



## **State of Hawaii**

### **Actuarial Study of the Self-Insured Workers Compensation Program as of June 30, 2010**

**January 3, 2011**

1901 Main Street, Suite 300  
Irvine, CA 92614  
tel: 949.608.6300 • fax: 949.608.6475 • [www.aon.com](http://www.aon.com)



January 3, 2011

299001

State of Hawaii  
Department of Accounting and General Services  
1151 Punchbowl Street, Room 320  
Honolulu, HI 96813

Attn: Mr. Wayne Horie  
Administrator of the Accounting Division

**Actuarial Study of the Self-Insured  
Workers Compensation Program  
as of June 30, 2010**

This study has been completed for the State of Hawaii for the specific objectives listed in the study. It contains the analysis and conclusions of our work.


Each section and appendix of the study is an integral part of the whole. We recommend a review of the entire study prior to reliance upon this study.


No key personnel have a relationship with the State of Hawaii that may impair our objectivity.

Please call if you have any questions. Thank you for the opportunity to be of service.

Respectfully submitted,

*Aon Risk Consultants, Inc.*

By   
Mujtaba Dattoo, ACAS, MAAA, FCA  
Actuarial Practice Leader

  
Tracy Fleck, ACAS, MAAA  
Consultant and Actuary

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# I. Background

The State of Hawaii (the State) self-insures its workers compensation exposures. The State retains all claim liabilities, up to the statutory limit. Claims for this study are administered by the Department of Human Resources Development (HRD).

## Data

The State provided individual claim payments made during fiscal year 2010, and incurred amounts on claims open as of June 30, 2010. For valuations prior to June 30, 2010, we relied on the data used in our prior actuarial study.

The State also provided payroll data for calendar years 2005 through 2009, as well as for 2010 through June 30. To estimate the fiscal year amounts, we assumed that payroll was distributed equally throughout the year.

## II. Objectives

The specific objectives of this study are:

1. **Estimate Outstanding Losses.** Estimate outstanding losses (including allocated loss adjustment expenses [ALAE]) as of June 30, 2010.

The estimated outstanding losses are the cost of unpaid claims. The estimated outstanding losses include case reserves, the development of known claims and incurred but not reported (IBNR) claims. ALAE are the direct settlement expenses for specific claims, primarily legal expenses. The amounts are limited to the self-insured retention.

2. **Size of Loss Distribution Analysis.** Analyze the distribution of losses in various layers.
3. **Affirm GASB Statement No. 10.** Provide a statement affirming the conclusions of this report are consistent with Governmental Accounting Standards Board (GASB) Statement No. 10.

### III. Conclusions

We have reached the following conclusions:

#### 1. Estimate Outstanding Losses

We estimate outstanding losses as of June 30, 2010 at various confidence levels to be as shown in Table III-1.

**Table III-1  
Estimated Outstanding Losses  
at Various Confidence Levels  
June 30, 2010**

<b>Confidence Level (1)</b>	<b>Estimated Outstanding Losses (2)</b>	<b>Present Value of Estimated Outstanding Losses (3)</b>
(A) Expected	\$41,615,902	\$34,979,960
(B) 70%	47,858,287	40,226,954
(C) 80%	54,100,673	45,473,948
(D) 90%	62,423,853	52,469,940

Note: (A) is from Exhibits WC-10.  
(B) to (D) are based on (A) and actuarial judgment.

The estimated outstanding losses decreased by \$1,718,285, compared to the estimated outstanding losses as of June 30, 2009 in the amount of \$43,334,187. This change is primarily due to a decrease in the reported case reserves, which decreased by about \$1.4 million from June 30, 2009 to June 30, 2010.

The present value of the estimated outstanding losses is the amount of money, discounted for anticipated investment income, required to meet unpaid claims. It is calculated based on a 3.5% yield on investments.

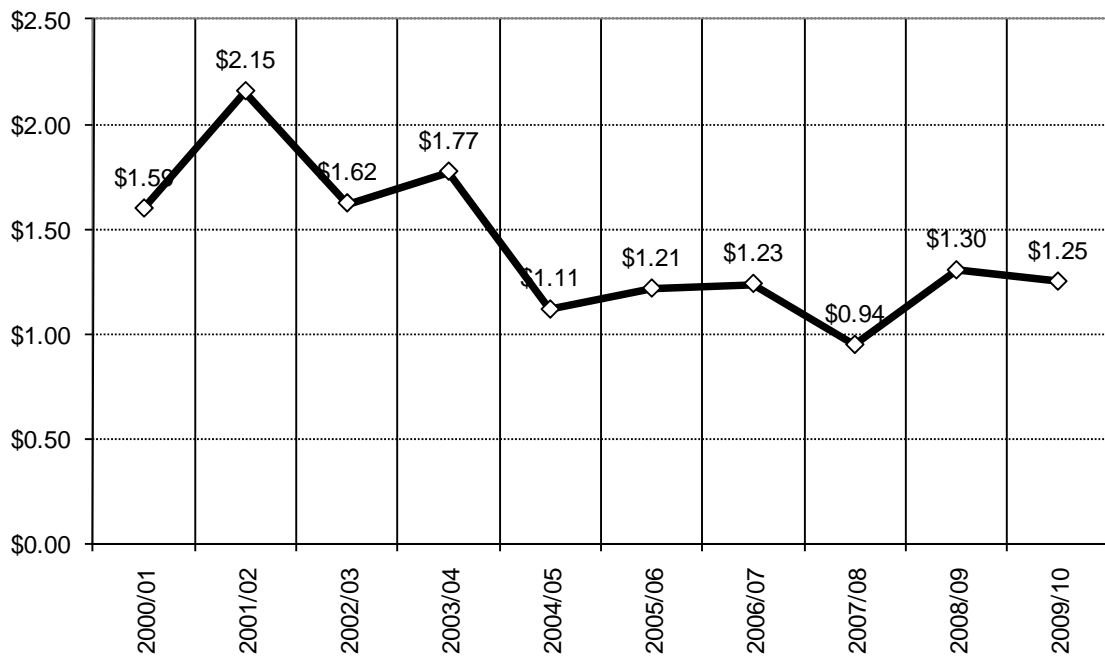
GASB Statement No. 10 specifies that a liability for estimated outstanding unallocated loss adjustment expenses (ULAE) needs to be established for governmental entities. ULAE are primarily composed of future claims administration for open claims as of June 30, 2010. The estimated outstanding losses include the unpaid losses only. The estimated outstanding losses do not include outstanding ULAE. Based on our experience

with other public self-insurance programs, we recommend a ULAE ratio of 7.5% of estimated outstanding losses.

## Loss Experience Trends

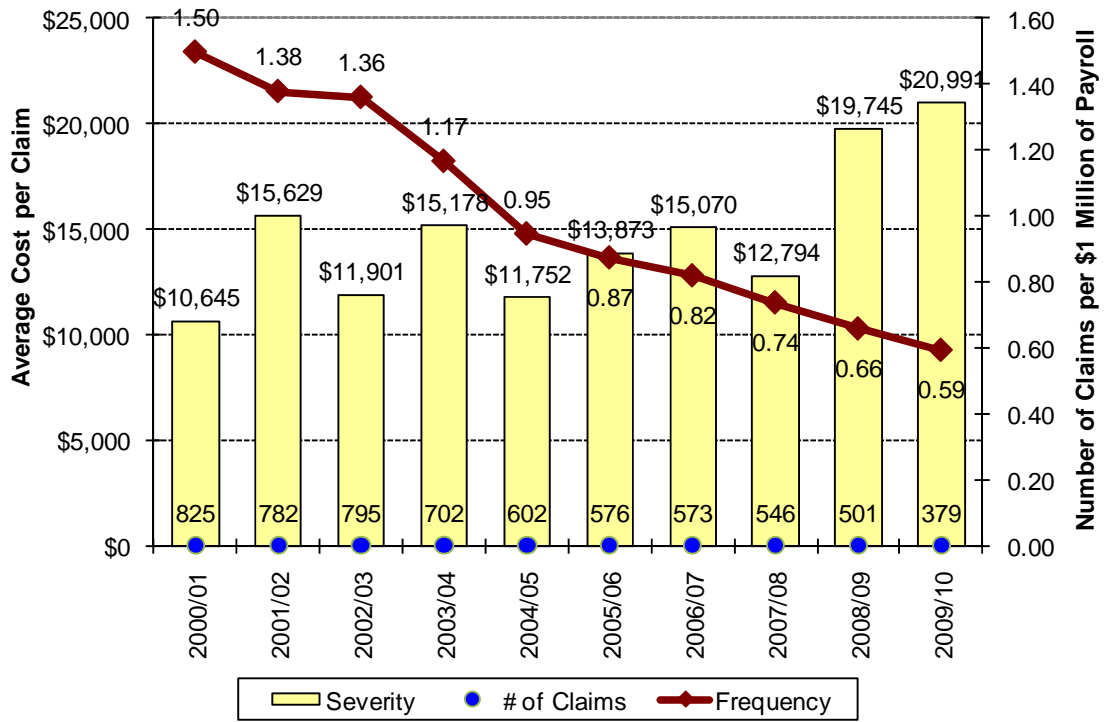
Graphs III-1 and III-2 show loss experience trends for the State as measured by loss rate per \$100 of payroll and frequency and severity, respectively.

**Graph III-1  
Loss Rate per \$100 of Payroll**



Note: Loss rates are based on Exhibit WC-9, column (8) and Exhibit WC-1, column (5).

**Graph III-2  
Frequency and Severity**

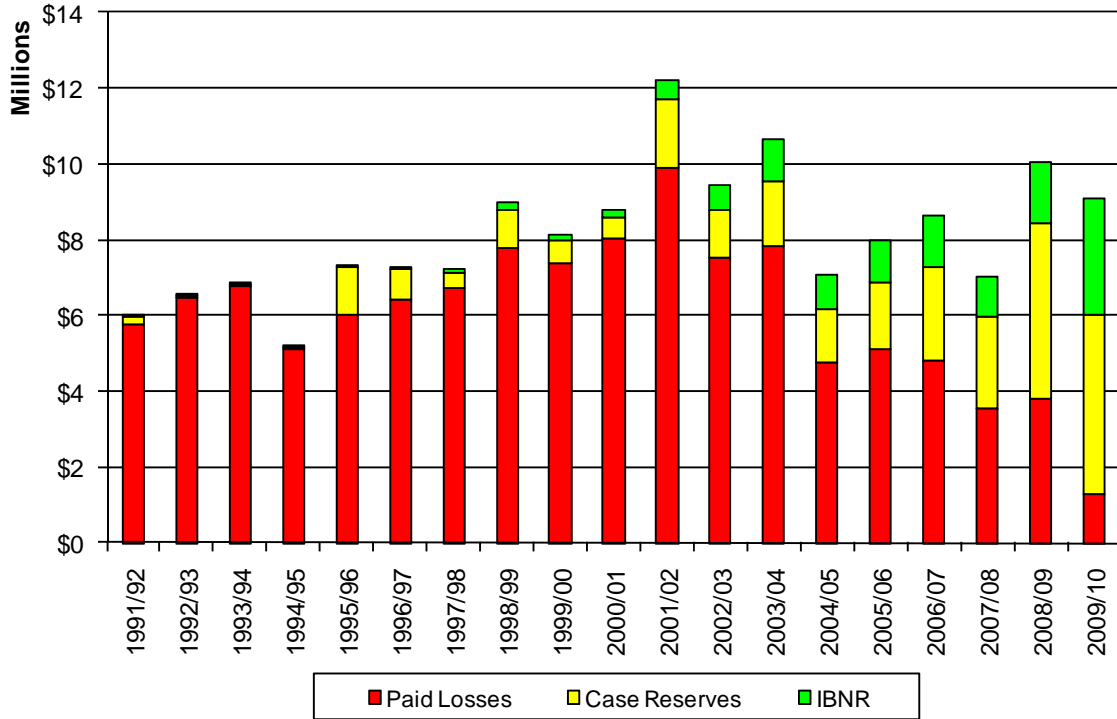


Note: Frequency amounts are from Exhibit WC-8, Section I, column (7). Severity amounts are based on the projected claim counts in Exhibit WC-8 and the projected ultimate losses in Exhibit WC-9.



Graph III-3 shows the composition of the projected ultimate limited losses.

**Graph III-3**  
**Composition of Projected Ultimate Limited Losses**



Note: Amounts are from Exhibit WC-10.

## 2. Size of Loss Distribution Analysis

Table III-2 shows the distribution of losses in various layers for workers compensation.

**Table III-2  
Size of Loss Distribution**

Layer (1)	Total Reported Claims (2)	Percent of Total (2)/Total(2) (3)	Cumulative Percent of Total (4)	Total Reported Incurred Losses (5)	Percent of Total (5)/Total(5) (6)	Cumulative Percent of Total (7)
(A) \$0 to \$5,000	9,759	73.8%	73.8%	\$8,729,015	5.0%	5.0%
(B) \$5,000 to \$10,000	863	6.5%	80.4%	6,212,694	3.5%	8.5%
(C) \$10,000 to \$25,000	1,031	7.8%	88.2%	16,710,877	9.5%	18.0%
(D) \$25,000 to \$50,000	696	5.3%	93.4%	24,688,773	14.0%	32.1%
(E) \$50,000 to \$100,000	467	3.5%	97.0%	32,384,185	18.4%	50.5%
(F) \$100,000 to \$250,000	314	2.4%	99.4%	47,563,250	27.1%	77.5%
(G) \$250,000 to \$500,000	58	0.4%	99.8%	19,178,217	10.9%	88.4%
(H) \$500,000 to \$750,000	19	0.1%	99.9%	11,035,778	6.3%	94.7%
(I) \$750,000 to \$1,000,000	4	0.0%	100.0%	3,435,265	2.0%	96.7%
(J) Over \$1,000,000	4	0.0%	100.0%	5,839,278	3.3%	100.0%
(K) Total (A) ... (J)	13,215	100%		\$175,777,331	100%	

Note: See Exhibit WC-13.

For workers' compensation, about 80% of the non-zero claims reported are below \$10,000 and represent about 9% of the incurred amounts. The remaining 20% of the claims consume about 91% of the incurred amounts.

## 3. Affirm GASB Statement No. 10

We affirm the conclusions of this report are consistent with GASB Statement No. 10.

**Appendix A**  
**Conditions and Limitations**

## Conditions and Limitations

It is important to understand the conditions and limitations listed below. Each chapter and section is an integral part of the whole study. If there are questions, please contact ARM Tech for clarification.

- **Data Quality.** We relied upon data provided by the organization shown on the transmittal page or its designated agents. The data was used without verification or audit, other than checks for reasonableness. Unless otherwise stated, we assumed the data to be correct and complete.
- **Economic Environment.** Unless otherwise stated, we assumed the current economic conditions will continue in the foreseeable future.
- **Insurance Coverage.** Unless otherwise stated, we assumed no insurance coverage changes (including coverage provided by the organization to others) subsequent to the date this study was prepared. This includes coverage language, self-insured retention, limitations and similar issues.
- **Insurance Solvency.** Unless otherwise stated, we assumed all insurance purchased by the organization is from solvent sources payable in accordance with terms of the coverage document.
- **Interest Rate.** The exhibits specify the annual interest rate used.
- **Methodology.** In this study, different actuarial methods were applied. In some instances, the methods yield significantly disparate results. The estimates, projections and recommendations in this study reflect our judgments as to the best method or combination of methods that are most reliable and reflective of the exposure to loss.
- **Reproduction.** This study may only be reproduced in its entirety.
- **Risk and Variability.** Insurance is an inherently risky enterprise. Actual losses may vary significantly from our estimates, projections and recommendations. They may emerge higher or lower.

- **Statutory and Judicial Changes.** Legislatures and judiciaries may change statutes that govern indemnification. This includes benefit levels for workers compensation, immunities and limitations for liability, and other similar issues. Unless otherwise stated, we assumed no statutory changes subsequent to the date this study was prepared.
- **Supplemental Data.** In addition to the data provided by the organization, we supplemented our analysis with data from similar organizations and insurance industry statistics, as we deemed appropriate.
- **Usage.** This study has been prepared for the usage of the organization shown on the transmittal page. It was not prepared for and may not be appropriate for use by other organizations. Other organizations should obtain written permission from ARM Tech prior to use of this study.

**Appendix B**  
**Glossary of Actuarial Terms**

## Glossary of Actuarial Terms

### Actuarial Methods (Most Common)

A major objective of an actuarial study is to statistically project ultimate losses. The following actuarial methods are the most common:

- Developed Paid Losses
- Developed Reported Incurred Losses
- Developed Case Reserves
- Frequency Times Severity Analysis
- Loss Rate Analysis

The following describes each method:

1. **Developed Paid Losses.** Paid losses represent the amounts actually paid to claimants (less excess insurance recoveries). As time goes on, loss payments continue until all claims are closed and there are no remaining payments expected. At this time, the ultimate losses for the claim period are known. This common process is called “paid loss development.”

Paid loss development is an extrapolation of actual dollars paid. It does not depend on case reserve estimates. A potential shortcoming of utilizing this method is that only a small fraction of total payments have been made for the most recent claim periods. Extrapolating ultimate losses based on small amounts of actual payments may be speculative. A second potential shortcoming is that payment patterns can change over time.

2. **Developed Reported Incurred Losses.** Reported incurred losses are paid losses plus case reserves. In most programs, total reported incurred losses underestimate the ultimate losses. Over time, as more information about a body of claims becomes known, they are adjusted either up or down until they are closed. Though many individual claims settle for less than what was estimated, these decreases are generally more than offset by increases in the cost of other claims for which new information has emerged.

The net effect is that total estimated costs are often revised upward over time. This normal process is called “reported incurred loss development.” Actuaries typically

review the development patterns of the recent past to make projections of the expected future loss development and, therefore, estimations of ultimate losses.

3. **Developed Case Reserves.** The developed case reserves method is a hybrid of the paid loss development and reported incurred loss development methods. It relies on the historical adequacy of case reserves to predict ultimate losses.
4. **Frequency Times Severity Analysis.** The frequency times severity analysis is an actuarial method that uses a preliminary projection of ultimate losses to project claims severity. The claims severity times the number of claims is a predictor of ultimate losses. The focus of the frequency times severity analysis is that ultimate losses each period are dependent on the number of claims.
5. **Loss Rate Analysis.** The loss rate analysis is based on the historical loss rates per exposure unit (such as payroll, vehicles or property value). The loss rates (projected ultimate losses divided by exposure units) are trended to reflect the effect of claim cost inflation and retention changes. The trended loss rates represent the rates that one would see if all of the claims had been handled in the claim cost environment that will be present in the upcoming period. The trended loss rate times the projected exposure units is a predictor of losses.
6. **Bornhuetter-Ferguson Method (B-F).** The B-F method is an actuarial method that weights a preliminary projection of ultimate losses with projections of ultimate losses determined by other actuarial methods (usually the developed paid losses and developed reported incurred losses methods). For less mature claim periods, the B-F method leans more heavily to the preliminary projection. It gradually converges to the projections of ultimate losses determined by the other actuarial methods as the claim periods mature.

## Actuary

A specialist trained in mathematics, statistics, and finance who is responsible for rate, reserve, and dividend calculations and other statistical studies.

## Allocated Loss Adjustment Expenses

Allocated loss adjustment expenses (ALAE) are the direct expenses to settle specific claims. These expenses are primarily legal expenses.

Governmental Accounting Standards Board (GASB) Statement No. 10 requires that ALAE be included in financial statements and that they be calculated by actuarial methods.



## **American Academy of Actuaries**

A society concerned with the development of education in the field of actuarial science and with the enhancement of standards in the actuarial field. Members may use the designation MAAA (Member, American Academy of Actuaries).

## **Benefits**

The financial reimbursement and other services provided insureds by insurers under the terms of an insurance contract. An example would be the benefits listed under a life or health insurance policy or benefits as prescribed by a workers compensation law.

## **Casualty Actuarial Society**

A professional society for actuaries in areas of property and casualty insurance work. This society grants the designation of Associate of the Casualty Actuarial Society (ACAS) and Fellow of the Casualty Actuarial Society (FCAS).

## **Claim**

Demand by an individual or entity to recover for a loss.

## **Claims Made**

A policy written on this basis covers only those claims that are made during the policy period. Coverage for prior acts is provided back to what is known as the retroactive date, which is the effective date of the original claims made policy with the same insurer.

## **Composite Rate**

A single rate with a single basis of premium (e.g., payroll or sales). For this single rate the insured is covered for a variety of hazards, such as premises and operations, completed operations, products liability, and automobile. Its primary value is to compute premium simply.

## **Confidence Level**

A confidence level is the statistical certainty that an actuary believes funding will be sufficient. For example, an 80% confidence level means that the actuary believes funding will be sufficient in eight years out of ten.

Confidence levels are determined based on mathematical models. Coverages that are low frequency and high severity (such as excess liability) are subject to greater risk than coverages that are high frequency and low severity (such as automobile physical damage). Therefore, they need a greater margin to attain a given confidence level.

GASB Statement No. 10 requires public entities to use “expected” amounts as a liability in financial statements. Expected corresponds to approximately a 55% confidence level. Amounts above expected are prudent, but should be considered equity (not a liability).

## **Coverage**

The scope of the protection provided under a contract of insurance.

## **Credibility**

Credibility is the belief that the sample data is an accurate reflection of the larger population. Credibility is highest when the sample data is large and the standard deviation (discussed later) of the larger population is low.

## **Dates**

There are at least three milestone dates in a claim. They are the date of injury or accident, the date of report and the date of closure. It is best if each of these dates is recorded. Some organizations may also keep the date a claim becomes a lawsuit, as opposed to a demand. ARM Tech recommends this additional level of detail, especially if the data is to be used for litigation management.

## **Deductible**

The portion of an insured loss to be borne by the insured before he is entitled to recovery from the insurer. Deductibles may be expressed as a dollar amount, percentage or waiting period.

## Disability

A condition that curtails a person's ability to carry on his normal pursuits. A disability may be partial or total, and temporary or permanent.

## Dividend (Policyholder)

The return of part of the premium paid for a policy issued on a participating basis by either a mutual or a stock insurer.

## Estimated Outstanding Losses

Estimated outstanding losses are the cost of claims that have occurred but have not yet been paid. They typically include indemnification and allocated loss adjustment expenses (ALAE), but not unallocated loss adjustment expenses (ULAE).

Estimated outstanding losses are calculated as projected ultimate losses less paid losses. Alternatively, they are the sum of case reserves and incurred but not reported (IBNR) claims.

Estimated outstanding losses are usually the largest single item listed as a liability on the balance sheet of a public entity's financial statement. GASB Statement No. 10 requires they be calculated by actuarial methods. Other common names for estimated outstanding losses are outstanding claims liabilities and unpaid claims.

## Experience Rating

A method of adjusting the premium for a risk based on past loss experience for that risk compared to loss experience for an average risk.

## Exposure Data

Exposure data refers to the activities of the organization. For example, payroll is the most common exposure measure for workers compensation. ARM Tech suggests collecting exposure data with the following characteristics:

- **Readily Available.** The exposure data should be easily obtained. It is best if it is a byproduct of other activities, although this is not always possible. If getting data is arduous, it may discourage collection.

- **Vary With Losses.** The exposure data should correlate directly with losses. The ideal situation is where exposure and expected losses move in tandem. The exposure base needs to be fitting to the coverage. For example, the number of employees may vary with property losses (more employees = more office space = more losses), but property value is a clearly superior exposure base for property losses.

## **Generally Accepted Accounting Principles (GAAP)**

These principles are intended to produce financial results (in the insurance industry) consistent with those of other industries and to assure consistency in financial reporting.

## **Incurred But Not Reported**

IBNR is really comprised of two distinct items. These are the development of known case reserves (incurred but not enough reported [IBNER] and incurred but not yet reported [IBNYR]).

IBNER are the actuary's estimate of the inadequacy of case reserves. Most claims settle at amounts close to what is set by the claims administrator. Some claims close favorably and some emerge as more expensive. On balance, case reserves tend to be too low (especially for recent years). IBNER is the actuary's estimate of the amount total case reserves will rise upon closure.

IBNYR refers to those claims that have occurred, but have not yet been reported. A classic example is medical malpractice claim reported several years after the medical procedure was performed.

## **Insurance Services Office (ISO)**

An organization of the property and casualty insurance business designed to gather statistics, promulgate rates, and develop policy forms.

## **Investment Income**

The return received by entities from their investment portfolios, including interest, dividends and realized capital gains on stocks. Realized capital gains means the profit realized on assets that have actually been sold for more than their purchase price.

## **Limited**

Most programs purchase excess insurance for catastrophic claims. For example, they may purchase coverage for claims above a \$500,000 per occurrence self-insured retention. “Limited” refers to an estimate or projection being limited to the self-insured retention. In contrast, “unlimited” means a loss projection not limited to the self-insured retention.

Other common names for limited are net of excess insurance or capped losses.

## **Loss Development**

The difference between the amount of losses initially estimated by the insurer and the amount reported in an evaluation on a later date. Loss development is typically measured for paid losses, reported incurred losses and claim counts.

## **Manual Rates**

Usually, the published rate for some unit of insurance. An example is in the workers compensation manual, where the rates shown apply to each \$100 of the payroll of the insured, \$100 being the “unit.”

## **National Council on Compensation Insurance (NCCI)**

An association of workers compensation insurance companies whose main functions are collecting statistics and calculating rates, establishing policy wording, developing experience and retrospective rating plans, and serving as the filing organization for member companies.

## **Net**

Many pooling programs assign deductibles to members. For example, each member may have a \$5,000 per claim deductible. “Net” refers to a loss estimate or projection that excludes amounts below member deductibles.

## **Occurrence**

An event that results in an insured loss. In some lines of insurance, such as general liability, it is distinguished from accident in that the loss does not have to be sudden and fortuitous and can result from continuous or repeated exposure that results in bodily injury or property damage neither expected nor intended by the insured.

## **Pool**

An organization of entities through which particular types of risks are written with the premiums, losses, and expenses shared in agreed amounts among the members belonging to the organization.

## **Premium**

The price of insurance protection for a specified risk for a specified period of time.

## **Present Value**

The amount of money that future amounts receivable are currently worth. For example, a Life Insurance policy may provide for payments to be made monthly for ten years. The present value of that money would be less than the total amount of the regular periodic payments for 10 years because of the amount of interest that a present lump sum could earn during the term than the payments otherwise would have been made.

## **Probability**

The probability is the likelihood of an event. It is a measure of how likely a value or event is to occur. It can be measured from data by calculating the number of occurrences of the value or event divided by the total number of occurrences. This calculation can be converted to a percentage. For example, tossing a coin has a 50% probability of heads or tails.

## **Projected Losses Paid**

Projected losses paid are the projected claims disbursements in a period, regardless of when the claim occurred. They typically include indemnification and ALAE, but not unallocated loss adjustment expenses (ULAE).

“Projected losses paid” is a cash-flow analysis that can be used in making investment decisions.

## **Projected Ultimate Losses**

Projected ultimate losses are the accrual value of claims. They are the total amount that is expected to be paid in a particular claim period after all claims are closed. Projected ultimate

losses are the total loss costs for a particular period. They typically include indemnification and ALAE, but not ULAE.

Other common names for projected ultimate losses are expected losses, ultimate losses and total losses.

## **Rate**

The cost of a given unit of insurance. For example, in life insurance, it is the price of \$1,000 of the face amount. In property insurance, it is the rate per \$100 of value to be insured. The premium is the rate multiplied by the number of units of insurance purchased.

## **Retrospective Rating**

A method for which the final premium is not determined until the end of the coverage period, and is based on the insured's own loss experience for that same period. It is usually subject to a maximum and minimum premium. A plan of this type can be used in various types of insurance, especially workers compensation and liability, and is usually elected by only very large insureds.

## **Salvage**

Property taken over by an entity to reduce its loss. Automobile physical damage losses can be reduced by the sale of recovered vehicles.

## **Schedule Rating**

The application of debits or credits within established ranges for various characteristics of a risk according to an established schedule of items. Under liability and automobile insurance, the schedule rating plan allows credits and debits for various good or bad features of a particular commercial risk. An example in automobile schedule rating would be allowing credits for driver training classes or fleet maintenance programs.

## **Self-Insurance Retention (SIR)**

That portion of a risk or potential loss assumed by an insured. It is often in the form of a per occurrence deductible.

## **Society of Actuaries (SOA)**

A professional society for actuaries in areas of pensions, and life and health insurance work. The SOA grants the designation Associate of the Society of Actuaries (ASA) and Fellow of the Society of Actuaries (FSA).

## **Standard Premium**

Most often used in connection with retrospective rating for Workers Compensation and General Liability Insurance. It is the premium of which the basic premium is a percentage and is developed by applying the regular rates to an insured's payroll.

## **State Fund**

A fund set up by a state government to finance a mandatory insurance system, such as Workers Compensation or non-occupational disability benefits. Such a fund may be monopolistic, i.e., purchasers of the type of insurance required must place it in the state fund; or it may be competitive, i.e., an alternative to private insurance if the purchaser desires to use it.

## **Statutory Accounting Principles (SAP)**

Those principles required by statute that must be followed by an insurance company or other similar entity when submitting its financial statement to the state insurance department. Such principles differ from (GAAP) in some important respects. For one thing SAP requires that expenses must be recorded immediately and cannot be deferred to track with premiums as they are earned and taken into revenue.

## **Unallocated Loss Adjustment Expenses**

Unallocated loss adjustment expenses (ULAE) are the indirect expenses to settle claims. These expenses are primarily administration and claims handling expenses.

GASB Statement No. 10 requires that ULAE be included in financial statements and that they be calculated by actuarial methods.



## **Appendix C**

### **Exhibits**

## Exhibits

The attached exhibits detail our analysis.

STATE OF HAWAII  
WORKERS' COMPENSATION

Exhibit WC-1

Data Summary as of June 30, 2010

Claim Period (1)	Specific Self-Insured Retention (2)	Aggregate Retention (3)	Months of Development 6/30/10 (4)	Payroll (000) (5)	Reported Claims 6/30/10 (6)	Open Claims 6/30/10 (7)	Unlimited Paid Losses 6/30/10 (8)	Unlimited Case Reserves 6/30/10 (9)	Unlimited Reported Incurred Losses 6/30/10 (10)
to 1990/91	See Note	None	240.0	Not Provided	2,646	40	\$31,412,669	\$2,075,102	\$33,487,771
1991/92	Statutory	None	228.0	Not Provided	709	6	5,754,529	237,199	5,991,728
1992/93	Statutory	None	216.0	Not Provided	817	4	6,458,078	64,438	6,522,515
1993/94	Statutory	None	204.0	Not Provided	806	3	6,769,232	78,909	6,848,140
1994/95	Statutory	None	192.0	Not Provided	731	4	5,121,309	62,028	5,183,337
1995/96	Statutory	None	180.0	Not Provided	638	9	5,999,705	1,256,132	7,255,837
1996/97	Statutory	None	168.0	Not Provided	646	6	6,397,057	826,326	7,223,383
1997/98	Statutory	None	156.0	Not Provided	761	16	6,711,094	432,056	7,143,150
1998/99	Statutory	None	144.0	Not Provided	754	18	7,768,406	995,146	8,763,551
1999/00	Statutory	None	132.0	Not Provided	781	17	7,370,881	624,015	7,994,896
2000/01	Statutory	None	120.0	Not Provided	825	20	8,049,503	547,903	8,597,406
2001/02	Statutory	None	108.0	Not Provided	782	30	9,917,884	1,799,484	11,717,368
2002/03	Statutory	None	96.0	Not Provided	795	38	7,530,572	1,248,922	8,779,494
2003/04	Statutory	None	84.0	Not Provided	702	47	7,821,060	1,739,593	9,560,653
2004/05	Statutory	None	72.0	636,116	602	39	4,753,480	1,416,650	6,170,130
2005/06	Statutory	None	60.0	659,055	576	44	5,115,925	1,739,740	6,855,665
2006/07	Statutory	None	48.0	700,524	573	68	4,812,618	2,456,392	7,269,010
2007/08	Statutory	None	36.0	743,120	546	98	3,535,541	2,435,498	5,971,040
2008/09	Statutory	None	24.0	773,315	501	164	3,782,441	4,637,047	8,419,487
2009/10	Statutory	None	12.0	729,671	379	261	1,261,117	4,737,108	5,998,225
<b>Total</b>					<b>15,570</b>	<b>932</b>	<b>\$146,343,101</b>	<b>\$29,409,689</b>	<b>\$175,752,790</b>

\* The specific self-insured retention changes are as follows:

Effective Date	Retention
07/01/00	Statutory

(8), (9) and (10) are net of the specific self-insured retention.

Data was provided by the State.

STATE OF HAWAII  
WORKERS' COMPENSATION

Exhibit WC-2 (page 1)

Summary of Percent Losses Paid, Losses Reported and Claims Reported

Months of Development (1)	Percent Losses Paid (2)	Percent Losses Reported (3)	Percent Claims Reported (4)	Months of Development (5)	Percent Losses Paid (6)	Percent Losses Reported (7)	Percent Claims Reported (8)
360.0	99.9%	100.0%	100.0%	354.0	99.8%	100.0%	100.0%
348.0	99.8%	100.0%	100.0%	342.0	99.8%	100.0%	100.0%
336.0	99.7%	100.0%	100.0%	330.0	99.7%	100.0%	100.0%
324.0	99.6%	100.0%	100.0%	318.0	99.5%	100.0%	100.0%
312.0	99.4%	100.0%	100.0%	306.0	99.3%	100.0%	100.0%
300.0	99.2%	100.0%	100.0%	294.0	99.0%	100.0%	100.0%
288.0	98.9%	100.0%	100.0%	282.0	98.6%	100.0%	100.0%
276.0	98.4%	100.0%	100.0%	270.0	98.0%	100.0%	100.0%
264.0	97.7%	100.0%	100.0%	258.0	97.2%	100.0%	100.0%
252.0	96.7%	100.0%	100.0%	246.0	96.0%	100.0%	100.0%
240.0	95.2%	100.0%	100.0%	234.0	95.1%	100.0%	100.0%
228.0	95.0%	99.9%	100.0%	222.0	94.9%	99.9%	100.0%
216.0	94.8%	99.8%	100.0%	210.0	94.6%	99.8%	100.0%
204.0	94.4%	99.7%	100.0%	198.0	94.2%	99.6%	100.0%
192.0	93.9%	99.5%	100.0%	186.0	93.6%	99.4%	100.0%
180.0	93.4%	99.3%	100.0%	174.0	93.0%	99.2%	100.0%
168.0	92.7%	99.0%	100.0%	162.0	92.2%	98.8%	100.0%
156.0	91.8%	98.6%	100.0%	150.0	91.1%	98.4%	100.0%
144.0	90.4%	98.2%	100.0%	138.0	89.6%	98.0%	100.0%
132.0	88.8%	97.7%	100.0%	126.0	87.6%	97.2%	100.0%
120.0	86.4%	96.6%	100.0%	114.0	85.2%	95.9%	100.0%
108.0	83.9%	95.1%	100.0%	102.0	82.5%	94.2%	100.0%
96.0	81.1%	93.3%	100.0%	90.0	79.5%	92.3%	100.0%
84.0	77.9%	91.3%	100.0%	78.0	75.7%	90.2%	100.0%
72.0	73.5%	89.2%	100.0%	66.0	71.1%	88.2%	100.0%
60.0	68.7%	87.1%	100.0%	54.0	65.7%	86.1%	100.0%
48.0	62.8%	85.0%	99.9%	42.0	58.0%	82.8%	99.8%
36.0	53.2%	80.6%	99.7%	30.0	45.9%	76.9%	99.1%
24.0	38.7%	73.2%	98.5%	18.0	27.2%	63.8%	93.0%
12.0	15.8%	54.3%	87.6%	6.0	7.9%	27.1%	43.8%

(2) is from Exhibit WC-2 (page 2).

(3) is from Exhibit WC-2 (page 3).

(4) is from Exhibit WC-2 (page 4).

(6), (7) and (8) are interpolated, based on (2), (3) and (4), respectively.

STATE OF HAWAII  
WORKERS' COMPENSATION

Historical Unlimited Paid Losses (\$000) and Unlimited Paid Loss Development

Claim Period	Months of Development:																				
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	
to 1990/01																					
1991/02												6,346	5,521	5,584	\$29,027	\$29,443	\$29,866	\$30,288	\$30,768	\$31,413	
1992/03												6,607	6,362	6,400	5,614	5,662	5,693	5,718	5,755		
1993/04												4,988	6,700	6,400	6,409	6,425	6,438	6,458			
1994/05												5,600	5,855	5,109	5,116	5,121	6,767				
1995/06												6,086	6,309	5,957	6,000						
1996/07												7,538	6,711	6,397							
1997/08												7,768									
1998/09												7,371									
1999/00												8,050									
2000/01												7,959									
2001/02												6,238									
2002/03												7,352									
2003/04												6,230									
2004/05												5,431									
2005/06												6,376									
2006/07												4,087									
2007/08												4,754									
2008/09												4,185									
2009/10												3,536									
												3,782									
												1,261									

II. Unlimited Paid Loss Development

Claim Period	Months of Development:																				
	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-228	228-240	240-Ult	
to 1990/01																					
1991/02																					
1992/03																					
1993/04																					
1994/05																					
1995/06																					
1996/07																					
1997/08																					
1998/09																					
1999/00																					
2000/01																					
2001/02																					
2002/03																					
2003/04																					
2004/05																					
2005/06																					
2006/07																					
2007/08																					
2008/09																					
2009/10																					
Average All	2,440	1,356	1,177	1,094	1,069	1,054	1,039	1,035	1,032	1,029	1,020	1,013	1,011	1,003	1,007	1,006	1,007	1,011	1,021	1,050	
Wtd 3	2,490	1,319	1,153	1,087	1,085	1,047	1,029	1,027	1,021	1,027	1,020	1,016	1,016	1,003	1,003	1,002	1,011	1,007	1,021	1,050	
Last 3	2,467	1,322	1,152	1,088	1,064	1,046	1,027	1,025	1,022	1,027	1,020	1,017	1,016	1,003	1,003	1,003	1,007	1,007	1,021	1,050	
Last 5	2,429	1,359	1,159	1,069	1,064	1,044	1,033	1,037	1,027	1,029	1,019	1,014	1,012	1,003	1,006	1,000	1,007	1,007	1,021	1,050	
x-Hilow																					
Similar	2,447	1,359	1,125	1,050	1,030	1,018	1,013	1,006	1,030	1,028	1,018	1,015	1,010	1,007	1,006	1,005	1,004	1,003	1,002	1,050	
Previous	2,430	1,385	1,180	1,095	1,070	1,060	1,040	1,035	1,030	1,028	1,018	1,015	1,010	1,007	1,006	1,005	1,004	1,003	1,002	1,050	
Selected	2,450	1,375	1,180	1,095	1,070	1,060	1,040	1,035	1,030	1,028	1,018	1,015	1,010	1,007	1,006	1,005	1,004	1,003	1,002	1,050	
Cumulative	6,334	2,585	1,880	1,593	1,455	1,360	1,283	1,234	1,192	1,157	1,126	1,106	1,089	1,079	1,071	1,065	1,059	1,055	1,052	1,050	
Percent	15.8%	38.7%	53.2%	62.8%	68.7%	73.5%	77.9%	81.1%	83.9%	86.4%	88.8%	90.4%	91.8%	92.7%	93.4%	93.9%	94.4%	94.8%	95.0%	95.2%	

Amounts are unlimited (gross of excess insurance).

Data was provided by the State.



STATE OF HAWAII  
WORKERS' COMPENSATION

Historical Reported Claims and Reported Claim Development

Claim Period	Months of Development:																					
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240		
to 1990/01																						
1991/02																						
1992/03																						
1993/04																						
1994/05																						
1995/06																						
1996/07																						
1997/08																						
1998/09																						
1999/00																						
2000/01																						
2001/02																						
2002/03																						
2003/04																						
2004/05																						
2005/06																						
2006/07																						
2007/08																						
2008/09																						
2009/10																						

II. Reported Claim Development

Claim Period	Months of Development:												240-Ult									
	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156		156-168	168-180	180-192	192-204	204-216	216-228	228-240		
to 1990/01																						
1991/02																						
1992/03																						
1993/04																						
1994/05																						
1995/06																						
1996/07																						
1997/08																						
1998/09																						
1999/00																						
2000/01																						
2001/02																						
2002/03																						
2003/04																						
2004/05																						
2005/06																						
2006/07																						
2007/08																						
2008/09																						
2009/10																						
Average All	1.123	1.009	1.005	1.001	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Wtd 3	1.116	1.007	1.001	0.999	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Last 3	1.116	1.007	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Last 5 x-til low	1.119	1.009	1.004	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Similar	1.130	1.015	1.005	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Selected	1.125	1.012	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Cumulative Percent	1.142	1.015	1.003	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
	87.6%	98.5%	99.7%	99.9%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

Data was provided by the State.



STATE OF HAWAII  
WORKERS' COMPENSATION

Historical Ratio of Unlimited Paid Losses and Unlimited Reported Incurred Losses

I. Ratio of Unlimited Paid Losses to Unlimited Reported Incurred Losses

Claim Period	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	
to 1/99/01																					
1991/92																					
1992/93																					
1993/94																					
1994/95																					
1995/96																					
1996/97																					
1997/98																					
1998/99																					
1999/00																					
2000/01																					
2001/02																					
2002/03																					
2003/04																					
2004/05																					
2005/06																					
2006/07																					
2007/08																					
2008/09																					
2009/10																					
Average																					
All	26.3%	48.3%	61.3%	71.5%	77.5%	80.7%	82.8%	84.1%	84.9%	87.6%	89.1%	92.0%	92.9%	93.5%	93.9%	96.7%	96.5%	96.0%	94.3%	93.8%	
Last 3	20.6%	43.2%	56.4%	66.0%	74.4%	80.1%	80.8%	84.9%	88.0%	88.8%	89.4%	89.3%	87.5%	89.9%	92.8%	98.9%	97.6%	96.0%			
Last 5	20.6%	43.2%	56.8%	66.9%	74.4%	80.1%	84.2%	85.4%	86.0%	87.3%	86.1%	89.3%	92.6%	94.7%	96.7%	97.5%	97.6%	96.0%			
x-high																					
Implicit	29.1%	52.8%	66.0%	73.6%	78.9%	82.4%	85.4%	86.9%	88.2%	89.5%	90.9%	92.1%	93.1%	93.6%	94.0%	94.4%	94.7%	95.0%	95.1%	95.2%	



STATE OF HAWAII  
WORKERS' COMPENSATION

Exhibit WC-3

Developed Unlimited Paid Losses

Claim Period (1)	Months of Development 6/30/10 (2)	Unlimited Paid Losses 6/30/10 (3)	Percent Losses Paid (4)	Developed Unlimited Paid Losses (3)/(4) (5)
to 1990/91	240.0	\$31,412,669	95.2%	\$32,983,303
1991/92	228.0	5,754,529	95.0%	6,054,340
1992/93	216.0	6,458,078	94.8%	6,814,927
1993/94	204.0	6,769,232	94.4%	7,171,847
1994/95	192.0	5,121,309	93.9%	5,453,041
1995/96	180.0	5,999,705	93.4%	6,426,664
1996/97	168.0	6,397,057	92.7%	6,900,259
1997/98	156.0	6,711,094	91.8%	7,311,389
1998/99	144.0	7,768,406	90.4%	8,590,224
1999/00	132.0	7,370,881	88.8%	8,297,357
2000/01	120.0	8,049,503	86.4%	9,314,994
2001/02	108.0	9,917,884	83.9%	11,821,423
2002/03	96.0	7,530,572	81.1%	9,290,070
2003/04	84.0	7,821,060	77.9%	10,034,368
2004/05	72.0	4,753,480	73.5%	6,464,604
2005/06	60.0	5,115,925	68.7%	7,444,546
2006/07	48.0	4,812,618	62.8%	7,668,485
2007/08	36.0	3,535,541	53.2%	6,647,619
2008/09	24.0	3,782,441	38.7%	9,778,787
2009/10	12.0	1,261,117	15.8%	7,987,932

(3) is from Exhibit WC-1.

(4) is from Exhibit WC-2.

STATE OF HAWAII  
WORKERS' COMPENSATION

Exhibit WC-4

Developed Unlimited Reported Incurred Losses

Claim Period (1)	Months of Development 6/30/10 (2)	Unlimited Reported Incurred Losses 6/30/10 (3)	Percent Losses Reported (4)	Developed Unlimited Reported Incurred Losses (3)/(4) (5)
to 1990/91	240.0	\$33,487,771	100.0%	\$33,487,771
1991/92	228.0	5,991,728	99.9%	5,997,720
1992/93	216.0	6,522,515	99.8%	6,535,567
1993/94	204.0	6,848,140	99.7%	6,868,705
1994/95	192.0	5,183,337	99.5%	5,209,301
1995/96	180.0	7,255,837	99.3%	7,298,838 *
1996/97	168.0	7,223,383	99.0%	7,281,556 *
1997/98	156.0	7,143,150	98.6%	7,243,727
1998/99	144.0	8,763,551	98.2%	8,922,492
1999/00	132.0	7,994,896	97.7%	8,180,596
2000/01	120.0	8,597,406	96.6%	8,902,665
2001/02	108.0	11,717,368	95.1%	12,202,547 *
2002/03	96.0	8,779,494	93.3%	9,412,138
2003/04	84.0	9,560,653	91.3%	10,475,079
2004/05	72.0	6,170,130	89.2%	6,915,756
2005/06	60.0	6,855,665	87.1%	7,868,553
2006/07	48.0	7,269,010	85.0%	8,551,543
2007/08	36.0	5,971,040	80.6%	7,410,911
2008/09	24.0	8,419,487	73.2%	11,494,762
2009/10	12.0	5,998,225	54.3%	11,055,308

\* - Indicates large claim(s) limited to retention. For details, see Exhibit WC-12.

(3) is from Exhibit WC-1.

(4) is from Exhibit WC-2.

STATE OF HAWAII  
WORKERS' COMPENSATION

Exhibit WC-5

Developed Unlimited Case Reserves

Claim Period (1)	Months of Development 6/30/10 (2)	Percent Losses Paid (3)	Percent Losses Reported (4)	Percent Losses Reserved 6/30/10 [(4)-(3)]/ [100.0%-(3)] (5)	Unlimited Paid Losses 6/30/10 (6)	Unlimited Case Reserves 6/30/10 (7)	Developed Unlimited Case Reserves (6)+(7)/(5) (8)
to 1990/91	240.0	95.2%	100.0%	100.0%	\$31,412,669	\$2,075,102	\$33,487,771
1991/92	228.0	95.0%	99.9%	98.0%	5,754,529	237,199	5,996,612
1992/93	216.0	94.8%	99.8%	96.2%	6,458,078	64,438	6,525,070
1993/94	204.0	94.4%	99.7%	94.7%	6,769,232	78,909	6,852,586
1994/95	192.0	93.9%	99.5%	91.8%	5,121,309	62,028	5,188,873
1995/96	180.0	93.4%	99.3%	89.5%	5,999,705	1,256,132	7,312,627 *
1996/97	168.0	92.7%	99.0%	86.4%	6,397,057	826,326	7,231,981 *
1997/98	156.0	91.8%	98.6%	83.1%	6,711,094	432,056	7,231,087
1998/99	144.0	90.4%	98.2%	81.4%	7,768,406	995,146	8,991,242
1999/00	132.0	88.8%	97.7%	79.7%	7,370,881	624,015	8,154,128
2000/01	120.0	86.4%	96.6%	74.8%	8,049,503	547,903	8,782,376
2001/02	108.0	83.9%	95.1%	69.8%	9,917,884	1,799,484	12,222,177 *
2002/03	96.0	81.1%	93.3%	64.5%	7,530,572	1,248,922	9,466,574
2003/04	84.0	77.9%	91.3%	60.4%	7,821,060	1,739,593	10,700,068
2004/05	72.0	73.5%	89.2%	59.3%	4,753,480	1,416,650	7,143,748
2005/06	60.0	68.7%	87.1%	58.8%	5,115,925	1,739,740	8,072,326
2006/07	48.0	62.8%	85.0%	59.7%	4,812,618	2,456,392	8,925,200
2007/08	36.0	53.2%	80.6%	58.5%	3,535,541	2,435,498	7,698,920
2008/09	24.0	38.7%	73.2%	56.4%	3,782,441	4,637,047	12,008,485
2009/10	12.0	15.8%	54.3%	45.7%	1,261,117	4,737,108	11,631,158

\* - Indicates large claim(s) limited to retention. For details, see Exhibit WC-12.

(3) and (4) are from Exhibit WC-2.

(6) and (7) are from Exhibit WC-1.

STATE OF HAWAII  
WORKERS' COMPENSATION

Exhibit WC-6

Preliminary Projected Ultimate Unlimited Losses to 2009/10

Claim Period (1)	Developed Unlimited Paid Losses (2)	Developed Unlimited Reported Incurred Losses (3)	Developed Unlimited Case Reserves (4)	Preliminary Projected Ultimate Unlimited Losses (5)
to 1990/91	\$32,983,303	\$33,487,771	\$33,487,771	\$33,487,771
1991/92	6,054,340	5,997,720	5,996,612	5,996,612
1992/93	6,814,927	6,535,567	6,525,070	6,525,070
1993/94	7,171,847	6,868,705	6,852,586	6,852,586
1994/95	5,453,041	5,209,301	5,188,873	5,188,873
1995/96	6,426,664	7,298,838	7,312,627	7,312,627
1996/97	6,900,259	7,281,556	7,231,981	7,231,981
1997/98	7,311,389	7,243,727	7,231,087	7,231,087
1998/99	8,590,224	8,922,492	8,991,242	8,991,242
1999/00	8,297,357	8,180,596	8,154,128	8,154,128
2000/01	9,314,994	8,902,665	8,782,376	8,782,376
2001/02	11,821,423	12,202,547	12,222,177	12,222,177
2002/03	9,290,070	9,412,138	9,466,574	9,461,131
2003/04	10,034,368	10,475,079	10,700,068	10,655,070
2004/05	6,464,604	6,915,756	7,143,748	7,075,350
2005/06	7,444,546	7,868,553	8,072,326	7,990,817
2006/07	7,668,485	8,551,543	8,925,200	8,650,065
2007/08	6,647,619	7,410,911	7,698,920	7,010,537
2008/09	9,778,787	11,494,762	12,008,485	10,567,922
2009/10	7,987,932	11,055,308	11,631,158	9,330,053

(2) is from Exhibit WC-3.

(3) is from Exhibit WC-4.

(4) is from Exhibit WC-5.

(5) is based on (2) to (4) and actuarial judgment.

Bornhuetter - Ferguson Analysis

I. A-priori Loss Rate

Claim Period (1)	Preliminary Projected Ultimate Unlimited Losses (2)	Payroll (000) (3)	Unlimited Loss Rate per \$100 of Payroll (2)/(3)/10 (4)	Loss Rate Trend (2010/11 = 1.000) (5)	Trended Unlimited Loss Rate per \$100 of Payroll (4)X(5) (6)	Projected A-priori Loss Rate per \$100 of Payroll (7)/(5) (8)
2000/01	\$8,782,376	\$565,181	\$1.55	1.487	\$2.31	\$0.91
2001/02	12,222,177	582,137	2.10	1.447	3.04	0.93
2002/03	9,461,131	599,601	1.58	1.392	2.20	0.97
2003/04	10,655,070	617,589	1.73	1.340	2.31	1.01
2004/05	7,075,350	636,116	1.11	1.292	1.44	1.04
2005/06	7,990,817	659,055	1.21	1.239	1.50	1.09
2006/07	8,650,065	700,524	1.23	1.164	1.44	1.16
2007/08	7,010,537	743,120	0.94	1.099	1.04	1.23
2008/09	10,567,922	773,315	1.37	1.063	1.45	1.27
2009/10	9,330,053	729,671	1.28	1.028	1.31	1.31

(7) Projected 2010/11 a-priori loss rate per \$100 of Payroll \$1.35

II. Bornhuetter - Ferguson Analysis Based on Unlimited Paid Losses

Claim Period (1)	Unlimited Paid Losses 6/30/10 (2)	Percent Losses Paid (3)	Projected A-priori Loss Rate per \$100 of Payroll (4)	Payroll (000) (5)	B-F Unpaid Losses [100.0%-(3)] X(4)X(5)X10 (6)	B-F Ultimate Unlimited Paid Losses (2)+(6) (7)
2005/06	\$5,115,925	68.7%	\$1.09	\$659,055	\$2,243,456	\$7,359,381
2006/07	4,812,618	62.8%	1.16	700,524	3,022,256	7,834,874
2007/08	3,535,541	53.2%	1.23	743,120	4,270,816	7,806,358
2008/09	3,782,441	38.7%	1.27	773,315	6,017,798	9,800,239
2009/10	1,261,117	15.8%	1.31	729,671	8,061,309	9,322,426

III. Bornhuetter - Ferguson Analysis Based on Unlimited Reported Incurred Losses

Claim Period (1)	Unlimited Reported Incurred Losses 6/30/10 (2)	Percent Losses Reported (3)	Projected A-priori Loss Rate per \$100 of Payroll (4)	Payroll (000) (5)	B-F Unreported Losses [100.0%-(3)] X(4)X(5)X10 (6)	B-F Ultimate Unlimited Reported Losses (2)+(6) (7)
2005/06	\$6,855,665	87.1%	\$1.09	\$659,055	\$923,259	\$7,778,924
2006/07	7,269,010	85.0%	1.16	700,524	1,217,101	8,486,112
2007/08	5,971,040	80.6%	1.23	743,120	1,772,469	7,743,509
2008/09	8,419,487	73.2%	1.27	773,315	2,625,547	11,045,034
2009/10	5,998,225	54.3%	1.31	729,671	4,378,846	10,377,071

Section I, (2) is from Exhibit WC-6.

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Section I, (5) is from Exhibit WC-11.

Section I, (7) is based on Section I, (6) and actuarial judgment.

Sections II and III, (2) are from Exhibit WC-1.

Sections II and III, (3) are from Exhibit WC-2.

Sections II and III, (4) are from Section I, (8).

STATE OF HAWAII  
WORKERS' COMPENSATION

Exhibit WC-8

Frequency Times Severity Analysis

I. Projected Ultimate Claims

Claim Period (1)	Months of Development 6/30/10 (2)	Reported Claims 6/30/10 (3)	Percent Claims Reported (4)	Projected Ultimate Claims (3)/(4) (5)	Payroll (000) (6)	Frequency (per \$1M of Payroll) (5)/(6)X1,000 (7)
2000/01	120.0	825	100.0%	825	\$565,181	1.46
2001/02	108.0	782	100.0%	782	582,137	1.34
2002/03	96.0	795	100.0%	795	599,601	1.33
2003/04	84.0	702	100.0%	702	617,589	1.14
2004/05	72.0	602	100.0%	602	636,116	0.95
2005/06	60.0	576	100.0%	576	659,055	0.87
2006/07	48.0	573	99.9%	574	700,524	0.82
2007/08	36.0	546	99.7%	548	743,120	0.74
2008/09	24.0	501	98.5%	509	773,315	0.66
2009/10	12.0	379	87.6%	433	729,671	0.59

II. Frequency Times Severity

Claim Period (1)	Preliminary Projected Ultimate Unlimited Losses (2)	Projected Ultimate Claims (3)	Average Severity (2)/(3) (4)	Severity Trend (2010/11 = 1.000) (5)	Trended Average Claim Severity (4)X(5) (6)	De-Trended Projected 2010/11 Average Claim Severity (7)/(5) (8)	Frequency Times Severity (3)X(8) (9)
2000/01	\$8,782,376	825	\$10,645	1.999	\$21,276	\$10,134	\$8,360,498
2001/02	12,222,177	782	15,629	1.887	29,498	10,731	8,391,972
2002/03	9,461,131	795	11,901	1.763	20,981	11,489	9,133,540
2003/04	10,655,070	702	15,178	1.648	25,019	12,287	8,625,736
2004/05	7,075,350	602	11,753	1.543	18,132	13,128	7,903,333
2005/06	7,990,817	576	13,873	1.437	19,933	14,096	8,119,482
2006/07	8,650,065	574	15,070	1.310	19,748	15,456	8,871,549
2007/08	7,010,537	548	12,793	1.201	15,359	16,870	9,244,708
2008/09	10,567,922	509	20,762	1.128	23,411	17,962	9,142,805
2009/10	9,330,053	433	21,547	1.059	22,818	19,126	8,281,533
(7) Projected 2010/11 average claim severity					\$20,254		

Section I, (3) is from Exhibit WC-1.

Section I, (4) is from Exhibit WC-2.

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Section II, (2) is from Exhibit WC-6.

Section II, (3) is from Section I, (5).

Section II, (5) is from Exhibit WC-11.

Section II, (7) is based on (6) and actuarial judgment.

STATE OF HAWAII  
WORKERS' COMPENSATION

Exhibit WC-9

Projected Ultimate Unlimited Losses to 2009/10

Claim Period (1)	Developed Unlimited Paid Losses (2)	Developed Unlimited Reported Incurred Losses (3)	Developed Unlimited Case Reserves (4)	B-F Ultimate Unlimited Paid Losses (5)	B-F Ultimate Unlimited Reported Losses (6)	Frequency Times Severity (7)	Projected Ultimate Unlimited Losses (8)
to 1990/91	\$32,983,303	\$33,487,771	\$33,487,771				\$33,488,000
1991/92	6,054,340	5,997,720	5,996,612				5,997,000
1992/93	6,814,927	6,535,567	6,525,070				6,525,000
1993/94	7,171,847	6,868,705	6,852,586				6,853,000
1994/95	5,453,041	5,209,301	5,188,873				5,189,000
1995/96	6,426,664	7,298,838	7,312,627				7,313,000
1996/97	6,900,259	7,281,556	7,231,981				7,232,000
1997/98	7,311,389	7,243,727	7,231,087				7,231,000
1998/99	8,590,224	8,922,492	8,991,242				8,991,000
1999/00	8,297,357	8,180,596	8,154,128				8,154,000
2000/01	9,314,994	8,902,665	8,782,376				8,782,000
2001/02	11,821,423	12,202,547	12,222,177				12,222,000
2002/03	9,290,070	9,412,138	9,466,574				9,461,000
2003/04	10,034,368	10,475,079	10,700,068				10,655,000
2004/05	6,464,604	6,915,756	7,143,748				7,075,000
2005/06	7,444,546	7,868,553	8,072,326	7,359,381	7,778,924	8,119,482	7,991,000
2006/07	7,668,485	8,551,543	8,925,200	7,834,874	8,486,112	8,871,549	8,650,000
2007/08	6,647,619	7,410,911	7,698,920	7,806,358	7,743,509	9,244,708	7,011,000
2008/09	9,778,787	11,494,762	12,008,485	9,800,239	11,045,034	9,142,805	10,050,000
2009/10	7,987,932	11,055,308	11,631,158	9,322,426	10,377,071	8,281,533	9,089,000

(2) is from Exhibit WC-3.

(3) is from Exhibit WC-4.

(4) is from Exhibit WC-5.

(5) and (6) are from Exhibit WC-7.

(7) is from Exhibit WC-8.

(8) is based on (2) to (7) and actuarial judgment.

STATE OF HAWAII  
WORKERS' COMPENSATION

Exhibit WC-10

Estimated Outstanding Losses as of June 30, 2010

Claim Period (1)	Unlimited Paid Losses 6/30/10 (2)	Unlimited Case Reserves 6/30/10 (3)	Unlimited Reported Incurred Losses 6/30/10 (4)	Projected Ultimate Unlimited Losses (5)	Estimated IBNR 6/30/10 (5)-(4) (6)	Estimated Outstanding Losses 6/30/10 (3)+(6) (7)	Present Value Factor (8)	Present Value of Estimated Outstanding Losses 6/30/10 (7)X(8) (9)
to 1990/91	\$31,412,669	\$2,075,102	\$33,487,771	\$33,488,000	\$229	\$2,075,331	0.92	\$1,906,748
1991/92	5,754,529	237,199	5,991,728	5,997,000	5,272	242,471	0.89	216,152
1992/93	6,458,078	64,438	6,522,515	6,525,000	2,485	66,923	0.87	58,095
1993/94	6,769,232	78,909	6,848,140	6,853,000	4,860	83,769	0.85	71,092
1994/95	5,121,309	62,028	5,183,337	5,189,000	5,663	67,691	0.83	56,375
1995/96	5,999,705	1,256,132	7,255,837	7,313,000	57,163	1,313,295	0.82	1,076,920
1996/97	6,397,057	826,326	7,223,383	7,232,000	8,617	834,943	0.81	675,944
1997/98	6,711,094	432,056	7,143,150	7,231,000	87,850	519,906	0.81	418,530
1998/99	7,768,406	995,146	8,763,551	8,991,000	227,449	1,222,595	0.81	986,991
1999/00	7,370,881	624,015	7,994,896	8,154,000	159,104	783,119	0.81	633,865
2000/01	8,049,503	547,903	8,597,406	8,782,000	184,594	732,497	0.82	599,314
2001/02	9,917,884	1,799,484	11,717,368	12,222,000	504,632	2,304,116	0.82	1,891,319
2002/03	7,530,572	1,248,922	8,779,494	9,461,000	681,506	1,930,428	0.82	1,586,290
2003/04	7,821,060	1,739,593	9,560,653	10,655,000	1,094,347	2,833,940	0.82	2,326,157
2004/05	4,753,480	1,416,650	6,170,130	7,075,000	904,870	2,321,520	0.82	1,914,963
2005/06	5,115,925	1,739,740	6,855,665	7,991,000	1,135,335	2,875,075	0.83	2,373,959
2006/07	4,812,618	2,456,392	7,269,010	8,650,000	1,380,990	3,837,382	0.83	3,175,556
2007/08	3,535,541	2,435,498	5,971,040	7,011,000	1,039,960	3,475,458	0.84	2,909,512
2008/09	3,782,441	4,637,047	8,419,487	10,050,000	1,630,513	6,267,560	0.85	5,328,192
2009/10	1,261,117	4,737,108	5,998,225	9,089,000	3,090,775	7,827,883	0.87	6,773,986
Total	\$146,343,101	\$29,409,689	\$175,752,790	\$187,959,000	\$12,206,214	\$41,615,902		\$34,979,960

(2), (3) and (4) are net of specific self insured retention and aggregate retention.

(5) is from Exhibit WC-9.

(8) is based on a 3.5% interest rate and the payout pattern in Exhibit WC-2.



Loss Rate and Severity Trend

I. Benefit Level Changes

Effective Date (1)	Benefit Level Change (2)	Cumulative Benefit Level Change (3)
06/01/01	1.035	1.035
01/01/02	1.016	1.052
01/01/03	1.022	1.075
01/01/04	1.014	1.090
01/01/05	1.020	1.112
01/01/06	1.024	1.138
01/01/07	1.063	1.210
01/01/08	1.016	1.229
01/01/09	1.011	1.243
01/01/10	1.016	1.263

II. Loss Rate and Severity Trend

Claim Period (1)	Benefit Trend (2010/11 = 1.000) (2)	Residual Trend (2010/11 = 1.000) (3)	Retention Index (2010/11 = 1.000) (4)	Loss Rate Trend (2010/11 = 1.000) (2)X(3)X(4) (5)	Wage Trend (2010/11 = 1.000) (6)	Severity Trend (2010/11 = 1.000) (5)X(6) (7)
2000/01	1.220	1.219	1.000	1.487	1.344	1.999
2001/02	1.210	1.195	1.000	1.447	1.305	1.887
2002/03	1.188	1.172	1.000	1.392	1.267	1.763
2003/04	1.167	1.149	1.000	1.340	1.230	1.648
2004/05	1.147	1.126	1.000	1.292	1.194	1.543
2005/06	1.123	1.104	1.000	1.239	1.159	1.437
2006/07	1.076	1.082	1.000	1.164	1.126	1.310
2007/08	1.035	1.061	1.000	1.099	1.093	1.201
2008/09	1.022	1.040	1.000	1.063	1.061	1.128
2009/10	1.008	1.020	1.000	1.028	1.030	1.059
2010/11	1.000	1.000	1.000	1.000	1.000	1.000
2011/12	1.000	0.980	1.000	0.980	0.971	0.952

Section I, (2) and (3) reflect NCCI data.

Section II, (2) is based on Section I, (2).

Section II, (3) is based on 2% trend per actuarial judgment.

Section II, (4) is based on industry statistics and actuarial judgment.

Section II, (6) is based on 3% trend.

STATE OF HAWAII  
WORKERS' COMPENSATION

Exhibit WC-12

List of Large Claims  
Unlimited Reported Incurred Losses Greater Than or Equal to \$500,000

Claim Number (1)	Date of Loss (2)	Claim Period (3)	Specific Self-Insured Retention (4)	Unlimited Paid Losses 6/30/10 (5)	Unlimited Case Reserves 6/30/10 (6)	Unlimited Reported Incurred Losses 6/30/10 (7)
78002792	6/6/1980	to 1990/91	Statutory	\$814,101	\$0	\$814,101
28205862	2/11/1982	to 1990/91	Statutory	530,427	0	530,427
28836932	8/8/1988	to 1990/91	Statutory	449,850	73,546	523,396
28837021	12/7/1988	to 1990/91	1,069,180	563,687	505,493	1,069,180
48910086	4/13/1989	to 1990/91	Statutory	847,651	94,155	941,806
28940954	5/29/1989	to 1990/91	Statutory	482,012	432,860	914,872
28941329	8/12/1989	to 1990/91	Statutory	513,702	44,995	558,697
29041103	7/2/1990	to 1990/91	Statutory	486,639	223,821	710,460
29141212	12/26/1990	to 1990/91	Statutory	716,984	0	716,984
19110379	8/27/1991	1991/92	Statutory	597,958	166,528	764,486
99210095	7/2/1992	1992/93	Statutory	624,137	0	624,137
99210099	7/14/1992	1992/93	Statutory	541,177	0	541,177
29540578	4/24/1995	1994/95	Statutory	621,647	0	621,647
29541430	10/7/1995	1995/96	Statutory	426,932	76,902	503,834
29641068	1/25/1996	1995/96	Statutory	391,701	134,330	526,031
99610067	6/13/1996	1995/96	1,129,468	357,838	771,630 *	1,129,468 *
29640900	7/18/1996	1996/97	Statutory	605,452	0	605,452
19710013	1/14/1997	1996/97	1,429,381	657,529	771,852 *	1,429,381 *
29840200	3/5/1998	1997/98	Statutory	591,999	86,356	678,355
29840831	7/26/1998	1998/99	Statutory	436,872	65,088	501,960
29840987	9/18/1998	1998/99	Statutory	489,555	93,028	582,583
79910138	2/14/1999	1998/99	Statutory	494,275	167,281	661,556
10010277	12/20/2000	2000/01	Statutory	495,041	47,460	542,501
10110169	8/12/2001	2001/02	2,211,249	1,580,893	630,356 *	2,211,249 *
70410051	1/27/2004	2003/04	Statutory	338,386	177,695	516,081
20641024	10/30/2006	2006/07	Statutory	284,219	264,011	548,230
20840789	8/19/2008	2008/09	Statutory	328,323	213,948	542,271

The claim(s) indicated by a "\*" have been limited in development.

(1) through (7) were provided by the State.

STATE OF HAWAII  
WORKERS' COMPENSATION

Exhibit WC-13

Size of Loss Distribution

I. Reported Claim Count

Layer (1)	Prior (2)	2005/06 (3)	2006/07 (4)	2007/08 (5)	2008/09 (6)	2009/10 (7)	Total (2)...(7) (8)	Non-Zero Claim Cumulative Total (9)	Non-Zero Claim Cumulative % of Total (10)
0	2,167	52	39	47	31	15	2,351		
0.01 - 5,000	8,249	372	377	361	277	123	9,759	9,759	73.8%
5,000 - 10,000	618	51	41	30	50	73	863	10,622	80.4%
10,000 - 25,000	732	42	45	44	54	114	1,031	11,653	88.2%
25,000 - 50,000	565	18	36	24	31	22	696	12,349	93.4%
50,000 - 100,000	338	22	15	28	37	27	467	12,816	97.0%
100,000 - 250,000	244	17	17	12	20	4	314	13,130	99.4%
250,000 - 500,000	53	2	2	0	0	1	58	13,188	99.8%
500,000 - 750,000	17	0	1	0	1	0	19	13,207	99.9%
750,000 - 1,000,000	4	0	0	0	0	0	4	13,211	100.0%
Over 1,000,000	4	0	0	0	0	0	4	13,215	100.0%
<b>Total</b>	<b>12,991</b>	<b>576</b>	<b>573</b>	<b>546</b>	<b>501</b>	<b>379</b>	<b>15,566</b>	<b>13,215</b>	

II. Total Reported Incurred Losses

Layer (1)	Prior (2)	2005/06 (3)	2006/07 (4)	2007/08 (5)	2008/09 (6)	2009/10 (7)	Total (2)...(7) (8)	Non-Zero Claim Cumulative Total (9)	Non-Zero Claim Cumulative % of Total (10)
0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
0.01 - 5,000	7,008,746	439,380	393,524	380,000	353,003	154,361	8,729,015	8,729,015	5.0%
5,000 - 10,000	4,429,894	350,623	280,876	217,092	380,632	553,577	6,212,694	14,941,710	8.5%
10,000 - 25,000	11,937,454	701,515	684,042	698,985	835,069	1,853,811	16,710,877	31,652,586	18.0%
25,000 - 50,000	20,009,457	640,176	1,287,118	891,257	1,128,807	731,959	24,688,773	56,341,359	32.1%
50,000 - 100,000	23,480,983	1,553,470	1,040,531	1,808,364	2,593,265	1,907,572	32,384,185	88,725,544	50.5%
100,000 - 250,000	37,453,149	2,622,704	2,481,754	1,975,341	2,586,441	443,862	47,563,250	136,288,794	77.5%
250,000 - 500,000	17,724,401	547,797	552,936	0	0	353,083	19,178,217	155,467,011	88.4%
500,000 - 750,000	9,945,277	0	548,230	0	542,271	0	11,035,778	166,502,789	94.7%
750,000 - 1,000,000	3,435,265	0	0	0	0	0	3,435,265	169,938,053	96.7%
Over 1,000,000	5,839,278	0	0	0	0	0	5,839,278	175,777,331	100.0%
<b>Total</b>	<b>\$141,263,904</b>	<b>\$6,855,665</b>	<b>\$7,269,010</b>	<b>\$5,971,040</b>	<b>\$8,419,487</b>	<b>\$5,998,225</b>	<b>\$175,777,331</b>	<b>\$175,777,331</b>	