Form 5500

Department of the Treasury
Internal Revenue Service

Department of Labor
Employee Benefits Security Administration

Pension Benefit Guaranty Corporation

Annual Return/Report of Employee Benefit Plan

This form is required to be filed for employee benefit plans under sections 104 and 4065 of the Employee Retirement Income Security Act of 1974 (ERISA) and sections 6057(b) and 6058(a) of the Internal Revenue Code (the Code).

▶ **Complete all entries in accordance with the instructions to the Form 5500.**

OMB Nos. 1210-0110
1210-0089

2018

This Form is Open to Public Inspection

Part I Annual Report Identification Information

For calendar plan year 2018 or fiscal plan year beginning 01/01/2018 and ending 12/31/2018

A This return/report is for:
- [ ] a multiemployer plan
- [ ] a multiple-employer plan (Filers checking this box must attach a list of participating employer information in accordance with the form instructions.)
- [X] a single-employer plan
- [ ] a DFE (specify) ____

B This return/report is:
- [ ] the first return/report
- [ ] the final return/report
- [ ] an amended return/report
- [ ] a short plan year return/report (less than 12 months)

C If the plan is a collectively-bargained plan, check here. . . . . ▶ [ ]

D Check box if filing under:
- [X] Form 5558
- [ ] automatic extension
- [ ] the DFVC program
- [ ] special extension (enter description)

Part II Basic Plan Information—enter all requested information

1a Name of plan
QUANTUM 401(K) PLAN

1b Three-digit plan number (PN) ▶ 001

1c Effective date of plan 09/01/2002

2a Plan sponsor's name (employer, if for a single-employer plan)
Mailing address (include room, apt., suite no. and street, or P.O. Box)
City or town, state or province, country, and ZIP or foreign postal code (if foreign, see instructions)
QUANTUM FUEL SYSTEMS LLC

25242 ARCTIC OCEAN DRIVE
LAKE FOREST, CA 92630

2b Employer Identification Number (EIN)
81-2080082

2c Plan Sponsor's telephone number
949-885-7592

2d Business code (see instructions)
336300

Caution: A penalty for the late or incomplete filing of this return/report will be assessed unless reasonable cause is established.

Under penalties of perjury and other penalties set forth in the instructions, I declare that I have examined this return/report, including accompanying schedules, statements and attachments, as well as the electronic version of this return/report, and to the best of my knowledge and belief, it is true, correct, and complete.

SIGN HERE	Filed with authorized/valid electronic signature.	10/11/2019	PETER SINAJON
	Signature of plan administrator	Date	Enter name of individual signing as plan administrator
SIGN HERE	Filed with incorrect/unrecognized electronic signature.		
	Signature of employer/plan sponsor	Date	Enter name of individual signing as employer or plan sponsor
SIGN HERE			
	Signature of DFE	Date	Enter name of individual signing as DFE

3a Plan administrator's name and address [X] Same as Plan Sponsor

3b Administrator's EIN

3c Administrator's telephone number

4 If the name and/or EIN of the plan sponsor or the plan name has changed since the last return/report filed for this plan, enter the plan sponsor's name, EIN, the plan name and the plan number from the last return/report:
a Sponsor's name
c Plan Name

4b EIN

4d PN

5	Total number of participants at the beginning of the plan year	**5**	175
6	Number of participants as of the end of the plan year unless otherwise stated (welfare plans complete only lines **6a(1), 6a(2), 6b, 6c,** and **6d**).		
a(1)	Total number of active participants at the beginning of the plan year	**6a(1)**	121
a(2)	Total number of active participants at the end of the plan year	**6a(2)**	105
b	Retired or separated participants receiving benefits	**6b**	0
c	Other retired or separated participants entitled to future benefits	**6c**	54
d	Subtotal. Add lines **6a(2)**, **6b**, and **6c**	**6d**	159
e	Deceased participants whose beneficiaries are receiving or are entitled to receive benefits.	**6e**	0
f	Total. Add lines **6d** and **6e**.	**6f**	159
g	Number of participants with account balances as of the end of the plan year (only defined contribution plans complete this item)	**6g**	125
h	Number of participants who terminated employment during the plan year with accrued benefits that were less than 100% vested	**6h**	10
7	Enter the total number of employers obligated to contribute to the plan (only multiemployer plans complete this item)	**7**	

8a If the plan provides pension benefits, enter the applicable pension feature codes from the List of Plan Characteristics Codes in the instructions:

2E 2J 2F 2G 2K 3B 3D 2T

b If the plan provides welfare benefits, enter the applicable welfare feature codes from the List of Plan Characteristics Codes in the instructions:

9a Plan funding arrangement (check all that apply)

(1)	[X]	Insurance
(2)	[ ]	Code section 412(e)(3) insurance contracts
(3)	[X]	Trust
(4)	[ ]	General assets of the sponsor

9b Plan benefit arrangement (check all that apply)

(1)	[X]	Insurance
(2)	[ ]	Code section 412(e)(3) insurance contracts
(3)	[X]	Trust
(4)	[ ]	General assets of the sponsor

10 Check all applicable boxes in 10a and 10b to indicate which schedules are attached, and, where indicated, enter the number attached. (See instructions)

a Pension Schedules

(1)	[X]	**R** (Retirement Plan Information)
(2)	[ ]	**MB** (Multiemployer Defined Benefit Plan and Certain Money Purchase Plan Actuarial Information) - signed by the plan actuary
(3)	[ ]	**SB** (Single-Employer Defined Benefit Plan Actuarial Information) - signed by the plan actuary

b General Schedules

(1)	[X]		**H** (Financial Information)
(2)	[ ]		**I** (Financial Information – Small Plan)
(3)	[X]	1	**A** (Insurance Information)
(4)	[X]		**C** (Service Provider Information)
(5)	[ ]		**D** (DFE/Participating Plan Information)
(6)	[ ]		**G** (Financial Transaction Schedules)

Part III Form M-1 Compliance Information (to be completed by welfare benefit plans)

11a If the plan provides welfare benefits, was the plan subject to the Form M-1 filing requirements during the plan year? (See instructions and 29 CFR 2520.101-2.) ..... ☐ Yes ☐ No

If "Yes" is checked, complete lines 11b and 11c.

11b Is the plan currently in compliance with the Form M-1 filing requirements? (See instructions and 29 CFR 2520.101-2.) ..... ☐ Yes ☐ No

11c Enter the Receipt Confirmation Code for the 2018 Form M-1 annual report. If the plan was not required to file the 2018 Form M-1 annual report, enter the Receipt Confirmation Code for the most recent Form M-1 that was required to be filed under the Form M-1 filing requirements. (Failure to enter a valid Receipt Confirmation Code will subject the Form 5500 filing to rejection as incomplete.)

Receipt Confirmation Code_____

SCHEDULE A (Form 5500)

Department of the Treasury
Internal Revenue Service

Department of Labor
Employee Benefits Security Administration

Pension Benefit Guaranty Corporation

Insurance Information

This schedule is required to be filed under section 104 of the Employee Retirement Income Security Act of 1974 (ERISA).

▶ **File as an attachment to Form 5500.**

▶ Insurance companies are required to provide the information pursuant to ERISA section 103(a)(2).

OMB No. 1210-0110

2018

This Form is Open to Public Inspection

For calendar plan year 2018 or fiscal plan year beginning 01/01/2018 and ending 12/31/2018

A Name of plan
QUANTUM 401(K) PLAN

B Three-digit plan number (PN) ▶ 001

C Plan sponsor's name as shown on line 2a of Form 5500
QUANTUM FUEL SYSTEMS LLC

D Employer Identification Number (EIN)
81-2080082

Part I **Information Concerning Insurance Contract Coverage, Fees, and Commissions** Provide information for each contract on a separate Schedule A. Individual contracts grouped as a unit in Parts II and III can be reported on a single Schedule A.

1 Coverage Information:

(a) Name of insurance carrier
MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY

(b) EIN	**(c)** NAIC code	**(d)** Contract or identification number	**(e)** Approximate number of persons covered at end of policy or contract year	Policy or contract year	
				(f) From	**(g)** To
04-1590850	65935	MR 61501	159	01/01/2018	12/31/2018

2 Insurance fee and commission information. Enter the total fees and total commissions paid. List in line 3 the agents, brokers, and other persons in descending order of the amount paid.

(a) Total amount of commissions paid	**(b)** Total amount of fees paid

3 Persons receiving commissions and fees. (Complete as many entries as needed to report all persons).

(a) Name and address of the agent, broker, or other person to whom commissions or fees were paid

(b) Amount of sales and base commissions paid	Fees and other commissions paid		
	(c) Amount	**(d)** Purpose	**(e)** Organization code

(a) Name and address of the agent, broker, or other person to whom commissions or fees were paid

(b) Amount of sales and base commissions paid	Fees and other commissions paid		
	(c) Amount	**(d)** Purpose	**(e)** Organization code

(a) Name and address of the agent, broker, or other person to whom commissions or fees were paid

(b) Amount of sales and base commissions paid	Fees and other commissions paid		**(e)** Organization code
	(c) Amount	**(d)** Purpose	

(a) Name and address of the agent, broker, or other person to whom commissions or fees were paid

(b) Amount of sales and base commissions paid	Fees and other commissions paid		**(e)** Organization code
	(c) Amount	**(d)** Purpose	

(a) Name and address of the agent, broker, or other person to whom commissions or fees were paid

(b) Amount of sales and base commissions paid	Fees and other commissions paid		**(e)** Organization code
	(c) Amount	**(d)** Purpose	

(a) Name and address of the agent, broker, or other person to whom commissions or fees were paid

(b) Amount of sales and base commissions paid	Fees and other commissions paid		**(e)** Organization code
	(c) Amount	**(d)** Purpose	

(a) Name and address of the agent, broker, or other person to whom commissions or fees were paid

(b) Amount of sales and base commissions paid	Fees and other commissions paid		**(e)** Organization code
	(c) Amount	**(d)** Purpose	

Part II Investment and Annuity Contract Information

Where individual contracts are provided, the entire group of such individual contracts with each carrier may be treated as a unit for purposes of this report.

4	Current value of plan's interest under this contract in the general account at year end	4	
5	Current value of plan's interest under this contract in separate accounts at year end	5	0

6 Contracts With Allocated Funds:

a State the basis of premium rates ▶

b	Premiums paid to carrier	6b	
c	Premiums due but unpaid at the end of the year	6c	
d	If the carrier, service, or other organization incurred any specific costs in connection with the acquisition or retention of the contract or policy, enter amount.	6d	

Specify nature of costs ▶

e Type of contract: (1) ☐ individual policies (2) ☐ group deferred annuity

(3) ☐ other (specify) ▶

f If contract purchased, in whole or in part, to distribute benefits from a terminating plan, check here ▶ ☐

7 Contracts With Unallocated Funds (Do not include portions of these contracts maintained in separate accounts)

a Type of contract: (1) ☐ deposit administration (2) ☐ immediate participation guarantee

(3) ☐ guaranteed investment (4) ☒ other ▶ GROUP ANNUITY CONTRACT

b	Balance at the end of the previous year			7b	802844
c	Additions: (1) Contributions deposited during the year	7c(1)	-18916		
	(2) Dividends and credits	7c(2)	0		
	(3) Interest credited during the year	7c(3)	17537		
	(4) Transferred from separate account	7c(4)	615226		
	(5) Other (specify below)	7c(5)	29684		
	▶ LN INT, LN PRIN, ROLLOVER, TRANS FO				
	(6) Total additions			7c(6)	643531
d	Total of balance and additions (add lines **7b** and **7c(6)**)			7d	1446375
e	Deductions:				
	(1) Disbursed from fund to pay benefits or purchase annuities during year	7e(1)	723863		
	(2) Administration charge made by carrier	7e(2)	3589		
	(3) Transferred to separate account	7e(3)	0		
	(4) Other (specify below)	7e(4)	6032		
	▶ LN DISTRIB				
	(5) Total deductions			7e(5)	733484
f	Balance at the end of the current year (subtract line **7e(5)** from line **7d**)			7f	712891

Part III Welfare Benefit Contract Information

If more than one contract covers the same group of employees of the same employer(s) or members of the same employee organizations(s), the information may be combined for reporting purposes if such contracts are experience-rated as a unit. Where contracts cover individual employees, the entire group of such individual contracts with each carrier may be treated as a unit for purposes of this report.

8 Benefit and contract type (check all applicable boxes)

a ☐ Health (other than dental or vision) **b** ☐ Dental **c** ☐ Vision **d** ☐ Life insurance
e ☐ Temporary disability (accident and sickness) **f** ☐ Long-term disability **g** ☐ Supplemental unemployment **h** ☐ Prescription drug
i ☐ Stop loss (large deductible) **j** ☐ HMO contract **k** ☐ PPO contract **l** ☐ Indemnity contract
m ☐ Other (specify) ▶

9 Experience-rated contracts:				
a Premiums: (1) Amount received	**9a(1)**			
(2) Increase (decrease) in amount due but unpaid	**9a(2)**			
(3) Increase (decrease) in unearned premium reserve	**9a(3)**			
(4) Earned (**(1)** + **(2)** - **(3)**)			**9a(4)**	
b Benefit charges (1) Claims paid	**9b(1)**			
(2) Increase (decrease) in claim reserves	**9b(2)**			
(3) Incurred claims (add **(1)** and **(2)**)			**9b(3)**	
(4) Claims charged			**9b(4)**	
c Remainder of premium: (1) Retention charges (on an accrual basis) --				
(A) Commissions	**9c(1)(A)**			
(B) Administrative service or other fees	**9c(1)(B)**			
(C) Other specific acquisition costs	**9c(1)(C)**			
(D) Other expenses	**9c(1)(D)**			
(E) Taxes	**9c(1)(E)**			
(F) Charges for risks or other contingencies	**9c(1)(F)**			
(G) Other retention charges	**9c(1)(G)**			
(H) Total retention			**9c(1)(H)**	
(2) Dividends or retroactive rate refunds. (These amounts were ☐ paid in cash, or ☐ credited.)			**9c(2)**	
d Status of policyholder reserves at end of year: (1) Amount held to provide benefits after retirement			**9d(1)**	
(2) Claim reserves			**9d(2)**	
(3) Other reserves			**9d(3)**	
e Dividends or retroactive rate refunds due. (Do not include amount entered in line **9c(2)**.)			**9e**	
10 Nonexperience-rated contracts:				
a Total premiums or subscription charges paid to carrier			**10a**	
b If the carrier, service, or other organization incurred any specific costs in connection with the acquisition or retention of the contract or policy, other than reported in Part I, line 2 above, report amount. Specify nature of costs.			**10b**	

Part IV Provision of Information

11 Did the insurance company fail to provide any information necessary to complete Schedule A? ☐ Yes ☒ No

12 If the answer to line 11 is "Yes," specify the information not provided. ▶

SCHEDULE C (Form 5500)	Service Provider Information	OMB No. 1210-0110
Department of the Treasury Internal Revenue Service Department of Labor Employee Benefits Security Administration Pension Benefit Guaranty Corporation	This schedule is required to be filed under section 104 of the Employee Retirement Income Security Act of 1974 (ERISA). ▶ **File as an attachment to Form 5500.**	**2018** **This Form is Open to Public Inspection.**

For calendar plan year 2018 or fiscal plan year beginning 01/01/2018 and ending 12/31/2018

A Name of plan
QUANTUM 401(K) PLAN

B Three-digit plan number (PN) ▶ 001

C Plan sponsor's name as shown on line 2a of Form 5500
QUANTUM FUEL SYSTEMS LLC

D Employer Identification Number (EIN)
81-2080082

Part I Service Provider Information (see instructions)

You must complete this Part, in accordance with the instructions, to report the information required for **each person** who received, directly or indirectly, $5,000 or more in total compensation (i.e., money or anything else of monetary value) in connection with services rendered to the plan or the person's position with the plan during the plan year. If a person received **only** eligible indirect compensation for which the plan received the required disclosures, you are required to answer line 1 but are not required to include that person when completing the remainder of this Part.

1 Information on Persons Receiving Only Eligible Indirect Compensation

a Check "Yes" or "No" to indicate whether you are excluding a person from the remainder of this Part because they received only eligible indirect compensation for which the plan received the required disclosures (see instructions for definitions and conditions). . . . . ☐ Yes ☒ No

b If you answered line 1a "Yes," enter the name and EIN or address of each person providing the required disclosures for the service providers who received only eligible indirect compensation. Complete as many entries as needed (see instructions).

(b) Enter name and EIN or address of person who provided you disclosures on eligible indirect compensation

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(b) Enter name and EIN or address of person who provided you disclosures on eligible indirect compensation

2. Information on Other Service Providers Receiving Direct or Indirect Compensation. Except for those persons for whom you answered "Yes" to line 1a above, complete as many entries as needed to list each person receiving, directly or indirectly, $5,000 or more in total compensation (i.e., money or anything else of value) in connection with services rendered to the plan or their position with the plan during the plan year. (See instructions).

(a) Enter name and EIN or address (see instructions)

MASSACHUSETTS MUTUAL LIFE INS. CO.

04-1590850

(b) Service Code(s)	(c) Relationship to employer, employee organization, or person known to be a party-in-interest	(d) Enter direct compensation paid by the plan. If none, enter -0-.	(e) Did service provider receive indirect compensation? (sources other than plan or plan sponsor)	(f) Did indirect compensation include eligible indirect compensation, for which the plan received the required disclosures?	(g) Enter total indirect compensation received by service provider excluding eligible indirect compensation for which you answered "Yes" to element (f). If none, enter -0-.	(h) Did the service provider give you a formula instead of an amount or estimated amount?
49 52 60 64 72	CONTRACT ADMINISTRATOR	51227	Yes [X] No [ ]	Yes [X] No [ ]	0	Yes [X] No [ ]

(a) Enter name and EIN or address (see instructions)

GLOBAL RETIREMENT PARTNERS LLC

47-1411118

(b) Service Code(s)	(c) Relationship to employer, employee organization, or person known to be a party-in-interest	(d) Enter direct compensation paid by the plan. If none, enter -0-.	(e) Did service provider receive indirect compensation? (sources other than plan or plan sponsor)	(f) Did indirect compensation include eligible indirect compensation, for which the plan received the required disclosures?	(g) Enter total indirect compensation received by service provider excluding eligible indirect compensation for which you answered "Yes" to element (f). If none, enter -0-.	(h) Did the service provider give you a formula instead of an amount or estimated amount?
27	INVESTMENT ADVISOR	31782	Yes [ ] No [X]	Yes [ ] No [ ]		Yes [ ] No [ ]

(a) Enter name and EIN or address (see instructions)

ALLIANZ GLOBAL INVESTORS

06-1349805

(b) Service Code(s)	(c) Relationship to employer, employee organization, or person known to be a party-in-interest	(d) Enter direct compensation paid by the plan. If none, enter -0-.	(e) Did service provider receive indirect compensation? (sources other than plan or plan sponsor)	(f) Did indirect compensation include eligible indirect compensation, for which the plan received the required disclosures?	(g) Enter total indirect compensation received by service provider excluding eligible indirect compensation for which you answered "Yes" to element (f). If none, enter -0-.	(h) Did the service provider give you a formula instead of an amount or estimated amount?
52	INVESTMENT PROVIDER	0	Yes [X] No [ ]	Yes [ ] No [X]	0	Yes [X] No [ ]

2. Information on Other Service Providers Receiving Direct or Indirect Compensation. Except for those persons for whom you answered "Yes" to line 1a above, complete as many entries as needed to list each person receiving, directly or indirectly, $5,000 or more in total compensation (i.e., money or anything else of value) in connection with services rendered to the plan or their position with the plan during the plan year. (See instructions).

(a) Enter name and EIN or address (see instructions)

BLACKROCK

22-3483675

(b) Service Code(s)	(c) Relationship to employer, employee organization, or person known to be a party-in-interest	(d) Enter direct compensation paid by the plan. If none, enter -0-.	(e) Did service provider receive indirect compensation? (sources other than plan or plan sponsor)	(f) Did indirect compensation include eligible indirect compensation, for which the plan received the required disclosures?	(g) Enter total indirect compensation received by service provider excluding eligible indirect compensation for which you answered "Yes" to element (f). If none, enter -0-.	(h) Did the service provider give you a formula instead of an amount or estimated amount?
52	INVESTMENT PROVIDER	0	Yes [X] No [ ]	Yes [ ] No [X]	0	Yes [X] No [ ]

(a) Enter name and EIN or address (see instructions)

BLACKROCK

51-0318674

(b) Service Code(s)	(c) Relationship to employer, employee organization, or person known to be a party-in-interest	(d) Enter direct compensation paid by the plan. If none, enter -0-.	(e) Did service provider receive indirect compensation? (sources other than plan or plan sponsor)	(f) Did indirect compensation include eligible indirect compensation, for which the plan received the required disclosures?	(g) Enter total indirect compensation received by service provider excluding eligible indirect compensation for which you answered "Yes" to element (f). If none, enter -0-.	(h) Did the service provider give you a formula instead of an amount or estimated amount?
52	INVESTMENT PROVIDER	0	Yes [X] No [ ]	Yes [ ] No [X]	0	Yes [X] No [ ]

(a) Enter name and EIN or address (see instructions)

MFS INVESTMENT MANAGEMENT

04-3158862

(b) Service Code(s)	(c) Relationship to employer, employee organization, or person known to be a party-in-interest	(d) Enter direct compensation paid by the plan. If none, enter -0-.	(e) Did service provider receive indirect compensation? (sources other than plan or plan sponsor)	(f) Did indirect compensation include eligible indirect compensation, for which the plan received the required disclosures?	(g) Enter total indirect compensation received by service provider excluding eligible indirect compensation for which you answered "Yes" to element (f). If none, enter -0-.	(h) Did the service provider give you a formula instead of an amount or estimated amount?
52	INVESTMENT PROVIDER	0	Yes [X] No [ ]	Yes [ ] No [X]	0	Yes [X] No [ ]

2. Information on Other Service Providers Receiving Direct or Indirect Compensation. Except for those persons for whom you answered "Yes" to line 1a above, complete as many entries as needed to list each person receiving, directly or indirectly, $5,000 or more in total compensation (i.e., money or anything else of value) in connection with services rendered to the plan or their position with the plan during the plan year. (See instructions).

(a) Enter name and EIN or address (see instructions)

OPPENHEIMER

13-3867060

(b) Service Code(s)	(c) Relationship to employer, employee organization, or person known to be a party-in-interest	(d) Enter direct compensation paid by the plan. If none, enter -0-.	(e) Did service provider receive indirect compensation? (sources other than plan or plan sponsor)	(f) Did indirect compensation include eligible indirect compensation, for which the plan received the required disclosures?	(g) Enter total indirect compensation received by service provider excluding eligible indirect compensation for which you answered "Yes" to element (f). If none, enter -0-.	(h) Did the service provider give you a formula instead of an amount or estimated amount?
52	INVESTMENT PROVIDER	0	Yes [X] No [ ]	Yes [ ] No [X]	0	Yes [X] No [ ]

(a) Enter name and EIN or address (see instructions)

OPPENHEIMER

93-6305075

(b) Service Code(s)	(c) Relationship to employer, employee organization, or person known to be a party-in-interest	(d) Enter direct compensation paid by the plan. If none, enter -0-.	(e) Did service provider receive indirect compensation? (sources other than plan or plan sponsor)	(f) Did indirect compensation include eligible indirect compensation, for which the plan received the required disclosures?	(g) Enter total indirect compensation received by service provider excluding eligible indirect compensation for which you answered "Yes" to element (f). If none, enter -0-.	(h) Did the service provider give you a formula instead of an amount or estimated amount?
52	INVESTMENT PROVIDER	0	Yes [X] No [ ]	Yes [ ] No [X]	0	Yes [X] No [ ]

(a) Enter name and EIN or address (see instructions)

OPPENHEIMER

22-2725700

(b) Service Code(s)	(c) Relationship to employer, employee organization, or person known to be a party-in-interest	(d) Enter direct compensation paid by the plan. If none, enter -0-.	(e) Did service provider receive indirect compensation? (sources other than plan or plan sponsor)	(f) Did indirect compensation include eligible indirect compensation, for which the plan received the required disclosures?	(g) Enter total indirect compensation received by service provider excluding eligible indirect compensation for which you answered "Yes" to element (f). If none, enter -0-.	(h) Did the service provider give you a formula instead of an amount or estimated amount?
52	INVESTMENT PROVIDER	0	Yes [X] No [ ]	Yes [ ] No [X]	0	Yes [X] No [ ]

2. Information on Other Service Providers Receiving Direct or Indirect Compensation. Except for those persons for whom you answered "Yes" to line 1a above, complete as many entries as needed to list each person receiving, directly or indirectly, $5,000 or more in total compensation (i.e., money or anything else of value) in connection with services rendered to the plan or their position with the plan during the plan year. (See instructions).

(a) Enter name and EIN or address (see instructions)

PGIM INVESTMENTS

22-3468527

(b) Service Code(s)	(c) Relationship to employer, employee organization, or person known to be a party-in-interest	(d) Enter direct compensation paid by the plan. If none, enter -0-.	(e) Did service provider receive indirect compensation? (sources other than plan or plan sponsor)	(f) Did indirect compensation include eligible indirect compensation, for which the plan received the required disclosures?	(g) Enter total indirect compensation received by service provider excluding eligible indirect compensation for which you answered "Yes" to element (f). If none, enter -0-.	(h) Did the service provider give you a formula instead of an amount or estimated amount?
52	INVESTMENT PROVIDER	0	Yes [X] No [ ]	Yes [ ] No [X]	0	Yes [X] No [ ]

(a) Enter name and EIN or address (see instructions)

PIMCO FUNDS

95-2632339

(b) Service Code(s)	(c) Relationship to employer, employee organization, or person known to be a party-in-interest	(d) Enter direct compensation paid by the plan. If none, enter -0-.	(e) Did service provider receive indirect compensation? (sources other than plan or plan sponsor)	(f) Did indirect compensation include eligible indirect compensation, for which the plan received the required disclosures?	(g) Enter total indirect compensation received by service provider excluding eligible indirect compensation for which you answered "Yes" to element (f). If none, enter -0-.	(h) Did the service provider give you a formula instead of an amount or estimated amount?
52	INVESTMENT PROVIDER	0	Yes [X] No [ ]	Yes [ ] No [X]	0	Yes [X] No [ ]

(a) Enter name and EIN or address (see instructions)

VANGUARD

23-1945930

(b) Service Code(s)	(c) Relationship to employer, employee organization, or person known to be a party-in-interest	(d) Enter direct compensation paid by the plan. If none, enter -0-.	(e) Did service provider receive indirect compensation? (sources other than plan or plan sponsor)	(f) Did indirect compensation include eligible indirect compensation, for which the plan received the required disclosures?	(g) Enter total indirect compensation received by service provider excluding eligible indirect compensation for which you answered "Yes" to element (f). If none, enter -0-.	(h) Did the service provider give you a formula instead of an amount or estimated amount?
52	INVESTMENT PROVIDER	0	Yes [X] No [ ]	Yes [ ] No [X]	0	Yes [X] No [ ]

2. Information on Other Service Providers Receiving Direct or Indirect Compensation. Except for those persons for whom you answered "Yes" to line 1a above, complete as many entries as needed to list each person receiving, directly or indirectly, $5,000 or more in total compensation (i.e., money or anything else of value) in connection with services rendered to the plan or their position with the plan during the plan year. (See instructions).

(a) Enter name and EIN or address (see instructions)

VANGUARD

04-6035483

(b) Service Code(s)	(c) Relationship to employer, employee organization, or person known to be a party-in-interest	(d) Enter direct compensation paid by the plan. If none, enter -0-.	(e) Did service provider receive indirect compensation? (sources other than plan or plan sponsor)	(f) Did indirect compensation include eligible indirect compensation, for which the plan received the required disclosures?	(g) Enter total indirect compensation received by service provider excluding eligible indirect compensation for which you answered "Yes" to element (f). If none, enter -0-.	(h) Did the service provider give you a formula instead of an amount or estimated amount?
52	INVESTMENT PROVIDER	0	Yes [X] No [ ]	Yes [ ] No [X]	0	Yes [X] No [ ]

(a) Enter name and EIN or address (see instructions)

VANGUARD

23-1999755

(b) Service Code(s)	(c) Relationship to employer, employee organization, or person known to be a party-in-interest	(d) Enter direct compensation paid by the plan. If none, enter -0-.	(e) Did service provider receive indirect compensation? (sources other than plan or plan sponsor)	(f) Did indirect compensation include eligible indirect compensation, for which the plan received the required disclosures?	(g) Enter total indirect compensation received by service provider excluding eligible indirect compensation for which you answered "Yes" to element (f). If none, enter -0-.	(h) Did the service provider give you a formula instead of an amount or estimated amount?
52	INVESTMENT PROVIDER	0	Yes [X] No [ ]	Yes [ ] No [X]	0	Yes [X] No [ ]

(a) Enter name and EIN or address (see instructions)

(b) Service Code(s)	(c) Relationship to employer, employee organization, or person known to be a party-in-interest	(d) Enter direct compensation paid by the plan. If none, enter -0-.	(e) Did service provider receive indirect compensation? (sources other than plan or plan sponsor)	(f) Did indirect compensation include eligible indirect compensation, for which the plan received the required disclosures?	(g) Enter total indirect compensation received by service provider excluding eligible indirect compensation for which you answered "Yes" to element (f). If none, enter -0-.	(h) Did the service provider give you a formula instead of an amount or estimated amount?
			Yes [ ] No [ ]	Yes [ ] No [ ]		Yes [ ] No [ ]

Part I Service Provider Information (continued)

3. If you reported on line 2 receipt of indirect compensation, other than eligible indirect compensation, by a service provider, and the service provider is a fiduciary or provides contract administrator, consulting, custodial, investment advisory, investment management, broker, or recordkeeping services, answer the following questions for (a) each source from whom the service provider received $1,000 or more in indirect compensation and (b) each source for whom the service provider gave you a formula used to determine the indirect compensation instead of an amount or estimated amount of the indirect compensation. Complete as many entries as needed to report the required information for each source.

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
MASSACHUSETTS MUTUAL LIFE INS. CO.	52 72	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
PREM U.S. GOVT MNY MKT FD BARINGS 04-3212059	BASIS POINTS * PLAN ASSETS

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
MASSACHUSETTS MUTUAL LIFE INS. CO.	60	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
ALLIANZGI HIGH YIELD BOND FUND 06-1349805	BASIS POINTS * PLAN ASSETS

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
MASSACHUSETTS MUTUAL LIFE INS. CO.	60	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
OPPENHEIMER INTERNATIONAL GR FUND 13-3867060	BASIS POINTS * PLAN ASSETS

Part I Service Provider Information (continued)

3. If you reported on line 2 receipt of indirect compensation, other than eligible indirect compensation, by a service provider, and the service provider is a fiduciary or provides contract administrator, consulting, custodial, investment advisory, investment management, broker, or recordkeeping services, answer the following questions for (a) each source from whom the service provider received $1,000 or more in indirect compensation and (b) each source for whom the service provider gave you a formula used to determine the indirect compensation instead of an amount or estimated amount of the indirect compensation. Complete as many entries as needed to report the required information for each source.

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
MASSACHUSETTS MUTUAL LIFE INS. CO.	60	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
OPPENHEIMER DISCOVERY FUND 22-2725700	BASIS POINTS * PLAN ASSETS

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
MASSACHUSETTS MUTUAL LIFE INS. CO.	60	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
PGIM TOTAL RETURN BOND FUND 22-3468527	BASIS POINTS * PLAN ASSETS

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
MASSACHUSETTS MUTUAL LIFE INS. CO.	49	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
MILLENNIUM TRUST COMPANY, LLC 36-4400066	REFERRAL FEE

Part I Service Provider Information (continued)

3. If you reported on line 2 receipt of indirect compensation, other than eligible indirect compensation, by a service provider, and the service provider is a fiduciary or provides contract administrator, consulting, custodial, investment advisory, investment management, broker, or recordkeeping services, answer the following questions for (a) each source from whom the service provider received $1,000 or more in indirect compensation and (b) each source for whom the service provider gave you a formula used to determine the indirect compensation instead of an amount or estimated amount of the indirect compensation. Complete as many entries as needed to report the required information for each source.

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
ALLIANZ GLOBAL INVESTORS	52	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
ALLIANZGI HIGH YIELD BOND FUND 06-1349805	BASIS POINTS * PLAN ASSETS

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
BLACKROCK	52	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
BLACKROCK ISHARES INT'L IND FD 22-3483675	BASIS POINTS * PLAN ASSETS

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
BLACKROCK	52	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
BLACKROCK ISHARES US AGG BD IND FD 51-0318674	BASIS POINTS * PLAN ASSETS

Part I Service Provider Information (continued)

3. If you reported on line 2 receipt of indirect compensation, other than eligible indirect compensation, by a service provider, and the service provider is a fiduciary or provides contract administrator, consulting, custodial, investment advisory, investment management, broker, or recordkeeping services, answer the following questions for (a) each source from whom the service provider received $1,000 or more in indirect compensation and (b) each source for whom the service provider gave you a formula used to determine the indirect compensation instead of an amount or estimated amount of the indirect compensation. Complete as many entries as needed to report the required information for each source.

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
BLACKROCK	52	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
BLACKROCK LIFEPATH INDEX 2020 FUND 51-0318674	BASIS POINTS * PLAN ASSETS

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
BLACKROCK	52	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
BLACKROCK LIFEPATH INDEX 2025 FUND 51-0318674	BASIS POINTS * PLAN ASSETS

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
BLACKROCK	52	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
BLACKROCK LIFEPATH INDEX 2030 FUND 51-0318674	BASIS POINTS * PLAN ASSETS

Part I Service Provider Information (continued)

3. If you reported on line 2 receipt of indirect compensation, other than eligible indirect compensation, by a service provider, and the service provider is a fiduciary or provides contract administrator, consulting, custodial, investment advisory, investment management, broker, or recordkeeping services, answer the following questions for (a) each source from whom the service provider received $1,000 or more in indirect compensation and (b) each source for whom the service provider gave you a formula used to determine the indirect compensation instead of an amount or estimated amount of the indirect compensation. Complete as many entries as needed to report the required information for each source.

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
BLACKROCK	52	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
BLACKROCK LIFEPATH INDEX 2035 FUND 51-0318674	BASIS POINTS * PLAN ASSETS

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
BLACKROCK	52	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
BLACKROCK LIFEPATH INDEX 2040 FUND 51-0318674	BASIS POINTS * PLAN ASSETS

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
BLACKROCK	52	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
BLACKROCK LIFEPATH INDEX 2045 FUND 51-0318674	BASIS POINTS * PLAN ASSETS

Part I Service Provider Information (continued)

3. If you reported on line 2 receipt of indirect compensation, other than eligible indirect compensation, by a service provider, and the service provider is a fiduciary or provides contract administrator, consulting, custodial, investment advisory, investment management, broker, or recordkeeping services, answer the following questions for (a) each source from whom the service provider received $1,000 or more in indirect compensation and (b) each source for whom the service provider gave you a formula used to determine the indirect compensation instead of an amount or estimated amount of the indirect compensation. Complete as many entries as needed to report the required information for each source.

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
BLACKROCK	52	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
BLACKROCK LIFEPATH INDEX 2050 FUND 51-0318674	BASIS POINTS * PLAN ASSETS

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
BLACKROCK	52	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
BLACKROCK LIFEPATH INDEX 2055 FUND 51-0318674	BASIS POINTS * PLAN ASSETS

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
BLACKROCK	52	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
BLACKROCK LIFEPATH INDEX 2060 FUND 51-0318674	BASIS POINTS * PLAN ASSETS

Part I Service Provider Information (continued)

3. If you reported on line 2 receipt of indirect compensation, other than eligible indirect compensation, by a service provider, and the service provider is a fiduciary or provides contract administrator, consulting, custodial, investment advisory, investment management, broker, or recordkeeping services, answer the following questions for (a) each source from whom the service provider received $1,000 or more in indirect compensation and (b) each source for whom the service provider gave you a formula used to determine the indirect compensation instead of an amount or estimated amount of the indirect compensation. Complete as many entries as needed to report the required information for each source.

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
BLACKROCK	52	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
BLACKROCK LIFEPATH INDEX RMNT FUND 51-0318674	BASIS POINTS * PLAN ASSETS

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
MFS INVESTMENT MANAGEMENT	52	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
MFS GROWTH FUND 04-3158862	BASIS POINTS * PLAN ASSETS

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
OPPENHEIMER	52	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
OPPENHEIMER INTERNATIONAL GR FUND 13-3867060	BASIS POINTS * PLAN ASSETS

Part I Service Provider Information (continued)

3. If you reported on line 2 receipt of indirect compensation, other than eligible indirect compensation, by a service provider, and the service provider is a fiduciary or provides contract administrator, consulting, custodial, investment advisory, investment management, broker, or recordkeeping services, answer the following questions for (a) each source from whom the service provider received $1,000 or more in indirect compensation and (b) each source for whom the service provider gave you a formula used to determine the indirect compensation instead of an amount or estimated amount of the indirect compensation. Complete as many entries as needed to report the required information for each source.

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
OPPENHEIMER	52	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
OPPENHEIMER DEVELOPING MARKETS FUND 93-6305075	BASIS POINTS * PLAN ASSETS

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
OPPENHEIMER	52	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
OPPENHEIMER DISCOVERY FUND 22-2725700	BASIS POINTS * PLAN ASSETS

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
PGIM INVESTMENTS	52	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
PGIM TOTAL RETURN BOND FUND 22-3468527	BASIS POINTS * PLAN ASSETS

Part I Service Provider Information (continued)

3. If you reported on line 2 receipt of indirect compensation, other than eligible indirect compensation, by a service provider, and the service provider is a fiduciary or provides contract administrator, consulting, custodial, investment advisory, investment management, broker, or recordkeeping services, answer the following questions for (a) each source from whom the service provider received $1,000 or more in indirect compensation and (b) each source for whom the service provider gave you a formula used to determine the indirect compensation instead of an amount or estimated amount of the indirect compensation. Complete as many entries as needed to report the required information for each source.

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
PIMCO FUNDS	52	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
PIMCO INCOME FUND 95-2632339	BASIS POINTS * PLAN ASSETS

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
VANGUARD	52	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
VANGUARD EQUITY-INCOME FUND 23-1945930	BASIS POINTS * PLAN ASSETS

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
VANGUARD	52	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
VANGUARD REAL ESTATE INDEX FUND 23-1945930	BASIS POINTS * PLAN ASSETS

Part I Service Provider Information (continued)

3. If you reported on line 2 receipt of indirect compensation, other than eligible indirect compensation, by a service provider, and the service provider is a fiduciary or provides contract administrator, consulting, custodial, investment advisory, investment management, broker, or recordkeeping services, answer the following questions for (a) each source from whom the service provider received $1,000 or more in indirect compensation and (b) each source for whom the service provider gave you a formula used to determine the indirect compensation instead of an amount or estimated amount of the indirect compensation. Complete as many entries as needed to report the required information for each source.

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
VANGUARD	52	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
VANGUARD FTSE SOCIAL INDEX FUND 04-6035483	BASIS POINTS * PLAN ASSETS

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
VANGUARD	52	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
VANGUARD 500 INDEX FUND 23-1999755	BASIS POINTS * PLAN ASSETS

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
VANGUARD	52	0

(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
VANGUARD MID CAP INDEX FUND 23-1999755	BASIS POINTS * PLAN ASSETS

Part I Service Provider Information (continued)

3. If you reported on line 2 receipt of indirect compensation, other than eligible indirect compensation, by a service provider, and the service provider is a fiduciary or provides contract administrator, consulting, custodial, investment advisory, investment management, broker, or recordkeeping services, answer the following questions for (a) each source from whom the service provider received $1,000 or more in indirect compensation and (b) each source for whom the service provider gave you a formula used to determine the indirect compensation instead of an amount or estimated amount of the indirect compensation. Complete as many entries as needed to report the required information for each source.

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
VANGUARD	52	0
(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.	
VANGUARD SMALL-CAP VALUE INDEX FUND 23-1999755	BASIS POINTS * PLAN ASSETS	

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.	

(a) Enter service provider name as it appears on line 2	**(b)** Service Codes (see instructions)	**(c)** Enter amount of indirect compensation
(d) Enter name and EIN (address) of source of indirect compensation	**(e)** Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.	

Part II Service Providers Who Fail or Refuse to Provide Information

4 Provide, to the extent possible, the following information for each service provider who failed or refused to provide the information necessary to complete this Schedule.

(a) Enter name and EIN or address of service provider (see instructions)	**(b)** Nature of Service Code(s)	**(c)** Describe the information that the service provider failed or refused to provide

(a) Enter name and EIN or address of service provider (see instructions)	**(b)** Nature of Service Code(s)	**(c)** Describe the information that the service provider failed or refused to provide

(a) Enter name and EIN or address of service provider (see instructions)	**(b)** Nature of Service Code(s)	**(c)** Describe the information that the service provider failed or refused to provide

(a) Enter name and EIN or address of service provider (see instructions)	**(b)** Nature of Service Code(s)	**(c)** Describe the information that the service provider failed or refused to provide

(a) Enter name and EIN or address of service provider (see instructions)	**(b)** Nature of Service Code(s)	**(c)** Describe the information that the service provider failed or refused to provide

(a) Enter name and EIN or address of service provider (see instructions)	**(b)** Nature of Service Code(s)	**(c)** Describe the information that the service provider failed or refused to provide

Part III Termination Information on Accountants and Enrolled Actuaries (see instructions)

(complete as many entries as needed)

a Name:	**b** EIN:
c Position:	
d Address:	**e** Telephone:

Explanation:

a Name:	**b** EIN:
c Position:	
d Address:	**e** Telephone:

Explanation:

a Name:	**b** EIN:
c Position:	
d Address:	**e** Telephone:

Explanation:

a Name:	**b** EIN:
c Position:	
d Address:	**e** Telephone:

Explanation:

a Name:	**b** EIN:
c Position:	
d Address:	**e** Telephone:

Explanation:

SCHEDULE H (Form 5500)

Department of the Treasury
Internal Revenue Service

Department of Labor
Employee Benefits Security Administration

Pension Benefit Guaranty Corporation

Financial Information

This schedule is required to be filed under section 104 of the Employee Retirement Income Security Act of 1974 (ERISA), and section 6058(a) of the Internal Revenue Code (the Code).

▶ **File as an attachment to Form 5500.**

OMB No. 1210-0110

2018

This Form is Open to Public Inspection

For calendar plan year 2018 or fiscal plan year beginning 01/01/2018 and ending 12/31/2018

A Name of plan
QUANTUM 401(K) PLAN

B Three-digit plan number (PN) ▶ 001

C Plan sponsor's name as shown on line 2a of Form 5500
QUANTUM FUEL SYSTEMS LLC

D Employer Identification Number (EIN)
81-2080082

Part I Asset and Liability Statement

1 Current value of plan assets and liabilities at the beginning and end of the plan year. Combine the value of plan assets held in more than one trust. Report the value of the plan's interest in a commingled fund containing the assets of more than one plan on a line-by-line basis unless the value is reportable on lines 1c(9) through 1c(14). Do not enter the value of that portion of an insurance contract which guarantees, during this plan year, to pay a specific dollar benefit at a future date. **Round off amounts to the nearest dollar.** MTIAs, CCTs, PSAs, and 103-12 IEs do not complete lines 1b(1), 1b(2), 1c(8), 1g, 1h, and 1i. CCTs, PSAs, and 103-12 IEs also do not complete lines 1d and 1e. See instructions.

Assets		(a) Beginning of Year	(b) End of Year
a Total noninterest-bearing cash	1a		
b Receivables (less allowance for doubtful accounts):			
(1) Employer contributions	1b(1)		
(2) Participant contributions	1b(2)		
(3) Other	1b(3)		
c General investments:			
(1) Interest-bearing cash (include money market accounts & certificates of deposit)	1c(1)		
(2) U.S. Government securities	1c(2)		
(3) Corporate debt instruments (other than employer securities):			
(A) Preferred	1c(3)(A)		
(B) All other	1c(3)(B)		
(4) Corporate stocks (other than employer securities):			
(A) Preferred	1c(4)(A)		
(B) Common	1c(4)(B)		
(5) Partnership/joint venture interests	1c(5)		
(6) Real estate (other than employer real property)	1c(6)		
(7) Loans (other than to participants)	1c(7)		
(8) Participant loans	1c(8)	323258	276492
(9) Value of interest in common/collective trusts	1c(9)	0	0
(10) Value of interest in pooled separate accounts	1c(10)	0	0
(11) Value of interest in master trust investment accounts	1c(11)		
(12) Value of interest in 103-12 investment entities	1c(12)		
(13) Value of interest in registered investment companies (e.g., mutual funds)	1c(13)	10507527	9821401
(14) Value of funds held in insurance company general account (unallocated contracts)	1c(14)	802844	712892
(15) Other	1c(15)	0	0

			(a) Beginning of Year	(b) End of Year
1d	Employer-related investments:			
	(1) Employer securities	1d(1)	0	0
	(2) Employer real property	1d(2)		
e	Buildings and other property used in plan operation	1e		
f	Total assets (add all amounts in lines 1a through 1e)	1f	11633629	10810785
	Liabilities			
g	Benefit claims payable	1g		
h	Operating payables	1h		
i	Acquisition indebtedness	1i		
j	Other liabilities	1j		
k	Total liabilities (add all amounts in lines 1g through1j)	1k	0	0
	Net Assets			
l	Net assets (subtract line 1k from line 1f)	1l	11633629	10810785

Part II Income and Expense Statement

2 Plan income, expenses, and changes in net assets for the year. Include all income and expenses of the plan, including any trust(s) or separately maintained fund(s) and any payments/receipts to/from insurance carriers. Round off amounts to the nearest dollar. MTIAs, CCTs, PSAs, and 103-12 IEs do not complete lines 2a, 2b(1)(E), 2e, 2f, and 2g.

	Income		(a) Amount	(b) Total
a	**Contributions:**			
	(1) Received or receivable in cash from: **(A)** Employers	2a(1)(A)	120683	
	(B) Participants	2a(1)(B)	457034	
	(C) Others (including rollovers)	2a(1)(C)	122124	
	(2) Noncash contributions	2a(2)		
	(3) Total contributions. Add lines **2a(1)(A), (B), (C),** and line **2a(2)**	2a(3)		699841
b	**Earnings on investments:**			
	(1) Interest:			
	(A) Interest-bearing cash (including money market accounts and certificates of deposit)	2b(1)(A)		
	(B) U.S. Government securities	2b(1)(B)		
	(C) Corporate debt instruments	2b(1)(C)		
	(D) Loans (other than to participants)	2b(1)(D)		
	(E) Participant loans	2b(1)(E)	11024	
	(F) Other	2b(1)(F)	17537	
	(G) Total interest. Add lines **2b(1)(A)** through **(F)**	2b(1)(G)		28561
	(2) Dividends: **(A)** Preferred stock	2b(2)(A)		
	(B) Common stock	2b(2)(B)	0	
	(C) Registered investment company shares (e.g. mutual funds)	2b(2)(C)	428057	
	(D) Total dividends. Add lines **2b(2)(A)**, **(B)**, and **(C)**	2b(2)(D)		428057
	(3) Rents	2b(3)		
	(4) Net gain (loss) on sale of assets: **(A)** Aggregate proceeds	2b(4)(A)		
	(B) Aggregate carrying amount (see instructions)	2b(4)(B)		
	(C) Subtract line **2b(4)(B)** from line **2b(4)(A)** and enter result	2b(4)(C)		0
	(5) Unrealized appreciation (depreciation) of assets: **(A)** Real estate	2b(5)(A)		
	(B) Other	2b(5)(B)		
	(C) Total unrealized appreciation of assets. Add lines **2b(5)(A)** and **(B)**	2b(5)(C)		0

		(a) Amount	(b) Total
(6) Net investment gain (loss) from common/collective trusts	2b(6)		0
(7) Net investment gain (loss) from pooled separate accounts	2b(7)		0
(8) Net investment gain (loss) from master trust investment accounts	2b(8)		
(9) Net investment gain (loss) from 103-12 investment entities	2b(9)		
(10) Net investment gain (loss) from registered investment companies (e.g., mutual funds)	2b(10)		-963110
c Other income	2c		0
d Total income. Add all **income** amounts in column (b) and enter total	2d		193349
Expenses			
e Benefit payment and payments to provide benefits:			
(1) Directly to participants or beneficiaries, including direct rollovers	2e(1)	932785	
(2) To insurance carriers for the provision of benefits	2e(2)	0	
(3) Other	2e(3)	0	
(4) Total benefit payments. Add lines **2e(1)** through **(3)**	2e(4)		932785
f Corrective distributions (see instructions)	2f		399
g Certain deemed distributions of participant loans (see instructions)	2g		0
h Interest expense	2h		
i Administrative expenses: **(1)** Professional fees	2i(1)	0	
(2) Contract administrator fees	2i(2)	1452	
(3) Investment advisory and management fees	2i(3)	81557	
(4) Other	2i(4)	0	
(5) Total administrative expenses. Add lines **2i(1)** through **(4)**	2i(5)		83009
j Total expenses. Add all **expense** amounts in column (b) and enter total	2j		1016193
Net Income and Reconciliation			
k Net income (loss). Subtract line **2j** from line **2d**	2k		-822844
l Transfers of assets:			
(1) To this plan	2l(1)		
(2) From this plan	2l(2)		

Part III Accountant's Opinion

3 Complete lines 3a through 3c if the opinion of an independent qualified public accountant is attached to this Form 5500. Complete line 3d if an opinion is not attached.

a The attached opinion of an independent qualified public accountant for this plan is (see instructions):

(1) [ ] Unqualified **(2)** [ ] Qualified **(3)** [X] Disclaimer **(4)** [ ] Adverse

b Did the accountant perform a limited scope audit pursuant to 29 CFR 2520.103-8 and/or 103-12(d)? [X] Yes [ ] No

c Enter the name and EIN of the accountant (or accounting firm) below:

(1) Name: HASKELL & WHITE LLP **(2)** EIN: 33-0310569

d The opinion of an independent qualified public accountant is **not attached** because:

(1) [ ] This form is filed for a CCT, PSA, or MTIA. **(2)** [ ] It will be attached to the next Form 5500 pursuant to 29 CFR 2520.104-50.

Part IV Compliance Questions

4 CCTs and PSAs do not complete Part IV. MTIAs, 103-12 IEs, and GIAs do not complete lines 4a, 4e, 4f, 4g, 4h, 4k, 4m, 4n, or 5. 103-12 IEs also do not complete lines 4j and 4l. MTIAs also do not complete line 4l.

During the plan year:

		Yes	No	Amount
a Was there a failure to transmit to the plan any participant contributions within the time period described in 29 CFR 2510.3-102? Continue to answer "Yes" for any prior year failures until fully corrected. (See instructions and DOL's Voluntary Fiduciary Correction Program.)	4a	X		384670
b Were any loans by the plan or fixed income obligations due the plan in default as of the close of the plan year or classified during the year as uncollectible? Disregard participant loans secured by participant's account balance. (Attach Schedule G (Form 5500) Part I if "Yes" is checked.)	4b		X	

			Yes	No	Amount
c	Were any leases to which the plan was a party in default or classified during the year as uncollectible? (Attach Schedule G (Form 5500) Part II if "Yes" is checked.)	4c		X	
d	Were there any nonexempt transactions with any party-in-interest? (Do not include transactions reported on line 4a. Attach Schedule G (Form 5500) Part III if "Yes" is checked.)	4d		X	
e	Was this plan covered by a fidelity bond?	4e	X		500000
f	Did the plan have a loss, whether or not reimbursed by the plan's fidelity bond, that was caused by fraud or dishonesty?	4f		X	
g	Did the plan hold any assets whose current value was neither readily determinable on an established market nor set by an independent third party appraiser?	4g		X	
h	Did the plan receive any noncash contributions whose value was neither readily determinable on an established market nor set by an independent third party appraiser?	4h		X	
i	Did the plan have assets held for investment? (Attach schedule(s) of assets if "Yes" is checked, and see instructions for format requirements.)	4i	X		
j	Were any plan transactions or series of transactions in excess of 5% of the current value of plan assets? (Attach schedule of transactions if "Yes" is checked, and see instructions for format requirements.)	4j		X	
k	Were all the plan assets either distributed to participants or beneficiaries, transferred to another plan, or brought under the control of the PBGC?	4k		X	
l	Has the plan failed to provide any benefit when due under the plan?	4l		X	
m	If this is an individual account plan, was there a blackout period? (See instructions and 29 CFR 2520.101-3.)	4m		X	
n	If 4m was answered "Yes," check the "Yes" box if you either provided the required notice or one of the exceptions to providing the notice applied under 29 CFR 2520.101-3.	4n			

5a Has a resolution to terminate the plan been adopted during the plan year or any prior plan year? ☐ Yes ☒ No
If "Yes," enter the amount of any plan assets that reverted to the employer this year _____.

5b If, during this plan year, any assets or liabilities were transferred from this plan to another plan(s), identify the plan(s) to which assets or liabilities were transferred. (See instructions.)

5b(1) Name of plan(s)	**5b(2)** EIN(s)	**5b(3)** PN(s)

5c If the plan is a defined benefit plan, is it covered under the PBGC insurance program (See ERISA section 4021.)? ..... ☐ Yes ☐ No ☐ Not determined
If "Yes" is checked, enter the My PAA confirmation number from the PBGC premium filing for this plan year_____. (See instructions.)

SCHEDULE R (Form 5500)

Department of the Treasury
Internal Revenue Service

Department of Labor
Employee Benefits Security Administration

Pension Benefit Guaranty Corporation

Retirement Plan Information

This schedule is required to be filed under sections 104 and 4065 of the Employee Retirement Income Security Act of 1974 (ERISA) and section 6058(a) of the Internal Revenue Code (the Code).

▶ **File as an attachment to Form 5500.**

OMB No. 1210-0110

2018

This Form is Open to Public Inspection.

For calendar plan year 2018 or fiscal plan year beginning 01/01/2018 and ending 12/31/2018

A Name of plan
QUANTUM 401(K) PLAN

B Three-digit plan number (PN) ▶ 001

C Plan sponsor's name as shown on line 2a of Form 5500
QUANTUM FUEL SYSTEMS LLC

D Employer Identification Number (EIN)
81-2080082

Part I Distributions

All references to distributions relate only to payments of benefits during the plan year.

1 Total value of distributions paid in property other than in cash or the forms of property specified in the instructions **1** 0

2 Enter the EIN(s) of payor(s) who paid benefits on behalf of the plan to participants or beneficiaries during the year (if more than two, enter EINs of the two payors who paid the greatest dollar amounts of benefits):

EIN(s): 04-1590850

Profit-sharing plans, ESOPs, and stock bonus plans, skip line 3.

3 Number of participants (living or deceased) whose benefits were distributed in a single sum, during the plan year **3**

Part II Funding Information (If the plan is not subject to the minimum funding requirements of section 412 of the Internal Revenue Code or ERISA section 302, skip this Part.)

4 Is the plan administrator making an election under Code section 412(d)(2) or ERISA section 302(d)(2)? ..... ☐ **Yes** ☐ **No** ☐ **N/A**

If the plan is a defined benefit plan, go to line 8.

5 If a waiver of the minimum funding standard for a prior year is being amortized in this plan year, see instructions and enter the date of the ruling letter granting the waiver. **Date:** Month _____ Day _____ Year _____

If you completed line 5, complete lines 3, 9, and 10 of Schedule MB and do not complete the remainder of this schedule.

6 **a** Enter the minimum required contribution for this plan year (include any prior year accumulated funding deficiency not waived) **6a**

b Enter the amount contributed by the employer to the plan for this plan year **6b**

c Subtract the amount in line 6b from the amount in line 6a. Enter the result (enter a minus sign to the left of a negative amount) **6c**

If you completed line 6c, skip lines 8 and 9.

7 Will the minimum funding amount reported on line 6c be met by the funding deadline? ..... ☐ **Yes** ☐ **No** ☐ **N/A**

8 If a change in actuarial cost method was made for this plan year pursuant to a revenue procedure or other authority providing automatic approval for the change or a class ruling letter, does the plan sponsor or plan administrator agree with the change? ..... ☐ **Yes** ☐ **No** ☐ **N/A**

Part III Amendments

9 If this is a defined benefit pension plan, were any amendments adopted during this plan year that increased or decreased the value of benefits? If yes, check the appropriate box. If no, check the "No" box. ..... ☐ **Increase** ☐ **Decrease** ☐ **Both** ☐ **No**

Part IV ESOPs (see instructions). If this is not a plan described under section 409(a) or 4975(e)(7) of the Internal Revenue Code, skip this Part.

10 Were unallocated employer securities or proceeds from the sale of unallocated securities used to repay any exempt loan? ..... ☐ **Yes** ☐ **No**

11 **a** Does the ESOP hold any preferred stock? ..... ☐ **Yes** ☐ **No**

b If the ESOP has an outstanding exempt loan with the employer as lender, is such loan part of a "back-to-back" loan? (See instructions for definition of "back-to-back" loan.) ..... ☐ **Yes** ☐ **No**

12 Does the ESOP hold any stock that is not readily tradable on an established securities market? ..... ☐ **Yes** ☐ **No**

Part V Additional Information for Multiemployer Defined Benefit Pension Plans

13 Enter the following information for each employer that contributed more than 5% of total contributions to the plan during the plan year (measured in dollars). See instructions. *Complete as many entries as needed to report all applicable employers.*

a Name of contributing employer

b EIN **c** Dollar amount contributed by employer

d Date collective bargaining agreement expires *(If employer contributes under more than one collective bargaining agreement, check box* ☐ *and see instructions regarding required attachment. Otherwise, enter the applicable date.)* Month _____ Day _____ Year _____

e Contribution rate information *(If more than one rate applies, check this box* ☐ *and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)*
(1) Contribution rate (in dollars and cents) _____
(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify):

---

a Name of contributing employer

b EIN **c** Dollar amount contributed by employer

d Date collective bargaining agreement expires *(If employer contributes under more than one collective bargaining agreement, check box* ☐ *and see instructions regarding required attachment. Otherwise, enter the applicable date.)* Month _____ Day _____ Year _____

e Contribution rate information *(If more than one rate applies, check this box* ☐ *and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)*
(1) Contribution rate (in dollars and cents) _____
(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify): _____

---

a Name of contributing employer

b EIN **c** Dollar amount contributed by employer

d Date collective bargaining agreement expires *(If employer contributes under more than one collective bargaining agreement, check box* ☐ *and see instructions regarding required attachment. Otherwise, enter the applicable date.)* Month _____ Day _____ Year _____

e Contribution rate information *(If more than one rate applies, check this box* ☐ *and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)*
(1) Contribution rate (in dollars and cents) _____
(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify): _____

---

a Name of contributing employer

b EIN **c** Dollar amount contributed by employer

d Date collective bargaining agreement expires *(If employer contributes under more than one collective bargaining agreement, check box* ☐ *and see instructions regarding required attachment. Otherwise, enter the applicable date.)* Month _____ Day _____ Year _____

e Contribution rate information *(If more than one rate applies, check this box* ☐ *and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)*
(1) Contribution rate (in dollars and cents) _____
(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify): _____

---

a Name of contributing employer

b EIN **c** Dollar amount contributed by employer

d Date collective bargaining agreement expires *(If employer contributes under more than one collective bargaining agreement, check box* ☐ *and see instructions regarding required attachment. Otherwise, enter the applicable date.)* Month _____ Day _____ Year _____

e Contribution rate information *(If more than one rate applies, check this box* ☐ *and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)*
(1) Contribution rate (in dollars and cents) _____
(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify): _____

---

a Name of contributing employer

b EIN **c** Dollar amount contributed by employer

d Date collective bargaining agreement expires *(If employer contributes under more than one collective bargaining agreement, check box* ☐ *and see instructions regarding required attachment. Otherwise, enter the applicable date.)* Month _____ Day _____ Year _____

e Contribution rate information *(If more than one rate applies, check this box* ☐ *and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)*
(1) Contribution rate (in dollars and cents) _____
(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify): _____

14 Enter the number of participants on whose behalf no contributions were made by an employer as an employer of the participant for:

a The current year	**14a**	
b The plan year immediately preceding the current plan year	**14b**	
c The second preceding plan year	**14c**	

15 Enter the ratio of the number of participants under the plan on whose behalf no employer had an obligation to make an employer contribution during the current plan year to:

a The corresponding number for the plan year immediately preceding the current plan year	**15a**	
b The corresponding number for the second preceding plan year	**15b**	

16 Information with respect to any employers who withdrew from the plan during the preceding plan year:

a Enter the number of employers who withdrew during the preceding plan year	**16a**	
b If line 16a is greater than 0, enter the aggregate amount of withdrawal liability assessed or estimated to be assessed against such withdrawn employers	**16b**	

17 If assets and liabilities from another plan have been transferred to or merged with this plan during the plan year, check box and see instructions regarding supplemental information to be included as an attachment. ☐

Part VI Additional Information for Single-Employer and Multiemployer Defined Benefit Pension Plans

18 If any liabilities to participants or their beneficiaries under the plan as of the end of the plan year consist (in whole or in part) of liabilities to such participants and beneficiaries under two or more pension plans as of immediately before such plan year, check box and see instructions regarding supplemental information to be included as an attachment ☐

19 If the total number of participants is 1,000 or more, complete lines (a) through (c)

a Enter the percentage of plan assets held as:
Stock: _____% Investment-Grade Debt: _____% High-Yield Debt: _____% Real Estate: _____% Other: _____%

b Provide the average duration of the combined investment-grade and high-yield debt:
☐ 0-3 years ☐ 3-6 years ☐ 6-9 years ☐ 9-12 years ☐ 12-15 years ☐ 15-18 years ☐ 18-21 years ☐ 21 years or more

c What duration measure was used to calculate line 19(b)?
☐ Effective duration ☐ Macaulay duration ☐ Modified duration ☐ Other (specify):

Financial Statements and Supplemental Schedules
(with Independent Auditors' Report Thereon)

Quantum 401(k) Plan

As of December 31, 2018 and 2017 and
for the Year Ended December 31, 2018

QUANTUM 401(k) PLAN

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Other schedules are omitted because they are not applicable or are not required disclosures under the Employee Retirement Income Security Act of 1974 and regulations issued by the Department of Labor.

INDEPENDENT AUDITORS' REPORT

To the Plan Administrator
Quantum 401(k) Plan

Report on the Financial Statements

We were engaged to audit the accompanying financial statements of Quantum 401(k) Plan (the "Plan"), which comprise the statements of net assets available for benefits as of December 31, 2018 and 2017, and the related statement of changes in net assets available for benefits for the year ended December 31, 2018, and the related notes to the financial statements.

Management's Responsibility for the Financial Statements

Plan management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on these financial statements based on conducting the audits in accordance with auditing standards generally accepted in the United States of America. Because of the matter described in the Basis for Disclaimer of Opinion paragraph, however, we were not able to obtain sufficient appropriate audit evidence to provide a basis for an audit opinion.

Basis for Disclaimer of Opinion

As permitted by 29 CFR 2520.103–8 of the Department of Labor's Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act of 1974, the Plan Administrator instructed us not to perform, and we did not perform, any auditing procedures with respect to the information summarized in Notes 3 and 4, which was certified by Reliance Trust Company, the trustee of the Plan, except for comparing the information with the related information included in the financial statements and supplemental schedules. We have been informed by the Plan Administrator that the trustee holds the Plan's investment assets and executes investment transactions. The Plan Administrator has obtained certifications from the trustee as of December 31, 2018 and 2017, and for the year ended December 31, 2018, that the information provided to the Plan Administrator by the trustee is complete and accurate.

INDEPENDENT AUDITORS' REPORT (CONTINUED)

Disclaimer of Opinion

Because of the significance of the matter described in the Basis for Disclaimer of Opinion paragraph, we have not been able to obtain sufficient appropriate audit evidence to provide a basis for an audit opinion. Accordingly, we do not express an opinion on these financial statements.

Other Matter – Supplemental Schedules

The supplemental schedules, Schedule H, Line 4a – Schedule of Delinquent Participant Contributions and Schedule H, Line 4i – Schedule of Assets (Held at End of Year), are required by the Department of Labor's Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act of 1974 and are presented for the purpose of additional analysis and are not a required part of the financial statements. Because of the significance of the matter described in the Basis for Disclaimer of Opinion paragraph, we do not express an opinion on the supplemental schedules referred to above.

Report on Form and Content in Compliance With Department of Labor Rules and Regulations

The form and content of the information included in the financial statements and supplemental schedules, other than that derived from the information certified by the trustee, have been audited by us in accordance with auditing standards generally accepted in the United States of America and, in our opinion, are presented in compliance with the Department of Labor's Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act of 1974.

Haskell & White LLP

HASKELL & WHITE LLP

Irvine, California
October 9, 2019

QUANTUM 401(k) PLAN

Statements of Net Assets Available for Benefits
As of December 31, 2018 and 2017

	2018	2017
Assets		
Investments:		
Mutual funds, at fair value	$ 9,821,401	$ 10,507,527
Guaranteed interest account, at contract value	712,892	802,844
Total investments	10,534,293	11,310,371
Notes receivable from participants	276,492	323,258
Total assets	10,810,785	11,633,629
Liabilities		
Excess participant contributions payable	16,993	-
Total liabilities	16,993	-
Net assets available for benefits	$ 10,793,792	$ 11,633,629

See accompanying notes to the financial statements and independent auditors' report.

QUANTUM 401(k) PLAN

Statement of Changes in Net Assets Available for Benefits
For the Year Ended December 31, 2018

Additions to net assets:	
Contributions:	
Participants	$ 457,034
Employer	120,683
Rollover	122,124
Total contributions	699,841
Interest income on notes receivable from participants	11,024
Investment income (loss):	
Interest and dividends	445,594
Net depreciation in fair value of investments	(963,110)
Total investment loss	(517,516)
Total additions	193,349
Deductions from net assets:	
Benefits paid to participants	932,785
Corrective distributions	17,392
Administrative and other expenses	83,009
Total deductions	1,033,186
Net decrease in net assets available for benefits	(839,837)
Net assets available for benefits, beginning of year	11,633,629
Net assets available for benefits, end of year	$ 10,793,792

See accompanying notes to the financial statements and independent auditors' report.

QUANTUM 401(k) PLAN

Notes to Financial Statements
December 31, 2018

1. Plan Description

The following description of the Quantum 401(k) Plan (the "Plan") provides only general information. Participants should refer to the Plan document for a more complete description of the Plan's provisions.

General

The Plan is a defined contribution plan that is qualified under Internal Revenue Service Code Section 401(k). Reliance Trust Company is the Plan trustee and asset custodian. The Plan was adopted on September 1, 2002, in conjunction with the spin–off of Quantum Fuel Systems Technologies Worldwide, Inc. ("Quantum") from IMPCO Technologies, Inc. on July 23, 2002. On March 23, 2016, Quantum filed a voluntary petition in the United States Bankruptcy Court for the Central District of California for reorganization relief under Chapter 11 of the United States Code (the "Bankruptcy Code"). Quantum continued to operate its business and manage its properties as debtor in possession under the jurisdiction of the Bankruptcy Court and in accordance with the applicable provisions of the Bankruptcy Code and orders of the Bankruptcy Court. On April 8, 2016, Quantum entered into an Asset Purchase Agreement with Douglas Acquisitions, LLC, The K&M Douglas Trust and The Douglas Irrevocable Descendant's Trust (the "Purchasers"), pursuant to which the Purchasers agreed to purchase substantially all of the assets of Quantum, and assume certain specified liabilities, including certain trade payables and specified employee benefits (the "Asset Sale"). On July 12, 2016, the Asset Sale closed and Quantum amended its Restated Certificate of Incorporation and changed its name to QF Liquidation, Inc. Subsequently, Douglas Acquisitions, LLC changed its name to Quantum Fuel Systems LLC (the "Company").

Effective July 13, 2016, the Plan was amended and the Company became the Plan sponsor. The Plan is subject to the provisions of the Employee Retirement Income Security Act of 1974 ("ERISA").

The Board of Directors of the Company appointed a committee comprised of certain officers and employees to represent the Plan as Plan Administrator. The Plan Administrator has overall responsibility for the operation and administration of the Plan. The Plan Administrator determines the appropriateness of the Plan's investment offerings, monitors investment performance and reports to the Board of Directors. Massachusetts Mutual Life Insurance Company ("Mass Mutual") has been engaged to perform certain administrative services (i.e., day–to–day recordkeeping of the Plan) and provide assistance to the Plan Administrator.

Eligibility

Other than employees covered by a collective bargaining agreement and non–resident aliens without U.S. source income, substantially all full–time employees of the Company

1. Plan Description (continued)

Eligibility (continued)

who reach the age of 21 are immediately eligible to participate in the Plan. Part–time employees, which are defined as employees working less than 1,000 hours per year, must work at least 1,000 cumulative hours and meet the minimum age requirement of 21 years of age to be eligible to participate in the Plan. Effective July 1, 2019, the Company amended the Plan's minimum age eligibility to 18 years.

Contributions

Participants may contribute up to 100% of eligible compensation for the year up to the statutory limit. In addition, if the individual's age is 50 or over during the calendar year, then the employee may be permitted to make an additional catch–up contribution of 100% of the participant's compensation up to the statutory limit.

The Company may make discretionary employer matching contributions during the Plan year. For the year ended December 31, 2018, the Company made matching contributions totaling $120,683 to the Plan.

Participant accounts

Each participant's account is credited with the participant's contribution and allocations of the Company's contribution, investment earnings and administrative expenses. Allocations are based on participant earnings or account balances, as defined. The benefit to which a participant is entitled is the benefit that can be provided from the participant's vested account.

Vesting

Participants' contributions plus actual earnings are 100% vested immediately. Employer contributions are subject to the following vesting schedule:

Years of Service	Vested %
0	0%
1	20%
2	40%
3	60%
4	80%
5 years or more	100%

1. Plan Description (continued)

Vesting (continued)

The participant also becomes 100% vested when he or she reaches retirement age, becomes disabled while employed by the Company, or upon death while employed by the Company.

Notes receivable from participants

Participants may borrow a minimum of $1,000 up to a maximum equal to the lesser of $50,000 or 50% of their vested account balance. The loans are secured by the balance in the participant's account and bear interest at rates which are commensurate with local prevailing rates as determined by the Plan Administrator. The term of the participant loans may not exceed five years except under conditions as defined in the Plan document. Principal and interest are paid ratably through payroll deductions.

Payment of benefits

On termination of service due to death, disability or retirement, a participant is entitled to receive a lump sum amount equal to the value of the participant's vested interest in his or her account.

Forfeitures

Forfeitures are used to reduce the Company's future matching contributions under the Plan or to pay certain Plan expenses. At December 31, 2018 and 2017, forfeited non–vested accounts totaled $7,458 and $0, respectively. For the years ended December 31, 2018 and 2017, forfeitures of $54,442 and $31,360, respectively, were used to pay Plan expenses and reduce employer contributions.

2. Summary of Significant Accounting Policies

Basis of accounting

The financial statements of the Plan are prepared under the accrual method of accounting and in accordance with generally accepted accounting principles in the United States of America ("GAAP").

2. Summary of Significant Accounting Policies (continued)

Use of estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amount of additions to and deductions from net assets during the reporting periods. Actual results could differ from those estimates.

Investment valuation and income recognition

Investments in mutual funds are reported at fair value. Fair value is the price that would be received to sell an asset, or paid to transfer a liability, in an orderly transaction between market participants at the measurement date. The Plan Administrator determines the Plan's valuation policies utilizing information provided by the trustee and asset custodian. See Note 4 for discussion of fair value measurements.

The Plan invests in a guaranteed interest account, which is a group annuity contract valued at contract value. Contract value reflects the amount participants would receive if they were to initiate permitted transactions under the terms of the Plan and is the relevant measure for the portion of assets attributable to fully benefit–responsive guaranteed interest account.

Purchases and sales of securities are recorded on a trade–date basis. Interest income is recorded on the accrual basis. Dividends are recorded on the ex–dividend date. Net appreciation (depreciation) includes the Plan's gains and losses on investments bought and sold, as well as held during the year.

Notes receivable from participants

Notes receivable from participants are measured at their unpaid principal balance plus accrued but unpaid interest. Interest income is recorded on the accrual basis. No allowance for credit losses has been recorded as of December 31, 2018 and 2017. If a participant ceases to make loan repayments and the Plan Administrator deems the participant loan to be in default, the participant loan balance is reduced and a benefit payment is recorded.

2. Summary of Significant Accounting Policies (continued)

Administrative expenses

Certain expenses of the Plan are paid by the Company (Note 7) and are not included in the statement of changes in net assets available for benefits. Fees related to the administration of notes receivable from participants are charged directly to the participant's account and are included in administrative expenses. Investment related expenses are included in net appreciation (depreciation) in fair value of investments.

Payment of benefits

Benefits are recorded when paid.

Subsequent events

The Plan's management has evaluated subsequent events through October 9, 2019, the date the financial statements were available to be issued.

3. Assets and Information Certified by the Plan Trustee

The Plan Administrator has elected the method of compliance as permitted by 29 CFR 2520.103–8 of the U.S. Department of Labor's ("DOL") Rules and Regulations for Reporting and Disclosure under ERISA. Accordingly, as permitted under such election, the Plan Administrator instructed the Plan's independent auditors not to perform any auditing procedures with respect to information certified by Reliance Trust Company, except for comparing such information certified by the trustee to information included in the Plan's financial statements and supplemental schedules. The Plan Administrator has obtained certifications from the trustee that the following information provided to the Plan Administrator is complete and accurate:

- Interest and dividend income from investments and net depreciation in the fair value of investments reflected on the accompanying statement of changes in net assets available for benefits for the year ended December 31, 2018.

- Interest income on notes receivable from participants reflected on the accompanying statement of changes in net assets available for benefits for the year ended December 31, 2018.

- Investments and notes receivable from participants reflected on the accompanying statements of net assets available for benefits as of December 31, 2018 and 2017.

4. Investments

GAAP provides the framework for measuring investments at fair value. That framework provides a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurements) and the lowest priority to unobservable inputs (Level 3 measurements). The asset's or liability's fair value measurement level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement. The three levels of the fair value hierarchy are described as follows:

Level 1	Inputs to the valuation methodology are based on unadjusted quoted prices for identical assets or liabilities in active markets that the Plan has the ability to access.
Level 2	Inputs to the valuation methodology include quoted prices for similar assets and liabilities in active markets; quoted prices for identical or similar assets and liabilities in inactive markets; inputs other than quoted market prices that are observable for the asset or liability; and inputs that are derived principally from or corroborated by observable market data by correlation or other means. If the asset or liability has a specified (contractual) term, the Level 2 input must be observable for substantially the full term of the asset or liability.
Level 3	Inputs to the valuation methodology are unobservable and significant to the fair value measurement.

The mutual funds held in the Plan are the only Plan assets measured at fair value. Mutual funds are valued at the daily closing price as reported by the respective fund. Mutual funds held by the Plan are open–end mutual funds that are registered with the Securities and Exchange Commission. These funds are required to publish their daily Net Asset Value ("NAV") and to transact at that price. The mutual funds held by the Plan are deemed to be actively traded, and therefore are classified as Level 1.

The Plan is a party to a fully benefit–responsive guaranteed interest account with Mass Mutual. The account is credited with earnings on the underlying investments and charged for participant withdrawals and administrative expenses. The guaranteed interest account issuer is contractually obligated to repay the principal and a specified interest rate that is guaranteed to the Plan. Because the guaranteed interest account is fully benefit–responsive, contract value is the relevant measurement attribute for that portion of the net assets available for plan benefits attributable to the guaranteed interest account. The guaranteed interest account is presented on the face of the statements of net assets

4. Investments (continued)

available for plan benefits at contract value. Contract value, as reported to the Plan by Mass Mutual, represents contributions made under the contract, plus earnings, less participant withdrawals, and administrative expenses. Participants may ordinarily direct the withdrawal or transfer of all or a portion of their investment at contract value.

Certain events may limit the ability of the Plan to transact at contract value with the issuer. Such events include (1) amendments to the Plan documents (including complete or partial Plan termination or merger with another plan), (2) changes to the Plan's prohibition on competing investment options or deletion of equity wash provisions, (3) bankruptcy of the Company or other Company events that cause a significant withdrawal from the Plan, or (4) the failure of the trust to qualify for exemption from federal income taxes or any required prohibited transaction exemption under ERISA.

Although Plan management believes its valuation method is appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the value of certain financial instruments could result in a different value measurement at the reporting date. There have been no changes in the valuation methodology used at December 31, 2018 and 2017.

5. Risks and Uncertainties

The Plan invests in various investment securities. Investment securities are exposed to various risks such as interest rate, market and credit. Due to the level of risk associated with certain investment securities, it is at least reasonably possible that changes in the values of investment securities will occur in the near term and that such changes could materially affect participants' account balances and the amounts reported in the statements of net assets available for benefits.

6. Income Tax Status

Effective October 15, 2014, the Plan adopted the Mass Mutual Volume Submitter Profit Sharing/401(k) Plan. On February 20, 2015, the Internal Revenue Service (the "IRS") notified Mass Mutual that the volume submitter plan, as then designed, was in compliance with the applicable requirements of the Internal Revenue Code (the "IRC"). The Plan has not received a determination letter specific to the Plan and the Plan has been amended since receiving the determination letter; however, the Plan Administrator believes that the Plan is currently designed and is being operated in compliance with the applicable requirements of the IRC and is therefore exempt from income taxes.

6. Income Tax Status (continued)

GAAP requires Plan management to evaluate uncertain tax positions taken by the Plan. The financial statement effects of a tax position are recognized when the position is more likely than not, based on the technical merits, to be sustained upon examination by the IRS. The Plan Administrator has analyzed the tax positions taken by the Plan and has concluded that as of December 31, 2018 and 2017, there are no uncertain positions taken or expected to be taken. The Plan has recognized no interest or penalties related to uncertain tax positions.

7. Related Party and Party–in–Interest Transactions

Plan investments are managed by Mass Mutual. Mass Mutual is the record keeper as defined by the Plan and therefore, these transactions qualify as party–in–interest transactions. Fees incurred by the Plan for investment management services are included in net appreciation (depreciation) in fair value of the investments, as they are paid through revenue sharing, rather than a direct payment. The Company pays other fees related to the Plan's operations directly and its employees provide uncompensated services to the Plan. The Plan issues notes receivable to participants, which are secured by the balances in the participants' accounts. These transactions qualify as exempt party–in–interest transactions.

8. Plan Termination

Although it has not expressed any intent to do so, the Plan sponsor has the right under the Plan to terminate the Plan subject to the provisions of ERISA. In the event of Plan termination, participants would become 100% vested in their employer contribution accounts.

9. Prohibited Transactions and Contingencies

During the years ended December 31, 2018 and 2017, the Company transferred employee contributions of $71,713 and $272,043, respectively, to the Plan after what was considered to be a reasonable period of time. The estimated lost earnings were $57 and $135 for the years ended December 31, 2018 and 2017, respectively. As of December 31, 2018, the cumulative delinquent contributions totaled $384,670, of which $22,002 were corrected during 2018. These delinquent contributions are considered non–exempt prohibited transactions under the regulations of the Department of Labor and therefore the Plan and/or the Plan sponsor may be subject to fines, penalties and interest. The Plan Administrator intends to correct the remaining delinquent contributions during 2019. The accompanying financial statements do not include any accruals or provisions related to the outcome of this uncertainty.

10. Excess Participant Contributions

The Plan failed to pass the Actual Deferral Percentage ("ADP") test for the years ended December 31, 2018 and 2017. In order to comply with the ADP test, the Plan refunded $16,993 and $399 of excess contributions subsequent to December 31, 2018 and 2017, respectively, to certain participants.

11. Reconciliation of Financial Statements to Form 5500

The financial statements of the Plan contain certain deductions from net assets available for benefits that differ from the presentation of expenses that are reported on Internal Revenue Service Form 5500.

The following is a reconciliation of net assets available for benefits per the accompanying financial statements as of December 31, 2018 and Form 5500:

Net assets available for benefits per financial statements	$ 10,793,792
Add: Excess participant contributions payable - 2018	16,993
Net assets available for benefits per Form 5500	$ 10,810,785

The following is a reconciliation of corrective distributions per the accompanying financial statements for the year ended December 31, 2018 and Form 5500:

Corrective distributions per financial statements	$ 17,392
Less: Excess participant contributions payable - 2018	(16,993)
Corrective distributions per Form 5500	$ 399

SUPPLEMENTAL SCHEDULES

QUANTUM 401(k) PLAN

Schedule H, Line 4a – Schedule of Delinquent Participant Contributions
As of December 31, 2018
EIN # 81–2080082; Plan #001

Participant Contributions Transferred Late to Plan	Total that Constitute Nonexempt Prohibited Transactions			Total Fully Corrected Under VFCP and PTE 2002-51
$384,670				**$22,002**
Check here if Late Participant Loan Repayments are included: [X]	Contributions Not Corrected	Contributions Corrected Outside VFCP	Contributions Pending Correction in VFCP	
	$362,668	**$0**	**$0**	

See accompanying independent auditors' report.

QUANTUM 401(k) PLAN

Schedule H, Line 4i – Schedule of Assets (Held at End of Year)
As of December 31, 2018
EIN # 81–2080082; Plan #001

(a)	(b) Identity of Issue, Borrower or Similar Party	(c) Description of Investment	(d) Cost	(e) Current Value
	MFS	MFS Growth Fund	**	$ 3,435,171
	Vanguard	Vanguard Mid Capitalization Index Fund	**	1,347,890
	Vanguard	Vanguard Equity-Income Fund	**	1,113,592
*	Massachusetts Mutual Life Insurance Company	Guaranteed Interest Account	**	712,892
	Vanguard	Vanguard Small-Cap Value Index Fund	**	645,551
	Blackrock	BlackRock International Index Fund	**	585,017
	Oppenheimer	Oppenheimer International Growth Fund	**	543,258
	Prudential	Prudential Total Return Bond Fund	**	384,196
	Vanguard	Vanguard 500 Index Fund	**	363,603
	Blackrock	BlackRock Lifepath Index 2040 Fund	**	341,749
	Oppenheimer	Oppenheimer Discovery Fund	**	280,297
	Allianz Funds	AllianzGI High Yield Bond Fund	**	219,543
	Blackrock	BlackRock Lifepath Index 2020 Fund	**	126,387
	Blackrock	BlackRock Bond Index Fund	**	106,589
	Oppenheimer	Oppenheimer Developing Markets Fund	**	83,379
	Vanguard	Vanguard FTSE Social Index Fund	**	71,442
	Blackrock	BlackRock Lifepath Index 2035 Fund	**	53,380
	Blackrock	BlackRock Lifepath Index 2050 Fund	**	29,285
	Vanguard	Vanguard REIT Index Fund	**	24,980
	Blackrock	BlackRock Lifepath Index 2045 Fund	**	17,067
	Blackrock	BlackRock Lifepath Index 2055 Fund	**	14,486
	Blackrock	BlackRock Lifepath Index 2030 Fund	**	12,994
	Blackrock	BlackRock Lifepath Index 2060 Fund	**	6,681
	Blackrock	BlackRock Lifepath Index 2025 Fund	**	6,554
	Blackrock	BlackRock Lifepath Index Retirement Fund	**	4,681
	PIMCO	PIMCO Income Fund	**	3,585
*	Massachusetts Mutual Life Insurance Company	Holding Account	**	44
				10,534,293
*	Notes receivable from participants	Interest rates from 3.25% to 5.25%, maturing through July 2032	-	276,492
				$ 10,810,785

* A party-in-interest as defined by ERISA.

** Disclosure of this information is not required by the Department of Labor's Rules and Regulations for Reporting and Disclosure under ERISA when the account is participant directed.

See accompanying independent auditors' report.

A Name of Plan	B Three-digit plan Number
Quantum 401(k) Plan	001
C Plan sponsor's name as shown on line 2a of Form 5500	**D Employer Identification Number**
Quantum Fuel Systems LLC	812080082

Schedule H, line 4i - Schedule of Assets (Held At End of Year)

(a)	(b) Identity of issue, borrower, lessor, or similar party	(c) Description of investment including maturity date, rate of interest,collateral, par, or maturity value	(d) Cost	(e) Current Value
*	MassMutual	Guaranteed Interest Account	712,892	712,892
*	MassMutual Premier	Holding Account - MF-G	0	44
*	Vanguard	MF-1284	1,114,028	1,113,592
*	Prudential	MF-1295	397,509	384,196
*	Vanguard	MF-1438	605,114	645,551
*	Allianz Global Investors	MF-1550	249,201	219,543
*	PIMCO Funds	MF-1712	3,723	3,585
*	Vanguard	MF-2070	1,185,746	1,347,890
*	Vanguard	MF-2097	27,036	24,979
*	MFS Investment Management	MF-2249	2,723,479	3,435,171
*	BlackRock	MF-2316	691,123	585,017
*	BlackRock	MF-2378	110,177	106,589
*	Vanguard	MF-2384	77,626	71,442
*	BlackRock	MF-3501	7,376	6,681
*	Vanguard	MF-469	354,924	363,603
*	BlackRock	MF-CEU	4,590	4,681
*	BlackRock	MF-CEV	124,359	126,387
*	BlackRock	MF-CEW	6,786	6,554
*	BlackRock	MF-CEX	13,320	12,994
*	BlackRock	MF-CEY	54,401	53,380
*	BlackRock	MF-CEZ	314,267	341,749
*	BlackRock	MF-CFA	18,619	17,066
*	BlackRock	MF-CFB	32,179	29,285
*	BlackRock	MF-CFC	15,333	14,486
*	Oppenheimer	MF-CHW	86,984	83,379
*	Oppenheimer	MF-D5	558,792	543,259
*	Oppenheimer	MF-N3	367,904	280,297
	Participant Loans	3.250000 - 5.250000	0	276,492

A Name of Plan	B Three-digit plan Number
Quantum 401(k) Plan	001
C Plan sponsor's name as shown on line 2a of Form 5500	**D Employer Identification Number**
Quantum Fuel Systems LLC	812080082

Schedule C Formula Description and/or EIC Statement Description

Service Provider Name	Service Provider EIN	Service Provider Address	Formula / EIC Statement
Allianz Global Investors	061349805		Allianz Global Investors received estimated Investment Management Fees of 0.48% with respect to plan assets held in the AllianzGI High Yield Bond Fund (MR-1550).
BlackRock	223483675		BlackRock received estimated Investment Management Fees of 0.01% with respect to plan assets held in the BlackRock iShares Int'l Ind Fd (MR-2316).
BlackRock	510318674		BlackRock received estimated Investment Management Fees of 0.11% with respect to plan assets held in the BlackRock Lifepath Index 2020 Fund (MR-CEV).
BlackRock	510318674		BlackRock received estimated Investment Management Fees of 0.11% with respect to plan assets held in the BlackRock Lifepath Index Rmnt Fund (MR-CEU).
BlackRock	510318674		BlackRock received estimated Investment Management Fees of 0.12% with respect to plan assets held in the BlackRock Lifepath Index 2025 Fund (MR-CEW).
BlackRock	510318674		BlackRock received estimated Investment Management Fees of 0.12% with respect to plan assets held in the BlackRock Lifepath Index 2030 Fund (MR-CEX).
BlackRock	510318674		BlackRock received estimated Investment Management Fees of 0.12% with respect to plan assets held in the BlackRock Lifepath Index 2035 Fund (MR-CEY).
BlackRock	510318674		BlackRock received estimated Investment Management Fees of 0.13% with respect to plan assets held in the BlackRock Lifepath Index 2040 Fund (MR-CEZ).
BlackRock	510318674		BlackRock received estimated Investment Management Fees of 0.13% with respect to plan assets held in the BlackRock Lifepath Index 2045 Fund (MR-CFA).
BlackRock	510318674		BlackRock received estimated Investment Management Fees of 0.13% with respect to plan assets held in the BlackRock Lifepath Index 2050 Fund (MR-CFB).
BlackRock	510318674		BlackRock received estimated Investment Management Fees of 0.13% with respect to plan assets held in the BlackRock Lifepath Index 2055 Fund (MR-CFC).
BlackRock	510318674		BlackRock received estimated Investment Management Fees of 0.05% with respect to plan assets held in the BlackRock iShares US Agg Bd Ind Fd (MR-2378).
BlackRock	510318674		BlackRock received estimated Investment Management Fees of 0.14% with respect to plan assets held in the BlackRock Lifepath Index 2060 Fund (MR-3501).
Massachusetts Mutual Life Insurance Company	041590850		MassMutual provided the Plan with the required written disclosure for float revenue received by MassMutual.
Massachusetts Mutual Life Insurance Company	041590850		MassMutual received estimated Sub-TA Fees of 0.30% with respect to plan assets held in the Oppenheimer Discovery Fund (MF-N3).
Massachusetts Mutual Life Insurance Company	041590850		MassMutual received estimated Sub-TA Fees of 0.25% with respect to plan assets held in the PGIM Total Return Bond Fund (MF-1295).
Massachusetts Mutual Life Insurance Company	041590850		MassMutual received estimated Sub-TA Fees of 0.10% with respect to plan assets held in the AllianzGI High Yield Bond Fund (MF-1550).
Massachusetts Mutual Life Insurance Company	041590850		MassMutual received estimated Sub-TA Fees of 0.30% with respect to plan assets held in the Oppenheimer International Gr Fund (MF-D5).
Massachusetts Mutual Life Insurance Company	041590850		MassMutual received estimated Investment Management Fees of 0.35% with respect to plan assets held in the Prem U.S. Govt Mny Mkt Fd (Barings) (MR-G).
Massachusetts Mutual Life Insurance Company	041590850		MassMutual received estimated Administrative Fees of 0.10% with respect to plan assets held in the Prem U.S. Govt Mny Mkt Fd (Barings) separate account (MF-G).
Massachusetts Mutual Life Insurance Company	041590850		Millennium Trust Company, LLC (MTC) paid MassMutual a one-time referral fee of $40 for IRAs with balances of $500 or more, $10 for IRAs with balances between $75 and $500 and $0 for IRAs with balances less than $75.
MFS Investment Management	043158862		MFS Investment Management received estimated Investment Management Fees of 0.55%

Massachusetts Mutual Life Insurance Company (MassMutual), 1295 State Street, Springfield, Massachusetts 01111-0001.

Oppenheimer	222725700	with respect to plan assets held in the MFS Growth Fund (MR-2249).
Oppenheimer	133867060	Oppenheimer received estimated Investment Management Fees of 0.63% with respect to plan assets held in the Oppenheimer Discovery Fund (MR-N3).
Oppenheimer	936305075	Oppenheimer received estimated Investment Management Fees of 0.64% with respect to plan assets held in the Oppenheimer International Gr Fund (MR-D5).
PGIM Investments	223468527	Oppenheimer received estimated Investment Management Fees of 0.77% with respect to plan assets held in the Oppenheimer Developing Markets Fund (MR-CHW).
PIMCO Funds	952632339	PGIM Investments received estimated Investment Management Fees of 0.39% with respect to plan assets held in the PGIM Total Return Bond Fund (MR-1295).
Vanguard	231999755	PIMCO Funds received estimated Investment Management Fees of 0.5% with respect to plan assets held in the PIMCO Income Fund (MR-1712).
Vanguard	231945930	Vanguard received estimated Investment Management Fees of 0.03% with respect to plan assets held in the Vanguard 500 Index Fund (MR-469).
Vanguard	231999755	Vanguard received estimated Investment Management Fees of 0.16% with respect to plan assets held in the Vanguard Equity-Income Fund (MR-1284).
Vanguard	046035483	Vanguard received estimated Investment Management Fees of 0.04% with respect to plan assets held in the Vanguard Mid Cap Index Fund (MR-2070).
Vanguard	231945930	Vanguard received estimated Investment Management Fees of 0.16% with respect to plan assets held in the Vanguard FTSE Social Index Fund (MR-2384).
Vanguard	231999755	Vanguard received estimated Investment Management Fees of 0.11% with respect to plan assets held in the Vanguard Real Estate Index Fund (MR-2097).
		Vanguard received estimated Investment Management Fees of 0.06% with respect to plan assets held in the Vanguard Small-Cap Value Index Fund (MR-1438).

MassMutual

Schedule C Soft Dollar Compensation
Eligible Indirect Compensation Statement

Mutual fund investments of the plan (whether direct or indirect through a separate investment account) may have soft dollar arrangements pursuant to which the investment advisor or sub-advisor to the mutual fund (and/or its affiliates) may direct trades to certain brokers in exchange for research and other services, other than just trade execution. For plans investing directly or indirectly in the MassMutual Premier or Select Funds, MassMutual provided the required written disclosure regarding soft dollar compensation on the Schedule C Formula Description and/or EIC Statement Description Attachment. For all other mutual funds, MassMutual provided the required written disclosure in the Statement of Additional Information ("SAI").

For additional information on soft dollar compensation, refer to the section of the mutual fund's SAI that discusses brokerage allocation and other practices.