



Estimate of EEOICPA Liabilities

Liability Estimates as of September 30, 2016

Report prepared for:

U.S. Department of Labor

Office of Workers' Compensation Programs

Report Date: September 29, 2016



September 29, 2016

Ms. Zoya Kaplan
Acting Director, Division of Financial Administration
Office of Workers' Compensation Programs
US Department of Labor
Frances Perkins Building
200 Constitution Ave NW
Washington DC 20210

Re: Estimate of EEOICPA Liabilities as of September 30, 2016

Dear Ms. Kaplan:

Attached is the actuarial report documenting our analysis of the EEOICPA liabilities as of September 30, 2016. If there are any questions regarding this report or the analysis which it documents, I can be reached by telephone at (651) 293-8008 or by email at chris.gross@cgconsult.com.

Sincerely,

Chris Gross, ACAS, MAAA
President and CEO

Jennifer Nelson
Senior Vice President

CG/jn
Enclosure

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Introduction

The Energy Employees Occupational Illness Compensation Program Act (“EEOICPA”) provides compensation and medical benefits to claimants who are (or were) employed in various energy- related activities either directly for the Department of Energy (“DOE”) or through its contractors or subcontractors. Eligible claimants also include survivors of deceased workers who otherwise would have been eligible for benefit payments.

The Office of Workers’ Compensation Programs (“OWCP”) at the U.S. Department of Labor maintains a model to estimate the future liabilities of the EEOICPA program. The OWCP has requested that Gross Consulting perform the annual data updates to the model, review the reasonableness of the EEOICPA model, and make enhancements as needed.

Distribution and Use

This analysis is provided to the OWCP to aid in their review of the of the EEOICPA program liability as of 9/30/2016. The report is not intended for and may not be appropriate for any other purpose. We understand a copy of this report may be provided to OWCP’s auditors. If this report is shared, we request that the report be shared in its entirety.

Qualification

I, Chris Gross, am a member in good standing of the Casualty Actuarial Society and the American Academy of Actuaries and am qualified to provide this analysis.

A handwritten signature in black ink, appearing to read "C. Gross".

Chris Gross, ACAS, MAAA

Executive Summary

Part B of EEOICPA, effective July 31, 2001 provides lump sum compensation of \$150,000 and medical expenses to employees of the Department of Energy (“DOE”), or its contractors or subcontractors, who develop cancer, beryllium disease, or chronic silicosis after working at a covered facility. If the employee is no longer living, compensation benefits are available to survivors. Part B also covers employees who are a member of the Special Exposure Cohort (“SEC”). A worker who is included in a designated SEC class of employees, and who is diagnosed with one of 22 specified cancers, may receive a presumption of causation under the EEOICPA. The National Institute for Occupational Safety and Health (“NIOSH”) has responsibility for designating additional facilities to the SEC.

Part E of the Act, effective October 28, 2004, provides wage loss, impairment benefit, and medical expenses to employees of the DOE and its contractors and subcontractors, who develop an illness due to exposure to toxic substances at certain DOE worksites. Part E also pays survivor benefits to certain survivors. Part E pays a maximum compensation amount of \$250,000 per case.

In certain instances, claimants can file and receive benefits under both Part B and Part E of the Act. In the discussion that follows, these cases are counted as two separate cases for purposes of calculating compensation benefits, but as one individual for purposes of calculating medical benefits (if eligible for medical benefits).

With the guidance of OWCP staff, we have updated the EEOICPA liability model for fiscal year 2016. We have made several adjustments to the model assumptions and believe that the updated assumptions contained in the model are reasonable, and that the calculations performed in the model are mathematically correct.

As of 9/30/2016, the **discounted** liability for future EEOICPA benefit payments is projected at \$15.4 billion. This is an 8.3% increase over the comparable estimate as of last year. The future medical payments are projected at \$10.1 billion, and the future compensation payments are projected at \$5.2 billion, on a discounted basis. The revision of projected compensation benefits is largely due to changed estimates of the number and timing of future approved claims. The increase in the projected medical payments is mainly due to an increase in the assumed medical inflation as well as a decrease in the estimated mortality rates.

ESTIMATED LIABILITY FOR EEOICPA AS OF SEPTEMBER 30, 2016

SUMMARY OF LIABILITY FOR FUTURE PAYMENTS (\$ Millions)

	Discounted ¹ Liability			
	Estimate as of 9/30/2016	Estimate as of 9/30/2015 ²	\$ diff	% diff
Compensation: Part B	\$ 2,386	\$ 2,431	\$ (45)	-1.9%
Compensation: Part E	2,850	3,025	(175)	-5.8%
Compensation: Total	5,237	5,457	(220)	-4.0%
Medical Payments	10,137	8,737	1,400	16.0%
Total Future Payments	\$ 15,373	\$ 14,194	\$ 1,180	8.3%

1- The discount rates used for the 9/30/2016 estimates were 2.414% for compensation and 2.949% for medical.

2- The estimates as of 9/30/2015 reflect the liability for estimated payments after 9/30/2016 (and discounted to 9/30/16 using the 9/30/2015 discount rates) in order to provide a comparable basis to the 9/30/2016 estimates.

As of 9/30/2016, the **undiscounted** liability for future EEOICPA benefit payments is projected at \$22.3 billion. This is a 7.6% increase over the comparable estimate as of last year. The future medical payments are projected at \$15.7 billion, and the future compensation payments are projected at \$6.6 billion, on a undiscounted basis. The revision of projected compensation benefits is largely due to changed estimates of the number and timing of future approved claims. The increase in the projected medical payments is mainly due to an increase in the assumed medical inflation as well as a decrease in the estimated mortality rates.

ESTIMATED LIABILITY FOR EEOICPA AS OF SEPTEMBER 30, 2016

SUMMARY OF LIABILITY FOR FUTURE PAYMENTS (\$ Millions)

	Undiscounted Liability				
	Estimate as of 9/30/2016	Estimate as of 9/30/2015 ¹	\$ diff	% diff	
Compensation: Part B	\$ 2,919	\$ 2,774	\$ 145	5.2%	
Compensation: Part E	3,664	3,876	(212)	-5.5%	
Compensation: Total	6,582	6,649	(67)	-1.0%	
Medical Payments	15,681	14,037	1,644	11.7%	
Total Future Payments	\$ 22,264	\$ 20,686	\$ 1,577	7.6%	

1- The estimates as of 9/30/2015 reflect the liability for estimated payments after 9/30/2016 in order to provide a comparable basis to the 9/30/2016 estimates.

Cash Flows

Discounted Cash Flow by Year

The following exhibits document the estimated cash flows by year, on a discounted and undiscounted basis. For informational purposes, the cash flows for the Department of Justice RECA Section 5 payments are displayed in column 4. The RECA compensation liability is included as part of Part B compensation liability in the Executive Summary.

ESTIMATED LIABILITY FOR EEOICPA AS OF SEPTEMBER 30, 2016

SUMMARY OF ESTIMATED DISCOUNTED FUTURE PAYMENTS BY YEAR

Fiscal Year	Compensation Part B Discounted Payments	Compensation Part E Discounted Payments	Compensation DOJ RECA Discounted Payments	Compensation Total Discounted Payments	Medical Total Discounted Payments	Total Discounted Payments
(1)	(2)	(3)	(4)	(5)	(6)	(7)
2017	\$ 240,583,959	\$ 250,971,364	\$ 18,720,549	\$ 510,275,872	\$ 500,077,697	\$ 1,010,353,569
2018	215,721,310	227,452,934	16,773,119	459,947,363	505,407,587	965,354,951
2019	193,469,497	207,704,889	15,028,274	416,202,660	506,869,576	923,072,235
2020	173,546,019	190,483,000	13,464,938	377,493,957	504,741,461	882,235,419
2021	155,700,593	175,180,551	12,064,231	342,945,375	499,328,476	842,273,851
2022	139,711,165	161,479,787	10,809,234	312,000,186	485,820,274	797,820,459
2023	125,380,466	149,078,290	9,684,789	284,143,546	469,994,098	754,137,644
2024	112,533,043	137,878,475	8,677,316	259,088,834	452,278,404	711,367,238
2025	101,012,676	127,933,839	7,774,647	236,721,162	433,092,918	669,814,080
2026	90,680,143	118,946,000	6,965,880	216,592,023	412,845,590	629,437,612
2027	81,411,257	110,729,037	6,241,245	198,381,539	391,925,353	590,306,892
2028	73,095,161	103,247,389	5,591,991	181,934,541	370,690,303	552,624,844
2029	65,632,826	96,426,201	5,010,277	167,069,304	349,459,031	516,528,335
2030	58,935,735	88,796,475	4,489,077	152,221,287	328,505,686	480,726,973
2031	52,924,726	79,293,123	4,022,095	136,239,944	308,057,825	444,297,769
2032	47,528,963	70,166,395	3,603,691	121,299,049	288,297,621	409,596,670
2033	42,685,035	62,391,786	3,228,812	108,305,633	269,362,781	377,668,414
2034	38,336,156	55,830,500	2,892,931	97,059,587	251,347,310	348,406,898
2035	34,431,455	50,080,668	2,591,990	87,104,113	234,306,695	321,410,808
2036	30,925,343	45,052,547	2,322,355	78,300,244	218,264,617	296,564,862
2037	19,924,395	40,363,085	-	60,287,481	203,068,567	263,356,048
2038	17,895,924	35,849,786	-	53,745,710	188,712,562	242,458,272
2039	16,074,397	32,182,144	-	48,256,541	175,329,231	223,585,772
2040	14,438,613	29,054,774	-	43,493,387	162,872,129	206,365,516
2041	12,969,563	26,159,772	-	39,129,336	151,289,638	190,418,973
After 2041	70,908,207	177,617,489	-	248,525,697	1,474,626,070	1,723,151,766
Total	\$ 2,226,456,629	\$ 2,850,350,300	\$ 159,957,442	\$ 5,236,764,370	\$ 10,136,571,501	\$ 15,373,335,871

Undiscounted Cash Flow by Year

ESTIMATED LIABILITY FOR EEOICPA AS OF SEPTEMBER 30, 2016

SUMMARY OF UNDISCOUNTED EEOICPA PAYMENTS BY YEAR

Fiscal Year	Compensation Part B Undiscounted Payments	Compensation Part E Undiscounted Payments	Compensation DOJ RECA Undiscounted Payments	Compensation Total Undiscounted Payments	Medical Total Undiscounted Payments	Total Undiscounted Payments
(1)	(2)	(3)	(4)	(4)	(5)	(6)
2001	\$ 3,450,000	\$ -	\$ -	\$ 3,450,000	\$ -	\$ 3,450,000
2002	349,784,562	-	-	349,784,562	3,822,401	353,606,963
2003	305,475,709	-	-	305,475,709	14,738,401	320,214,111
2004	244,972,776	-	-	244,972,776	23,002,548	267,975,324
2005	333,389,802	194,322,376	57,401,504	585,113,681	32,552,187	617,665,869
2006	461,486,995	279,589,236	81,541,667	822,617,898	41,293,195	863,911,093
2007	464,147,505	359,932,987	77,826,238	901,906,729	60,256,316	962,163,045
2008	484,748,119	458,867,964	45,375,397	988,991,480	77,063,027	1,066,054,507
2009	435,595,504	426,118,558	36,347,424	898,061,486	120,195,778	1,018,257,264
2010	451,884,601	387,591,188	29,064,719	868,540,508	217,045,131	1,085,585,639
2011	570,447,557	337,807,622	31,602,857	939,858,036	319,622,272	1,259,480,308
2012	494,651,347	285,606,743	26,775,000	807,033,091	340,680,645	1,147,713,736
2013	541,333,718	312,077,772	22,951,905	876,363,395	389,272,258	1,265,635,652
2014	351,862,430	267,537,881	21,252,229	640,652,540	410,757,590	1,051,410,131
2015	283,352,906	263,216,216	18,186,667	564,755,788	443,404,479	1,008,160,267
2016	286,385,583	263,467,639	15,198,810	565,052,032	517,885,200	1,082,937,232
2017	243,470,491	253,982,524	18,945,158	516,398,174	507,397,768	1,023,795,942
2018	223,579,532	235,738,511	17,384,125	476,702,168	527,928,315	1,004,630,483
2019	205,357,621	220,467,735	15,951,717	441,777,073	545,069,090	986,846,163
2020	188,656,731	207,068,422	14,637,335	410,362,489	558,787,193	969,149,682
2021	173,343,374	195,030,650	13,431,256	381,805,280	569,096,520	950,901,800
2022	159,296,936	184,117,249	12,324,554	355,738,738	570,029,540	925,768,279
2023	146,408,239	174,080,466	11,309,042	331,797,747	567,722,707	899,520,454
2024	134,578,297	164,888,906	10,377,205	309,844,408	562,434,360	872,278,768
2025	123,717,226	156,689,439	9,522,149	289,928,814	554,458,707	844,387,521
2026	113,743,299	149,198,159	8,737,548	271,679,006	544,124,032	815,803,038
2027	104,582,113	142,244,170	8,017,596	254,843,879	531,784,591	786,628,470
2028	96,165,857	135,834,897	7,356,966	239,357,720	517,804,414	757,162,135
2029	88,432,665	129,923,187	6,750,771	225,106,623	502,542,648	727,649,271
2030	81,326,044	122,531,194	6,194,524	210,051,762	486,341,890	696,393,652
2031	74,794,366	112,058,754	5,684,111	192,537,232	469,518,993	662,056,225
2032	68,790,415	101,554,404	5,215,755	175,560,574	452,359,913	627,920,487
2033	63,270,981	92,481,814	4,785,990	160,538,784	435,113,715	595,652,500
2034	58,196,494	84,753,915	4,391,636	147,342,045	417,985,831	565,327,876
2035	53,530,704	77,860,591	4,029,776	135,421,071	401,138,318	536,559,389

**ESTIMATED LIABILITY FOR EEOICPA
AS OF SEPTEMBER 30, 2016**

SUMMARY OF UNDISCOUNTED EEOICPA PAYMENTS BY YEAR

Fiscal Year	Compensation Part B Undiscounted Payments	Compensation Part E Undiscounted Payments	Compensation DOJ RECA Undiscounted Payments	Compensation Total Undiscounted Payments	Medical Total Undiscounted Payments	Total Undiscounted Payments
(1)	(2)	(3)	(4)	(4)	(5)	(6)
2036	\$ 49,240,384	\$ 71,734,199	\$ 3,697,733	\$ 124,672,317	\$ 384,693,564	\$ 509,365,881
2037	32,490,126	65,818,896	-	98,309,022	368,465,152	466,774,174
2038	29,886,820	59,870,396	-	89,757,216	352,514,234	442,271,450
2039	27,492,839	55,042,719	-	82,535,557	337,172,625	419,708,182
2040	25,291,216	50,893,431	-	76,184,647	322,453,344	398,637,991
2041	23,266,385	46,928,591	-	70,194,976	308,355,307	378,550,283
2042	21,404,059	43,285,438	-	64,689,497	294,867,626	359,557,123
2043	19,691,123	39,925,110	-	59,616,233	281,973,065	341,589,298
2044	18,115,534	36,825,650	-	54,941,184	269,650,746	324,591,930
2045	16,666,229	33,966,807	-	50,633,036	257,878,156	308,511,192
2046	15,322,706	31,329,901	-	46,652,607	246,612,878	293,265,485
2047	14,098,232	28,897,703	-	42,995,935	235,833,052	278,828,987
2048	12,971,609	26,654,321	-	39,625,930	225,538,902	265,164,832
2049	11,935,016	24,585,097	-	36,520,114	215,710,065	252,230,179
2050	10,981,261	22,676,511	-	33,657,772	206,327,205	239,984,977
2051	-	14,372,252	-	14,372,252	193,307,138	207,679,390
2052	-	10,282,362	-	10,282,362	176,687,389	186,969,751
2053	-	8,662,555	-	8,662,555	160,899,475	169,562,031
2054	-	7,304,828	-	7,304,828	145,933,974	153,238,802
2055	-	6,228,297	-	6,228,297	131,782,891	138,011,188
2056	-	5,371,669	-	5,371,669	118,439,279	123,810,948
2057	-	4,660,471	-	4,660,471	105,896,911	110,557,382
2058	-	4,061,886	-	4,061,886	94,150,101	98,211,987
2059	-	3,549,235	-	3,549,235	83,193,488	86,742,723
2060	-	3,108,670	-	3,108,670	73,021,720	76,130,390
2061	-	2,731,008	-	2,731,008	63,629,016	66,360,024
2062	-	2,418,029	-	2,418,029	55,008,620	57,426,649
2063	-	2,129,347	-	2,129,347	47,152,104	49,281,451
2064	-	1,863,075	-	1,863,075	40,048,575	41,911,650
2065	-	1,617,475	-	1,617,475	33,683,805	35,301,280
2066	-	1,390,941	-	1,390,941	28,039,356	29,430,298
2067	-	1,181,994	-	1,181,994	23,091,777	24,273,771
2068	-	989,267	-	989,267	18,811,951	19,801,218
2069	-	811,503	-	811,503	15,164,676	15,976,179
2070	-	647,538	-	647,538	12,106,899	12,754,437
2071	-	496,302	-	496,302	9,587,262	10,083,564
2072	-	356,807	-	356,807	7,548,763	7,905,570
2073	-	228,141	-	228,141	5,931,483	6,159,624
2074	-	109,464	-	109,464	4,675,189	4,784,653
2075	-	-	-	-	3,721,643	3,721,643
To Date	6,062,969,114	3,836,136,181	463,524,416	10,362,629,711	3,011,591,429	13,374,221,140
Future Pmts	2,730,094,924	3,663,512,875	188,744,947	6,582,352,746	15,681,197,954	22,263,550,700
Total	\$ 8,793,064,038	\$ 7,499,649,056	\$ 652,269,363	\$ 16,944,982,457	\$ 18,692,789,382	\$ 35,637,771,840

Actual vs Projected for 2016

The following exhibit provides a comparison of expected payments for fiscal year 2016 and actual payments¹ for the same period. Compensation payments have come in lower than projected for Part B and higher than projected for Part E. Medical payments have come in higher than projected. In total, actual payments were 2.4% higher than projected.

EEOICPA				
Actual vs. Projected Cash Flow				
	Expected Payments FY 2016	Actual Payments FY 2016	\$ diff	% diff
Compensation: Part B	\$ 346,500,000	\$ 286,385,583	\$ (60,114,417)	-17.3%
Compensation: Part E	233,934,000	263,467,639	29,533,639	12.6%
Compensation: DOJ RECA	<u>27,300,000</u>	<u>15,198,810</u>	<u>(12,101,190)</u>	<u>-44.3%</u>
Compensation: Total	607,734,000	565,052,032	(42,681,968)	-7.0%
Medical Payments	449,730,582	517,885,200	68,154,618	15.2%
Total	\$ 1,057,464,582	\$ 1,082,937,232	\$ 25,472,650	2.4%

1 – Because this report is generated with data as of 6/30/2016, the Actual Payments for fiscal year 2016 include 9 months of actual payments and 3 months of estimated payments.

Changes to the Model Assumptions for 2016

- **Decay assumptions for new entrants**

The number of new entrants has been generally declining over the past several years. To project the number of new entrants, the previous model assumed a straight-line decay in the number of new entrants each quarter. We feel that an exponential decay with its gradually flattening slope better characterizes the historical and likely future approvals, and have updated the model accordingly. The graphs of new entrant counts and the corresponding decay rates can be seen in Section 2.

- **Medical inflation**

The medical inflation rates have been increased from 2.5% to 5% for the next five years and to 3.9% for subsequent years. The 5% factor was selected based on historical trends and the 3.9% factor is the OMB economic assumption for CPI-U, Medical. The increase in the medical trend, all else being equal, results in a \$2.3 billion increase in the discounted medical liability estimate.

- **Part E compensation payment amounts and pattern**

For 2016, we are incorporating a payout pattern for Part E compensation benefits. An analysis of the Part E compensation payment shows that the Part E compensation is not paid out all in one fiscal year after the claim is approved. Wage loss and impairment benefits can be paid years after the initial case approval, and any eligible survivor benefits are paid after the death of the eligible employee.

- **Mortality table**

The RP-2000 Male Disabled Retiree mortality table in the model has been updated to the RP-2014 Male Disabled Retiree mortality table. The RP-2014 table reflects decreased rates of mortality for disabled retirees. Using the updated mortality table, all else being equal, results in a \$1.2 billion increase in the discounted medical liability estimate.

- **\$0 Part B compensation for Beryllium Sensitivity cases**

Under Part B, Beryllium Sensitivity cases are approved for medical benefits only. They do not receive compensation benefits. If the case develops into Beryllium Disease, it would then be eligible for compensation benefits. Previously the model had assumed \$150,000 of Part B compensation benefits for Beryllium Sensitivity. There are 546 projected future Beryllium Sensitivity cases, so this assumption change results in only an \$81.9 million reduction to the undiscounted Part B compensation liability estimate.

- **Reporting of “EB” cases**

This version of the report does not specifically display liability estimates for “EB” cases, which are cases that have been approved for both Part B and Part E. Because the Parts can be approved at different times, the “EB” label can create confusion and potential double counting. In this analysis, individuals receiving compensation from both Parts are counted as two separate cases for purposes of calculating compensation benefits, but as one individual for purposes of calculating medical benefits.

The EEOICPA Model

The EEOICPA analysis consists of the following steps:

1. Organize and aggregate the data

Compensation Benefits

2. Estimate the number of future new cases
3. Estimate the average compensation payout per case
4. Determine the payout patterns to determine the compensation cash flow by year

Medical Benefits

5. Estimate the percentage of each claim type filed by employee
6. Remove double counting – claimants can have both Part B and Part E
7. Apply mortality assumptions to determine the number eligible for medical benefits
8. Estimate the number of participants eligible for medical benefits
9. Estimate the average medical costs and future trends
10. Calculate the total expected medical payments

These steps are described in detail in the next sections.

1: Organize and Aggregate the Data

The EEOICPA analysis is performed using detailed claim-level data extracts provided by the DOL. Data provided includes information on medical payments by claim and by case, compensation payments by claim and case, claim disposition status (e.g., approved, denied, pending decision, etc.), and employee data such as date of birth, sex, date of death, and survivor information.

The data provided for this analysis consists of a series of text data files that were imported into a Microsoft Access database for further analysis and manipulation. The source data includes the following tables:

Table Name	Description
Bp_history	History of medical payments by case
Case_main	Employee information by case, includes RECA indicator
Causation	All causation records, includes SEC identifier
Claimant	Claim information included type of claim and filing dates
Employment	Employment information for employees, including worksite ID
FD	Final decision table by case, identifies acceptance/denial of filed claims
Medical	Medical information by case, includes disease type
Payment_mart	History of approvals by claim
RECA_eft	Additional RECA payments (electronic funds transfer)
RECA_paper_check	Additional RECA payments (paper check)

The data was then organized through a series of Microsoft Access queries to create summarized tables of new entrants, compensation payments, medical payments, and claims filed by living employees. These summarized tables are then brought into the EEOICPA model to begin the analysis.

2: Estimate the number of Future Approved Cases

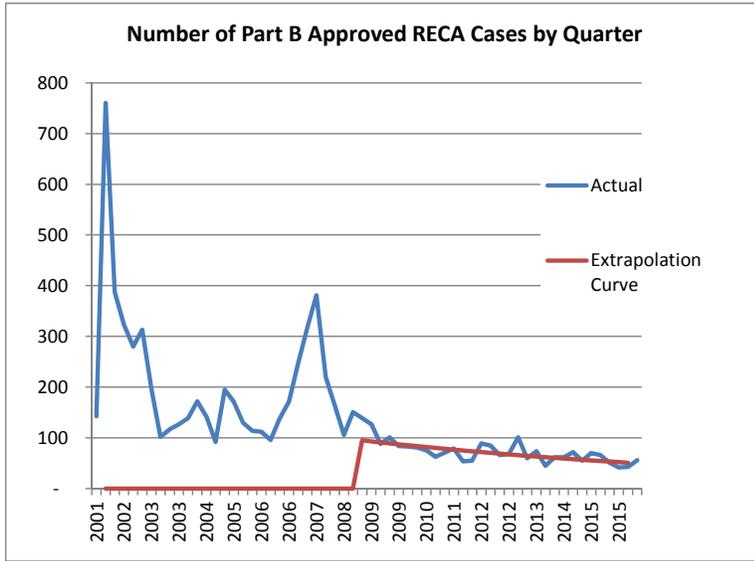
To estimate the number of cases that will be approved in the future, the historical number of approved cases by quarter is determined in total for Part E and by governing disease for Part B. Part B is split out by governing disease because the compensation payment amounts are different by governing disease for Part B.

An exponential decay model is then fit to the recent history, minimizing the sum of squared errors between the actual data and the fitted data, to determine the parameters with the best fit. Judgment is used to determine how many quarters of recent history should be incorporated into the fit model, as the rate of decay appears to be slower in recent quarters than it was in the past.

For the Part B Cancer SEC (Special Exposure Cohort) estimates, we did not fit an exponential decay model, as this cohort of participants is different from the other types, in that entire facilities with many individuals may be designated to be part of the Special Exposure Cohort, and this causes spikes in the number of new entrants. Instead, we used the same decay factor for the Cancer SEC as for the Cancer Non-SEC and assumed that the number of new entrants for the beginning of fiscal year 2017 would be similar to the number of new entrants at the end of fiscal year 2016.

The exhibits on the following pages show a graph of the quarterly history of approved cases and the modeled fit line. The exponential decay models fit well to the historical data, with the exception of Part B Cancer SEC, as described above. The lower half of the exhibits show the resulting actual and projected number of cases by fiscal year.

Part B: RECA



Modeled Decay Rates:

Quarterly = 2.1%

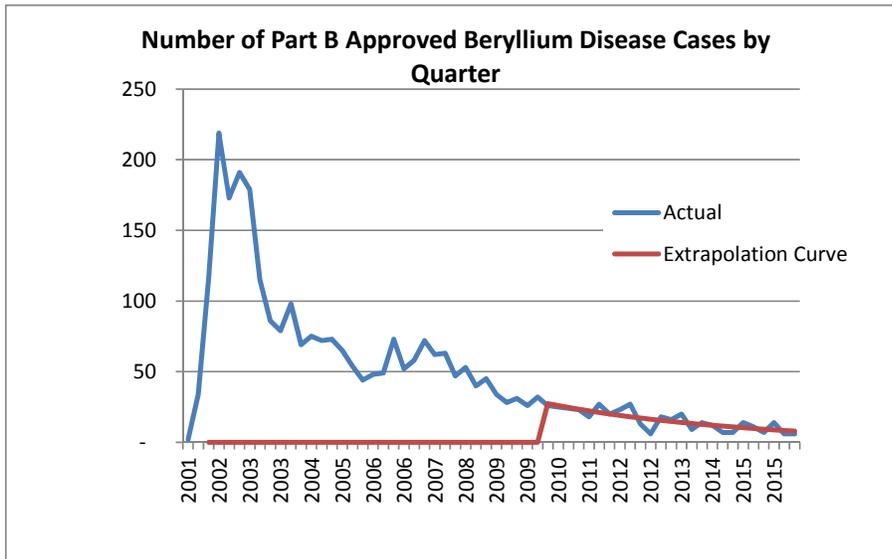
Annual = 8.2%

Number of Part B RECA Cases Approved (Annual)

Actual ¹		Projected		Projected	
FY	# Cases	FY	# Cases	FY	# Cases
2001	143	2017	189	2034	44
2002	1,751	2018	174	2035	40
2003	728	2019	160	2036	37
2004	580	2020	146	2037	-
2005	588	2021	134	2038	-
2006	460	2022	123	2039	-
2007	1,115	2023	113	2040	-
2008	643	2024	104	2041	-
2009	455	2025	95	2042	-
2010	324	2026	87	2043	-
2011	267	2027	80	2044	-
2012	295	2028	74	2045	-
2013	303	2029	68	2046	-
2014	241	2030	62	2047	-
2015	242	2031	57	2048	-
2016	191	2032	52	2049	-
		2033	48	2050	-

1 – For fiscal year 2016, the Actual Number of Cases reflects 9 months of actual approved cases and 3 months of projected approved cases

Part B: Beryllium Disease



Modeled Decay Rates:

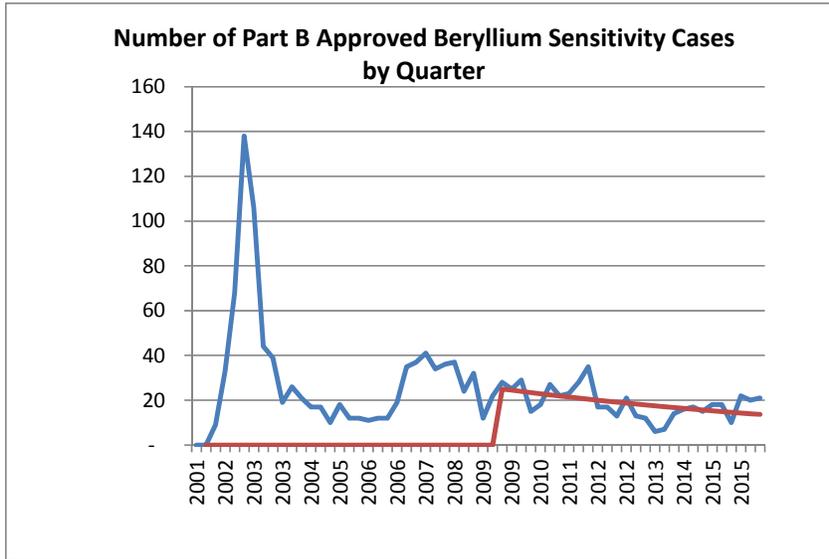
Quarterly = 5.0%

Annual = 18.6%

Actual ¹		Projected		Projected	
FY	# Cases	FY	# Cases	FY	# Cases
2001	2	2017	27	2034	1
2002	543	2018	22	2035	1
2003	571	2019	18	2036	1
2004	321	2020	14	2037	0
2005	264	2021	12	2038	0
2006	214	2022	10	2039	0
2007	244	2023	8	2040	0
2008	203	2024	6	2041	0
2009	138	2025	5	2042	0
2010	109	2026	4	2043	0
2011	92	2027	3	2044	0
2012	83	2028	3	2045	0
2013	60	2029	2	2046	-
2014	42	2030	2	2047	-
2015	39	2031	2	2048	-
2016	34	2032	1	2049	-
		2033	1	2050	-

1 – For fiscal year 2016, the Actual Number of Cases reflects 9 months of actual approved cases and 3 months of projected approved cases

Part B: Beryllium Sensitivity



Modeled Decay Rates:

Quarterly = 2.2%

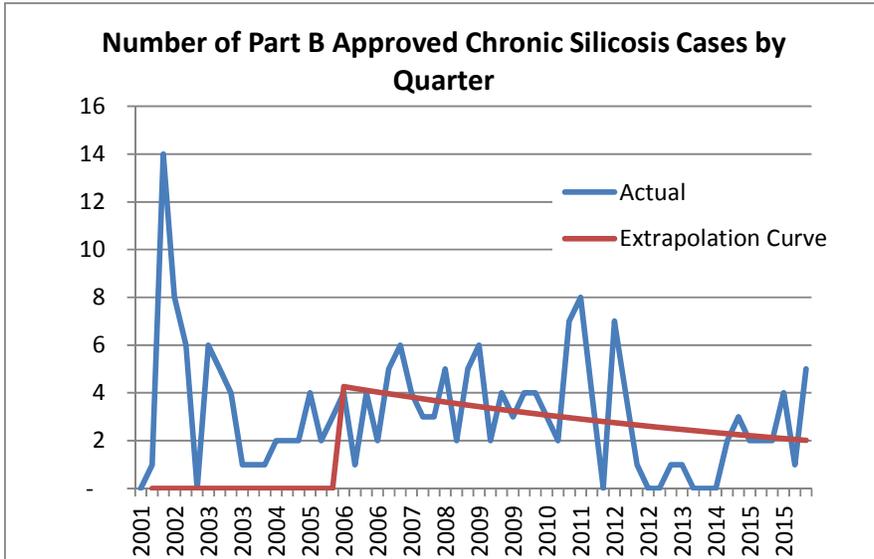
Annual = 8.6%

Number of Part B Beryllium Sensitivity Cases Approved by Fiscal Year

Actual ¹		Projected		Projected	
FY	# Cases	FY	# Cases	FY	# Cases
2001	-	2017	51	2034	11
2002	110	2018	46	2035	10
2003	327	2019	42	2036	9
2004	83	2020	39	2037	8
2005	57	2021	35	2038	8
2006	47	2022	32	2039	7
2007	132	2023	30	2040	6
2008	131	2024	27	2041	6
2009	94	2025	25	2042	5
2010	87	2026	23	2043	5
2011	100	2027	21	2044	4
2012	82	2028	19	2045	4
2013	52	2029	17	2046	-
2014	54	2030	16	2047	-
2015	61	2031	14	2048	-
2016	76	2032	13	2049	-
		2033	12	2050	-

1 – For fiscal year 2016, the Actual Number of Cases reflects 9 months of actual approved cases and 3 months of projected approved cases

Part B: Chronic Silicosis



Modeled Decay Rates:

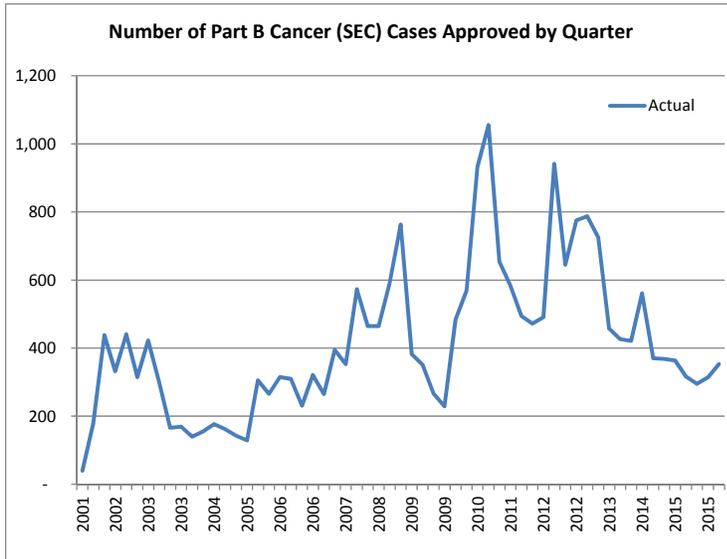
Quarterly = 1.8%

Annual = 7.0%

Actual ¹		Projected		Projected	
FY	# Cases	FY	# Cases	FY	# Cases
2001	-	2017	8	2034	2
2002	29	2018	7	2035	2
2003	15	2019	7	2036	2
2004	5	2020	6	2037	-
2005	10	2021	6	2038	-
2006	12	2022	5	2039	-
2007	17	2023	5	2040	-
2008	13	2024	5	2041	-
2009	17	2025	4	2042	-
2010	14	2026	4	2043	-
2011	21	2027	4	2044	-
2012	12	2028	3	2045	-
2013	2	2029	3	2046	-
2014	2	2030	3	2047	-
2015	9	2031	3	2048	-
2016	12	2032	3	2049	-
		2033	2	2050	-

1 – For fiscal year 2016, the Actual Number of Cases reflects 9 months of actual approved cases and 3 months of projected approved cases

Part B: Cancer SEC



Modeled Decay Rates:

Quarterly = 2.1%

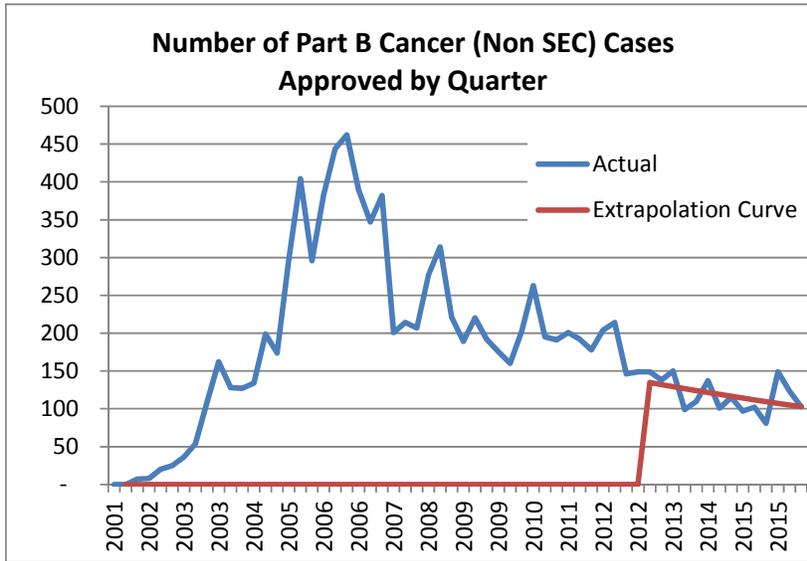
Annual = 8.0%

For the Cancer SEC decay, the same decay factors as Cancer Non SEC are used, and the number of new entrants for the beginning of fiscal year 2017 is assumed to be similar to the number of new entrants at the end of fiscal year 2016.

Actual ¹		Projected		Projected	
FY	# Cases	FY	# Cases	FY	# Cases
2001	40	2017	1,143	2034	278
2002	1,390	2018	1,052	2035	255
2003	1,202	2019	968	2036	235
2004	641	2020	891	2037	216
2005	739	2021	819	2038	199
2006	1,122	2022	754	2039	183
2007	1,334	2023	694	2040	168
2008	2,094	2024	638	2041	155
2009	1,762	2025	587	2042	143
2010	2,215	2026	540	2043	131
2011	2,787	2027	497	2044	121
2012	2,549	2028	457	2045	111
2013	2,744	2029	421	2046	102
2014	1,778	2030	387	2047	94
2015	1,344	2031	356	2048	86
2016	1,286	2032	328	2049	80
		2033	302	2050	73

1 – For fiscal year 2016, the Actual Number of Cases reflects 9 months of actual approved cases and 3 months of projected approved cases

Part B: Cancer Non SEC



Modeled Decay Rates:

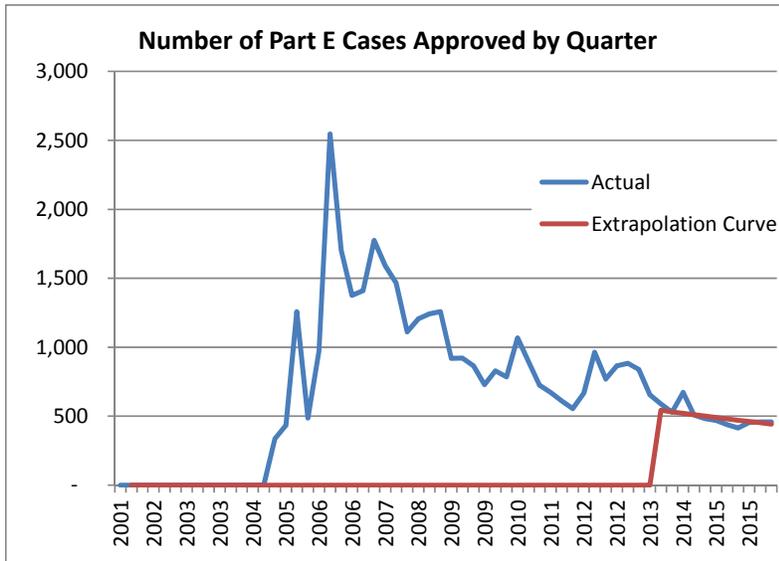
Quarterly = 2.1%

Annual = 8.0%

Actual ¹		Projected		Projected	
FY	# Cases	FY	# Cases	FY	# Cases
2001	-	2017	382	2034	93
2002	35	2018	352	2035	85
2003	224	2019	324	2036	79
2004	551	2020	298	2037	-
2005	1,074	2021	274	2038	-
2006	1,585	2022	252	2039	-
2007	1,320	2023	232	2040	-
2008	1,012	2024	213	2041	-
2009	822	2025	196	2042	-
2010	802	2026	181	2043	-
2011	779	2027	166	2044	-
2012	742	2028	153	2045	-
2013	586	2029	141	2046	-
2014	447	2030	130	2047	-
2015	395	2031	119	2048	-
2016	476	2032	110	2049	-
		2033	101	2050	-

1 – For fiscal year 2016, the Actual Number of Cases reflects 9 months of actual approved cases and 3 months of projected approved cases

Part E



Modeled Decay Rates:

Quarterly = 2.0%

Annual = 7.8%

Number of Part E Cases Approved by Fiscal Year

Actual ¹		Projected		Projected	
FY	# Cases	FY	# Cases	FY	# Cases
2001	-	2017	1,653	2034	418
2002	3	2018	1,524	2035	386
2003	2	2019	1,406	2036	356
2004	1	2020	1,297	2037	328
2005	2,034	2021	1,196	2038	303
2006	5,709	2022	1,103	2039	279
2007	6,152	2023	1,018	2040	258
2008	5,028	2024	939	2041	238
2009	3,966	2025	866	2042	219
2010	3,412	2026	799	2043	202
2011	2,904	2027	737	2044	186
2012	2,956	2028	679	2045	172
2013	3,243	2029	627	2046	159
2014	2,300	2030	578	2047	146
2015	1,803	2031	533	2048	135
2016	1,807	2032	492	2049	124
		2033	454	2050	115

1 – For fiscal year 2016, the Actual Number of Cases reflects 9 months of actual approved cases and 3 months of projected approved cases

Number of Cases Approved									
Part B									
Fiscal Year	RECA	BD	BS	CS	CN SEC	CN NonSEC	Part B Total	Part E	TOTAL ¹
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2001	143	2	-	-	40	-	185	-	185
2002	1,751	543	110	29	1,390	35	3,858	3	3,861
2003	728	571	327	15	1,202	224	3,067	2	3,069
2004	580	321	83	5	641	551	2,181	1	2,182
2005	588	264	57	10	739	1,074	2,732	2,034	4,766
2006	460	214	47	12	1,122	1,585	3,440	5,709	9,149
2007	1,115	244	132	17	1,334	1,320	4,162	6,152	10,314
2008	643	203	131	13	2,094	1,012	4,096	5,028	9,124
2009	455	138	94	17	1,762	822	3,288	3,966	7,254
2010	324	109	87	14	2,215	802	3,551	3,412	6,963
2011	267	92	100	21	2,787	779	4,046	2,904	6,950
2012	295	83	82	12	2,549	742	3,763	2,956	6,719
2013	303	60	52	2	2,744	586	3,747	3,243	6,990
2014	241	42	54	2	1,778	447	2,564	2,300	4,864
2015	242	39	61	9	1,344	395	2,090	1,803	3,893
2016	191	34	76	12	1,286	476	2,075	1,807	3,882
Thru 2016							48,845	41,320	
2017	189	27	51	8	1,143	382	1,800	1,653	3,453
2018	174	22	46	7	1,052	352	1,653	1,524	3,177
2019	160	18	42	7	968	324	1,518	1,406	2,924
2020	146	14	39	6	891	298	1,394	1,297	2,691
2021	134	12	35	6	819	274	1,280	1,196	2,477
2022	123	10	32	5	754	252	1,176	1,103	2,280
2023	113	8	30	5	694	232	1,081	1,018	2,099
2024	104	6	27	5	638	213	993	939	1,932
2025	95	5	25	4	587	196	913	866	1,779
2026	87	4	23	4	540	181	839	799	1,638
2027	80	3	21	4	497	166	771	737	1,508
2028	74	3	19	3	457	153	709	679	1,388
2029	68	2	17	3	421	141	652	627	1,278
2030	62	2	16	3	387	130	599	578	1,177
2031	57	2	14	3	356	119	551	533	1,084
2032	52	1	13	3	328	110	507	492	998
2033	48	1	12	2	302	101	466	454	919
2034	44	1	11	2	278	93	428	418	847
2035	40	1	10	2	255	85	394	386	780
2036	37	1	9	2	235	79	362	356	718
2037	-	0	8	-	216	-	225	328	553
2038	-	0	8	-	199	-	207	303	510
2039	-	0	7	-	183	-	190	279	470
2040	-	0	6	-	168	-	175	258	433
2041	-	0	6	-	155	-	161	238	399
2042	-	0	5	-	143	-	148	219	367
2043	-	0	5	-	131	-	136	202	338
2044	-	0	4	-	121	-	125	186	312
2045	-	0	4	-	111	-	115	172	287
2046	-	-	-	-	102	-	102	159	261
2047	-	-	-	-	94	-	94	146	240
2048	-	-	-	-	86	-	86	135	221
2049	-	-	-	-	80	-	80	124	204
2050	-	-	-	-	73	-	73	115	188

Actual ↑

Projected ↓

1 - The total is the total number of "case parts", not the total number of individuals.

3: Estimate the average compensation payment per case

Part B Compensation

For Part B, the compensation benefit is paid out as a lump sum. The amount of the benefit varies by governing disease as follows:

RECA (Non-DOJ portion)	\$50,000
RECA (DOJ portion)	\$100,000
Beryllium Disease, Cancer, Chronic Silicosis	\$150,000
Beryllium Sensitivity (Part B)	\$0

Under Part B, Beryllium Sensitivity cases are approved for medical benefits only. They do not receive compensation benefits. If the case develops into Beryllium Disease, it would then be eligible for compensation benefits.

Part E Compensation

Part E cases are eligible for wage loss benefits, impairment benefits and survivor benefits subject to a maximum payment of \$250,000 total compensation for the employee and survivor combined.

For Part E, historically only 45.6% of the compensation benefits are paid within one fiscal year of approval. This is due to the nature of the benefit types. Employee claimants can file for additional wage or impairment payments subsequent to the initial case approval, and the survivors of employee-filed claims may be eligible to receive a lump sum benefit upon the death of the employee years after the initial case approval.

We need a cradle-to-grave cost estimate to apply to future new entrants. Because of the development of payments over time, we employed a triangle squaring approach where we organized the compensation data into a paid triangle by approval quarter and payment quarter. Historical relationships between quarters were then measured and projected forward to determine the ultimate payments by approval quarter from 2005 to the present. There are a number of approved claims for which claim payments have not been made and appear unlikely to be made in the future. We built a triangle of counts by approval quarter and quarter of first payment, and with it, developed an estimate of the total count of claims from 2005 to the present that will ultimately be paid. The average projected ultimate payment per approved case, excluding projected no-payment claims was \$135,509. We are applying this estimate to projected future new entrants, without projecting no-payment claims. This is a conservative assumption.

Part E Average Compensation	\$135,509
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For more detail on the triangle squaring analysis, see Technical Appendix 2

4: Payout patterns

Multiplying the number of cases from Step 2 times the average compensation benefit payment per case will determine the total amount of compensation benefit for new cases.

The next step is to estimate cash flow by fiscal year. To estimate the cash flow, it is necessary to know the timing of the benefit payments for both new and existing cases.

The historical data shows that the majority of the Part B cases pay the full amount of the compensation benefit within the same fiscal year as the claim approval.

Part B Compensation Payout Pattern

Year 1 100%

To determine the payout pattern for Part E benefits, we relied on the triangle squaring analysis described in Section 3.

Part E Compensation Payout Pattern

<u>Year</u>	<u>% Paid</u>
Year 1	45.6%
Year 2	20.7%
Year 3	5.7%
Year 4	4.8%
Year 5	3.6%
Year 6	2.6%
Year 7	2.1%
Year 8	1.7%
Year 9	1.4%
Year 10	1.2%
Year 11	1.0%
Years 12 - 25	0.7%

For more detail on the triangle squaring analysis, see Technical Appendix 2.

5: Estimate the number of cases filed by an employee

The next step in the process is to estimate the future medical payments.

Only the cases that were filed by an employee are eligible for medical benefits. The pool of individuals eligible to receive medical benefits includes both existing and new approved cases that were filed by an employee (as long as the employee is still alive).

Historical ratios of employee-filed cases were used to select the percentage of future cases expected to be filed by an employee (and thus eligible for medical benefits). There appears to be an upward trend towards higher levels of employee-filed cases in recent years. The selected ratios below reflect this upward trend.

% of Approved Cases that were filed by an Employee							
	RECA	BD	BS	CS	CN SEC	CN Non SEC	Part E
2001	68%	50%	na	na	45%	na	na
2002	32%	83%	100%	79%	40%	83%	33%
2003	37%	70%	100%	73%	31%	46%	50%
2004	55%	41%	100%	80%	34%	31%	0%
2005	67%	46%	100%	90%	30%	34%	12%
2006	72%	48%	100%	92%	28%	43%	57%
2007	70%	55%	100%	65%	28%	41%	62%
2008	59%	64%	100%	85%	28%	45%	57%
2009	59%	64%	100%	59%	26%	54%	58%
2010	59%	69%	100%	71%	33%	58%	61%
2011	61%	62%	100%	71%	27%	61%	62%
2012	64%	64%	100%	67%	34%	60%	61%
2013	73%	68%	100%	100%	40%	61%	65%
2014	63%	71%	100%	100%	42%	70%	69%
2015	67%	72%	100%	78%	46%	65%	72%
Selected	70%	74%	100%	80%	43%	69%	71%

The selected ratios are then applied to future approved cases in all future years, to estimate the number of cases that are eligible for medical benefits.

6: Remove double counting

Cases can be approved for Part B alone, Part E alone, or for both Part B and Part E. Cases approved for either Part are eligible to receive medical benefits. The number of approved cases is being projected separately by Part, so the total count of approved cases will count many, but not all, of the individuals twice (once for Part B and once for Part E). Historical ratios are used to determine how the approved cases need to be reduced in order to convert the number of approved cases to the number of individuals eligible for medical benefits.

Because the approval decisions are made separately for each Part (for example, a case could receive approval for Part B and then months or years later receive approval for Part E), a reduction in the case count is made for the assumption that some of the newly approved cases will have already been approved for the other Part and thus are already included in the count of individuals eligible for medical benefits.

We assume that 8% of newly-approved Part B cases have already been approved for Part E, and that 0.7% of newly-approved Part E cases have already been approved for Part B.

Percent of Part B cases filed by an employee that had previously been accepted as a Part E case		Percent of Part E cases filed by an employee that had previously been accepted as a Part B case	
<u>FY</u>	<u>Percent</u>	<u>FY</u>	<u>Percent</u>
2004	0.0%	2004	na
2005	0.0%	2005	20.5%
2006	1.2%	2006	58.9%
2007	0.8%	2007	30.5%
2008	2.5%	2008	16.1%
2009	5.9%	2009	6.1%
2010	10.2%	2010	1.3%
2011	9.3%	2011	1.4%
2012	10.6%	2012	1.4%
2013	7.9%	2013	0.8%
2014	9.2%	2014	0.6%
2015	9.0%	2015	0.8%
2016	8.0%	2016	0.7%
Selected	8.00%	Selected	0.7%

Additionally, some cases will receive an approval for both Part B and Part E at the same time. A reduction must be made so that these two approved case parts are not treated as two separate individuals eligible for medical benefits. Historically, approximately 80% of the employee-filed Part B cases also are approved for Part E at the same time. We assume that this ratio will continue into the future.

Percent of Part B cases filed by an employee where Part E is accepted concurrently		Percent of Part E cases filed by an employee where Part B is accepted concurrently	
<u>FY</u>	<u>Percent</u>	<u>FY</u>	<u>Percent</u>
2004	0.0%	2004	na
2005	2.2%	2005	10.9%
2006	71.6%	2006	32.6%
2007	89.0%	2007	46.3%
2008	82.8%	2008	49.5%
2009	80.9%	2009	47.9%
2010	80.2%	2010	60.2%
2011	69.5%	2011	60.9%
2012	74.8%	2012	67.8%
2013	82.3%	2013	69.1%
2014	78.8%	2014	64.0%
2015	80.2%	2015	70.6%
2016	80.0%	2016	70.2%
Selected	80.0%		

To convert the number of approved employee-filed cases into the number of employee-filed cases eligible for medical benefits, we reduce the number of newly-approved employee-filed Part B cases by 8%, reduce the number of newly-approved employee-filed Part E by 0.7% (as shown on the previous page) and then reduce the newly-approved employee-filed Part B cases by 80% to estimate the total number of cases eligible for medical benefits by year.

7: Mortality

Because the EEOICPA program is not always notified when a participant is deceased, the number of individuals that are still alive and eligible for medical benefits must be estimated, using mortality assumptions.

The model uses the RP-2014 Male Disabled Retiree mortality table and assumes that employees are age 72 at the time that the case is approved. Previously the model used the RP-2000 Male Disabled Retiree table. For more details on the change to the RP-2014 table, please see Technical Appendix 3.

Average Age of Employee at Case Approval Date

<u>Part B</u>		<u>Part E</u>	
<u>Fiscal</u>	<u>Average</u>	<u>Fiscal</u>	<u>Average</u>
<u>Year</u>	<u>Age</u>	<u>Year</u>	<u>Age</u>
2001	71.0		
2002	66.5	2002	57.0
2003	64.5	2003	56.0
2004	68.7		
2005	70.4	2005	69.1
2006	72.2	2006	70.4
2007	70.6	2007	71.1
2008	71.9	2008	70.9
2009	72.8	2009	70.8
2010	72.3	2010	70.8
2011	72.6	2011	71.1
2012	73.3	2012	72.3
2013	70.9	2013	70.3
2014	72.7	2014	71.5
2015	72.8	2015	72.3
2016	73.9	2016	72.9
Avg 10-16	72.6	Avg 10-16	71.6

Selected 72

8: Estimate the Number of Individuals eligible for medical benefits

The total number of individuals eligible to receive medical benefits each year is then the number of individuals with prior case approvals, assumed to be still alive, plus the number of newly-approved cases (adjusted to remove double counting of cases approved for both Parts) minus the number of expected deaths, as shown below:

ESTIMATED LIABILITY FOR EEOICPA AS OF SEPTEMBER 30, 2016

ESTIMATED NUMBER OF INDIVIDUALS ELIGIBLE FOR MEDICAL EXPENSES

Fiscal Year	New Cases Eligible for Medical Expenses							Remove double counting:			Net new Individuals	Assumed # Deaths	Total # Individuals Eligible	Average # Individuals Eligible
	RECA	BD	BS	CS	CN		Part E	Part B already in	Part E already in	EB concurrent				
					SEC	Non SEC								
2001	97	1	-	-	18	-	-	-	-	-	116	(1)	115	115
2002	563	449	110	23	560	29	1	-	-	(1)	1,734	(84)	1,765	940
2003	269	401	327	11	378	103	1	-	-	(1)	1,489	(152)	3,102	2,434
2004	318	133	83	4	218	173	-	-	-	-	929	(196)	3,836	3,469
2005	394	121	57	9	220	366	239	-	(49)	(26)	1,331	(258)	4,908	4,372
2006	329	102	47	11	313	686	3,271	(18)	(1,926)	(1,066)	1,749	(340)	6,317	5,613
2007	782	135	132	11	372	539	3,789	(15)	(1,155)	(1,755)	2,835	(472)	8,680	7,499
2008	378	130	131	11	592	460	2,850	(43)	(458)	(1,410)	2,641	(596)	10,726	9,703
2009	270	88	94	10	462	446	2,313	(81)	(142)	(1,109)	2,351	(707)	12,369	11,547
2010	191	75	87	10	733	463	2,075	(159)	(28)	(1,250)	2,197	(812)	13,754	13,061
2011	162	57	100	15	762	478	1,797	(146)	(26)	(1,094)	2,105	(913)	14,945	14,350
2012	188	53	82	8	860	442	1,802	(173)	(26)	(1,222)	2,014	(1,009)	15,950	15,448
2013	222	41	52	2	1,106	358	2,119	(140)	(16)	(1,465)	2,279	(1,116)	17,113	16,532
2014	152	30	54	2	744	314	1,596	(119)	(10)	(1,021)	1,742	(1,197)	17,658	17,385
2015	161	28	61	7	624	258	1,294	(103)	(10)	(913)	1,407	(1,261)	17,804	17,731
2016	134	25	76	10	555	326	1,284	(90)	(9)	(901)	1,410	(1,322)	17,892	17,848
2017	133	20	51	6	493	262	1,174	(77)	(8)	(772)	1,281	(1,373)	17,801	17,846
2018	122	16	46	6	454	241	1,083	(71)	(8)	(708)	1,181	(1,414)	17,568	17,684
2019	112	13	42	5	417	222	999	(65)	(7)	(650)	1,089	(1,447)	17,210	17,389
2020	103	11	39	5	384	204	921	(60)	(6)	(596)	1,004	(1,469)	16,745	16,978
2021	95	9	35	5	353	188	850	(55)	(6)	(547)	926	(1,481)	16,190	16,467
2022	87	7	32	4	325	173	784	(50)	(5)	(503)	854	(1,483)	15,561	15,875
2023	80	6	30	4	299	159	723	(46)	(5)	(462)	787	(1,474)	14,874	15,218
2024	73	5	27	4	275	146	667	(42)	(5)	(424)	726	(1,454)	14,146	14,510
2025	67	4	25	3	253	135	615	(39)	(4)	(389)	669	(1,426)	13,389	13,767
2026	61	3	23	3	233	124	567	(36)	(4)	(358)	617	(1,388)	12,618	13,004
2027	56	3	21	3	214	114	523	(33)	(4)	(329)	569	(1,342)	11,845	12,232
2028	52	2	19	3	197	105	483	(30)	(3)	(302)	524	(1,289)	11,081	11,463
2029	48	2	17	3	182	97	445	(28)	(3)	(278)	484	(1,230)	10,334	10,708
2030	44	1	16	2	167	89	411	(26)	(3)	(255)	446	(1,168)	9,613	9,973
2031	40	1	14	2	154	82	379	(23)	(3)	(234)	411	(1,102)	8,921	9,267
2032	37	1	13	2	141	75	349	(22)	(2)	(215)	379	(1,036)	8,265	8,593
2033	34	1	12	2	130	69	322	(20)	(2)	(198)	350	(969)	7,646	7,955
2034	31	1	11	2	120	64	297	(18)	(2)	(182)	322	(903)	7,065	7,355
2035	28	0	10	2	110	59	274	(17)	(2)	(167)	297	(839)	6,523	6,794

**ESTIMATED LIABILITY FOR EEOICPA
AS OF SEPTEMBER 30, 2016**

ESTIMATED NUMBER OF INDIVIDUALS ELIGIBLE FOR MEDICAL EXPENSES

Fiscal Year	New Cases Eligible for Medical Expenses							Remove double counting:			Net new Individuals	Assumed # Deaths	Total # Individuals Eligible	Average # Individuals Eligible
	RECA	BD	BS	CS	CN		Part E	Part B already in	Part E already in	EB concurrent				
					SEC	Non SEC								
2036	26	0	9	2	101	54	253	(15)	(2)	(154)	274	(778)	6,019	6,271
2037	-	0	8	-	93	-	233	(8)	(2)	(82)	244	(720)	5,543	5,781
2038	-	0	8	-	86	-	215	(7)	(2)	(75)	225	(665)	5,103	5,323
2039	-	0	7	-	79	-	198	(7)	(1)	(69)	207	(613)	4,697	4,900
2040	-	0	6	-	73	-	183	(6)	(1)	(63)	191	(565)	4,323	4,510
2041	-	0	6	-	67	-	169	(6)	(1)	(58)	176	(521)	3,979	4,151
2042	-	0	5	-	61	-	156	(5)	(1)	(54)	163	(479)	3,662	3,821
2043	-	0	5	-	57	-	144	(5)	(1)	(49)	150	(442)	3,371	3,516
2044	-	0	4	-	52	-	132	(5)	(1)	(45)	138	(407)	3,102	3,237
2045	-	0	4	-	48	-	122	(4)	(1)	(42)	128	(374)	2,856	2,979
2046	-	-	-	-	44	-	113	(4)	(1)	(35)	117	(345)	2,628	2,742
2047	-	-	-	-	41	-	104	(3)	(1)	(32)	108	(317)	2,419	2,524
2048	-	-	-	-	37	-	96	(3)	(1)	(30)	100	(292)	2,227	2,323
2049	-	-	-	-	34	-	88	(3)	(1)	(27)	92	(269)	2,050	2,138
2050	-	-	-	-	32	-	82	(3)	(1)	(25)	85	(247)	1,887	1,969
2051	-	-	-	-	-	-	-	-	-	-	0	(224)	1,663	1,775
2052	-	-	-	-	-	-	-	-	-	-	0	(203)	1,460	1,562
2053	-	-	-	-	-	-	-	-	-	-	0	(183)	1,277	1,369
2054	-	-	-	-	-	-	-	-	-	-	0	(165)	1,112	1,195
2055	-	-	-	-	-	-	-	-	-	-	0	(148)	964	1,038
2056	-	-	-	-	-	-	-	-	-	-	0	(132)	832	898
2057	-	-	-	-	-	-	-	-	-	-	0	(118)	714	773
2058	-	-	-	-	-	-	-	-	-	-	0	(105)	609	661
2059	-	-	-	-	-	-	-	-	-	-	0	(93)	516	563
2060	-	-	-	-	-	-	-	-	-	-	0	(82)	434	475
2061	-	-	-	-	-	-	-	-	-	-	0	(72)	363	399
2062	-	-	-	-	-	-	-	-	-	-	0	(62)	300	332
2063	-	-	-	-	-	-	-	-	-	-	0	(54)	247	274
2064	-	-	-	-	-	-	-	-	-	-	0	(46)	201	224
2065	-	-	-	-	-	-	-	-	-	-	0	(39)	161	181
2066	-	-	-	-	-	-	-	-	-	-	0	(33)	129	145
2067	-	-	-	-	-	-	-	-	-	-	0	(27)	101	115
2068	-	-	-	-	-	-	-	-	-	-	0	(22)	79	90
2069	-	-	-	-	-	-	-	-	-	-	0	(18)	61	70
2070	-	-	-	-	-	-	-	-	-	-	0	(14)	47	54
2071	-	-	-	-	-	-	-	-	-	-	0	(11)	35	41
2072	-	-	-	-	-	-	-	-	-	-	0	(9)	27	31
2073	-	-	-	-	-	-	-	-	-	-	0	(7)	20	23
2074	-	-	-	-	-	-	-	-	-	-	0	(5)	15	18
2075	-	-	-	-	-	-	-	-	-	-	0	(4)	12	14

9: Estimate Average Medical Payments and trend amounts

The total medical payments each year are divided by the average number of eligible individuals to determine the average medical payment per eligible individual for each year. We then review the historical trends to determine an inflation trend assumption for future years, as well as the average medical cost for 2017.

The model assumes annual medical trend of 5% for the next five years and 3.9% for subsequent years. The 5% factor was selected based on historical trends, as shown below, and the 3.9% factor is the OMB economic assumption for CPI-U, Medical. For the long term, the OMB medical inflation projection of 3.9% was used, but given that recent history has shown a statistically significantly higher medical inflation, we felt it prudent to use the lower bound of that history for the near term (five years). The lower bound is one standard error from the observed average.

For 2017, the average medical cost per eligible employee is estimated to be \$28,432 which is the average of the medical costs from 2012 to 2016 at current rate level (using a trend of 5.0%), projected forward one year at 5%.

	Total Medical Payments	Average # Individuals Eligible	Average Medical Cost per Eligible Individual	Annual Trend	Average Medical Cost per Individual Curr Level
	(1)	(2)	(3)	(4)	(5)
2001	\$ -	115	\$ -		
2002	3,822,401	940	4,065		
2003	14,738,401	2,434	6,055	49.0%	
2004	23,002,547	3,469	6,631	9.5%	
2005	32,552,187	4,372	7,446	12.3%	
2006	41,293,195	5,613	7,357	-1.2%	
2007	60,256,316	7,499	8,036	9.2%	
2008	77,063,027	9,703	7,942	-1.2%	
2009	120,195,778	11,547	10,409	31.1%	
2010	217,045,131	13,061	16,617	59.6%	
2011	319,622,272	14,350	22,274	34.0%	
2012	340,680,645	15,448	22,054	-1.0%	26,806
2013	389,272,258	16,532	23,547	6.8%	27,259
2014	410,757,590	17,385	23,627	0.3%	26,048
2015	443,404,479	17,731	25,008	5.8%	26,258
2016	517,885,200	17,848	29,017	16.0%	29,017
				Average Trend 2011-2016	10.3%
				Standard Error of Trend 2011-2016	5.3%
				Lower Bound (one standard error from avg)	5.0%
				Selected Trend	5.0%
				Average cost per individual at current level 2012-2016	\$27,078
				Selected average Medical cost per individual for 2017	\$28,432 = 27,078 * 1.05

10: Calculate the total expected Medical Payment by year

The total number of individuals eligible is then multiplied by the trended average medical cost per eligible individual to determine the expected medical payments by fiscal year, as shown below.

Fiscal Year	Average # Individuals Eligible	Average Medical Cost per Eligible Individual	Total Medical Payments
2001	115	\$ -	\$ -
2002	940	4,065	3,822,401
2003	2,434	6,055	14,738,401
2004	3,469	6,631	23,002,548
2005	4,372	7,446	32,552,187
2006	5,613	7,357	41,293,195
2007	7,499	8,036	60,256,316
2008	9,703	7,942	77,063,027
2009	11,547	10,409	120,195,778
2010	13,061	16,617	217,045,131
2011	14,350	22,274	319,622,272
2012	15,448	22,054	340,680,645
2013	16,532	23,547	389,272,258
2014	17,385	23,627	410,757,590
2015	17,731	25,008	443,404,479
2016	17,848	29,017	517,885,200
2017	17,846	28,432 ¹	507,397,768
2018	17,684	29,853	527,928,315
2019	17,389	31,346	545,069,090
2020	16,978	32,913	558,787,193
2021	16,467	34,559	569,096,520
2022	15,875	35,907	570,029,540
2023	15,218	37,307	567,722,707
2024	14,510	38,762	562,434,360
2025	13,767	40,274	554,458,707
2026	13,004	41,844	544,124,032
2027	12,232	43,476	531,784,591
2028	11,463	45,172	517,804,414
2029	10,708	46,934	502,542,648
2030	9,973	48,764	486,341,890
2031	9,267	50,666	469,518,993
2032	8,593	52,642	452,359,913
2033	7,955	54,695	435,113,715
2034	7,355	56,828	417,985,831
2035	6,794	59,044	401,138,318

1- For 2017, the average medical cost per eligible individual is the average of the medical costs for 2012-2016 at current rate level, trended forward one year. See page 33 for more details on this calculation.

<u>Fiscal Year</u>	<u>Average # Individuals Eligible</u>	<u>Average Medical Cost per Eligible Individual</u>	<u>Total Medical Payments</u>
2036	6,271	\$ 61,347	\$ 384,693,564
2037	5,781	63,739	368,465,152
2038	5,323	66,225	352,514,234
2039	4,900	68,808	337,172,625
2040	4,510	71,492	322,453,344
2041	4,151	74,280	308,355,307
2042	3,821	77,177	294,867,626
2043	3,516	80,187	281,973,065
2044	3,237	83,314	269,650,746
2045	2,979	86,563	257,878,156
2046	2,742	89,939	246,612,878
2047	2,524	93,447	235,833,052
2048	2,323	97,091	225,538,902
2049	2,138	100,878	215,710,065
2050	1,969	104,812	206,327,205
2051	1,775	108,900	193,307,138
2052	1,562	113,147	176,687,389
2053	1,369	117,559	160,899,475
2054	1,195	122,144	145,933,974
2055	1,038	126,908	131,782,891
2056	898	131,857	118,439,279
2057	773	137,000	105,896,911
2058	661	142,343	94,150,101
2059	563	147,894	83,193,488
2060	475	153,662	73,021,720
2061	399	159,655	63,629,016
2062	332	165,881	55,008,620
2063	274	172,351	47,152,104
2064	224	179,072	40,048,575
2065	181	186,056	33,683,805
2066	145	193,312	28,039,356
2067	115	200,851	23,091,777
2068	90	208,685	18,811,951
2069	70	216,823	15,164,676
2070	54	225,280	12,106,899
2071	41	234,065	9,587,262
2072	31	243,194	7,548,763
2073	23	252,679	5,931,483
2074	18	262,533	4,675,189
2075	14	272,772	3,721,643

Technical Appendix 1 – Summary of Model Assumptions

EEOICPA 2016 Liability Model Assumptions

Compensation Benefit Amounts

RECA Benefit (Non DOJ)	\$50,000
RECA Benefit (on behalf of DOJ)	\$100,000
Part B Benefit (lump sum)	\$150,000
Part E Benefit, average	\$135,509

Discount Rates

Discount Factor for Compensation	2.414%
Discount Factor for Medical	2.949%

Duration

Average Compensation Duration (years)	10.9
Average Medical Duration (years)	17.4

Inflation Rates

Annual Inflation for Compensation	0.00%
Annual Inflation for Medical, Future Years 1-5	5.00%
Annual Inflation for Medical, Future Years 6+	3.90%

Medical Costs per Eligible Case

Average medical payment for FY 2017	\$28,432
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Mortality

Mortality Table	RP-2014 Male Disabled Retiree
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New Cases

Eligible for medical benefits if filed by employee	100%
Average age of employee when case approved	72

Percent of new cases filed by employee

RECA (Part B)	70%
BD (Part B)	74%
BS (Part B)	100%
CS (Part B)	80%
CN SEC (Part B)	43%
CN Non SEC (Part B)	69%
Part E	71%

Probability that the newly approved case is already eligible for medical benefits	
Part B	8.0%
Part E	0.7%
Percent of Part B cases where Part E approved in same year	80%
Quarterly Decay in new case approval	
RECA (Part B)	2.1%
BD (Part B)	5.0%
BS (Part B)	2.2%
CS (Part B)	1.8%
CN SEC (Part B)	2.1%
CN Non SEC (Part B)	2.1%
Part E	2.0%
Payment Lag - Part B Compensation (100% pays in yr 1)	0

Payment Pattern: Part E Compensation

<u>Year</u>	<u>% Paid</u>
Year 1	45.6%
Year 2	20.7%
Year 3	5.7%
Year 4	4.8%
Year 5	3.6%
Year 6	2.6%
Year 7	2.1%
Year 8	1.7%
Year 9	1.4%
Year 10	1.2%
Year 11	1.0%
Years 12 - 25	0.7%
Yr 13	0.7%
Yr 14	0.7%
Yr 15	0.7%
Yr 16	0.7%
Yr 17	0.7%
Yr 18	0.7%
Yr 19	0.7%
Yr 20	0.7%
Yr 21	0.7%
Yr 22	0.7%
Yr 23	0.7%
Yr 24	0.7%
Yr 25	<u>0.7%</u>
Total	100.0%

Technical Appendix 2 – Part E Triangle Squaring

In order to estimate the Part E compensation payout patterns and ultimate payment amount per case, we employed a triangle squaring approach. We organized the compensation data into a paid triangle by approval quarter and payment quarter. Historical relationships between quarters were then measured and projected forward to determine the ultimate payments by approval quarter from 2005 to the present. There are a number of approved claims for which claim payments have not been made and appear unlikely to be made in the future. We built a triangle of counts by approval quarter and quarter of first payment, and with it, developed an estimate of the total count of claims from 2005 to the present that will ultimately be paid.

The exhibits in the following pages show the triangle of payment amounts, the age-to-age factors as well as the selection of ultimates using a weighting of the LDF Method and the BF Method.

Loss Development Factor (LDF) Method

The LDF method applies a loss development factor to paid claims by period (in this case, approval quarter) to arrive at an estimate of the ultimate losses incurred in that period. The loss development factor varies by the maturity of the period. Loss development factors are selected based on review of historical development and actuarial judgment to consider items such as credibility of observed data and changing patterns within the aggregated data.

Bornhuetter-Ferguson (BF) Method

The BF method uses a development pattern coinciding with the loss development factors used in the LDF method in conjunction with an a priori, or “seed” estimate for a given period estimate an ultimate amount of payment. This seed loss estimate was based on a moving average of LDF model results. This approach is more stable with regard to the random fluctuation from period than the LDF method alone, but still captures changes in the level of payments over time.

Part E Compensation

Cumulative Payments by Approval Quarter

	Age1	Age2	Age3	Age4	Age5	Age6	Age7	Age8	Age9	Age10
2005-1	\$27,375,000	\$35,375,000	\$35,662,500	\$35,900,000	\$36,697,827	\$37,047,827	\$37,327,827	\$38,037,827	\$38,377,500	\$38,678,750
2005-2	29,875,000	36,218,209	36,993,209	37,398,209	38,000,709	38,822,040	39,187,040	40,217,040	41,240,253	42,158,598
2005-3	122,316,667	152,087,500	152,762,500	153,100,000	153,627,500	154,082,500	154,292,500	154,632,364	155,279,942	155,729,942
2005-4	43,605,571	52,584,737	52,869,737	53,362,237	53,679,737	53,704,737	54,244,737	54,429,737	54,891,138	55,453,638
2006-1	37,653,510	49,970,692	52,271,192	54,491,192	56,650,319	59,621,041	63,991,072	66,636,939	68,501,939	71,262,220
2006-2	64,386,865	81,756,870	85,782,854	93,657,975	106,797,213	118,066,153	127,273,247	133,452,216	143,853,735	150,735,405
2006-3	56,418,945	73,228,912	77,274,340	84,826,775	96,180,665	104,459,903	108,071,873	114,125,054	119,416,179	123,184,929
2006-4	39,038,023	63,208,254	69,928,896	78,235,843	84,737,813	89,306,526	91,939,412	96,747,196	100,796,718	102,786,671
2007-1	39,194,497	54,373,021	65,142,269	73,570,943	79,536,610	85,132,732	90,546,932	94,333,944	97,004,771	100,109,096
2007-2	49,980,068	73,085,397	83,824,152	91,976,649	102,573,722	112,390,867	119,257,577	124,834,315	128,993,572	132,414,967
2007-3	47,907,568	67,464,711	78,712,408	90,307,942	100,362,657	109,720,785	113,707,038	117,742,538	120,759,838	123,968,142
2007-4	44,178,152	64,792,726	79,113,033	89,378,875	94,251,681	99,604,059	105,134,286	107,798,494	110,967,707	112,615,207
2008-1	40,643,280	54,623,607	60,875,980	66,437,599	72,116,475	77,777,662	80,335,162	82,495,270	83,952,642	84,995,102
2008-2	40,892,619	59,619,464	69,227,820	78,743,966	87,709,163	91,967,045	94,915,130	97,345,842	99,263,284	99,954,864
2008-3	43,042,671	64,630,541	73,710,459	85,147,287	91,585,581	95,751,378	98,626,474	101,872,987	103,139,079	104,090,869
2008-4	43,992,832	63,361,662	77,852,432	86,466,890	93,434,407	97,115,542	100,178,042	102,850,918	104,963,054	106,773,048
2009-1	26,657,702	43,771,585	53,048,973	63,541,424	67,364,100	70,113,635	73,117,417	73,966,955	75,174,455	77,310,595
2009-2	30,433,663	43,565,550	57,611,183	63,145,649	68,611,437	71,143,229	72,431,620	74,177,870	75,092,870	75,837,870
2009-3	22,563,488	39,535,214	51,381,077	56,675,312	61,389,811	63,092,738	64,987,181	66,782,454	67,247,454	67,922,454
2009-4	19,399,524	28,968,448	42,530,198	49,466,020	51,632,963	53,575,463	55,062,963	56,455,463	57,014,610	57,307,110
2010-1	22,033,279	39,047,894	49,677,745	54,505,686	59,557,578	61,829,961	64,044,961	65,693,711	66,325,198	66,731,448
2010-2	21,794,665	37,682,243	46,322,243	55,205,735	58,405,735	60,758,235	61,918,235	62,320,735	63,283,235	63,702,298
2010-3	39,254,046	55,520,859	67,756,476	73,595,067	76,657,567	78,455,067	79,970,067	81,510,508	81,789,943	82,934,943
2010-4	29,942,582	41,379,604	52,661,619	59,395,899	62,262,081	64,263,331	65,157,081	66,124,581	67,539,581	68,737,168
2011-1	21,660,543	33,267,894	40,920,203	46,556,557	48,881,866	50,385,933	51,763,599	52,415,670	53,822,258	54,264,758
2011-2	23,840,751	32,734,782	40,288,250	43,164,500	45,094,500	46,908,250	48,160,280	48,875,875	49,985,875	50,890,875
2011-3	18,564,711	26,740,180	35,110,569	37,968,752	39,254,344	41,620,347	42,755,347	43,590,347	44,545,347	46,056,197
2011-4	16,217,366	24,988,889	32,137,071	34,396,960	36,536,060	37,385,231	38,457,731	38,990,231	39,561,481	40,121,981
2012-1	16,975,439	28,180,231	35,463,703	42,049,721	45,509,721	46,744,721	47,854,721	48,402,221	48,949,721	49,764,721
2012-2	34,940,761	49,547,664	56,652,483	60,745,251	64,582,946	66,665,446	68,632,849	69,761,183	70,817,103	71,807,103
2012-3	23,167,472	34,108,254	42,162,981	46,480,736	48,459,864	50,827,364	51,795,768	52,675,768	54,066,435	54,683,935
2012-4	21,110,000	36,045,000	45,266,937	51,672,340	55,657,479	58,119,384	59,260,217	60,275,217	61,770,217	63,932,717
2013-1	27,144,159	40,356,481	48,992,365	54,594,664	58,035,498	59,547,998	60,785,498	62,050,498	63,896,748	65,441,748
2013-2	25,768,833	34,871,290	45,108,051	50,764,064	53,794,514	56,264,514	56,962,014	58,054,514	58,927,302	59,669,802
2013-3	15,134,167	22,265,217	29,797,828	33,761,043	37,150,482	39,174,170	41,589,420	42,865,284	44,457,420	45,222,420
2013-4	13,450,000	21,484,834	28,824,423	34,380,811	36,644,477	38,953,735	40,564,734	41,639,834	42,335,251	42,825,251
2014-1	11,230,016	19,599,253	27,915,885	31,901,743	34,229,243	35,052,993	35,852,993	36,465,926	37,057,176	38,033,426
2014-2	17,404,402	27,116,306	34,372,627	38,455,127	42,250,886	43,983,386	45,434,402	46,046,902	46,969,402	
2014-3	14,052,500	21,043,080	27,139,532	30,305,859	32,677,987	34,554,653	35,612,153	36,369,653		
2014-4	13,659,968	20,711,122	26,680,651	29,134,064	31,629,586	33,478,776	34,681,276			
2015-1	12,524,645	20,189,006	25,241,643	30,355,135	31,825,135	33,167,635				
2015-2	13,043,750	19,757,500	25,716,195	28,764,623	30,545,873					
2015-3	12,774,544	18,457,044	23,451,338	27,636,407						
2015-4	10,412,500	17,463,540	24,260,779							
2016-1	13,225,000	19,137,500								
2016-2	10,932,500									

Age to Age Factors

	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8	8 to 9	9 to 10	10 to 11
Wtd Avg	1.508	1.267	1.122	1.062	1.039	1.026	1.018	1.018	1.015	1.016
Selected	1.508	1.267	1.122	1.062	1.039	1.026	1.020	1.019	1.019	1.018

Part E Compensation

Cumulative Payments by Approval Quarter

	Age11	Age12	Age13	Age14	Age15	Age16	Age17	Age18	Age19	Age20
2005-1	\$38,868,750	\$39,071,250	\$39,183,750	\$39,706,250	\$39,706,250	\$39,948,750	\$39,963,750	\$40,531,250	\$40,588,750	\$40,636,250
2005-2	42,874,338	43,094,338	43,344,338	43,814,338	44,591,671	44,784,171	45,223,183	45,743,183	45,953,183	46,223,183
2005-3	155,962,627	156,264,966	156,299,966	156,824,966	156,909,966	157,152,466	157,292,466	157,292,466	157,327,466	157,682,466
2005-4	55,863,638	56,268,638	56,268,638	56,268,638	56,446,138	56,548,638	56,883,638	57,126,138	57,263,638	57,263,638
2006-1	72,786,642	74,299,142	75,646,642	76,824,878	77,524,878	78,857,108	80,189,608	81,307,108	82,638,677	82,981,177
2006-2	156,528,420	161,779,785	165,443,792	169,860,305	174,090,865	179,146,668	182,810,158	186,239,362	188,748,576	192,042,164
2006-3	125,931,696	128,706,891	130,975,056	133,662,309	135,627,842	138,663,605	140,410,045	141,926,712	144,472,816	146,620,316
2006-4	104,360,157	106,177,558	108,609,474	109,789,792	113,085,890	115,089,243	116,562,857	117,935,198	119,685,198	120,988,557
2007-1	102,793,796	106,677,938	108,379,838	109,762,955	111,384,560	113,060,050	114,950,515	116,427,938	118,363,603	120,461,962
2007-2	135,840,513	138,798,320	141,775,734	144,732,287	147,727,366	149,666,825	152,179,515	154,335,525	155,808,025	156,868,137
2007-3	125,832,818	128,807,501	131,248,397	132,510,897	134,527,877	137,565,201	140,455,201	141,953,191	143,323,397	145,870,897
2007-4	114,481,873	116,408,224	118,255,678	119,732,850	120,952,787	123,488,398	125,144,061	126,328,037	127,327,010	128,789,672
2008-1	86,675,102	87,752,559	90,065,736	91,597,162	92,953,638	94,009,854	94,804,757	95,810,590	96,300,174	97,210,322
2008-2	100,665,837	102,088,337	104,163,797	105,486,565	106,324,065	107,281,565	108,351,565	109,208,929	109,823,929	110,248,929
2008-3	105,688,610	107,023,786	108,520,691	109,993,181	111,517,236	112,872,321	113,344,821	114,124,226	115,003,440	116,191,833
2008-4	108,383,048	109,585,559	110,685,376	111,797,876	113,210,376	114,230,473	115,544,900	116,108,260	116,955,760	118,012,400
2009-1	78,863,095	80,200,852	80,923,352	81,647,828	82,540,328	83,995,328	84,650,328	85,122,828	86,035,328	86,842,828
2009-2	77,404,171	78,604,911	79,568,404	80,671,518	81,271,518	81,664,018	83,097,435	84,009,387	84,439,387	85,118,250
2009-3	68,650,684	70,303,184	71,984,184	73,181,952	73,704,452	74,517,941	75,887,094	76,467,094	76,840,165	77,443,200
2009-4	58,318,614	59,168,614	60,042,026	61,137,859	62,465,350	62,822,850	63,468,062	63,978,062	64,903,062	65,385,562
2010-1	67,543,948	69,680,688	70,756,938	72,031,938	72,707,706	74,083,385	74,912,186	75,527,186	76,042,186	76,836,666
2010-2	64,381,441	65,596,441	66,228,898	67,308,898	68,395,898	68,643,398	69,243,398	70,026,914	70,611,914	71,314,414
2010-3	83,664,943	84,604,275	85,214,275	86,258,886	87,041,386	88,171,283	88,600,033	89,141,283	89,499,313	90,419,313
2010-4	69,679,668	70,712,305	71,939,805	73,273,868	73,657,360	73,944,860	74,797,360	75,734,860	76,252,360	76,774,860
2011-1	54,824,758	55,704,758	56,797,258	57,669,758	58,757,749	59,661,635	61,124,135	61,529,135	61,759,135	62,239,135
2011-2	52,030,601	52,983,101	53,450,601	54,683,101	55,305,601	55,785,601	56,620,601	57,063,101	57,848,101	59,348,101
2011-3	46,531,284	47,076,284	47,566,284	48,263,784	49,156,284	49,902,648	50,187,648	50,490,148	50,767,648	51,532,648
2011-4	40,499,481	41,459,033	42,206,533	42,874,033	43,654,969	44,024,969	44,552,195	45,283,839	46,033,839	
2012-1	50,184,721	50,834,721	51,723,627	52,866,127	53,733,627	54,363,627	55,378,627	56,251,127		
2012-2	72,617,790	74,250,290	75,847,790	77,220,290	78,417,541	79,802,541	80,506,291			
2012-3	55,791,435	56,362,450	57,642,450	58,292,450	58,784,950	59,488,950				
2012-4	64,817,717	66,812,539	67,775,039	68,806,102	70,088,432					
2013-1	66,677,998	67,802,998	69,366,434	70,106,434						
2013-2	61,602,302	62,809,662	63,819,662							
2013-3	46,479,920	47,798,504								
2013-4	44,196,501									
2014-1										

Age to Age Factors

	11 to 12	12 to 13	13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21
Wtd Avg	1.018	1.015	1.015	1.013	1.012	1.012	1.009	1.008	1.011	1.009
Selected	1.018	1.017	1.015	1.014	1.012	1.011	1.010	1.009	1.009	1.008

Part E Compensation

Cumulative Payments by Approval Quarter

	Age21	Age22	Age23	Age24	Age25	Age26	Age27	Age28	Age29	Age30
2005-1	\$40,758,750	\$41,113,750	\$41,143,750	\$41,168,750	\$41,226,250	\$41,290,737	\$41,393,237	\$41,500,737	\$41,535,777	\$41,775,777
2005-2	46,693,183	46,870,683	47,233,183	47,458,183	47,708,183	48,145,683	48,383,183	48,568,145	48,650,645	48,730,645
2005-3	157,807,466	157,894,966	158,002,466	158,112,466	158,212,466	158,359,966	158,489,966	158,539,966	158,664,966	158,664,966
2005-4	57,378,638	57,378,638	57,543,638	57,543,638	57,656,138	57,781,138	57,781,138	57,913,638	57,976,138	58,221,138
2006-1	84,026,177	84,988,677	85,908,677	86,513,677	87,361,177	87,868,677	88,396,177	88,711,177	88,997,287	89,464,787
2006-2	195,457,164	198,511,181	200,951,181	202,686,421	204,688,921	206,660,707	208,640,014	210,870,014	213,330,014	214,606,322
2006-3	147,759,071	149,201,007	150,895,157	152,078,117	152,958,117	154,088,117	155,249,616	156,687,116	157,938,737	158,988,737
2006-4	121,609,942	122,717,442	123,423,672	124,758,672	125,428,672	126,410,426	127,485,426	128,240,426	128,934,795	129,804,795
2007-1	121,296,899	123,344,048	124,645,311	126,355,210	127,971,994	129,385,573	130,801,147	131,984,401	132,647,261	133,763,753
2007-2	158,796,383	160,763,201	162,203,201	164,340,701	166,430,701	167,994,451	170,149,451	171,379,578	172,109,578	173,985,581
2007-3	147,334,465	149,500,004	150,713,465	152,363,985	153,743,921	155,237,716	156,595,355	157,616,251	158,591,834	159,914,575
2007-4	129,867,156	131,405,726	132,799,717	133,956,676	135,529,176	136,346,101	137,612,120	139,596,488	141,469,454	142,969,223
2008-1	98,024,300	98,956,800	99,695,813	100,758,313	101,345,616	102,205,616	103,173,116	103,695,616	104,587,655	105,799,381
2008-2	110,905,018	111,629,018	112,392,939	113,147,803	114,299,072	115,169,072	115,802,300	116,333,134	116,763,224	117,495,846
2008-3	117,202,953	117,962,953	118,405,453	118,762,953	119,560,453	120,372,953	121,044,171	121,984,171	122,753,386	123,609,636
2008-4	118,998,179	120,327,012	121,362,012	122,107,012	123,178,208	123,715,708	124,663,208	125,543,208	126,306,958	127,044,458
2009-1	87,392,828	87,962,828	88,412,915	89,279,894	90,266,277	91,363,777	92,268,777	92,963,834	93,343,834	93,992,584
2009-2	85,910,750	86,743,250	87,357,536	88,867,286	89,554,786	90,137,286	90,722,286	91,739,786	92,468,263	
2009-3	78,118,832	78,861,332	79,614,970	81,237,470	81,514,970	82,527,054	83,022,054	84,327,054		
2009-4	65,893,062	67,489,305	68,196,805	68,641,572	69,476,572	70,010,322	71,215,624			
2010-1	77,550,416	78,375,351	79,529,248	80,316,748	81,101,138	81,698,397				
2010-2	71,804,184	73,181,198	74,181,212	74,666,212	75,342,752					
2010-3	91,318,456	92,037,206	93,132,206	93,571,103						
2010-4	77,942,480	78,709,564	79,847,470							
2011-1	62,799,135	63,396,635								
2011-2	59,918,101									

Age to Age Factors

	21 to 22	22 to 23	23 to 24	24 to 25	25 to 26	26 to 27	27 to 28	28 to 29	29 to 30	30 to 31
Wtd Avg	1.012	1.010	1.009	1.008	1.008	1.008	1.008	1.006	1.007	1.006
Selected	1.007	1.007	1.007	1.006	1.006	1.005	1.005	1.005	1.005	1.004

Part E Compensation

Cumulative Payments by Approval Quarter

	Age31	Age32	Age33	Age34	Age35	Age36	Age37	Age38	Age39	Age40
2005-1	\$41,853,277	\$41,928,277	\$41,945,777	\$41,945,777	\$41,983,277	\$42,028,277	\$42,028,277	\$42,028,277	\$42,110,777	\$42,110,777
2005-2	48,893,145	48,993,145	49,250,645	49,378,145	49,665,676	49,673,176	49,705,676	49,735,676	49,740,676	49,740,676
2005-3	158,874,966	158,899,966	158,899,966	158,899,966	158,899,966	158,909,966	158,984,810	159,034,810	159,112,310	159,279,810
2005-4	58,221,138	58,363,638	58,363,638	58,363,638	58,488,638	58,528,638	58,628,638	58,676,138	58,676,138	58,736,138
2006-1	90,032,287	90,319,787	90,874,162	91,488,582	91,863,632	92,678,632	93,381,132	93,966,132	94,468,511	95,211,011
2006-2	216,713,822	218,849,917	220,666,958	222,706,943	225,001,943	226,756,527	229,817,704	231,792,434	233,702,434	235,969,934
2006-3	159,850,669	160,900,605	162,056,031	163,137,613	164,160,113	165,827,613	166,650,113	167,775,471	169,187,180	169,849,680
2006-4	130,734,795	131,419,795	132,552,295	133,459,081	134,466,581	135,438,354	136,385,300	137,319,901	138,219,901	
2007-1	134,286,253	135,031,253	135,582,529	136,679,140	137,523,258	139,560,883	140,226,329	141,438,747		
2007-2	175,560,581	176,943,081	178,473,081	180,177,007	182,495,444	184,495,444	186,298,280			
2007-3	161,661,917	163,365,192	164,585,192	165,792,713	167,557,713	168,850,606				
2007-4	143,596,723	144,416,132	145,833,491	146,560,991	148,073,491					
2008-1	106,191,881	107,067,715	107,845,215	109,037,667						
2008-2	117,841,051	118,799,166	120,104,166							
2008-3	124,426,719	124,926,719								
2008-4	127,834,052									

Age to Age Factors

	31 to 32	32 to 33	33 to 34	34 to 35	35 to 36	36 to 37	37 to 38	38 to 39	39 to 40	40 to 41
Wtd Avg	1.006	1.007	1.007	1.008	1.008	1.007	1.006	1.005	1.005	1.005
Selected	1.004	1.004	1.004	1.004	1.003	1.003	1.003	1.003	1.003	1.003

Part E Compensation

Cumulative Payments by Approval Quarter

	Age41	Age42	Age43	Age44	Age45	Age46
2005-1	\$42,110,777	\$42,110,777	\$42,110,777	\$42,110,777	\$42,143,277	\$42,233,277
2005-2	49,885,676	49,945,676	50,105,676	50,118,176	50,238,176	
2005-3	159,279,810	159,292,310	159,292,310	159,407,310		
2005-4	58,736,138	58,878,638	58,883,638			
2006-1	95,816,011	96,436,011				
2006-2	238,289,000					

Age to Age Factors

	41 to 42	42 to 43	43 to 44	44 to 45	45 to 46	46 to Ult
Wtd Avg	1.002	1.001	1.001	1.002	1.002	1.024
Selected	1.003	1.003	1.002	1.002	1.002	1.100

Part E Compensation

Summary of Results: Paid Losses

	Current Paid	Paid LDF Indication	Paid BF Indication	Selected Ultimate	Paid % of Ult	Paid BF % of Ult	Annual % of Ult	Ultimate Number of Cases ¹	Ultimate Payment per Case
2005-1	\$ 42,233,277	\$ 46,456,605	\$ 50,656,980	\$ 50,656,980	83%	91%		330	\$ 153,506
2005-2	50,238,176	55,387,589	58,218,506	58,218,506	86%	91%		400	145,546
2005-3	159,407,310	176,161,018	167,972,967	167,972,967	95%	91%	90.2%	1,241	135,353
2005-4	58,883,638	65,231,294	71,902,378	71,902,378	82%	90%		467	153,967
2006-1	96,436,011	107,101,834	112,441,731	112,441,731	86%	90%		789	142,512
2006-2	238,289,000	265,334,802	254,226,160	254,226,160	94%	90%		1,959	129,773
2006-3	169,849,680	189,637,168	188,112,610	188,112,610	90%	90%	89.2%	1,377	136,610
2006-4	138,219,901	154,764,823	159,140,231	159,140,231	87%	89%		1,120	142,089
2007-1	141,438,747	158,835,713	161,236,347	161,236,347	88%	89%		1,162	138,758
2007-2	186,298,280	209,865,012	206,108,000	206,108,000	90%	89%		1,513	136,225
2007-3	168,850,606	190,818,070	188,452,136	188,452,136	90%	89%	88.1%	1,356	138,977
2007-4	148,073,491	167,900,531	167,678,091	167,678,091	88%	88%		1,219	137,554
2008-1	109,037,667	124,073,961	127,532,787	127,532,787	85%	88%		930	137,132
2008-2	120,104,166	137,170,968	138,005,326	138,005,326	87%	88%		1,018	135,565
2008-3	124,926,719	143,228,483	141,809,099	141,809,099	88%	87%	86.7%	1,061	133,656
2008-4	127,834,052	147,162,561	144,732,362	144,732,362	88%	87%		1,060	136,540
2009-1	93,992,584	108,664,826	110,327,584	110,327,584	85%	87%		790	139,655
2009-2	92,468,263	107,383,394	107,608,363	107,608,363	86%	86%		792	135,869
2009-3	84,327,054	98,401,239	98,464,034	98,464,034	86%	86%	85.0%	714	137,905
2009-4	71,215,624	83,521,684	85,209,124	85,209,124	84%	85%		612	139,231
2010-1	81,698,397	96,330,580	96,258,012	96,258,012	85%	85%		703	136,925
2010-2	75,342,752	89,341,435	90,282,530	90,282,530	83%	84%		640	141,066
2010-3	93,571,103	111,630,326	108,773,831	108,773,831	86%	84%	83.0%	850	127,969
2010-4	79,847,470	95,872,857	94,776,758	94,776,758	84%	83%		715	132,555
2011-1	63,396,635	76,646,532	77,934,067	77,934,067	81%	83%		575	135,538
2011-2	59,918,101	72,980,247	73,011,951	73,011,951	82%	82%		530	137,758
2011-3	51,532,648	63,266,632	64,154,068	64,154,068	80%	82%	80.4%	472	135,920
2011-4	46,033,839	57,003,703	60,086,735	60,086,735	77%	81%		435	138,130
2012-1	56,251,127	70,308,284	70,969,764	70,969,764	79%	80%		523	135,697
2012-2	80,506,291	101,647,243	96,957,011	96,957,011	83%	79%		759	127,743
2012-3	59,488,950	75,943,594	78,138,152	78,138,152	76%	78%	76.8%	583	134,028
2012-4	70,088,432	90,568,272	90,202,288	90,202,288	78%	77%		676	133,435
2013-1	70,106,434	91,818,397	89,395,374	89,395,374	78%	76%		701	127,525
2013-2	63,819,662	84,841,859	83,279,396	83,279,396	77%	75%		644	129,316
2013-3	47,798,504	64,614,018	66,288,316	66,288,316	72%	74%	72.1%	531	124,837
2013-4	44,196,501	60,792,287	62,241,801	62,241,801	71%	73%		480	129,670
2014-1	38,033,426	53,258,206	55,101,656	55,101,656	69%	71%		428	128,742
2014-2	46,969,402	66,987,761	64,018,930	64,018,930	73%	70%		523	122,407
2014-3	36,369,653	52,856,017	53,521,034	53,521,034	68%	69%	66.3%	414	129,278
2014-4	34,681,276	51,411,524	52,252,876	52,252,876	66%	68%		390	133,982
2015-1	33,167,635	50,451,290	50,256,523	50,256,523	66%	66%		387	129,862
2015-2	30,545,873	48,280,807	48,341,558	48,341,558	63%	63%		354	136,558
2015-3	27,636,407	46,390,473	46,759,797	46,759,797	59%	60%	45.6%	339	137,935
2015-4	24,260,779	45,709,734	45,412,315	45,412,315	53%	53%		346	131,249
2016-1	19,137,500	45,685,040	44,874,419	44,874,419	43%	42%		336	133,555
2016-2	10,932,500	39,355,907	42,405,976	42,405,976	26%	28%		300	141,353
Total	\$ 3,767,455,543	\$ 4,541,094,600	\$ 4,545,529,954	\$4,545,529,954	83%			33,544	\$ 135,509

1 - The number of cases includes only those cases that have received a payment

Part E Compensation

Summary of Results: Counts¹

	Current Reported	Reported LDF	Reported BF	Selected
2005-1	325	330	331	330
2005-2	390	398	403	400
2005-3	1,226	1,252	1,240	1,241
2005-4	452	462	469	467
2006-1	770	786	793	789
2006-2	1,929	1,972	1,959	1,959
2006-3	1,344	1,377	1,379	1,377
2006-4	1,090	1,120	1,122	1,120
2007-1	1,128	1,161	1,164	1,162
2007-2	1,473	1,520	1,514	1,513
2007-3	1,314	1,359	1,359	1,356
2007-4	1,180	1,224	1,222	1,219
2008-1	893	928	933	930
2008-2	979	1,020	1,020	1,018
2008-3	1,018	1,064	1,063	1,061
2008-4	1,017	1,065	1,060	1,060
2009-1	751	788	792	790
2009-2	756	795	794	792
2009-3	679	716	715	714
2009-4	577	610	614	612
2010-1	667	707	704	703
2010-2	599	636	642	640
2010-3	805	857	850	850
2010-4	670	716	716	715
2011-1	535	574	576	575
2011-2	494	531	531	530
2011-3	438	472	473	472
2011-4	400	433	436	435
2012-1	479	520	525	523
2012-2	707	771	758	759
2012-3	526	576	585	583
2012-4	617	680	677	676
2013-1	636	705	702	701
2013-2	580	647	645	644
2013-3	470	529	532	531
2013-4	424	482	481	480
2014-1	369	423	430	428
2014-2	459	533	522	523
2014-3	347	410	415	414
2014-4	325	390	391	390
2015-1	317	391	388	387
2015-2	275	354	355	354
2015-3	242	336	339	339
2015-4	212	349	347	346
2016-1	148	347	334	336
2016-2	73	280	304	300
Total	31,105	33,596	33,604	33,544

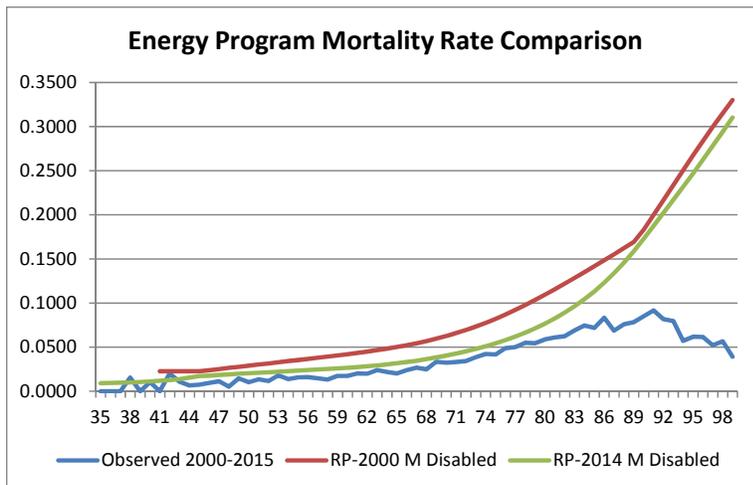
1 - The number of cases includes only those cases that have received a payment

Technical Appendix 3: Mortality Tables

At the request of the OWCP, we reviewed the mortality tables previously in the model to determine whether updates were needed. The previous mortality table was the RP-2000 Male Disabled Retiree table, as published by the Society of Actuaries.

The OWCP provided historical data for EEOICPA participants containing enrollment dates, birth dates, and dates of death. We did not independently verify or audit this data. We organized the data to determine, for each year, how many participants of each age were approved for EEOICPA benefits at the beginning of the year, and how many participants of each age died during the course of each year.

The graph below shows the RP tables along with observed mortality data. The observed data is not complete, in that not all deaths of approved cases are reported to the EEOICPA program. We assume that it is the non-reporting of deaths that is causing the mortality rates in the observed data to level off and decline in the later ages.



We recommended that the OWCP use the RP-2014 Male Disabled Retiree mortality table (as published by the Society of Actuaries) for the EEOICPA program. We believe that the choice of Disabled Retirees is reasonable for the EEOICPA population, as the EEOICPA participants have disabling diseases such as cancer and silicosis, and we also believe that it would be appropriate to use the most up-to-date version of this mortality table. The observed data seems to indicate that the RP-2014 mortality rates are appropriate, although we are somewhat guarded with this indication since the observed data is not fully credible (not all deaths are reported and we do not have an estimate of the percentage of unreported deaths). The OWCP accepted the recommendation to use the RP-2014 Male Disabled Retiree mortality table.

The impact of updating the mortality table, all else being equal, is a \$1.2 billion increase in the discounted future medical payments.