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

2016

This Form is Open to Public Inspection

Part I Annual Report Identification Information

For calendar plan year 2016 or fiscal plan year beginning 12/01/2016 and ending 11/30/2017

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
QUAKER CHEMICAL CORPORATION PENSION PLAN

1b Three-digit plan number (PN) ▶ 111

1c Effective date of plan 01/01/1983

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)
QUAKER CHEMICAL CORPORATION

ONE QUAKER PARK
901 E.HECTOR STREET
CONSHOHOCKEN, PA 19428

2b Employer Identification Number (EIN) 23-0993790

2c Plan Sponsor's telephone number 610-832-4000

2d Business code (see instructions) 325900

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.	09/12/2018	ALYCE SABA
	Signature of plan administrator	Date	Enter name of individual signing as plan administrator
SIGN HERE			
	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

Preparer's name (including firm name, if applicable) and address (include room or suite number)

Preparer's telephone number

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 has changed since the last return/report filed for this plan, enter the name, EIN and the plan number from the last return/report:	**4b** EIN	
a Sponsor's name	**4c** PN	
5 Total number of participants at the beginning of the plan year	**5**	668
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)**	152
a(2) Total number of active participants at the end of the plan year	**6a(2)**	146
b Retired or separated participants receiving benefits	**6b**	263
c Other retired or separated participants entitled to future benefits	**6c**	97
d Subtotal. Add lines **6a(2)**, **6b**, and **6c**.	**6d**	506
e Deceased participants whose beneficiaries are receiving or are entitled to receive benefits.	**6e**	37
f Total. Add lines **6d** and **6e**.	**6f**	543
g Number of participants with account balances as of the end of the plan year (only defined contribution plans complete this item)	**6g**	
h Number of participants that terminated employment during the plan year with accrued benefits that were less than 100% vested	**6h**	0
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:

1A 1C 1I

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)** [X] **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)** [X] **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 2016 Form M-1 annual report. If the plan was not required to file the 2016 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

2016

This Form is Open to Public Inspection

For calendar plan year 2016 or fiscal plan year beginning 12/01/2016 and ending 11/30/2017

A Name of plan
QUAKER CHEMICAL CORPORATION PENSION PLAN

B Three-digit plan number (PN) ▶ 111

C Plan sponsor's name as shown on line 2a of Form 5500
QUAKER CHEMICAL CORPORATION

D Employer Identification Number (EIN)
23-0993790

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
PRINCIPAL 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
42-0127290	61271	405642	1	12/01/2016	11/30/2017

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		**(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	

(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**	0
5	Current value of plan's interest under this contract in separate accounts at year end	**5**	1458155

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 ▶

b	Balance at the end of the previous year			**7b**	0
c	Additions: (1) Contributions deposited during the year	**7c(1)**			
	(2) Dividends and credits	**7c(2)**			
	(3) Interest credited during the year	**7c(3)**			
	(4) Transferred from separate account	**7c(4)**			
	(5) Other (specify below)	**7c(5)**			
	▶				
	(6) Total additions			**7c(6)**	0
d	Total of balance and additions (add lines **7b** and **7c(6)**)			**7d**	0
e	Deductions:				
	(1) Disbursed from fund to pay benefits or purchase annuities during year	**7e(1)**			
	(2) Administration charge made by carrier	**7e(2)**			
	(3) Transferred to separate account	**7e(3)**			
	(4) Other (specify below)	**7e(4)**			
	▶				
	(5) Total deductions			**7e(5)**	0
f	Balance at the end of the current year (subtract line **7e(5)** from line **7d**)			**7f**	0

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)**	0
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)**	0
(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)**	0
(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.			**10b**	

Specify nature of costs.

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 SB (Form 5500)

Department of the Treasury
Internal Revenue Service

Department of Labor
Employee Benefits Security Administration

Pension Benefit Guaranty Corporation

Single-Employer Defined Benefit Plan Actuarial Information

This schedule is required to be filed under section 104 of the Employee Retirement Income Security Act of 1974 (ERISA) and section 6059 of the Internal Revenue Code (the Code).

▶ **File as an attachment to Form 5500 or 5500-SF.**

OMB No. 1210-0110

2016

This Form is Open to Public Inspection

For calendar plan year 2016 or fiscal plan year beginning 12/01/2016 and ending 11/30/2017

▶ **Round off amounts to nearest dollar.**

▶ **Caution:** A penalty of $1,000 will be assessed for late filing of this report unless reasonable cause is established.

A Name of plan
QUAKER CHEMICAL CORPORATION PENSION PLAN

B Three-digit plan number (PN) ▶ 111

C Plan sponsor's name as shown on line 2a of Form 5500 or 5500-SF
QUAKER CHEMICAL CORPORATION

D Employer Identification Number (EIN)
23-0993790

E Type of plan: [X] Single [ ] Multiple-A [ ] Multiple-B

F Prior year plan size: [ ] 100 or fewer [ ] 101-500 [X] More than 500

Part I Basic Information

1 Enter the valuation date: Month 12 Day 01 Year 2016

2 Assets:

a Market value	**2a**	51121602
b Actuarial value	**2b**	53163127

3 Funding target/participant count breakdown

	(1) Number of participants	(2) Vested Funding Target	(3) Total Funding Target
a For retired participants and beneficiaries receiving payment	302	29404542	29404542
b For terminated vested participants	221	6916247	6916247
c For active participants	152	7888215	8012533
d Total	675	44209004	44333322

4 If the plan is in at-risk status, check the box and complete lines (a) and (b) [ ]

a Funding target disregarding prescribed at-risk assumptions	**4a**	
b Funding target reflecting at-risk assumptions, but disregarding transition rule for plans that have been in at-risk status for fewer than five consecutive years and disregarding loading factor	**4b**	
5 Effective interest rate	**5**	5.92 %
6 Target normal cost	**6**	300000

Statement by Enrolled Actuary

To the best of my knowledge, the information supplied in this schedule and accompanying schedules, statements and attachments, if any, is complete and accurate. Each prescribed assumption was applied in accordance with applicable law and regulations. In my opinion, each other assumption is reasonable (taking into account the experience of the plan and reasonable expectations) and such other assumptions, in combination, offer my best estimate of anticipated experience under the plan.

SIGN HERE

Signature of actuary

09/04/2018
Date

TIMOTHY H. WAITE
Type or print name of actuary

17-06310
Most recent enrollment number

MERCER
Firm name

215-982-4600
Telephone number (including area code)

THREE LOGAN SQUARE,
1717 ARCH STREET, SUITE 1100
PHILADELPHIA, PA 19103-2797
Address of the firm

If the actuary has not fully reflected any regulation or ruling promulgated under the statute in completing this schedule, check the box and see instructions [ ]

Part II Beginning of Year Carryover and Prefunding Balances

		(a) Carryover balance	(b) Prefunding balance
7	Balance at beginning of prior year after applicable adjustments (line 13 from prior year)	0	0
8	Portion elected for use to offset prior year's funding requirement (line 35 from prior year)	0	0
9	Amount remaining (line 7 minus line 8)	0	0
10	Interest on line 9 using prior year's actual return of 3.16%	0	0
11	Prior year's excess contributions to be added to prefunding balance:		
	a Present value of excess contributions (line 38a from prior year)		5875190
	b(1) Interest on the excess, if any, of line 38a over line 38b from prior year Schedule SB, using prior year's effective interest rate of 6.12%		359562
	b(2) Interest on line 38b from prior year Schedule SB, using prior year's actual return		0
	c Total available at beginning of current plan year to add to prefunding balance		6234752
	d Portion of (c) to be added to prefunding balance		0
12	Other reductions in balances due to elections or deemed elections		0
13	Balance at beginning of current year (line 9 + line 10 + line 11d – line 12)	0	0

Part III Funding Percentages

14	Funding target attainment percentage	14	119.91%
15	Adjusted funding target attainment percentage	15	119.91%
16	Prior year's funding percentage for purposes of determining whether carryover/prefunding balances may be used to reduce current year's funding requirement	16	108.98%
17	If the current value of the assets of the plan is less than 70 percent of the funding target, enter such percentage	17	%

Part IV Contributions and Liquidity Shortfalls

18 Contributions made to the plan for the plan year by employer(s) and employees:

(a) Date (MM-DD-YYYY)	(b) Amount paid by employer(s)	(c) Amount paid by employees	(a) Date (MM-DD-YYYY)	(b) Amount paid by employer(s)	(c) Amount paid by employees
10/03/2017	1000000	0			
12/11/2017	1000000	0			
03/15/2018	1000000	0			
			Totals ► 18(b)	3000000	18(c) 0

19	Discounted employer contributions – see instructions for small plan with a valuation date after the beginning of the year:		
	a Contributions allocated toward unpaid minimum required contributions from prior years.	19a	0
	b Contributions made to avoid restrictions adjusted to valuation date	19b	0
	c Contributions allocated toward minimum required contribution for current year adjusted to valuation date	19c	2824312

20 Quarterly contributions and liquidity shortfalls:

a Did the plan have a "funding shortfall" for the prior year? ☐ Yes ☒ No

b If line 20a is "Yes," were required quarterly installments for the current year made in a timely manner? ☐ Yes ☐ No

c If line 20a is "Yes," see instructions and complete the following table as applicable:

Liquidity shortfall as of end of quarter of this plan year

(1) 1st	(2) 2nd	(3) 3rd	(4) 4th

Part V Assumptions Used to Determine Funding Target and Target Normal Cost

21 Discount rate:

a Segment rates:

1st segment:	2nd segment:	3rd segment:	
4.43%	5.91%	6.65%	☐ N/A, full yield curve used

b Applicable month (enter code)	**21b**	4
22 Weighted average retirement age	**22**	64

23 Mortality table(s) (see instructions) ☐ Prescribed - combined ☒ Prescribed - separate ☐ Substitute

Part VI Miscellaneous Items

24 Has a change been made in the non-prescribed actuarial assumptions for the current plan year? If "Yes," see instructions regarding required attachment	☒ Yes	☐ No
25 Has a method change been made for the current plan year? If "Yes," see instructions regarding required attachment	☐ Yes	☒ No
26 Is the plan required to provide a Schedule of Active Participants? If "Yes," see instructions regarding required attachment	☒ Yes	☐ No

27 If the plan is subject to alternative funding rules, enter applicable code and see instructions regarding attachment	**27**	

Part VII Reconciliation of Unpaid Minimum Required Contributions For Prior Years

28 Unpaid minimum required contributions for all prior years	**28**	0
29 Discounted employer contributions allocated toward unpaid minimum required contributions from prior years (line 19a)	**29**	0
30 Remaining amount of unpaid minimum required contributions (line 28 minus line 29)	**30**	0

Part VIII Minimum Required Contribution For Current Year

31 Target normal cost and excess assets (see instructions):

a Target normal cost (line 6)	**31a**	300000
b Excess assets, if applicable, but not greater than line 31a	**31b**	300000

32 Amortization installments:

	Outstanding Balance	Installment
a Net shortfall amortization installment	0	0
b Waiver amortization installment	0	0

33 If a waiver has been approved for this plan year, enter the date of the ruling letter granting the approval (Month _____ Day _____ Year _____) and the waived amount	**33**	0
34 Total funding requirement before reflecting carryover/prefunding balances (lines 31a - 31b + 32a + 32b - 33)	**34**	0

	Carryover balance	Prefunding balance	Total balance
35 Balances elected for use to offset funding requirement	0	0	0

36 Additional cash requirement (line 34 minus line 35)	**36**	0
37 Contributions allocated toward minimum required contribution for current year adjusted to valuation date (line 19c)	**37**	2824312
38 Present value of excess contributions for current year (see instructions)		
a Total (excess, if any, of line 37 over line 36)	**38a**	2824312
b Portion included in line 38a attributable to use of prefunding and funding standard carryover balances	**38b**	0
39 Unpaid minimum required contribution for current year (excess, if any, of line 36 over line 37)	**39**	0
40 Unpaid minimum required contributions for all years	**40**	0

Part IX Pension Funding Relief Under Pension Relief Act of 2010 (See Instructions)

41 If an election was made to use PRA 2010 funding relief for this plan:

a Schedule elected ☐ 2 plus 7 years ☐ 15 years

b Eligible plan year(s) for which the election in line 41a was made ☐ 2008 ☐ 2009 ☐ 2010 ☐ 2011

42 Amount of acceleration adjustment	**42**	
43 Excess installment acceleration amount to be carried over to future plan years	**43**	

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.**	**2016** **This Form is Open to Public Inspection.**

For calendar plan year 2016 or fiscal plan year beginning 12/01/2016 and ending 11/30/2017

A Name of plan
QUAKER CHEMICAL CORPORATION PENSION PLAN

B Three-digit plan number (PN) ▶ 111

C Plan sponsor's name as shown on line 2a of Form 5500
QUAKER CHEMICAL CORPORATION

D Employer Identification Number (EIN)
23-0993790

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)

MERCER

13-2834414

(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?
11 17 70	NONE	376277	Yes [ ] No [X]	Yes [ ] No [ ]		Yes [ ] No [ ]

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

MERCER INVESTMENT MANAGEMENT

30-0282430

(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?
51 52	FIDUCIARY	92732	Yes [X] No [ ]	Yes [X] No [ ]	0	Yes [ ] No [X]

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

PNC BANK

22-1146430

(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?
21	NONE	39930	Yes [ ] No [X]	Yes [ ] No [ ]		Yes [ ] 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)

(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 ☐

(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 ☐

(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
(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.	

(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 D (Form 5500)

Department of the Treasury
Internal Revenue Service

Department of Labor
Employee Benefits Security Administration

DFE/Participating Plan 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.**

OMB No. 1210-0110

2016

This Form is Open to Public Inspection.

For calendar plan year 2016 or fiscal plan year beginning 12/01/2016 and ending 11/30/2017

A Name of plan
QUAKER CHEMICAL CORPORATION PENSION PLAN

B Three-digit plan number (PN) ▶ 111

C Plan or DFE sponsor's name as shown on line 2a of Form 5500
QUAKER CHEMICAL CORPORATION

D Employer Identification Number (EIN)
23-0993790

Part I Information on interests in MTIAs, CCTs, PSAs, and 103-12 IEs (to be completed by plans and DFEs)

(Complete as many entries as needed to report all interests in DFEs)

a Name of MTIA, CCT, PSA, or 103-12 IE: PRIN CORE PLUS BD SEP ACCT-R6

b Name of sponsor of entity listed in (a): PRINCIPAL LIFE INSURANCE COMPANY

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)
42-0127290-005	P	1458155

a Name of MTIA, CCT, PSA, or 103-12 IE: MERCER US SMALL/MID CAP EQUITY

b Name of sponsor of entity listed in (a): MERCER TRUST COMPANY

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)
03-0566611-003	C	3800568

a Name of MTIA, CCT, PSA, or 103-12 IE: MERCER US LARGE CAP CORE PASSIVE EQ

b Name of sponsor of entity listed in (a): MERCER TRUST COMPANY

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)
03-0566613-005	C	14431663

a Name of MTIA, CCT, PSA, or 103-12 IE: MERCER CORE FIXED INCOME PORTFOLIO

b Name of sponsor of entity listed in (a): MERCER TRUST COMPANY

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)
03-0566615-006	C	12366593

a Name of MTIA, CCT, PSA, or 103-12 IE: MERCER CORE PASSIVE FIXED INCOME

b Name of sponsor of entity listed in (a): MERCER TRUST COMPANY

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)
03-0566612-007	C	6432017

a Name of MTIA, CCT, PSA, or 103-12 IE: MERCER GLOBAL LOW VOLATILITY EQUITY

b Name of sponsor of entity listed in (a): MERCER TRUST COMPANY

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)
35-7004395-018	C	2927400

a Name of MTIA, CCT, PSA, or 103-12 IE: EMG MKTS INDX NL SF CL A (ZV3W)

b Name of sponsor of entity listed in (a): STATE STREET GLOBAL ADVISORS TRUST COMPANY

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)
04-0025081-496	C	2880053

a Name of MTIA, CCT, PSA, or 103-12 IE: GBL EQ EX US INDX NL SF CL A(ZVCQ1)

b Name of sponsor of entity listed in (a): STATE STREET GLOBAL ADVISORS TRUST COMPANY

c EIN-PN 90-0337987-241	**d** Entity code C	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions) 4590937

a Name of MTIA, CCT, PSA, or 103-12 IE:

b Name of sponsor of entity listed in (a):

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)

a Name of MTIA, CCT, PSA, or 103-12 IE:

b Name of sponsor of entity listed in (a):

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)

a Name of MTIA, CCT, PSA, or 103-12 IE:

b Name of sponsor of entity listed in (a):

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)

a Name of MTIA, CCT, PSA, or 103-12 IE:

b Name of sponsor of entity listed in (a):

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)

a Name of MTIA, CCT, PSA, or 103-12 IE:

b Name of sponsor of entity listed in (a):

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)

a Name of MTIA, CCT, PSA, or 103-12 IE:

b Name of sponsor of entity listed in (a):

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)

a Name of MTIA, CCT, PSA, or 103-12 IE:

b Name of sponsor of entity listed in (a):

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)

a Name of MTIA, CCT, PSA, or 103-12 IE:

b Name of sponsor of entity listed in (a):

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)

a Name of MTIA, CCT, PSA, or 103-12 IE:

b Name of sponsor of entity listed in (a):

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)

Part II Information on Participating Plans (to be completed by DFEs)

(Complete as many entries as needed to report all participating plans)

a Plan name

b Name of plan sponsor	**c** EIN-PN

a Plan name

b Name of plan sponsor	**c** EIN-PN

a Plan name

b Name of plan sponsor	**c** EIN-PN

a Plan name

b Name of plan sponsor	**c** EIN-PN

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a Plan name

b Name of plan sponsor	**c** EIN-PN

a Plan name

b Name of plan sponsor	**c** EIN-PN

a Plan name

b Name of plan sponsor	**c** EIN-PN

SCHEDULE H (Form 5500)

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

2016

This Form is Open to Public Inspection

For calendar plan year 2016 or fiscal plan year beginning 12/01/2016 and ending 11/30/2017

A Name of plan
QUAKER CHEMICAL CORPORATION PENSION PLAN

B Three-digit plan number (PN) ▶ 111

C Plan sponsor's name as shown on line 2a of Form 5500
QUAKER CHEMICAL CORPORATION

D Employer Identification Number (EIN)
23-0993790

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)	3050000	2000000
(2) Participant contributions	1b(2)		
(3) Other	1b(3)	144329	187
c General investments:			
(1) Interest-bearing cash (include money market accounts & certificates of deposit)	1c(1)	3084673	450000
(2) U.S. Government securities	1c(2)	162279	0
(3) Corporate debt instruments (other than employer securities):			
(A) Preferred	1c(3)(A)		
(B) All other	1c(3)(B)	9729503	0
(4) Corporate stocks (other than employer securities):			
(A) Preferred	1c(4)(A)		
(B) Common	1c(4)(B)	13620005	0
(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)		
(9) Value of interest in common/collective trusts	1c(9)	0	47429231
(10) Value of interest in pooled separate accounts	1c(10)	1425729	1475724
(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)	18424838	0
(14) Value of funds held in insurance company general account (unallocated contracts)	1c(14)		
(15) Other	1c(15)	259363	0

			(a) Beginning of Year	(b) End of Year
1d	Employer-related investments:			
	(1) Employer securities	**1d(1)**	1272400	1647800
	(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**	51173119	53002942
	Liabilities			
g	Benefit claims payable	**1g**		
h	Operating payables	**1h**	0	0
i	Acquisition indebtedness	**1i**		
j	Other liabilities	**1j**	24185	76753
k	Total liabilities (add all amounts in lines 1g through1j)	**1k**	24185	76753
	Net Assets			
l	Net assets (subtract line 1k from line 1f)	**1l**	51148934	52926189

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)**	3000000	
	(B) Participants	**2a(1)(B)**		
	(C) Others (including rollovers)	**2a(1)(C)**		
	(2) Noncash contributions	**2a(2)**		
	(3) Total contributions. Add lines **2a(1)(A), (B), (C),** and line **2a(2)**	**2a(3)**		3000000
b	**Earnings on investments:**			
	(1) Interest:			
	(A) Interest-bearing cash (including money market accounts and certificates of deposit)	**2b(1)(A)**	3585	
	(B) U.S. Government securities	**2b(1)(B)**	114	
	(C) Corporate debt instruments	**2b(1)(C)**	13630	
	(D) Loans (other than to participants)	**2b(1)(D)**		
	(E) Participant loans	**2b(1)(E)**		
	(F) Other	**2b(1)(F)**	421	
	(G) Total interest. Add lines **2b(1)(A)** through **(F)**	**2b(1)(G)**		17750
	(2) Dividends: **(A)** Preferred stock	**2b(2)(A)**		
	(B) Common stock	**2b(2)(B)**	16566	
	(C) Registered investment company shares (e.g. mutual funds)	**2b(2)(C)**	3781	
	(D) Total dividends. Add lines **2b(2)(A)**, **(B)**, and **(C)**	**2b(2)(D)**		20347
	(3) Rents	**2b(3)**		
	(4) Net gain (loss) on sale of assets: **(A)** Aggregate proceeds	**2b(4)(A)**	56839552	
	(B) Aggregate carrying amount (see instructions)	**2b(4)(B)**	50061865	
	(C) Subtract line **2b(4)(B)** from line **2b(4)(A)** and enter result	**2b(4)(C)**		6777687
	(5) Unrealized appreciation (depreciation) of assets: **(A)** Real estate	**2b(5)(A)**	237570	
	(B) Other	**2b(5)(B)**		
	(C) Total unrealized appreciation of assets. Add lines **2b(5)(A)** and **(B)**	**2b(5)(C)**		237570

		(a) Amount	(b) Total
(6) Net investment gain (loss) from common/collective trusts	2b(6)		
(7) Net investment gain (loss) from pooled separate accounts	2b(7)		63572
(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)		
c Other income	2c		
d Total income. Add all **income** amounts in column (b) and enter total	2d		10116926
Expenses			
e Benefit payment and payments to provide benefits:			
(1) Directly to participants or beneficiaries, including direct rollovers	2e(1)	7719660	
(2) To insurance carriers for the provision of benefits	2e(2)		
(3) Other	2e(3)		
(4) Total benefit payments. Add lines **2e(1)** through **(3)**	2e(4)		7719660
f Corrective distributions (see instructions)	2f		
g Certain deemed distributions of participant loans (see instructions)	2g		
h Interest expense	2h		
i Administrative expenses: (1) Professional fees	2i(1)	420362	
(2) Contract administrator fees	2i(2)		
(3) Investment advisory and management fees	2i(3)	110337	
(4) Other	2i(4)	89312	
(5) Total administrative expenses. Add lines **2i(1)** through **(4)**	2i(5)		620011
j Total expenses. Add all **expense** amounts in column (b) and enter total	2j		8339671
Net Income and Reconciliation			
k Net income (loss). Subtract line **2j** from line **2d**	2k		1777255
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: BDO USA, LLP **(2)** EIN: 13-5381590

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	
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		2000000
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			
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			
o	Defined Benefit Plan or Money Purchase Pension Plan Only: Were any distributions made during the plan year to an employee who attained age 62 and had not separated from service?	4o			

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

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 4069593 . (See instructions.)

Part V Trust Information

6a Name of trust	**6b** Trust's EIN

6c Name of trustee or custodian	**6d** Trustee's or custodian's telephone number

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

2016

This Form is Open to Public Inspection.

For calendar plan year 2016 or fiscal plan year beginning 12/01/2016 and ending 11/30/2017

A Name of plan
QUAKER CHEMICAL CORPORATION PENSION PLAN

B Three-digit plan number (PN) ▶ 111

C Plan sponsor's name as shown on line 2a of Form 5500
QUAKER CHEMICAL CORPORATION

D Employer Identification Number (EIN)
23-0993790

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): 22-1146430 42-0127290

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** 117

Part II Funding Information (If the plan is not subject to the minimum funding requirements of section of 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):

Part VII IRS Compliance Questions

20a Is the plan a 401(k) plan? If "No," skip b	☐ Yes ☐ No
20b How did the plan satisfy the nondiscrimination requirements for employee deferrals under section 401(k)(3) for the plan year? Check all that apply:	☐ Design-based safe harbor ☐ "Prior year" ADP test ☐ "Current year" ADP test ☐ N/A
21a What testing method was used to satisfy the coverage requirements under section 410(b) for the plan year? Check all that apply:	☐ Ratio percentage test ☐ Average benefit test ☐ N/A
21b Did the plan satisfy the coverage and nondiscrimination requirements of sections 410(b) and 401(a)(4) for the plan year by combining this plan with any other plan under the permissive aggregation rules?	☐ Yes ☐ No

22a If the plan is a master and prototype plan (M&P) or volume submitter plan that received a favorable IRS opinion letter or advisory letter, enter the date of the letter _____/_____/_____ and the serial number _____.

22b If the plan is an individually-designed plan that received a favorable determination letter from the IRS, enter the date of the most recent determination letter _____/_____/_____.

Quaker Chemical Corporation
Pension Plan

Financial Statements and Supplemental Schedules as of and for the
Years ended November 30, 2017 and 2016

Quaker Chemical Corporation Pension Plan

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* Other supplemental schedules required by Section 2520.103-10 of the Department of Labor Rules and Regulations for Reporting and Disclosure under ERISA have been omitted because they are not applicable.

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Independent Auditor's Report

To the Plan Administrator and
Global Pension Committee
Quaker Chemical Corporation Pension Plan
Conshohocken, Pennsylvania

Report on the Financial Statements

We were engaged to audit the accompanying financial statements of the Quaker Chemical Corporation Pension Plan (the Plan), which comprise the statements of net assets available for benefits as of November 30, 2017 and 2016, and the related statements of changes in net assets available for benefits for the years ended, and the related notes to the financial statements.

Management's Responsibility for the Financial Statements

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.

Auditor's 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 Note 6, which was certified by PNC Bank, the trustee and Principal Life Insurance Company, a custodian, except for comparing such information with the related information included in the financial statements. We have been informed by the plan administrator that the trustee and custodian holds the Plan's investment assets and executes investment transactions. The plan administrator has obtained a certification from the trustee and custodian as of November 30, 2017 and 2016, and for the years ended November 30, 2017 and 2016, that the information provided to the plan administrator by the trustee and custodian is complete and accurate.

BDO USA, LLP, a Delaware limited liability partnership, is the U.S. member of BDO International Limited, a UK company limited by guarantee, and forms part of the international BDO network of independent member firms.

BDO is the brand name for the BDO network and for each of the BDO Member Firms.

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

The supplemental schedule of assets (held at end of year) and schedule of reportable transactions as of November 30, 2017 are required by the Department of Labor's (DOL) 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 these supplemental schedules.

Report on Form and Content in Compliance With DOL 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 and custodian, 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.

BDO USA, LLP

Philadelphia, Pennsylvania
September 6, 2018

Quaker Chemical Corporation Pension Plan

Statements of Net Assets Available for Benefits

	As of November 30,	
	2017	**2016**
Cash and cash equivalents	$ 450,000	$ 3,084,673
Investments, at fair value		
Commingled funds	47,429,231	—
Common stocks	1,647,800	14,892,405
Pooled separate accounts	1,475,724	1,425,729
Registered investment companies	—	18,424,838
Corporate bonds	—	9,729,503
U.S. and foreign government securities	—	421,642
Total investments	50,552,755	44,894,117
Receivables		
Receivables due from broker	187	144,329
Employer contributions	2,000,000	3,050,000
Total receivables	2,000,187	3,194,329
Total assets	53,002,942	51,173,119
Liabilities		
Accrued expenses	76,753	24,185
Total liabilities	76,753	24,185
Net assets available for benefits	$ 52,926,189	$ 51,148,934

The accompanying notes are an integral part of the financial statements.

Quaker Chemical Corporation Pension Plan

Statements of Changes in Net Assets Available for Benefits

	For the Year Ended November 30,	
	2017	**2016**
Additions		
Investment income		
Interest and dividends	$ 38,097	$ 1,246,848
Net increase in fair value of investments	7,078,829	457,970
Total Investment Income	7,116,926	1,704,818
Employer contributions	3,000,000	6,200,000
Total additions	10,116,926	7,904,818
Deductions		
Benefit payments	7,719,660	3,997,279
Administrative expenses	620,011	541,659
Total deductions	8,339,671	4,538,938
Net increase	1,777,255	3,365,880
Net assets available for benefits		
Beginning of year	51,148,934	47,783,054
End of year	$ 52,926,189	$ 51,148,934

The accompanying notes are an integral part of the financial statements.

NOTE 1 – DESCRIPTION OF PLAN

The following description of the Quaker Chemical Corporation Pension 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 maintained by Quaker Chemical Corporation (the "Company") and is a noncontributory pension plan. Prior to December 31, 2005, the Plan covered substantially all employees of the Company who had at least one year of eligible service and had attained age 21. Effective December 31, 2005, the Plan was amended to freeze benefit accruals with respect to participants who were not part of a collective bargaining unit. Effective after November 30, 2013, the Plan was further amended to freeze benefit accruals for the remaining members of a collective bargaining unit. The Plan is administered by the Global Pension Committee, which is appointed by the Company's Board of Directors. The Plan is subject to the Employee Retirement Income Security Act of 1974 ("ERISA").

Administrative Expenses

Investment manager fees for investment management and other services, actuary fees, and the Pension Benefit Guaranty Corporation ("PBGC") premium are paid by the Plan. All other expenses incurred in connection with the administration of the Plan are paid by the Company and are excluded from these financial statements.

Pension Benefits

Prior to January 1, 2001, pension benefits were determined based solely on a participant's average salary and length of service. Effective January 1, 2001, the Plan implemented a cash balance feature, whereby a credit was provided to a participant's cash balance account for a plan year in an amount equal to a designated percentage of eligible compensation as determined by adding the participant's age to years of credited service (both as of the beginning of the plan year) in accordance with the following schedule:

Age Plus Years of Service	Percent of Compensation
Less than 40	3.0%
40 to 59	4.0%
50 to 59	5.0%
60 to 69	6.0%
70 or more	7.0%

However, a contribution credit was provided to a participant's cash balance account for a plan year only if the participant completed at least 1,000 hours of service in the plan year, began participating, retired or died in that plan year. Also, the contribution credit was reduced if the participant was credited with fewer than 12 months of service in the plan year. Effective December 31, 2005, no additional contribution credits were made for participants who were not part of a collective bargaining unit, and, also, no additional contribution credits were made for the remaining participants who were part of a collective bargaining unit effective after November 30, 2013. See the General section for further information.

The cash balance account of each participant is credited with interest each plan year, using a percentage equal to the average annual interest rate applicable to 30-year Treasury securities for the second month proceeding the first day of the plan year. However, a participant's actual accrued benefit may vary due to transition rules from the Plan's former benefit calculation.

All accrued pension benefits became fully vested after an employee had completed 3 years of vesting service or upon reaching age 65. However, for employees who terminated before December 1, 2008, full vesting required 5 years of vesting service or attainment of age 65.

Pension benefits accrued prior to 1973, are paid by Principal Life Insurance Company ("Principal"), a wholly owned subsidiary of Principal Financial Group, Inc, in accordance with a group annuity contract. This contract is supported by investments in pooled separate accounts of Principal.

Participants are entitled to monthly pension benefit payments and, in certain cases, to lump sum distributions. The normal form of payment is a straight life annuity for unmarried participants and a 50% joint and survivor annuity for married participants, beginning at the normal retirement age of 65. Participants ages 60-64 are eligible to receive early retirement benefits if they have completed 10 years of vesting service. Participants are entitled to receive their vested cash balance account prior to age 60 if they terminate employment.

If a participant is vested in his or her benefit under the Plan and dies before the benefit commencement date, the participant's beneficiary will receive the total vested Plan benefit (or in the case of a participant's surviving spouse, the "minimum spouse's death benefit," as provided in the Plan, if greater). This benefit is paid in a lump sum except that if the participant was married and his or her spouse is the beneficiary, the surviving spouse may, under certain circumstances, elect to receive the benefit as an annuity for his

or her lifetime and may defer payment up to the date that the participant would have reached age 65. If the participant dies after the benefit commencement date, the beneficiary is entitled to receive the survivor benefit (if any) under the form of benefit elected by the participant. If a participant becomes totally and permanently disabled before the applicable Plan freeze date, he or she will continue to receive contribution credits until the earliest of the various time periods provided under the Plan. However, no contribution credits were made after the applicable Plan freeze date.

If a participant terminates employment and their vested benefit does not exceed $5,000, the participant will receive a single lump sum payment as soon as practicable following termination.

Plan Amendments

The Plan was amended in 2017 to include a lump sum window. Pursuant to this amendment, the Plan permitted eligible participants to receive their pension benefit as a single lump sum payment. The lump sum window had a benefit commencement date of June 1, 2017 and certain eligible participants elected to take a lump sum distribution of their benefits, which amounted to a total of $3,991,936, paid on June 1, 2017 and June 26, 2017, respectively.

NOTE 2 – SUMMARY OF ACCOUNTING POLICIES

Basis of Accounting

The Plan's financial statements are prepared under the accrual basis of accounting.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and changes therein, and disclosure of contingent assets and liabilities, including the actuarial present value of accumulated plan benefits at the date of the financial statements and changes in the present value of actuarial accumulated plan benefits. Actual results could differ from those estimates.

Cash Equivalents

Cash equivalents are comprised of highly liquid investments, which have original maturities of three months or less. At times, the cash and cash equivalent balances may exceed federally insured limits. The Plan mitigates this risk by monitoring cash balances and investing excess funds as necessary. At November 30, 2017 and 2016, the total uninsured cash balance held at financial institutions was $200,000 and $2,834,673, respectively.

Investment Valuation and Income Recognition

Investments 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 Company's Global Pension Committee and Plan management determine the Plan's valuation policies utilizing information provided by its investment advisors, custodians and insurance company. See Note 4 for a discussion of fair value measurements.

Security transactions are recorded on a trade-date basis. Interest income is recorded on an accrual basis. Dividends on registered investment companies and common stocks are recorded on the ex-dividend date; capital gain distributions are recorded in dividend income. Income from pooled separate accounts is included in the separate account value and is reflected as unrealized appreciation. Net increases in the Plan's investments include the Plan's gains and losses on investments bought and sold as well as held during the year.

Actuarial Present Value of Accumulated Plan Benefits

Accumulated plan benefits are those future periodic payments that are attributable under the Plan's provisions to the service employees have rendered. Accumulated plan benefits include benefits expected to be paid to (a) retired or terminated employees or their beneficiaries, (b) beneficiaries of employees who have died and (c) present employees or their beneficiaries. Benefits payable under all circumstances - retirement, disability, death and termination of employment are included to the extent that they are deemed attributable to employee service rendered to the valuation date.

The actuarial present value of accumulated plan benefits is determined by consulting an independent actuary, Mercer, and is that amount that results from applying actuarial assumptions to adjust the accumulated plan benefits to reflect the time value of money (through discounts for interest) and the probability of payment (by means of decrements such as for disability, death, withdrawal or retirement) between the valuation date and the expected date of payment.

The significant actuarial methods and assumptions used in the actuarial valuation as of December 1, 2016 are as follows:

Expected rate of return	- 7.00%
Mortality basis	- No collar RP 2014 employee and retiree mortality tables, adjusted to remove post-2007 improvement projections, and projected generationally using Mercer's modified version of the MP-2014 projection scale.
Retirement age	- Graduated retirement rates between ages 60 and 70, with a weighted average retirement age of 64

All foregoing actuarial methods and assumptions are consistent with the prior year, except for updates to the expected rate of return, and are based on the presumption that the Plan will continue. Were the Plan to terminate, different actuarial assumptions and other factors might be applicable in determining the actuarial present value of accumulated plan benefits. The computations of the actuarial present value of accumulated plan benefits were made as of December 1, 2016. Had the valuation been performed as of November 30, there would be no material differences.

Payment of Benefits

Benefit payments to participants are recorded when paid.

NOTE 3 – RISKS AND UNCERTAINTIES

Investment securities are exposed to various risks such as interest rate, market, and credit risks. Due to risks associated with certain investment securities, it is possible that changes in the values of investment securities will occur in the near term and that such changes could materially affect the amounts reported in the statements of net assets available for benefits. The Plan therefore invests in various investment securities so as to mitigate these risks.

Plan contributions are made and the actuarial present value of accumulated plan benefits are reported based on certain assumptions pertaining to interest rates, inflation rates and employee demographics, all of which are subject to change. Due to uncertainties inherent in the estimations and assumptions process, it is at least reasonably possible that changes in these estimates and assumptions in the near term would be material to the financial statements.

NOTE 4 – FAIR VALUE MEASUREMENTS

The Plan applies the guidance of the Financial Accounting Standards Board regarding fair value measurements, which establishes a common definition for fair value. Specifically, the guidance utilizes a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value into three broad levels. The following is a brief description of those three levels:

- Level 1: Observable inputs such as quoted prices (unadjusted) in active markets for identical assets or liabilities.
- Level 2: Inputs other than quoted prices that are observable for the asset or liability, either directly or indirectly. These include quoted prices for similar assets or liabilities in active markets and quoted prices for identical or similar assets or liabilities in markets that are not active.
- Level 3: Unobservable inputs that reflect the reporting entity's own assumptions.

The asset'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. Valuation techniques maximize the use of relevant observable inputs and minimize the use of unobservable inputs.

The following is a description of the valuation methodologies used for the investments measured at fair value, including the general classification of such instruments pursuant to the valuation hierarchy:

Common Stocks

Common stocks are valued based on quoted market prices on an exchange in an active market and are classified as Level 1 investments.

Commingled Funds

Commingled funds represent pooled institutional investments, including primarily collective investment trusts. These commingled funds are not available on an exchange or in an active market and these investments are valued using their net asset value ("NAV"), which is generally based on the underlying asset values of the pooled investments held in the trusts.

Pooled Separate Accounts

Pooled separate accounts consist of insurance annuity contracts and are valued based on the reported unit value at year end. Units of the pooled separate account are not traded on an exchange or in an active market and these investments are valued using their NAV.

Registered Investment Companies

The shares of registered investment companies, which represent the NAV of shares held by the Plan, are valued based on quoted market prices on an exchange in an active market and are classified as Level 1 investments.

Corporate Bonds

Corporate bonds are valued using third party pricing services which are based on a combination of quoted market prices on an exchange in an active market as well as proprietary pricing models and inputs using observable market data and are classified as Level 2 investments.

U.S. and foreign government securities

The U.S. and foreign government securities are valued using third party pricing services which are based on a combination of quoted market prices on an exchange in an active market as well as proprietary pricing models and inputs using observable market data and are classified as Level 2 investments.

These preceding methods may produce a fair value calculation that may not be indicative of net realizable value or reflective of future fair values. Furthermore, although the Plan believes its valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different fair value measurement at the reporting date.

As of November 30, 2017 and 2016, the Plan's investments measured at fair value on a recurring basis were as follows (there were no nonrecurring fair value measurements at November 30, 2017 and 2016):

		Fair Value Measurements at November 30, 2017 Using Fair Value Hierarchy		
Assets	Total Fair Value	Level 1	Level 2	Level 3
Common Stocks	$ 1,647,800	$ 1,647,800	$ —	$ —
Total investments in fair value hierarchy	1,647,800	1,647,800	—	—
Commingled funds measured at NAV*	47,429,231	—	—	—
Pooled separate accounts measured at NAV*	1,475,724	—	—	—
Total Investments	$ 50,552,755	$ 1,647,800	$ —	$ —

		Fair Value Measurements at November 30, 2016 Using Fair Value Hierarchy		
Assets	Total Fair Value	Level 1	Level 2	Level 3
Registered investment companies	$ 18,424,838	$ 18,424,838	$ —	$ —
Common Stocks	14,892,405	14,892,405	—	—
Corporate bonds	9,729,503	—	9,729,503	—
U.S. and foreign government securities	421,642	—	421,642	—
Total investments in fair value hierarchy	43,468,388	33,317,243	10,151,145	—
Pooled separate accounts measured at NAV*	1,425,729	—	—	—
Total Investments	$ 44,894,117	$ 33,317,243	$ 10,151,145	$ —

* Certain investments that are measured at fair value using the NAV per share (or its equivalent) have not been classified in the fair value hierarchy. The fair value amount presented in these tables are intended to permit reconciliation of the fair value hierarchies to the line items presented in the statements of net assets available for benefits. There are currently no redemption restrictions, and the redemption frequency is daily. Unfunded commitments are not applicable for these investments.

NOTE 5 – PLAN TERMINATION

The Company has not but it has the right under the Plan to terminate the Plan subject to the provisions set forth in ERISA.

In the event the Plan terminates, the net assets of the Plan will be allocated, as prescribed by ERISA and its related regulations, generally to provide the following benefits, in the order indicated:

a) There shall be set aside an amount which will provide retirement income for employees, spouses, or designated beneficiaries who are receiving benefits or who were eligible to receive benefits at least three years prior to termination of the Plan, based on provisions in effect five years prior to the date of termination.

b) There shall next be set aside an amount sufficient to discharge all other vested benefits insured by the PBGC.

c) There shall next be set aside an amount which will provide all other vested benefits as determined under the Plan which are not insured.

d) The balance of the fund, if any, shall be set aside to provide for all non-vested benefits provided under the Plan.

Certain benefits under the Plan are insured by the PBGC if the Plan terminates. Generally, the PBGC guarantees most vested normal age retirement benefits, early retirement benefits, and certain disability and survivor's pensions. However, the PBGC does not guarantee all types of benefits under the Plan, and the amount of benefit protection is subject to certain limitations. Vested benefits under the Plan are guaranteed at the level in effect on the date of the Plan's termination (with certain exceptions for increases in benefits adopted within five years of termination). Should the Plan terminate at some future date, the benefits provided to participants will depend on the sufficiency, at that time, of the Plan's net assets to provide those benefits and may also depend on the financial condition of the Company and the level of benefits guaranteed by the PBGC.

NOTE 6 – INFORMATION CERTIFIED BY TRUSTEE AND CUSTODIAN

In accordance with Section 2520.103-5 of the Department of Labor Rules and Regulations for Reporting and Disclosure under ERISA, PNC Bank ("PNC"), the Trustee, and Principal, a custodian, certified certain information which was relied upon in the preparation of the financial statements and schedules of the Plan. The investments and related investment activity included in the statements of net assets available for benefits at November 30, 2017 and 2016, the statements of changes in net assets available for benefits for the years then ended, the Schedule of Assets (Held at End of Year), and the Schedule of Reportable Transactions for the Plan as of and for the year ended November 30, 2017 have been compiled from statements certified as complete and accurate by PNC and Principal. The Plan's independent accountants did not perform auditing procedures with respect to this information except for comparing such information to the related information included in these accompanying financial statements and supplemental schedules.

NOTE 7 - FUNDING POLICY

Employer contributions are funded based upon amounts required under the provisions of ERISA as determined by the actuary, Mercer, and are designed to fund the Plan's normal service costs. The Company's contributions for 2017 and 2016 were $3,000,000 and $6,200,000, respectively, which exceeded the minimum funding requirements of ERISA.

NOTE 8 – ACCUMULATED PLAN BENEFITS

The actuarial present value of accumulated Plan benefits as of December 1, 2016 is as follows:

		2016
Vested benefits:		
Inactive participants currently receiving payments	$	28,903,425
Active Participants		7,475,063
Inactive participants with deferred benefits		6,579,134
Total vested benefits		42,957,622
Non-vested benefits		156,413
Total present value of accumulated Plan benefits	$	43,114,035

The changes in the actuarial present value of accumulated Plan benefits are as follows:

Actuarial present value of accumulated Plan benefits, at the beginning of the year	$	44,919,894
(Decrease) increase due to:		
Benefits accumulated and (gains)/losses		(709,753)
Increase for interest due to decrease in discount period		2,885,942
Benefits paid		(3,997,279)
Change in actuarial assumptions		15,231
Net decrease		(1,805,859)
Actuarial present value of accumulated Plan benefits, at end of year	$	43,114,035

NOTE 9 – RELATED PARTY AND PARTY-IN-INTEREST TRANSACTIONS

The Plan invests in the Principal Life Bond and Mortgage Fund, which is managed by Principal, a custodian of the assets. The Plan also invests in shares of Quaker Chemical Corporation. At November 30, 2017 and 2016, the Plan held 10,000 shares of Quaker Chemical Corporation worth $1,647,800 and $1,272,400, respectively, which the Plan subsequently sold in August of 2018. Transactions in such investments qualify as party-in-interest transactions and are exempt from the prohibited transaction rules. As described in Note 1, the Plan paid certain expenses related to plan operations and investment activity to various service providers. These transactions are also considered party-in-interest transactions.

NOTE 10 – TAX STATUS

The Internal Revenue Service ("IRS") determined and informed the Company by letter dated September 20, 2016, which updates the letter dated March 20, 2012, that the Plan and related trust, as then designed, were qualified under IRC Section 401(a). The Plan has since been amended, however, the Plan administrator continues to believe the Plan is designed and being operated in compliance with the applicable requirements of the IRC. The plan administrator has not identified any uncertain tax positions which would require adjustment to or disclosure in the Plan's financial statements. The IRS has the ability to examine the Plan's tax return filings for all open tax years, which is generally the three prior years. Currently, there are no examinations for any open tax years.

NOTE 11 – SUBSEQUENT EVENTS

The Plan evaluated subsequent events through September 6, 2018, the date the financial statements were issued, and there were no subsequent events, other than described above in Note 9, which impacted the Plan's Net Assets Available for Benefits or the Plan's Changes in Net Assets Available for Benefits as of and for the year ended November 30, 2017 or which required additional disclosure.

Supplemental Schedules

Quaker Chemical Corporation Pension Plan **Schedule I**

Schedule H, Line 4i, Schedule of Assets (Held at End of Year)
As of November 30, 2017

Quaker Chemical Pension Plan, EIN 23-0993790, PN 111

	(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
*	Principal Mutual Life Bond and Mortgage Fund	Pooled Separate Account	$ 985,674	$ 1,475,724
*#	Quaker Chemical Corporation	Common Stock	225,105	1,647,800
	Mercer Emerging Markets Index NL	Commingled Funds	2,266,059	2,880,053
	Mercer Global Equity US Index NL	Commingled Funds	3,672,647	4,590,937
	Mercer US Small Mid Cap Equity CT	Commingled Funds	3,436,623	3,800,568
	Mercer US Core Fixed Inc CT	Commingled Funds	11,867,984	12,366,593
	Mercer US Large Cap Passive Equity	Commingled Funds	12,082,928	14,431,663
	Mercer US Passive Fixed Income CT	Commingled Funds	6,194,745	6,432,017
	Mercer Global Low Volatility Equity	Commingled Funds	2,735,440	2,927,400
			$ 43,467,205	$ 50,552,755

* Party-in-interest
\# Related Party

Quaker Chemical Corporation Pension Plan **Schedule II**

Schedule H, Line 4j, Schedule of Reportable Transactions

For the Year Ended November 30, 2017

Quaker Chemical Corporation Pension Plan, EIN 23-0993790, PN 111

(a) Identity of Party Involved	(b) Description of Asset	(c) Purchase Price	(d) Selling Price	(g) Cost of Asset	(h) Current Value of Asset on Transaction Date	(i) Net Gain (Loss)
Category (i): Individual transactions in excess of 5% of plan assets						
Vanguard	Total Stk Mkt Index	—	$ 8,074,513	$ 4,042,658	$ 7,814,773	$ 4,031,855
Mercer	Global Equity US Index NL	$ 3,246,930	—	$ 3,246,930	$ 3,246,930	—
Mercer	Global Equity US Index NL	$ 2,986,500	—	$ 2,986,500	$ 2,986,500	—
Mercer	US Small Mid Cap Equity CT	$ 2,982,000	—	$ 2,982,000	$ 2,982,000	—
Mercer	US Core Fixed Inc CT	$ 11,530,000	—	$ 11,530,000	$ 11,530,000	—
Mercer	US Large Cap Passive Equity	$ 11,767,915	—	$ 11,767,915	$ 11,767,915	—
Mercer	US Large Cap Passive Equity	$ 6,198,440	—	$ 6,198,440	$ 6,198,440	—
Mercer	US Large Cap Passive Equity	—	$ 5,408,000	$ 4,959,382	$ 4,959,449	$ 448,618
Mercer	US Passive Fixed Income CT	$ 6,457,000	—	$ 6,457,000	$ 6,457,000	—
Mercer	Global Low Volatility Equity	$ 2,835,500	—	$ 2,835,500	$ 2,835,500	—
Category (iii): Series of securities transactions in excess of 5% of plan assets						
Vanguard	Total Stk Mkt Index	—	$ 8,074,513	$ 4,042,658	$ 7,814,773	4,031,855
Mercer	Emerging Markets Index NL	$ 2,781,095	$ —	$ 2,781,095	$ 2,781,095	$ —
Mercer	Emerging Markets Index NL	$ —	$ 595,000	$ 515,036	$ 515,036	$ 79,964
Mercer	Global Equity US Index NL	$ 6,233,430	$ —	$ 6,233,430	$ 6,233,430	$ —
Mercer	Global Equity US Index NL	$ —	$ 2,918,178	$ 2,560,783	$ 2,560,783	$ 357,395
Mercer	US Small Mid Cap Equity CT	$ 3,721,535	$ —	$ 3,721,535	$ 3,721,535	$ —
Mercer	US Small Mid Cap Equity CT	$ —	$ 300,000	$ 284,912	$ 284,907	$ 15,088
Mercer	US Core Fixed Inc CT	$ 13,064,608	—	$ 13,064,608	$ 13,064,608	$ —
Mercer	US Core Fixed Inc CT	—	$ 1,240,674	$ 1,196,624	$ 1,196,609	$ 44,050
Mercer	US Large Cap Passive Equity	$ 19,213,714	$ —	$ 19,213,714	$ 19,213,714	$ —
Mercer	US Large Cap Passive Equity	$ —	$ 7,765,285	$ 7,130,786	$ 7,129,679	$ 634,499
Mercer	US Passive Fixed Income CT	$ 6,632,000	$ —	$ 6,632,000	$ 6,632,000	$ —
Mercer	US Passive Fixed Income CT	$ —	$ 452,620	$ 437,255	$ 437,268	$ 15,365
Mercer	Global Low Volatility Equity	$ 2,835,500	$	$ 2,835,500	$ 2,835,500	$ —
Mercer	Global Low Volatility Equity	$ —	$ 100,000	$ 100,061	$ 100,061	$ (61)
* PNC	Prime Money Market Fund	$ 254,422	$ —	$ 254,422	$ 254,422	—
* PNC	Prime Money Market Fund	$ —	$ 2,889,095	$ 2,889,095	$ 2,889,095	—

* Party-in-interest

There were no category (ii) or (iv) reportable transactions.

Schedule SB, line 26 — Schedule of Active Participant Data

ATTAINED AGE	YEARS OF CREDITED SERVICE										
	UNDER 1	1–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40 & UP	TOTAL
Under 25											
25–29											
30–34			3								3
35–39			8	4							12
40–44			14	9	1						24
45–49			3	9	8	1					21
50–54			4	9	3	3					19
55–59			6	6	4	8	9	3			36
60–64			3	2	3	3	4	6	1		22
65–69				1	2	3			4		10
70 & up				1	1		2		1		5
Total			41	41	22	18	15	9	6		152

In each cell, the top number is the count of active participants for each age/service combination.

Schedule SB, Part V — Statement of Actuarial Assumptions/Methods

ACTUARIAL ASSUMPTIONS FOR DECEMBER 1, 2016 VALUATION

DISCOUNT RATE SPONSOR ELECTIONS			
• Segment rates or full yield curve	Segment		
• Look-back months	4		
	Stabilized	**Nonstabilized**	
• First 5 years	4.43%	1.51%	
• Next 15 years	5.91%	3.83%	
• Over 20 years	6.65%	4.82%	
• Rationale	*Interest rates are prescribed by the IRS*		
Mortality sponsor elections			
• Healthy participants	Section 430(h)(3) prescribed separate static annuitant and non-annuitant mortality tables. These tables are based on the RP-2000 mortality tables projected with mortality improvement to the valuation year plus 7 and 15 years based on Scale AA. *The mortality assumption is prescribed by the IRS.*		
Cash balance plans			
• Interest accumulation rate	4.50% *This assumption has been set based on expected, long term growth and a review of historical and expected 30 year Treasury Bond rates in effect during October preceding each plan year, not to be less than 3.79%.*		
• Whipsaw calculations	No		
• Basis used to compute the minimum cash balance for grandfathered participants	4.50% and the mortality table for PPA lump sum conversions. *This assumption has been set based on the review of historical and expected high quality bond yields and the mortality table used under the plan for lump sum conversions.*		

Schedule SB, Part V — Statement of Actuarial Assumptions/Methods

<table>
<tr><td>Other economic assumptions</td><td></td></tr>
<tr><td>• Salary increases</td><td>N/A</td></tr>
<tr><td>• Social Security taxable wage base increases</td><td>N/A</td></tr>
<tr><td>• Expected investment return</td><td>6.75% per year for the 2014, 2015 and 2016 plan years.
These rates have been selected based on the Plan’s allocation of investments and analysis of market data for long term expected returns</td></tr>
<tr><td>• Expenses</td><td>$275,000 added to 2015 plan year normal cost and
$300,000 added to 2016 plan year normal cost
Expense amounts have been set based on a review of historical and expected expenses paid by the plan.</td></tr>
<tr><td>Demographic assumptions</td><td></td></tr>
<tr><td>• Withdrawal</td><td>Rates at sample ages are shown below:
<table>
<tr><th>ATTAINED AGE</th><th>PERCENTAGE WITHDRAWAL</th></tr>
<tr><td>20</td><td>13.7%</td></tr>
<tr><td>25</td><td>10.2</td></tr>
<tr><td>30</td><td>7.2</td></tr>
<tr><td>35</td><td>4.8</td></tr>
<tr><td>40</td><td>3.0</td></tr>
<tr><td>45</td><td>1.7</td></tr>
<tr><td>50</td><td>0.5</td></tr>
<tr><td>55</td><td>0.0</td></tr>
<tr><td>60</td><td>0.0</td></tr>
</table></td></tr>
<tr><td>• Disability incidence</td><td>No disability incidence or recovery rates are assumed.</td></tr>
</table>

Schedule SB, Part V — Statement of Actuarial Assumptions/Methods

<table>
<tr><td>• Retirement age</td><td colspan="2">Rates at sample ages are shown below:<table><tr><th>ATTAINED AGE</th><th>PERCENTAGE RETIREMENT</th></tr><tr><td>60</td><td>5%</td></tr><tr><td>61</td><td>5</td></tr><tr><td>62</td><td>20</td></tr><tr><td>63</td><td>15</td></tr><tr><td>64</td><td>15</td></tr><tr><td>65</td><td>85</td></tr><tr><td>66</td><td>25</td></tr><tr><td>67</td><td>25</td></tr><tr><td>68</td><td>25</td></tr><tr><td>69</td><td>25</td></tr><tr><td>70</td><td>100</td></tr></table></td></tr>
<tr><td>• Benefit commencement age for</td><td colspan="2"></td></tr>
<tr><td>– Future vested deferred</td><td colspan="2">65</td></tr>
<tr><td>– Current vested deferred</td><td colspan="2">65
For current vested deferred participants, if the cash balance is not paid in the initial year of termination, it is assumed that the cash balance will be paid at age 65</td></tr>
<tr><td>• Spouse assumptions</td><td><u>Male participants</u></td><td><u>Female participants</u></td></tr>
<tr><td>– Percentage married</td><td>80%</td><td>80%</td></tr>
<tr><td>– Spouse age difference</td><td>2 years younger</td><td>2 years older</td></tr>
<tr><td></td><td colspan="2">Demographic assumptions have been set based on review of historical experience and expectations for future demographic experience</td></tr>
</table>

Schedule SB, Part V — Statement of Actuarial Assumptions/Methods

Form of payment	All participants are assumed to elect payment in the form of a single life annuity for benefits earned through December 31, 2000. For benefits earned since January 1, 2001, the assumed payment form elected is a single lump sum distribution. *The form of payment assumption has been set based on review of historical experience and expected future elections*
Unpredictable contingent event assumptions	Not applicable

Schedule SB, Part V — Statement of Actuarial Assumptions/Methods

ACTUARIAL METHODS

Asset Methods

The asset valuation method is an average of the adjusted market value for each year during the last two years preceding the valuation date. The adjusted market value is the market value at each determination date, adjusted to the valuation date based on actual cash flows and expected interest at the lesser of the expected rate of return and the third segment rate. This amount is adjusted to be no greater than 110 percent and no less than 90 percent of the fair market value, as defined in IRC Section 430.

A characteristic of this asset method is that, over time, it is slightly more likely to produce an actuarial value of assets that is less than the market value of assets than an actuarial value that is greater than the market value.

Minimum Funding Methods

The funding target for minimum funding calculations is computed using the traditional unit credit method of funding. The objective under this method is to fund each participant's benefits under the plan as they accrue. Thus, the total pension to which each participant is expected to become entitled at retirement is broken down into units, each associated with a year of past or future credited service.

A detailed description of the calculation follows:

- The plan's valuation date is the beginning of the plan year.
- The plan's valuation date is the beginning of the plan year.
- An individual's **funding target** is the present value of future benefits based on credited service and average pay as of the beginning of the plan year, and an individual's **target normal cost** is the present value of the benefit expected to accrue in the plan year. If multiple decrements are used, the funding target and the target normal cost for an individual are the sum of the component funding targets and target normal costs associated with the various anticipated separation dates.
- The plan's **target normal cost** is the sum of the individual target normal costs, and the plan's **funding target** is the sum of the individual funding targets for all participants under the plan.

Quaker Chemical Corporation Pension Plan **Schedule II**

Schedule H, Line 4j, Schedule of Reportable Transactions

For the Year Ended November 30, 2017

Quaker Chemical Corporation Pension Plan, EIN 23-0993790, PN 111

(a) Identity of Party Involved	(b) Description of Asset	(c) Purchase Price	(d) Selling Price	(g) Cost of Asset	(h) Current Value of Asset on Transaction Date	(i) Net Gain (Loss)
Category (i): Individual transactions in excess of 5% of plan assets						
Vanguard	Total Stk Mkt Index	—	$ 8,074,513	$ 4,042,658	$ 7,814,773	$ 4,031,855
Mercer	Global Equity US Index NL	$ 3,246,930	—	$ 3,246,930	$ 3,246,930	—
Mercer	Global Equity US Index NL	$ 2,986,500	—	$ 2,986,500	$ 2,986,500	—
Mercer	US Small Mid Cap Equity CT	$ 2,982,000	—	$ 2,982,000	$ 2,982,000	—
Mercer	US Core Fixed Inc CT	$ 11,530,000	—	$ 11,530,000	$ 11,530,000	—
Mercer	US Large Cap Passive Equity	$ 11,767,915	—	$ 11,767,915	$ 11,767,915	—
Mercer	US Large Cap Passive Equity	$ 6,198,440	—	$ 6,198,440	$ 6,198,440	—
Mercer	US Large Cap Passive Equity	—	$ 5,408,000	$ 4,959,382	$ 4,959,449	$ 448,618
Mercer	US Passive Fixed Income CT	$ 6,457,000	—	$ 6,457,000	$ 6,457,000	—
Mercer	Global Low Volatility Equity	$ 2,835,500	—	$ 2,835,500	$ 2,835,500	—
Category (iii): Series of securities transactions in excess of 5% of plan assets						
Vanguard	Total Stk Mkt Index	—	$ 8,074,513	$ 4,042,658	$ 7,814,773	4,031,855
Mercer	Emerging Markets Index NL	$ 2,781,095	$ —	$ 2,781,095	$ 2,781,095	$ —
Mercer	Emerging Markets Index NL	$ —	$ 595,000	$ 515,036	$ 515,036	$ 79,964
Mercer	Global Equity US Index NL	$ 6,233,430	$ —	$ 6,233,430	$ 6,233,430	$ —
Mercer	Global Equity US Index NL	$ —	$ 2,918,178	$ 2,560,783	$ 2,560,783	$ 357,395
Mercer	US Small Mid Cap Equity CT	$ 3,721,535	$ —	$ 3,721,535	$ 3,721,535	$ —
Mercer	US Small Mid Cap Equity CT	$ —	$ 300,000	$ 284,912	$ 284,907	$ 15,088
Mercer	US Core Fixed Inc CT	$ 13,064,608	—	$ 13,064,608	$ 13,064,608	$ —
Mercer	US Core Fixed Inc CT	—	$ 1,240,674	$ 1,196,624	$ 1,196,609	$ 44,050
Mercer	US Large Cap Passive Equity	$ 19,213,714	$ —	$ 19,213,714	$ 19,213,714	$ —
Mercer	US Large Cap Passive Equity	$ —	$ 7,765,285	$ 7,130,786	$ 7,129,679	$ 634,499
Mercer	US Passive Fixed Income CT	$ 6,632,000	$ —	$ 6,632,000	$ 6,632,000	$ —
Mercer	US Passive Fixed Income CT	$ —	$ 452,620	$ 437,255	$ 437,268	$ 15,365
Mercer	Global Low Volatility Equity	$ 2,835,500	$	$ 2,835,500	$ 2,835,500	$ —
Mercer	Global Low Volatility Equity	$ —	$ 100,000	$ 100,061	$ 100,061	$ (61)
* PNC	Prime Money Market Fund	$ 254,422	$ —	$ 254,422	$ 254,422	—
* PNC	Prime Money Market Fund	$ —	$ 2,889,095	$ 2,889,095	$ 2,889,095	—

* Party-in-interest

There were no category (ii) or (iv) reportable transactions.

SCHEDULE SB (Form 5500)

Department of the Treasury
Internal Revenue Service

Department of Labor
Employee Benefits Security Administration

Pension Benefit Guaranty Corporation

Single-Employer Defined Benefit Plan Actuarial Information

This schedule is required to be filed under section 104 of the Employee Retirement Income Security Act of 1974 (ERISA) and section 6059 of the Internal Revenue Code (the Code).

▶ File as an attachment to Form 5500 or 5500-SF.

OMB No. 1210-0110

2016

This Form is Open to Public Inspection

For calendar plan year 2016 or fiscal plan year beginning 12/01/2016 and ending 11/30/2017

▶ **Round off amounts to nearest dollar.**

▶ **Caution:** A penalty of $1,000 will be assessed for late filing of this report unless reasonable cause is established.

A Name of plan
QUAKER CHEMICAL CORPORATION PENSION PLAN

B Three-digit plan number (PN) ▶ 111

C Plan sponsor's name as shown on line 2a of Form 5500 or 5500-SF
QUAKER CHEMICAL CORPORATION

D Employer Identification Number (EIN)
23-0993790

E Type of plan: [X] Single [ ] Multiple-A [ ] Multiple-B

F Prior year plan size: [ ] 100 or fewer [ ] 101-500 [X] More than 500

Part I Basic Information

1 Enter the valuation date: Month 12 Day 01 Year 2016

2 Assets:

a Market value	**2a**	51,121,602
b Actuarial value	**2b**	53,163,127

3 Funding target/participant count breakdown

	(1) Number of participants	(2) Vested Funding Target	(3) Total Funding Target
a For retired participants and beneficiaries receiving payment	302	29,404,542	29,404,542
b For terminated vested participants	221	6,916,247	6,916,247
c For active participants	152	7,888,215	8,012,533
d Total	675	44,209,004	44,333,322

4 If the plan is in at-risk status, check the box and complete lines (a) and (b) [ ]

a Funding target disregarding prescribed at-risk assumptions	**4a**	
b Funding target reflecting at-risk assumptions, but disregarding transition rule for plans that have been in at-risk status for fewer than five consecutive years and disregarding loading factor	**4b**	
5 Effective interest rate	**5**	5.92%
6 Target normal cost	**6**	300,000

Statement by Enrolled Actuary

To the best of my knowledge, the information supplied in this schedule and accompanying schedules, statements and attachments, if any, is complete and accurate. Each prescribed assumption was applied in accordance with applicable law and regulations. In my opinion, each other assumption is reasonable (taking into account the experience of the plan and reasonable expectations) and such other assumptions, in combination, offer my best estimate of anticipated experience under the plan.

SIGN HERE

TIMOTHY H. WAITE

Signature of actuary

9/4/2018
Date

TIMOTHY H. WAITE
Type or print name of actuary

1706310
Most recent enrollment number

MERCER
Firm name

215-982-4600
Telephone number (including area code)

THREE LOGAN SQUARE,
1717 ARCH STREET, SUITE 1100
PHILADELPHIA PA 19103-2797
Address of the firm

If the actuary has not fully reflected any regulation or ruling promulgated under the statute in completing this schedule, check the box and see instructions [ ]

Part II Beginning of Year Carryover and Prefunding Balances

		(a) Carryover balance	(b) Prefunding balance
7	Balance at beginning of prior year after applicable adjustments (line 13 from prior year)	0	0
8	Portion elected for use to offset prior year's funding requirement (line 35 from prior year)	0	0
9	Amount remaining (line 7 minus line 8)	0	0
10	Interest on line 9 using prior year's actual return of 3.16%	0	0
11	Prior year's excess contributions to be added to prefunding balance:		
	a Present value of excess contributions (line 38a from prior year)		5,875,190
	b(1) Interest on the excess, if any, of line 38a over line 38b from prior year Schedule SB, using prior year's effective interest rate of 6.12%		359,562
	b(2) Interest on line 38b from prior year Schedule SB, using prior year's actual return		0
	c Total available at beginning of current plan year to add to prefunding balance		6,234,752
	d Portion of (c) to be added to prefunding balance		0
12	Other reductions in balances due to elections or deemed elections		0
13	Balance at beginning of current year (line 9 + line 10 + line 11d – line 12)	0	0

Part III Funding Percentages

14	Funding target attainment percentage	14	119.91%
15	Adjusted funding target attainment percentage	15	119.91%
16	Prior year's funding percentage for purposes of determining whether carryover/prefunding balances may be used to reduce current year's funding requirement	16	108.98%
17	If the current value of the assets of the plan is less than 70 percent of the funding target, enter such percentage.	17	%

Part IV Contributions and Liquidity Shortfalls

18 Contributions made to the plan for the plan year by employer(s) and employees:

(a) Date (MM-DD-YYYY)	(b) Amount paid by employer(s)	(c) Amount paid by employees	(a) Date (MM-DD-YYYY)	(b) Amount paid by employer(s)	(c) Amount paid by employees
10/03/2017	1,000,000	0			
12/11/2017	1,000,000	0			
03/15/2018	1,000,000	0			
		Totals ► 18(b)	3,000,000	18(c)	0

19	Discounted employer contributions – see instructions for small plan with a valuation date after the beginning of the year:		
	a Contributions allocated toward unpaid minimum required contributions from prior years	19a	0
	b Contributions made to avoid restrictions adjusted to valuation date	19b	0
	c Contributions allocated toward minimum required contribution for current year adjusted to valuation date	19c	2,824,312

20 Quarterly contributions and liquidity shortfalls:

a Did the plan have a "funding shortfall" for the prior year? ☐ Yes ☒ No

b If line 20a is "Yes," were required quarterly installments for the current year made in a timely manner? ☐ Yes ☐ No

c If line 20a is "Yes," see instructions and complete the following table as applicable:

Liquidity shortfall as of end of quarter of this plan year

(1) 1st	(2) 2nd	(3) 3rd	(4) 4th

Part V Assumptions Used to Determine Funding Target and Target Normal Cost

21 Discount rate:

a Segment rates:

1st segment:	2nd segment:	3rd segment:	☐ N/A, full yield curve used
4.43 %	5.91 %	6.65%	

b Applicable month (enter code)	21b	4
22 Weighted average retirement age	22	64

23 Mortality table(s) (see instructions) ☐ Prescribed - combined ☒ Prescribed - separate ☐ Substitute

Part VI Miscellaneous Items

24 Has a change been made in the non-prescribed actuarial assumptions for the current plan year? If "Yes," see instructions regarding required attachment. ☒ Yes ☐ No

25 Has a method change been made for the current plan year? If "Yes," see instructions regarding required attachment. ☐ Yes ☒ No

26 Is the plan required to provide a Schedule of Active Participants? If "Yes," see instructions regarding required attachment. ☒ Yes ☐ No

27 If the plan is subject to alternative funding rules, enter applicable code and see instructions regarding attachment	27	

Part VII Reconciliation of Unpaid Minimum Required Contributions For Prior Years

28 Unpaid minimum required contributions for all prior years	28	0
29 Discounted employer contributions allocated toward unpaid minimum required contributions from prior years (line 19a)	29	0
30 Remaining amount of unpaid minimum required contributions (line 28 minus line 29)	30	0

Part VIII Minimum Required Contribution For Current Year

31 Target normal cost and excess assets (see instructions):

a Target normal cost (line 6)	31a	300,000
b Excess assets, if applicable, but not greater than line 31a	31b	300,000

32 Amortization installments:	Outstanding Balance	Installment
a Net shortfall amortization installment	0	0
b Waiver amortization installment	0	0

33 If a waiver has been approved for this plan year, enter the date of the ruling letter granting the approval (Month _____ Day _____ Year _____) and the waived amount	33	0
34 Total funding requirement before reflecting carryover/prefunding balances (lines 31a - 31b + 32a + 32b - 33)	34	0

	Carryover balance	Prefunding balance	Total balance
35 Balances elected for use to offset funding requirement	0	0	0

36 Additional cash requirement (line 34 minus line 35)	36	0
37 Contributions allocated toward minimum required contribution for current year adjusted to valuation date (line 19c)	37	2,824,312
38 Present value of excess contributions for current year (see instructions)		
a Total (excess, if any, of line 37 over line 36)	38a	2,824,312
b Portion included in line 38a attributable to use of prefunding and funding standard carryover balances	38b	0
39 Unpaid minimum required contribution for current year (excess, if any, of line 36 over line 37)	39	0
40 Unpaid minimum required contributions for all years	40	0

Part IX Pension Funding Relief Under Pension Relief Act of 2010 (See Instructions)

41 If an election was made to use PRA 2010 funding relief for this plan:

a Schedule elected ☐ 2 plus 7 years ☐ 15 years

b Eligible plan year(s) for which the election in line 41a was made ☐ 2008 ☐ 2009 ☐ 2010 ☐ 2011

42 Amount of acceleration adjustment	42	
43 Excess installment acceleration amount to be carried over to future plan years	43	

Schedule SB, line 22 — Description of Weighted Average Retirement Age

Each employee is assumed to retire in accordance with the table of retirement rates. The proportion of employees expected to retire at each potential retirement age is shown below. The average retirement age is 64.

(A)	(B)	(C)	(D)	(E)
RETIREMENT AGE	RETIREMENT PERCENT	Lx	NUMBER OF EMPLOYEES EXPECTED TO RETIRE (B) x (C)	(A) x (D)
60	5.00%	10,000.00	500.00	30,000.00
61	5.00%	9,500.00	475.00	28,975.00
62	20.00%	9,025.00	1,805.00	111,910.00
63	15.00%	7,220.00	1,083.00	68,229.00
64	15.00%	6,137.00	920.55	58,915.20
65	85.00%	5,216.45	4,433.98	288,208.86
66	25.00%	782.47	195.62	12,910.71
67	25.00%	586.85	146.71	9,829.75
68	25.00%	440.14	110.03	7,482.35
69	25.00%	330.10	82.53	5,694.28
70	100.00%	247.58	247.58	17,330.43
Total			10,000.00	639,485.59
Average				63.95

Schedule SB, Part V – Summary of Plan Provisions

SUMMARY OF MAJOR PLAN PROVISIONS

Effective date and plan year	Original plan: November 30, 1942 Plan year: December 1 – November 30
Status of the plan	Participation in the plan is frozen effective December 1, 2005 to employees who are not covered under a collective bargaining agreement. Benefits are frozen effective December 31, 2005 for employees not covered under a collective bargaining agreement with the exception of interest on the retirement account balance. Participation in the plan is frozen effective February 11, 2013 for collectively bargained employees. Benefits are frozen effective November 30, 2013 for collectively bargained employees with the exception of interest on the retirement account balance.
Significant events that occurred during the year	• The Plan was updated by amendment No. 1, adopted on April 24, 2017, to add a "Limited Lump Sum Option" allowing each eligible vested terminated participant to elect during the April-May 2017 election period to receive payment of the actuarial equivalent present value of his or her vested accrued benefit as of a benefit commencement date of June 1, 2017. – The impact of this amendment will be reflected for the 2017 plan year funding valuation.
DEFINITIONS	
• Eligibility	Age 21 and one year of service for any employee of the company except: • Those who are compensated on a commission only basis; • Those who are covered under a collective bargaining agreement (unless the agreement provides for plan coverage); • Those working for an affiliate who did not adopt this plan; • Any employee of AC Products other than the President of AC Products. Participation in the plan is frozen effective December 1, 2005 for employees who are not covered under a collective bargaining agreement. Participation in the plan is frozen effective February 11, 2013 for collectively bargained employees.

Schedule SB, Part V – Summary of Plan Provisions

• Accrued benefit	**Through December 31, 2000:** A life annuity equal to the sum of (a.) and (b.): (a.) Past Service Benefit 1.1% of participant's highest average earnings, plus .5% of his/her highest average earnings in excess of 1996 covered compensation, multiplied by the participant's years of service from the earlier of (1.) age 21 and one year of service and (2.) the date of eligibility to December 1, 1996. Highest average earnings is the highest three consecutive years of compensation through 1996 including overtime, shift differential, bonuses and commissions. In no event will the accrued benefit as of December 1, 1996 be less than the benefit which was accrued before this benefit update. (b.) Future Service Benefit For each year of service after December 1, 1996 the future service benefit depends on total years of service as follows: Before 35 year total service mark: 1.15% of annual pay plus .6% of annual pay over current year covered compensation. After 35 years of total service: 1.3% of annual pay.

Schedule SB, Part V – Summary of Plan Provisions

<table>
<tr><td>• Accrued benefit
(continued)</td><td>Since January 1, 2001:
A single sum equal to the retirement account balance beginning January 1, 2001.
Each participant is allocated at the end of each plan year, a percent of annual pay. The percent is based on the sum of the participant’s chronological age and credited service at the beginning of the plan year. The formula is:
<table><tr><th>Age + Service</th><th>Allocation</th></tr><tr><td>Less than 40</td><td>3%</td></tr><tr><td>40-49</td><td>4%</td></tr><tr><td>50-59</td><td>5%</td></tr><tr><td>60-69</td><td>6%</td></tr><tr><td>70 or more</td><td>7%</td></tr></table></td></tr>
<tr><td></td><td>Interest is credited to the account annually. The effective annual interest rate used to compute interest credits during a plan year is the 30-year Treasury Bond rate in effect during the October preceding the plan year, not to be less than 3.79%.
For participants age 50 or more with at least 10 years of vesting service on January 1, 2001, the minimum account balance is the lump sum value of accumulated accruals based on the prior plan formula. The lump sum value is computed using the interest and mortality assumptions prescribed in Code Section 417(e)(3) for plan years beginning in 2008, as required under the Pension Protection Act of 2006.
The accrued benefit is frozen as of December 31, 2005 for participants who are not covered under a collective bargaining agreement. Accrued benefit is frozen as of November 30, 2013 for collectively bargained employees.
Retirement account balances will continue to accumulate with interest.</td></tr>
</table>

Schedule SB, Part V – Summary of Plan Provisions

NORMAL RETIREMENT	
• Eligibility	Age 65
• Benefit	The accrued benefit.
EARLY RETIREMENT	
• Eligibility	Age 60 and 10 years of service
• Benefit	For benefits earned under the prior formula, the accrued benefit reduced 1/180 for each month commencement precedes normal retirement date. For benefits earned under the cash balance formula, the accrued benefit based on age, salary, service and credited interest rates to date of retirement.
LATE RETIREMENT	
• Eligibility	Commencement after age 65
• Benefit	The accrued benefit based on age, salary, service and credited interest rates to date of retirement.
ADDITIONAL BENEFIT	
• Eligibility	Participants listed in Appendix B of the plan document.
• Benefit	Beginning December 1, 2003, additional benefits are paid to certain former participants of the Non-qualified Pension Plan. The list of affected individuals and their additional benefits are outlined in Appendix B of the plan document.
DEFERRED VESTED	
• Eligibility	3 years of service or age 65
• Benefit	Accrued benefit payable at normal retirement
DISABILITY	
• Eligibility	Total and permanent disability
• Benefit	A participant continues to be credited with service for vesting and benefit accrual. While disabled, he or she receives one year of service for each full year of service accrued before becoming disabled. However, service accruals cease at normal retirement date.

Schedule SB, Part V – Summary of Plan Provisions

PRE-RETIREMENT DEATH	
• Eligibility	Participants with a vested accrued benefit.
• Benefit	If the participant is married, the surviving spouse will be the beneficiary. If the participant is not married a properly designated beneficiary or the estate will be the beneficiary. The beneficiary will receive the value of the total vested accrued benefit (benefits earned through December 31, 2000, as well as benefits earned since January 1, 2001) as a lump sum as soon as administratively possible. A surviving spouse may receive the benefit as a single life annuity paid immediately or deferred up to the date the participant would have reached Normal Retirement Age.
FORM OF BENEFITS	
• Automatic form for unmarried participants	Single life annuity
• Automatic form for married participants	50% Joint and Survivor annuity
• Optional forms	– Single life annuity – 5-year certain and life annuity – 10-year certain and life annuity – 75% Joint and Survivor annuity – 100% Joint and Survivor annuity – Lump sum (cash balance formula)
• Optional form conversion factors	Factors for converting benefits from the normal form of payment are described in Appendix A of the plan document.
MISCELLANEOUS	
• Maximum compensation	Compensation for any 12-month period used to determine accrued benefits may not exceed the limits in IRC Section 401(a)(17) for the calendar year in which the 12-month period begins. This limit is indexed annually.
• Maximum benefits	Annual benefits may not exceed the limits in IRC Section 415. This limit is indexed annually. For 2016, the limit is $210,000.

Schedule SB, Part V – Summary of Plan Provisions

Benefits Included or Excluded

Unless noted below, all benefits provided by the plan, as amended and restated effective December 1, 2015, as well as amendment No. 1, adopted April 24, 2017, are included in this valuation.

- **Late retirement increases:**
  - *Active participants:* The plan provides benefit suspension notices to participants who work beyond normal retirement; therefore, late retirement actuarial increases only apply to participants who defer retirement beyond age 70½. This valuation includes increases for current participants over age 70½.
  - *Deferred vested participants:* Current deferred vested participants over normal retirement age are valued including the late retirement actuarial increase.
- **Internal Revenue Code limitations:** The limitations of Internal Revenue Code Section 415(b) and 401(a)(17) have been incorporated into our calculations.
- **Benefits not included:** The disability benefit is valued implicitly. No explicit disability incidence rate is included in the actuarial assumptions.
- **IRC Section 416 rules for top-heavy plans:** We did not test whether this plan is top-heavy (when the present value of benefits for key employees equals or exceeds 60% of the present value for all participants). However, we expect that the plan is not top-heavy due to the large number of rank-and-file participants; therefore, the funding target and target normal cost do not reflect any liability for top-heavy benefit accruals.
- **IRC Section 436 benefit restrictions:**
  - *Unpredictable contingent event benefits:* This valuation excludes restricted contingent event benefits that occurred before the valuation date but includes contingent event benefits which are expected to occur on or after the valuation date regardless of anticipated funding-based limitations.
  - *Plan amendments:* See above.
  - *Prohibited payments:* Limitations on prohibited benefits (if any) are reflected for annuity starting dates before the valuation date but are ignored for annuity starting dates on or after the valuation date.
  - *Benefit accruals*: The plan's funding target does not reflect any limitation on benefit accruals. The target normal cost- does not reflect any limitation on benefit accruals.
- **Unpredictable contingent event benefits:** The plan does not have any unpredictable contingent event benefits.
- The impact of the amendment No. 1, adopted April 24, 2017, will be reflected for the 2017 plan year funding valuation.

Schedule SB, Part V – Summary of Plan Provisions

PLAN PROVISION CHANGES SINCE PRIOR VALUATION

There have been no changes since the prior valuation.

Quaker Chemical Corporation Pension Plan **Schedule I**

Schedule H, Line 4i, Schedule of Assets (Held at End of Year)
As of November 30, 2017

Quaker Chemical Pension Plan, EIN 23-0993790, PN 111

	(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
*	Principal Mutual Life Bond and Mortgage Fund	Pooled Separate Account	$ 985,674	$ 1,475,724
*#	Quaker Chemical Corporation	Common Stock	225,105	1,647,800
	Mercer Emerging Markets Index NL	Commingled Funds	2,266,059	2,880,053
	Mercer Global Equity US Index NL	Commingled Funds	3,672,647	4,590,937
	Mercer US Small Mid Cap Equity CT	Commingled Funds	3,436,623	3,800,568
	Mercer US Core Fixed Inc CT	Commingled Funds	11,867,984	12,366,593
	Mercer US Large Cap Passive Equity	Commingled Funds	12,082,928	14,431,663
	Mercer US Passive Fixed Income CT	Commingled Funds	6,194,745	6,432,017
	Mercer Global Low Volatility Equity	Commingled Funds	2,735,440	2,927,400
			$ 43,467,205	$ 50,552,755

* Party-in-interest
\# Related Party

Schedule SB, line 24 – Statement of Actuarial Assumptions/Methods

ACTUARIAL ASSUMPTION CHANGES SINCE PRIOR VALUATION

- The interest rate used to compute minimum cash balances for grandfathered participants was decreased from 5.25% to 4.50%.
- The expense load was increased from $275,000 to $300,000.