Source: Land (1975)

Footnote. Notation $n = 3(1)19(2)25(3)31(5)36$ is shorthand for n from 3 to 19 by unit steps, from 19 to 25 by 2's, from 25 to 31 by 3's, and from 31 to 36 by 5's

Table 21-1. Land's Factors ($H_{.01}$) for Confidence Bounds on Lognormal Arithmetic Mean for $n =$
 3(1)19(2)25(3)31(5)36

$s_y \backslash n$	15	16	17	18	19	21	23	25	28	31	36
0.10	-2.454	-2.442	-2.432	-2.424	-2.416	-2.404	-2.395	-2.386	-2.377	-2.369	-2.361
0.20	-2.390	-2.383	-2.376	-2.370	-2.365	-2.357	-2.351	-2.346	-2.340	-2.336	-2.331
0.30	-2.344	-2.339	-2.335	-2.332	-2.329	-2.325	-2.322	2.320	-2.317	-2.316	-2.315
0.40	-2.312	-2.310	-2.308	-2.307	-2.306	-2.306	-2.305	-2.305	-2.306	-2.308	-2.310
0.50	-2.293	-2.293	-2.294	-2.294	-2.295	-2.298	-2.300	-2.302	-2.306	-2.310	-2.316
0.60	-2.285	-2.288	-2.290	-2.292	-2.295	-2.300	-2.305	-2.309	-2.316	-2.322	-2.330
0.70	-2.287	-2.292	-2.296	-2.300	-2.304	-2.312	-2.319	-2.325	-2.334	-2.342	-2.354
0.80	-2.298	-2.304	-2.310	-2.315	-2.321	-2.331	-2.341	-2.349	-2.361	-2.373	-2.386
0.90	-2.316	-2.324	-2.332	-2.339	-2.346	-2.358	-2.370	-2.380	-2.394	-2.406	-2.425
1.00	-2.341	-2.351	-2.360	-2.369	-2.377	-2.392	-2.406	-2.418	-2.434	-2.449	-2.470
1.25	-2.429	-2.443	-2.456	-2.468	-2.479	-2.500	-2.519	-2.535	-2.558	-2.578	-2.606
1.50	2.545	-2.563	-2.579	-2.595	-2.609	-2.635	-2.659	-2.680	-2.709	-2.734	-2.769
1.75	-2.682	-2.704	-2.724	-2.743	-2.760	-2.792	-2.821	-2.847	-2.881	-2.911	-2.954
2.00	-2.836	-2.862	-2.886	-2.908	-2.929	-2.966	-3.000	-3.030	-3.070	-3.105	-3.155
2.50	-3.183	-3.216	-3.247	-3.275	-3.302	-3.351	-3.394	-3.434	-3.486	-3.531	-3.569
3.00	-3.564	-3.605	-3.643	-3.679	-3.711	-3.771	-3.825	-3.873	-3.936	-3.992	-4.071
3.50	-3.970	-4.019	-4.063	-4.105	-4.144	-4.215	-4.279	-4.335	-4.410	-4.476	-4.570
4.00	-4.393	-4.449	-4.500	-4.549	-4.593	-4.676	-4.749	-4.814	-4.901	-4.977	-5.086
4.50	-4.828	-4.891	-4.950	-5.005	-5.055	-5.148	-5.231	-5.305	-5.404	-5.491	-5.614
5.00	-5.272	-5.343	-5.408	-5.469	-5.526	-5.630	-5.723	-5.805	-5.916	-6.012	-6.150
6.00	-6.179	-6.264	-6.343	-6.418	-6.486	-6.612	-6.724	-6.824	-6.958	-7.075	-7.241
7.00	-7.104	-7.204	-7.297	-7.383	-7.465	-7.611	-7.742	-7.860	-8.017	-8.154	-8.348
8.00	-8.040	-8.154	-8.261	-8.360	-8.453	-8.621	-8.772	-8.906	-9.086	-9.244	-9.467
9.00	-8.983	-9.113	-9.232	-9.344	-9.449	-9.640	-9.809	-9.961	-10.160	-10.340	-10.590
10.00	-9.932	-10.080	-10.210	-10.330	-10.450	-10.660	-10.850	-11.020	-11.250	-11.440	-11.720

Table 21-2. Land's Factors ($H_{.025}$) for Confidence Bounds on Lognormal Arithmetic Mean for $n =$
 3(1)19(2)25(3)31(5)36

$s_y \lambda n$	3	4	5	6	7	8	9	10	11	12	13	14
0.10	-2.988	-2.504	-2.314	-2.215	-2.157	-2.117	-2.090	-2.070	-2.055	-2.042	-2.032	-2.025
0.20	-2.639	-2.316	-2.183	-2.113	-2.071	-2.044	-2.025	-2.012	-2.001	-1.994	-1.987	-1.982
0.30	-2.396	-2.176	-2.083	-2.034	-2.006	-1.988	-1.976	-1.968	-1.962	-1.958	-1.954	-1.952
0.40	-2.220	-2.070	-2.007	-1.975	-1.958	-1.948	-1.941	-1.938	-1.935	-1.934	-1.933	-1.933
0.50	-2.090	-1.989	-1.950	-1.932	-1.923	-1.919	-1.918	-1.918	-1.919	-1.920	-1.922	-1.924
0.60	-1.992	-1.929	-1.908	-1.901	-1.900	-1.902	-1.905	-1.908	-1.913	-1.917	-1.920	-1.924
0.70	-1.919	-1.885	-1.879	-1.882	-1.887	-1.894	-1.901	-1.908	-1.914	-1.921	-1.926	-1.932
0.80	-1.864	-1.854	-1.860	-1.871	-1.830	-1.894	-1.904	-1.914	-1.923	-1.932	-1.939	-1.946
0.90	-1.823	-1.833	-1.850	-1.869	-1.885	-1.901	-1.915	-1.927	-1.939	-1.949	-1.958	-1.967
1.00	-1.794	-1.820	-1.848	-1.873	-1.894	-1.913	-1.931	-1.946	-1.959	-1.972	-1.983	-1.993
1.25	-1.759	-1.819	-1.867	-1.907	-1.939	-1.967	-1.992	-2.013	-2.032	-2.049	-2.064	-2.079
1.50	-1.761	-1.849	-1.914	-1.966	-2.009	-2.045	-2.076	-2.104	-2.128	-2.150	-2.169	-2.187
1.75	-1.789	-1.899	-1.981	-2.045	-2.097	-2.141	-2.179	-2.212	-2.242	-2.268	-2.291	-2.313
2.00	-1.834	-1.965	-2.062	-2.138	-2.200	-2.252	-2.296	-2.335	-2.369	-2.400	-2.428	-2.452
2.50	-1.960	-2.132	-2.259	-2.357	-2.438	-2.505	-2.562	-2.612	-2.656	-2.696	-2.731	-2.764
3.00	-2.118	-2.331	-2.487	-2.607	-2.706	-2.788	-2.858	-2.919	-2.973	-3.022	-3.065	-3.105
3.50	-2.299	-2.552	-2.736	-2.879	-2.994	-3.091	-3.174	-3.246	-3.310	-3.367	-3.418	-3.465
4.00	-2.496	-2.789	-3.001	-3.164	-3.298	-3.409	-3.505	-3.588	-3.661	-3.727	-3.786	-3.840
4.50	-2.706	-3.037	-3.276	-3.461	-3.612	-3.738	-3.846	-3.940	-4.023	-4.097	-4.164	-4.226
5.00	-2.925	-3.294	-3.560	-3.766	-3.934	-4.074	-4.194	-4.300	-4.392	-4.475	-4.550	-4.618
6.00	-3.382	-3.826	-4.145	-4.393	-4.594	-4.763	-4.908	-5.035	-5.147	-5.247	-5.337	-5.419
7.00	-3.856	-4.372	-4.744	-5.033	-5.269	-5.467	-5.637	-5.785	-5.916	-6.033	-6.139	-6.235
8.00	-4.341	-4.929	-5.354	-5.685	-5.955	-6.181	-6.375	-6.545	-6.695	-6.829	-6.950	-7.060
9.00	-4.832	-5.492	-5.971	-6.343	-6.646	-6.901	-7.120	-7.311	-7.480	-7.631	-7.768	-7.892
10.00	-5.328	-6.061	-6.592	-7.006	-7.343	-7.626	-7.869	-8.082	-8.270	-8.438	-8.590	-8.728

Source: Land (1975)

Footnote. Notation $n = 3(1)19(2)25(3)31(5)36$ is shorthand for n from 3 to 19 by unit steps, from 19 to 25 by 2's, from 25 to 31 by 3's, and from 31 to 36 by 5's

Table 21-2. Land's Factors ($H_{.025}$) for Confidence Bounds on Lognormal Arithmetic Mean for $n =$
 3(1)19(2)25(3)31(5)36

$s_y \backslash n$	15	16	17	18	19	21	23	25	28	31	36
0.10	-2.018	-2.012	-2.008	-2.003	-2.000	-1.993	-1.989	-1.985	-1.980	-1.977	-1.972
0.20	-1.978	-1.974	-1.972	-1.969	-1.967	-1.964	-1.961	-1.959	-1.957	-1.956	-1.954
0.30	-1.950	-1.949	-1.947	-1.946	-1.946	-1.945	-1.945	-1.945	-1.945	-1.945	-1.946
0.40	-1.933	-1.934	-1.934	-1.935	-1.935	-1.936	-1.938	-1.940	-1.942	-1.944	-1.948
0.50	-1.926	-1.928	-1.930	-1.932	-1.933	-1.937	-1.941	-1.944	-1.948	-1.952	-1.958
0.60	-1.928	-1.931	-1.934	-1.938	-1.940	-1.946	-1.951	-1.956	-1.962	-1.968	-1.976
0.70	-1.937	-1.942	-1.946	-1.951	-1.955	-1.906	-1.969	-1.975	-1.983	-1.991	-2.001
0.80	-1.953	-1.959	-1.965	-1.971	-1.976	-1.985	-1.993	-2.001	-2.011	-2.020	-2.032
0.90	-1.975	-1.983	-1.990	-1.996	-2.003	-2.014	-2.023	-2.003	-2.044	-2.055	-2.069
1.00	-2.003	-2.012	-2.109	-2.027	-2.024	-2.047	-2.059	-2.069	-2.083	-2.095	-2.112
1.25	-2.091	-2.104	-2.114	-2.125	-2.134	-2.151	-2.167	-2.181	-2.199	-2.215	-2.237
1.50	-2.203	-2.218	-2.232	-2.245	-2.257	-2.278	-2.298	-2.315	-2.338	-2.358	-2.386
1.75	2.332	-2.351	-2.367	-2.383	-2.396	-2.423	-2.446	-2.467	-2.495	-2.518	-2.552
2.00	-2.476	-2.496	-2.516	-2.534	-2.551	-2.581	-2.608	-2.633	-2.665	-2.693	-2.733
2.50	-2.793	-2.821	-2.845	-2.869	-2.890	-2.930	-2.956	-2.997	-3.038	-3.074	-3.125
3.00	-3.141	-3.174	-3.205	-3.233	-3.260	-3.308	-3.351	-3.389	-3.440	-3.484	-3.547
3.50	-3.508	-3.547	-3.583	-3.617	-3.649	-3.706	-3.757	-3.802	-3.862	-3.914	-3.988
4.00	-3.889	-3.935	-3.976	-4.015	-4.052	-4.118	-4.176	-4.229	-4.298	-4.358	-4.444
4.50	-4.281	-4.332	-4.380	-4.424	-4.465	-4.539	-4.606	-4.665	-4.744	-4.812	-4.910
5.00	-4.680	-4.738	-4.790	-4.840	-4.886	-4.969	-5.043	-5.110	-5.197	-5.273	-5.382
6.00	-5.494	-5.564	-5.628	-5.687	-5.743	-5.844	-5.933	-6.013	-6.119	-6.212	-6.343
7.00	-6.324	-6.404	-6.480	-6.549	-6.614	-6.732	-6.837	-6.931	-7.056	-7.164	-7.318
8.00	-7.161	-7.254	-7.340	-7.420	-7.495	-7.630	-7.750	-7.858	-8.001	-8.125	-8.301
9.00	-8.006	-8.111	-8.208	-8.298	-8.382	-8.535	-8.670	-8.791	-8.952	-9.092	-9.292
10.00	-8.855	-8.972	-9.079	-9.179	-9.273	-9.443	-9.594	-9.729	-9.908	-10.060	-10.290

Table 21-3. Land's Factors ($H_{.05}$) for Confidence Bounds on Lognormal Arithmetic Mean for $n =$
 3(1)19(2)25(3)31(5)36

$s_y \lambda n$	3	4	5	6	7	8	9	10	11	12	13	14
0.10	-2.130	-1.898	-1.806	-1.759	-1.731	-1.712	-1.699	-1.690	-1.683	-1.677	-1.673	-1.669
0.20	-1.969	-1.791	-1.729	-1.697	-1.678	-1.667	-1.658	-1.653	-1.649	-1.646	-1.644	-1.642
0.30	-1.816	-1.710	-1.669	-1.650	-1.639	-1.633	-1.629	-1.627	-1.626	-1.625	-1.625	-1.624
0.40	-1.717	-1.650	-1.625	-1.615	-1.611	-1.610	-1.610	-1.611	-1.612	-1.613	-1.614	-1.615
0.50	-1.644	-1.605	-1.594	-1.592	-1.594	-1.596	-1.599	-1.603	-1.606	-1.609	-1.612	-1.615
0.60	-1.589	-1.572	-1.573	-1.578	-1.584	-1.591	-1.597	-1.602	-1.608	-1.612	-1.617	-1.621
0.70	-1.549	-1.550	-1.560	-1.572	-1.582	-1.592	-1.600	-1.608	-1.615	-1.622	-1.628	-1.633
0.80	-1.521	-1.537	-1.555	-1.572	-1.586	-1.599	-1.610	-1.620	-1.629	-1.636	-1.644	-1.651
0.90	-1.502	-1.530	-1.556	-1.577	-1.595	-1.611	-1.625	-1.637	-1.647	-1.656	-1.665	-1.673
1.00	-1.490	-1.530	-1.562	-1.588	-1.610	-1.628	-1.644	-1.658	-1.670	-1.681	-1.690	-1.699
1.25	-1.486	-1.549	-1.596	-1.632	-1.662	-1.687	-1.708	-1.727	-1.743	-1.758	-1.770	-1.782
1.50	-1.508	-1.590	-1.650	-1.696	-1.733	-1.764	-1.791	-1.814	-1.834	-1.853	-1.869	-1.883
1.75	-1.547	-1.647	-1.719	-1.774	-1.819	-1.857	-1.889	-1.916	-1.940	-1.962	-1.981	-1.998
2.00	-1.598	-1.714	-1.799	-1.864	-1.917	-1.960	-1.998	-2.029	-2.058	-2.083	-2.106	-2.126
2.50	-1.727	-1.877	-1.986	-2.070	-2.138	-2.193	-2.241	-2.283	-2.319	-2.351	-2.380	-2.406
3.00	-1.880	-2.065	-2.199	-2.301	-2.384	-2.452	-2.510	-2.560	-2.604	-2.644	-2.679	-2.711
3.50	-2.051	-2.272	-2.429	-2.550	-2.647	-2.727	-2.795	-2.855	-2.907	-2.953	-2.995	-3.033
4.00	-2.237	-2.491	-2.672	-2.810	-2.922	-3.015	-3.093	-3.161	-3.221	-3.275	-3.323	-3.366
4.50	-2.434	-2.720	-2.924	-3.080	-3.206	-3.310	-3.399	-3.476	-3.544	-3.605	-3.659	-3.708
5.00	-2.638	-2.957	-3.183	-3.356	-3.497	-3.613	-3.712	-3.798	-3.873	-3.941	-4.001	-4.056
6.00	-3.062	-3.444	-3.715	-3.923	-4.092	-4.231	-4.351	-4.455	-4.546	-4.627	-4.700	-4.766
7.00	-3.499	-3.943	-4.260	-4.502	-4.699	-4.862	-5.002	-5.123	-5.230	-5.325	-5.411	-5.488
8.00	-3.945	-4.451	-4.812	-5.090	-5.315	-5.502	-5.661	-5.800	-5.922	-6.031	-6.129	-6.218
9.00	-4.397	-4.965	-5.371	-5.684	-5.936	-6.146	-6.326	-6.482	-6.620	-6.742	-6.853	-6.954
10.00	-4.852	-5.483	-5.933	-6.280	-6.560	-6.795	-6.994	-7.168	-7.321	-7.458	-7.581	-7.592

Source: Land (1975)

Footnote. Notation $n = 3(1)19(2)25(3)31(5)36$ is shorthand for n from 3 to 19 by unit steps, from 19 to 25 by 2's, from 25 to 31 by 3's, and from 31 to 36 by 5's

Table 21-3. Land's Factors ($H_{.05}$) for Confidence Bounds on Lognormal Arithmetic Mean for $n =$
 3(1)19(2)25(3)31(5)36

$s_y \backslash n$	15	16	17	18	19	21	23	25	28	31	36
0.10	-1.666	-1.663	-1.661	-1.659	-1.658	-1.655	-1.653	-1.651	-1.649	-1.648	-1.647
0.20	-1.640	-1.639	-1.638	-1.638	-1.637	-1.636	-1.636	-1.635	-1.636	-1.636	-1.636
0.30	-1.625	-1.625	-1.625	-1.626	-1.626	-1.627	-1.628	-1.629	-1.630	-1.632	-1.633
0.40	-1.617	-1.618	-1.620	-1.622	-1.622	-1.625	-1.627	-1.629	-1.632	-1.635	-1.639
0.50	-1.618	-1.620	-1.622	-1.625	-1.627	-1.631	-1.634	-1.638	-1.642	-1.646	-1.651
0.60	-1.625	-1.629	-1.632	-1.635	-1.638	-1.643	-1.648	-1.652	-1.658	-1.662	-1.659
0.70	-1.638	-1.643	-1.647	-1.651	-1.654	-1.661	-1.667	-1.672	-1.679	-1.686	-2.694
0.80	-1.656	-1.662	-1.667	-1.672	-1.677	-1.685	-1.691	-1.698	-1.706	-1.714	-1.724
0.90	-1.680	-1.686	-1.692	-1.698	-1.703	-1.713	-1.721	-1.728	-1.738	-1.747	-1.759
1.00	-1.707	-1.715	-1.722	-1.728	-1.734	-1.745	-1.755	-1.763	-1.774	-1.784	-1.798
1.25	-1.793	-1.803	-1.812	-1.820	-1.828	-1.842	-1.854	-1.866	-1.880	-1.893	-1.911
1.50	-1.896	-1.909	-1.920	-1.930	-1.940	-1.958	-1.973	-1.987	-2.005	-2.020	-2.043
1.75	-2.015	-2.029	-2.043	-2.055	-2.067	-2.088	-2.107	-2.123	-2.145	-2.164	-2.190
2.00	-2.144	-2.162	-2.177	-2.192	-2.205	-2.230	-2.251	-2.271	-2.269	-2.318	-2.349
2.50	-2.430	-2.452	-2.472	-2.491	-2.508	-2.540	-2.568	-2.593	-2.625	-2.654	-2.694
3.00	-2.740	-2.767	2.792	-2.815	-2.836	-2.874	-2.908	-2.939	-2.979	-3.014	-3.063
3.50	-3.067	-3.099	3.128	-3.155	-3.180	-3.226	-3.266	-3.302	-3.349	-3.391	-3.448
4.00	-3.406	-3.443	3.476	-3.507	-3.536	-3.589	-3.635	-3.677	-3.731	-3.779	-3.846
4.50	-3.753	-3.794	3.833	-3.868	-3.901	-3.960	-4.013	-4.060	-4.122	-4.176	-4.252
5.00	-4.107	-4.153	4.195	-4.235	-4.272	-4.338	-4.397	-4.449	-4.518	-4.579	-4.664
6.00	-4.827	-4.882	4.934	-4.981	-5.026	-5.106	-5.177	-5.241	-5.325	-5.397	-5.500
7.00	-5.559	-5.624	5.685	-5.741	-5.793	-5.886	-5.970	-6.045	-6.142	-6.227	-6.348
8.00	-6.300	-6.374	6.443	-6.507	-6.566	-6.674	-6.770	-6.855	-6.968	-7.066	-7.204
9.00	-7.045	-7.129	7.207	-7.278	-7.346	-7.468	-7.575	-7.672	-7.798	-7.909	-8.064
10.00	-7.794	-7.888	7.974	-8.054	-8.129	-8.264	-8.385	-8.491	-8.632	-10.060	-8.928

Table 21-4. Land's Factors ($H_{.10}$) for Confidence Bounds on Lognormal Arithmetic Mean for $n =$
 3(1)19(2)25(3)31(5)36

$s_y \backslash n$	3	4	5	6	7	8	9	10	11	12	13	14
0.10	-1.431	-1.351	-1.320	-1.305	-1.296	-1.291	-1.287	-1.285	-1.283	-1.281	-1.281	-1.280
0.20	-1.350	-1.299	-1.281	-1.273	-1.268	-1.267	-1.266	-1.266	-1.266	-1.266	-1.266	-1.266
0.30	-1.289	-1.260	-1.252	-1.251	-1.250	-1.251	-1.253	-1.254	-1.255	-1.257	-1.258	-1.259
0.40	-1.245	-1.233	-1.233	-1.236	-1.239	-1.243	-1.246	-1.249	-1.252	-1.254	-1.257	-1.258
0.50	-1.213	-1.214	-1.221	-1.228	-1.234	-1.240	-1.245	-1.250	-1.254	-1.257	-1.261	-1.264
0.60	-1.190	-1.202	-1.215	-1.226	-1.235	-1.243	-1.250	-1.256	-1.261	-1.266	-1.270	-1.274
0.70	-1.176	-1.197	-1.215	-1.229	-1.241	-1.251	-1.259	-1.266	-1.273	-1.278	-1.283	-1.288
0.80	-1.168	-1.197	-1.219	-1.237	-1.251	-1.262	-1.272	-1.280	-1.288	-1.294	-1.301	-1.306
0.90	-1.165	-1.201	-1.227	-1.248	-1.264	-1.277	-1.289	-1.298	-1.307	-1.314	-1.321	-1.327
1.00	-1.166	-1.208	-1.239	-1.262	-1.281	-1.296	-1.309	-1.320	-1.329	-1.337	-1.345	-1.353
1.25	-1.184	-1.240	-1.280	-1.310	-1.334	-1.353	-1.370	-1.384	-1.396	-1.407	-1.417	-1.426
1.50	-1.217	-1.285	-1.334	-1.371	-1.400	-1.424	-1.444	-1.462	-1.477	-1.491	-1.503	-1.514
1.75	-1.260	-1.341	-1.398	-1.442	-1.477	-1.505	-1.530	-1.551	-1.569	-1.585	-1.599	-1.612
2.00	-1.310	-1.403	-1.470	-1.521	-1.562	-1.595	-1.623	-1.647	1.669	-1.688	-1.704	-1.719
2.50	-1.426	-1.547	-1.634	-1.700	-1.751	-1.794	-1.830	-1.862	-1.889	-1.913	-1.934	-1.953
3.00	-1.560	-1.712	-1.817	-1.897	-1.960	-2.013	-2.057	-2.095	-2.128	-2.157	-2.183	-2.207
3.50	-1.710	-1.889	-2.014	-2.108	-2.183	-2.244	-2.296	-2.341	-2.380	-2.415	-2.446	-2.473
4.00	-1.871	-2.078	-2.221	-2.329	-2.415	-2.485	-2.545	-2.596	-2.641	-2.681	-2.717	-2.749
4.50	-2.041	-2.274	-2.435	-2.557	-2.653	-2.733	-2.801	-2.858	-2.910	-2.955	-2.995	-3.031
5.00	-2.217	-2.475	-2.654	-2.789	-2.897	-2.986	-3.061	-3.126	-3.183	-3.233	-3.278	-3.319
6.00	-2.581	-2.889	-3.104	-3.267	-3.396	-3.503	-3.593	-3.671	-3.740	-3.800	-3.855	-3.904
7.00	-2.955	-3.314	-3.564	-3.753	-3.904	-4.029	-4.135	-4.226	-4.306	-4.377	-4.441	-4.498
8.00	-3.336	-3.744	-4.030	-4.246	-4.418	-4.561	-4.683	-4.787	-4.879	-4.960	-5.033	-5.099
9.00	-3.721	-4.180	-4.500	-4.742	-4.937	-5.098	-5.234	-5.352	-5.455	-5.547	-5.629	-5.703
10.00	-4.109	-4.618	-4.973	-5.243	-5.459	-5.638	-5.789	-5.920	-6.035	-6.137	-6.228	-6.311

Source: Land (1975)

Footnote. Notation $n = 3(1)19(2)25(3)31(5)36$ is shorthand for n from 3 to 19 by unit steps, from 19 to 25 by 2's, from 25 to 31 by 3's, and from 31 to 36 by 5's

Table 21-4. Land's Factors (H_{10}) for Confidence Bounds on Lognormal Arithmetic Mean for $n =$
 3(1)19(2)25(3)31(5)36

$s_y \backslash n$	15	16	17	18	19	21	23	25	28	31	36
0.10	-1.279	-1.278	-1.278	-1.278	-1.278	-1.277	-1.277	-1.277	-1.277	-1.277	-1.277
0.20	-1.266	-1.267	-1.267	-1.267	-1.268	-1.268	-1.270	-1.270	-1.271	-1.272	-1.272
0.30	-1.260	-1.261	-1.262	-1.263	-1.265	-1.266	-1.268	-1.269	-1.271	-1.272	-1.275
0.40	-1.261	-1.262	-1.264	-1.266	-1.267	-1.270	-1.272	-1.274	-1.277	-1.279	-1.282
0.50	-1.266	-1.269	-1.271	-1.273	-1.275	-1.279	-1.281	-1.284	-1.288	-1.291	-1.295
0.60	-1.277	-1.280	-1.283	-1.286	-1.288	-1.292	-1.296	-1.299	-1.304	-1.307	-1.313
0.70	-1.292	-1.296	-1.299	-1.302	-1.305	-1.310	-1.315	-1.319	-1.324	-1.329	-1.336
0.80	-1.311	-1.315	-1.319	-1.323	-1.326	-1.332	-1.338	-1.342	-1.349	-1.354	-1.361
0.90	-1.333	-1.338	-1.342	-1.346	-1.351	-1.358	-1.364	-1.369	-1.377	-1.383	-1.391
1.00	-1.358	-1.364	-1.369	-1.374	-1.378	-1.387	-1.393	-1.399	-1.408	-1.414	-1.424
1.25	-1.434	-1.441	-1.448	-1.455	-1.460	-1.470	-1.479	-1.487	-1.498	-1.507	-1.519
1.50	-1.523	-1.533	-1.541	-1.548	-1.555	-1.568	-1.579	-1.589	-1.602	-1.613	-1.629
1.75	-1.624	-1.634	-1.645	-1.654	-1.662	-1.677	-1.690	-1.703	-1.718	-1.732	-1.750
2.00	-1.733	-1.746	-1.757	-1.767	-1.777	-1.795	-1.810	-1.825	-1.843	-1.859	-1.881
2.50	-1.971	-1.987	-2.002	-2.016	-2.029	-2.051	-2.072	-2.090	-2.113	-2.133	-2.161
3.00	-2.229	-2.248	2.266	-2.283	-2.298	-2.326	-2.351	-2.373	-2.402	-2.427	-2.461
3.50	-2.499	-2.522	2.544	-2.563	-2.581	-2.615	-2.644	-2.670	-2.704	-2.733	-2.775
4.00	-2.778	-2.805	2.830	-2.853	-2.874	-2.913	-2.946	-2.976	-3.015	-3.050	-3.097
4.50	-3.064	-3.095	3.123	-3.149	-3.173	-3.217	-3.255	-3.288	-3.333	-3.372	-3.426
5.00	-3.356	-3.390	3.421	-3.450	-3.477	-3.525	-3.567	-3.605	-3.655	-3.698	-3.759
6.00	-3.949	-3.989	4.027	-4.062	-4.094	-4.153	-4.204	-4.250	-4.311	-4.363	-4.436
7.00	-4.549	-4.599	4.642	-4.683	-4.721	-4.790	-4.850	-4.604	-4.975	-5.037	-5.122
8.00	-5.159	-5.213	5.264	-5.311	-5.354	-5.433	-5.002	-5.564	-5.645	-5.715	-5.815
9.00	-5.771	-5.833	5.890	-5.942	-5.992	-6.080	-6.158	-6.228	-6.319	-6.399	-6.510
10.00	-6.386	-6.455	6.518	-6.578	-6.632	-6.730	-6.817	-6.894	-6.996	-8.755	-7.208

Table 21-5. Land's Factors ($H_{.90}$) for Confidence Bounds on Lognormal Arithmetic Mean for $n =$
 3(1)19(2)25(3)31(5)36

$s_y \backslash n$	3	4	5	6	7	8	9	10	11	12	13	14
0.10	1.686	1.506	1.438	1.403	1.381	1.367	1.356	1.349	1.343	1.338	1.334	1.330
0.20	1.885	1.620	1.522	1.472	1.442	1.422	1.407	1.396	1.387	1.380	1.374	1.369
0.30	2.156	1.763	1.627	1.558	1.517	1.489	1.469	1.453	1.441	1.432	1.424	1.417
0.40	2.521	1.942	1.755	1.662	1.607	1.569	1.543	1.523	1.507	1.494	1.483	1.474
0.50	2.990	2.160	1.907	1.785	1.712	1.664	1.630	1.604	1.583	1.567	1.553	1.542
0.60	3.542	2.417	2.084	1.926	1.834	1.773	1.729	1.696	1.671	1.650	1.633	1.619
0.70	4.136	2.708	2.284	2.085	1.970	1.894	1.849	1.800	1.768	1.743	1.722	1.705
0.80	4.742	3.023	2.503	2.260	2.119	2.027	1.962	1.914	1.876	1.845	1.820	1.799
0.90	5.349	3.353	2.736	2.447	2.280	2.171	2.094	2.036	1.992	1.955	1.926	1.901
1.00	5.955	3.691	2.980	2.644	2.450	2.324	2.234	2.167	2.115	2.073	2.038	2.010
1.25	7.466	4.558	3.617	3.167	2.904	2.732	2.610	2.518	2.448	2.391	2.344	2.305
1.50	8.973	5.436	4.276	3.713	3.383	3.166	3.012	2.896	2.806	2.733	2.674	2.623
1.75	10.480	6.319	4.944	4.273	3.877	3.615	3.429	3.289	3.180	3.092	3.109	2.959
2.00	11.980	7.206	5.619	4.842	4.380	4.075	3.857	3.693	3.564	3.461	3.376	3.305
2.50	14.990	8.986	6.979	5.990	5.401	5.010	4.730	4.518	4.353	4.220	4.110	4.017
3.00	18.000	10.770	8.346	7.147	6.434	5.958	5.617	5.359	5.157	4.994	4.860	4.746
3.50	21.000	12.560	9.717	8.312	7.473	6.913	6.511	6.208	5.970	5.778	5.619	5.486
4.00	24.000	14.340	11.090	9.480	8.516	7.873	7.411	7.062	6.788	6.566	6.384	6.299
4.50	27.010	16.130	12.470	10.650	9.562	8.836	8.314	7.919	7.610	7.360	7.154	6.978
5.00	30.010	17.920	13.840	11.820	10.610	9.800	9.219	8.779	8.434	8.155	7.924	7.729
6.00	36.020	21.490	16.600	14.170	12.710	11.740	11.030	10.500	10.090	9.751	9.473	9.238
7.00	42.020	25.070	19.350	16.510	14.810	13.670	12.850	12.230	11.750	11.350	11.030	10.750
8.00	48.030	28.650	22.110	18.860	16.910	15.610	14.670	13.960	13.410	12.960	12.580	12.270
9.00	54.030	32.230	24.870	21.210	19.020	17.550	16.500	15.700	15.070	14.560	14.140	13.790
10.00	60.040	35.810	27.630	23.560	21.120	19.490	18.320	17.430	16.730	16.170	15.700	15.310

Source: Land (1975)

Footnote. Notation $n = 3(1)19(2)25(3)31(5)36$ is shorthand for n from 3 to 19 by unit steps, from 19 to 25 by 2's, from 25 to 31 by 3's, and from 31 to 36 by 5's

Table 21-5. Land's Factors ($H_{.90}$) for Confidence Bounds on Lognormal Arithmetic Mean for $n =$
 3(1)19(2)25(3)31(5)36

$s_y \backslash n$	15	16	17	18	19	21	23	25	28	31	36
0.10	1.328	1.325	1.323	1.322	1.320	1.317	1.315	1.313	1.310	1.308	1.306
0.20	1.365	1.361	1.358	1.355	1.353	1.348	1.345	1.342	1.338	1.335	1.332
0.30	1.411	1.406	1.402	1.398	1.394	1.388	1.383	1.379	1.374	1.370	1.364
0.40	1.467	1.460	1.455	1.449	1.444	1.437	1.430	1.425	1.417	1.412	1.404
0.50	1.532	1.524	1.516	1.509	1.503	1.494	1.485	1.478	1.469	1.462	1.452
0.60	1.606	1.596	1.586	1.578	1.570	1.558	1.548	1.539	1.528	1.519	1.507
0.70	1.690	1.766	1.666	1.655	1.646	1.631	1.618	1.607	1.594	1.583	1.568
0.80	1.781	1.765	1.752	1.739	1.728	1.710	1.695	1.682	1.667	1.654	1.636
0.90	1.880	1.861	1.845	1.831	1.819	1.797	1.779	1.764	1.745	1.731	1.710
1.00	1.985	1.963	1.945	1.929	1.914	1.889	1.868	1.851	1.830	1.812	1.789
1.25	2.271	2.242	2.217	2.195	2.174	2.141	2.113	2.089	2.060	2.036	2.005
1.50	2.581	2.544	2.512	2.483	2.458	2.415	2.379	2.349	2.312	2.282	2.242
1.75	2.907	2.862	2.823	2.788	2.757	2.705	2.662	2.625	2.579	2.543	2.494
2.00	3.244	3.191	3.145	3.104	3.069	3.005	2.954	2.911	2.858	2.814	2.758
2.50	3.938	3.870	3.810	3.757	3.710	3.629	3.562	3.506	3.463	3.380	3.305
3.00	4.650	4.565	4.492	4.427	4.369	4.270	4.188	4.119	4.033	3.964	3.872
3.50	5.370	5.271	5.184	5.107	5.039	4.921	4.825	4.743	4.641	4.559	4.450
4.00	6.097	5.983	5.883	5.794	5.715	5.580	5.468	5.374	5.257	5.161	5.036
4.50	6.829	6.699	6.586	6.485	6.396	6.243	6.116	6.009	5.876	5.769	5.626
5.00	7.563	7.418	7.292	7.179	7.080	6.909	6.767	6.648	6.500	6.379	6.219
6.00	9.037	8.862	8.710	8.575	8.454	8.248	8.076	-7.933	7.753	7.607	7.415
7.00	10.520	10.310	10.130	9.975	9.833	9.592	9.391	9.222	9.013	8.842	8.616
8.00	12.000	11.770	11.560	11.380	11.220	10.940	10.710	10.520	10.280	10.080	9.821
9.00	13.480	13.220	12.990	12.780	12.600	12.290	12.030	11.810	11.540	11.320	11.030
10.00	14.970	14.680	14.420	14.190	13.990	13.640	13.350	13.110	12.810	12.560	12.240

Table 21-6. Land's Factors ($H_{.95}$) for Confidence Bounds on Lognormal Arithmetic Mean for $n =$
 3(1)19(2)25(3)31(5)36

$s_y \backslash n$	3	4	5	6	7	8	9	10	11	12	13	14
0.10	2.750	2.222	2.035	1.942	1.886	1.849	1.822	1.802	1.787	1.775	1.763	1.756
0.20	3.295	2.463	2.198	2.069	1.992	1.943	1.908	1.881	1.860	1.843	1.830	1.818
0.30	4.109	2.777	2.402	2.226	2.125	2.058	2.011	1.977	1.949	1.927	1.909	1.894
0.40	5.220	3.175	2.651	2.415	2.282	2.195	2.134	2.089	2.054	2.026	2.003	1.984
0.50	6.495	3.658	2.947	2.638	2.465	2.354	2.277	2.220	2.176	2.141	2.112	2.088
0.60	7.807	4.209	3.287	2.892	2.673	2.534	2.439	2.368	2.314	2.271	2.235	2.206
0.70	9.120	4.801	3.662	3.173	2.904	2.735	2.618	2.532	2.466	2.414	2.371	2.336
0.80	10.430	5.414	4.062	3.477	3.155	2.952	2.813	2.710	2.632	2.570	2.520	2.479
0.90	11.740	6.038	4.478	3.796	3.420	3.184	3.021	2.902	2.810	2.738	2.679	2.631
1.00	13.050	6.669	4.905	4.127	3.698	3.426	3.239	3.103	2.998	2.915	2.848	2.792
1.25	16.330	8.265	6.001	4.990	4.426	4.069	3.820	3.639	3.500	3.389	3.300	3.226
1.50	19.600	9.874	7.120	5.880	5.184	4.741	4.433	4.207	4.033	3.896	3.784	3.691
1.75	22.870	11.490	8.250	6.786	5.960	5.432	5.065	4.795	4.587	4.422	4.288	4.176
2.00	26.140	13.110	9.387	7.701	6.747	6.135	5.710	5.396	5.154	4.962	4.805	4.675
2.50	32.690	16.350	11.670	9.546	8.339	7.563	7.021	6.621	6.312	6.067	5.866	5.698
3.00	39.230	19.600	13.970	11.400	9.945	9.006	8.350	7.864	7.489	7.191	6.947	6.743
3.50	45.770	22.850	16.270	13.270	11.560	10.460	9.688	9.118	8.677	8.326	8.039	7.799
4.00	52.310	26.110	18.580	15.140	13.180	11.920	11.030	10.380	9.872	9.469	9.140	8.864
4.50	58.850	29.360	20.880	17.010	14.800	13.380	12.380	11.640	11.070	10.620	10.240	9.933
5.00	65.390	32.620	23.190	18.880	16.430	14.840	13.730	12.910	12.270	11.770	11.350	11.010
6.00	78.470	39.130	27.810	22.630	19.680	17.780	16.440	15.450	14.690	14.080	13.580	13.160
7.00	91.550	45.650	32.430	26.390	22.940	20.720	19.160	18.000	17.100	16.390	15.810	15.320
8.00	104.600	52.160	37.060	30.140	26.200	23.660	21.870	20.550	19.530	18.710	18.040	17.480
9.00	117.700	58.680	41.680	33.900	29.460	26.600	24.590	23.100	21.950	21.030	20.280	19.650
10.00	130.800	65.200	46.310	37.660	32.730	29.540	27.310	25.660	24.380	23.350	22.510	21.820

Source: Land (1975)

Footnote. Notation $n = 3(1)19(2)25(3)31(5)36$ is shorthand for n from 3 to 19 by unit steps, from 19 to 25 by 2's, from 25 to 31 by 3's, and from 31 to 36 by 5's

Table 21-6. Land's Factors ($H_{.95}$) for Confidence Bounds on Lognormal Arithmetic Mean for $n =$
 3(1)19(2)25(3)31(5)36

$s_y \backslash n$	15	16	17	18	19	21	23	25	28	31	36
0.10	1.749	1.743	1.738	1.733	1.729	1.722	1.716	1.711	1.706	1.701	1.695
0.20	1.809	1.800	1.793	1.787	1.781	1.771	1.763	1.756	1.749	1.742	1.734
0.30	1.882	1.871	1.861	1.853	1.845	1.833	1.822	1.813	1.802	1.793	1.783
0.40	1.968	1.954	1.942	1.931	1.921	1.905	1.892	1.881	1.867	1.856	1.841
0.50	2.068	2.050	2.035	2.021	2.009	1.989	1.973	1.959	1.942	1.928	1.910
0.60	2.181	2.160	2.141	2.124	2.110	2.085	2.065	2.048	2.027	2.010	1.988
0.70	2.306	2.280	2.258	2.238	2.221	2.191	2.167	2.147	2.122	2.102	2.075
0.80	2.443	2.412	2.386	2.362	2.342	2.307	2.279	2.255	2.225	2.202	2.171
0.90	2.589	2.554	2.523	2.496	2.472	2.432	2.399	2.371	2.337	2.310	2.273
1.00	2.744	2.704	2.669	2.638	2.611	2.564	2.526	2.495	2.456	2.423	2.383
1.25	3.163	3.109	3.062	3.021	2.984	2.923	2.873	2.830	2.779	2.737	2.682
1.50	3.612	3.544	3.485	3.434	3.388	3.311	3.248	3.195	3.130	3.077	3.008
1.75	4.081	4.000	3.929	3.867	3.812	3.719	3.643	3.579	3.501	3.437	3.355
2.00	4.564	4.470	4.387	4.314	4.251	4.141	4.052	3.977	3.886	3.812	3.715
2.50	5.557	5.435	5.328	5.236	5.153	5.013	4.898	4.802	4.683	4.588	4.463
3.00	6.570	6.422	6.293	6.179	6.078	5.907	5.766	5.649	5.504	5.388	5.234
3.50	7.596	7.422	7.269	7.136	7.016	6.815	6.649	6.510	6.340	6.201	6.020
4.00	8.630	8.429	8.254	8.100	7.963	7.731	7.540	7.380	7.184	7.024	6.816
4.50	9.669	9.442	9.244	9.070	8.916	8.652	8.437	8.257	8.034	7.854	7.618
5.00	10.710	10.460	10.240	10.040	9.872	9.579	9.338	9.137	8.889	8.688	8.424
6.00	12.810	12.500	12.230	12.000	11.790	11.440	11.150	10.910	10.610	10.360	10.050
7.00	14.900	14.550	14.240	13.960	13.720	13.310	12.970	12.680	12.330	12.050	11.680
8.00	17.010	16.600	16.240	15.930	15.650	15.180	14.790	14.470	14.060	13.740	13.310
9.00	19.110	18.650	18.250	17.900	17.590	17.050	16.620	16.250	15.800	15.430	14.950
10.00	21.220	20.710	20.260	19.870	19.520	18.930	18.440	18.040	17.530	12.560	16.590

Table 21-7. Land's Factors ($H_{.975}$) for Confidence Bounds on Lognormal Arithmetic Mean for $n =$
 3(1)19(2)25(3)31(5)36

$s_y \backslash n$	3	4	5	6	7	8	9	10	11	12	13	14
0.10	4.367	3.100	2.703	2.513	2.403	2.330	2.879	2.242	2.212	2.190	2.169	2.155
0.20	5.849	3.571	2.987	2.723	2.573	2.476	2.409	2.359	2.321	2.291	2.265	2.245
0.30	8.166	4.210	3.348	2.982	2.781	2.653	2.565	2.501	2.451	2.411	2.380	2.353
0.40	10.860	5.031	3.794	3.296	3.030	2.864	2.750	2.667	2.604	2.554	2.514	2.480
0.50	13.590	5.989	4.322	3.664	3.319	3.107	2.963	2.859	2.780	2.718	2.668	2.626
0.60	16.310	7.019	4.914	4.081	3.647	3.382	3.204	3.076	2.979	2.903	2.842	2.791
0.70	19.040	8.083	5.548	4.534	4.005	3.684	3.469	3.314	3.198	3.106	3.033	2.973
0.80	21.760	9.164	6.208	5.014	4.389	4.009	3.754	3.572	3.434	3.327	3.240	3.169
0.90	24.490	10.250	6.885	5.512	4.791	4.351	4.056	3.844	3.685	3.561	3.461	3.379
1.00	27.210	11.350	7.572	6.024	5.206	4.707	4.371	4.130	3.949	3.807	3.693	3.599
1.25	34.020	14.110	9.320	7.339	6.285	5.636	5.199	4.884	4.647	4.461	4.312	4.189
1.50	40.830	16.880	11.090	8.684	7.397	6.602	6.064	5.676	5.383	5.153	4.968	4.815
1.75	47.630	19.650	12.880	10.050	8.528	7.588	6.951	6.490	6.142	5.869	5.648	5.466
2.00	54.440	22.430	14.670	11.420	9.671	8.588	7.853	7.320	6.916	6.599	6.344	6.133
2.50	68.050	28.000	18.270	14.180	11.980	10.610	9.681	9.006	8.493	8.091	7.765	7.497
3.00	81.660	33.580	21.870	16.960	14.300	12.650	11.530	10.710	10.090	9.605	9.210	8.884
3.50	95.270	39.160	25.490	19.740	16.640	14.710	13.390	12.430	11.700	11.130	10.670	10.290
4.00	108.900	44.740	29.110	22.530	18.980	16.770	15.260	14.160	13.320	12.670	12.140	11.700
4.50	122.500	50.320	32.730	25.320	21.320	18.830	17.130	15.890	14.950	14.210	13.610	13.110
5.00	136.100	55.900	36.350	28.120	23.670	20.890	19.000	17.630	16.580	15.750	15.090	14.540
6.00	163.300	67.070	43.590	33.710	28.370	25.030	22.760	21.100	19.850	18.850	18.050	17.390
7.00	190.600	78.240	50.840	39.310	33.070	29.180	26.520	24.590	23.120	21.960	21.020	20.250
8.00	217.800	89.410	58.100	44.910	37.770	33.330	30.280	28.080	26.390	25.070	23.990	23.110
9.00	245.000	100.600	65.350	50.510	42.480	37.470	34.050	31.570	29.670	28.180	26.970	25.970
10.00	272.200	111.800	72.600	56.110	47.190	41.620	37.820	35.060	32.950	31.290	29.950	28.840

Source: Land (1975)

Footnote. Notation $n = 3(1)19(2)25(3)31(5)36$ is shorthand for n from 3 to 19 by unit steps, from 19 to 25 by 2's, from 25 to 31 by 3's, and from 31 to 36 by 5's

Table 21-7. Land's Factors ($H_{.975}$) for Confidence Bounds on Lognormal Arithmetic Mean for $n =$
 3(1)19(2)25(3)31(5)36

$s_y \backslash n$	15	16	17	18	19	21	23	25	28	31	36
0.10	2.141	2.130	2.120	2.112	2.104	2.091	2.081	2.072	2.062	2.053	2.043
0.20	2.227	2.212	2.199	2.188	2.178	2.161	2.147	2.135	2.121	2.110	2.096
0.30	2.331	2.311	2.295	2.280	2.267	2.246	2.228	2.213	2.194	2.180	2.161
0.40	2.452	2.428	2.407	2.388	2.372	2.345	2.323	2.305	2.281	2.263	2.239
0.50	2.592	2.562	2.536	2.513	2.493	2.460	2.432	2.409	2.381	2.359	2.329
0.60	2.749	2.712	2.681	2.653	2.630	2.588	2.555	2.528	2.494	2.467	2.432
0.70	2.922	2.879	2.841	2.808	2.780	2.731	2.692	2.659	2.619	2.587	2.545
0.80	3.109	3.059	3.015	2.976	2.943	2.886	2.840	2.802	2.755	2.717	2.668
0.90	3.310	3.251	3.200	3.157	3.117	3.052	2.999	2.955	2.901	2.858	2.801
1.00	3.521	3.454	3.397	3.347	3.302	3.227	3.167	3.116	3.056	3.007	2.943
1.25	4.086	3.998	3.922	3.856	3.798	3.700	3.621	3.555	3.474	3.410	3.327
1.50	4.688	4.579	4.485	4.402	4.330	4.209	4.109	4.027	3.927	3.847	3.743
1.75	5.314	5.183	5.070	4.972	4.887	4.740	4.622	4.524	4.404	4.307	4.183
2.00	5.956	5.804	5.674	5.559	5.461	5.289	5.151	5.037	4.897	4.784	4.639
2.50	7.271	7.078	6.911	6.765	6.636	6.419	6.243	6.096	5.916	5.772	5.585
3.00	8.610	8.376	8.174	7.996	7.840	7.576	7.361	7.182	6.963	6.787	6.559
3.50	9.964	9.689	9.451	9.242	9.058	8.748	8.495	8.284	8.027	7.820	7.551
4.00	11.330	11.010	10.740	10.500	10.290	9.930	9.639	9.397	9.101	8.863	8.554
4.50	12.700	12.340	12.030	11.760	11.520	11.120	10.790	10.520	10.180	9.913	9.564
5.00	14.070	13.670	13.330	13.030	12.760	12.310	11.950	11.640	11.270	10.970	10.580
6.00	16.830	16.350	15.930	15.570	15.250	14.710	14.270	13.900	13.450	13.090	12.620
7.00	19.590	19.030	18.550	18.130	17.750	17.120	16.600	16.170	15.650	15.220	14.670
8.00	22.360	21.720	21.170	20.680	20.250	19.530	18.940	18.450	17.840	17.360	16.730
9.00	25.130	24.410	23.790	23.240	22.760	21.940	21.280	20.720	20.050	19.500	18.790
10.00	27.900	27.100	26.410	25.800	25.270	24.360	23.620	23.000	22.250	17.130	20.850

Table 21-8. Land's Factors ($H_{.99}$) for Confidence Bounds on Lognormal Arithmetic Mean for $n =$
 $3(1)19(2)25(3)31(5)36$

$s_y \backslash n$	3	4	5	6	7	8	9	10	11	12	13	14
0.10	8.328	4.665	3.760	3.360	3.137	2.994	2.897	2.825	2.770	2.727	2.691	2.663
0.20	13.940	5.768	4.310	3.731	3.422	3.231	3.101	3.006	2.935	2.878	2.833	2.796
0.30	20.880	7.336	5.035	4.199	3.775	3.519	3.348	3.225	3.132	3.060	3.002	2.955
0.40	27.850	9.244	5.934	4.771	4.199	3.862	3.640	3.482	3.364	3.273	3.200	3.140
0.50	34.820	11.290	6.966	5.434	4.691	4.258	3.976	3.778	3.631	3.517	3.426	3.353
0.60	41.780	13.390	8.077	6.167	5.240	4.702	4.353	4.109	3.929	3.790	3.680	3.590
0.70	48.750	15.520	9.231	6.947	5.831	5.183	4.764	4.471	4.255	4.089	3.958	3.851
0.80	55.710	17.650	10.410	7.757	6.452	5.693	5.201	4.858	4.604	4.110	4.256	4.131
0.90	62.580	19.800	11.600	8.856	7.095	6.225	5.659	5.264	4.973	4.750	4.572	4.428
1.00	69.650	21.950	12.810	9.430	7.753	6.772	6.133	5.686	5.357	5.103	4.903	4.740
1.25	87.060	27.350	15.850	11.580	9.442	8.186	7.365	6.789	6.363	6.036	5.775	5.564
1.50	104.500	32.770	18.920	13.760	11.170	9.641	8.640	7.936	7.414	7.102	6.693	6.432
1.75	121.900	38.190	22.010	15.950	12.920	11.120	9.940	9.109	8.492	8.016	7.638	7.330
2.00	139.300	43.610	25.100	18.160	14.680	12.610	11.260	10.300	9.587	9.039	8.602	8.245
2.50	174.100	54.470	31.290	22.600	18.220	15.630	13.920	12.710	11.810	11.120	10.560	10.110
3.00	208.900	65.340	37.500	27.050	21.790	18.660	16.600	15.140	14.060	13.220	12.540	12.010
3.50	243.800	76.210	43.720	31.520	25.360	21.710	19.300	17.590	16.320	15.340	14.560	13.910
4.00	278.600	87.080	49.940	35.980	28.940	24.760	22.000	20.050	18.590	17.470	16.570	15.840
4.50	313.400	97.960	56.160	40.450	32.530	27.820	24.710	22.510	20.870	19.600	18.590	17.760
5.00	348.200	108.800	62.380	44.930	36.120	30.880	27.420	24.980	23.150	21.740	20.620	19.700
6.00	417.900	130.600	74.840	53.880	43.300	37.010	32.860	29.920	27.730	26.030	24.680	23.570
7.00	487.500	152.300	87.290	62.840	50.490	43.140	38.300	34.870	32.310	30.330	28.750	27.450
8.00	557.200	174.100	99.750	71.790	57.680	49.280	43.740	39.820	36.890	34.630	32.820	31.340
9.00	626.900	195.900	112.200	80.750	64.870	55.430	49.190	44.770	41.480	38.930	36.900	35.230
10.00	696.500	217.600	124.700	89.720	72.070	61.570	54.640	49.730	46.070	43.240	40.980	39.130

Source: Land (1975)

Footnote. Notation $n = 3(1)19(2)25(3)31(5)36$ is shorthand for n from 3 to 19 by unit steps, from 19 to 25 by 2's, from 25 to 31 by 3's, and from 31 to 36 by 5's

Table 21-8. Land's Factors ($H_{.99}$) for Confidence Bounds on Lognormal Arithmetic Mean for $n =$
 3(1)19(2)25(3)31(5)36

$s_y \backslash n$	15	16	17	18	19	21	23	25	28	31	36
0.10	2.638	2.618	2.600	2.584	2.571	2.548	2.529	2.514	2.495	2.480	2.462
0.20	2.764	2.737	2.714	2.694	2.676	2.647	2.623	2.602	2.579	2.559	2.534
0.30	2.914	2.880	2.851	2.826	2.803	2.767	2.735	2.710	2.679	2.655	2.623
0.40	3.090	3.047	3.011	2.979	2.951	2.904	2.867	2.836	2.798	2.767	2.729
0.50	3.291	3.239	3.194	3.155	3.121	3.064	3.017	2.979	2.933	2.896	2.849
0.60	3.515	3.453	3.398	3.351	3.311	3.242	3.186	3.141	3.085	3.041	2.984
0.70	3.762	3.687	3.623	3.567	3.519	3.438	3.372	3.318	3.253	3.200	3.134
0.80	4.027	3.940	3.865	3.800	3.744	3.649	3.573	3.510	3.434	3.373	3.296
0.90	4.309	4.209	4.123	4.049	3.983	3.875	3.787	3.716	3.628	3.559	3.471
1.00	4.605	4.491	4.394	4.309	4.235	4.112	4.013	3.931	3.833	3.755	3.655
1.25	5.388	5.240	5.114	5.004	4.908	4.749	4.620	4.513	4.385	4.283	4.143
1.50	6.217	6.034	5.878	5.743	5.625	5.426	5.267	5.136	4.978	4.852	4.691
1.75	7.074	6.857	6.671	6.510	6.369	6.134	5.944	5.788	5.599	5.449	5.256
2.00	7.949	7.699	7.483	7.297	7.134	6.861	6.641	6.460	6.241	6.066	5.842
2.50	9.735	9.415	9.145	8.907	8.700	8.353	8.073	7.842	7.562	7.339	7.052
3.00	11.550	11.170	10.840	10.550	10.300	9.875	9.536	9.256	8.916	8.645	8.269
3.50	13.380	12.930	12.540	12.210	11.910	11.420	11.020	10.690	10.290	9.970	9.560
4.00	15.230	14.710	14.260	13.880	13.540	12.970	12.510	12.130	11.670	11.310	10.840
4.50	17.070	16.490	15.990	15.550	15.170	14.350	14.010	13.590	13.070	12.660	12.120
5.00	18.930	18.280	17.720	17.240	16.810	16.100	15.520	15.050	14.470	14.010	13.420
6.00	22.650	21.870	21.190	20.610	20.100	19.240	18.550	17.980	17.280	16.730	16.010
7.00	26.380	25.460	24.680	24.000	23.400	22.390	21.580	20.920	20.100	19.450	18.620
8.00	30.110	29.060	28.170	27.390	26.700	25.550	24.630	23.860	22.930	22.190	21.230
9.00	33.840	32.670	31.660	30.780	30.010	28.720	27.670	26.810	25.760	24.930	23.800
10.00	37.580	36.280	35.150	34.180	33.320	31.880	30.720	29.770	28.600	21.640	26.470

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Table 21-9. Factors (τ) for Parametric Upper Conf. Bounds on Percentiles (P)

$n \setminus (1-\alpha)$	P = 0.80					P = 0.90				
	0.80	0.90	0.95	0.975	0.99	0.80	0.90	0.95	0.975	0.99
2	3.417	6.987	14.051	28.140	70.376	5.049	10.253	20.581	41.201	103.029
3	2.016	3.039	4.424	6.343	10.111	2.871	4.258	6.155	8.797	13.995
4	1.675	2.295	3.026	3.915	5.417	2.372	3.188	4.162	5.354	7.380
5	1.514	1.976	2.483	3.058	3.958	2.145	2.742	3.407	4.166	5.362
6	1.417	1.795	2.191	2.621	3.262	2.012	2.494	3.006	3.568	4.411
7	1.352	1.676	2.005	2.353	2.854	1.923	2.333	2.755	3.206	3.859
8	1.304	1.590	1.875	2.170	2.584	1.859	2.219	2.582	2.960	3.497
9	1.266	1.525	1.779	2.036	2.391	1.809	2.133	2.454	2.783	3.240
10	1.237	1.474	1.703	1.933	2.246	1.770	2.066	2.355	2.647	3.048
11	1.212	1.433	1.643	1.851	2.131	1.738	2.011	2.275	2.540	2.898
12	1.192	1.398	1.593	1.784	2.039	1.711	1.966	2.210	2.452	2.777
13	1.174	1.368	1.551	1.728	1.963	1.689	1.928	2.155	2.379	2.677
14	1.159	1.343	1.514	1.681	1.898	1.669	1.895	2.109	2.317	2.593
15	1.145	1.321	1.483	1.639	1.843	1.652	1.867	2.068	2.264	2.521
16	1.133	1.301	1.455	1.603	1.795	1.637	1.842	2.033	2.218	2.459
17	1.123	1.284	1.431	1.572	1.753	1.623	1.819	2.002	2.177	2.405
18	1.113	1.268	1.409	1.543	1.716	1.611	1.800	1.974	2.141	2.357
19	1.104	1.254	1.389	1.518	1.682	1.600	1.782	1.949	2.108	2.314
20	1.096	1.241	1.371	1.495	1.652	1.590	1.765	1.926	2.079	2.276
21	1.089	1.229	1.355	1.474	1.625	1.581	1.750	1.905	2.053	2.241
22	1.082	1.218	1.340	1.455	1.600	1.572	1.737	1.886	2.028	2.209
23	1.076	1.208	1.326	1.437	1.577	1.564	1.724	1.869	2.006	2.180
24	1.070	1.199	1.313	1.421	1.556	1.557	1.712	1.853	1.985	2.154
25	1.065	1.190	1.302	1.406	1.537	1.550	1.702	1.838	1.966	2.129
26	1.060	1.182	1.291	1.392	1.519	1.544	1.691	1.824	1.949	2.106
27	1.055	1.174	1.280	1.379	1.502	1.538	1.682	1.811	1.932	2.085
28	1.051	1.167	1.271	1.367	1.486	1.533	1.673	1.799	1.917	2.065
29	1.047	1.160	1.262	1.355	1.472	1.528	1.665	1.788	1.903	2.047
30	1.043	1.154	1.253	1.344	1.458	1.523	1.657	1.777	1.889	2.030
31	1.039	1.148	1.245	1.334	1.445	1.518	1.650	1.767	1.877	2.014
32	1.035	1.143	1.237	1.325	1.433	1.514	1.643	1.758	1.865	1.998
33	1.032	1.137	1.230	1.316	1.422	1.510	1.636	1.749	1.853	1.984
34	1.029	1.132	1.223	1.307	1.411	1.506	1.630	1.740	1.843	1.970
35	1.026	1.127	1.217	1.299	1.400	1.502	1.624	1.732	1.833	1.957
36	1.023	1.123	1.211	1.291	1.391	1.498	1.618	1.725	1.823	1.945
37	1.020	1.118	1.205	1.284	1.381	1.495	1.613	1.717	1.814	1.934
38	1.017	1.114	1.199	1.277	1.372	1.492	1.608	1.710	1.805	1.922
39	1.015	1.110	1.194	1.270	1.364	1.489	1.603	1.704	1.797	1.912
40	1.013	1.106	1.188	1.263	1.356	1.486	1.598	1.697	1.789	1.902
41	1.010	1.103	1.183	1.257	1.348	1.483	1.593	1.691	1.781	1.892
42	1.008	1.099	1.179	1.251	1.341	1.480	1.589	1.685	1.774	1.883
43	1.006	1.096	1.174	1.246	1.333	1.477	1.585	1.680	1.767	1.874
44	1.004	1.092	1.170	1.240	1.327	1.475	1.581	1.674	1.760	1.865
45	1.002	1.089	1.165	1.235	1.320	1.472	1.577	1.669	1.753	1.857
46	1.000	1.086	1.161	1.230	1.314	1.470	1.573	1.664	1.747	1.849
47	0.998	1.083	1.157	1.225	1.308	1.468	1.570	1.659	1.741	1.842
48	0.996	1.080	1.154	1.220	1.302	1.465	1.566	1.654	1.735	1.835
49	0.994	1.078	1.150	1.216	1.296	1.463	1.563	1.650	1.730	1.828
50	0.993	1.075	1.146	1.211	1.291	1.461	1.559	1.646	1.724	1.821
55	0.985	1.063	1.130	1.191	1.266	1.452	1.545	1.626	1.700	1.790
60	0.978	1.052	1.116	1.174	1.245	1.444	1.532	1.609	1.679	1.764
65	0.972	1.043	1.104	1.159	1.226	1.437	1.521	1.594	1.661	1.741
70	0.967	1.035	1.094	1.146	1.210	1.430	1.511	1.581	1.645	1.722
75	0.963	1.028	1.084	1.135	1.196	1.425	1.503	1.570	1.630	1.704
80	0.959	1.022	1.076	1.124	1.183	1.420	1.495	1.559	1.618	1.688
85	0.955	1.016	1.068	1.115	1.171	1.415	1.488	1.550	1.606	1.674
90	0.951	1.011	1.061	1.106	1.161	1.411	1.481	1.542	1.596	1.661
95	0.948	1.006	1.055	1.098	1.151	1.408	1.475	1.534	1.586	1.650
100	0.945	1.001	1.049	1.091	1.142	1.404	1.470	1.527	1.578	1.639

Source: Hahn & Meeker (1991)

Table 21-9. Factors (τ) for Parametric Upper Conf. Bounds on Percentiles (P)

n \ (1- α)	P = 0.95					P = 0.99				
	0.80	0.90	0.95	0.975	0.99	0.80	0.90	0.95	0.975	0.99
2	6.464	13.090	26.260	52.559	131.426	9.156	18.500	37.094	74.234	185.617
3	3.604	5.311	7.656	10.927	17.370	5.010	7.340	10.553	15.043	23.896
4	2.968	3.957	5.144	6.602	9.083	4.110	5.438	7.042	9.018	12.387
5	2.683	3.400	4.203	5.124	6.578	3.711	4.666	5.741	6.980	8.939
6	2.517	3.092	3.708	4.385	5.406	3.482	4.243	5.062	5.967	7.335
7	2.407	2.894	3.399	3.940	4.728	3.331	3.972	4.642	5.361	6.412
8	2.328	2.754	3.187	3.640	4.285	3.224	3.783	4.354	4.954	5.812
9	2.268	2.650	3.031	3.424	3.972	3.142	3.641	4.143	4.662	5.389
10	2.220	2.568	2.911	3.259	3.738	3.078	3.532	3.981	4.440	5.074
11	2.182	2.503	2.815	3.129	3.556	3.026	3.443	3.852	4.265	4.829
12	2.149	2.448	2.736	3.023	3.410	2.982	3.371	3.747	4.124	4.633
13	2.122	2.402	2.671	2.936	3.290	2.946	3.309	3.659	4.006	4.472
14	2.098	2.363	2.614	2.861	3.189	2.914	3.257	3.585	3.907	4.337
15	2.078	2.329	2.566	2.797	3.102	2.887	3.212	3.520	3.822	4.222
16	2.059	2.299	2.524	2.742	3.028	2.863	3.172	3.464	3.749	4.123
17	2.043	2.272	2.486	2.693	2.963	2.841	3.137	3.414	3.684	4.037
18	2.029	2.249	2.453	2.650	2.905	2.822	3.105	3.370	3.627	3.960
19	2.016	2.227	2.423	2.611	2.854	2.804	3.077	3.331	3.575	3.892
20	2.004	2.208	2.396	2.576	2.808	2.789	3.052	3.295	3.529	3.832
21	1.993	2.190	2.371	2.544	2.766	2.774	3.028	3.263	3.487	3.777
22	1.983	2.174	2.349	2.515	2.729	2.761	3.007	3.233	3.449	3.727
23	1.973	2.159	2.328	2.489	2.694	2.749	2.987	3.206	3.414	3.681
24	1.965	2.145	2.309	2.465	2.662	2.738	2.969	3.181	3.382	3.640
25	1.957	2.132	2.292	2.442	2.633	2.727	2.952	3.158	3.353	3.601
26	1.949	2.120	2.275	2.421	2.606	2.718	2.937	3.136	3.325	3.566
27	1.943	2.109	2.260	2.402	2.581	2.708	2.922	3.116	3.300	3.533
28	1.936	2.099	2.246	2.384	2.558	2.700	2.909	3.098	3.276	3.502
29	1.930	2.089	2.232	2.367	2.536	2.692	2.896	3.080	3.254	3.473
30	1.924	2.080	2.220	2.351	2.515	2.684	2.884	3.064	3.233	3.447
31	1.919	2.071	2.208	2.336	2.496	2.677	2.872	3.048	3.213	3.421
32	1.914	2.063	2.197	2.322	2.478	2.671	2.862	3.034	3.195	3.398
33	1.909	2.055	2.186	2.308	2.461	2.664	2.852	3.020	3.178	3.375
34	1.904	2.048	2.176	2.296	2.445	2.658	2.842	3.007	3.161	3.354
35	1.900	2.041	2.167	2.284	2.430	2.652	2.833	2.995	3.145	3.334
36	1.895	2.034	2.158	2.272	2.415	2.647	2.824	2.983	3.131	3.315
37	1.891	2.028	2.149	2.262	2.402	2.642	2.816	2.972	3.116	3.297
38	1.888	2.022	2.141	2.251	2.389	2.637	2.808	2.961	3.103	3.280
39	1.884	2.016	2.133	2.241	2.376	2.632	2.800	2.951	3.090	3.264
40	1.880	2.010	2.125	2.232	2.364	2.627	2.793	2.941	3.078	3.249
41	1.877	2.005	2.118	2.223	2.353	2.623	2.786	2.932	3.066	3.234
42	1.874	2.000	2.111	2.214	2.342	2.619	2.780	2.923	3.055	3.220
43	1.871	1.995	2.105	2.206	2.331	2.615	2.773	2.914	3.044	3.206
44	1.868	1.990	2.098	2.198	2.321	2.611	2.767	2.906	3.034	3.193
45	1.865	1.986	2.092	2.190	2.312	2.607	2.761	2.898	3.024	3.180
46	1.862	1.981	2.086	2.183	2.303	2.604	2.756	2.890	3.014	3.168
47	1.859	1.977	2.081	2.176	2.294	2.600	2.750	2.883	3.005	3.157
48	1.857	1.973	2.075	2.169	2.285	2.597	2.745	2.876	2.996	3.146
49	1.854	1.969	2.070	2.163	2.277	2.594	2.740	2.869	2.988	3.135
50	1.852	1.965	2.065	2.156	2.269	2.590	2.735	2.862	2.980	3.125
55	1.841	1.948	2.042	2.128	2.233	2.576	2.713	2.833	2.943	3.078
60	1.832	1.933	2.022	2.103	2.202	2.564	2.694	2.807	2.911	3.038
65	1.823	1.920	2.005	2.082	2.176	2.554	2.677	2.785	2.883	3.004
70	1.816	1.909	1.990	2.063	2.153	2.544	2.662	2.765	2.859	2.974
75	1.810	1.899	1.976	2.047	2.132	2.536	2.649	2.748	2.838	2.947
80	1.804	1.890	1.964	2.032	2.114	2.528	2.638	2.733	2.819	2.924
85	1.799	1.882	1.954	2.019	2.097	2.522	2.627	2.719	2.802	2.902
90	1.794	1.874	1.944	2.006	2.082	2.516	2.618	2.706	2.786	2.883
95	1.790	1.867	1.935	1.995	2.069	2.510	2.609	2.695	2.772	2.866
100	1.786	1.861	1.927	1.985	2.056	2.505	2.601	2.684	2.759	2.850

Table 21-10. Factors (τ) for Parametric Lower Conf. Bounds on Percentiles (P)

n \ (1- α)	P = 0.80					P = 0.90				
	0.80	0.90	0.95	0.975	0.99	0.80	0.90	0.95	0.975	0.99
2	0.288	-0.084	-0.521	-1.229	-3.204	0.737	0.403	0.138	-0.143	-0.707
3	0.377	0.111	-0.127	-0.380	-0.792	0.799	0.535	0.334	0.159	-0.072
4	0.432	0.209	0.021	-0.158	-0.405	0.847	0.617	0.444	0.298	0.123
5	0.470	0.272	0.110	-0.038	-0.227	0.883	0.675	0.519	0.389	0.238
6	0.499	0.319	0.173	0.043	-0.117	0.911	0.719	0.575	0.455	0.319
7	0.522	0.355	0.220	0.103	-0.040	0.933	0.755	0.619	0.507	0.381
8	0.540	0.384	0.258	0.150	0.020	0.952	0.783	0.655	0.550	0.431
9	0.556	0.408	0.290	0.188	0.067	0.968	0.808	0.686	0.585	0.472
10	0.569	0.428	0.316	0.220	0.107	0.981	0.828	0.712	0.615	0.508
11	0.580	0.446	0.339	0.247	0.140	0.993	0.847	0.734	0.642	0.538
12	0.591	0.461	0.359	0.271	0.169	1.004	0.863	0.754	0.665	0.565
13	0.599	0.475	0.376	0.292	0.194	1.013	0.877	0.772	0.685	0.589
14	0.608	0.487	0.392	0.310	0.216	1.022	0.890	0.788	0.704	0.610
15	0.615	0.498	0.406	0.327	0.236	1.029	0.901	0.802	0.721	0.629
16	0.621	0.508	0.419	0.342	0.254	1.036	0.912	0.815	0.736	0.647
17	0.627	0.518	0.430	0.356	0.271	1.043	0.921	0.827	0.750	0.663
18	0.633	0.526	0.441	0.369	0.286	1.049	0.930	0.839	0.763	0.678
19	0.638	0.534	0.451	0.380	0.299	1.054	0.939	0.849	0.775	0.692
20	0.643	0.541	0.460	0.391	0.312	1.059	0.946	0.858	0.786	0.705
21	0.647	0.548	0.468	0.401	0.324	1.064	0.953	0.867	0.796	0.716
22	0.651	0.554	0.476	0.410	0.335	1.068	0.960	0.876	0.806	0.728
23	0.655	0.560	0.484	0.419	0.345	1.073	0.966	0.884	0.815	0.738
24	0.659	0.565	0.491	0.427	0.355	1.076	0.972	0.891	0.823	0.748
25	0.662	0.570	0.497	0.435	0.364	1.080	0.978	0.898	0.831	0.757
26	0.665	0.575	0.503	0.442	0.373	1.084	0.983	0.904	0.839	0.766
27	0.669	0.580	0.509	0.449	0.381	1.087	0.988	0.911	0.846	0.774
28	0.671	0.584	0.515	0.456	0.388	1.090	0.993	0.917	0.853	0.782
29	0.674	0.588	0.520	0.462	0.396	1.093	0.997	0.922	0.860	0.790
30	0.677	0.592	0.525	0.468	0.403	1.096	1.002	0.928	0.866	0.797
31	0.679	0.596	0.530	0.473	0.409	1.099	1.006	0.933	0.872	0.804
32	0.682	0.600	0.534	0.479	0.416	1.101	1.010	0.938	0.878	0.810
33	0.684	0.603	0.539	0.484	0.422	1.104	1.013	0.942	0.883	0.817
34	0.686	0.606	0.543	0.489	0.427	1.106	1.017	0.947	0.888	0.823
35	0.688	0.610	0.547	0.494	0.433	1.108	1.020	0.951	0.893	0.828
36	0.690	0.613	0.551	0.498	0.438	1.111	1.024	0.955	0.898	0.834
37	0.692	0.616	0.554	0.502	0.443	1.113	1.027	0.959	0.903	0.839
38	0.694	0.618	0.558	0.507	0.448	1.115	1.030	0.963	0.907	0.844
39	0.696	0.621	0.561	0.511	0.453	1.117	1.033	0.967	0.911	0.849
40	0.698	0.624	0.565	0.514	0.457	1.119	1.036	0.970	0.916	0.854
41	0.699	0.626	0.568	0.518	0.462	1.120	1.038	0.974	0.920	0.859
42	0.701	0.629	0.571	0.522	0.466	1.122	1.041	0.977	0.923	0.863
43	0.702	0.631	0.574	0.525	0.470	1.124	1.044	0.980	0.927	0.867
44	0.704	0.633	0.577	0.529	0.474	1.126	1.046	0.983	0.931	0.872
45	0.705	0.635	0.579	0.532	0.478	1.127	1.048	0.986	0.934	0.876
46	0.707	0.637	0.582	0.535	0.481	1.129	1.051	0.989	0.938	0.880
47	0.708	0.640	0.585	0.538	0.485	1.130	1.053	0.992	0.941	0.883
48	0.709	0.642	0.587	0.541	0.488	1.132	1.055	0.995	0.944	0.887
49	0.711	0.643	0.590	0.544	0.492	1.133	1.057	0.997	0.947	0.891
50	0.712	0.645	0.592	0.547	0.495	1.134	1.059	1.000	0.950	0.894
55	0.718	0.654	0.603	0.559	0.510	1.141	1.069	1.012	0.964	0.910
60	0.723	0.661	0.612	0.571	0.523	1.146	1.077	1.022	0.976	0.924
65	0.727	0.668	0.621	0.581	0.535	1.151	1.085	1.032	0.987	0.937
70	0.731	0.674	0.628	0.589	0.545	1.156	1.091	1.040	0.997	0.948
75	0.735	0.679	0.635	0.597	0.554	1.160	1.097	1.048	1.006	0.958
80	0.738	0.684	0.641	0.605	0.563	1.163	1.103	1.054	1.014	0.968
85	0.741	0.689	0.647	0.611	0.571	1.167	1.108	1.061	1.021	0.976
90	0.743	0.693	0.652	0.618	0.578	1.170	1.112	1.066	1.028	0.984
95	0.746	0.697	0.657	0.623	0.584	1.172	1.116	1.072	1.034	0.991
100	0.748	0.700	0.661	0.628	0.591	1.175	1.120	1.077	1.040	0.998

Source: Adapted from Hahn & Meeker (1991)

Table 21-10. Factors (τ) for Parametric Lower Conf. Bounds on Percentiles (P)

n \ (1- α)	P = 0.95					P = 0.99				
	0.80	0.90	0.95	0.975	0.99	0.80	0.90	0.95	0.975	0.99
2	1.077	0.717	0.475	0.273	0.000	1.672	1.225	0.954	0.761	0.564
3	1.126	0.840	0.639	0.478	0.295	1.710	1.361	1.130	0.958	0.782
4	1.172	0.922	0.743	0.601	0.443	1.760	1.455	1.246	1.088	0.924
5	1.209	0.982	0.818	0.687	0.543	1.801	1.525	1.331	1.182	1.027
6	1.238	1.028	0.875	0.752	0.618	1.834	1.578	1.396	1.256	1.108
7	1.261	1.065	0.920	0.804	0.678	1.862	1.622	1.449	1.315	1.173
8	1.281	1.096	0.958	0.847	0.727	1.885	1.658	1.493	1.364	1.227
9	1.298	1.122	0.990	0.884	0.768	1.904	1.688	1.530	1.406	1.273
10	1.313	1.144	1.017	0.915	0.804	1.922	1.715	1.563	1.442	1.314
11	1.325	1.163	1.041	0.943	0.835	1.937	1.738	1.591	1.474	1.349
12	1.337	1.180	1.062	0.967	0.862	1.950	1.758	1.616	1.502	1.381
13	1.347	1.196	1.081	0.989	0.887	1.962	1.776	1.638	1.528	1.409
14	1.356	1.210	1.098	1.008	0.909	1.973	1.793	1.658	1.551	1.434
15	1.364	1.222	1.114	1.026	0.929	1.983	1.808	1.677	1.572	1.458
16	1.372	1.234	1.128	1.042	0.948	1.992	1.822	1.694	1.591	1.479
17	1.379	1.244	1.141	1.057	0.965	2.000	1.834	1.709	1.608	1.499
18	1.385	1.254	1.153	1.071	0.980	2.008	1.846	1.724	1.625	1.517
19	1.391	1.263	1.164	1.084	0.995	2.015	1.857	1.737	1.640	1.534
20	1.397	1.271	1.175	1.095	1.008	2.022	1.867	1.749	1.654	1.550
21	1.402	1.279	1.184	1.107	1.021	2.028	1.876	1.761	1.667	1.565
22	1.407	1.286	1.193	1.117	1.033	2.034	1.885	1.772	1.680	1.579
23	1.412	1.293	1.202	1.127	1.044	2.039	1.893	1.782	1.691	1.592
24	1.416	1.300	1.210	1.136	1.054	2.045	1.901	1.791	1.702	1.605
25	1.420	1.306	1.217	1.145	1.064	2.049	1.908	1.801	1.713	1.616
26	1.424	1.311	1.225	1.153	1.074	2.054	1.915	1.809	1.723	1.627
27	1.427	1.317	1.231	1.161	1.083	2.058	1.922	1.817	1.732	1.638
28	1.431	1.322	1.238	1.168	1.091	2.063	1.928	1.825	1.741	1.648
29	1.434	1.327	1.244	1.175	1.099	2.067	1.934	1.833	1.749	1.658
30	1.437	1.332	1.250	1.182	1.107	2.070	1.940	1.840	1.757	1.667
31	1.440	1.336	1.255	1.189	1.114	2.074	1.945	1.846	1.765	1.676
32	1.443	1.341	1.261	1.195	1.121	2.078	1.951	1.853	1.773	1.684
33	1.446	1.345	1.266	1.201	1.128	2.081	1.956	1.859	1.780	1.692
34	1.449	1.349	1.271	1.206	1.135	2.084	1.960	1.865	1.787	1.700
35	1.451	1.352	1.276	1.212	1.141	2.087	1.965	1.871	1.793	1.708
36	1.453	1.356	1.280	1.217	1.147	2.090	1.970	1.876	1.799	1.715
37	1.456	1.360	1.284	1.222	1.153	2.093	1.974	1.882	1.806	1.722
38	1.458	1.363	1.289	1.227	1.158	2.096	1.978	1.887	1.811	1.728
39	1.460	1.366	1.293	1.232	1.164	2.098	1.982	1.892	1.817	1.735
40	1.462	1.369	1.297	1.236	1.169	2.101	1.986	1.896	1.823	1.741
41	1.464	1.372	1.300	1.241	1.174	2.103	1.989	1.901	1.828	1.747
42	1.466	1.375	1.304	1.245	1.179	2.106	1.993	1.905	1.833	1.753
43	1.468	1.378	1.308	1.249	1.183	2.108	1.996	1.910	1.838	1.758
44	1.470	1.381	1.311	1.253	1.188	2.110	2.000	1.914	1.843	1.764
45	1.472	1.383	1.314	1.257	1.192	2.112	2.003	1.918	1.847	1.769
46	1.473	1.386	1.317	1.260	1.197	2.114	2.006	1.922	1.852	1.774
47	1.475	1.389	1.321	1.264	1.201	2.116	2.009	1.925	1.856	1.779
48	1.477	1.391	1.324	1.267	1.205	2.118	2.012	1.929	1.860	1.784
49	1.478	1.393	1.327	1.271	1.209	2.120	2.015	1.933	1.865	1.789
50	1.480	1.396	1.329	1.274	1.212	2.122	2.018	1.936	1.869	1.793
55	1.487	1.406	1.343	1.289	1.230	2.131	2.031	1.952	1.887	1.815
60	1.493	1.415	1.354	1.303	1.245	2.138	2.042	1.966	1.903	1.833
65	1.498	1.424	1.364	1.315	1.259	2.145	2.052	1.979	1.918	1.850
70	1.503	1.431	1.374	1.326	1.272	2.151	2.061	1.990	1.931	1.865
75	1.508	1.438	1.382	1.335	1.283	2.156	2.069	2.000	1.943	1.879
80	1.512	1.444	1.390	1.344	1.293	2.161	2.077	2.010	1.954	1.891
85	1.515	1.449	1.397	1.352	1.302	2.166	2.083	2.018	1.964	1.903
90	1.519	1.454	1.403	1.360	1.311	2.170	2.090	2.026	1.973	1.913
95	1.522	1.459	1.409	1.367	1.319	2.174	2.095	2.033	1.981	1.923
100	1.525	1.463	1.414	1.373	1.326	2.177	2.101	2.040	1.989	1.932

Table 21-11. Achievable Conf. Levels for One-Sided Non-Parametric Conf. Bounds Around Median, Upper 95th Percentile, and Upper 99th Percentile ($n \leq 20$)

n	Rank of Bound	Confidence Level					
		UCL 50th	LCL 50th	UCL 95th	LCL 95th	UCL 99th	LCL 99th
4	4	0.9375	0.0625	0.1855	0.8145	0.0394	0.9606
4	3	0.6875	0.3125	0.0140	0.9860	0.0006	0.9994
4	2	0.3125	0.6875	0.0005	0.9995	0.0000	1.0000
4	1	0.0625	0.9375	0.0000	1.0000	0.0000	1.0000
5	5	0.9688	0.0312	0.2262	0.7738	0.0490	0.9510
5	4	0.8125	0.1875	0.0226	0.9774	0.0010	0.9990
5	3	0.5000	0.5000	0.0012	0.9988	0.0000	1.0000
5	2	0.1875	0.8125	0.0000	1.0000	0.0000	1.0000
5	1	0.0312	0.9688	0.0000	1.0000	0.0000	1.0000
6	6	0.9844	0.0156	0.2649	0.7351	0.0585	0.9415
6	5	0.8906	0.1094	0.0328	0.9672	0.0015	0.9985
6	4	0.6562	0.3438	0.0022	0.9978	0.0000	1.0000
6	3	0.3438	0.6562	0.0001	0.9999	0.0000	1.0000
6	2	0.1094	0.8906	0.0000	1.0000	0.0000	1.0000
6	1	0.0156	0.9844	0.0000	1.0000	0.0000	1.0000
7	7	0.9922	0.0078	0.3017	0.6983	0.0679	0.9321
7	6	0.9375	0.0625	0.0444	0.9556	0.0020	0.9980
7	5	0.7734	0.2266	0.0038	0.9962	0.0000	1.0000
7	4	0.5000	0.5000	0.0002	0.9998	0.0000	1.0000
7	3	0.2266	0.7734	0.0000	1.0000	0.0000	1.0000
7	2	0.0625	0.9375	0.0000	1.0000	0.0000	1.0000
7	1	0.0078	0.9922	0.0000	1.0000	0.0000	1.0000
8	8	0.9961	0.0039	0.3366	0.6634	0.0773	0.9227
8	7	0.9648	0.0352	0.0572	0.9428	0.0027	0.9973
8	6	0.8555	0.1445	0.0058	0.9942	0.0001	0.9999
8	5	0.6367	0.3633	0.0004	0.9996	0.0000	1.0000
8	4	0.3633	0.6367	0.0000	1.0000	0.0000	1.0000
8	3	0.1445	0.8555	0.0000	1.0000	0.0000	1.0000
8	2	0.0352	0.9648	0.0000	1.0000	0.0000	1.0000
8	1	0.0039	0.9961	0.0000	1.0000	0.0000	1.0000
9	9	0.9980	0.0020	0.3698	0.6302	0.0865	0.9135
9	8	0.9805	0.0195	0.0712	0.9288	0.0034	0.9966
9	7	0.9102	0.0898	0.0084	0.9916	0.0001	0.9999
9	6	0.7461	0.2539	0.0006	0.9994	0.0000	1.0000
9	5	0.5000	0.5000	0.0000	1.0000	0.0000	1.0000
9	4	0.2539	0.7461	0.0000	1.0000	0.0000	1.0000
9	3	0.0898	0.9102	0.0000	1.0000	0.0000	1.0000
9	2	0.0195	0.9805	0.0000	1.0000	0.0000	1.0000
9	1	0.0020	0.9980	0.0000	1.0000	0.0000	1.0000
10	10	0.9990	0.0010	0.4013	0.5987	0.0956	0.9044
10	9	0.9893	0.0107	0.0861	0.9139	0.0043	0.9957
10	8	0.9453	0.0547	0.0115	0.9885	0.0001	0.9999
10	7	0.8281	0.1719	0.0010	0.9990	0.0000	1.0000
10	6	0.6230	0.3770	0.0001	0.9999	0.0000	1.0000
10	5	0.3770	0.6230	0.0000	1.0000	0.0000	1.0000
10	4	0.1719	0.8281	0.0000	1.0000	0.0000	1.0000
10	3	0.0547	0.9453	0.0000	1.0000	0.0000	1.0000
10	2	0.0107	0.9893	0.0000	1.0000	0.0000	1.0000
10	1	0.0010	0.9990	0.0000	1.0000	0.0000	1.0000

Footnote. LCL = lower confidence limit; UCL = upper confidence limit; 50th = median

Table 21-11. Achievable Conf. Levels for One-Sided Non-Parametric Conf. Bounds Around Median, Upper 95th Percentile, and Upper 99th Percentile ($n \leq 20$)

n	Rank of Bound	Confidence Level					
		UCL 50th	LCL 50th	UCL 95th	LCL 95th	UCL 99th	LCL 99th
11	11	0.9995	0.0005	0.4312	0.5688	0.1047	0.8953
11	10	0.9941	0.0059	0.1019	0.8981	0.0052	0.9948
11	9	0.9673	0.0327	0.0152	0.9848	0.0002	0.9998
11	8	0.8867	0.1133	0.0016	0.9984	0.0000	1.0000
11	7	0.7256	0.2744	0.0001	0.9999	0.0000	1.0000
11	6	0.5000	0.5000	0.0000	1.0000	0.0000	1.0000
11	5	0.2744	0.7256	0.0000	1.0000	0.0000	1.0000
11	4	0.1133	0.8867	0.0000	1.0000	0.0000	1.0000
11	3	0.0327	0.9673	0.0000	1.0000	0.0000	1.0000
11	2	0.0059	0.9941	0.0000	1.0000	0.0000	1.0000
11	1	0.0005	0.9995	0.0000	1.0000	0.0000	1.0000
12	12	0.9998	0.0002	0.4596	0.5404	0.1136	0.8864
12	11	0.9968	0.0032	0.1184	0.8816	0.0062	0.9938
12	10	0.9807	0.0193	0.0196	0.9804	0.0002	0.9998
12	9	0.9270	0.0730	0.0022	0.9978	0.0000	1.0000
12	8	0.8062	0.1938	0.0002	0.9998	0.0000	1.0000
12	7	0.6128	0.3872	0.0000	1.0000	0.0000	1.0000
12	6	0.3872	0.6128	0.0000	1.0000	0.0000	1.0000
12	5	0.1938	0.8062	0.0000	1.0000	0.0000	1.0000
12	4	0.0730	0.9270	0.0000	1.0000	0.0000	1.0000
12	3	0.0193	0.9807	0.0000	1.0000	0.0000	1.0000
12	2	0.0032	0.9968	0.0000	1.0000	0.0000	1.0000
12	1	0.0002	0.9998	0.0000	1.0000	0.0000	1.0000
13	13	0.9999	0.0001	0.4867	0.5133	0.1225	0.8775
13	12	0.9983	0.0017	0.1354	0.8646	0.0072	0.9928
13	11	0.9888	0.0112	0.0245	0.9755	0.0003	0.9997
13	10	0.9539	0.0461	0.0031	0.9969	0.0000	1.0000
13	9	0.8666	0.1334	0.0003	0.9997	0.0000	1.0000
13	8	0.7095	0.2905	0.0000	1.0000	0.0000	1.0000
13	7	0.5000	0.5000	0.0000	1.0000	0.0000	1.0000
13	6	0.2905	0.7095	0.0000	1.0000	0.0000	1.0000
13	5	0.1334	0.8666	0.0000	1.0000	0.0000	1.0000
13	4	0.0461	0.9539	0.0000	1.0000	0.0000	1.0000
13	3	0.0112	0.9888	0.0000	1.0000	0.0000	1.0000
13	2	0.0017	0.9983	0.0000	1.0000	0.0000	1.0000
13	1	0.0001	0.9999	0.0000	1.0000	0.0000	1.0000
14	14	0.9999	0.0001	0.5123	0.4877	0.1313	0.8687
14	13	0.9991	0.0009	0.1530	0.8470	0.0084	0.9916
14	12	0.9935	0.0065	0.0301	0.9699	0.0003	0.9997
14	11	0.9713	0.0287	0.0042	0.9958	0.0000	1.0000
14	10	0.9102	0.0898	0.0004	0.9996	0.0000	1.0000
14	9	0.7880	0.2120	0.0000	1.0000	0.0000	1.0000
14	8	0.6047	0.3953	0.0000	1.0000	0.0000	1.0000
14	7	0.3953	0.6047	0.0000	1.0000	0.0000	1.0000
14	6	0.2120	0.7880	0.0000	1.0000	0.0000	1.0000
14	5	0.0898	0.9102	0.0000	1.0000	0.0000	1.0000
14	4	0.0287	0.9713	0.0000	1.0000	0.0000	1.0000
14	3	0.0065	0.9935	0.0000	1.0000	0.0000	1.0000
14	2	0.0009	0.9991	0.0000	1.0000	0.0000	1.0000
14	1	0.0001	0.9999	0.0000	1.0000	0.0000	1.0000

Table 21-11. Achievable Conf. Levels for One-Sided Non-Parametric Conf. Bounds Around Median, Upper 95th Percentile, and Upper 99th Percentile ($n \leq 20$)

n	Rank of Bound	Confidence Level					
		UCL 50th	LCL 50th	UCL 95th	LCL 95th	UCL 99th	LCL 99th
15	15	1.0000	0.0000	0.5367	0.4633	0.1399	0.8601
15	14	0.9995	0.0005	0.1710	0.8290	0.0096	0.9904
15	13	0.9963	0.0037	0.0362	0.9638	0.0004	0.9996
15	12	0.9824	0.0176	0.0055	0.9945	0.0000	1.0000
15	11	0.9408	0.0592	0.0006	0.9994	0.0000	1.0000
15	10	0.8491	0.1509	0.0001	0.9999	0.0000	1.0000
15	9	0.6964	0.3036	0.0000	1.0000	0.0000	1.0000
15	8	0.5000	0.5000	0.0000	1.0000	0.0000	1.0000
15	7	0.3036	0.6964	0.0000	1.0000	0.0000	1.0000
15	6	0.1509	0.8491	0.0000	1.0000	0.0000	1.0000
15	5	0.0592	0.9408	0.0000	1.0000	0.0000	1.0000
15	4	0.0176	0.9824	0.0000	1.0000	0.0000	1.0000
15	3	0.0037	0.9963	0.0000	1.0000	0.0000	1.0000
15	2	0.0005	0.9995	0.0000	1.0000	0.0000	1.0000
15	1	0.0000	1.0000	0.0000	1.0000	0.0000	1.0000
16	16	1.0000	0.0000	0.5599	0.4401	0.1485	0.8515
16	15	0.9997	0.0003	0.1892	0.8108	0.0109	0.9891
16	14	0.9979	0.0021	0.0429	0.9571	0.0005	0.9995
16	13	0.9894	0.0106	0.0070	0.9930	0.0000	1.0000
16	12	0.9616	0.0384	0.0009	0.9991	0.0000	1.0000
16	11	0.8949	0.1051	0.0001	0.9999	0.0000	1.0000
16	10	0.7728	0.2272	0.0000	1.0000	0.0000	1.0000
16	9	0.5982	0.4018	0.0000	1.0000	0.0000	1.0000
16	8	0.4018	0.5982	0.0000	1.0000	0.0000	1.0000
16	7	0.2272	0.7728	0.0000	1.0000	0.0000	1.0000
16	6	0.1051	0.8949	0.0000	1.0000	0.0000	1.0000
16	5	0.0384	0.9616	0.0000	1.0000	0.0000	1.0000
16	4	0.0106	0.9894	0.0000	1.0000	0.0000	1.0000
16	3	0.0021	0.9979	0.0000	1.0000	0.0000	1.0000
16	2	0.0003	0.9997	0.0000	1.0000	0.0000	1.0000
16	1	0.0000	1.0000	0.0000	1.0000	0.0000	1.0000
17	17	1.0000	0.0000	0.5819	0.4181	0.1571	0.8429
17	16	0.9999	0.0001	0.2078	0.7922	0.0123	0.9877
17	15	0.9988	0.0012	0.0503	0.9497	0.0006	0.9994
17	14	0.9936	0.0064	0.0088	0.9912	0.0000	1.0000
17	13	0.9755	0.0245	0.0012	0.9988	0.0000	1.0000
17	12	0.9283	0.0717	0.0001	0.9999	0.0000	1.0000
17	11	0.8338	0.1662	0.0000	1.0000	0.0000	1.0000
17	10	0.6855	0.3145	0.0000	1.0000	0.0000	1.0000
17	9	0.5000	0.5000	0.0000	1.0000	0.0000	1.0000
17	8	0.3145	0.6855	0.0000	1.0000	0.0000	1.0000
17	7	0.1662	0.8338	0.0000	1.0000	0.0000	1.0000
17	6	0.0717	0.9283	0.0000	1.0000	0.0000	1.0000
17	5	0.0245	0.9755	0.0000	1.0000	0.0000	1.0000
17	4	0.0064	0.9936	0.0000	1.0000	0.0000	1.0000
17	3	0.0012	0.9988	0.0000	1.0000	0.0000	1.0000
17	2	0.0001	0.9999	0.0000	1.0000	0.0000	1.0000
17	1	0.0000	1.0000	0.0000	1.0000	0.0000	1.0000

Table 21-11. Achievable Conf. Levels for One-Sided Non-Parametric Conf. Bounds Around Median, Upper 95th Percentile, and Upper 99th Percentile ($n \leq 20$)

n	Rank of Bound	Confidence Level					
		UCL 50th	LCL 50th	UCL 95th	LCL 95th	UCL 99th	LCL 99th
18	18	1.0000	0.0000	0.6028	0.3972	0.1655	0.8345
18	17	0.9999	0.0001	0.2265	0.7735	0.0138	0.9862
18	16	0.9993	0.0007	0.0581	0.9419	0.0007	0.9993
18	15	0.9962	0.0038	0.0109	0.9891	0.0000	1.0000
18	14	0.9846	0.0154	0.0015	0.9985	0.0000	1.0000
18	13	0.9519	0.0481	0.0002	0.9998	0.0000	1.0000
18	12	0.8811	0.1189	0.0000	1.0000	0.0000	1.0000
18	11	0.7597	0.2403	0.0000	1.0000	0.0000	1.0000
18	10	0.5927	0.4073	0.0000	1.0000	0.0000	1.0000
18	9	0.4073	0.5927	0.0000	1.0000	0.0000	1.0000
18	8	0.2403	0.7597	0.0000	1.0000	0.0000	1.0000
18	7	0.1189	0.8811	0.0000	1.0000	0.0000	1.0000
18	6	0.0481	0.9519	0.0000	1.0000	0.0000	1.0000
18	5	0.0154	0.9846	0.0000	1.0000	0.0000	1.0000
18	4	0.0038	0.9962	0.0000	1.0000	0.0000	1.0000
18	3	0.0007	0.9993	0.0000	1.0000	0.0000	1.0000
18	2	0.0001	0.9999	0.0000	1.0000	0.0000	1.0000
18	1	0.0000	1.0000	0.0000	1.0000	0.0000	1.0000
19	19	1.0000	0.0000	0.6226	0.3774	0.1738	0.8262
19	18	1.0000	0.0000	0.2453	0.7547	0.0153	0.9847
19	17	0.9996	0.0004	0.0665	0.9335	0.0009	0.9991
19	16	0.9978	0.0022	0.0132	0.9868	0.0000	1.0000
19	15	0.9904	0.0096	0.0020	0.9980	0.0000	1.0000
19	14	0.9682	0.0318	0.0002	0.9998	0.0000	1.0000
19	13	0.9165	0.0835	0.0000	1.0000	0.0000	1.0000
19	12	0.8204	0.1796	0.0000	1.0000	0.0000	1.0000
19	11	0.6762	0.3238	0.0000	1.0000	0.0000	1.0000
19	10	0.5000	0.5000	0.0000	1.0000	0.0000	1.0000
19	9	0.3238	0.6762	0.0000	1.0000	0.0000	1.0000
19	8	0.1796	0.8204	0.0000	1.0000	0.0000	1.0000
19	7	0.0835	0.9165	0.0000	1.0000	0.0000	1.0000
19	6	0.0318	0.9682	0.0000	1.0000	0.0000	1.0000
19	5	0.0096	0.9904	0.0000	1.0000	0.0000	1.0000
19	4	0.0022	0.9978	0.0000	1.0000	0.0000	1.0000
19	3	0.0004	0.9996	0.0000	1.0000	0.0000	1.0000
19	2	0.0000	1.0000	0.0000	1.0000	0.0000	1.0000
19	1	0.0000	1.0000	0.0000	1.0000	0.0000	1.0000

Table 21-11. Achievable Conf. Levels for One-Sided Non-Parametric Conf. Bounds Around Median, Upper 95th Percentile, and Upper 99th Percentile ($n \leq 20$)

n	Rank of Bound	Confidence Level					
		UCL 50th	LCL 50th	UCL 95th	LCL 95th	UCL 99th	LCL 99th
20	20	1.0000	0.0000	0.6415	0.3585	0.1821	0.8179
20	19	1.0000	0.0000	0.2642	0.7358	0.0169	0.9831
20	18	0.9998	0.0002	0.0755	0.9245	0.0010	0.9990
20	17	0.9987	0.0013	0.0159	0.9841	0.0000	1.0000
20	16	0.9941	0.0059	0.0026	0.9974	0.0000	1.0000
20	15	0.9793	0.0207	0.0003	0.9997	0.0000	1.0000
20	14	0.9423	0.0577	0.0000	1.0000	0.0000	1.0000
20	13	0.8684	0.1316	0.0000	1.0000	0.0000	1.0000
20	12	0.7483	0.2517	0.0000	1.0000	0.0000	1.0000
20	11	0.5881	0.4119	0.0000	1.0000	0.0000	1.0000
20	10	0.4119	0.5881	0.0000	1.0000	0.0000	1.0000
20	9	0.2517	0.7483	0.0000	1.0000	0.0000	1.0000
20	8	0.1316	0.8684	0.0000	1.0000	0.0000	1.0000
20	7	0.0577	0.9423	0.0000	1.0000	0.0000	1.0000
20	6	0.0207	0.9793	0.0000	1.0000	0.0000	1.0000
20	5	0.0059	0.9941	0.0000	1.0000	0.0000	1.0000
20	4	0.0013	0.9987	0.0000	1.0000	0.0000	1.0000
20	3	0.0002	0.9998	0.0000	1.0000	0.0000	1.0000
20	2	0.0000	1.0000	0.0000	1.0000	0.0000	1.0000
20	1	0.0000	1.0000	0.0000	1.0000	0.0000	1.0000

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D STATISTICAL TABLES

D.5 TABLES FROM CHAPTER 22

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Table 22-1. Combinations of n (≤ 40) and α ($\leq .20$) Achieving $(1-\beta)$ Power to Detect Increases of $1.5 \times$ GWPS

1- β = 0.50		1- β = 0.60		1- β = 0.70		1- β = 0.80		1- β = 0.90		1- β = 0.95		1- β = 0.99	
n	α	n	α	n	α	n	α	n	α	n	α	n	α
4	0.177	6	0.179	8	0.197	12	0.195	19	0.191	26	0.188		
5	0.149	7	0.156	9	0.175	13	0.177	20	0.177	27	0.176		
6	0.127	8	0.136	10	0.156	14	0.160	21	0.163	28	0.164		
7	0.108	9	0.119	11	0.139	15	0.146	22	0.151	29	0.153		
8	0.093	10	0.104	12	0.124	16	0.132	23	0.139	30	0.143		
9	0.080	11	0.092	13	0.111	17	0.120	24	0.129	31	0.133		
10	0.069	12	0.081	14	0.099	18	0.109	25	0.119	32	0.124		
11	0.060	13	0.071	15	0.089	19	0.099	26	0.110	33	0.116		
12	0.052	14	0.063	16	0.079	20	0.090	27	0.101	34	0.108		
13	0.045	15	0.056	17	0.071	21	0.082	28	0.093	35	0.101		
14	0.039	16	0.049	18	0.064	22	0.074	29	0.086	36	0.094		
15	0.034	17	0.043	19	0.057	23	0.068	30	0.079	37	0.087		
16	0.030	18	0.038	20	0.051	24	0.061	31	0.073	38	0.081		
17	0.026	19	0.034	21	0.046	25	0.056	32	0.067	39	0.076		
18	0.023	20	0.030	22	0.041	26	0.051	33	0.062	40	0.070		
19	0.020	21	0.027	23	0.037	27	0.046	34	0.057				
20	0.018	22	0.024	24	0.033	28	0.042	35	0.053				
21	0.015	23	0.021	25	0.030	29	0.038	36	0.049				
22	0.014	24	0.019	26	0.027	30	0.034	37	0.045				
23	0.012	25	0.017	27	0.024	31	0.031	38	0.041				
24	0.010	26	0.015	28	0.022	32	0.029	39	0.038				
25	0.009	27	0.013	29	0.020	33	0.026	40	0.035				
26	0.008	28	0.012	30	0.018	34	0.023						
27	0.007	29	0.010	31	0.016	35	0.021						
28	0.006	30	0.009	32	0.014	36	0.019						
29	0.006	31	0.008	33	0.013	37	0.018						
30	0.005	32	0.007	34	0.011	38	0.016						
31	0.004	33	0.007	35	0.010	39	0.015						
32	0.004	34	0.006	36	0.009	40	0.013						
33	0.003	35	0.005	37	0.008								
34	0.003	36	0.005	38	0.007								
35	0.003	37	0.004	39	0.007								
36	0.002	38	0.004	40	0.006								
37	0.002	39	0.003										
38	0.002	40	0.003										
39	0.002												
40	0.002												

Table 22-2. Combinations of n (≤ 40) and α ($\leq .20$) Achieving $(1-\beta)$ Power to Detect Increases of $2 \times$ GWPS

1- β = 0.50		1- β = 0.60		1- β = 0.70		1- β = 0.80		1- β = 0.90		1- β = 0.95		1- β = 0.99	
n	α	n	α	n	α	n	α	n	α	n	α	n	α
3	0.091	3	0.123	3	0.164	4	0.163	5	0.199	7	0.183	11	0.180
4	0.057	4	0.080	4	0.113	5	0.119	6	0.152	8	0.144	12	0.148
5	0.037	5	0.054	5	0.079	6	0.086	7	0.116	9	0.113	13	0.121
6	0.024	6	0.036	6	0.055	7	0.063	8	0.088	10	0.089	14	0.099
7	0.016	7	0.025	7	0.039	8	0.046	9	0.067	11	0.069	15	0.080
8	0.011	8	0.017	8	0.027	9	0.034	10	0.051	12	0.054	16	0.065
9	0.007	9	0.012	9	0.019	10	0.024	11	0.039	13	0.042	17	0.053
10	0.005	10	0.008	10	0.014	11	0.018	12	0.029	14	0.033	18	0.043
11	0.003	11	0.006	11	0.010	12	0.013	13	0.022	15	0.025	19	0.034
12	0.002	12	0.004	12	0.007	13	0.010	14	0.017	16	0.020	20	0.027
13	0.002	13	0.003	13	0.005	14	0.007	15	0.013	17	0.015	21	0.022
14	0.001	14	0.002	14	0.004	15	0.005	16	0.010	18	0.012	22	0.018
≥ 15	<0.001	15	0.001	15	0.003	16	0.004	17	0.007	19	0.009	23	0.014
		≥ 16	<0.001	16	0.002	17	0.003	18	0.005	20	0.007	24	0.011
				17	0.001	18	0.002	19	0.004	21	0.005	25	0.009
				≥ 18	<0.001	19	0.002	20	0.003	22	0.004	26	0.007
						20	0.001	21	0.002	23	0.003	27	0.006
						≥ 21	<0.001	22	0.002	24	0.002	28	0.004
								23	0.001	25	0.002	29	0.004
								≥ 24	<0.001	26	0.002	30	0.003
										27	0.001	31	0.002
										≥ 28	<0.001	32	0.002
												33	0.002
												34	0.001
												≥ 35	<0.001

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Table 22-3. Minimum Individual Test α Meeting Power Criteria Given n and CV

CV	50% Power at $R = 1.5$					80% Power at $R = 2$				
	n=4	n=6	n=8	n=10	n=12	n=4	n=6	n=8	n=10	n=12
0.1	0.003	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
0.2	0.022	0.005	0.001	0.000	0.000	0.014	0.002	0.000	0.000	0.000
0.3	0.056	0.021	0.008	0.003	0.001	0.050	0.013	0.003	0.001	0.000
0.4	0.097	0.048	0.025	0.014	0.007	0.113	0.043	0.017	0.007	0.003
0.5	0.137	0.082	0.051	0.032	0.021	0.191	0.093	0.047	0.024	0.013
0.6	0.174	0.116	0.080	0.056	0.040	0.270	0.156	0.094	0.057	0.035
0.7	0.206	0.148	0.110	0.083	0.064	0.342	0.222	0.149	0.101	0.069
0.8	0.233	0.177	0.139	0.110	0.088	0.402	0.284	0.206	0.151	0.112
0.9	0.256	0.203	0.165	0.136	0.113	0.451	0.339	0.261	0.203	0.158
1.0	0.276	0.226	0.189	0.160	0.136	0.492	0.386	0.310	0.251	0.205
1.2	0.309	0.263	0.229	0.201	0.178	0.553	0.462	0.393	0.337	0.291
1.4	0.333	0.293	0.261	0.235	0.214	0.596	0.517	0.456	0.406	0.362
1.6	0.352	0.316	0.287	0.263	0.243	0.626	0.558	0.505	0.459	0.420
1.8	0.368	0.335	0.308	0.286	0.267	0.650	0.590	0.542	0.502	0.466
2.0	0.380	0.350	0.326	0.305	0.288	0.667	0.614	0.572	0.536	0.504
2.2	0.391	0.363	0.341	0.322	0.305	0.682	0.634	0.596	0.564	0.534
2.4	0.400	0.374	0.353	0.335	0.320	0.693	0.650	0.616	0.586	0.560
2.6	0.407	0.383	0.364	0.347	0.333	0.703	0.664	0.632	0.605	0.581
2.8	0.414	0.391	0.373	0.358	0.344	0.711	0.675	0.646	0.621	0.599
3.0	0.419	0.398	0.381	0.367	0.354	0.718	0.685	0.658	0.635	0.614

Table 22-4. Minimum n (≥ 4) to Detect Decreases of .75 x GWPS for Given CV, Power ($1-\beta$), & Error Rate (α)

CV = 0.2							CV = 0.4						
$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95
0.20	4	4	4	4	4	4	0.20	4	4	4	6	8	11
0.15	4	4	4	4	4	5	0.15	4	4	5	7	10	12
0.10	4	4	4	4	4	5	0.10	4	5	6	8	11	15
0.05	4	4	4	4	5	6	0.05	6	8	9	11	15	18
0.01	6	6	6	7	8	9	0.01	11	13	15	18	22	26
CV = 0.6							CV = 0.8						
$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95
0.20	4	5	7	11	16	22	0.20	6	8	12	18	28	38
0.15	5	7	9	13	19	25	0.15	8	11	15	22	33	43
0.10	7	9	12	16	23	30	0.10	11	15	20	28	40	51
0.05	11	14	17	22	30	37	0.05	18	23	29	38	51	65
0.01	21	25	30	36	45	54	0.01	35	42	50	61	78	94
CV = 1.0							CV = 1.2						
$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95
0.20	8	12	18	27	42	58	0.20	11	17	25	38	60	82
0.15	11	16	23	33	50	67	0.15	16	23	33	47	71	95
0.10	17	23	31	42	61	79	0.10	23	32	44	60	87	113
0.05	27	35	44	58	79	100	0.05	37	49	63	82	113	143
0.01	52	63	76	93	120	145	0.01	74	90	109	133	172	208
CV = 1.4							CV = 1.6						
$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95
0.20	14	22	34	51	81	111	0.20	18	29	44	67	106	144
0.15	21	31	44	64	96	129	0.15	26	40	58	83	125	168
0.10	31	43	59	81	118	153	0.10	40	56	77	106	153	199
0.05	50	66	85	111	153	193	0.05	65	85	110	144	199	252
0.01	99	121	147	180	233	281	0.01	128	157	190	234	303	366

Table 22-4. Minimum n (≥ 4) to Detect Decreases of .75 x GWPS for Given CV, Power ($1-\beta$), & Error Rate (α)

CV = 1.8							CV = 2.0						
$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95
0.20	22	36	56	84	133	182	0.20	27	44	68	103	164	225
0.15	33	50	72	104	158	212	0.15	40	61	89	128	195	261
0.10	50	70	97	133	193	252	0.10	61	87	119	164	238	310
0.05	81	107	139	182	252	318	0.05	100	132	171	225	310	392
0.01	162	198	240	296	383	463	0.01	199	243	296	364	472	571
CV = 2.2							CV = 2.4						
$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95
0.20	32	54	83	125	198	271	0.20	38	63	98	148	235	323
0.15	48	74	108	155	236	315	0.15	57	88	128	184	280	375
0.10	73	104	144	198	288	375	0.10	87	124	171	235	342	446
0.05	120	159	207	271	375	474	0.05	143	189	246	323	446	563
0.01	239	293	357	440	570	690	0.01	284	348	425	523	678	821
CV = 2.6							CV = 2.8						
$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95
0.20	44	74	115	174	276	378	0.20	51	86	133	201	320	438
0.15	67	103	150	216	329	439	0.15	77	119	173	250	381	509
0.10	102	145	200	276	402	523	0.10	118	168	232	320	465	606
0.05	167	221	288	378	523	661	0.05	193	256	334	438	606	766
0.01	333	408	498	614	795	963	0.01	386	473	577	711	922	1116

Table 22-5. Minimum n (≥ 4) to Detect Decreases of .5 x GWPS for Given CV, Power ($1-\beta$), & Error Rate (α)

CV = 0.2							CV = 0.4						
$\alpha \backslash 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	$\alpha \backslash 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95
0.20	4	4	4	4	4	4	0.20	4	4	4	4	4	4
0.15	4	4	4	4	4	4	0.15	4	4	4	4	4	4
0.10	4	4	4	4	4	4	0.10	4	4	4	4	4	4
0.05	4	4	4	4	4	4	0.05	4	4	4	4	4	4
0.01	4	4	4	4	4	4	0.01	4	4	5	5	5	6
CV = 0.6							CV = 0.8						
$\alpha \backslash 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	$\alpha \backslash 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95
0.20	4	4	4	4	4	4	0.20	4	4	4	4	5	6
0.15	4	4	4	4	4	5	0.15	4	4	4	4	5	7
0.10	4	4	4	4	4	5	0.10	4	4	4	5	6	8
0.05	4	4	4	4	5	6	0.05	4	5	5	6	8	9
0.01	6	6	6	7	8	9	0.01	7	8	9	10	11	13
CV = 1.0							CV = 1.2						
$\alpha \backslash 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	$\alpha \backslash 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95
0.20	4	4	4	4	6	8	0.20	4	4	4	6	8	11
0.15	4	4	4	5	7	9	0.15	4	4	5	7	10	12
0.10	4	4	5	6	9	11	0.10	4	5	6	8	11	15
0.05	5	6	7	8	11	13	0.05	6	8	9	11	15	18
0.01	9	10	11	13	16	19	0.01	11	13	15	18	22	26
CV = 1.4							CV = 1.6						
$\alpha \backslash 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	$\alpha \backslash 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95
0.20	4	4	5	7	11	14	0.20	4	5	6	9	13	18
0.15	4	5	6	8	12	16	0.15	4	6	8	11	16	20
0.10	5	6	8	11	15	19	0.10	6	8	10	13	19	24
0.05	8	9	11	14	19	24	0.05	9	11	14	18	24	30
0.01	14	17	19	23	29	34	0.01	18	21	24	29	36	44

Table 22-5. Minimum n (≥ 4) to Detect Decreases of .5 x GWPS for Given CV, Power ($1-\beta$), & Error Rate (α)

CV = 1.8							CV = 2.0						
$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95
0.20	4	5	7	11	16	22	0.20	4	6	9	13	20	27
0.15	5	7	9	13	19	25	0.15	6	8	11	16	23	31
0.10	7	9	12	16	23	30	0.10	9	11	15	20	28	36
0.05	11	14	17	22	30	37	0.05	13	17	21	27	36	46
0.01	21	25	30	36	45	54	0.01	25	30	36	43	55	66
CV = 2.2							CV = 2.4						
$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95
0.20	5	7	10	15	23	32	0.20	6	8	12	18	28	38
0.15	7	10	13	19	28	37	0.15	8	11	15	22	33	43
0.10	10	13	17	23	34	44	0.10	11	15	20	28	40	51
0.05	16	20	25	32	44	55	0.05	18	23	29	38	51	65
0.01	30	36	43	52	66	79	0.01	35	42	50	61	78	94
CV = 2.6							CV = 2.8						
$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95
0.20	6	9	14	21	32	44	0.20	7	11	16	24	37	51
0.15	9	13	18	25	38	51	0.15	10	15	21	29	44	58
0.10	13	18	24	32	46	60	0.10	15	20	27	37	53	69
0.05	21	27	34	44	60	76	0.05	24	30	39	51	69	87
0.01	40	48	58	71	91	110	0.01	46	56	67	82	105	127

Table 22-6. Minimum n (≥ 4) to Detect Decreases of .25 x GWPS for Given CV, Power ($1-\beta$), & Error Rate (α)

CV = 0.2							CV = 0.4						
$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95
0.20	4	4	4	4	4	4	0.20	4	4	4	4	4	4
0.15	4	4	4	4	4	4	0.15	4	4	4	4	4	4
0.10	4	4	4	4	4	4	0.10	4	4	4	4	4	4
0.05	4	4	4	4	4	4	0.05	4	4	4	4	4	4
0.01	4	4	4	4	4	4	0.01	4	4	4	4	4	4
CV = 0.6							CV = 0.8						
$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95
0.20	4	4	4	4	4	4	0.20	4	4	4	4	4	4
0.15	4	4	4	4	4	4	0.15	4	4	4	4	4	4
0.10	4	4	4	4	4	4	0.10	4	4	4	4	4	4
0.05	4	4	4	4	4	4	0.05	4	4	4	4	4	4
0.01	4	4	4	4	4	4	0.01	4	4	4	4	4	4
CV = 1.0							CV = 1.2						
$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95
0.20	4	4	4	4	4	4	0.20	4	4	4	4	4	4
0.15	4	4	4	4	4	4	0.15	4	4	4	4	4	4
0.10	4	4	4	4	4	4	0.10	4	4	4	4	4	4
0.05	4	4	4	4	4	4	0.05	4	4	4	4	4	4
0.01	4	4	4	4	5	5	0.01	4	4	5	5	5	6
CV = 1.4							CV = 1.6						
$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95
0.20	4	4	4	4	4	4	0.20	4	4	4	4	4	4
0.15	4	4	4	4	4	4	0.15	4	4	4	4	4	4
0.10	4	4	4	4	4	4	0.10	4	4	4	4	4	5
0.05	4	4	4	4	4	5	0.05	4	4	4	4	5	6
0.01	5	5	5	5	6	7	0.01	5	5	6	6	7	8

Table 22-6. Minimum n (≥ 4) to Detect Decreases of .25 x GWPS for Given CV, Power ($1-\beta$), & Error Rate (α)

CV = 1.8							CV = 2.0						
$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95
0.20	4	4	4	4	4	4	0.20	4	4	4	4	4	5
0.15	4	4	4	4	4	5	0.15	4	4	4	4	4	5
0.10	4	4	4	4	4	5	0.10	4	4	4	4	5	6
0.05	4	4	4	4	5	6	0.05	4	4	4	5	6	7
0.01	6	6	6	7	8	9	0.01	6	6	7	8	9	10
CV = 2.2							CV = 2.4						
$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95
0.20	4	4	4	4	4	6	0.20	4	4	4	4	5	6
0.15	4	4	4	4	5	6	0.15	4	4	4	4	5	7
0.10	4	4	4	4	6	7	0.10	4	4	4	5	6	8
0.05	4	4	5	6	7	8	0.05	4	5	5	6	8	9
0.01	7	7	8	9	10	12	0.01	7	8	9	10	11	13
CV = 2.6							CV = 2.8						
$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95
0.20	4	4	4	4	5	7	0.20	4	4	4	4	6	8
0.15	4	4	4	4	6	8	0.15	4	4	4	5	7	8
0.10	4	4	4	5	7	9	0.10	4	4	5	6	8	10
0.05	5	5	6	7	9	11	0.05	5	6	6	8	10	12
0.01	8	8	9	11	13	15	0.01	8	9	10	12	14	17

Table 22-7. Minimum n to Detect $k\rho_0$ Exceedances Over Percentile $(1-\rho_0)$ with Power $(1-\beta)$ and Error Rate (α)

Percentile = 90 th								Percentile = 95 th							
k = 2								k = 2							
$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	0.99	$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	0.99
0.20	7	13	22	35	59	83	140	0.20	14	27	47	77	130	184	311
0.10	15	24	36	53	81	109	173	0.10	32	51	77	114	177	239	382
0.05	25	26	50	69	102	133	203	0.05	52	76	107	150	221	291	447
0.02	38	52	69	91	128	163	240	0.02	81	110	147	197	277	355	525
0.01	49	64	83	108	147	184	266	0.01	103	136	177	231	318	401	581
k = 2.5								k = 2.5							
$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	0.99	$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	0.99
0.20	3	6	11	17	29	42	71	0.20	6	13	23	38	66	95	162
0.10	7	11	17	25	40	54	87	0.10	14	24	37	56	88	121	196
0.05	11	17	24	33	49	65	101	0.05	23	35	51	73	109	145	227
0.02	17	24	32	43	61	79	118	0.02	36	51	69	94	136	175	264
0.01	22	29	39	51	70	89	130	0.01	46	63	83	110	155	197	290
k = 3								k = 3							
$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	0.99	$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	0.99
0.20	2	4	7	11	18	26	44	0.20	4	8	14	24	42	60	103
0.10	4	7	10	15	24	33	53	0.10	8	14	22	34	55	76	124
0.05	7	10	14	20	30	39	61	0.05	13	21	30	44	67	90	142
0.02	10	14	19	26	37	47	71	0.02	21	29	41	56	82	108	164
0.01	13	17	23	30	42	53	78	0.01	26	36	49	66	94	120	179

Table 22-7. Minimum n to Detect $k\rho_0$ Exceedences Over Percentile $(1-\rho_0)$ with Power $(1-\beta)$ and Error Rate (α)

Percentile = 98 th								Percentile = 99 th							
k = 2								k = 2							
$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	0.99	$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	0.99
0.20	35	71	122	200	341	485	823	0.20	71	143	247	407	693	987	1677
0.10	81	132	200	297	464	630	1009	0.10	163	266	404	602	943	1281	2054
0.05	133	196	278	391	580	764	1178	0.05	268	397	563	793	1178	1552	2395
0.02	207	285	381	512	726	930	1382	0.02	418	576	772	1038	1473	1889	2810
0.01	266	353	459	602	832	1050	1528	0.01	536	713	930	1221	1689	2133	3105
k = 3								k = 3							
$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	0.99	$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	0.99
0.20	9	20	37	64	112	162	281	0.20	18	41	75	130	229	332	578
0.10	21	36	58	90	147	204	335	0.10	41	73	118	184	300	417	688
0.05	34	53	79	116	179	241	383	0.05	67	107	161	236	366	494	786
0.02	52	76	107	149	219	288	442	0.02	105	154	216	303	448	588	904
0.01	67	94	127	173	249	321	482	0.01	134	189	258	352	507	656	987
k = 4								k = 4							
$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	0.99	$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	0.99
0.20	4	10	19	34	61	89	156	0.20	8	20	39	69	125	184	324
0.10	9	18	29	47	78	109	183	0.10	19	35	59	96	160	225	379
0.05	15	25	39	59	93	128	207	0.05	30	51	79	120	192	263	427
0.02	23	36	52	74	113	150	235	0.02	47	72	105	152	231	309	485
0.01	30	44	61	86	126	166	255	0.01	60	88	125	175	259	341	525
k = 5								k = 5							
$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	0.99	$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	0.99
0.20	3	6	12	22	40	59	104	0.20	5	13	25	45	83	123	219
0.10	6	11	18	30	50	71	121	0.10	11	21	37	61	104	148	252
0.05	9	15	24	37	60	82	135	0.05	17	30	49	76	123	171	282
0.02	13	21	31	46	71	96	152	0.02	27	43	64	94	147	198	317
0.01	17	26	37	53	79	105	164	0.01	34	52	75	108	164	218	341

Table 22-8. Minimum n to Detect $k\rho_0$ Exceedences Over Percentile $(1-\rho_0)$ with Power $(1-\beta)$ and Error Rate (α)

Percentile = 90 th								Percentile = 95 th							
k = .50								k = .50							
$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	0.99	$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	0.99
0.20	26	38	54	77	114	150	231	0.20	54	80	113	159	236	311	479
0.10	60	78	100	130	177	221	318	0.10	125	163	209	270	368	460	661
0.05	98	121	148	184	239	291	401	0.05	206	254	311	384	500	606	834
0.02	152	181	214	256	321	380	505	0.02	321	380	449	537	672	794	1052
0.01	195	227	264	311	382	447	581	0.01	412	478	555	653	800	934	1212
k = .25								k = .25							
$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	0.99	$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	0.99
0.20	12	16	20	27	37	47	68	0.20	24	32	42	55	76	96	139
0.10	27	32	39	48	61	74	100	0.10	56	68	82	99	127	152	206
0.05	44	51	59	70	86	101	131	0.05	92	107	124	146	179	209	271
0.02	68	77	87	100	119	136	171	0.02	143	161	182	209	248	283	355
0.01	87	97	109	123	144	163	201	0.01	183	204	228	257	300	339	417
Percentile = 98 th								Percentile = 99 th							
k = .50								k = .50							
$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	0.99	$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	0.99
0.20	139	205	290	407	602	793	1221	0.20	281	413	584	820	1213	1597	2457
0.10	322	419	537	693	943	1178	1689	0.10	651	846	1083	1397	1900	2373	3402
0.05	531	653	798	987	1281	1552	2133	0.05	1072	1319	1611	1990	2582	3129	4297
0.02	827	979	1154	1379	1723	2036	2694	0.02	1671	1976	2330	2782	3475	4106	5430
0.01	1061	1232	1428	1677	2054	2395	3105	0.01	2144	2487	2883	3384	4144	4830	6259
k = .25								k = .25							
$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	0.99	$\alpha \setminus 1-\beta$	0.50	0.60	0.70	0.80	0.90	0.95	0.99
0.20	62	82	107	140	193	244	354	0.20	125	166	215	282	389	490	711
0.10	144	173	209	254	324	388	525	0.10	290	350	420	512	653	782	1056
0.05	236	274	318	373	458	533	692	0.05	477	553	641	753	922	1075	1393
0.02	368	415	469	535	635	724	907	0.02	743	838	945	1080	1281	1460	1827
0.01	472	525	585	659	770	868	1067	0.01	953	1060	1181	1330	1553	1749	2149

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