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

2021

This Form is Open to Public Inspection

Part I Annual Report Identification Information

For calendar plan year 2021 or fiscal plan year beginning 01/01/2021 and ending 12/31/2021

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)

E If this is a retroactively adopted plan permitted by SECURE Act section 201, check here. . . . . ▶ [ ]

Part II Basic Plan Information—enter all requested information

1a Name of plan
PQ CORPORATION RETIREMENT PLAN

1b Three-digit plan number (PN) ▶ 002

1c Effective date of plan 12/31/1944

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)
PQ CORPORATION

300 LINDENWOOD DRIVE
MALVERN, PA 19355-1740

2b Employer Identification Number (EIN) 23-0972750

2c Plan Sponsor's telephone number 610-651-4200

2d Business code (see instructions) 325200

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

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

SIGN HERE	Filed with authorized/valid electronic signature.	10/16/2022	HILLARY DAVIE
	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

3a Plan administrator's name and address ☐ Same as Plan Sponsor

BENEFIT PLANS COMMITTEE

PQ CORPORATION
300 LINDENWOOD DRIVE
MALVERN, PA 19355-1740

3b Administrator's EIN: 23-2012066

3c Administrator's telephone number: 610-651-4200

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

4b EIN

4d PN

5 Total number of participants at the beginning of the plan year	**5**	1609
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)**	195
a(2) Total number of active participants at the end of the plan year	**6a(2)**	172
b Retired or separated participants receiving benefits	**6b**	752
c Other retired or separated participants entitled to future benefits	**6c**	516
d Subtotal. Add lines **6a(2)**, **6b**, and **6c**	**6d**	1440
e Deceased participants whose beneficiaries are receiving or are entitled to receive benefits.	**6e**	149
f Total. Add lines **6d** and **6e**	**6f**	1589
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 who 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 1I 3F 3H

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)	☐	Insurance
(2)	☐	Code section 412(e)(3) insurance contracts
(3)	☒	Trust
(4)	☐	General assets of the sponsor

9b Plan benefit arrangement (check all that apply)

(1)	☐	Insurance
(2)	☐	Code section 412(e)(3) insurance contracts
(3)	☒	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)	☒	**R** (Retirement Plan Information)
(2)	☐	**MB** (Multiemployer Defined Benefit Plan and Certain Money Purchase Plan Actuarial Information) - signed by the plan actuary
(3)	☒	**SB** (Single-Employer Defined Benefit Plan Actuarial Information) - signed by the plan actuary

b General Schedules

(1)	☒		**H** (Financial Information)
(2)	☐		**I** (Financial Information – Small Plan)
(3)	☐	0	**A** (Insurance Information)
(4)	☒		**C** (Service Provider Information)
(5)	☐		**D** (DFE/Participating Plan Information)
(6)	☐		**G** (Financial Transaction Schedules)

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

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

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

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

11c Enter the Receipt Confirmation Code for the 2021 Form M-1 annual report. If the plan was not required to file the 2021 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 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

2021

This Form is Open to Public Inspection

For calendar plan year 2021 or fiscal plan year beginning 01/01/2021 and ending 12/31/2021

▶ **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
PQ CORPORATION RETIREMENT PLAN

B Three-digit plan number (PN) ▶ 002

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

D Employer Identification Number (EIN)
23-0972750

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 01 Day 01 Year 2021

2 Assets:

a Market value	**2a**	183713814
b Actuarial value	**2b**	165342433

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	870	100929409	100929409
b For terminated vested participants	563	30645369	30645369
c For active participants	195	16736953	16921637
d Total	1628	148311731	148496415

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**	5.49 %
6 Target normal cost		
a Present value of current plan year accruals	**6a**	0
b Expected plan-related expenses	**6b**	760000
c Total (line 6a + line 6b)	**6c**	760000

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

08/30/2022
Date

MARC DINERMAN
Type or print name of actuary

20-06448
Most recent enrollment number

MERCER
Firm name

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

1717 ARCH STREET
SUITE 1100
PHILADELPHIA, PA 19103
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)		
9	Amount remaining (line 7 minus line 8)	0	0
10	Interest on line 9 using prior year's actual return of 19.52 %	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)		1054448
	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 5.63 %		59365
	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		1113813
	d Portion of (c) to be added to prefunding balance		
12	Other reductions in balances due to elections or deemed elections	0	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	111.34 %
15	Adjusted funding target attainment percentage	15	111.34 %
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	103.34 %
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
			Totals ► 18(b)	0	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	0

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:	
4.75 %	5.36 %	6.11 %	☐ N/A, full yield curve used

b Applicable month (enter code)	**21b**	4
22 Weighted average retirement age	**22**	62

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 6c)	**31a**	760000
b Excess assets, if applicable, but not greater than line 31a	**31b**	760000

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**	
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

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**	0
38 Present value of excess contributions for current year (see instructions)		
a Total (excess, if any, of line 37 over line 36)	**38a**	0
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

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.**	**2021** **This Form is Open to Public Inspection.**

For calendar plan year 2021 or fiscal plan year beginning 01/01/2021 and ending 12/31/2021

A Name of plan	**B** Three-digit plan number (PN) ▶
PQ CORPORATION RETIREMENT PLAN	002
C Plan sponsor's name as shown on line 2a of Form 5500	**D** Employer Identification Number (EIN)
PQ CORPORATION	23-0972750

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)

THE VANGUARD GROUP, INC.

100 VANGUARD BOULEVARD
MALVERN, PA 19355

23-2186884

(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?
15 21 27 28 51 64	TRUSTEE/FIDUCIARY	169029	Yes [X] No [ ]	Yes [X] No [ ]	0	Yes [ ] No [X]

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

MERCER

1717 ARCH STREET
SUITE 1000
PHILADELPHIA, PA 19103

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	ACTUARY	86133	Yes [ ] No [X]	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 [ ]

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 H (Form 5500)

Department of the Treasury
Internal Revenue Service

Department of Labor
Employee Benefits Security Administration

Pension Benefit Guaranty Corporation

Financial Information

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

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

OMB No. 1210-0110

2021

This Form is Open to Public Inspection

For calendar plan year 2021 or fiscal plan year beginning 01/01/2021 and ending 12/31/2021

A Name of plan
PQ CORPORATION RETIREMENT PLAN

B Three-digit plan number (PN) ▶ 002

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

D Employer Identification Number (EIN)
23-0972750

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 reported 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	831761	860187
b Receivables (less allowance for doubtful accounts):			
(1) Employer contributions	1b(1)	273000	0
(2) Participant contributions	1b(2)		
(3) Other	1b(3)		
c General investments:			
(1) Interest-bearing cash (include money market accounts & certificates of deposit)	1c(1)		
(2) U.S. Government securities	1c(2)		
(3) Corporate debt instruments (other than employer securities):			
(A) Preferred	1c(3)(A)		
(B) All other	1c(3)(B)		
(4) Corporate stocks (other than employer securities):			
(A) Preferred	1c(4)(A)		
(B) Common	1c(4)(B)		
(5) Partnership/joint venture interests	1c(5)		
(6) Real estate (other than employer real property)	1c(6)		
(7) Loans (other than to participants)	1c(7)		
(8) Participant loans	1c(8)		
(9) Value of interest in common/collective trusts	1c(9)		
(10) Value of interest in pooled separate accounts	1c(10)		
(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)	182609626	183397349
(14) Value of funds held in insurance company general account (unallocated contracts)	1c(14)		
(15) Other	1c(15)		

			(a) Beginning of Year	**(b)** End of Year
1d	Employer-related investments:			
	(1) Employer securities	1d(1)		
	(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	183714387	184257536
	Liabilities			
g	Benefit claims payable	1g		
h	Operating payables	1h	51000	47000
i	Acquisition indebtedness	1i		
j	Other liabilities	1j		
k	Total liabilities (add all amounts in lines 1g through1j)	1k	51000	47000
	Net Assets			
l	Net assets (subtract line 1k from line 1f)	1l	183663387	184210536

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)		
	(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)		
b	**Earnings on investments:**			
	(1) Interest:			
	(A) Interest-bearing cash (including money market accounts and certificates of deposit)	2b(1)(A)		
	(B) U.S. Government securities	2b(1)(B)		
	(C) Corporate debt instruments	2b(1)(C)		
	(D) Loans (other than to participants)	2b(1)(D)		
	(E) Participant loans	2b(1)(E)		
	(F) Other	2b(1)(F)		
	(G) Total interest. Add lines **2b(1)(A)** through **(F)**	2b(1)(G)		
	(2) Dividends: **(A)** Preferred stock	2b(2)(A)		
	(B) Common stock	2b(2)(B)		
	(C) Registered investment company shares (e.g. mutual funds)	2b(2)(C)	1862811	
	(D) Total dividends. Add lines **2b(2)(A)**, **(B)**, and **(C)**	2b(2)(D)		1862811
	(3) Rents	2b(3)		
	(4) Net gain (loss) on sale of assets: **(A)** Aggregate proceeds	2b(4)(A)		
	(B) Aggregate carrying amount (see instructions)	2b(4)(B)		
	(C) Subtract line **2b(4)(B)** from line **2b(4)(A)** and enter result	2b(4)(C)		
	(5) Unrealized appreciation (depreciation) of assets: **(A)** Real estate	2b(5)(A)		
	(B) Other	2b(5)(B)		
	(C) Total unrealized appreciation of assets. Add lines **2b(5)(A)** and **(B)**	2b(5)(C)		

		(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)		
(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)		9654920
c Other income	2c		
d Total income. Add all **income** amounts in column (b) and enter total	2d		11517731
Expenses			
e Benefit payment and payments to provide benefits:			
(1) Directly to participants or beneficiaries, including direct rollovers	2e(1)	10577046	
(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)		10577046
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)	86133	
(2) Contract administrator fees	2i(2)	169029	
(3) Investment advisory and management fees	2i(3)		
(4) Other	2i(4)	138374	
(5) Total administrative expenses. Add lines **2i(1)** through **(4)**	2i(5)		393536
j Total expenses. Add all **expense** amounts in column (b) and enter total	2j		10970582
Net Income and Reconciliation			
k Net income (loss). Subtract line **2j** from line **2d**	2k		547149
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) [X] Unmodified **(2)** [ ] Qualified **(3)** [ ] Disclaimer **(4)** [ ] Adverse

b Check the appropriate box(es) to indicate whether the IQPA performed an ERISA section 103(a)(3)(C) audit. Check both boxes (1) and (2) if the audit was performed pursuant to both 29 CFR 2520.103-8 and 29 CFR 2520.103-12(d). Check box (3) if pursuant to neither.

(1) [X] DOL Regulation 2520.103-8 **(2)** [ ] DOL Regulation 2520.103-12(d) **(3)** [ ] neither DOL Regulation 2520.103-8 nor DOL Regulation 2520.103-12(d).

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

(1) Name: URISH POPECK & CO., LLC **(2)** EIN: 25-1306171

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	

			Yes	No	Amount
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	
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		5000000
f	Did the plan have a loss, whether or not reimbursed by the plan's fidelity bond, that was caused by fraud or dishonesty?	**4f**		X	
g	Did the plan hold any assets whose current value was neither readily determinable on an established market nor set by an independent third party appraiser?	**4g**		X	
h	Did the plan receive any noncash contributions whose value was neither readily determinable on an established market nor set by an independent third party appraiser?	**4h**		X	
i	Did the plan have assets held for investment? (Attach schedule(s) of assets if "Yes" is checked, and see instructions for format requirements.)	**4i**	X		
j	Were any plan transactions or series of transactions in excess of 5% of the current value of plan assets? (Attach schedule of transactions if "Yes" is checked and see instructions for format requirements.)	**4j**		X	
k	Were all the plan assets either distributed to participants or beneficiaries, transferred to another plan, or brought under the control of the PBGC?	**4k**		X	
l	Has the plan failed to provide any benefit when due under the plan?	**4l**		X	
m	If this is an individual account plan, was there a blackout period? (See instructions and 29 CFR 2520.101-3.)	**4m**		X	
n	If 4m was answered "Yes," check the "Yes" box if you either provided the required notice or one of the exceptions to providing the notice applied under 29 CFR 2520.101-3	**4n**			

5a Has a resolution to terminate the plan been adopted during the plan year or any prior plan year? ☐ Yes ☒ No

If "Yes," enter the amount of any plan assets that reverted to the employer this year _____.

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

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

5c Was the plan a defined benefit plan covered under the PBGC insurance program at any time during this plan year? (See ERISA section 4021 and instructions.) ☒ Yes ☐ No ☐ Not determined

If "Yes" is checked, enter the My PAA confirmation number from the PBGC premium filing for this plan year 446923.

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

2021

This Form is Open to Public Inspection.

For calendar plan year 2021 or fiscal plan year beginning 01/01/2021 and ending 12/31/2021

A Name of plan
PQ CORPORATION RETIREMENT PLAN

B Three-digit plan number (PN) ▶ 002

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

D Employer Identification Number (EIN)
23-0972750

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): 23-2186884

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 | 1

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

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

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

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

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

6	a	Enter the minimum required contribution for this plan year (include any prior year accumulated funding deficiency not waived)	6a	
	b	Enter the amount contributed by the employer to the plan for this plan year	6b	
	c	Subtract the amount in line 6b from the amount in line 6a. Enter the result (enter a minus sign to the left of a negative amount)	6c	

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

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

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

Part III Amendments

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

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

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

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

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

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

Part V Additional Information for Multiemployer Defined Benefit Pension Plans

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

a Name of contributing employer

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

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

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

---

a Name of contributing employer

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

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

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

---

a Name of contributing employer

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

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

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

---

a Name of contributing employer

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

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

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

---

a Name of contributing employer

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

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

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

---

a Name of contributing employer

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

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

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

14 Enter the number of deferred vested and retired participants (inactive participants), as of the beginning of the plan year, whose contributing employer is no longer making contributions to the plan for:

a The current plan year. Check the box to indicate the counting method used to determine the number of inactive participants: ☐ last contributing employer ☐ alternative ☐ reasonable approximation (see instructions for required attachment)	**14a**	
b The plan year immediately preceding the current plan year. ☐ Check the box if the number reported is a change from what was previously reported (see instructions for required attachment)	**14b**	
c The second preceding plan year. ☐ Check the box if the number reported is a change from what was previously reported (see instructions for required attachment)	**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: 30.0 % Investment-Grade Debt: 70.0 % High-Yield Debt: 0.0 % Real Estate: 0.0 % Other: 0.0 %

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):

20 **PBGC missed contribution reporting requirements.** If this is a multiemployer plan or a single-employer plan that is not covered by PBGC, skip line 20.

a Is the amount of unpaid minimum required contributions for all years from Schedule SB (Form 5500) line 40 greater than zero? ☐ Yes ☐ No

b If line 20a is "Yes," has PBGC been notified as required by ERISA sections 4043(c)(5) and/or 303(k)(4)? Check the applicable box:

☐ Yes.

☐ No. Reporting was waived under 29 CFR 4043.25(c)(2) because contributions equal to or exceeding the unpaid minimum required contribution were made by the 30th day after the due date.

☐ No. The 30-day period referenced in 29 CFR 4043.25(c)(2) has not yet ended, and the sponsor intends to make a contribution equal to or exceeding the unpaid minimum required contribution by the 30th day after the due date.

☐ No. Other. Provide explanation _____

PQ Corporation Retirement Plan

Financial Statements

As of and for the Years Ended
December 31, 2021 and 2020

and Supplemental Schedules

As of and for the Year Ended
December 31, 2021

AN INDEPENDENT MEMBER OF BDO ALLIANCE USA

URISH POPECK & CO., LLC
Accountants and Consultants

PQ Corporation Retirement Plan

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URISH POPECK
accountants and consultants

AN INDEPENDENT MEMBER OF BDO ALLIANCE USA

2160 Sandy Drive, Suite C
State College, PA 16803
P (814) 234-9007
F (814) 231-8000

Independent Auditors' Report

To the Participants of the PQ Corporation Retirement Plan
Malvern, Pennsylvania

Scope and Nature of the ERISA Section 103(a)(3)(C) Audit for the 2021 Financial Statements

We have performed an audit of the financial statements of the PQ Corporation Retirement Plan (the Plan), an employee benefit plan subject to the Employee Retirement Income Security Act of 1974 (ERISA), as permitted by ERISA Section 103(a)(3)(C). The financial statements comprise the statement of net assets available for benefits as of December 31, 2021, and the related statement of changes in net assets available for benefits for the year then ended, and the related notes to the financial statements (2021 financial statements).

Management, having determined it is permissible in the circumstances, has elected to have the audit of the 2021 financial statements performed in accordance with ERISA Section 103(a)(3)(C) pursuant to 29 CFR 2520.103-8 of the Department of Labor's (DOL) Rules and Regulations for Reporting and Disclosure under ERISA (ERISA Section 103(a)(3)(C) audit). As permitted by ERISA Section 103(a)(3)(C), our audit need not extend to any statements or information related to assets held for investment of the Plan (investment information) by a bank or similar institution or insurance carrier that is regulated, supervised, and subject to periodic examination by a state or federal agency (qualified institution), provided that the investment information is prepared and certified to by the qualified institution in accordance with 29 CFR 2520.103-5 of the DOL's Rules and Regulations for Reporting and Disclosure under ERISA.

Management has obtained a certification from a qualified institution as of December 31, 2021, and for the year then ended, stating that the certified investment information, as described in Note 3 to the financial statements, is complete and accurate.

Opinion on the 2021 Financial Statements

In our opinion, based on our audit and the procedures performed as described in the *Auditor's Responsibilities for the Audit of the 2021 Financial Statements* section of our report

- the amounts and disclosures in the accompanying 2021 financial statements, other than those agreed to or derived from the certified investment information, are presented fairly, in all material respects, in accordance with accounting principles generally accepted in the United States of America (GAAP); and
- the certified investment information in the accompanying 2021 financial statements agrees to, or is derived from, in all material respects, the information prepared and certified by a qualified institution that management determined meets the requirements of ERISA Section 103(a)(3)(C).

Basis for Opinion on the 2021 Financial Statements

We conducted our audit in accordance with auditing standards generally accepted in the United States of America (GAAS). Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the 2021 Financial Statements* section of our report. We are required to be independent of the Plan and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our ERISA Section 103(a)(3)(C) audit opinion.

Responsibilities of Management for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with GAAP, and for 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. Management's election of the ERISA Section 103(a)(3)(C) audit does not affect management's responsibility for the financial statements.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the Plan's ability to continue as a going concern within one year after the date that the financial statements are issued or available to be issued.

Management is responsible for maintaining a current plan instrument, including all plan amendments. Management is also responsible for administering the Plan and determining that the Plan's transactions that are presented and disclosed in the financial statements are in conformity with the Plan's provisions, including maintaining sufficient records with respect to each of the participants, to determine the benefits due or which may become due to such participants.

Auditor's Responsibilities for the Audit of the 2021 Financial Statements

Except as described in the *Scope and Nature of the ERISA Section 103(a)(3)(C) Audit of the 2021 Financial Statements* section of our report, our objectives are to obtain reasonable assurance about whether the 2021 financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if, there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with GAAS, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Plan's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the Plan's ability to continue as a going concern for a reasonable period of time.

Our audit did not extend to the certified investment information, except for obtaining and reading the certification, comparing the certified investment information with the related information presented and disclosed in the 2021 financial statements, and reading the disclosures relating to the certified investment information to assess whether they are in accordance with the presentation and disclosure requirements of GAAP.

Accordingly, the objective of an ERISA Section 103(a)(3)(C) audit is not to express an opinion about whether the 2021 financial statements as a whole are presented fairly, in all material respects, in accordance with GAAP.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audit.

Other Matter — 2021 Supplemental Schedules Required by ERISA

The 2021 supplemental schedules, Schedule H, Line 4i - Schedule of Assets (Held at End of Year) as of December 31, 2021 and Schedule H, Line 4(j) – Schedule of Reportable Transactions for the year ended December 31, 2021, are presented for purposes of additional analysis and are not a required part of the 2021 financial statements but is supplementary information required by the DOL's Rules and Regulations for Reporting and Disclosure under ERISA. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the 2021 financial statements. The information included in the supplemental schedules, other than that agreed to or derived from the certified investment information, has been subjected to auditing procedures applied in the audit of the 2021 financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the 2021 financial statements or to the 2021 financial statements themselves, and other additional procedures in accordance with GAAS. For information included in the supplemental schedules that agreed to or is derived from the certified investment information, we compared such information to the related certified investment information.

In forming our opinion on the supplemental schedules, we evaluated whether the supplemental schedules, other than the information agreed to or derived from the certified investment information, including its form and content, is presented in conformity with the DOL's Rules and Regulations for Reporting and Disclosure under ERISA.

In our opinion

- the form and content of the supplemental schedules, other than the information in the supplemental schedules that agreed to or is derived from the certified investment information, is presented, in all material respects, in conformity with the DOL's Rules and Regulations for Reporting and Disclosure under ERISA.

- the certified investment information in the supplemental schedules agrees to, or is derived from, in all material respects, the information prepared and certified by a qualified institution that management determined meets the requirements of ERISA Section 103(a)(3)(C).

Other Matter — Report on the 2020 Financial Statements

We were engaged to audit the statement of net assets available for benefits of the Plan as of December 31, 2020 and the related statement of changes in net assets available for benefits for the year then ended. As permitted by 29 CFR 2520.103-8 of the DOL's Rules and Regulations for Reporting and Disclosure under ERISA, the Plan Administrator instructed us not to perform, and we did not perform, any auditing procedures with respect to the information certified by the qualified institution. Our audit report, dated October 8, 2021, indicated that (a) because of the significance of the information that we did not audit, we were not able to obtain sufficient appropriate audit evidence to provide a basis for an opinion and accordingly, we did not, express an opinion on the financial statements, and (b) the form and content of the information included in the 2020 financial statements other than that derived from the information certified by the qualified institution, were presented in compliance with the DOL's Rules and Regulations for Reporting and Disclosure under ERISA.

Urish Popeck & Co., LLC

October 6, 2022
State College, Pennsylvania

PQ Corporation Retirement Plan

Statements of Net Assets Available for Benefits

December 31,	**2021**	2020
Assets		
Cash	**$ 860,187**	$ 831,761
Employer contribution receivable	**-**	273,000
Investments, at fair value		
Mutual funds	**100,883,988**	103,496,649
Common/collective trust	**82,513,361**	79,112,977
Total investments	**183,397,349**	182,609,626
Total assets	**184,257,536**	183,714,387
Liabilities		
Accrued administrative expenses	**47,000**	51,000
Net assets available for benefits	**$ 184,210,536**	$ 183,663,387

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

PQ Corporation Retirement Plan

Statements of Changes in Net Assets Available for Benefits

Years ended December 31,	**2021**	2020
Additions		
Interest and dividends	**$ 1,862,811**	$ 2,007,310
Employer contribution	**-**	1,092,000
Total additions	**1,862,811**	3,099,310
Deductions		
Benefits paid to participants	**10,577,046**	11,201,561
Administrative expenses	**255,162**	209,928
PBGC Premiums	**138,374**	553,230
Total deductions	**10,970,582**	11,964,719
Net appreciation in fair value of investments	**9,654,920**	28,616,551
Net increase	**547,149**	19,751,142
Net assets available for benefits, beginning of year	**183,663,387**	163,912,245
Net assets available for benefits, end of year	**$ 184,210,536**	$ 183,663,387

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

1. Description of Plan

The following description of the PQ Corporation Retirement Plan (the "Plan") is provided for general information purposes only. Participants should refer to the plan document or the summary plan description for a complete description of the Plan's provisions.

General

The Plan is a noncontributory defined benefit pension plan covering substantially all employees of PQ LLC (formerly known as PQ Corporation) (the "Company"). The Plan is subject to the provisions of the Employee Retirement Income Security Act of 1974, as amended ("ERISA").

The Board of Directors of the Company approved an amendment to the Plan which restricts new employees hired after July 1, 2004 from participating in the Plan. In addition, the Board of Directors approved an amendment to freeze the Plan effective January 1, 2007, after which date participants no longer accrue additional benefits under the Plan. Participants currently receiving benefit payments under the Plan were not impacted by this Plan amendment.

On December 14, 2020, the Company completed the sale of its Performance Materials business. Affected participants are classified as inactive in the calculation of the actuarial present value of accumulated plan benefits as of December 31, 2021 and 2020 (see Note 5).

On February 28, 2021, PQ Group Holdings, Inc. (the parent of the Company) announced the entry into a definitive agreement to sell its Performance Chemicals business to a partnership established by Cerberus Capital Management, L.P. and Koch Mineral & Trading LLC. The transaction was completed effective August 1, 2021. The Plan was amended contemporaneously with the sale to provide for consistency of the benefits of Plan participants. Affected participants are classified as active in the calculation of the actuarial present value of accumulated plan benefits as of December 31, 2021 (see Note 5).

Pension Benefits

Employees are entitled to annual pension benefits beginning at normal retirement age (65) equal to the greater of (a) 2% of their final average earnings as defined in the Plan agreement, times years of service to age 62 (no more than 15 years) plus 1% of final average earnings times years of service in excess of 15 years at age 62 or current age, if later, less 1-2/3% of the primary benefit payable under the Federal Social Security Act in effect on the earlier of the date of first entitlement to benefits or separation from service times years of service up to 30 years; or (b) 48% of final average earnings less 75% of the primary Social Security benefit, with the remainder reduced by one-fifteenth for each year of service less than 15 at age 62 or current age, if later; or (c) $15 per month per year of service or (d) $30 per month per year of service up to ten (10) years. Effective July 1, 2004, the Board of Directors of the Company approved an amendment to the Plan which froze the 48% option, which is reflected in the funding calculations.

1. Description of Plan (cont.)

The Plan permits early retirement at ages 55-64. If employees terminate before rendering 5 years of service, they forfeit the right to receive the portion of their accumulated plan benefits attributable to the Company's contributions. Participants with accumulated superseded Plan B contributions receive distributions with accumulated interest at termination or retirement. Plan B was a former plan which was merged into the current plan in 1970. Employees may elect to receive their retirement income in the following forms: (a) life income; (b) 10%, 75% or 50% joint and survivor annuity; (c) 2/3 joint and last survivor; (d) life income with minimum fixed period of five or ten years; or (e) a single sum payment, provided the employee was a participant in the Potters Plan (a legacy plan offered to employees of an entity purchased by the Company) on December 31, 1983. Effective January 1, 1992, upon attainment of age 62 and completion of ten years of service, the early retirement benefit is now unreduced.

Death and Disability Benefits

If an active vested employee dies, a death benefit will be paid to the surviving spouse. The benefit is calculated as if the employee had terminated employment on the day before his death, survived to the earliest date on which he could have begun receiving a pension, started receiving a 100% joint and survivor annuity on that date and died on the following day. This benefit will be reduced if it is started before the participant would have reached normal retirement age. Several participants receive a disability retirement benefit equal to 40% of the participant's earnings at the date total and permanent disability commenced less (a) one-half of the unreduced primary benefit payable under the Federal Social Security Act as in effect on the participant's disability retirement date to which the participant is, or upon application, would be entitled; and (b) the amount of payments made to the participant pursuant to Workmen's Compensation Laws. Retirement (disability) benefits are not paid if the participant is receiving separate Long-Term Disability (LTD) insurance from a policy provided by the Company. All current participants are covered by LTD insurance; therefore, no future participants will be eligible for disability retirement.

Service credits continue to accrue for participants with ten or more years of service at the time of disability. Such participants, at retirement, will receive a benefit based on all years of service calculated under the formula in place at that time subject to the Plan freeze summarized above.

2. Summary of Significant Accounting Policies

Basis of Accounting

The accompanying financial statements of the Plan are prepared on the accrual basis of accounting in accordance with accounting principles generally acceptable in the United States of America.

2. Summary of Significant Accounting Policies (cont.)

Investment Valuation and Income Recognition

The investments of the Plan are reported at fair value. The fair value of a financial instrument is the amount 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.

Purchases and sales of securities are recorded on a trade-date basis. Changes in fair value, along with realized gains and losses, are reflected as net appreciation (depreciation) in fair value of investments. Dividends are reported on the ex-dividend date and interest income is recorded on the accrual basis.

Payment of Benefits

Benefit payments to participants and beneficiaries are recorded when paid.

Funding Policy

The Company's funding policy is to contribute such amounts as are necessary on an actuarial basis to provide the Plan with assets sufficient to fund the benefits provided by the Plan and to maintain the funding level necessary to prevent restrictions on the payment of benefits from the Plan.

The contributions of the Company represent the total of normal cost adjusted by the yield (interest, dividends and net appreciation/depreciation in fair value) on investments of the Plan which serve to reduce or increase the future contributions that would otherwise be required to provide for the defined level of benefits under the Plan.

The Plan has satisfied the minimum funding requirements as required by ERISA for the years ended December 31, 2021 and 2020.

Plan Administration

Certain administrative expenses incurred in the operation of the Plan are paid directly from the Company and are not reflected in the accompanying financial statements.

Plan Termination

In the event the Plan is terminated, the Plan's net assets will be allocated in the order of priority set forth by ERISA and its related regulations.

2. Summary of Significant Accounting Policies (cont.)

If the Plan is terminated, certain pension benefits under the Plan are insured by the Pension Benefit Guaranty Corporation ("PBGC"). Generally, the PBGC guarantees most vested normal age retirement benefits, early retirement benefits and certain disability and beneficiaries' pensions. However, the PBGC does not guarantee all types of benefits under the Plan and the amount of benefit protections is subject to certain limitations. Vested benefits are guaranteed at the level in effect on the date of the Plan's termination, except for those benefits which become nonforfeitable solely because of the termination.

Whether all participants and/or beneficiaries receive their full pension benefits should the Plan be terminated will depend on the sufficiency of the Plan's net assets, at that time, to pay those benefits and may also depend on the financial condition of the plan sponsor and the level of benefits guaranteed by the PBGC.

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, liabilities and changes therein, disclosure of contingent assets and liabilities and the actuarial present value of accumulated plan benefits at the date of the financial statements and changes therein. Actual results could materially differ from those estimates.

Risks and Uncertainties

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

Plan contributions 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.

Reclassifications

Certain amounts in the financial statements of the prior year period have been reclassified to conform to the current period's presentation.

3. Certified Financial Information

Certain information related to cash and investments held at December 31, 2021 and 2020 disclosed in the accompanying financial statements and ERISA-required supplemental schedules and net appreciation in fair value of investments and interest and dividends for the years then ended was obtained by management and agreed to or derived from information certified as complete and accurate by Vanguard Fiduciary Trust Company (Vanguard) (the trustee of the Plan).

December 31,	**2021**	2020
Cash	**$ 860,187**	$ 831,761
Mutual funds	**$ 100,883,988**	$ 182,609,626
Common/collective trust	**$ 82,513,361**	$ 79,112,977
Total	**$ 184,257,536**	$ 262,554,364

Years ended December 31,	**2021**	2020
Interest and dividends	**$ 1,862,811**	$ 2,007,310

During the years ended December 31, 2021 and 2020, the Plan recognized appreciation of $9,654,920 and $28,616,551, respectively, on the Plan's investments (including gains and losses on investments bought and sold, as well as held during the years).

The Plan's independent auditors did not perform auditing procedures with respect to this information, except for comparing such information to the related information included in the financial statements and supplemental schedules.

4. Concentrations

The following table reflects concentrations of individual investments within the Plan that were equal to or greater than 10% of the net assets available for benefits:

December 31,	**2021**	2020
Vanguard Long-term Treasury Index Fund Inst	**$ 36,617,404**	*
Vanguard Long-term Investment Grade Trust Class I	**$ 82,513,361**	$ 79,112,977
Vanguard Total Stock Market Index Fund	**$ 33,257,554**	$ 51,736,406
Vanguard FTSE All-world Index Fund	**$ 21,977,259**	$ 35,021,518

* The investment was not equal to or greater than 10% of the net assets available for benefits for the period.

5. Actuarial Information

Accumulated plan benefits are those future periodic payments, including lump sum distributions, 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 under the Plan are based on employees' compensation during their last five years of credited service. The accumulated plan benefits for active employees are based on their average earnings based on the highest five years ending on the date as of which the benefit information is presented (the valuation date). Benefits payable under all circumstances – retirement, death, disability and termination of employment – are included to the extent they are deemed attributable to employee service rendered to the valuation date.

The actuarial present value of accumulated plan benefits is determined by an actuary 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 death, disability, withdrawal or retirement) between the valuation date and the expected date of payment.

The significant actuarial method and assumptions used in the actuarial valuations as of December 31, 2021 and 2020 are as follows:

	2021	2020
Cost Method:	Projected Unit Credit	Projected Unit Credit
Rate of Return on Plan Assets:	4.50%	5.25%
Mortality Basis:	PRI-2012 base mortality tables, projected using the MP-2021 projection scale	PRI-2012 base mortality tables, projected using the MP-2020 projection scale
Lump Sum Mortality Basis	PPA 2022 Combined Mortality Table	PPA 2021 Combined Mortality Table
Retirement Age:	Rates vary by age up to age 70	Rates vary by age up to age 70

The foregoing actuarial assumptions 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.

5. Actuarial Information (cont.)

The actuarial present value of accumulated plan benefits as of December 31, 2021 and 2020 are as follows:

December 31,	**2021**	2020
Actuarial present value of accumulated benefits		
Vested benefits		
Participants and beneficiaries currently receiving benefits	**$ 110,567,022**	$ 101,057,125
Active participants	**15,906,006**	17,274,317
Inactive participants with deferred benefits	**32,116,124**	31,969,698
Total vested benefits	**158,589,152**	150,301,140
Non-vested benefits	**191,238**	185,782
Actuarial present value of accumulated benefits	**$ 158,780,390**	$ 150,486,922

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

December 31,	**2021**	2020
Actuarial present value of accumulated benefits, beginning of year	**$ 150,486,922**	$ 149,584,023
Increase (Decrease) during the year attributable to		
Benefits accumulated and gains	**569,572**	1,777,085
Interest	**7,599,779**	7,893,408
Benefits paid	**(10,577,046)**	(11,201,561)
Actuarial assumption changes	**10,701,163**	2,433,967
Net increase	**8,293,468**	902,899
Actuarial present value of accumulated benefits, end of year	**$ 158,780,390**	$ 150,486,922

The increase in the actuarial present value of accumulated benefits related to assumption changes for the year ended December 31, 2021 was primarily due to 1) a decrease in the interest rate used from 5.25% to 4.50%; 2) an update of the lump sum conversion rates; 3) an update of the lump sum mortality basis; and 4) an update of the mortality assumptions.

The increase in the actuarial present value of accumulated benefits related to assumption changes for the year ended December 31, 2020 was primarily due to 1) a decrease in the interest rate used from 5.50% to 5.25%; 2) an update of the lump sum conversion rates; 3) an update of the lump sum mortality basis; and 4) an update of the mortality assumptions.

6. Tax Status

The Internal Revenue Service has determined and informed the Company by a determination letter dated July 13, 2017 that the Plan and related trust are designed in accordance with applicable sections of the Internal Revenue Code.

Generally accepted accounting principles require plan management to evaluate tax positions taken by the Plan and recognize a tax liability (or asset) if the Plan has taken an uncertain position that more likely than not would not be sustained upon examination by the relevant taxing authority. The tax positions taken include the Plan status as a qualified plan. The Benefit Plans Committee believes that the Plan is operating in a manner that does not jeopardize its tax status. Therefore, no provision for income taxes has been included in the Plan's financial statements.

The Plan is subject to routine audits by taxing jurisdictions; however, there are currently no audits for any tax periods in progress. The Benefit Plans Committee believes the Plan is no longer subject to income tax examinations for years prior to 2018.

7. Related Party Transactions

Certain Plan investments are shares of mutual funds managed by The Vanguard Group, Inc., an affiliate of the trustee; therefore, these transactions qualify as party-in-interest transactions, which are exempt from the prohibited transaction rules. Fees incurred by the Plan for trustee, advisory and recordkeeping services amounted to $255,380 and $215,349 for the years ended December 31, 2021 and 2020.

8. Fair Value Measurements

ASC 820, *Fair Value Measurements and Disclosures*, establishes a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (level 1 measurements) and the lowest priority to unobservable inputs (level 3 measurements). The three levels of the fair value hierarchy under ASC 820 are described below:

8. Fair Value Measurements (cont.)

Basis of Fair Value Measurement

Level 1 – Unadjusted quoted prices in active markets that are accessible at the measurement date for identical, unrestricted assets or liabilities;

Level 2 – Quoted prices in markets that are not considered to be active or financial instruments for which all significant inputs are observable, either directly or indirectly;

Level 3 – Prices or valuations that require inputs that are both significant to the fair value measurement and unobservable.

A financial instrument's level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement.

Valuation methodologies 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 assets measured at fair value. There have been no changes in the valuation methodologies used at December 31, 2021 and 2020.

Mutual Funds

Mutual funds represent investments with various investment managers. The fair values of these investments are determined by reference to the fund's underlying assets, which are principally marketable equity and fixed income securities. Shares held in mutual funds trade on national securities exchanges are valued at net asset value as of December 31, 2021 and 2020.

Common/Collective Trust

Units held in the common/collective trust are valued at the unit value as reported by the investment manager as of December 31, 2021 and 2020. The units can be redeemed daily.

There are no unfunded commitments or other redemption restrictions related to the investment in the common/collective trust.

The following tables set forth by level within the fair value hierarchy the Plan investment assets at fair value, as of December 31, 2021 and 2020. As required by ASC 820, assets are classified in their entirety based on the lowest level of input that is significant to the fair value measurement. The Plan had no material financial liabilities as of December 31, 2021 and 2020.

8. Fair Value Measurements (cont.)

	Investment Assets at Fair Value as of December 31, 2021			
	Level 1	**Level 2**	**Level 3**	**Total**
Mutual funds	**$ 100,883,988**	**$ -**	**$ -**	**$ 100,883,988**
Common/collective trust *	**-**	**-**	**-**	**82,513,361**
Total investments at fair value	**$ 100,883,988**	**$ -**	**$ -**	**$ 183,397,349**

	Investment Assets at Fair Value as of December 31, 2020			
	Level 1	**Level 2**	**Level 3**	**Total**
Mutual funds	**$ 182,609,626**	**$ -**	**$ -**	**$ 182,609,626**
Common/collective trust *	**-**	**-**	**-**	**79,112,977**
Total investments at fair value	**$ 182,609,626**	**$ -**	**$ -**	**$ 261,722,603**

* Investments that are measured at fair value using the net asset value per share (or its equivalent) practical expedient have not been categorized in the fair value hierarchy. The fair value amounts presented in this table are intended to permit reconciliation of the fair value hierarchy to the amounts presented in the statement of net assets available for benefits.

9. Subsequent Events

Subsequent events have been evaluated through the date of the independent auditors' report. Management did not identify any other events requiring recording in or disclosure to the financial statements as of and for the year ended December 31, 2021.

Supplemental Schedules

PQ Corporation Retirement Plan

Schedule H, Line 4(i) – Schedule of Assets (Held at End of Year)

EIN: 23-0972750
December 31, 2021 Plan Number: 002

(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) Number of Shares/Units	(e) Cost	(f) Current Value
*	Vanguard Long-term Investment Grade Trust Class I	Common/collective trust	3,628,556	73,252,130	$ 82,513,361
*	Vanguard Total Stock Market Index Fund	Mutual Fund	282,850	11,209,942	33,257,554
*	Vanguard FTSE All-world Index Fund	Mutual Fund	181,841	16,183,504	21,977,259
*	Vanguard Long-term Treasury Index Fund Inst	Mutual Fund	959,576	36,334,164	36,617,404
*	Vanguard Intermediate-Term Investment Grade Admiral	Mutual Fund	907,716	9,210,546	9,031,771
Total assets held for investment					$ 183,397,349

* Indicates a party-in-interest to the Plan.

See the accompanying Independent Auditors' Report

PQ Corporation Retirement Plan

Schedule H, Line 4(j) – Schedule of Reportable Transactions
Year Ended December 31, 2021

EIN: 23-0972750

Year Ended December 31, 2021 Plan Number: 002

Identity of Party Involved	Description of Asset	Purchase Price	Selling Price	Cost of Assets Sold	Net (Loss)/Gain
A Single Transaction in Excess of 5% of Plan Assets					
Vanguard	Vanguard Long-term Treasury Index Fund Inst	$ 9,596,854	$ -	$ -	$ -
A Series of Transactions of the Same Security in Excess of 5% of Plan Assets					
Vanguard	Long-term Investment Grade Trust Class I	$ 16,754,295	$ -	$ -	$ -
Vanguard	Long-term Investment Grade Trust Class I	$ -	$ 13,342,801	$ 12,027,307	$ 1,315,494
Vanguard	Vanguard FTSE All-world Index Fund	$ -	$ 15,458,020	$ 11,338,179	$ 4,119,841
Vanguard	Vanguard Long-term Treasury Index Fund Inst	$ -	$ -	$ -	$ -
Vanguard	Vanguard Long-term Treasury Index Fund Inst	$ 28,786,988	$ -	$ -	$ -
Vanguard	Vanguard Total Stock Market Index Fund	$ -	$ 28,060,068	$ 10,465,497	$ 17,594,571

See the accompanying Independent Auditors' Report.

PQ Corporation

Corporate Headquarters
P.O. Box 840
Valley Forge, PA 19482-0840
Tel: (610) 651-4200

October 6, 2022

Urish Popeck & Co., LLC
2160 Sandy Drive, Suite C
State College, PA 16803

Ladies and gentlemen:

We are providing this letter in connection with your audits of the financial statements of the PQ Corporation Retirement Plan (the "Plan"), an employee benefit plan subject to the Employee Retirement Income Security Act of 1974 ("ERISA"), which comprise the statements of net assets available for benefits as of December 31, 2021 and 2020, and the related statements of changes in net assets available for benefits for the years then ended, and the related notes to the financial statements.

We elected to have the audit of the Plan's 2021 financial statements performed in accordance with ERISA Section 103(a)(3)(C) pursuant to 29 CFR 2520.103-8 of the Department of Labor's (DOL's) Rules and Regulations for Reporting and Disclosure under ERISA. We acknowledge that the 2021 audit did not extend to any statements or information related to assets held for investment of the Plan (investment information) by a bank or similar institution or insurance carrier, that is regulated, supervised, and subject to periodic examination by a state or federal agency (qualified institution), that prepared and certified the investment information in accordance with 29 CFR 2520.103-5 of the DOL's Rules and Regulations for Reporting and Disclosure under ERISA. We have determined that an ERISA Section 103(a)(3)(C) audit is permissible under the circumstances. We have also determined that the 2020 investment information is prepared and certified by a qualified institution as described by 29 CFR 2520.103-8, that the certification meets the requirements in 29 CFR 2520.103-5, and that the certified investment information is appropriately measured, presented, and disclosed in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP").

The purpose of an ERISA Section 103(a)(3)(C) audit is to express an opinion on whether the amounts and disclosures in the 2020 financial statements, other than those agreed to or derived from the certified investment information, are presented fairly, in all material respects, in accordance with U.S. GAAP and that the assets held by and certified to by a qualified institution agrees to, or is derived from, in all material respects, the certified investment information.

We understand that, at our instruction, you did not perform any audit procedures with respect to the 2020 information prepared and certified to by a qualified institution, in accordance with the DOL's Rules and Regulations for Reporting and Disclosure under ERISA (DOL Regulation 2520.103-8), other than comparing such information to the financial statements as of December 31, 2020 and for the year then ended. Because of the significance of the 2020 information that you did not audit, we understand that you will not express an opinion on the Plan's 2020 financial statements as a whole. We understand the form and content of the information included in the 2020 financial statements, other than that derived from the 2020 information certified or provided by a qualified institution, has been audited by you in accordance with auditing standards generally accepted in the United States of America, and was subjected to tests of our accounting records and other procedures as you considered necessary to enable you to express an opinion as to whether they are presented in compliance with the DOL's Rules and Regulations for Reporting and Disclosure under ERISA.

We confirm that we are responsible for the preparation and fair presentation in the Plan's financial statements of net assets available for benefits and changes in net assets available for benefits in conformity with U.S. GAAP.

Certain representations in this letter are described as being limited to matters that are material. Items are considered material, regardless of size, if they involve an omission or misstatement of accounting information that, in the light of surrounding circumstances, makes it probable that the judgment of a reasonable person relying on the information would be changed or influenced by the omission or misstatement.

We confirm, to the best of our knowledge and belief, as of the date of this representation letter, as entered on the first page, the following representations made to you during your audits:

(1) We have fulfilled our responsibilities, as set out in the terms of the audit engagement letter dated May 2, 2022, for the preparation and fair presentation of the Plan's financial statements (including disclosures) in accordance with U.S. GAAP. The notes to the Plan's financial statements include all disclosures required by laws and regulations to which the Plan is subject. The Plan's supplemental schedules are fairly presented in conformity with the DOL's Rules and Regulations for Reporting and Disclosure under ERISA.

(2) We acknowledge our responsibility for administering the Plan and determining that the Plan's transactions that are presented and disclosed in the ERISA plan financial statements are in conformity with the Plan's provisions, including maintaining sufficient records with respect to each of the participants to determine the benefits due or which may become due to such participants.

(3) We have fulfilled our responsibility, as set out in the terms of the aforementioned audit engagement letter, for 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.

(4) We acknowledge our responsibility for the presentation of the ERISA-required supplemental schedules in accordance with the DOL's Rules and Regulations for Reporting and Disclosure under ERISA.

We believe that the ERISA-required supplemental schedules, including their form and content, are presented in conformity with the DOL's Rules and Regulations for Reporting and Disclosure under ERISA.

(5) We have made available to you all:

(a) Financial records and related data, including the names of all related parties and all relationships and transactions with related parties, as agreed upon in the terms of the aforementioned audit engagement letter.

(b) Additional information that you have requested from us for the purpose of the audit.

(c) Minutes of the meetings of the Board of Directors, Investment Committee, Administrative Committee or other meetings pertaining to the Plan that were held from January 1, 2021 to the date of this letter, or summaries of actions of recent meetings for which minutes have not yet been prepared.

(d) The most current Plan instrument for the audit period, including all Plan amendments made to the Plan instrument, the trust agreement, insurance or other relevant contracts during the year, including amendments to comply with applicable laws.

(e) A draft of the Form 5500 that is substantially complete.

(f) Unrestricted access to persons within the Plan from whom you determined it necessary to obtain audit evidence.

(g) Actuarial valuation reports and other reports prepared by the actuary for the Plan and the Plan Sponsor.

(6) There have been no communications from regulatory agencies concerning noncompliance with, or deficiencies in, financial reporting practices.

(7) There have been no known instances of noncompliance or suspected noncompliance with laws and regulations whose effects should be considered when preparing financial statements.

(8) There are no material transactions that have not been properly recorded in the accounting records underlying the financial statements. The financial statement adjustment relating to accounts and disclosures identified and discussed with us in the course of the Plan audit that is noted immediately below has been recorded. We have evaluated the propriety of the adjustment based on a review of both the applicable authoritative literature and the underlying supporting evidence from our files and confirm our responsibility for the decision to record it.

Adjustment

Item #	Account Name and Adjustment Description	Debit	Credit
1	Employer contributions	273,000	
	Accrued expenses	4,000	
	Employer contributions receivable		273,000
	Administrative expenses		4,000
	To adjust accrued expenses and employer contributions receivable to actual.		

(9) We acknowledge our responsibility for the design, implementation and maintenance of internal control to prevent and detect fraud. We have disclosed to you the results of our assessment of the risk that the financial statements may be materially misstated as a result of fraud. We have no knowledge of any:

(a) Fraud or suspected fraud involving management or involving employees who have significant roles in the Plan's internal control, whether or not perceived to have a material effect on the financial statements.

(b) Fraud or suspected fraud involving others where the fraud could have a material effect on the financial statements.

(c) Allegations of fraud or suspected fraud affecting the Plan's financial statements received in communications from employees, former employees, participants, beneficiaries, regulatory agencies, service providers, third-party administrators, law firms, predecessor accounting firms, or other professionals.

(10) We have no:

(a) Plans or intentions that may materially affect the carrying value or classification of assets and liabilities.

(b) Intentions to terminate the Plan. Furthermore, no reportable events have occurred that could result in the Pension Benefit Guaranty Corporation ("PBGC") having the authority to initiate proceedings to terminate the Plan.

(11) The following, where applicable and material, have been properly recorded or disclosed in the financial statements:

(a) The identity of all related parties and all related party relationships and transactions of which we are aware, including party-in-interest transactions, as defined in ERISA section 3(14) and regulations thereunder, including sales, purchases, loans, transfers, leasing arrangements, and guarantees, (whether written or oral) and amounts receivable from or payable to related parties.

(b) All derivative instruments and any embedded derivative instruments that require bifurcation, in accordance with Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") 815, *Derivatives and Hedging*.

(c) Arrangements with financial institutions involving compensating balances or other arrangements involving restrictions on cash balances and line-of-credit or similar arrangements.

(d) Guarantees, whether written or oral, under which the Plan is contingently liable.

(e) Significant estimates and material concentrations known to management that are required to be disclosed in accordance with FASB ASC 275-10, *Risks and Uncertainties - Overall*. In that regard, all accounting estimates that could be material to the financial statements, including key factors and significant assumptions underlying those estimates, have been identified, and we believe the estimates are reasonable in the circumstances. The methods, significant assumptions, and the data used in making the accounting estimates and the related disclosures are appropriate to achieve recognition, measurement, and disclosure that is in accordance with U.S. GAAP. (Significant estimates are estimates at the date of the statement of net assets available for benefits that could change materially within the next year. Concentrations refer to the nature and type of investments held by the Plan, or markets for which events could occur that would significantly disrupt normal finances within the next year).

(f) Amendments to the Plan instrument, if any.

(g) The effects of all known actual or possible litigation, claims, and other liabilities or gain or loss contingencies that are required to be accrued or disclosed by FASB ASC 450, *Contingencies*, including:

- Pending or anticipated tax assessments or refunds, other potential or pending claims, lawsuits by or against any branch of government or others;
- Written or oral guarantees, endorsements, or unused letters of credits;
- Unclaimed property liabilities; or
- Labor claims or negotiations.

FASB ASC 450-20, *Loss Contingencies,* requires loss contingencies to be accrued if it is probable an asset has been impaired or a liability incurred at the date of the statement of net assets available for benefits and the amount of loss can be reasonably estimated. Such contingencies must be disclosed, but may not be accrued, if the loss is reasonably possible (but not probable) or the loss is probable but the amount of loss cannot be reasonably estimated.

(h) Commitments, such as a pending sale or merger of all or a portion of the business or of an interest therein or acquisition of all or a portion of the business, assets, or securities of another entity, that would affect the Plan.

(12) There are no:

(a) Violations or possible violations of laws or regulations (including the failure to file reports required by regulatory bodies (e.g., DOL, IRS, Health and Human Services, state and municipal authorities) when the effects of failing to file could be material to the financial statements) whose effects should be considered for disclosure in the financial statements or as a basis for recording a loss contingency.

(b) Pending or threatened litigation, claims or assessments or unasserted claims or assessments that we are aware of that are required to be accrued or disclosed in the financial statements in accordance with FASB ASC 450, *Contingencies*, and we have not consulted a lawyer concerning litigation, claims, or assessments.

(c) Side agreements or other arrangements (either written or oral) that have not been disclosed to you.

(d) Other matters (e.g., breach of fiduciary responsibilities, nonexempt transactions, loans or loans in default, events reportable to the PBGC, or events that may jeopardize the tax status) that legal counsel have advised us that must be disclosed.

(13) Receivables recorded in the financial statements represent valid claims against debtors for charges arising on or before the date of the statement of net assets available for benefits and have been appropriately reduced to their estimated net realizable value.

(14) We confirm that we have not made any manual adjusting journal entries or non-standard entries to the financial statements. In addition, we have not requested that the trustee make any journal entries, including system-generated or manual entries, to their reports that were initiated by us.

(15) There were no omissions from the participants' data provided to the Plan's actuary for the purposes of determining the actuarial present value of accumulated plan benefits and other actuarially-determined amounts in the financial statements.

(16) We agree with the actuarial methods and assumptions used by the actuary for funding purposes and for determining the accumulated plan benefits and has no knowledge or belief that such methods or assumptions are inappropriate in the circumstances. We did not give any instructions, nor cause any instructions to be given, to the Plan's actuary with respect to values or amounts derived, and we are not aware of any matters that have impacted the independence or objectivity of the Plan's actuary.

(17) The following have been properly recorded or disclosed in the financial statements:

(a) The actuarial methods or assumptions used in calculating amounts recorded or disclosed in the financial statements.

(b) Plan provision changes between actuarial valuation date and the date of this letter.

(18) The Plan has complied with all aspects of contractual agreements, including debt covenants, that would have a material effect on the financial statements in the event of noncompliance.

(19) We are responsible for the estimation methods and assumptions used in measuring assets and liabilities reported or disclosed at fair value, including information obtained from brokers, pricing services, or other third parties. Our valuation methodologies have been consistently applied from period to period. The fair value measurements reported or disclosed represent our best estimate of fair value as of the measurement date in accordance with the requirements of FASB ASC 820, *Fair Value Measurement*. In addition, our disclosures related to fair value measurements are consistent with the objectives outlined in FASB ASC 820.

(20) Significant assumptions used by us in making accounting estimates, including those measured at fair value, are reasonable. For any financial instruments, including non-readily marketable securities, we concur with and accept responsibility for the methods and significant assumptions used to estimate fair value of financial instruments and/or the approach used by the appraiser. The methods and significant assumptions used result in a measure of fair value appropriate for financial measurement and disclosure purposes.

(21) All required filings of Plan and trust documents with the appropriate agencies have been made.

(22) The Plan and the trust established under the Plan are qualified under the appropriate section of the Internal Revenue Code and intend to continue as a qualified plan and trust. The Plan sponsor has operated the Plan and trust, as amended in a manner that did not jeopardize this tax status.

(23) The Plan is responsible for the performance of the nondiscrimination tests and assures that the Plan has passed such tests or appropriate action has been taken to rectify any areas of noncompliance.

(24) The Plan has complied with the fidelity bonding requirements of ERISA.

(25) The Plan has satisfactory title to all owned assets, which are recorded at fair value, and there are no liens, encumbrances, or security interest on such assets nor has any asset been pledged as collateral.

(26) There are no:

(a) Nonexempt party-in-interest transactions (as defined in ERISA section 3(14) and regulations under that section) that were not disclosed in the supplemental schedules or financial statements.

(b) Investments in default or considered to be uncollectible that were not disclosed in the supplemental schedules.

(c) Reportable transactions (as defined in ERISA section 103(b)(3)(H) and regulations under that section) that were not disclosed in the supplemental schedules.

(27) We have apprised you of all communications, whether written or oral, with regulatory agencies concerning the operation of the Plan.

(28) No discussions have taken place with your firm’s personnel regarding employment with the Plan or the Plan sponsor.

(29) We have engaged you to prepare the Plan's Form 5500 filing with the DOL; however, we have the final responsibility for the Form 5500 filing and therefore have reviewed it carefully prior to electronically filing the return on the EFAST2 system.

(30) The version of the Plan's 2021 audited financial statements that we will file with the DOL using the EFAST2 system will be identical to the copy containing your manually-signed report provided to us.

(31) In connection with the presentation of your audit report on the DOL's website, the full financial statements and supplemental schedules upon which you reported and to which you appended your signed report will be presented.

(32) We will prepare and distribute the annual plan funding notice, which will be completed and communicated timely.

(33) We have considered the applicable provisions of recent legislation and continue to work with the Plan's actuary to ensure ongoing compliance with the applicable provisions in accordance with required effective dates and to determine the impact, if any, on the Plan's financial statements.

(34) There have been no known or suspected breaches of sensitive information (e.g., personnel files) caused by cyber-attack or other means, or other cybersecurity incidents, where the breach or other incident could have a material effect on the financial statements.

(35) Regarding the financial statement preparation services performed by you, we have: (1) made all management decisions and performed all management functions, (2) designated an individual with the suitable skill, knowledge, and/or experience to oversee the services, (3) evaluated the adequacy and results of the services performed, and (4) accepted responsibility for the results of the services.

(36) The Summary Annual Report will be completed and communicated timely in accordance with the DOL's Regulations.

(37) The pension-eligible wage and other information contained in the file used by plan management's specialists to evaluate the present value of accumulated plan benefits and calculate participant distributions is complete and accurate.

(38) We have obtained a copy of the relevant SOC 1 reports that cover the year under audit, related to significant processes and transactions that have been outsourced to those service organizations. In connection with those SOC 1 reports, we have read the reports, evaluated the impact of the exceptions to relevant tests, identified the complementary controls listed under the user entity controls section of the report, and have determined that those user entity controls have been designed appropriately and have been implemented.

To the best of our knowledge and belief, no events have occurred subsequent to the date of the statement of net assets available for benefits and through the date of this representation letter, as entered on the first page, other than those events described in Note 9 to the Plan's financial statements, that would require adjustment to or disclosure in the aforementioned financial statements and supplemental schedules.

Very truly yours,

_____
Michelle Donohue
Vice President of Human Resources, Americas

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											
35–39		2									2
40–44		3	6								9
45–49		4	3	2	1						10
50–54		7	12	11	6						36
55–59		4	23	14	14	4					59
60–64		6	13	16	16	7	3				61
65–69		1	3	6	3	2		1			16
70 & up			1				1				2
Total		27	61	49	40	13	4	1			195

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 January 1, 2021

Discount rate sponsor elections		
• Segment rates or full yield curve	Segment	
• Look-back months	4	
	Stabilized	Nonstabilized
• First 5 years	4.75%	2.22%
• Next 15 years	5.36%	3.38%
• Over 20 years	6.11%	3.92%
Mortality sponsor elections		
• Healthy participants	Section 430(h)(3) prescribed separate static annuitant and nonannuitant mortality tables. These tables are based on the RP-2014 mortality tables with improvements beyond 2006 removed with static mortality improvement based on the IRS methodology and projection scale MP-2019.	
• Disabled participants	Revenue Ruling 96-7 table for participants who became disabled after 1995 and are eligible for Social Security disability benefits.	
417(e) lump sums	Liabilities are determined based on the underlying annuity used by the plan to determine the lump sum amount, rather than valuing the lump sum payment. This annuity is valued based on funding interest rates rather than 417(e) rates and current year 417(e) unisex mortality.	
Other economic assumptions		
• Expected investment return	4.26% per year for 2021, 4.71% per year for 2020, 5.41%% per year for 2019	
• Expenses	$ 760,000 added to current year normal cost	

Rationale for Economic Assumptions

- **Expected investment return** – The expected rate of return on plan assets is based on the average simulated investment return using capital market assumptions published in Mercer Investment Consulting's Capital Markets Outlook for the plan's current asset mix, net of an adjustment of 30 bps for expenses assumed to be paid from plan assets.

- **Expenses** – Prior year plan administrative expenses rounded up to nearest $10,000, adjusted for expected changes in the current year.

Demographic assumptions

Demographic assumptions		
• Withdrawal	See table of sample rates.	
• Disability incidence	See table of sample rates.	
• Retirement age	**Attained age**	**Percentage**
	Under 55	0.0%
	55-59	5.0
	60-61	13.0
	62	27.0

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

	63-64	13.0
	65-69	70.0
	70+	100.0
• Benefit commencement age for		
— Future vested deferred	Age 62 or Age 65 if not eligible for early retirement	
— Current vested deferred	Age 62 or Age 65 if not eligible for early retirement	
— Future disabilities	Age 62 or Age 65 if not eligible for early retirement	
— Future deaths	Age 62 or Age 65 if not eligible for early retirement	
• Spouse assumptions	**Male participants**	**Female participants**
— Percentage married	80%	80%
— Spouse age difference	3 years younger	3 years older
Form of payment	**Eligible Former Potters Plan Participants**	**Others**
• Active retirements	Lump sum	Single life
• Future vested deferred	Lump sum	Single life
• Future disabilities	Lump sum	Single life
• Future deaths	Joint and 100% survivor	Joint and 100% survivor[1]
• Current vested deferred	Lump sum	Single life
• Rationale	The demographic assumptions are based on an experienced study undertaken in 2009. Due to the plan size and frozen status, the plan does not have enough credible experience to perform a new experience study. Regardless, changes to these assumptions are not expected to produce a material difference. These assumptions are annually reviewed for reasonability.	
Unpredictable contingent event assumptions	Not applicable	

[1] Silicas participants receive a joint and 50% survivor.

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

Table of sample rates

Attained age	Percentage			
	Disability incidence		Disability incidence	
	Male	Female	Male	Female
25	0.19%	0.23%	15.1%	16.0%
30	0.19%	0.23%	14.1%	15.4%
35	0.19%	0.23%	12.2%	14.4%
40	0.37%	0.63%	10.0%	12.8%
45	0.56%	0.83%	7.8%	10.5%
50	0.97%	0.91%	5.0%	7.0%
55	1.64%	1.17%	1.8%	2.6%
60	2.25%	1.42%	0.2%	0.2%
65	3.09%	1.73%	0.0%	0.0%

Rationale for Demographic Assumptions

- The demographic assumptions are based on an experience study undertaken in 2009. Due to the plan size and frozen status, the plan does not have enough credible experience to perform a new experience study. Regardless, changes to these assumptions are not expected to produce a material difference. These assumptions are annually reviewed for reasonability.

Actuarial methods

Asset methods

The asset valuation method is an average of the adjusted market value for each year during the last 2 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% and no less than 90% 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.

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

Participant methods

Participants or former participants are included or excluded from the valuation as described below:

- **Participants included:** The plan sponsor provides us with data on all employees as of the valuation date, but only those employees who have completed the plan's eligibility requirements are included in the valuation of liabilities.
- **Participants excluded:** No actuarial liability is included for nonvested participants who terminated prior to the valuation date.
- **Insurance contracts**: The plan does not have any insurance contracts.

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.
- 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 is the sum of the component funding targets and target normal costs associated with the various anticipated separation dates.

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 62.

(A) Retirement age	(B) Retirement percent	(C) Lx	(D) Number of employees expected to retire (B) x (C)	(E) (A) x (D)
55	5.0%	10,000	500	27,500
56	5.0%	9,500	475	26,600
57	5.0%	9,025	451	25,721
58	5.0%	8,574	429	24,864
59	5.0%	8,145	407	24,028
60	13.0%	7,738	1,006	60,355
61	13.0%	6,732	875	53,384
62	27.0%	5,857	1,581	98,042
63	13.0%	4,275	556	35,016
64	13.0%	3,720	484	30,947
65	70.0%	3,236	2,265	147,241
66	70.0%	971	680	44,852
67	70.0%	291	204	13,659
68	70.0%	87	61	4,159
69	70.0%	26	18	1,266
70	100.0%	8	8	550
Total			10,000	618,885
Average				61.82

PQ Corporation Retirement Plan

Schedule H, Line 4(j) – Schedule of Reportable Transactions
Year Ended December 31, 2021

EIN: 23-0972750

Year Ended December 31, 2021 Plan Number: 002

Identity of Party Involved	Description of Asset	Purchase Price	Selling Price	Cost of Assets Sold	Net (Loss)/Gain
A Single Transaction in Excess of 5% of Plan Assets					
Vanguard	Vanguard Long-term Treasury Index Fund Inst	$ 9,596,854	$ -	$ -	$ -
A Series of Transactions of the Same Security in Excess of 5% of Plan Assets					
Vanguard	Long-term Investment Grade Trust Class I	$ 16,754,295	$ -	$ -	$ -
Vanguard	Long-term Investment Grade Trust Class I	$ -	$ 13,342,801	$ 12,027,307	$ 1,315,494
Vanguard	Vanguard FTSE All-world Index Fund	$ -	$ 15,458,020	$ 11,338,179	$ 4,119,841
Vanguard	Vanguard Long-term Treasury Index Fund Inst	$ -	$ -	$ -	$ -
Vanguard	Vanguard Long-term Treasury Index Fund Inst	$ 28,786,988	$ -	$ -	$ -
Vanguard	Vanguard Total Stock Market Index Fund	$ -	$ 28,060,068	$ 10,465,497	$ 17,594,571

See the accompanying Independent Auditors' Report.

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

2021

This Form is Open to Public Inspection

For calendar plan year 2021 or fiscal plan year beginning 01/01/2021 and ending 12/31/2021

▶ **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
PQ CORPORATION RETIREMENT PLAN

B Three-digit plan number (PN) ▶ 002

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

D Employer Identification Number (EIN)
23-0972750

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 01 Day 01 Year 2021

2 Assets:

a Market value	**2a**	183,713,814
b Actuarial value	**2b**	165,342,433

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	870	100,929,409	100,929,409
b For terminated vested participants	563	30,645,369	30,645,369
c For active participants	195	16,736,953	16,921,637
d Total	1,628	148,311,731	148,496,415

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**	5.49%
6 Target normal cost		
a Present value of current plan year accruals	**6a**	0
b Expected plan-related expenses	**6b**	760,000
c Total (line 6a + line 6b)	**6c**	760,000

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

Marc Dinerman
Signature of actuary

08/30/2022
Date

MARC DINERMAN
Type or print name of actuary

2006448
Most recent enrollment number

MERCER
Firm name

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

1717 ARCH STREET
SUITE 1100
PHILADELPHIA PA 19103
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)		
9	Amount remaining (line 7 minus line 8)	0	0
10	Interest on line 9 using prior year's actual return of 19.52%	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)		1,054,448
	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 5.63%		59,365
	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		1,113,813
	d Portion of (c) to be added to prefunding balance		
12	Other reductions in balances due to elections or deemed elections	0	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	111.34%
15	Adjusted funding target attainment percentage	15	111.34%
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	103.34%
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
			Totals ► 18(b)	0	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	0

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:	
4.75 %	5.36 %	6.11%	☐ N/A, full yield curve used

b Applicable month (enter code) **21b**

22 Weighted average retirement age	**22**	62

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 6c).....	**31a**	760,000
b Excess assets, if applicable, but not greater than line 31a	**31b**	760,000

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

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**	0

38 Present value of excess contributions for current year (see instructions)

a Total (excess, if any, of line 37 over line 36)	**38a**	0
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

Schedule SB, Part V — Summary of Plan Provisions

Summary of major plan provisions

Effective date and plan year	Original plan: December 31, 1944 Restated plan: January 1, 1997 Plan year: Calendar Year
Status of the plan	The plan has no benefit accruals and no new employees are eligible to participate in the plan.
Significant events that occurred during the year	None
Definitions	
• Participation	Each employee hired on or before June 30, 2004 is eligible as of his/her employment commencement date, unless excluded by collective bargaining agreement.
• Vesting service	Calendar year in which employee has 1,000 or more hours of service.
• Credited service	Years of Service (including certain fractional years). Effective January 1, 2007, credited service was frozen for all employees.
• Break in Service	12-month employment period during which less than 501 hours are worked. If the participant is not vested and the number of consecutive one year Breaks in Service equals or exceeds the greater of total number of years of Vesting Service and Credited Service earned before break, or five years, such prior service is lost.
• Final average earnings	Average of Pensionable Earnings during any five consecutive years of last ten immediately preceding actual retirement date, date of termination or death, whichever is applicable, that will produce the highest amount. Effective 1/1/1990, Pensionable Earnings are defined as total taxable income plus elective deferrals less certain special payments. Effective January 1, 2007, final average compensation was frozen for all employees.
• Accrued benefit	Greater of 1, 2, 3 or 4, where 2 is frozen as of July 1, 2004 and 1, 3 and 4 are frozen as of December 31, 2006: 1. 2% of Final Average Compensation multiplied by years of Credited Service to age 62 (not more than 15), plus 1% of Final Average Compensation multiplied by years of Credited Service (in excess of 15) at age 62 or current age, if later, multiplied by a fraction, the numerator of which equals Credited Service to Date, the denominator of which equals total Credited Service to Age 62, or date of determination if later, LESS 1 2/3% Primary Social Security Benefit multiplied by years of Credited Service at Normal Retirement (not more than 30) multiplied by a fraction, the numerator of which equals Credited Service to Date, the denominator of which equals total Credited Service to Normal Retirement Date. 2. The product of: A. 48% of Final Average Compensation less 75% of Primary Social Security Benefit, reduced pro-rata for less than 15 years of Credited Service at Age 62 or current age, if later. B. A fraction, the numerator of which equals Credited Service to Date, the denominator of which equals total Credited Service to Age 62 or current age, if later.

Schedule SB, Part V — Summary of Plan Provisions

	3. $15 per month times years of Credited Service; or. 4. $30 per month times years of Credited Service to maximum of ten years. The Retirement Plan for Silica's Union Employees of PQ Corporation transferred a frozen benefit to the PQ Corporation Retirement Plan as of December 31, 2009. This frozen benefit was calculated as of January 31, 2009.
Normal retirement	
• Eligibility	First day of the month coincident with or next following attainment of age 65. If the employment commencement date is on or after January 1, 1992, the fifth anniversary of participation, if later.
• Benefit	Accrued Benefit as of Normal Retirement Date.
Early retirement	
• Eligibility	**PQ:** Age 55 and 10 years of service. **Silica's:** Age 55 and 5 years of service.
• Benefit	**PQ:** Benefit payable at age 62 or later is the accrued Normal Retirement Benefit with no actuarial reduction. For retirements between age 55 and age 62, the benefit payable is reduced 1/3% for each of the first 24 months and 5/12% for each of the next 60 months between the date benefits commence and the member's attainment of age 62. **Silica's:** Normal Retirement Benefit reduced by 1/3% for each month that the Annuity Start Date precedes the Normal Retirement Date.
Late retirement	
• Eligibility	Retirement after Normal Retirement Age.
• Benefit	The greater of Normal Retirement Benefit adjusted actuarially for the period of deferment, or Accrued Benefit calculated as of Late Retirement Date.
Deferred vested	
• Eligibility	**PQ:** 100% vested in Accrued Benefit on the earlier of (a) completion of 5 years of service, or (b) attainment of Normal Retirement Age. **Silica's**: 100% vested in Accrued Benefit on the earlier of (a) completion of 5 years of service, or (b) age 55.
• Benefit	**PQ:** Accrued Normal Retirement Benefit payable at age 65, or reduced benefit payable on or after attainment of age 55 and 10 years of service. Benefit payable to a terminated vested participant is reduced by 5/9% for each of the first 60 months and by 5/18% for each of the next 60 months between the date benefits commence and the Normal Retirement Date. **Silica's:** Accrued Normal Retirement Benefit payable at age 65, or reduced benefit payable on or after attainment of age 55 and 10 years of service. Benefit payable to a terminated vested participant is reduced by 5/9% for each of the first 60 months and by 5/18% for each of the next 60 months between the date benefits commence and the Normal Retirement Date.
Disability	
• Eligibility	**PQ:** Disability retirement is available after 10 years of service. Eligibility is limited to participants disabled on or before December 31, 2008. **Silica's:** Disability retirement is available after 15 years of service.

Schedule SB, Part V — Summary of Plan Provisions

• Benefit	**PQ:** Retirement benefit at age 65 based on service at age 65 and Final Average Compensation assuming level earnings until 65 at final rate immediately before disability. **Silica's:** Normal Retirement Benefit plus an ancillary supplemental benefit of ½% of the Final Average Compensation up to $4,800 times Credited Service. The supplementary allowance ceases upon eligibility for unreduced benefits under Tier II of the Social Security Act or attainment of Normal Retirement Age.
Pre-retirement death	
• Eligibility	**PQ:** Member married to spouse at least one year at date of death, and vested in accrued benefit. **Silica's:** 5 years of service.
• Benefit prior to early retirement	**PQ:** Annuity payable to member's spouse under 100% Joint and Survivor option as if member terminated immediately before death. This is payable at the earliest date the participant could have received his benefit, reduced by Early Retirement Factors if received before age 65. **Silica's:** Spouse's benefit is equal to 50% of the Early Retirement Benefit the member would have received, had he retired at age 55 and elected to receive the benefit in a 50% Joint and Survivor annuity. If the participant dies after attaining age 55 or completing 10 years of service, the benefit will be 50% of the participant's accrued benefit, reduced for early retirement, but with no reduction for form of payment.
• Prior to early retirement age benefit for inactive participants with deferred benefits	Annuity payable to member's spouse under 50% Joint and Survivor option as if member terminated immediately before death. This is payable at the earliest date the participant could have received his benefit, reduced by Early Retirement Factors if received before age 65.
• Benefit after early but before normal retirement	Member married to spouse at least one year at date of death, not yet receiving a benefit and eligible for Early Retirement.
• After early retirement age but before normal retirement age benefit for active participants	Annuity payable to member's spouse under 100% Joint and Survivor option as if member elected Early Retirement immediately before death.
• After early retirement age but before normal retirement age benefit for inactive participants with deferred benefits	Annuity payable to member's spouse under 50% Joint and Survivor option as if member elected Early Retirement immediately before death.
• Subsequent to normal retirement age eligibility	Member married to spouse at least one year at date of death, not yet receiving a benefit, and eligible for Normal or Late Retirement.
• Subsequent to normal retirement age benefit for active participants	Annuity payable to member's spouse under 100% Joint and Survivor option as if member had retired immediately before death.
Form of benefits	
• Automatic form for unmarried participants	Life Annuity payable monthly.
• Automatic form for married participants	50% Joint and Survivor (actuarially reduced).

Schedule SB, Part V — Summary of Plan Provisions

• Optional forms	Life only; 5-year or 10-year period certain and life annuity; Joint and 100% or 50% Survivor Annuity; 67% Last to Survive, lump sum for grandfathered group of Potters employees.
• Optional form conversion factors	8.5% interest rate, UP84 mortality for participant and UP84 mortality with 3-year setback for beneficiary.
• Lump sum conversion for Potters	417(e) mortality in effect for plan year of distribution and interest rates in effect for November preceding the plan year of distribution.
Miscellaneous	
• Maximum compensation	Because plan was frozen effective 12/31/2006, the maximum compensation is no longer applicable.
• Maximum benefits	Annual benefits may not exceed the limits in IRC Section 415. This limit is indexed annually. For 2021, the limit is $230,000.

Benefits included or excluded

Unless noted below, all benefits provided by the plan, as restated and amended through January 2020, are included in this valuation:

- **Most recent plan amendments included:** N/A
- **Plan amendments excluded:** None
- **Internal Revenue Code limitations:** The limitations of Internal Revenue Code Section 415(b) and 401(a)(17) have been incorporated into our calculations.
- **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.

Plan provisions specific to funding

Additional benefits included or excluded

- **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 beginning of this Section*
  - *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.

PQ Corporation Retirement Plan

Schedule H, Line 4(i) – Schedule of Assets (Held at End of Year)

EIN: 23-0972750
December 31, 2021 Plan Number: 002

(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) Number of Shares/Units	(e) Cost	(f) Current Value
*	Vanguard Long-term Investment Grade Trust Class I	Common/collective trust	3,628,556	73,252,130	$ 82,513,361
*	Vanguard Total Stock Market Index Fund	Mutual Fund	282,850	11,209,942	33,257,554
*	Vanguard FTSE All-world Index Fund	Mutual Fund	181,841	16,183,504	21,977,259
*	Vanguard Long-term Treasury Index Fund Inst	Mutual Fund	959,576	36,334,164	36,617,404
*	Vanguard Intermediate-Term Investment Grade Admiral	Mutual Fund	907,716	9,210,546	9,031,771
Total assets held for investment					$ 183,397,349

* Indicates a party-in-interest to the Plan.

See the accompanying Independent Auditors' Report

Schedule SB, line 24 — Change in Actuarial Assumptions

- The expense component of normal cost changed from $1,210,000 to $760,000 to reflect our expectations for the current plan year.
- The expected investment return for 2021 decreased from 4.71% to 4.26%