



Estimate of EEOICPA Liabilities

Liability Estimate as of September 30, 2021

Report prepared for:

U.S. Department of Labor

Office of Workers' Compensation Programs

Report Date: December 16, 2021



December 16, 2021

Eric Hill
Comptroller, 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, 2021

Dear Mr. Hill:

Attached is the actuarial report documenting our analysis of the EEOICPA liabilities as of September 30, 2021. 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

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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.

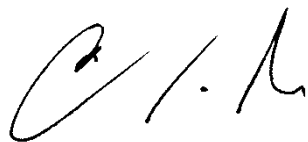
The Office of Workers’ Compensation Programs (“OWCP”) at the U.S. Department of Labor maintains a model to estimate the future liabilities of the EEOICPA program. The OWCP has requested that Gross Consulting review the annual data updates to the model, review the reasonableness of the EEOICPA model and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

Distribution and Use

The valuation has been conducted in accordance with all relevant Actuarial Standards of Practice. The purpose of the actuarial valuation report is to document the Energy Employees’ Occupational Illness Compensation Program (“EEOICP”) actuarial liability estimate and the change in the actuarial liability, and to assess the reasonableness of the related assumptions; to assist the U.S. Department of Labor in preparing the consolidated financial statements, as of and for the fiscal year ended September 30, 2021, in accordance with U.S. generally accepted accounting principles, as promulgated by the Federal Accounting Standards Advisory Board. 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.



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.

As of 9/30/2021, the discounted liability estimate for future EEOICPA benefit payments is \$43 billion. The future compensation payments are projected at \$8 billion, and the future medical payments are projected at \$35 billion, on a discounted basis. This is a 14.7% increase over the 9/30/2020 liability estimate of \$37.5 billion, largely driven by the continued increase in utilization of medical services and expansion of benefits due to increases in acceptances of “consequential conditions” in existing cases.

ESTIMATED LIABILITY FOR EEOICPA AS OF SEPTEMBER 30, 2021

SUMMARY OF LIABILITY FOR FUTURE PAYMENTS (\$ Millions)

	Discounted Liability Estimate		YOY Difference
	as of 9/30/2021	as of 9/30/2020	
Compensation: Part B	\$ 2,956	\$ 3,189	\$ (233)
Compensation: Part E	5,163	5,473	(310)
Compensation: Total	8,119	8,662	(543)
Medical Payments	34,918	28,859	6,059
Total Future Payments	\$ 43,038	\$ 37,521	\$ 5,516 14.7%

The discount rates used for the 9/30/2021 estimate were 2.120% for compensation and 2.384% for medical.

Discounted Cash Flow by Year

The following exhibits document the estimated cash flows by year, on a discounted basis. For informational purposes, the cash flows for the Department of Justice Part B RECA 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, 2021

SUMMARY OF DISCOUNTED 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)	(4)	(5)	(6)
2022	\$ 237,249,303	\$ 371,400,776	\$ 12,183,123	\$ 620,833,201	\$ 1,160,422,571	\$ 1,781,255,772
2023	221,444,946	368,009,855	11,180,792	600,635,593	\$ 1,225,657,209	1,826,292,802
2024	203,814,587	354,222,747	10,260,925	568,298,258	\$ 1,283,224,383	1,851,522,641
2025	186,945,868	335,688,660	9,416,737	532,051,265	\$ 1,328,592,364	1,860,643,629
2026	171,523,395	315,213,152	8,642,002	495,378,549	\$ 1,362,491,104	1,857,869,653
2027	157,419,990	295,709,166	7,931,007	461,060,162	\$ 1,365,900,032	1,826,960,194
2028	144,519,859	278,082,056	7,278,506	429,880,421	\$ 1,360,554,167	1,790,434,588
2029	132,717,558	261,074,515	6,679,688	400,471,761	\$ 1,347,634,836	1,748,106,597
2030	121,917,057	244,213,556	6,130,136	372,260,749	\$ 1,328,213,353	1,700,474,102
2031	112,030,887	223,258,594	5,625,797	340,915,279	\$ 1,303,244,851	1,644,160,130
2032	102,979,370	204,130,140	5,162,951	312,272,462	\$ 1,273,572,665	1,585,845,126
2033	94,689,913	186,267,537	4,738,184	285,695,635	\$ 1,239,935,380	1,525,631,015
2034	87,096,370	169,976,637	4,348,364	261,421,371	\$ 1,202,975,449	1,464,396,821
2035	80,138,461	155,047,050	3,990,615	239,176,126	\$ 1,163,258,024	1,402,434,150
2036	73,761,244	141,244,180	3,662,299	218,667,722	\$ 1,121,294,765	1,339,962,488
2037	67,914,636	128,445,700	3,360,994	199,721,330	\$ 1,077,562,102	1,277,283,432
2038	62,552,975	116,571,967	3,084,478	182,209,420	\$ 1,032,513,190	1,214,722,610
2039	57,634,625	106,192,081	2,830,711	166,657,418	\$ 986,588,530	1,153,245,947
2040	53,121,614	96,958,761	2,597,823	152,678,198	\$ 940,217,191	1,092,895,389
2041	48,979,306	88,518,801	2,384,095	139,882,202	\$ 893,811,711	1,033,693,913
2042	45,176,103	80,623,704	2,187,950	127,987,757	\$ 847,762,675	975,750,432
2043	41,683,174	73,447,969	2,007,943	117,139,086	\$ 802,429,362	919,568,447
2044	38,474,206	66,824,337	1,842,745	107,141,288	\$ 758,129,800	865,271,088
2045	35,525,185	60,562,768	1,691,139	97,779,091	\$ 715,133,532	812,912,623
2046	32,814,184	54,948,170	1,552,005	89,314,359	\$ 673,658,058	762,972,417
After 2046	203,939,408	386,363,490	9,318,000	599,620,898	7,123,612,460	7,723,233,358
Total Future ¹	\$2,816,064,222	\$ 5,162,996,367	\$ 140,089,010	\$ 8,119,149,600	\$34,918,389,764	\$43,037,539,363

¹ Reflects projected cash flow through 2081

Totals may not equal sum of components because of independent rounding

Summary of Changes

Based on observed trends in the updated EEOICPA data, the following changes in assumptions were made to the model this year:

1. Part B

- Slight decrease in the projected number of future approved Part B cases
- Slight increase in the percentage of Part B approvals that are already approved for Part E, and in the estimated percentage of awards that are filed by the employee

2. Part E

- Slight decrease in the projected number of future new cases approved for Part E
- Increase in the estimated percentage of awards that are filed by the employee

3. Medical Costs

The estimated medical inflation rates for future years 1-5 were increased based on guidance from OWCP management regarding expected utilization of medical services in the short term. The long-term inflation rates selected are the CPI-Medical inflation rates from the OMB Economic Assumptions.

Please see Appendix 2 for a listing of the specific values for all assumptions.

Actual vs Projected

Number of Cases Approved

Overall, there were 28% fewer Part B cases and 14% fewer Part E cases newly approved during 7/1/2020 to 6/30/2021 than what was projected. We assume this is largely due to the COVID-19 pandemic, as the number of filed claims has decreased since the start of the pandemic.

Total Approved Cases 7/1/20 to 6/30/21

	Projected @7/2020	Actual @6/2021	Diff	%Diff
B: RECA	145	113	-32	-22%
B: BD & BS	88	53	-35	-40%
B: CS	405	337	-68	-17%
B: CNSEC	925	599	-326	-35%
B: CN	<u>356</u>	<u>282</u>	<u>-74</u>	<u>-21%</u>
Part B Total	1,920	1,384	-536	-28%
Part E	2,679	2,294	-385	-14%

Cash Flow

Overall, the revised cash flow projection for Fiscal Year 2021 is very similar to the amount projected as of 9/30/2020.

Benefit Payments FY 2021

	Projected @9/2020	Actual 9 month + Proj 3 mo	\$ Difference	%Diff
Part B Compensation	276,213,806	194,972,199	(81,241,607)	-29%
Part E Compensation	403,300,174	434,139,295	30,839,121	8%
Medical Payments	1,033,268,375	1,083,000,000	49,731,625	5%
Total	1,712,782,355	1,712,111,494	(670,861)	0%

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 approved
3. Estimate the average compensation payout per approved case
4. Determine the payout patterns to estimate the compensation cash flow by year

Medical Benefits

5. Estimate the percentage of cases eligible for medical benefits
 6. Remove double counting – cases can be approved for both Part B and Part E
 7. Apply mortality assumptions to determine the number eligible for medical benefits
 8. Estimate the number of individuals eligible for medical benefits
 9. Estimate the average medical costs and future inflation rates
 10. Calculate the total expected medical payments
-
11. Discount the future payments to 9/30/2021

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 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 (if known), and survivor information.

The data provided for this analysis consists of a series of text data files that were imported into a 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 compensation payments 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 database queries to create summarized tables of new entrants, compensation payments, medical payments, and claims filed by living employees. These summarized tables are checked against the EEOICP Program Statistics² (as shown in the table below), and then brought into the EEOICPA model to begin the analysis.

Comparison to EEOICP Program Statistics

Website: <https://www.dol.gov/owcp/energy/regs/compliance/weeklystats.htm>

The data on this website is updated weekly, and shows cumulative data since the inception of the program.

	Raw Data @		7/1/2021		DOL website as of 7/5/2021		Difference between raw data and 7/5/2021 website data	
	# Cases	Payments	# Cases	Payments	# Cases	Payments	# Cases	Payments
Part B Compensation	57,803	7,287,339,615	57,745	7,290,039,615	-0.1%	0.0%		
Part E Compensation	52,182	5,546,517,897	52,056	5,556,160,397	-0.2%	0.2%		
Medical		6,949,321,993		6,969,707,223		0.3%		
Total		19,783,179,505		19,815,907,235		0.2%		

² The expectation is not that the results will match exactly to the website, but that they will be reasonably close. Due to the fact that the data may reported a few days apart, and that there may be slightly differing methodologies for determining the number of approved cases, a small amount of variance is expected.

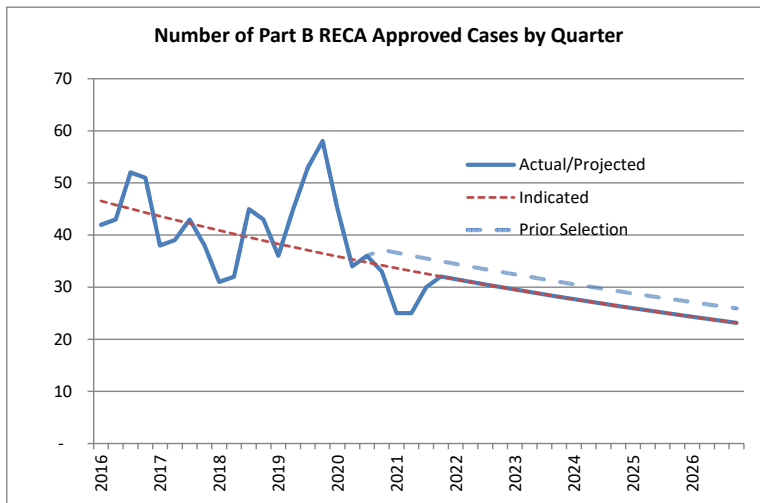
2: Estimate the number of Future Approved Cases

To estimate the number of cases that will be newly approved in the future, the historical number of newly-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.

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 differs somewhat over time. For the 9/30/2021 liability estimate, the models are based predominately on the last four or five years of history. For Part E, it is assumed that the current rate of awards will continue for the next two years and will then begin to decline.

The exhibits on the following pages show a graph of the quarterly history of newly-approved cases, the modeled fit line, as well as the assumed projections (current and prior). Significant actuarial judgment was used in making these projections, in light of what was believed to be temporarily depressed approval levels as a result of COVID-19 impacts. Hence the projection will not always coincide with the modeled fit line. We find the selected projections to be reasonable and appropriate.

Part B: RECA

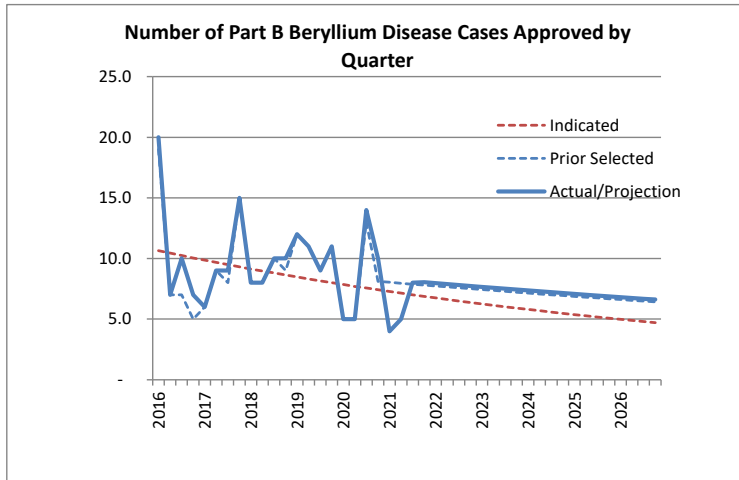


Selected Decay Rates:

	<u>2021</u>	<u>2020</u>
Quarterly	1.6%	1.5%
Annual	6.3%	5.8%

The Part B RECA program currently has a sunset date of July 9, 2022, but is likely to be extended or possibly expanded. This actuarial report assumes that the RECA program will continue unchanged.

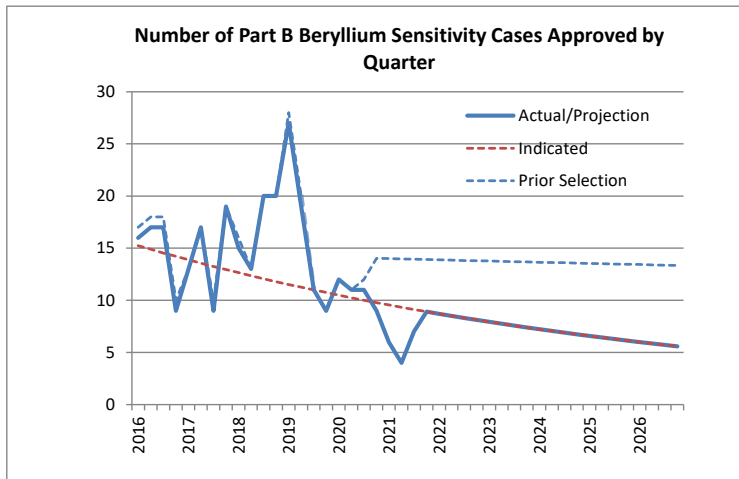
Part B: Beryllium Disease



Selected Decay Rates:

	<u>2021</u>	<u>2020</u>
Quarterly	1.0%	1.0%
Annual	3.8%	3.8%

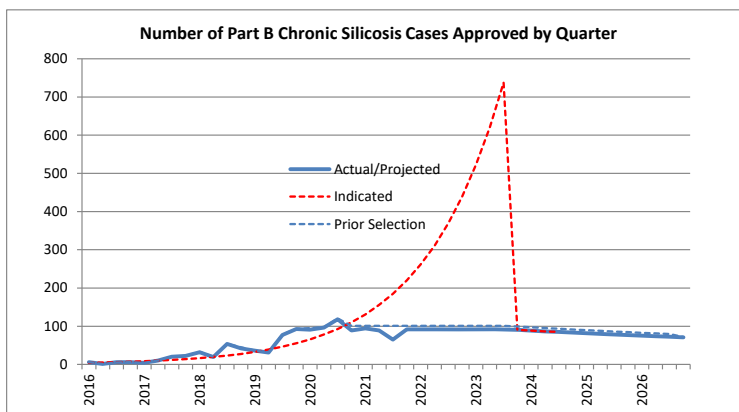
Part B: Beryllium Sensitivity



Selected Decay Rates:

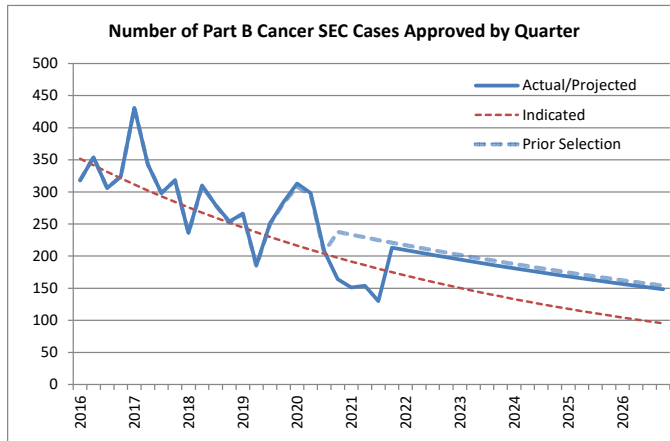
	<u>2021</u>	<u>2020</u>
Quarterly	2.3%	0.2%
Annual	8.9%	0.8%

Part B : Chronic Silicosis



Due to the recent increase in approved cases, a curve was not fit to the historical data for Part B Chronic Silicosis. Instead, 92 new cases per quarter (average of most recent eight quarters) is projected for FY2022 and FY 2023, with a 2% quarterly decay going forward at that point.

Part B: Cancer SEC

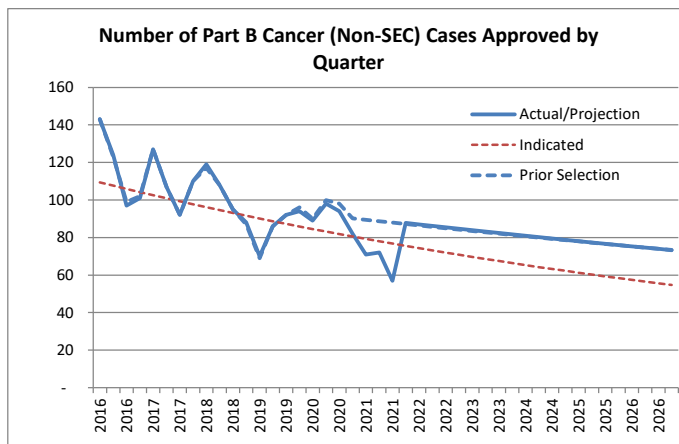


Selected Decay Rates:

	<u>2021</u>	<u>2020</u>
Quarterly	1.8%	1.8%
Annual	7.0%	7.0% ³

For Cancer SEC, a decay model is fit to recent history, excluding 2021, to estimate future decay rates. This method does not explicitly assume any future new SEC designations.

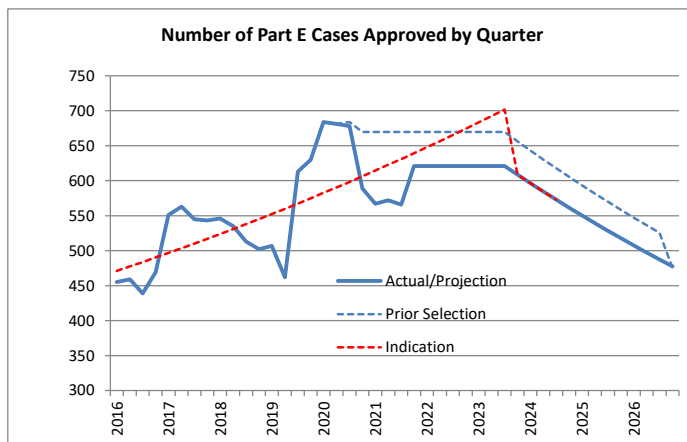
Part B: Cancer Non-SEC



Selected Decay Rates:

	<u>2021</u>	<u>2020</u>
Quarterly	0.9%	0.9%
Annual	3.6%	3.4%

Part E



Due to the recent dramatic shifts in approved cases, a curve was not fit to the historical data for Part E. Instead, 621 new cases per quarter (average of most recent eight quarters) is projected for FY2022 and FY 2023, with a 2% quarterly decay going forward at that point.

³ A new SEC class was designated for the Savannah River Site on September 17th, 2021. Due to the timing of this designation within the liability calculation process, this report excludes the additional information pertaining to this SEC. In conversation with the program management regarding this additional SEC and its relatively small size in comparison to the expected number of awards being projected in the liability estimate, we consider this exclusion to be immaterial to the estimate.

**ESTIMATED LIABILITY FOR EEOICPA
AS OF SEPTEMBER 30, 2021**

PROJECTED NUMBER OF CASES APPROVED BY YEAR

Projected Number of Cases Approved								
Fiscal Yr	Part B						Part B Total	Part E
	RECA	BD	BS	CS	CN SEC	CN Non SEC		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Prior	4,250	1,969	531	76	5,177	3,460	15,463	7,749
2007	1,115	266	107	18	1,341	1,315	4,162	6,152
2008	645	217	108	12	2,101	1,013	4,096	5,028
2009	456	144	87	17	1,768	817	3,289	3,966
2010	326	124	73	13	2,224	791	3,551	3,412
2011	267	109	80	21	2,799	770	4,046	2,904
2012	295	95	62	13	2,561	739	3,765	2,956
2013	303	61	46	2	2,762	573	3,747	3,243
2014	242	55	38	2	1,786	441	2,564	2,300
2015	242	48	50	10	1,352	388	2,090	1,803
2016	188	44	59	19	1,302	465	2,077	1,822
2017	158	39	58	56	1,390	436	2,137	2,202
2018	151	36	68	147	1,079	410	1,891	2,096
2019	192	43	66	237	987	342	1,867	2,212
2020	148	34	43	394	983	363	1,965	2,632
2021	112	25	26	340	648	288	1,439	2,326
Through 2021							58,149	52,803

ESTIMATED LIABILITY FOR EEOICPA AS OF SEPTEMBER 30, 2021

PROJECTED NUMBER OF CASES APPROVED BY YEAR

Projected Number of Cases Approved								
Fiscal Yr	Part B						Part B Total	Part E
	RECA	BD	BS	CS	CN SEC	CN Non SEC		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2022	123	31	34	368	815	343	1,714	2,484
2023	115	30	31	366	758	331	1,631	2,472
2024	108	29	28	343	705	319	1,532	2,315
2025	101	28	25	316	655	308	1,434	2,135
2026	95	27	23	292	609	297	1,343	1,970
2027	89	26	21	269	567	287	1,258	1,817
2028	83	25	19	248	527	276	1,179	1,676
2029	78	24	18	229	490	267	1,105	1,546
2030	73	23	16	211	456	257	1,036	1,426
2031	69	22	15	195	424	248	972	1,315
2032	64	21	13	180	394	239	912	1,213
2033	60	20	12	166	367	231	856	1,119
2034	57	20	11	153	341	222	803	1,032
2035	53	19	10	141	317	215	754	952
2036	50	18	9	130	295	207	709	878
2037	47	17	8	120	274	200	666	810
2038	44	17	8	111	255	192	626	747
2039	41	16	7	102	237	186	589	689
2040	38	16	6	94	221	179	554	635
2041	36	15	6	87	205	173	521	586
2042	34	14	5	80	191	167	491	541
2043	32	14	5	74	177	161	462	499
2044	30	13	4	68	165	155	435	460
2045	28	13	4	63	153	149	410	424
2046	26	12	4	58	143	144	387	391
2047	24	12	3	53	133	139	365	361
2048	23	11	3	49	123	134	344	333
2049	21	11	3	45	115	129	325	307
2050	20	11	2	42	107	125	306	283
2051	19	10	2	39	99	120	289	261
2052	18	10	2	36	92	116	273	241
2053	16	9	2	33	86	112	258	222
2054	15	9	2	30	80	108	244	205
2055	14	9	2	28	74	104	231	189

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 condition develops into Beryllium Disease, the case 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 less than 30% of the ultimate compensation benefits are paid within one fiscal year of approval. This is due to the nature of the benefit payments. Employee claimants can file for additional wage or impairment payments subsequent to the initial case approval, and the survivors of the employee may be eligible to receive a lump sum benefit upon the death of the employee years after the initial case approval.

A cradle-to-grave cost estimate is needed, to apply to future new entrants. Because of the development of payments over time, a triangle squaring approach is employed where the compensation payments are organized into a triangle by first approval quarter and subsequent payment quarters. Historical relationships between quarters were then measured and projected forward to determine the ultimate payments by approval quarter from 2005 to the present. The average projected ultimate is then divided by the number of approved cases to determine the average compensation per case.

Part E Average Compensation per case	\$157,000
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For more detail on the triangle development analysis, see Appendix 3.

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.

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 case approval.

Part B Compensation Payout Pattern

Year 1 100%

The compensation payment triangle analysis was used to estimate the payout pattern for Part E benefits:

Part E Compensation Payout Pattern

<u>Year</u>	<u>% Paid</u>
Year 1	28.5%
Year 2	25.3%
Year 3	6.4%
Year 4	5.9%
Year 5	4.3%
Year 6	4.4%
Year 7	3.8%
Year 8	3.1%
Year 9	2.9%
Year 10	2.7%
Year 11	2.3%
Year 12	2.2%
Year 13	1.9%
Year 14	1.1%
Years 15-25	0.5%

For more detail on the payment pattern analysis, please see Appendix 3.

5: Estimate the number of cases eligible for medical benefits

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

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

Historical ratios were used to select the percentage of future cases expected to contain an approved claim filed by an employee (and thus eligible for medical benefits).

% of Newly-Approved Cases that were filed by an Employee

	<u>RECA</u>	<u>BD</u>	<u>BS</u>	<u>CS</u>	<u>CN SEC</u>	<u>CN Non SEC</u>	<u>E</u>
20163	57%	86%	100%	100%	54%	71%	77%
20164	55%	100%	100%	75%	51%	64%	71%
20171	56%	78%	100%	100%	47%	71%	75%
20172	65%	78%	100%	95%	57%	61%	80%
20173	63%	73%	100%	82%	56%	69%	80%
20174	61%	88%	93%	91%	52%	64%	78%
20181	75%	50%	100%	100%	56%	78%	79%
20182	53%	80%	100%	91%	55%	71%	79%
20183	70%	80%	100%	95%	64%	77%	81%
20184	50%	58%	100%	94%	59%	74%	81%
20191	56%	45%	100%	100%	67%	71%	85%
20192	53%	78%	100%	96%	66%	76%	83%
20193	50%	91%	100%	94%	55%	71%	80%
20194	56%	80%	100%	95%	56%	74%	81%
20201	74%	60%	100%	95%	54%	87%	85%
20202	56%	71%	100%	92%	64%	82%	89%
20203	82%	100%	100%	97%	64%	84%	88%
20204	64%	75%	100%	96%	62%	83%	90%
20211	32%	40%	100%	96%	63%	83%	88%
20212	53%	75%	100%	94%	75%	84%	92%
10-yr average	62%	72%	100%	79%	50%	69%	75%
5-yr average	59%	74%	100%	94%	59%	75%	82%
2-yr average	58%	74%	100%	95%	62%	81%	87%
1-yr average	58%	73%	100%	95%	66%	84%	90%
Prev selected	59%	74%	100%	94%	55%	75%	83%
Selected	58%	73%	100%	95%	61%	80%	86%

The selected ratios are then applied to future approved cases in all future years, to estimate the number of future cases that will be 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.

It is assumed that 10.9% 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 B cases filed by an employee that had previously been accepted as a Part E case	
<u>FY</u>	<u>Percent</u>	<u>FY</u>	<u>Percent</u>
2007	0.8%	2007	30.4%
2008	2.5%	2008	16.1%
2009	5.9%	2009	6.2%
2010	10.2%	2010	1.3%
2011	9.0%	2011	1.4%
2012	10.5%	2012	1.5%
2013	7.8%	2013	0.8%
2014	8.9%	2014	0.7%
2015	8.9%	2015	0.8%
2016	8.6%	2016	0.8%
2017	9.7%	2017	0.6%
2018	12.4%	2018	0.7%
2019	12.2%	2019	0.4%
2020	11.8%	2020	0.3%
2021	10.9%	2021	0.7%
Selected	10.9%	Selected	0.7%

Additionally, some cases will receive an approval for both Part B and Part E at the same time, or in the same fiscal year. 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 79% of the employee-filed Part B cases also are approved for Part E at the same time. It is assumed that this ratio will continue into the future.

Percent of Part B cases filed by an employee where Part E is approved in the same year		Percent of Part E cases filed by an employee where Part B is approved in the same year	
<u>FY</u>	<u>Percent</u>	<u>FY</u>	<u>Percent</u>
2007	88.9%	2007	46.3%
2008	82.3%	2008	49.2%
2009	80.4%	2009	47.7%
2010	79.7%	2010	60.3%
2011	69.3%	2011	60.7%
2012	73.6%	2012	67.4%
2013	81.4%	2013	68.8%
2014	78.0%	2014	63.8%
2015	79.0%	2015	70.4%
2016	78.6%	2016	67.0%
2017	78.0%	2017	58.0%
2018	77.5%	2018	57.7%
2019	80.5%	2019	56.4%
2020	82.5%	2020	51.7%
2021	79.0%	2021	41.5%
Selected	79.0%		

To convert the number of approved employee-filed cases into the number of employee-filed cases eligible for medical benefits, the number of newly-approved employee-filed Part B cases is reduced by 10.9%, the number of newly-approved employee-filed Part E cases is reduced by 0.7% (as shown on the previous page) and then the newly-approved employee-filed Part B cases is further reduced by 79% 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 first claim is approved⁴.

Average Age of Employee at First Case Approval Date

Part B			Part E		
<u>FY</u>	<u>Count</u>	<u>Avg Age at Award</u>	<u>FY</u>	<u>Count</u>	<u>Avg Age at Award</u>
2001	116	71.0			
2002	1,733	66.4			
2003	1,485	64.4			
2004	928	68.7			
2005	1,167	70.4	2005	239	69.0
2006	1,486	72.2	2006	3,256	70.4
2007	1,969	70.5	2007	3,777	71.0
2008	1,700	71.8	2008	2,837	70.9
2009	1,369	72.7	2009	2,302	70.8
2010	1,560	72.2	2010	2,058	70.7
2011	1,572	72.5	2011	1,792	71.0
2012	1,637	73.2	2012	1,781	72.2
2013	1,783	70.8	2013	2,102	70.2
2014	1,293	72.7	2014	1,581	71.3
2015	1,137	72.8	2015	1,276	72.2
2016	1,176	73.7	2016	1,375	72.4
2017	1,255	73.2	2017	1,684	72.4
2018	1,247	72.2	2018	1,661	71.5
2019	1,286	72.4	2019	1,820	71.3
2020	1,422	71.9	2020	2,253	70.3
2021	774	71.6	2021	1,536	69.6
Average 2012-2021		72.5	Average 2012-2021		71.3

⁴ The exception to this assumption is for employees for which the first case approval date was more than 15 years ago. For these employees, the model uses a weighted average of the actual age at approval.

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, 2021

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 SEC	Non SEC	Part E	Part B already in	Part E already in	EB concurrent				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Prior	1,970	1,257	531	63	1,745	1,349	3,497	(18)	(1,968)	(1,085)	7,341	(855)	6,486	
2007	782	156	107	12	377	534	3,777	(15)	(1,150)	(1,750)	2,830	(404)	8,912	7,699
2008	380	141	107	10	598	461	2,837	(42)	(458)	(1,396)	2,638	(529)	11,021	9,966
2009	271	92	87	10	467	439	2,302	(81)	(142)	(1,098)	2,347	(642)	12,726	11,873
2010	193	90	73	9	741	452	2,058	(159)	(27)	(1,241)	2,189	(749)	14,166	13,446
2011	162	74	80	14	771	470	1,792	(142)	(25)	(1,088)	2,108	(852)	15,422	14,794
2012	188	65	62	9	869	438	1,781	(171)	(26)	(1,201)	2,014	(952)	16,484	15,953
2013	222	41	46	2	1,121	346	2,102	(139)	(16)	(1,447)	2,278	(1,063)	17,699	17,091
2014	153	43	38	2	750	307	1,581	(115)	(11)	(1,009)	1,739	(1,149)	18,289	17,994
2015	160	37	50	8	630	251	1,276	(101)	(10)	(898)	1,403	(1,219)	18,473	18,381
2016	111	31	59	16	663	292	1,375	(101)	(11)	(921)	1,514	(1,291)	18,696	18,584
2017	95	31	58	50	728	289	1,684	(121)	(10)	(976)	1,828	(1,375)	19,148	18,922
2018	97	27	67	137	613	295	1,661	(153)	(11)	(958)	1,775	(1,454)	19,469	19,309
2019	100	29	66	226	603	250	1,820	(155)	(7)	(1,026)	1,906	(1,534)	19,841	19,655
2020	97	27	43	372	575	297	2,253	(167)	(7)	(1,164)	2,326	(1,628)	20,539	20,190
2021	65	18	26	322	395	230	2,010	(115)	(14)	(835)	2,102	(1,707)	20,934	20,736

Notes:

(2)-(8) = Number of approved cases * percent of cases filed by employee

(12) = Sum of (2) through (11)

(13) = Mortality tables applied to the average number of individuals eligible

(14) = (14) from previous year + (12) + (13)

(15) = Average of (14) from previous year and (14) from current year

**ESTIMATED LIABILITY FOR EEOICPA
AS OF SEPTEMBER 30, 2021**

ESTIMATED NUMBER OF INDIVIDUALS ELIGIBLE FOR MEDICAL EXPENSES

Fiscal Year	New Cases Eligible for Medical Expenses							Remove double counting:				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	Net new Individuals			
					CN SEC	Non SEC								
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
2022	72	23	34	349	496	274	2,146	(136)	(15)	(986)	2,257	(1,786)	21,405	21,170
2023	67	22	31	347	461	265	2,136	(130)	(15)	(943)	2,241	(1,858)	21,789	21,597
2024	63	21	28	325	429	255	2,000	(122)	(14)	(886)	2,100	(1,915)	21,974	21,881
2025	59	20	25	300	399	246	1,845	(114)	(13)	(830)	1,938	(1,956)	21,956	21,965
2026	56	20	23	276	371	237	1,702	(107)	(12)	(777)	1,789	(1,981)	21,764	21,860
2027	52	19	21	255	345	229	1,570	(100)	(11)	(728)	1,652	(1,990)	21,426	21,595
2028	49	18	19	235	321	221	1,448	(94)	(10)	(682)	1,525	(1,984)	20,967	21,197
2029	46	18	18	217	299	213	1,335	(88)	(9)	(639)	1,408	(1,964)	20,411	20,689
2030	43	17	16	200	278	205	1,232	(83)	(9)	(599)	1,300	(1,935)	19,776	20,093
2031	40	16	15	185	258	198	1,136	(78)	(8)	(562)	1,200	(1,896)	19,080	19,428
2032	38	16	13	170	240	191	1,048	(73)	(7)	(528)	1,108	(1,851)	18,337	18,709
2033	35	15	12	157	223	184	967	(68)	(7)	(495)	1,023	(1,800)	17,560	17,949
2034	33	14	11	145	208	178	892	(64)	(6)	(465)	945	(1,746)	16,759	17,160
2035	31	14	10	134	193	171	822	(60)	(6)	(437)	872	(1,689)	15,943	16,351
2036	29	13	9	123	180	165	759	(57)	(5)	(410)	806	(1,629)	15,119	15,531
2037	27	13	8	114	167	159	700	(53)	(5)	(386)	744	(1,568)	14,296	14,708
2038	25	12	8	105	155	154	645	(50)	(5)	(363)	687	(1,505)	13,478	13,887
2039	24	12	7	97	144	148	595	(47)	(4)	(341)	635	(1,440)	12,673	13,076
2040	22	11	6	89	134	143	549	(44)	(4)	(321)	586	(1,374)	11,886	12,279
2041	21	11	6	82	125	138	506	(42)	(4)	(302)	542	(1,307)	11,120	11,503
2042	20	11	5	76	116	133	467	(39)	(3)	(285)	500	(1,239)	10,382	10,751
2043	18	10	5	70	108	128	431	(37)	(3)	(268)	462	(1,170)	9,674	10,028
2044	17	10	4	65	100	124	397	(35)	(3)	(253)	427	(1,102)	8,998	9,336
2045	16	9	4	60	93	119	367	(33)	(3)	(239)	394	(1,035)	8,358	8,678
2046	15	9	4	55	87	115	338	(31)	(2)	(225)	364	(969)	7,753	8,055
2047	14	9	3	51	81	111	312	(29)	(2)	(212)	337	(905)	7,185	7,469
2048	13	8	3	47	75	107	288	(28)	(2)	(200)	311	(843)	6,653	6,919
2049	12	8	3	43	70	103	265	(26)	(2)	(189)	288	(784)	6,156	6,405
2050	12	8	2	40	65	100	245	(25)	(2)	(179)	266	(728)	5,694	5,925
2051	11	7	2	37	60	96	226	(23)	(2)	(169)	246	(675)	5,265	5,479
2052	10	7	2	34	56	93	208	(22)	(1)	(160)	227	(625)	4,867	5,066
2053	10	7	2	31	52	89	192	(21)	(1)	(151)	210	(579)	4,498	4,682
2054	9	7	2	29	49	86	177	(20)	(1)	(143)	194	(535)	4,157	4,327
2055	8	6	2	27	45	83	163	(19)	(1)	(135)	180	(495)	3,841	3,999
2056	-	-	-	-	-	-	-	-	-	-	-	(450)	3,391	3,616
2057	-	-	-	-	-	-	-	-	-	-	-	(408)	2,983	3,187
2058	-	-	-	-	-	-	-	-	-	-	-	(370)	2,613	2,798
2059	-	-	-	-	-	-	-	-	-	-	-	(334)	2,280	2,446
2060	-	-	-	-	-	-	-	-	-	-	-	(301)	1,979	2,129
2061	-	-	-	-	-	-	-	-	-	-	-	(270)	1,709	1,844
2062	-	-	-	-	-	-	-	-	-	-	-	(241)	1,468	1,589
2063	-	-	-	-	-	-	-	-	-	-	-	(215)	1,253	1,360
2064	-	-	-	-	-	-	-	-	-	-	-	(191)	1,062	1,158
2065	-	-	-	-	-	-	-	-	-	-	-	(168)	894	978
2066	-	-	-	-	-	-	-	-	-	-	-	(148)	746	820
2067	-	-	-	-	-	-	-	-	-	-	-	(129)	617	682
2068	-	-	-	-	-	-	-	-	-	-	-	(112)	506	561
2069	-	-	-	-	-	-	-	-	-	-	-	(96)	410	458
2070	-	-	-	-	-	-	-	-	-	-	-	(81)	329	369
2071	-	-	-	-	-	-	-	-	-	-	-	(68)	260	294
2072	-	-	-	-	-	-	-	-	-	-	-	(57)	203	232
2073	-	-	-	-	-	-	-	-	-	-	-	(47)	156	180
2074	-	-	-	-	-	-	-	-	-	-	-	(38)	119	138
2075	-	-	-	-	-	-	-	-	-	-	-	(30)	89	104
2076	-	-	-	-	-	-	-	-	-	-	-	(24)	65	77
2077	-	-	-	-	-	-	-	-	-	-	-	(18)	47	56
2078	-	-	-	-	-	-	-	-	-	-	-	(14)	33	40
2079	-	-	-	-	-	-	-	-	-	-	-	(10)	23	28
2080	-	-	-	-	-	-	-	-	-	-	-	(7)	16	20
2081	-	-	-	-	-	-	-	-	-	-	-	(5)	11	13

Notes:

- (2)-(8) = Number of approved cases * percent of cases filed by employee
- (12) = Sum of (2) through (11)
- (13) = Mortality tables applied to the average number of individuals eligible
- (14) = (14) from previous year + (12) + (13)
- (15) = Average of (14) from previous year and (14) from current year

9: Estimate Average Medical Payments and Inflation Rates

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.

Average Medical Payment in FY 2021	\$52,227
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Medical inflation rates are then selected for future years.

The average medical inflation rates for future years 1-5 were selected based on guidance from OWCP management regarding expected cost increases in the short term. Medical inflation rates for 6 years and later are the CPI-Medical inflation rates from the OMB Economic Assumptions for the FY 2022 Budget.

Annual Medical Inflation, Future Year 1	6.2%
Annual Medical Inflation, Future Year 2	6.0%
Annual Medical Inflation, Future Year 3	5.8%
Annual Medical Inflation, Future Year 4	5.6%
Annual Medical Inflation, Future Year 5	5.5%
Annual Medical Inflation, Future Year 6+	3.9%

10: Calculate the total expected Medical Payment by year

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

<u>FY</u>	<u>Average # Individuals Eligible</u> (1)	<u>Average Medical Cost per Eligible Individual</u> (2)	<u>Total Undiscounted Medical Payments</u> (3)
2022	21,170	55,465	1,174,173,337
2023	21,597	58,793	1,269,746,906
2024	21,881	62,203	1,361,077,439
2025	21,965	65,686	1,442,793,167
2026	21,860	69,299	1,514,879,516
2027	21,595	72,002	1,554,874,803
2028	21,197	74,810	1,585,712,465
2029	20,689	77,727	1,608,099,531
2030	20,093	80,759	1,622,708,949
2031	19,428	83,908	1,630,162,505
2032	18,709	87,181	1,631,025,323
2033	17,949	90,581	1,625,803,745
2034	17,160	94,113	1,614,945,700
2035	16,351	97,784	1,598,855,850
2036	15,531	101,597	1,577,920,581
2037	14,708	105,560	1,552,529,094
2038	13,887	109,676	1,523,088,503
2039	13,076	113,954	1,490,039,174
2040	12,279	118,398	1,453,857,713
2041	11,503	123,015	1,415,050,211
2042	10,751	127,813	1,374,143,837
2043	10,028	132,798	1,331,670,587
2044	9,336	137,977	1,288,147,682
2045	8,678	143,358	1,244,059,992
2046	8,055	148,949	1,199,846,760
After 2046			15,693,489,677
Total future undiscounted			52,378,703,043

11: Discount the cash flows to 9/30/2021

The projected cash flows by fiscal year are then discounted back to 9/30/2021. The discount rates for compensation and medical payments are determined based on the duration of the liabilities. The rate used for discounting corresponds to the point on the Treasury yield curve for that duration. The Treasury curve being used is based on a five-year averaging of the U.S. Department of Treasury's Yield Curve for Treasury Nominal Coupon Issues.

Discount rate for compensation payments	2.120%
Discount rate for medical payments	2.384%

Hindsight Opinion

The hindsight opinion adjusts the current liability estimate to be consistent with the liability estimate as of 9/30/2020, removing periods that were not contemplated at that time, and adding back payments made between the previous date and the current date. This is a more valid indication of revisions in the liability estimate than comparing the year-over-year average.

The current hindsight estimate of liability as of 9/30/2020 is \$39.3 billion, compared with a liability estimate of \$37.5 billion in the 9/30/2020 actuarial report. This increase is mainly driven by increased medical costs per case.

Calculation of 9/30/2020 Hindsight Liability Opinion

(\$millions)

Current Estimated Liability as of 9/30/2021	43,038
Minus liability for additional exposure as of 9/30/2020	(4,304)
Minus projected payments in FY 2081	(2)
Plus payments in FY 2021 (excluding payment for current exposures)	1,712
Discount back to 9/30/2020	<u>(922)</u>
Hindsight Liability Estimate as of 9/30/2020	39,522

To arrive at the hindsight estimate, the liability for additional exposure was estimated at 10% of the total liability. The total estimate is not calculated at the employment year level.

Appendix 1: Reconciliation of Change in Liability Estimate

Liability Estimate as of 9/30/20 (\$millions, discounted to 9/30/20).....	\$37,521
1. FY 2021 roll off of estimate	(1,692)
2. FY 2081 roll on to estimate	2
3. Discount to 9/30/21 instead of 9/30/20	851
4. Revised medical costs	4,985
5. Change in discount rates	933
6. Revised percent filed by employee	829
7. Revised number of Part E approvals	(489)
8. Revised number of Part B approvals	(257)
9. Other changes in assumptions	(65)
10. Combination effect	418
Total Change	5,516
Liability Estimate as of 9/30/2021 (\$millions, discounted to 9/30/21).....	\$43,038

Appendix 2: Summary of EEOICPA Model Assumptions

	<u>as of 9/30/2021</u>	<u>as of 9/30/2020</u>
Compensation Benefit Amounts		
RECA Benefit (Non DOJ)	50,000	50,000
RECA Benefit (on behalf of DOJ)	100,000	100,000
Part B Benefit (lump sum)	150,000	150,000
Part E Benefit, average	157,000	156,823
Discount Rates		
Discount Factor for Compensation	2.120%	2.308%
Discount Factor for Medical	2.384%	2.559%
Duration		
Average Compensation Duration (years)	12.3	12.2
Average Medical Duration (years)	19.3	19.2
Inflation Rates		
Annual Inflation for Compensation	0.0%	0.0%
Annual Inflation for Medical, Future Year 1	6.2%	6.2%
Annual Inflation for Medical, Future Year 2	6.0%	3.4%
Annual Inflation for Medical, Future Year 3	5.8%	3.0%
Annual Inflation for Medical, Future Year 4	5.6%	3.6%
Annual Inflation for Medical, Future Year 5	5.5%	3.7%
Annual Inflation for Medical, Future Years 6+	3.9%	3.9%
Medical Costs per Eligible Case		
Average medical payment for FY 2022	55,465	50,816
Mortality		
Mortality Table	Male RP-2014 Rates	Male RP-2014 Rates
Projection Scale	No projection	No projection
New Cases		
Eligible for medical benefits if filed by employee	100%	100%
Average age of employee when case approved	72	72
Percent of new cases filed by employee		
RECA (Part B)	58%	59%
BD (Part B)	73%	74%
BS (Part B)	100%	100%
CS (Part B)	95%	94%
CN SEC (Part B)	61%	55%
CN Non SEC (Part B)	80%	75%
Part E	86%	83%

⁵ The exception to this assumption is for employees for which the first case approval date was more than 15 years ago. For these employees, the model uses a weighted average of the actual age at approval.

as of 9/30/2021

as of 9/30/2020

Probability that the newly-approved case is already eligible for medical benefits

Part B	10.9%	10.4%
Part E	0.7%	0.7%
Part B cases where Part E approved same year	79.0%	79.0%

Quarterly Decay in new case approval

RECA (Part B)	1.6%	1.5%
BD (Part B)	1.0%	1.0%
BS (Part B)	2.3%	0.2%
CS (Part B)	flat for 2 yrs 2% Yr3+	flat for 3 yrs 2% Yr4+
CN SEC (Part B)	1.8%	1.8%
CN Non SEC (Part B)	0.9%	0.9%
Part E	flat for 2 yrs 2% Yr3+	flat for 3 yrs 2% Yr4+

Payment Pattern: Part B Compensation

<u>Year</u>	<u>% Paid</u>	<u>% Paid</u>
Year 1	100%	100%

Payment Pattern: Part E Compensation

<u>Year</u>	<u>% Paid</u>	<u>% Paid</u>
Year 1	28.5%	30.0%
Year 2	25.3%	23.5%
Year 3	6.4%	6.1%
Year 4	5.9%	6.0%
Year 5	4.3%	4.4%
Year 6	4.4%	4.3%
Year 7	3.8%	3.4%
Year 8	3.1%	3.1%
Year 9	2.9%	2.9%
Year 10	2.7%	2.7%
Year 11	2.3%	2.4%
Year 12	2.2%	2.4%
Year 13	1.9%	2.5%
Year 14	1.1%	1.5%
Years 15-25	0.5%	0.4%

Prior Year Cohort

Average Age at Award	68	67
Average Age at Start of FY 2007	71	69
Average Part E pmt yr for FY2022	17	17

Appendix 3: Part E Compensation Payments

A triangle approach is employed to estimate the Part E compensation payout patterns. The compensation payments are organized into a paid triangle by first approval quarter and payment quarter. Historical relationships between quarters were then measured and projected forward to estimate the ultimate payments by approval quarter from 2005 to the present.

The exhibits in the following pages show the triangle of payment amounts, the age-to-age factors and the selection of ultimate payments.

Loss Development Factor (LDF) Method

The LDF method applies a loss development factor to paid cases 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.

Part E Compensation

Summary of Results: Paid Compensation

	Current Paid	Paid LDF	Selected Ultimate Payments	Ultimate Count	Ultimate Average Payment
Prior	1,656,891,020	xxxx	xxxx	xxxx	xxxx
2008-2	134,907,028	1.055	142,326,914	1,207	117,918
2008-3	139,960,750	1.059	148,218,434	1,243	119,243
2008-4	143,376,977	1.065	152,696,481	1,259	121,284
2009-1	106,961,798	1.070	114,449,124	920	124,401
2009-2	104,337,521	1.075	112,162,835	922	121,652
2009-3	100,103,908	1.080	108,112,221	865	124,985
2009-4	84,296,561	1.086	91,546,066	729	125,578
2010-1	93,223,773	1.092	101,800,360	830	122,651
2010-2	88,521,001	1.099	97,284,581	785	123,929
2010-3	110,214,819	1.105	121,787,375	1,068	114,033
2010-4	94,531,721	1.113	105,213,805	894	117,689
2011-1	76,818,992	1.119	85,960,452	725	118,566
2011-2	71,015,327	1.126	79,963,258	673	118,816
2011-3	64,074,741	1.133	72,596,681	612	118,622
2011-4	56,387,268	1.141	64,337,873	556	115,716
2012-1	69,254,019	1.149	79,572,868	668	119,121
2012-2	99,410,997	1.159	115,217,346	963	119,644
2012-3	73,812,155	1.167	86,138,785	769	112,014
2012-4	86,338,764	1.177	101,620,725	865	117,481
2013-1	89,030,805	1.187	105,679,566	883	119,682
2013-2	83,908,904	1.196	100,355,049	839	119,613
2013-3	65,178,229	1.206	78,604,945	656	119,825
2013-4	59,778,280	1.217	72,750,167	589	123,515
2014-1	53,047,941	1.230	65,248,967	529	123,344
2014-2	64,453,270	1.242	80,050,962	673	118,946
2014-3	51,034,999	1.253	63,946,854	509	125,632
2014-4	49,371,304	1.267	62,553,442	482	129,779
2015-1	51,895,487	1.279	66,374,328	469	141,523
2015-2	45,525,458	1.291	58,773,367	438	134,186
2015-3	44,399,975	1.310	58,163,968	414	140,493
2015-4	46,476,546	1.327	61,674,377	455	135,548
2016-1	46,961,178	1.346	63,209,745	459	137,712
2016-2	48,394,756	1.367	66,155,631	439	150,696
2016-3	51,525,838	1.389	71,569,389	469	152,600
2016-4	54,653,585	1.410	77,061,555	551	139,858
2017-1	59,107,161	1.435	84,818,775	563	150,655
2017-2	55,135,895	1.454	80,167,592	545	147,096
2017-3	60,652,422	1.474	89,401,670	543	164,644
2017-4	58,559,960	1.498	87,722,820	546	160,665
2018-1	56,804,196	1.529	86,853,615	535	162,343
2018-2	54,020,652	1.560	84,272,218	513	164,273
2018-3	52,558,538	1.602	84,198,777	502	167,727
2018-4	52,477,398	1.645	86,325,320	507	170,267
2019-1	44,495,830	1.683	74,886,482	462	162,092
2019-2	60,812,063	1.724	104,839,997	613	171,028
2019-3	57,389,532	1.765	101,292,524	630	160,782
2019-4	61,281,789	1.820	111,532,856	684	163,060
2020-1	67,588,636	1.883	127,269,402	681	186,886
2020-2	71,426,485	1.980	141,424,440	678	208,591
2020-3	51,770,353	2.150	111,306,260	589	188,975
2020-4	39,039,644	2.652	103,533,135	567	182,598
2021-1	19,219,167	4.783	91,925,274	572	160,709
2021-2	7,270,417	11.455	83,282,623	566	147,142
Total	5,289,685,837	0.9203	4,868,232,277	35,703	136,354
			Average Last 3 Years		173,283
			Average Last 5 Years		166,462
			Average Last 10 Years		144,456
			Selected		157,000

Part E Compensation

Cumulative Payments by Approval Quarter

Approval Quarter	0	1	2	3	4	5	6	7	8	9	
Prior	810,438,928	888,586,158	949,300,434	994,848,621	1,029,449,277	1,061,308,198	1,084,957,879	1,111,822,152	1,131,228,061	1,152,722,750	
20082	40,892,619	59,619,464	69,227,820	78,743,966	87,660,533	91,907,045	94,855,130	97,285,842	99,203,284	99,894,864	
20083	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	
20084	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	
20091	26,657,702	43,771,585	52,998,973	63,491,424	67,314,100	70,063,635	73,067,417	73,916,955	75,124,455	77,260,595	
20092	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	
20093	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	
20094	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	
20101	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	
20102	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	
20103	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	
20104	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	
20111	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	
20112	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	
20113	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	
20114	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	
20121	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	
20122	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	
20123	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	
20124	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	
20131	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	
20132	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	
20133	15,134,167	22,265,127	29,797,828	33,761,043	37,150,482	39,174,170	41,589,420	42,865,284	44,457,420	46,222,420	
20134	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	
20141	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	
20142	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	48,050,652	
20143	14,052,500	21,043,080	27,139,532	30,305,859	32,677,987	34,554,653	35,612,153	36,369,653	36,759,186	37,246,249	
20144	13,659,968	20,711,122	26,680,651	29,134,064	31,629,586	33,478,776	34,681,276	35,543,776	36,234,326	37,221,826	
20151	12,524,645	20,189,006	25,241,643	30,355,135	31,825,135	33,167,635	34,585,135	35,487,635	36,092,635	37,220,135	
20152	13,043,750	19,757,500	25,716,195	28,764,623	30,545,873	31,931,065	33,633,624	34,219,874	35,577,708	36,567,708	
20153	12,774,544	18,457,044	23,451,338	27,636,407	29,861,195	31,033,695	32,106,695	33,021,695	33,021,695	33,734,195	
20154	10,412,500	17,463,540	24,260,779	28,400,714	30,968,214	33,005,714	34,130,714	35,008,214	36,240,744	37,028,244	
20161	13,225,000	19,137,500	24,776,921	29,247,285	31,647,285	33,109,785	34,913,435	37,008,435	37,855,935	38,120,935	
20162	10,932,500	19,001,272	25,584,678	30,798,906	32,946,225	34,493,725	35,348,725	35,754,975	37,034,975	38,074,975	
20163	10,050,000	19,173,750	26,609,762	31,795,125	34,300,125	37,187,625	38,607,921	39,902,088	40,992,088	41,975,838	
20164	14,800,000	23,947,322	34,411,081	38,593,581	41,565,094	43,520,094	44,870,094	46,027,594	46,655,094	47,420,094	
20171	13,945,000	24,438,511	34,195,192	40,740,661	44,228,161	46,073,161	47,763,161	48,930,661	49,598,161	50,973,161	
20172	10,715,000	21,922,348	31,015,218	37,888,512	40,591,012	42,498,512	43,416,012	44,176,012	45,756,012	47,285,512	
20173	10,873,333	21,142,724	33,359,307	39,999,457	43,072,790	45,645,290	48,829,457	50,086,957	50,816,957	51,559,457	
20174	12,340,197	23,785,349	37,479,107	42,090,012	45,696,543	47,040,476	48,587,976	49,670,476	51,157,976	52,502,351	
20181	12,067,500	21,547,154	35,802,967	41,151,207	44,271,207	47,079,212	48,136,696	49,204,196	50,259,196	51,736,696	
20182	9,512,500	19,927,500	31,167,500	38,465,000	42,494,402	43,942,319	45,173,152	46,865,652	47,850,652	49,048,152	
20183	9,999,718	18,176,381	32,616,625	40,147,835	43,342,997	45,795,497	46,989,247	47,784,247	48,837,581	49,736,038	
20184	8,918,750	16,407,500	32,523,278	39,718,278	42,878,695	45,407,445	47,668,695	49,402,466	50,282,398	51,382,398	
20191	8,277,500	15,832,500	27,511,633	33,599,133	36,229,133	38,860,830	39,818,330	41,723,330	43,440,830	44,495,830	
20192	10,303,001	24,185,449	40,419,040	48,657,768	52,031,680	54,381,680	56,505,813	58,943,313	60,812,063		
20193	10,730,000	23,837,042	39,948,350	48,027,032	50,479,532	52,834,532	54,419,532	57,389,532			
20194	11,402,500	24,682,500	44,455,987	52,921,789	56,939,289	59,394,289	61,281,789				
20201	8,553,750	26,140,003	44,258,291	55,826,056	63,621,056	67,588,636					
20202	7,755,000	20,216,915	46,687,007	63,973,209	71,426,485						
20203	7,997,500	22,857,853	37,177,853	51,770,353							
20204	5,429,167	18,371,667	39,039,644								
20211	7,900,000	19,219,167									
20212	7,270,417										
Average		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
		1.767	1.415	1.161	1.074	1.045	1.031	1.024	1.021	1.019	1.019
Wtd Avg		1.387	1.255	1.123	1.063	1.040	1.028	1.024	1.019	1.018	1.018
20 Qtr		2.173	1.654	1.214	1.083	1.052	1.036	1.030	1.024	1.023	1.023
12 Qtr		2.395	1.804	1.233	1.086	1.052	1.034	1.031	1.024	1.024	1.023
Selected		2.395	1.804	1.233	1.086	1.052	1.034	1.031	1.024	1.024	1.023
Prior Select		2.096	1.655	1.193	1.080	1.053	1.036	1.027	1.024	1.023	1.022
Age-to-Ultimate		11.455	4.783	2.652	2.150	1.980	1.883	1.820	1.765	1.724	1.683

Part E Compensation
Cumulative Payments by Approval Quarter

Approval Quarter	10	11	12	13	14	15	16	17	18	19
Prior	1,171,858,721	1,186,673,697	1,204,567,984	1,222,786,783	1,240,076,674	1,253,309,038	1,264,062,563	1,276,989,454	1,288,520,134	1,299,980,012
20082	100,605,837	102,028,337	104,103,797	105,426,565	106,324,065	107,281,565	108,351,565	109,208,929	109,823,929	110,248,929
20083	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
20084	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
20091	78,813,095	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
20092	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
20093	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
20094	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
20101	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
20102	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
20103	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
20104	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
20111	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
20112	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
20113	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
20114	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	46,443,839
20121	50,184,721	50,834,721	51,723,627	52,866,127	53,733,627	54,363,627	55,378,627	56,251,127	56,891,127	57,611,127
20122	72,617,790	74,250,290	75,847,790	77,220,290	78,417,541	79,802,541	80,506,291	81,890,932	83,129,997	84,879,997
20123	55,791,435	56,362,450	57,642,450	58,292,450	58,784,950	59,488,950	60,353,950	61,721,450	62,210,584	63,213,084
20124	64,817,717	66,812,539	67,775,039	68,806,102	70,088,432	71,332,182	72,378,432	73,510,932	74,600,932	75,633,432
20131	66,677,998	67,802,998	69,366,434	70,106,434	71,121,434	71,916,434	73,617,684	75,352,684	76,040,184	76,845,184
20132	61,602,302	62,809,662	63,819,662	65,599,662	66,762,162	67,624,662	69,084,662	70,146,266	71,746,347	72,448,847
20133	46,479,920	47,798,504	49,186,004	50,293,504	51,518,504	52,545,624	53,713,564	54,606,064	55,303,564	56,504,814
20134	44,196,501	45,042,751	46,367,713	47,031,463	48,486,463	49,141,463	49,967,532	50,792,404	51,419,904	51,957,404
20141	39,030,926	40,373,426	41,570,042	42,692,966	43,295,466	44,287,966	44,613,966	45,738,966	46,278,966	47,226,466
20142	48,690,652	50,510,652	51,730,652	52,505,652	53,958,152	54,850,652	55,290,652	55,998,152	56,813,270	57,735,770
20143	38,043,749	38,786,249	39,543,749	40,686,249	41,367,499	42,317,499	42,832,499	43,459,999	44,582,499	45,414,999
20144	38,166,826	39,031,826	39,829,326	41,309,326	42,116,826	42,551,826	43,081,826	44,191,826	44,806,826	45,646,826
20151	38,400,135	39,730,135	41,656,888	42,711,888	43,574,388	44,556,888	44,881,888	45,386,888	46,744,388	47,254,388
20152	37,065,208	38,020,208	39,165,208	39,731,458	39,848,958	40,595,208	41,272,708	41,770,208	42,010,208	42,532,708
20153	34,681,695	36,331,695	37,114,195	37,688,361	38,513,361	39,084,931	39,532,502	40,092,502	40,777,502	41,370,002
20154	37,895,744	38,440,744	39,258,524	40,366,024	41,173,524	41,528,809	41,958,809	42,708,809	43,779,046	44,489,046
20161	38,858,435	39,841,178	40,618,678	41,491,178	42,518,678	43,376,178	44,406,178	44,826,178	45,271,178	45,888,678
20162	39,199,975	40,354,975	41,714,934	42,669,599	43,684,599	44,417,256	44,839,756	45,309,756	46,677,256	47,572,256
20163	42,835,838	43,923,338	45,415,838	46,918,338	48,045,838	48,963,338	49,460,838	49,943,338	50,635,838	51,525,838
20164	48,200,094	49,389,835	50,459,835	51,134,835	51,987,335	52,809,835	53,642,335	54,079,835	54,653,585	
20171	51,820,661	53,338,161	54,109,661	55,519,661	56,339,661	57,219,661	58,165,911	59,107,161		
20172	48,297,512	49,995,012	51,722,512	52,402,512	53,575,895	54,453,395	55,135,895			
20173	52,986,957	54,706,957	56,526,957	57,742,422	59,517,422	60,652,422				
20174	53,477,351	54,518,710	56,066,210	57,231,210	58,559,960					
20181	53,054,196	54,231,696	55,731,696	56,804,196						
20182	50,555,652	52,483,152	54,020,652							
20183	51,236,038	52,558,538								
20184	52,477,398									
20191										
20192										
20193										
20194										
20201										
20202										
20203										
20204										
20211										
20212										
	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
Average	1.023	1.021	1.019	1.017	1.014	1.013	1.013	1.012	1.013	1.012
Wtd Avg	1.019	1.018	1.017	1.015	1.012	1.011	1.011	1.011	1.011	1.011
20 Qtr	1.028	1.028	1.022	1.021	1.017	1.014	1.016	1.016	1.015	1.015
12 Qtr	1.027	1.027	1.021	1.020	1.016	1.013	1.014	1.017	1.016	1.016
Selected	1.027	1.027	1.021	1.020	1.016	1.013	1.014	1.017	1.016	1.016
Prior Select	1.029	1.027	1.023	1.019	1.017	1.013	1.016	1.017	1.015	1.015
Age-to-Ultimate	1.645	1.602	1.560	1.529	1.498	1.474	1.454	1.435	1.410	1.389

Part E Compensation
Cumulative Payments by Approval Quarter

Approval Quarter	20	21	22	23	24	25	26	27	28	29
Prior	1,312,204,666	1,325,125,256	1,335,373,417	1,346,979,835	1,356,057,091	1,365,586,894	1,376,208,311	1,387,670,600	1,398,177,395	1,410,667,686
20082	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
20083	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
20084	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
20091	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
20092	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	93,282,013
20093	78,118,832	78,861,332	79,614,970	81,237,470	81,514,970	82,527,054	83,022,054	84,327,054	85,277,054	86,612,432
20094	65,893,062	67,489,305	68,196,805	68,641,572	69,476,572	70,010,322	71,215,624	71,858,124	72,488,124	73,309,469
20101	77,550,416	78,375,351	79,529,248	80,316,748	81,101,138	81,698,397	82,668,132	82,947,849	83,452,849	84,233,990
20102	71,804,184	73,181,198	74,181,212	74,666,212	75,342,752	75,742,752	76,077,752	76,697,752	77,518,896	78,011,453
20103	91,318,456	92,037,206	93,132,206	93,571,103	94,103,603	95,178,353	96,155,853	97,168,095	98,265,595	99,053,095
20104	77,942,480	78,709,564	79,847,470	80,870,375	82,147,875	83,250,375	83,989,067	84,819,067	85,606,567	86,156,567
20111	62,799,135	63,396,635	64,344,217	65,404,217	66,074,217	66,796,897	67,476,897	68,004,397	68,687,156	69,379,675
20112	59,918,101	60,340,601	61,250,601	62,118,101	63,035,878	63,948,378	64,443,378	65,417,602	66,057,602	66,432,410
20113	51,797,648	52,997,648	54,217,775	54,848,553	55,278,553	55,896,053	56,153,553	56,746,053	57,013,553	58,021,053
20114	47,261,339	48,031,339	48,583,839	48,856,339	49,411,339	49,653,839	50,358,839	51,293,839	51,728,839	52,233,839
20121	58,603,627	59,218,627	60,200,794	60,825,794	61,465,794	62,273,294	63,283,294	63,650,794	64,758,294	65,232,044
20122	85,499,997	85,842,497	87,553,747	87,871,247	88,871,247	89,308,747	90,766,247	91,318,747	92,302,497	93,672,497
20123	63,943,084	64,325,584	64,917,708	65,762,708	66,757,708	67,037,708	67,750,208	68,542,683	69,255,183	69,724,655
20124	76,413,432	77,639,212	78,474,212	79,434,212	80,284,212	80,814,212	81,483,764	82,028,764	82,438,764	83,418,764
20131	77,700,184	78,972,302	79,862,302	80,940,079	82,359,517	83,132,017	83,859,517	84,261,017	85,053,517	86,063,517
20132	74,178,698	74,743,698	75,753,698	76,233,698	77,458,904	78,483,904	79,231,404	80,381,404	81,371,404	81,916,404
20133	57,479,814	58,816,448	60,435,596	61,224,479	61,734,479	62,164,479	62,769,479	63,384,479	63,596,979	64,323,229
20134	52,634,904	53,759,904	54,434,516	55,429,441	56,215,780	56,855,780	57,168,280	58,153,280	58,305,780	58,630,780
20141	47,751,466	48,675,441	49,217,941	49,642,941	50,517,941	51,095,441	51,552,941	52,085,441	52,407,941	53,047,941
20142	58,775,770	59,978,270	60,535,770	61,350,770	61,810,770	62,558,270	62,803,270	63,678,270	64,453,270	
20143	46,294,999	46,992,499	48,109,999	48,734,999	49,322,499	49,917,499	50,452,499	51,034,999		
20144	46,151,826	46,724,326	46,984,326	47,238,804	48,248,804	48,723,804	49,371,304			
20151	48,419,388	49,036,737	49,607,987	50,295,487	51,640,487	51,895,487				
20152	43,087,708	43,605,208	44,492,958	45,020,458	45,525,458					
20153	42,032,502	42,460,002	43,157,475	44,399,975						
20154	45,681,546	46,284,046	46,476,546							
20161	46,113,678	46,961,178								
20162	48,394,756									
20163										
20164										
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20204										
20211										
20212										
	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
Average	1.013	1.013	1.011	1.012	1.009	1.009	1.010	1.008	1.009	1.009
Wtd Avg	1.011	1.010	1.010	1.010	1.008	1.009	1.009	1.008	1.009	1.008
20 Qtr	1.014	1.014	1.012	1.013	1.010	1.010	1.010	1.009	1.010	1.009
12 Qtr	1.016	1.014	1.013	1.015	1.009	1.010	1.011	1.009	1.010	1.010
Selected	1.016	1.014	1.013	1.015	1.009	1.010	1.011	1.009	1.010	1.010
Prior Select	1.015	1.014	1.011	1.012	1.009	1.010	1.010	1.010	1.010	1.010
Age-to-Ultimate	1.367	1.346	1.327	1.310	1.291	1.279	1.267	1.253	1.242	1.230

Part E Compensation
Cumulative Payments by Approval Quarter

Approval Quarter	30	31	32	33	34	35	36	37	38	39
Prior	1,419,979,020	1,432,560,600	1,443,857,356	1,455,377,022	1,467,354,314	1,479,264,873	1,492,833,582	1,505,441,001	1,515,557,330	1,527,479,400
20082	117,841,051	118,799,166	120,104,166	121,376,666	122,161,666	123,044,166	123,665,631	124,655,889	125,333,389	126,171,924
20083	124,426,719	124,926,719	126,384,219	127,303,802	127,818,802	128,505,870	129,452,979	130,382,496	131,055,283	132,240,183
20084	127,834,052	128,626,552	130,031,552	130,953,280	131,487,030	132,379,530	132,725,986	133,548,486	134,564,372	135,169,372
20091	94,480,373	95,034,150	95,575,690	96,825,170	97,960,170	98,662,670	99,667,670	100,137,616	100,817,616	101,477,616
20092	93,782,017	94,667,017	95,581,642	96,016,642	96,999,142	97,514,142	98,264,142	98,664,142	99,135,329	99,937,187
20093	87,147,432	87,525,265	88,596,090	89,459,412	90,146,912	91,081,912	92,038,027	93,840,989	94,458,489	95,020,801
20094	73,968,019	74,380,519	75,158,583	75,918,583	77,308,583	78,311,083	78,911,083	79,570,947	80,283,596	80,928,333
20101	85,232,565	85,696,873	86,766,994	87,457,520	88,347,520	88,507,520	88,812,520	89,117,520	89,692,520	90,080,020
20102	79,424,594	79,844,594	80,425,469	81,065,469	81,737,819	82,624,069	83,459,823	84,095,054	84,752,177	85,694,677
20103	99,158,095	99,950,595	101,375,040	102,350,040	103,175,040	103,855,040	104,510,040	105,640,040	107,077,540	107,690,040
20104	86,721,567	87,433,779	87,883,779	88,303,779	88,951,279	89,826,279	90,570,453	91,100,453	92,042,721	92,757,721
20111	69,977,175	70,765,925	71,265,925	71,568,425	72,623,425	73,024,675	73,599,675	74,494,675	75,169,675	75,672,175
20112	66,832,410	67,386,160	67,773,660	68,343,660	68,678,660	69,301,160	69,660,327	70,025,327	70,340,327	70,590,327
20113	58,806,053	59,563,553	60,233,553	60,931,053	61,556,053	61,833,553	62,321,053	62,959,741	63,342,241	64,074,741
20114	53,023,691	53,588,191	54,210,691	54,532,980	55,032,980	55,747,980	56,072,268	56,282,268	56,387,268	
20121	65,799,544	66,544,544	67,059,544	67,307,044	67,546,519	68,196,519	68,619,019	69,254,019		
20122	94,604,997	95,402,497	96,353,497	96,895,997	97,728,497	98,508,497	99,410,997			
20123	70,714,655	71,482,155	72,157,155	72,979,655	73,607,155	73,812,155				
20124	83,991,264	84,853,764	85,168,764	85,551,264	86,338,764					
20131	86,605,805	87,225,805	87,928,305	89,030,805						
20132	82,513,904	83,196,404	83,908,904							
20133	64,868,229	65,178,229								
20134	59,778,280									
20141										
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20204										
20211										
20212										
	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
Average	1.008	1.009	1.008	1.009	1.008	1.007	1.008	1.007	1.007	1.007
Wtd Avg	1.008	1.009	1.008	1.008	1.008	1.008	1.008	1.007	1.007	1.007
20 Qtr	1.008	1.009	1.008	1.009	1.008	1.007	1.008	1.007	1.007	1.007
12 Qtr	1.009	1.009	1.008	1.009	1.008	1.007	1.008	1.007	1.007	1.007
Selected	1.009	1.009	1.008	1.009	1.008	1.007	1.008	1.007	1.007	1.007
Prior Select	1.009	1.010	1.007	1.010	1.008	1.007	1.008	1.008	1.007	1.006
Age-to-Ultimate	1.217	1.206	1.196	1.187	1.177	1.167	1.159	1.149	1.141	1.133

Part E Compensation

Cumulative Payments by Approval Quarter

Approval Quarter	40	41	42	43	44	45	46	47	48	49	50	51	52	53
Prior	1,539,140,060	1,549,804,025	1,559,790,618	1,570,176,774	1,579,973,601	1,590,291,594	1,600,529,551	1,609,249,350	1,617,238,830	1,626,505,300	1,633,357,308	1,642,273,896	1,649,305,742	1,656,891,020
20082	127,218,764	127,880,100	128,825,100	129,537,564	130,129,464	131,096,964	131,669,464	131,901,964	132,389,803	133,104,528	133,759,528	134,187,028	134,907,028	
20083	132,855,008	133,702,508	134,102,340	135,359,840	136,071,772	136,581,397	137,170,495	137,641,510	137,986,510	138,564,010	139,348,250	139,960,750		
20084	136,579,462	137,272,751	137,845,757	138,511,812	139,514,312	139,749,312	140,334,312	141,339,312	142,286,812	142,579,312	143,376,977			
20091	102,174,115	102,816,615	103,448,454	103,905,954	104,580,954	105,025,954	105,750,954	106,003,454	106,308,454	106,961,798				
20092	100,522,187	101,144,687	101,684,687	102,605,021	103,182,521	103,497,521	103,832,521	104,080,021	104,337,521					
20093	95,610,801	96,355,801	97,125,801	97,698,978	98,322,202	98,867,202	99,283,695	100,103,908						
20094	81,325,833	81,919,583	82,156,561	82,659,061	83,036,561	83,931,561	84,296,561							
20101	90,543,773	91,043,773	91,552,523	92,427,523	92,703,773	93,223,773								
20102	86,204,677	86,492,177	87,074,677	87,923,501	88,521,001									
20103	108,397,540	109,070,040	109,644,819	110,214,819										
20104	93,445,221	94,072,721	94,531,721											
20111	76,284,675	76,818,992												
20112	71,015,327													
20113														
20114														
20121														
20122														
20123														
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20202														
20203														
20204														
20211														
20212														
Average	41 to 42	42 to 43	43 to 44	44 to 45	45 to 46	46 to 47	47 to 48	48 to 49	49 to 50	50 to 51	51 to 52	52 to 53	53 to 54	Tail
Wtd Avg	1.006	1.005	1.007	1.006	1.005	1.005	1.004	1.004	1.005	1.005	1.004	1.005	1.005	1.005
20 Qtr	1.007	1.006	1.007	1.006	1.006	1.006	1.005	1.005	1.005	1.004	1.005	1.004	1.005	1.005
12 Qtr	1.006	1.005	1.007	1.006	1.006	1.006	1.005	1.005	1.005	1.004	1.005	1.004	1.005	1.005
Selected	1.006	1.005	1.007	1.006	1.006	1.006	1.005	1.005	1.005	1.004	1.005	1.004	1.005	1.050
Prior Select	1.007	1.006	1.007	1.007	1.007	1.007	1.006	1.007	1.007	1.006	1.006	1.006	na	1.050
Age-to-Ultimate	1.126	1.119	1.113	1.105	1.099	1.092	1.086	1.080	1.075	1.070	1.065	1.059	1.055	1.050

Appendix 4: Undiscounted Liability Estimate

As of 9/30/2021, the **undiscounted** liability for future EEOICPA benefit payments is projected at \$62.6 billion. The future compensation payments are projected at \$10.2 billion, and the future medical payments are projected at \$52.4 billion, on an undiscounted basis.

ESTIMATED LIABILITY FOR EEOICPA AS OF SEPTEMBER 30, 2021

SUMMARY OF LIABILITY FOR FUTURE PAYMENTS (\$ Millions)

		Undiscounted Estimate as of 9/30/2021
Compensation: Part B	\$	3,698
Compensation: Part E		6,517
Compensation: Total		10,215
Medical Payments		52,379
Total Future Payments	\$	62,594

**ESTIMATED LIABILITY FOR EEOICPA
AS OF SEPTEMBER 30, 2021**

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)
2022	\$ 239,750,956	\$ 375,316,977	\$ 12,311,586	\$ 627,379,519	\$ 1,174,173,337	\$ 1,801,552,856
2023	228,524,087	379,774,376	11,538,219	619,836,681	1,269,746,906	1,889,583,587
2024	214,789,119	373,296,108	10,813,431	598,898,658	1,361,077,439	1,959,976,097
2025	201,188,750	361,263,838	10,134,172	572,586,760	1,442,793,167	2,015,379,927
2026	188,504,617	346,420,000	9,497,581	544,422,197	1,514,879,516	2,059,301,713
2027	176,672,646	331,874,756	8,900,978	517,448,381	1,554,874,803	2,072,323,183
2028	165,633,343	318,708,176	8,341,852	492,683,372	1,585,712,465	2,078,395,837
2029	155,331,461	305,559,313	7,817,848	468,708,623	1,608,099,531	2,076,808,154
2030	145,715,692	291,884,894	7,326,760	444,927,346	1,622,708,949	2,067,636,294
2031	136,738,381	272,496,447	6,866,521	416,101,349	1,630,162,505	2,046,263,853
2032	128,355,268	254,431,336	6,435,192	389,221,795	1,631,025,323	2,020,247,117
2033	120,525,236	237,089,021	6,030,957	363,645,213	1,625,803,745	1,989,448,959
2034	113,210,089	220,939,980	5,652,115	339,802,183	1,614,945,700	1,954,747,884
2035	106,374,340	205,806,644	5,297,070	317,478,054	1,598,855,850	1,916,333,903
2036	99,985,016	191,459,645	4,964,328	296,408,989	1,577,920,581	1,874,329,570
2037	94,011,476	177,802,174	4,652,488	276,466,137	1,552,529,094	1,828,995,231
2038	88,425,245	164,786,803	4,360,236	257,572,283	1,523,088,503	1,780,660,786
2039	83,199,857	153,296,147	4,086,342	240,582,346	1,490,039,174	1,730,621,520
2040	78,310,713	142,934,468	3,829,653	225,074,835	1,453,857,713	1,678,932,548
2041	73,734,943	133,258,906	3,589,089	210,582,938	1,415,050,211	1,625,633,149
2042	69,451,286	123,946,501	3,363,636	196,761,422	1,374,143,837	1,570,905,259
2043	65,439,973	115,308,713	3,152,345	183,901,030	1,331,670,587	1,515,571,617
2044	61,682,619	107,134,117	2,954,326	171,771,062	1,288,147,682	1,459,918,745
2045	58,162,128	99,153,867	2,768,746	160,084,741	1,244,059,992	1,404,144,734
2046	54,862,596	91,868,787	2,594,824	149,326,207	1,199,846,760	1,349,172,968
After 2046	375,171,874	741,271,865	17,121,812	1,133,565,552	15,693,489,677	16,827,055,228
Total Future ⁵	3,523,751,710	6,517,083,857	174,402,108	10,215,237,675	52,378,703,043	62,593,940,719

⁶ Reflects projected cash flow through 2081
Totals may not equal sum of components because of independent rounding

Appendix 5: Ranges

A range of reasonable estimates was developed, to help describe the level of uncertainty surrounding the EEOICPA liability estimate. This range includes Low, High and Estimated values, as shown. *Significant* uncertainty exists around these estimates, and the reader of this report should not confuse any level of reported precision in the estimates contained in this report to be indicative of predictive accuracy. The numbers of new case approvals have been increasing dramatically since 2015, as have the utilization rates for medical services. It is not likely that the increases will continue indefinitely, but estimating the timeframe in which they will level off/decrease, and by how much, is a very subjective exercise.

To determine a range of reasonable liability estimates, key assumptions were varied within reasonable high and low values that another actuary might be likely to select, if they were conducting an independent valuation of the liability. It is important to note that the range shown is one that is considered reasonable (i.e. an estimate from another actuary making reasonable assumptions would fall within this range). The actual outcome could still be outside of this range. The projection goes out 60 years, and there is much that cannot be accurately foreseen.

A range was also calculated around next year's hindsight value and the cash flow for FY 2022, for purposes of monitoring the EEOICPA liability model's performance.

Reasonable Range of Liability, Cash Flow, and Hindsight Estimates

	(\$millions)		
	<u>Low</u>	<u>Estimated</u>	<u>High</u>
<u>Liability Estimate</u>			
Liability estimate as of 9/30/2021	\$ 33,696	\$ 43,038	\$ 80,780
Difference from estimated	-22%		88%
<u>Projections for 2022</u>			
Cash Flow (7/1/2021 - 6/30/2022)	1,632	1,814	1,995
Hindsight Liability Estimate for 9/30/2021 as of 9/30/2022	41,301	43,038	50,052

EEOICPA Liability Report as of 9/30/2021
Reasonable Range of Liability Estimates

		Assumption			Liability Estimate as of 9/30/2021 (\$ millions)			Difference from Base (\$ millions)	
		Low ¹	Base	High ¹	Low	Base	High	Diff: Low	Diff: High
Benefit Payments									
1. Medical Inflation ²	Yr1	3.9%	6.5%	10.0%	40,173	43,038	80,374	(2,865)	37,336
	Yr2	3.9%	5.7%	10.0%					
	Yr3	3.9%	5.4%	10.0%					
	Yr4	3.9%	5.4%	10.0%					
	Yr5	3.9%	5.3%	10.0%					
	Yr6+	3.9%	3.9%	8.0%					
2. Part E avg benefit		\$141,000	\$157,000	\$173,000	42,511	43,038	43,564	(526)	526
Quarterly Decay of IBNR claims									
3. B: RECA		2.6%	1.6%	0.7%	42,946	43,038	43,216	(92)	179
4. B: BD		3.7%	1.0%	0.1%	42,968	43,038	43,109	(70)	71
5. B: BS		8.3%	2.3%	0.1%	43,015	43,038	43,114	(23)	77
6. B: CS		flat for 2yrs 4% Yr3+	flat for 2yrs 2% Yr3+	flat for 2yrs 1% Yr3+	42,652	43,038	43,505	(386)	468
7. B: CN SEC		5.1%	1.8%	0.9%	41,903	43,038	43,974	(1,135)	937
8. B: CN NonSEC		3.3%	0.9%	0.1%	42,248	43,038	43,812	(790)	775
9. Part E ²		flat for 2yrs 3% Yr3+	flat for 2yrs 2% Yr3+	flat for 2yrs 1.6% Yr3+	35,529	43,038	47,757	(7,508)	4,719
10. Mortality		10% higher	RP-14 Disabled Male	10% lower	42,005	43,038	44,300	(1,032)	1,263
Approvals for Both Parts									
11. %B already E		11.4%	10.9%	10.4%	42,961	43,038	43,114	(76)	76
12. %E already B		0.8%	0.7%	0.6%	43,015	43,038	43,060	(23)	23
13. % EB approved in same yr		80.0%	79.0%	78.0%	42,885	43,038	43,190	(153)	153
Percent filed by employee									
14. RECA (Part B)		53%	59%	67%	43,029	43,038	43,050	(8)	13
15. BD (Part B)		67%	74%	79%	43,034	43,038	43,041	(3)	3
16. BS (Part B)		95%	100%	100%	43,036	43,038	43,038	(2)	0
17. CS (Part B)		74%	95%	100%	42,954	43,038	43,058	(84)	21
18. CN SEC (Part B)		45%	61%	71%	42,901	43,038	43,126	(137)	89
19. CN Non SEC (Part B)		64%	80%	89%	42,942	43,038	43,090	(95)	52
20. Part E		70%	86%	95%	38,656	43,038	45,181	(4,381)	2,144
a. Reasonable Range: combination of assumptions ³					33,696	43,038	80,780	(9,341)	37,743
b. Percent Difference from Base					-22%		88%		

Notes

- 1 - The low and high values of the assumptions represent potential estimates that other actuaries would be likely to provide using different, yet reasonable assumptions than the assumptions used in the EEOICPA 9/30/2021 actuarial report
- 2 - The Medical Cost Inflation (utilization of services and unit cost inflation) and the number of future Part E approvals are the major drivers of the uncertainty around the liability estimate
- 3 - Because it is unlikely that a reasonable actuary would select *every* assumption at the low end or the high end, the combination of assumptions is calculated as the square root of the sum of each of the differences squared.