

**FEDERATED STATES OF MICRONESIA
SOCIAL SECURITY ADMINISTRATION**

**ACTUARIAL VALUATION
AS OF JANUARY 1, 2011**

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JANUARY 2012

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SECTION I

FOREWORD

This report contains the results of the twelfth actuarial valuation of the Federated States of Micronesia Security Administration. The valuation was conducted as of January 1, 2011, and the results contained herein report costs applicable to the fiscal year ending December 31, 2011.

Section 707 of Title 53 stipulates that the Board shall employ an actuary to make actuarial valuations of the Social Security System not less frequently than every three years.

The purpose of this actuarial valuation is to:

- Compare the accrued liability to the market value of Trust assets in order to determine the current funded status.
- Provide a basis for determining the effect of any future proposed changes to the system.
- Project assets and liabilities to judge the System's sustainability (new in 2011 valuation).

In March 2009, Public Law 15-73 and in September 2009, Public Law 16-10 amended Title 53 of the FSM Code. The changes created by these laws are included in the following valuation results.

SECTION II

ACTUARIAL VALUATION RESULTS

A. Introduction

This section contains the detailed results of the actuarial valuation. These results are classified in subsections B through F as noted below:

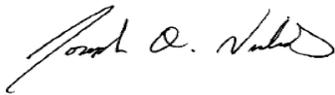
- B. Actuarial Certification
- C. Summary of Valuation Results
- D. Unfunded Accrued Liability, Funded Ratio, and Deficiency
- E. Discussion of the Unfunded Accrued Liability
- F. Comments and Suggestions to Manage the Unfunded Accrued Liability

B. Actuarial Certification

This report presents the results of an actuarial valuation of the Federated States of Micronesia Social Security Administration which was conducted as of January 1, 2011 and was performed using worker data and asset information supplied by the Federated States of Micronesia Social Security Administration. This data was not audited, but was checked for reasonableness and consistency with prior the year's data when possible. The valuation results presented are dependent on the accuracy of the worker and asset information.

This valuation has been completed in accordance with generally accepted actuarial principles and practices. The valuation has been prepared under the supervision of Joseph A. Nichols, an Associate of the Society of Actuaries, an Enrolled Actuary under ERISA, a Member of the American Society of Pension Professionals and Actuaries and a Member of the American Academy of Actuaries.

Certified by:



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C. Summary of Valuation Results

The principal results of this valuation are the calculation of the accrued liability, the funded ratio, and the deficiency.

The accrued liability represents the current value of benefits already earned, as of the valuation date including benefits currently in pay status.

The funded ratio is an indication of how well-funded the Administration is at any point in time with respect to benefits already earned. A funded ratio of 100% would indicate that the Administration's liability for benefits already earned was fully funded by current Trust assets. A funded ratio of 25% would indicate that current Trust assets were only great enough to cover 25% of the benefits already earned. The greater the funded ratio, the better funded the Administration is with respect to benefits already earned.

The deficiency is calculated as the accrued liability less the market value of Trust assets and further reduced by the estimated value of future employee contributions in excess of those needed to fund future benefits and system expenses.

As of January 1, 2011 the total accrued liability stood at \$287,771,000 and the market value of Trust assets was \$42,361,000, resulting in an unfunded accrued liability of \$245,410,000.

In addition, as of January 1, 2011, the estimated value of future employee contributions in excess of those needed to fund future benefits and system expenses was \$58,083,000. When this is subtracted from the unfunded accrued liability, the deficiency is \$187,327,000. The deficiency represents the value of benefits already earned that are not covered by existing assets and are not anticipated to be covered by expected future contributions.

The unfunded accrued liability is greatly affected by the level of Trust assets which, in return is affected by the investment performance of the Trust. After averaging anticipated investment returns for fiscal years 2001 through 2007 the Trust realized drastic negative returns for the 2008 fiscal year, but recovered in 2009 and held steady in 2010. The system realized an investment return of 16.9% in 2009 and 8.1% in 2010.

When discussing the funded status of a retirement system, a common benchmark is the funded ratio of the system which, as mentioned above, is calculated as the market value of Trust assets divided by accrued liability. The funded ratio as of January 1, 2011 is 14.7%.

D. Unfunded Accrued Liability, Funded Ratio, and Deficiency

The accrued liability represents the value of benefits already earned and which are in pay status as well as benefits earned as of the valuation date by those who are still working and are expected to earn future benefits. One can think of this as the amount needed today to pay for all benefits earned as of today that are either already being paid or may be paid in the future.

This determination of the accrued liability does not include former workers who are no longer making contributions, are not fully insured, and therefore are not entitled to a future benefit. Should these workers re-enter the workforce in the future, their benefits will then be included in the category of workers currently earning benefits.

Accrued Liability For:	Accrued Liability and Market Value of Assets as of January 1	
	2009	2011
Workers Earning Benefits	\$ 130,729,000	\$ 138,786,000
Retirees, Spouses, Children, and Disabled Workers Receiving Benefits	105,920,000	110,384,000
Fully Insured Inactive Workers Entitled to a Future Benefit	32,542,000	38,601,000
Total Accrued Liability	\$ 269,191,000	\$ 287,771,000
Market Value of Assets	(36,717,000)	(42,361,000)
Unfunded Accrued Liability	\$ 232,474,000	\$ 245,410,000
Funded Ratio	16%	15%

The unfunded accrued liability is the excess of the accrued liability over the market value of assets. The funded ratio indicates what percentage of the accrued liability is covered by the market value of assets.

The accrued liability increased slower than expected from 2009 to 2011 due to two main factors – a decrease in number of workers, lowering the active worker liability and the new law that lowers the benefits for workers who retire before age 60. The liability for the inactive workers increased at a level expected by the actuarial assumptions.

The unfunded accrued liability can also be further reduced by considering the current value of future employee and employer contributions that are in excess of that needed to pay for future benefits earned and future expenses.

Currently we estimate that a combined employee and employer contribution rate of approximately 8.6% would pay for future benefits earned by new workers who would enter the Administration in the future and would cover future expenses. Since the current combined tax rate is 14% of covered earnings (15% starting 2013), this excess can be used to reduce the unfunded accrued liability as shown below. It is important to note that because the current contribution rate is sufficient to cover future benefits, that the unfunded accrued liability and total deficiency shown below do not exist because of current system provisions, but rather are the result of prior benefits already earned.

	Determination of the Total Deficiency as of January 1	
	2006	2011
Total Accrued Liability	\$ 269,191,000	\$ 287,771,000
Market Value of Assets	(36,717,000)	(42,361,000)
Current Value of Excess Employee Contributions from Active Workers	(63,250,000)	(58,083,000)
Total Deficiency*	\$ 169,224,000	\$ 187,327,000

*The current value of excess employee contributions from active workers includes an allowance for future system expenses.

E. Discussion of the Unfunded Accrued Liability

The unfunded accrued liability is the excess of the accrued liability over the market value of assets. The funded ratio indicates what percentage of the accrued liability is covered by the market value of assets. The accrued liability is expected to increase from year to year as workers earn additional benefits and get closer to retirement age and in fact the accrued liability shown in this valuation is greater than that in the prior valuation.

When the market value of assets equals or exceeds the accrued liability, there is no unfunded accrued liability and the retirement system is said to be fully funded. Although it is not critical that the Administration be fully funded, it is important that there is a positive trend in increasing the funded ratio from year-to-year. It is important to note that the funded ratio can decrease due to poor performance by the Trust assets and also due to increasing benefits payable to both current and future beneficiaries.

Past valuations have gone into great detail describing the danger of an ever increasing unfunded accrued liability and this report agrees that this is a continuing and serious issue. If the Administration were to cease operations with an unfunded accrued liability, there would not be enough money in the Trust at that time to fully provide benefits already in pay status or promised in the future. Therefore it is important that benefits are not increased until a long-term trend of increasing the funded ratio and decreasing the unfunded accrued liability has been realized.

F. Comments and Suggestions to Manage the Unfunded Accrued Liability

Benefit payments and administrative expenses exceeded the amount of contributions collected during each fiscal year from 2005 and on. Since a larger portion of the contributions are for past due collections, the difference between the current year collections and disbursement are even greater. The trend of deficits shows no end. This puts the Administration in the position of having to dip into the Trust in order to meet its financial commitments. As the amount of benefit payments grows in the future, without further changes, it is quite possible that the Trust will run out of money. In fact, based on current provisions and worker demographics, the Trust will continue to diminish over the next 25 years. This projection is based on no growth in the active workforce. The deficit will come even sooner should the workforce continue to decrease. With a modest increase of 1% in active numbers, and a 3% average salary growth, the projections show steady improvement.

The accrued liability is expected to increase from year to year and in fact the accrued liability has increased since the prior valuation. Because the unfunded accrued liability is simply the difference between the accrued liability and Trust assets, the size of the unfunded accrued liability can be limited in three ways; increase the return on invested assets, increase revenue through additional funding, and limit the growth of future benefit payments. We will only deal with the last two of these issues here because the topic of investment return is much better addressed with the Administration's investment advisors. We will first discuss ways that the Administration may increase revenue through additional funding and will then address ways to limit future benefit growth.

Increasing Revenue

The most immediate source of additional revenue could come through an increase in the tax rate levied on workers, self-employed workers, and employers. In the most recent change, projected revenue was increased two ways: first by increasing the percents, then by increasing the maximum taxable wage base. Increasing the percents again, this soon, may be difficult. If the maximum taxable wage base is increased, the benefit earned on the additional amount should be lower than the current 1%. In fact, one option is to eliminate the taxable wage base maximum for contributions, but keep the gradual increase in the taxable wage base for benefits as is. This would increase current annual revenues by approximately \$1,000,000. This is no where near the current deficit, but on an annual basis, would strengthen the System.. Since most of the liability is based on benefits in pay status, continually increasing current worker and employer contributions is quite difficult.

Another source of additional funding is to look directly to the FSM Federal Government for additional funds. Keeping in mind that the more money there is in the Trust the larger the potential dollar amount of investment return; the Federal Government could make investments in Social Security by allocating \$2 million each year. This would speed up the funded percentage and get the System to about 26% by the year 2030.

Following are some other suggestions regarding the increase in revenues:

1. Include all the sole proprietor revenue in the calculation of taxes and benefits.
2. Include all employees working in the FSM on foreign fishing vessels.
3. Change the current law such that anyone working in the FSM, even if covered by another social security system, pays into the FSM SSA.

The additional revenue created by the above suggestions will be valued once all the necessary data is collected.

Limiting Benefit Growth

Since a significant amount of the existing liability is due to benefits already in pay status, any proposals looking at lowering potential future liabilities must include more than just the current workers. Many additional proposals were studied in the last valuation but none were adopted. Below is a repeat of the suggestions. Please note that the savings listed below are based on the 2008 results. However, the impact will be very comparative. Please let us know if you would like us to update the savings for any suggestions below.

1. Limit spousal benefits to a 10 year payout – This change would decrease the unfunded accrued liability by approximately \$23 million. We assumed that the benefit for those already in pay status for at least 10 years would cease.
2. Lower age for cessation of children's benefits – If the highest age for children's benefits is decreased to age 18, the unfunded actuarial accrued liability would decrease by approximately \$.5 million.
3. Lower benefit formula by \$250 – This study applied an across the board decrease of \$250 for each participant. The \$100 minimum was kept in tact. This change decreases the unfunded actuarial accrued liability by approximately \$28 million for active workers and \$15 million for those currently in pay status, for a total decrease of approximately \$43 million.

Changing benefits in pay status is not desirable, but without additional revenue, the only way to make the Trust sustainable is to decrease benefits across the board.

SECTION III

TRUST ASSETS

A. Statement of Net Assets

	<u>2008</u>	<u>2009</u>	<u>2010</u>
ASSETS			
Cash and equivalents	\$ 3,162,579	\$ 1,600,034	\$ 2,780,258
Investments	31,637,481	36,409,513	36,910,189
Other current assets	1,997,739	2,831,584	2,770,894
Fixed assets, net	<u>87,351</u>	<u>66,491</u>	<u>77,190</u>
Total	\$36,885,150	\$ 40,907,622	\$42,538,531
LIABILITIES			
	\$ 167,895	\$ 162,056	\$ 177,461
NET ASSETS			
Held in trust for retirement,			
disability and survivors' benefit	\$ 36,717,255	\$ 40,745,566	\$ 42,361,070

B. Statement of Changes in Net Assets

	<u>12/31/2008</u>	<u>12/31/2009</u>	<u>12/31/2010</u>
Additions:			
Contributions	\$ <u>12,882,778</u>	\$ <u>14,145,653</u>	\$ <u>16,069,490</u>
Investment income:	<u>(8,274,474)</u>	<u>6,149,139</u>	<u>2,981,702</u>
Total additions	<u>4,608,304</u>	<u>20,294,792</u>	<u>19,051,192</u>
Deductions:			
Benefit payments	14,222,788	15,304,704	16,488,738
Administrative expenses, net	<u>989,810</u>	<u>961,778</u>	<u>946,950</u>
Total deductions	<u>15,212,598</u>	<u>16,266,482</u>	<u>17,435,688</u>
Change in net assets	(10,604,294)	4,028,310	1,615,504
Net assets at beginning of year	<u>47,321,550</u>	<u>36,717,256</u>	<u>40,745,566</u>
Net assets at end of year	\$ <u><u>36,717,256</u></u>	\$ <u><u>40,745,566</u></u>	\$ <u><u>42,361,070</u></u>

C. Trust Asset History

<u>Fiscal Year End</u>	<u>Beginning of Year Market Value of Assets</u>	<u>Prior Year Adjustment</u>	<u>Contributions</u>	<u>Trust Gain or (Loss)</u>	<u>Other Income</u>	<u>Benefit Payments</u>	<u>Administrative Expenses</u>
3/31/1996	19,708,993		7,679,774	3,672,982	4,600	(6,140,340)	(738,817)
3/31/1997	24,187,192		8,220,669	2,706,638	7,917	(6,562,802)	(654,383)
3/31/1998	27,905,231		8,953,398	7,876,250	5,057	(7,736,924)	(721,912)
3/31/1999	36,281,100		8,041,629	4,189,816	4,894	(8,222,560)	(803,865)
3/31/2000	39,491,014		8,357,388	4,084,332	9,951	(8,996,669)	(1,018,511)
12/31/2000	41,927,505		6,914,430	(1,527,557)	5,441	(6,893,415)	(666,969)
12/31/2001	39,759,435	(16,237)	10,486,084	(4,305,329)	4,422	(9,582,168)	(823,461)
12/31/2002	35,522,746	90,251	11,715,449	(3,001,899)	4,937	(9,990,634)	(809,256)
12/31/2003	33,531,594		11,398,884	4,120,949	65,454	(10,865,848)	(904,131)
12/31/2004	37,346,902		12,275,901	2,351,940	52,002	(11,321,238)	(923,670)
12/31/2005	39,781,837		12,129,796	3,648,998	65,924	(12,029,049)	(940,444)
12/31/2006	42,657,062		12,130,506	4,142,225		(12,586,560)	(968,012)
12/31/2007	45,375,221		12,855,762	3,723,433		(13,663,880)	(968,986)
12/31/2008	47,321,550		12,901,363	(8,274,474)		(14,241,374)	(989,810)
12/31/2009	36,717,255		14,145,653	6,149,139		(15,304,704)	(961,778)
12/31/2010	40,745,566		16,069,490	2,981,702		(16,488,738)	(946,950)
12/31/2011	42,631,070						

Historical asset information up to and including fiscal year ended 12/31/01 was taken from prior actuarial valuations prepared by the prior actuary.

D. Trust Investment Experience History

<u>Fiscal Year End</u>	<u>Return</u>		<u>Fiscal Year End</u>	<u>Return</u>
3/31/1996	18.26%		12/31/2003	12.55%
3/31/1997	10.96%		12/31/2004	6.43%
3/31/1998	27.97%		12/31/2005	9.44%
3/31/1999	11.71%		12/31/2006	9.88%
3/31/2000	10.56%		12/31/2007	8.37%
12/31/2000	-3.67%	Return for 9 months	12/31/2008	-17.90%
12/31/2001	-10.82%		12/31/2009	17.2%
12/31/2002	-8.32%		12/31/2010	7.4%

Historical trust investment experience information up to and including the fiscal year that ended 12/31/01 was taken from prior actuarial valuations prepared by the prior actuary.

Average Annual Return

5 Year Average 4.24%

15 ¾ Year Average 6.41%

SECTION IV

ACTUARIAL ASSUMPTIONS, AND SUMMARY OF KEY SYSTEM FEATURES

A. Actuarial Assumptions

Actuarial Cost

Method: Individual Entry Age Method, Level Percent of Pay

Investment Income: 7.5% per year

Expenses: 0.75% of Covered Wages

Salary Increase: Salaries are assumed to increase 4.5% per year into the future

Mortality: 1984 Unisex Pension Mortality Table. For participants not yet in receipt of a benefit, males are considered to be four years older and females one year older than actual age. For beneficiaries in receipt of benefits, males are considered to be four years older than they actually are and females are considered to be one year older than they actually are.

Disabled

Mortality: Healthy mortality plus five years.

Retirement Age: Age 65 if eligible, otherwise when eligible but not later than age 70. Active workers who are older than 60 are assumed to retire at the end of the next fiscal year if they earned 4 quarters of coverage during the fiscal year that just ended based on the following schedule:

Age	Percent Retiring
60	20%
61	10
62	10
63	10
64	10

Pre-retirement

Spouse Benefit: 80% of the workers are assumed to be married, and males are assumed to be 3 years older than their spouses.

Surviving male spouses are assumed to remarry 2 years after death of the worker and surviving female spouses are assumed to remarry 6 years after death of the worker.

Representative percentages of those who receive a pre-retirement spouse benefit who remarry are shown in the following table.

Age	Male Spouse Remarry within 2 years		Female Spouse Remarry within 6 years	
	Remarry	Does not Remarry	Remarry	Does not Remarry
20	39.22%	60.78%	76.71%	23.29%
30	32.35%	67.65%	48.92%	51.08%
40	20.70%	79.30%	26.80%	73.20%
50	14.44%	85.56%	9.75%	90.25%
60	7.40%	92.60%	2.52%	97.48%

Surviving spouse benefits continue if the spouse is employed, but the benefits are subject to the earnings test.

Pre-retirement

Children's Benefit: Married workers are assumed to have 3 children, and each child is assumed to be age 13 at the time of death of the worker.

Post Retirement

Survivor's Benefit: 80% of active workers are assumed to be married when they retire. Males are assumed to be 3 years older than their spouses. It is assumed that 60% of female spouses and 5% of male spouses will receive a survivor's benefit. In addition, 40% of female spouses and 90% of male spouses will also be entitled to a retirement benefit based on their own earnings record, but the survivor's benefit will be 15% greater than this benefit.

Disability: Rates are from the 2003 US Social Security Trustees Report Intermediate Assumptions.

Turnover: None for citizens of the Federated States of Micronesia.

5% of citizens of countries other than the Federated States of Micronesia are assumed to leave each year, except that 80% are assumed to leave in their third year of employment. It is assumed that 80% of workers who are not citizens of the Federated States of Micronesia leave when they become disabled or retire. It is also assumed that 80% of the surviving spouses and children of deceased foreign citizens leave after the worker dies. These surviving spouses and children are also assumed to not be citizens of the Federated States of Micronesia.

Earnings Applied

To the Earnings Test: Retirees: 80% of what the retiree was earning prior to retirement.

Surviving Spouses of Active Workers: 75% of what the worker was earning prior to death.

Surviving Spouses of Inactive Workers: Quarterly earnings of twice the quarterly benefit plus \$300.

Children: None

Disabled: None

Workers included

In the Valuation:

Workers who have covered quarters in at least one of the last two years, are not currently indicated in the data files supplied by the Administration as deceased, disabled, retired, having received a lump sum or closed with no future benefits payable, and who are age 21 or older are assumed to continue working and earn 4 quarters of coverage until they become disabled, die, or retire. Workers who have not earned any quarters of coverage during the last two years are assumed to stay out of the work force. Salary used as a basis to project future salaries is the greatest of the salaries earned during the last two years. If this salary is based on less than four quarters of coverage, it is converted to an annual salary.

B. Summary of Key Features

Applicable Laws

Public Law 2-74, as amended by Public Laws 5-120, 6-111, 7-118, 7-119, 7-120, 9-56, 12-51, 12-76, 14-37, 15-73 and 16-10.

Workers and Employer's Contributions

Workers, self-employed workers and employers each pay 6% of Maximum Covered Earnings per quarter. Effective October 1, 2009, contributions increase to 7% each and effective January 1, 2013, the rate increases to 7.5%.

Self-employed with employees - remuneration shall be deemed to be twice the amount paid to the highest paid employee reported by the self-employed person in the quarter, up to maximum covered earnings.

Self-employed with no employees - Remuneration is deemed to be 5% of the gross revenue of the business for the previous calendar year subject to maximum covered earnings.

Coverage

All employees employed by an employer incorporated or doing business in the Federated States of Micronesia are covered unless both the employer and employee are currently subject to another recognized social security system.

Eligibility for and Computation of Benefits is based on the following definitions:

Quarters of Coverage: A calendar quarter in which contributions were made for at least \$300 of earnings.

Currently Insured: Credited with at least 20 quarters of coverage during the most recent previous 25 calendar quarters.

Fully Insured: Credited with at least one quarter of coverage for each year since the later of attainment of age 21 or June 30, 1968, and having not less than 12 quarters of coverage. If age 60 on or before December 31, 2006, no more than 38 quarters are required. No more than 50 quarters for everyone else.

Maximum Covered Earnings: Effective January 1, 2008, the \$5,000 quarterly limit increases to \$6,000; \$7,000 on January 1, 2013; \$8,000 on January 1, 2018; \$9,000 on January 1, 2023 and \$10,000 on October 1, 2028.

Minimum Benefit: \$75 per month. \$100 per month effective January 1, 2012.

Basic Benefit

A worker's Basic Benefit is calculated as 1/12 of:

1. 16.5% of the first \$10,000 of Cumulative Maximum Covered Earnings for which contributions have been made, plus
2. 3.0% of the next \$30,000 of Cumulative Maximum Covered Earnings for which contributions have been made, plus
3. 2.0% of the next \$262,500 of Cumulative Maximum Covered Earnings for which contributions have been made, plus
4. 1.0% of Cumulative Maximum Covered Earnings in excess of \$302,500 for which contributions have been made.

Old Age Insurance Benefit

Eligibility: Age 60 and Fully Insured

Amount: Greater of the Basic Benefit or the Minimum Benefit, subject to the earnings test. Active workers who turn 60 after January 1, 2010 will receive 50% of the Basic Benefit from ages 60 to 64. The reduced benefit will not be subject to the earnings test.

Disability Insurance Benefit

Eligibility: Disabled for three months and Currently and Fully Insured at time of disability

Amount: Unreduced Basic Benefit earned at time of disability. Sum of disability benefit and workers compensation benefit may not exceed 80% of the highest covered compensation earned in the year of disability and the prior five years. The benefit ceases should the worker recover from the disability.

Surviving Spouse Benefit

Eligibility: Worker must have been Fully Insured at time of death.

Amount: 60% of the Basic Benefit earned at the time of death, subject to the earnings test. Paid until the earlier of the date the spouse remarries or dies. This benefit is reduced by any Old Age Insurance Benefit that the spouse may be entitled to based on his or her own earnings history.

Surviving Child Benefit

Eligibility: Worker must have been Fully or Currently Insured at time of death.

Amount: 15% of the Basic Benefit for each dependent child under the age of 18 or 22 if a student. The benefit ceases if the child marries or is adopted by a close relative.

The sum of all survivors' benefits cannot exceed 100% of the Basic Benefit earned at the time of death.

Payment to Foreign Citizens residing outside the FSM

Payments to citizens and nationals of the Republic of Palau, the Republic of the Marshall Islands and the United States shall be made as if they were citizens or nationals of the Federated States of Micronesia as long as those nations give citizens and nationals of the Federated States of Micronesia reciprocal treatment. For citizens and nationals of other countries who are fully insured, a lump sum payment equal to total worker paid contributions as of the date the worker turned age 60, became disabled, or died. The lump sum payment is reduced by any payments already made to the employee, surviving spouse or child before the lump sum is paid.

Lump Sum Death Benefit

Eligibility: After the death of any covered worker and rights to all survivors benefits have ceased.

Amount: Four percent of total Maximum Covered Earnings for which contributions have been paid, less the value of any benefits already paid.

Lump Sum Benefit (other than death)

Eligibility: Age 60 and not Fully Insured, native born citizen of the Federated States of Micronesia or resident for at least 10 years and must have lived in the Federated States of Micronesia for at least one year immediately preceding death.

Amount: Four percent of total Maximum Covered Earnings for which contributions have been paid.

Earnings Test

Benefits are reduced by \$1 for every \$2 of earnings in excess of \$300 received each quarter.

SECTION V

AGE, SERVICE, BENEFIT, AND COMPENSATION DATA

A. Summary of Characteristics of Workers and Beneficiaries Included in the January 1, 2011 Valuation

Active Workers – Average Age, Average Completed Years of Service, and Average Valuation Compensation

Worker	Number of Workers	Average Age	Average Completed Years of Service	Average Valuation Compensation
Men	12,108	40.9	10.5	\$ 5,977
Women	7,503	38.1	9.2	\$ 5,331
Total	19,611	39.8	10.0	\$ 5,718

The average annual accrued basic benefit is as of January 1, 2011 and is based on total remuneration for which contributions have been made through December 31, 2008.

Status	Number	Average Age	Average Annual Accrued Basic Benefit
Active	19,611	39.8	\$ 2,431
Inactive and Fully Insured	1,623	54.6	\$ 3,272
Retired	2,523	69.7	\$ 3,926
Disabled	342	57.1	\$ 3,851
Spouse	2,056	65.1	\$ 1,896
Child	1,421	14.2	\$ 478

Active Status- Not in pay status and currently earning additional benefits

Inactive and Fully Insured Status - Not in pay status, not currently earning additional benefits, and entitled to a benefit in the future. The number of inactive and fully insured has decreased due to the change in fully insured definition. The participants in this group needs to be further determined.

B. Age and Service Summary

Distribution by Attained Age and Covered Services – Men

Nearest Age	Under 5	5-9	10-14	15-19	20-24	25-29	30 & More	Total
Under 20	103 \$1,288.39	5 \$3,397.49	0 \$0.00	0 \$0.00	0 \$0.00	0 \$0.00	0 \$0.00	108 \$1,386.03
20-24	776 \$2,088.09	19 \$4,130.88	0 \$0.00	1 \$1,000.00	0 \$0.00	0 \$0.00	0 \$0.00	796 \$2,135.48
25-29	1,196 \$2,984.35	271 \$5,837.15	11 \$8,738.28	0 \$0.00	0 \$0.00	0 \$0.00	0 \$0.00	1,478 \$3,550.25
30-34	894 \$3,265.27	573 \$5,446.89	214 \$7,119.56	14 \$10,321.93	1 \$10,750.00	0 \$0.00	0 \$0.00	1,696 \$4,551.33
35-39	558 \$3,364.30	492 \$4,870.20	413 \$6,928.01	189 \$10,255.15	18 \$13,740.03	0 \$0.00	0 \$0.00	1,670 \$5,580.98
40-44	399 \$3,967.84	377 \$4,781.92	343 \$5,821.37	349 \$9,610.13	138 \$11,683.37	5 \$11,165.44	1 \$19,999.49	1,612 \$6,466.97
45-49	274 \$4,318.15	269 \$3,786.56	264 \$5,623.37	329 \$7,559.68	316 \$9,940.47	120 \$13,846.40	3 \$10,709.08	1,575 \$6,989.42
50-54	174 \$4,424.62	161 \$4,970.72	184 \$5,120.27	237 \$6,260.84	268 \$9,165.16	358 \$11,554.02	60 \$12,729.56	1,442 \$7,872.74
55-59	100 \$4,054.47	87 \$4,507.06	125 \$5,711.71	118 \$4,914.45	185 \$7,134.72	354 \$10,847.98	226 \$13,293.01	1,195 \$8,582.22
60-64	36 \$3,366.36	34 \$6,059.84	32 \$4,412.15	31 \$3,566.74	38 \$8,844.91	79 \$10,395.57	166 \$14,429.66	416 \$9,931.88
65-69	12 \$4,275.83	6 \$1,357.94	9 \$3,232.55	9 \$11,000.93	8 \$12,794.44	7 \$20,528.23	14 \$16,661.46	65 \$10,259.58
70 & Older	23 \$4,557.21	6 \$2,008.49	6 \$6,872.76	5 \$6,339.33	4 \$10,674.01	7 \$11,970.24	4 \$20,807.44	55 \$7,263.95
Total	4,545 \$3,154.62	2,300 \$4,971.54	1,601 \$6,139.84	1,282 \$7,979.56	976 \$9,496.83	930 \$11,551.25	474 \$13,780.45	12,108 \$5,977.49

B. Age and Service Summary (continued)

Distribution by Attained Age and Covered Services – Women

Nearest Age	Under 5	5-9	10-14	15-19	20-24	25-29	30 & More	Total
Under 20	86	0	0	0	0	0	0	86
	\$1,108.99	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,108.99
20-24	740	16	1	0	0	0	0	757
	\$2,089.12	\$5,603.97	\$21,469.18	\$0.00	\$0.00	\$0.00	\$0.00	\$2,189.01
25-29	952	259	13	0	0	0	0	1,224
	\$3,047.18	\$5,147.85	\$6,699.27	\$0.00	\$0.00	\$0.00	\$0.00	\$3,530.48
30-34	533	454	168	6	0	0	0	1,161
	\$2,916.54	\$5,807.80	\$7,619.48	\$9,173.50	\$0.00	\$0.00	\$0.00	\$4,760.01
35-39	303	289	338	143	14	0	0	1,087
	\$3,002.50	\$5,477.52	\$7,655.88	\$8,793.44	\$11,884.68	\$0.00	\$0.00	\$5,983.71
40-44	214	204	189	233	124	11	0	975
	\$2,851.16	\$4,032.84	\$5,926.94	\$8,103.81	\$10,413.53	\$10,541.97	\$0.00	\$5,998.43
45-49	154	131	139	133	143	95	2	797
	\$3,510.32	\$3,680.14	\$4,503.84	\$7,271.46	\$9,198.81	\$11,648.56	\$14,040.79	\$6,356.27
50-54	94	90	95	105	129	187	40	740
	\$3,109.33	\$4,124.70	\$4,208.29	\$6,167.62	\$8,145.88	\$10,503.63	\$14,261.98	\$7,157.25
55-59	57	47	60	60	53	123	104	504
	\$3,532.12	\$2,995.14	\$4,007.42	\$5,132.72	\$8,332.46	\$10,419.31	\$12,708.82	\$7,808.38
60-64	17	13	13	14	13	24	33	127
	\$7,485.53	\$3,467.73	\$9,184.56	\$7,234.04	\$8,494.23	\$10,587.20	\$11,492.71	\$8,951.08
65-69	6	0	4	1	0	6	1	18
	\$9,267.78	\$0.00	\$8,409.38	\$1,000.00	\$0.00	\$16,312.73	\$24,000.00	\$11,784.48
70 & Older	9	5	1	3	4	4	1	27
	\$1,533.21	\$7,142.49	\$6,138.80	\$1,871.04	\$7,540.06	\$14,315.70	\$24,000.00	\$6,395.79
Total	3,165	1,508	1,021	698	480	450	181	7,503
	\$2,795.43	\$5,000.19	\$6,387.81	\$7,494.63	\$9,179.41	\$10,839.02	\$12,969.82	\$5,300.84

B. Age and Service Summary (continued)

Distribution by Attained Age and Covered Services – Everyone

Nearest Age	Under 5	5-9	10-14	15-19	20-24	25-29	30 & More	Total
Under 20	189 \$1,206.75	5 \$3,397.49	0 \$0.00	0 \$0.00	0 \$0.00	0 \$0.00	0 \$0.00	194 \$1,263.22
20-24	1,516 \$2,088.59	35 \$4,804.29	1 \$21,469.18	1 \$1,000.00	0 \$0.00	0 \$0.00	0 \$0.00	1,553 \$2,161.57
25-29	2,148 \$3,012.20	530 \$5,500.30	24 \$7,633.82	0 \$0.00	0 \$0.00	0 \$0.00	0 \$0.00	2,702 \$3,541.29
30-34	1,427 \$3,135.02	1,027 \$5,606.43	382 \$7,339.42	20 \$9,977.40	1 \$10,750.00	0 \$0.00	0 \$0.00	2,857 \$4,636.13
35-39	861 \$3,236.98	781 \$5,094.93	751 \$7,255.60	332 \$9,625.56	32 \$12,928.32	0 \$0.00	0 \$0.00	2,757 \$5,739.76
40-44	613 \$3,578.01	581 \$4,518.90	532 \$5,858.87	582 \$9,007.09	262 \$11,082.38	16 \$10,736.80	1 \$19,999.49	2,587 \$6,290.38
45-49	428 \$4,027.48	400 \$3,751.71	403 \$5,237.23	462 \$7,476.70	459 \$9,709.41	215 \$12,875.26	5 \$12,041.76	2,372 \$6,776.68
50-54	268 \$3,963.29	251 \$4,667.37	279 \$4,809.74	342 \$6,232.22	397 \$8,833.96	545 \$11,193.61	100 \$13,342.53	2,182 \$7,630.09
55-59	157 \$3,864.82	134 \$3,976.76	185 \$5,158.96	178 \$4,988.02	238 \$7,401.44	477 \$10,737.44	330 \$13,108.90	1,699 \$8,352.67
60-64	53 \$4,687.60	47 \$5,342.87	45 \$5,790.84	45 \$4,707.68	51 \$8,755.52	103 \$10,440.22	199 \$13,942.63	543 \$9,702.48
65-69	18 \$5,939.82	6 \$1,357.94	13 \$4,825.42	10 \$10,000.84	8 \$12,794.44	13 \$18,582.62	15 \$17,150.70	83 \$10,590.28
70 & Older	32 \$3,706.71	11 \$4,342.12	7 \$6,767.91	8 \$4,663.72	8 \$9,107.03	11 \$12,823.14	5 \$21,445.95	82 \$6,978.09
Total	7,710 \$3,007.17	3,808 \$4,982.89	2,622 \$6,236.40	1,980 \$7,808.61	1,456 \$9,392.19	1,380 \$11,319.00	655 \$13,556.45	19,611 \$5,718.61

C. Accrued Benefit Detail

Average Accrued Benefit Distribution by Nearest Age, Sex and Status

Nearest Age	ACTIVE EMPLOYEES			
	Men		Women	
	Number	Avg Acc Ben	Number	Avg Acc Ben
Under 20	108	\$286.08	86	\$218
20-24	796	\$516.03	757	\$566
25-29	1,478	\$1,054.97	1,224	\$1,173
30-34	1,696	\$1,611.92	1,161	\$1,742
35-39	1,670	\$2,114.83	1,087	\$2,321
40-44	1,612	\$2,603.70	975	\$2,785
45-49	1,575	\$3,130.11	797	\$3,081
50-54	1,442	\$3,790.40	740	\$3,690
55-59	1,195	\$4,409.91	504	\$4,194
60-64	416	\$4,808.33	127	\$4,195
65-69	65	\$4,185.80	18	\$3,380
70 & Older	55	\$2,940.25	27	\$2,876
Total	12,108	\$2,524.22	7,503	\$2,281

SECTION VI

EXPLANATION OF THE UNFUNDED ACCRUED LIABILITY

Although the accrued liability is often discussed, not very many people other than actuaries, really understand the ins and outs of what it is. The accrued liability can be a fairly complicated concept to explain.

However, one can think of the accrued liability as the current value of benefits already earned including benefits that are already in pay status. The unfunded accrued liability is simply the accrued liability less the market value of assets. Both of these numbers change depending on when they are measured and the accrued liability changes depending on the actuarial assumptions and method used to calculate it.

An active worker will earn the right to a future retirement benefit along with other future benefits such as disability and survivor benefits. The dollar amount of each of these benefits depends on the total amount of his earnings on which social security tax has been paid. When the valuation is performed, the worker's current pay is projected into the future (up to the wage base) until his retirement age and then the dollar amount of the various benefits that he may become entitled to in the future is calculated. As part of the valuation process a theoretical annual payment on behalf of this worker is calculated, known as the "normal cost". The normal cost is the theoretical annual payment that, if made each year during the worker's years of employment, would be sufficient to fund all of his future potential benefits. It is important to note that the normal cost is calculated separately for each worker and that it is not necessarily equal to the amount contributed each year by the employee and his employer.

The accrued liability for someone who is still working is calculated as the current value of all benefits that he might receive in the future, less the current value of his future normal costs (not the employee and employer contributions actually collected). But more simply the accrued liability for an active worker can be approximated as the current accumulated value of all of his past normal costs (again, not employee and employer contributions actually collected).

For someone who is no longer working but is entitled to future benefits, the accrued liability is just the current value of all benefits that he might receive in the future. For someone who is currently receiving a benefit, the accrued liability is the current value of the benefits that are currently being paid and will continue into the future.

Having said all of this, perhaps a very simple example will illustrate the concept of the accrued liability for an active worker would be helpful.

Suppose you borrow \$12,000 from a good friend who is not going to charge you any interest and you promise to pay back all \$12,000 at once in 5 years. You plan to put a little bit aside each month and will keep the money in a box, not a bank and your savings will not earn any interest. (This example has been simplified by not assuming any interest to be paid or earned but it works with interest too.) Five years is 60 months, so if you put exactly \$200 into the box each and every month you will have accumulated exactly \$12,000 in 5 years. Think of this \$200 payment as the normal cost as described above.

Now let's say that you don't put \$200 in the box a few times. After 3 years you should have made 36 payments of \$200 and there should be \$7,200 in the box. This \$7,200 represents the "accrued liability" associated with your efforts to save money after 3 years. But when you count the money in the box you find that there is only \$6,800. The amount that is actually in the box represents the "market value of assets" at that point in time. When we subtract the market value of assets from the accrued liability, we arrive at the "unfunded accrued liability", which in this example is \$400 ($\$7,200 - \$6,800$). In other words, you have \$400 less than you would have if you had made each \$200 payment as was scheduled.

To follow the first definition of the accrued liability described above, we can calculate the current value of the future benefits as the value today of what you must pay in the future. This is still \$12,000, what you must pay in two more years. The current value today of what you should deposit in the future is 24 more payments of \$200 each, or \$4,800. We can now calculate the accrued liability as the value of what you need to pay in the future, less the value today of the remaining 24 month payments of \$200 each, which is \$7,200 ($\$12,000 - \$4,800$). In this very simple example, the accrued liability is the same either way it is calculated.

Now the \$400 shortfall may not be a bad thing. Maybe you missed two payments because you had other more pressing expenses and the next month you plan to put \$600 in the box. If you do, your accrued liability will be \$7,400 (one more month will have gone by so it has increased by \$200) but the market value of assets will be \$7,400 and the unfunded accrued liability has gone away.

Some would think it best if you made all of your payments exactly on time so that at any time there was no unfunded accrued liability. However the most important thing to you is that at the end of 5 years there is exactly \$12,000 in the box. A problem comes up if for some reason, there is not enough money in the box to pay off the debt when it comes due. This is the danger of an unfunded accrued liability that does not decrease over time, or even worse, one that increases over time. To expand on our example, you could borrow more money each year (increasing the accrued liability with each loan) until you have borrowed so much that you simply don't earn enough money to put sufficient funds in the box to ever pay it off. This would be like increasing and increasing benefits in a retirement system without a clear-cut plan on how to pay for the increases.

SECTION VII

PROJECTION OF FUNDED STATUS

An actuarial valuation collects data, and using certain assumptions, determines a liability by projecting life expectancy and salary information into the future. Using the same assumptions as those used in the valuation, and with a few additional assumptions, a cash flow projection can show the sustainability of the System.

Below is a projection of the Systems assets using the same assumptions as those in Section IV. The following assumptions have also been utilized:

- 1) Annual increase in number of active workers: 1%
- 2) Annual increase in worker's average salary: 3%
- 3) Additional annual contribution from FSM: \$2,000,000

Year	Total Workers		Accrued Liability	Assets	Funded Status
	Number	Payroll			
2011	19,650	116,708,665	287,771,000	42,361,000	15%
2012	19,846	121,769,631	301,966,438	45,885,509	15%
2013	20,045	126,696,001	317,201,298	50,055,907	16%
2014	20,245	131,587,310	333,408,706	56,128,448	17%
2015	20,447	136,417,598	350,648,115	62,953,663	18%
2016	20,652	141,024,950	368,645,936	70,232,669	19%
2017	20,858	145,574,121	387,154,246	77,679,849	20%
2018	21,067	149,891,339	406,159,475	85,262,727	21%
2019	21,278	154,266,536	425,502,826	92,783,214	22%
2020	21,490	158,715,855	445,241,698	100,287,460	23%
2021	21,705	162,941,692	465,346,526	107,732,157	23%
2022	21,922	167,046,340	485,893,999	115,159,403	24%
2023	22,142	171,265,640	506,811,088	122,461,064	24%
2024	22,363	175,424,573	528,152,602	129,678,974	25%
2025	22,587	179,509,064	550,046,751	136,915,639	25%
2026	22,813	183,591,495	572,566,870	144,213,132	25%
2027	23,041	187,650,727	595,749,652	151,579,343	25%
2028	23,271	191,714,140	619,716,723	159,106,367	26%
2029	23,504	195,654,055	644,806,247	167,111,083	26%
2030	23,739	199,402,303	670,812,770	175,332,210	26%

With the additional contribution, the funded status continues to increase and will indefinitely. Without the additional contribution, the projected funded status in 2030 is 14%.