

Form 5500 Department of the Treasury Internal Revenue Service Department of Labor Employee Benefits Security Administration Pension Benefit Guaranty Corporation	Annual Return/Report of Employee Benefit Plan This form is required to be filed for employee benefit plans under sections 104 and 4065 of the Employee Retirement Income Security Act of 1974 (ERISA) and sections 6057(b) and 6058(a) of the Internal Revenue Code (the Code). ▶ Complete all entries in accordance with the instructions to the Form 5500.	OMB Nos. 1210-0110 1210-0089 2018 This Form is Open to Public Inspection
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Part I	Annual Report Identification Information
For calendar plan year 2018 or fiscal plan year beginning <u>01/01/2018</u> and ending <u>12/31/2018</u>	
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.) ☒ 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:	☒ Form 5558 ☐ automatic extension ☐ the DFVC program ☐ special extension (enter description)

Part II	Basic Plan Information—enter all requested information				
1a Name of plan <u>FERRO CORPORATION PENSION PLAN FOR LEGACY EMPLOYEES</u>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">1b Three-digit plan number (PN) ▶</td> <td style="width: 20%; text-align: center;"><u>007</u></td> </tr> <tr> <td colspan="2">1c Effective date of plan <u>10/31/2017</u></td> </tr> </table>	1b Three-digit plan number (PN) ▶	<u>007</u>	1c Effective date of plan <u>10/31/2017</u>	
1b Three-digit plan number (PN) ▶	<u>007</u>				
1c Effective date of plan <u>10/31/2017</u>					
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) <u>FERRO CORPORATION</u> <u>6060 PARKLAND BLVD</u> <u>MAYFIELD HEIGHTS, OH 44124</u>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>2b Employer Identification Number (EIN) <u>34-0217820</u></td> </tr> <tr> <td>2c Plan Sponsor's telephone number <u>216-875-5600</u></td> </tr> <tr> <td>2d Business code (see instructions) <u>327900</u></td> </tr> </table>	2b Employer Identification Number (EIN) <u>34-0217820</u>	2c Plan Sponsor's telephone number <u>216-875-5600</u>	2d Business code (see instructions) <u>327900</u>	
2b Employer Identification Number (EIN) <u>34-0217820</u>					
2c Plan Sponsor's telephone number <u>216-875-5600</u>					
2d Business code (see instructions) <u>327900</u>					

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

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

SIGN HERE	Filed with authorized/valid electronic signature.	10/11/2019	ERICA REGAN
	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

For Paperwork Reduction Act Notice, see the Instructions for Form 5500.

Form 5500 (2018)
v. 171027

3a Plan administrator's name and address ☐ Same as Plan Sponsor FERRO CORPORATION 6060 PARKLAND BLVD MAYFIELD HEIGHTS, OH 44124	3b Administrator's EIN <div style="text-align: right; color: blue;">34-0217820</div>
	3c Administrator's telephone number <div style="text-align: right; color: blue;">216-875-5600</div>
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 2323
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) 351
a(2) Total number of active participants at the end of the plan year	6a(2) 300
b Retired or separated participants receiving benefits.....	6b 1055
c Other retired or separated participants entitled to future benefits	6c 674
d Subtotal. Add lines 6a(2) , 6b , and 6c	6d 2029
e Deceased participants whose beneficiaries are receiving or are entitled to receive benefits.	6e 221
f Total. Add lines 6d and 6e	6f 2250
g Number of participants with account balances as of the end of the plan year (only defined contribution plans complete this item)	6g 0
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: <div style="color: blue;">1A 1I 3H</div>	
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
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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)** ☒ 2 **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 2018 Form M-1 annual report. If the plan was not required to file the 2018 Form M-1 annual report, enter the Receipt Confirmation Code for the most recent Form M-1 that was required to be filed under the Form M-1 filing requirements. (Failure to enter a valid Receipt Confirmation Code will subject the Form 5500 filing to rejection as incomplete.)

Receipt Confirmation Code _____

SCHEDULE A (Form 5500) Department of the Treasury Internal Revenue Service Department of Labor Employee Benefits Security Administration Pension Benefit Guaranty Corporation	Insurance Information This schedule is required to be filed under section 104 of the Employee Retirement Income Security Act of 1974 (ERISA). ▶ File as an attachment to Form 5500. ▶ Insurance companies are required to provide the information pursuant to ERISA section 103(a)(2).	OMB No. 1210-0110 2018 This Form is Open to Public Inspection
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For calendar plan year 2018 or fiscal plan year beginning 01/01/2018 and ending 12/31/2018	
A Name of plan FERRO CORPORATION PENSION PLAN FOR LEGACY EMPLOYEES	B Three-digit plan number (PN) ▶ 007
C Plan sponsor's name as shown on line 2a of Form 5500 FERRO CORPORATION	D Employer Identification Number (EIN) 34-0217820

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

(a) Name of insurance carrier PRUDENTIAL RETIREMENT INSURANCE & ANNUITY CO.

(b) EIN	(c) NAIC code	(d) Contract or identification number	(e) Approximate number of persons covered at end of policy or contract year	Policy or contract year	
				(f) From	(g) To
06-1050034	93629	001495	123	01/01/2018	12/31/2018

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

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

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

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

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

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

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

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

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

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

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

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	(c) Amount	(d) Purpose	

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

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

Part II Investment and Annuity Contract Information

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

4 Current value of plan's interest under this contract in the general account at year end	4	582062
5 Current value of plan's interest under this contract in separate accounts at year end	5	1425384

6 Contracts With Allocated Funds:**a** State the basis of premium rates ▶

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

e Type of contract: (1) ☐ individual policies (2) ☐ group deferred annuity
(3) ☐ other (specify) ▶

f If contract purchased, in whole or in part, to distribute benefits from a terminating plan, check here ▶ ☐**7** Contracts With Unallocated Funds (Do not include portions of these contracts maintained in separate accounts)

a Type of contract: (1) ☐ deposit administration (2) ☐ immediate participation guarantee
(3) ☒ guaranteed investment (4) ☐ other ▶

b Balance at the end of the previous year.....	7b	674344
c Additions: (1) Contributions deposited during the year	7c(1)	0
(2) Dividends and credits	7c(2)	0
(3) Interest credited during the year	7c(3)	18603
(4) Transferred from separate account.....	7c(4)	480000
(5) Other (specify below)	7c(5)	
▶		
(6) Total additions.....	7c(6)	498603
d Total of balance and additions (add lines 7b and 7c(6))	7d	1172947
e Deductions:		
(1) Disbursed from fund to pay benefits or purchase annuities during year	7e(1)	560929
(2) Administration charge made by carrier	7e(2)	0
(3) Transferred to separate account.....	7e(3)	0
(4) Other (specify below)	7e(4)	29956
▶ ADMINISTRATIVE EXPENSE, GPS FEE		
(5) Total deductions.....	7e(5)	590885
f Balance at the end of the current year (subtract line 7e(5) from line 7d)	7f	582062

Part III Welfare Benefit Contract Information

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

8 Benefit and contract type (check all applicable boxes)

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

9 Experience-rated contracts:

a Premiums: (1) Amount received	9a(1)		
(2) Increase (decrease) in amount due but unpaid	9a(2)		
(3) Increase (decrease) in unearned premium reserve	9a(3)		
(4) Earned ((1) + (2) - (3))	9a(4)		0
b Benefit charges (1) Claims paid	9b(1)		
(2) Increase (decrease) in claim reserves	9b(2)		
(3) Incurred claims (add (1) and (2))	9b(3)		0
(4) Claims charged	9b(4)		
c Remainder of premium: (1) Retention charges (on an accrual basis) --			
(A) Commissions	9c(1)(A)		
(B) Administrative service or other fees	9c(1)(B)		
(C) Other specific acquisition costs	9c(1)(C)		
(D) Other expenses	9c(1)(D)		
(E) Taxes	9c(1)(E)		
(F) Charges for risks or other contingencies	9c(1)(F)		
(G) Other retention charges	9c(1)(G)		
(H) Total retention	9c(1)(H)		0
(2) Dividends or retroactive rate refunds. (These amounts were ☐ paid in cash, or ☐ credited.)	9c(2)		
d Status of policyholder reserves at end of year: (1) Amount held to provide benefits after retirement	9d(1)		
(2) Claim reserves	9d(2)		
(3) Other reserves	9d(3)		
e Dividends or retroactive rate refunds due. (Do not include amount entered in line 9c(2).)	9e		

10 Nonexperience-rated contracts:

a Total premiums or subscription charges paid to carrier	10a	
b If the carrier, service, or other organization incurred any specific costs in connection with the acquisition or retention of the contract or policy, other than reported in Part I, line 2 above, report amount	10b	

Specify nature of costs.

Part IV Provision of Information

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

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

<div>SCHEDULE A (Form 5500) <div>Department of the Treasury Internal Revenue Service</div><div>Department of Labor Employee Benefits Security Administration</div><div>Pension Benefit Guaranty Corporation</div></div>	<div>Insurance Information</div> <div>This schedule is required to be filed under section 104 of the Employee Retirement Income Security Act of 1974 (ERISA).</div> <div>▶ File as an attachment to Form 5500.</div> <div>▶ Insurance companies are required to provide the information pursuant to ERISA section 103(a)(2).</div>	<div>OMB No. 1210-0110</div> <div>2018</div> <div>This Form is Open to Public Inspection</div>
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For calendar plan year 2018 or fiscal plan year beginning 01/01/2018 and ending 12/31/2018		
A Name of plan FERRO CORPORATION PENSION PLAN FOR LEGACY EMPLOYEES	B Three-digit plan number (PN) ▶	007
C Plan sponsor's name as shown on line 2a of Form 5500 FERRO CORPORATION	D Employer Identification Number (EIN) 34-0217820	

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

(a) Name of insurance carrier AETNA LIFE INSURANCE COMPANY
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(b) EIN	(c) NAIC code	(d) Contract or identification number	(e) Approximate number of persons covered at end of policy or contract year	Policy or contract year	
				(f) From	(g) To
06-6033492	60054	002951	19	01/01/2018	12/31/2018

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

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

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

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

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

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

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

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	(c) Amount	(d) Purpose	

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

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

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

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

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

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

Part II Investment and Annuity Contract Information

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

4 Current value of plan's interest under this contract in the general account at year end **4** 1141439**5** Current value of plan's interest under this contract in separate accounts at year end **5****6** Contracts With Allocated Funds:**a** State the basis of premium rates ▶**b** Premiums paid to carrier **6b****c** Premiums due but unpaid at the end of the year **6c****d** If the carrier, service, or other organization incurred any specific costs in connection with the acquisition or retention of the contract or policy, enter amount. **6d**
Specify nature of costs ▶**e** Type of contract: (1) ☐ individual policies (2) ☐ group deferred annuity(3) ☐ other (specify) ▶**f** If contract purchased, in whole or in part, to distribute benefits from a terminating plan, check here ▶ ☐**7** Contracts With Unallocated Funds (Do not include portions of these contracts maintained in separate accounts)**a** Type of contract: (1) ☐ deposit administration (2) ☐ immediate participation guarantee(3) ☒ guaranteed investment (4) ☐ other ▶**b** Balance at the end of the previous year **7b** 1150975**c** Additions: (1) Contributions deposited during the year **7c(1)**
(2) Dividends and credits **7c(2)**
(3) Interest credited during the year **7c(3)** 57175
(4) Transferred from separate account **7c(4)**
(5) Other (specify below) **7c(5)** 9

▶ PRIOR PERIOD INTEREST RATE CHANGES

(6) Total additions **7c(6)** 57184**d** Total of balance and additions (add lines **7b** and **7c(6)**). **7d** 1208159**e** Deductions:(1) Disbursed from fund to pay benefits or purchase annuities during year **7e(1)** 51267(2) Administration charge made by carrier **7e(2)** 15453(3) Transferred to separate account **7e(3)**(4) Other (specify below) **7e(4)**(5) Total deductions **7e(5)** 66720**f** Balance at the end of the current year (subtract line **7e(5)** from line **7d**) **7f** 1141439

Part III Welfare Benefit Contract Information

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

8 Benefit and contract type (check all applicable boxes)

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

9 Experience-rated contracts:

a Premiums: (1) Amount received	9a(1)		
(2) Increase (decrease) in amount due but unpaid	9a(2)		
(3) Increase (decrease) in unearned premium reserve	9a(3)		
(4) Earned ((1) + (2) - (3))	9a(4)		0
b Benefit charges (1) Claims paid	9b(1)		
(2) Increase (decrease) in claim reserves	9b(2)		
(3) Incurred claims (add (1) and (2))	9b(3)		0
(4) Claims charged	9b(4)		
c Remainder of premium: (1) Retention charges (on an accrual basis) --			
(A) Commissions	9c(1)(A)		
(B) Administrative service or other fees	9c(1)(B)		
(C) Other specific acquisition costs	9c(1)(C)		
(D) Other expenses	9c(1)(D)		
(E) Taxes	9c(1)(E)		
(F) Charges for risks or other contingencies	9c(1)(F)		
(G) Other retention charges	9c(1)(G)		
(H) Total retention	9c(1)(H)		0
(2) Dividends or retroactive rate refunds. (These amounts were ☐ paid in cash, or ☐ credited.)	9c(2)		
d Status of policyholder reserves at end of year: (1) Amount held to provide benefits after retirement	9d(1)		
(2) Claim reserves	9d(2)		
(3) Other reserves	9d(3)		
e Dividends or retroactive rate refunds due. (Do not include amount entered in line 9c(2).)	9e		

10 Nonexperience-rated contracts:

a Total premiums or subscription charges paid to carrier	10a	
b If the carrier, service, or other organization incurred any specific costs in connection with the acquisition or retention of the contract or policy, other than reported in Part I, line 2 above, report amount	10b	

Specify nature of costs.

Part IV Provision of Information

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

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

<div>SCHEDULE SB (Form 5500) Department of the Treasury Internal Revenue Service Department of Labor Employee Benefits Security Administration Pension Benefit Guaranty Corporation</div>	<div>Single-Employer Defined Benefit Plan Actuarial Information</div> <div>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).</div> <div>▶ File as an attachment to Form 5500 or 5500-SF.</div>	<div>OMB No. 1210-0110</div> <div>2018</div> <div>This Form is Open to Public Inspection</div>
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For calendar plan year 2018 or fiscal plan year beginning 01/01/2018 and ending 12/31/2018

▶ 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 FERRO CORPORATION PENSION PLAN FOR LEGACY EMPLOYEES	B Three-digit plan number (PN) ▶ 007
C Plan sponsor's name as shown on line 2a of Form 5500 or 5500-SF FERRO CORPORATION	D Employer Identification Number (EIN) 34-0217820
E Type of plan: ☒ Single ☐ Multiple-A ☐ Multiple-B	F Prior year plan size: ☐ 100 or fewer ☐ 101-500 ☒ More than 500

Part I	Basic Information
1 Enter the valuation date: Month 01 Day 01 Year 2018	
2 Assets:	
a Market value.....	2a 239261171
b Actuarial value	2b 239261171
3 Funding target/participant count breakdown	
a For retired participants and beneficiaries receiving payment	(1) Number of participants 1331 (2) Vested Funding Target 180021865 (3) Total Funding Target 180021865
b For terminated vested participants	764 37328516 37328516
c For active participants	364 32738496 34134511
d Total	2459 250088877 251484892
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 5.61 %
6 Target normal cost	6 2057014

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

SIGN HERE	
Signature of actuary	09/24/2019
JAMES TROTIER	Date
Type or print name of actuary	17-08425
MERCER	Most recent enrollment number
Firm name	216-830-8027
200 PUBLIC SQUARE SUITE 3760 CLEVELAND, OH 44114	Telephone number (including area code)
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	6540424
8 Portion elected for use to offset prior year's funding requirement (line 35 from prior year)	0	9292
9 Amount remaining (line 7 minus line 8)	0	6531132
10 Interest on line 9 using prior year's actual return of <u>13.97</u> %	0	152067
11 Prior year's excess contributions to be added to prefunding balance:		
a Present value of excess contributions (line 38a from prior year)		0
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 <u>5.78</u> %		0
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		0
d Portion of (c) to be added to prefunding balance		0
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	6683199

Part III Funding Percentages

14 Funding target attainment percentage	14	92.48%
15 Adjusted funding target attainment percentage	15	93.59%
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	100.44%
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
09/06/2019	1235834	0			
Totals ▶			18(b)	1235834	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	1127583

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
0	0	0	0

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

21 Discount rate:				
a Segment rates:	1st segment: 3.92%	2nd segment: 5.52%	3rd segment: 6.29%	☐ N/A, full yield curve used
b Applicable month (enter code)				21b 0
22 Weighted average retirement age				22 62
23 Mortality table(s) (see instructions)	Prior regulation:	☐ Prescribed - combined	☐ Prescribed - separate	☐ Substitute
	Current regulation:	☐ Prescribed - combined	☒ Prescribed - separate	☐ Substitute

Part VI Miscellaneous Items

24 Has a change been made in the non-prescribed actuarial assumptions for the current plan year? If "Yes," see instructions regarding required attachment.	☒ Yes	☐ No
25 Has a method change been made for the current plan year? If "Yes," see instructions regarding required attachment.	☐ Yes	☒ No
26 Is the plan required to provide a Schedule of Active Participants? If "Yes," see instructions regarding required attachment.	☒ Yes	☐ No
27 If the plan is subject to alternative funding rules, enter applicable code and see instructions regarding attachment	27	

Part VII Reconciliation of Unpaid Minimum Required Contributions For Prior Years

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

Part VIII Minimum Required Contribution For Current Year

31 Target normal cost and excess assets (see instructions):			
a Target normal cost (line 6)	31a	2057014	
b Excess assets, if applicable, but not greater than line 31a	31b	0	
32 Amortization installments:	Outstanding Balance	Installment	
a Net shortfall amortization installment	18906920	3086552	
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	5143566	
	Carryover balance	Prefunding balance	Total balance
35 Balances elected for use to offset funding requirement	0	4015983	4015983
36 Additional cash requirement (line 34 minus line 35)	36	1127583	
37 Contributions allocated toward minimum required contribution for current year adjusted to valuation date (line 19c)	37	1127583	
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

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

For calendar plan year 2018 or fiscal plan year beginning 01/01/2018 and ending 12/31/2018		
A Name of plan FERRO CORPORATION PENSION PLAN FOR LEGACY EMPLOYEES	B Three-digit plan number (PN) ▶	007
C Plan sponsor's name as shown on line 2a of Form 5500 FERRO CORPORATION	D Employer Identification Number (EIN) 34-0217820	

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
SEI TRUST COMPANY
06-1271230

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

(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

(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)

SEI INVESTMENTS

23-3060382

(b) Service Code(s)	(c) Relationship to employer, employee organization, or person known to be a party-in-interest	(d) Enter direct compensation paid by the plan. If none, enter -0-.	(e) Did service provider receive indirect compensation? (sources other than plan or plan sponsor)	(f) Did indirect compensation include eligible indirect compensation, for which the plan received the required disclosures?	(g) Enter total indirect compensation received by service provider excluding eligible indirect compensation for which you answered "Yes" to element (f). If none, enter -0-.	(h) Did the service provider give you a formula instead of an amount or estimated amount?
21 51	NONE	638391	Yes ☐ No ☒	Yes ☐ No ☐		Yes ☐ No ☐

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

MERCER (US) INC.

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	NONE	279527	Yes ☐ No ☒	Yes ☐ No ☐		Yes ☐ No ☐

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

CBIZ BENEFITS & INSURANCE

31-1582098

(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?
13 15	NONE	135610	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)

FIDUCIARY COUNSELORS, INC.

22-3709903

(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?
28	NONE	40000	Yes ☐ No ☒	Yes ☐ No ☐		Yes ☐ No ☐

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

SQUIRE PATTON BOGGS (US) LLP

34-0648199

(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?
29	NONE	37338	Yes ☐ No ☒	Yes ☐ No ☐		Yes ☐ No ☐

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

BDO USA, LLP

13-5381590

(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?
10	NONE	28600	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)

PRUDENTIAL RETIREMENT INS. & ANNUIT

06-1050034

(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?
13 28 62 68	NONE	22336	Yes ☒ No ☐	Yes ☒ No ☐	0	Yes ☐ No ☒

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

AETNA

06-6033492

(b) Service Code(s)	(c) Relationship to employer, employee organization, or person known to be a party-in-interest	(d) Enter direct compensation paid by the plan. If none, enter -0-.	(e) Did service provider receive indirect compensation? (sources other than plan or plan sponsor)	(f) Did indirect compensation include eligible indirect compensation, for which the plan received the required disclosures?	(g) Enter total indirect compensation received by service provider excluding eligible indirect compensation for which you answered "Yes" to element (f). If none, enter -0-.	(h) Did the service provider give you a formula instead of an amount or estimated amount?
51 13	NONE	15453	Yes ☐ No ☒	Yes ☐ No ☐		Yes ☐ No ☐

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

GLOBAL PORTFOLIO STRATEGIES, INC.

06-1055669

(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?
28	NONE	7620	Yes ☐ No ☒	Yes ☐ No ☐		Yes ☐ No ☐

Part I Service Provider Information (continued)

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

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

Part II Service Providers Who Fail or Refuse to Provide Information

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

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

Part III Termination Information on Accountants and Enrolled Actuaries (see instructions)
(complete as many entries as needed)

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

Explanation:

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

Explanation:

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

Explanation:

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

Explanation:

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

Explanation:

SCHEDULE D (Form 5500) <small>Department of the Treasury Internal Revenue Service</small> <small>Department of Labor Employee Benefits Security Administration</small>	DFE/Participating Plan Information This schedule is required to be filed under section 104 of the Employee Retirement Income Security Act of 1974 (ERISA). ► File as an attachment to Form 5500.	OMB No. 1210-0110 2018 This Form is Open to Public Inspection.
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For calendar plan year 2018 or fiscal plan year beginning 01/01/2018 and ending 12/31/2018

A Name of plan <u>FERRO CORPORATION PENSION PLAN FOR LEGACY EMPLOYEES</u>	B Three-digit plan number (PN) ►	<u>007</u>
C Plan or DFE sponsor's name as shown on line 2a of Form 5500 <u>FERRO CORPORATION</u>	D Employer Identification Number (EIN) <u>34-0217820</u>	

Part I	Information on interests in MTIAs, CCTs, PSAs, and 103-12 IEs (to be completed by plans and DFEs) (Complete as many entries as needed to report all interests in DFEs)
---------------	--

a Name of MTIA, CCT, PSA, or 103-12 IE: <u>SEI CORE PROPERTY COLLECTIVE INV TR</u>		
b Name of sponsor of entity listed in (a): <u>SEI INVESTMENTS</u>		
c EIN-PN <u>27-3224429-045</u>	d Entity code <u>C</u>	e Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions) <u>12772740</u>
a Name of MTIA, CCT, PSA, or 103-12 IE: <u>DRYDEN S&P 500 INDEX</u>		
b Name of sponsor of entity listed in (a): <u>PRUDENTIAL RETIREMENT INS.</u>		
c EIN-PN <u>06-1050034-123</u>	d Entity code <u>P</u>	e Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions) <u>597932</u>
a Name of MTIA, CCT, PSA, or 103-12 IE: <u>CORE PLUS BOND/REAMS FUND</u>		
b Name of sponsor of entity listed in (a): <u>PRUDENTIAL RETIREMENT INS.</u>		
c EIN-PN <u>06-1050034-040</u>	d Entity code <u>P</u>	e Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions) <u>501497</u>
a Name of MTIA, CCT, PSA, or 103-12 IE: <u>PRIVATE PLACEMENT FUND</u>		
b Name of sponsor of entity listed in (a): <u>PRUDENTIAL RETIREMENT INS.</u>		
c EIN-PN <u>06-1050034-042</u>	d Entity code <u>P</u>	e Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions) <u>228799</u>
a Name of MTIA, CCT, PSA, or 103-12 IE: <u>INTERNATIONAL BLEND/WELLINGTON</u>		
b Name of sponsor of entity listed in (a): <u>PRUDENTIAL RETIREMENT INS.</u>		
c EIN-PN <u>06-1050034-349</u>	d Entity code <u>P</u>	e Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions) <u>97156</u>
a Name of MTIA, CCT, PSA, or 103-12 IE:		
b Name of sponsor of entity listed in (a):		
c EIN-PN	d Entity code	e Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)
a Name of MTIA, CCT, PSA, or 103-12 IE:		
b Name of sponsor of entity listed in (a):		
c EIN-PN	d Entity code	e Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)

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

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

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

a Plan name**b** Name of
plan sponsor**c** EIN-PN**a** Plan name**b** Name of
plan sponsor**c** EIN-PN**a** Plan name**b** Name of
plan sponsor**c** EIN-PN**a** Plan name**b** Name of
plan sponsor**c** EIN-PN**a** Plan name**b** Name of
plan sponsor**c** EIN-PN**a** Plan name**b** Name of
plan sponsor**c** EIN-PN**a** Plan name**b** Name of
plan sponsor**c** EIN-PN**a** Plan name**b** Name of
plan sponsor**c** EIN-PN**a** Plan name**b** Name of
plan sponsor**c** EIN-PN**a** Plan name**b** Name of
plan sponsor**c** EIN-PN**a** Plan name**b** Name of
plan sponsor**c** EIN-PN**a** Plan name**b** Name of
plan sponsor**c** EIN-PN

SCHEDULE H (Form 5500) Department of the Treasury Internal Revenue Service Department of Labor Employee Benefits Security Administration Pension Benefit Guaranty Corporation	Financial Information This schedule is required to be filed under section 104 of the Employee Retirement Income Security Act of 1974 (ERISA), and section 6058(a) of the Internal Revenue Code (the Code). ► File as an attachment to Form 5500.	OMB No. 1210-0110
		2018
		This Form is Open to Public Inspection

For calendar plan year 2018 or fiscal plan year beginning 01/01/2018 and ending 12/31/2018		
A Name of plan FERRO CORPORATION PENSION PLAN FOR LEGACY EMPLOYEES	B Three-digit plan number (PN) ►	007
C Plan sponsor's name as shown on line 2a of Form 5500 FERRO CORPORATION	D Employer Identification Number (EIN) 34-0217820	

Part I	Asset and Liability Statement
---------------	--------------------------------------

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

Assets		(a) Beginning of Year	(b) End of Year
a Total noninterest-bearing cash	1a	0	0
b Receivables (less allowance for doubtful accounts):			
(1) Employer contributions.....	1b(1)	0	1235834
(2) Participant contributions	1b(2)	0	0
(3) Other.....	1b(3)	1177320	76576
c General investments:			
(1) Interest-bearing cash (include money market accounts & certificates of deposit).....	1c(1)	3038	0
(2) U.S. Government securities	1c(2)	0	0
(3) Corporate debt instruments (other than employer securities):			
(A) Preferred	1c(3)(A)	0	0
(B) All other.....	1c(3)(B)	0	0
(4) Corporate stocks (other than employer securities):			
(A) Preferred	1c(4)(A)	0	0
(B) Common.....	1c(4)(B)	6678353	4439024
(5) Partnership/joint venture interests	1c(5)	0	0
(6) Real estate (other than employer real property).....	1c(6)	0	0
(7) Loans (other than to participants)	1c(7)	0	0
(8) Participant loans.....	1c(8)	0	0
(9) Value of interest in common/collective trusts	1c(9)	24079765	12772740
(10) Value of interest in pooled separate accounts	1c(10)	1935986	1425384
(11) Value of interest in master trust investment accounts	1c(11)	0	0
(12) Value of interest in 103-12 investment entities.....	1c(12)	0	0
(13) Value of interest in registered investment companies (e.g., mutual funds).....	1c(13)	204348592	183987907
(14) Value of funds held in insurance company general account (unallocated contracts).....	1c(14)	1825319	1723501
(15) Other	1c(15)	0	0

1d Employer-related investments:

		(a) Beginning of Year	(b) End of Year
(1) Employer securities	1d(1)	0	0
(2) Employer real property	1d(2)	0	0
e Buildings and other property used in plan operation	1e	0	0
f Total assets (add all amounts in lines 1a through 1e)	1f	240048373	205660966

Liabilities

g Benefit claims payable	1g	0	0
h Operating payables	1h	0	0
i Acquisition indebtedness	1i	0	0
j Other liabilities	1j	0	0
k Total liabilities (add all amounts in lines 1g through 1j)	1k	0	0

Net Assets

l Net assets (subtract line 1k from line 1f)	1l	240048373	205660966
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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)	1235834	
(B) Participants	2a(1)(B)	0	
(C) Others (including rollovers)	2a(1)(C)	0	
(2) Noncash contributions	2a(2)	0	
(3) Total contributions. Add lines 2a(1)(A) , (B) , (C) , and line 2a(2)	2a(3)		1235834
b Earnings on investments:			
(1) Interest:			
(A) Interest-bearing cash (including money market accounts and certificates of deposit)	2b(1)(A)	76344	
(B) U.S. Government securities	2b(1)(B)	0	
(C) Corporate debt instruments	2b(1)(C)	0	
(D) Loans (other than to participants)	2b(1)(D)	0	
(E) Participant loans	2b(1)(E)	0	
(F) Other	2b(1)(F)	0	
(G) Total interest. Add lines 2b(1)(A) through (F)	2b(1)(G)		76344
(2) Dividends: (A) Preferred stock	2b(2)(A)	0	
(B) Common stock	2b(2)(B)	0	
(C) Registered investment company shares (e.g. mutual funds)	2b(2)(C)	5540996	
(D) Total dividends. Add lines 2b(2)(A) , (B) , and (C)	2b(2)(D)		5540996
(3) Rents	2b(3)		0
(4) Net gain (loss) on sale of assets: (A) Aggregate proceeds	2b(4)(A)	15352327	
(B) Aggregate carrying amount (see instructions)	2b(4)(B)	15159461	
(C) Subtract line 2b(4)(B) from line 2b(4)(A) and enter result	2b(4)(C)		192866
(5) Unrealized appreciation (depreciation) of assets: (A) Real estate	2b(5)(A)	0	
(B) Other	2b(5)(B)	-2501408	
(C) Total unrealized appreciation of assets. Add lines 2b(5)(A) and (B)	2b(5)(C)		-2501408

		(a) Amount	(b) Total
(6) Net investment gain (loss) from common/collective trusts	2b(6)		1292975
(7) Net investment gain (loss) from pooled separate accounts	2b(7)		38610
(8) Net investment gain (loss) from master trust investment accounts	2b(8)		0
(9) Net investment gain (loss) from 103-12 investment entities	2b(9)		0
(10) Net investment gain (loss) from registered investment companies (e.g., mutual funds)	2b(10)		-17927135
c Other income	2c		0
d Total income. Add all income amounts in column (b) and enter total	2d		-12050918

Expenses

e Benefit payment and payments to provide benefits:			
(1) Directly to participants or beneficiaries, including direct rollovers	2e(1)	19423850	
(2) To insurance carriers for the provision of benefits	2e(2)	0	
(3) Other	2e(3)	0	
(4) Total benefit payments. Add lines 2e(1) through (3)	2e(4)		19423850
f Corrective distributions (see instructions)	2f		0
g Certain deemed distributions of participant loans (see instructions)	2g		0
h Interest expense	2h		0
i Administrative expenses: (1) Professional fees	2i(1)	345465	
(2) Contract administrator fees	2i(2)	145842	
(3) Investment advisory and management fees	2i(3)	666619	
(4) Other	2i(4)	1754713	
(5) Total administrative expenses. Add lines 2i(1) through (4)	2i(5)		2912639
j Total expenses. Add all expense amounts in column (b) and enter total	2j		22336489

Net Income and Reconciliation

k Net income (loss). Subtract line 2j from line 2d	2k		-34387407
l Transfers of assets:			
(1) To this plan	2l(1)		0
(2) From this plan	2l(2)		0

Part III Accountant's Opinion

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

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

(1) ☐ Unqualified (2) ☐ Qualified (3) ☒ Disclaimer (4) ☐ Adverse

b Did the accountant perform a limited scope audit pursuant to 29 CFR 2520.103-8 and/or 103-12(d)?

☒ Yes ☐ No

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

(1) Name: BDO USA, LLP

(2) EIN: 13-5381590

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

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

Part IV Compliance Questions

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

During the plan year:

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.)

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.)

	Yes	No	Amount
4a		X	
4b		X	

		Yes	No	Amount
c Were any leases to which the plan was a party in default or classified during the year as uncollectible? (Attach Schedule G (Form 5500) Part II if "Yes" is checked.)	4c		X	
d Were there any nonexempt transactions with any party-in-interest? (Do not include transactions reported on line 4a. Attach Schedule G (Form 5500) Part III if "Yes" is checked.).....	4d		X	
e Was this plan covered by a fidelity bond?	4e	X		1000000
f Did the plan have a loss, whether or not reimbursed by the plan's fidelity bond, that was caused by fraud or dishonesty?	4f		X	
g Did the plan hold any assets whose current value was neither readily determinable on an established market nor set by an independent third party appraiser?.....	4g		X	
h Did the plan receive any noncash contributions whose value was neither readily determinable on an established market nor set by an independent third party appraiser?.....	4h		X	
i Did the plan have assets held for investment? (Attach schedule(s) of assets if "Yes" is checked, and see instructions for format requirements.)	4i	X		
j Were any plan transactions or series of transactions in excess of 5% of the current value of plan assets? (Attach schedule of transactions if "Yes" is checked, and see instructions for format requirements.)	4j	X		
k Were all the plan assets either distributed to participants or beneficiaries, transferred to another plan, or brought under the control of the PBGC?	4k		X	
l Has the plan failed to provide any benefit when due under the plan?.....	4l		X	
m If this is an individual account plan, was there a blackout period? (See instructions and 29 CFR 2520.101-3.)	4m			
n If 4m was answered "Yes," check the "Yes" box if you either provided the required notice or one of the exceptions to providing the notice applied under 29 CFR 2520.101-3.	4n			

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

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

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

5c If the plan is a defined benefit plan, is it covered under the PBGC insurance program (See ERISA section 4021.)? ☒ Yes ☐ No ☐ Not determined
 If "Yes" is checked, enter the My PAA confirmation number from the PBGC premium filing for this plan year 4161232. (See instructions.)

SCHEDULE R (Form 5500) Department of the Treasury Internal Revenue Service Department of Labor Employee Benefits Security Administration Pension Benefit Guaranty Corporation	Retirement Plan Information This schedule is required to be filed under sections 104 and 4065 of the Employee Retirement Income Security Act of 1974 (ERISA) and section 6058(a) of the Internal Revenue Code (the Code). ▶ File as an attachment to Form 5500.	OMB No. 1210-0110 2018 This Form is Open to Public Inspection.
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For calendar plan year 2018 or fiscal plan year beginning 01/01/2018 and ending 12/31/2018

A Name of plan <u>FERRO CORPORATION PENSION PLAN FOR LEGACY EMPLOYEES</u>	B Three-digit plan number (PN) ▶ <u>007</u>
C Plan sponsor's name as shown on line 2a of Form 5500 <u>FERRO CORPORATION</u>	D Employer Identification Number (EIN) <u>34-0217820</u>

Part I	Distributions
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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	<u>0</u>
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): <u>23-3060382</u> <u>06-1050034</u>		
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	<u>40</u>

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.)
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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
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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
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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.
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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

For Paperwork Reduction Act Notice, see the Instructions for Form 5500.

Schedule R (Form 5500) 2018
v. 171027

Part V Additional Information for Multiemployer Defined Benefit Pension Plans

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

a Name of contributing employer

b EIN

c Dollar amount contributed by employer

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

e Contribution rate information (If more than one rate applies, check this box ☐ and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)

(1) Contribution rate (in dollars and cents) _____

(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify): _____

a Name of contributing employer

b EIN

c Dollar amount contributed by employer

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

e Contribution rate information (If more than one rate applies, check this box ☐ and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)

(1) Contribution rate (in dollars and cents) _____

(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify): _____

a Name of contributing employer

b EIN

c Dollar amount contributed by employer

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

e Contribution rate information (If more than one rate applies, check this box ☐ and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)

(1) Contribution rate (in dollars and cents) _____

(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify): _____

a Name of contributing employer

b EIN

c Dollar amount contributed by employer

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

e Contribution rate information (If more than one rate applies, check this box ☐ and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)

(1) Contribution rate (in dollars and cents) _____

(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify): _____

a Name of contributing employer

b EIN

c Dollar amount contributed by employer

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

e Contribution rate information (If more than one rate applies, check this box ☐ and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)

(1) Contribution rate (in dollars and cents) _____

(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify): _____

a Name of contributing employer

b EIN

c Dollar amount contributed by employer

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

e Contribution rate information (If more than one rate applies, check this box ☐ and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)

(1) Contribution rate (in dollars and cents) _____

(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify): _____

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

a The current year

b The plan year immediately preceding the current plan year

c The second preceding plan year

14a**14b****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

b The corresponding number for the second preceding plan year

15a**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

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

16a**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: 58.7% Investment-Grade Debt: 29.1% High-Yield Debt: 5.9% Real Estate: 6.3% 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):



Ferro Corporation Pension Plan for Legacy Employees

Financial Statements and Supplemental Schedules

As of December 31, 2018 and 2017, and for the
year ended December 31, 2018 and the period from
October 31, 2017 to December 31, 2017

Ferro Corporation Pension Plan for Legacy Employees

Financial Statements and Supplemental Schedules

As of December 31, 2018 and 2017, and for the year ended December 31, 2018 and
the period from October 31, 2017 to December 31, 2017

Ferro Corporation Pension Plan for Legacy Employees

Contents

Independent Auditor's Report	3-4
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Financial Statements

Statements of Net Assets Available for Benefits	6
Statements of Changes in Net Assets Available for Benefits	7
Notes to Financial Statements	8-16

Supplemental Schedules

Schedule H, Line 4i - Schedule of Assets (Held at End of Year)	18
Schedule H, Line 4j - Schedule of Reportable Transactions	19



Independent Auditor's Report

Ferro Corporation Plan Administrator
Ferro Corporation Pension Plan for Legacy Employees
Mayfield Heights, Ohio

Report on the Financial Statements

We were engaged to audit the accompanying financial statements of the Ferro Corporation Pension Plan for Legacy Employees (the Plan), which comprise the statements of net assets available for benefits as of December 31, 2018 and 2017, and the related statements of changes in net assets available for benefits for the year ended December 31, 2018, and for the period from October 31, 2017 to December 31, 2017, and the related notes to the financial statements.

Management's Responsibility for the Financial Statements

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

Auditor's Responsibility

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

Basis for Disclaimer of Opinion

As permitted by 29 CFR 2520.103-8 of the Department of Labor's Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act of 1974, the plan administrator instructed us not to perform, and we did not perform, any auditing procedures with respect to the information summarized in Note 3, which was certified by SEI Private Trust Company, the trustee and custodian of the plan, and Aetna Life and Casualty Insurance Company Group and Prudential Retirement Insurance & Annuity Company, the custodians of the Plan, except for comparing such information with the related information included in the financial statements. We have been informed by the plan administrator that the trustee and custodians hold the Plan's investment assets and execute investment transactions. The plan administrator has obtained certifications from the trustee and custodians as of December 31, 2018 and 2017, and for the year ended December 31, 2018, and for the period from October 31, 2017 to December 31, 2017 that the information provided to the plan administrator by the trustee and custodians is complete and accurate.

Disclaimer of Opinion

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

Other Matter

The supplemental schedules of Assets (Held at End of Year) as of December 31, 2018 and of Reportable Transactions for the year ended December 31, 2018 are required by the Department of Labor's (DOL) Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act of 1974 and are presented for the purpose of additional analysis and are not a required part of the financial statements. Because of the significance of the matter described in the *Basis for Disclaimer of Opinion* paragraph, we do not express an opinion on the supplemental schedules referred to above.

Report on Form and Content in Compliance With DOL Rules and Regulations

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

BDO USA, LLP

Cleveland, Ohio
October 8, 2019

Financial Statements

Ferro Corporation Pension Plan for Legacy Employees

Statements of Net Assets Available for Benefits

<i>December 31,</i>	2018	2017
Assets		
Investments, at fair value:		
Money Market Fund	\$ -	\$ 3,038
Ferro Corporation Common Stock	4,439,024	6,678,353
Equity Mutual Funds	109,754,726	129,863,995
Fixed Income Mutual Funds	74,233,181	74,484,597
Common/Collective Trust	12,772,740	24,079,765
Prudential Trust Company pooled separate accounts	1,425,384	1,935,986
Total investments, at fair value	202,625,055	237,045,734
Investments, at contract value:		
Prudential Trust Company general account	582,062	674,344
Aetna Life and Casualty Insurance Company group annuity contract	1,141,439	1,150,975
Total investments, at contract value	1,723,501	1,825,319
Total investments	204,348,556	238,871,053
Employer contribution receivable	1,235,834	-
Other receivable	-	787,201
Accrued income	76,576	390,119
Net Assets Available for Benefits	\$ 205,660,966	\$ 240,048,373

See accompanying notes to financial statements.

Ferro Corporation Pension Plan for Legacy Employees

Statements of Changes in Net Assets Available for Benefits

	Year Ended December 31, 2018	Period From October 31, 2017 to December 31, 2017
Net Investment (Loss) Income		
Net (depreciation) appreciation in fair value of investments	\$ (18,904,092)	\$ 5,793,215
Dividend income	5,540,996	482,504
Interest income	76,344	2
Total Net Investment (Loss) Income	(13,286,752)	6,275,721
Employer contributions	1,235,834	-
Deductions from Net Assets Attributed to:		
Benefits paid to participants	19,423,850	4,163,094
Benefits paid to insurance carrier for the provision of benefits	-	42,893,298
Administrative expenses	2,912,639	466,184
Total Deductions	22,336,489	47,522,576
Transfer from the Ferro Corporation Pension Plan	-	281,295,228
Net (Decrease) Increase	(34,387,407)	240,048,373
Net assets available for benefits, beginning of period	240,048,373	-
Net assets available for benefits, end of period	\$ 205,660,966	\$ 240,048,373

See accompanying notes to financial statements.

Ferro Corporation Pension Plan for Legacy Employees

Notes to Financial Statements

1. Description of the Plan

The following brief description of the Ferro Corporation Pension Plan for Legacy Employees (the Plan) is provided for general information purposes only. Participants should refer to the Plan document for more complete information.

General

The Plan was established on October 31, 2017 as a result of a spin-off from the Ferro Corporation Pension Plan and is a frozen defined benefit pension plan sponsored by Ferro Corporation (the Company) under which certain salaried and hourly rate employees at various facilities of the Company have frozen accrued benefits. Assets and benefit obligations were transferred to the Plan from the Ferro Corporation Pension Plan (the predecessor plan) as part of a spin-off. Participants and beneficiaries meeting certain requirements were transferred to the Plan.

Benefits

Plan participants stopped accruing benefits at various dates prior to January 1, 2011. Under terms of the Plan document, participants are eligible for monthly normal retirement benefit payments upon retirement after reaching age 65, or they may retire on or after age 55 (age 60 at the Baton Rouge, Niagara Falls and Nashville facilities) and receive early retirement benefits provided they are credited with at least 10 years of Credited Service (15 years of Credited Vesting Service at the Niagara Falls and Nashville facilities). Normal monthly benefits are determined by multiplying the number of years of credited service by a monthly benefit factor. Refer to the Plan document for a more complete description of the different applicable benefit factors and the dates on which benefit accruals ceased at the covered locations.

In December 2017, the Plan purchased annuities from an insurance carrier for a select group of participants and transferred the Plan's liability to make annuity payments for this group to the insurance company, which significantly reduced the actuarial present value of accumulated plan benefits (See Note 6).

The Plan was amended, effective April 11, 2018, to allow distributions to eligible participants who have attained age 62 and who have not separated from employment at the time of such distribution (subject to Department of Labor regulations related to disability claims).

Death and Disability Benefits

Prior to January 1, 2011, the predecessor Plan provided for disability benefits for active participants who terminated employment due to permanent and total disability. A range of five to fifteen years of Credited Vesting Service, depending on the facility, were needed to become vested in accrued benefits under the Plan.

If a participant eligible for vested benefits dies before benefit payments begin, the surviving spouse may be entitled to a death benefit equal to the survivor portion under the Plan's joint and 50% survivor annuity. Any active participant who became eligible for disability retirement payments under the Plan prior to January 1, 2011, receives disability benefits that are equal to his or her accrued benefit as of the time of disability.

Ferro Corporation Pension Plan for Legacy Employees

Notes to Financial Statements

Cash-outs

If a participant terminates employment, and the present value of his or her vested accrued benefit on his or her severance date does not exceed \$1,000, the Plan will distribute the present value of such vested accrued benefit to the participant.

Trustees and Custodians

Under the terms of the fiduciary agreement between SEI Private Trust Company (SEI) and the Plan, SEI manages assets of the Plan and has been granted discretionary authority concerning purchases and sales of investments in the trust fund. The investments as of December 31, 2018 and 2017 and investment income or loss of the Plan assets for the year ended December 31, 2018 and for the period from October 31, 2017 to December 31, 2017 (as disclosed in the accompanying financial statements) have been certified as complete and accurate as reported to the Plan by SEI.

Under the terms of the fiduciary agreement between Prudential Retirement Insurance & Annuity Company (Prudential) and the Plan, Prudential manages assets of the Plan and has been granted discretionary authority concerning purchases and sales of investments in the trust fund. The investments of the Plan are maintained by Prudential in a general account and several separate pooled investment accounts. The investments as of December 31, 2018 and 2017 and investment income or loss of the Plan assets for the year ended December 31, 2018 and for the period from October 31, 2017 to December 31, 2017 (as disclosed in the accompanying financial statements) have been certified as complete and accurate as reported to the Plan by Prudential.

Under the terms of the fiduciary agreement between Aetna Life and Casualty Insurance Company (Aetna) and the Plan, Aetna manages assets of the Plan and has been granted discretionary authority concerning purchases and sales of investments in the trust fund. The investments of the Plan are maintained by Aetna in a general annuity contract. The investments as of December 31, 2018 and 2017 and investment income or loss of the Plan assets for the year ended December 31, 2018 and for the period from October 31, 2017 to December 31, 2017 (as disclosed in the accompanying financial statements) have been certified as complete and accurate as reported to the Plan by Aetna.

2. Summary of Significant Accounting Policies

Administrative Expenses

All expenses of administering the Plan are paid from the Plan assets. Expenses directly related to the Plan are paid from the Plan unless the Company elects to pay them.

Basis of Presentation

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

Ferro Corporation Pension Plan for Legacy Employees

Notes to Financial Statements

Investments

Fair market value is measured by the quoted market price as of the end of the Plan year. Purchases and sales of mutual funds are recorded on a settlement-date basis and purchases and sales of stocks are recorded on a trade-date basis plus one day. Realized gains and losses are recorded on the same day as the sales. The above method does not have a material impact on the financial statements when compared to recording on a trade-date basis.

The Plan invests in assets contained in pooled separate accounts consisting principally of investments in intermediate-term, privately placed debt securities; high-grade, publicly traded debt securities; publicly marketed equity securities; and real estate equities. The investments and changes therein of the pooled separate accounts have been reported to the Plan by Prudential Retirement Insurance & Annuity Company at fair value.

The Plan also invests in a group annuity contract with Aetna Life and Casualty Insurance Company. The valuation of the investment and changes therein are stated at contract value.

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, 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 are made and the actuarial present value of accumulated plan benefits is reported based on certain assumptions pertaining to interest rates, inflation rates and employee demographics, all of which are subject to change. Due to the uncertainties inherent in the estimation and assumption processes, it is at least reasonably possible that changes in these estimates and assumptions in the near term could materially affect the amounts reported and disclosed in the financial statements.

Accumulated Plan Benefits

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

Use of Estimates

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

Ferro Corporation Pension Plan for Legacy Employees

Notes to Financial Statements

Evaluation of Subsequent Events

The Company has evaluated subsequent events through October 8, 2019, which is the date the financial statements were available to be issued.

3. Certified Information

The plan administrator has elected the method of compliance permitted by 29 CFR 2520.103-8 of the Department of Labor's Rules and Regulations for Reporting and Disclosure under ERISA. Accordingly, as permitted under such election, the plan administrator has obtained certifications from the trustee and custodians of the Plan that all of the information provided by them is complete and accurate. Information included in the accompanying financial statements as to investments administered by the trustee, accrued investment income, and net investment income is presented in reliance solely upon those certificates.

4. Investment Contracts with Insurance Companies

The plan has a benefit-responsive investment fixed annuity contract with Prudential Retirement Insurance & Annuity Company. Assets contained in the general account consist of an immediate participation guarantee contract, which is invested primarily in publicly traded and privately placed debt securities and mortgage loans. Participants of the guaranteed deposit account receive a book value account interest rate that is determined based on the anticipated market returns in the general fund, in addition to any plan-specific contract charges. The declared interest rates for the year ended December 31, 2018 and the period from October 31, 2017 to December 31, 2017 ranged from 3.10% to 3.53% and 2.55% to 4.02%, respectively.

The plan has a benefit-responsive investment group annuity contract with Aetna Life and Casualty Insurance Company. Assets contained in the general account consist of an immediate participation guarantee contract, which is invested primarily in publicly traded and privately placed debt securities and mortgage loans. Participants of the fixed income account receive a book value account interest rate that is determined based on the anticipated market returns in the general fund, in addition to any plan-specific contract charges. The average annual effective interest rate for the year ended December 31, 2018 and the period from October 31, 2017 to December 31, 2017 was 5.13% and 4.92%, respectively. This rate does not reflect any reduction due to contract service fees.

Participants may ordinarily direct the withdrawal or transfer of all or a portion of their investment contract value.

5. Fair Value Measurements

Accounting Standards Codification (ASC) 820, Fair Value Measurements and Disclosure, defines fair value and provides guidance for measuring fair value and expands disclosures about fair value measurements in accordance with accounting principles generally accepted in the United States of America. ASC 820 does not require any new fair value measurements, but rather applies to all other accounting pronouncements that require or permit fair value measurements. ASC 820 establishes a framework for measuring fair value. That framework provides a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurements) and the lowest priority to unobserved inputs (Level 3 measurements).

Ferro Corporation Pension Plan for Legacy Employees

Notes to Financial Statements

The three levels of the fair value hierarchy are described below:

Level 1: Inputs to the valuation methodology are unadjusted quoted prices for identical assets or liabilities in active markets that the Plan has the ability to access.

Level 2: Inputs to the valuation methodology include:

- Quoted prices for similar assets or liabilities in active markets;
- Quoted prices for identical or similar assets or liabilities in inactive markets;
- Inputs other than quoted prices that are observable for the asset or liability; and
- Inputs that are derived principally from or corroborated by observable market data by correlation or other means.

If the asset or liability has a specified (contractual) term, the Level 2 input must be observable for substantially the full term of the asset or liability.

Level 3: Inputs to the valuation methodology are unobservable and significant to the fair value measurements.

The asset's or liability's fair value measurement level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement. Valuation techniques used need to maximize the use of observable inputs and minimize the use of unobservable inputs.

Following is a description of the valuation methodologies used for assets measured at fair value.

Ferro common stock: Valued at the closing price reported on the active market on which the individual security is traded.

Registered investment companies/mutual funds: Valued at the daily closing price as reported by the fund. Mutual funds held by the Plan are open-end mutual funds that are registered with the Securities and Exchange Commission. These funds are required to publish their daily net asset value (NAV) and to transact at that price. The mutual funds held by the Plan are deemed to be actively traded.

Common/collective trusts and pooled separate accounts: Valued at the NAV of units of a bank collective trust. The NAV, as provided by the trustee, is used as a practical expedient to estimate fair value. The NAV is based on the fair value of the underlying investments held by the fund less its liabilities. This practical expedient is not used when it is determined to be probable that the fund will sell the investment for an amount different than the reported NAV. Transactions (purchases and sales) may occur daily. Were the Plan to initiate a full redemption of the collective trust, the investment adviser reserves the right to temporarily delay withdrawal from the trust in order to ensure that securities liquidations will be carried out in an orderly business manner.

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

Ferro Corporation Pension Plan for Legacy Employees

Notes to Financial Statements

The following table sets forth by level, within the fair value hierarchy, the Plan's assets at fair value as of December 31, 2018 and 2017:

	Level 1	Level 2	Level 3	Total
Equity Mutual Funds	\$109,754,726	\$ -	\$ -	\$ 109,754,726
Fixed Income Mutual Funds	74,233,181	-	-	74,233,181
Common/Collective Trust*	-	-	-	12,772,740
Ferro Corporation Stock	4,439,024	-	-	4,439,024
Prudential Trust Company pooled separate accounts*	-	-	-	1,425,384
Balance, December 31, 2018	\$188,426,931	\$ -	\$ -	\$ 202,625,055

	Level 1	Level 2	Level 3	Total
Equity Mutual Funds	\$ 129,863,995	\$ -	\$ -	\$ 129,863,995
Fixed Income Mutual Funds	74,484,597	-	-	74,484,597
Common/Collective Trust*	-	-	-	24,079,765
Ferro Corporation Stock	6,678,353	-	-	6,678,353
Money Market Fund	3,038	-	-	3,038
Prudential Trust Company pooled separate accounts*	-	-	-	1,935,986
Balance, December 31, 2017	\$ 211,029,983	\$ -	\$ -	\$ 237,045,734

*In accordance with ASC 820-10, certain investments that were measured at NAV (or its equivalent) as a practical expedient have not been classified in the fair value hierarchy. The fair value amounts presented in the tables above for the investments in common/collective trusts and pooled separate accounts are to permit reconciliation of the fair value hierarchy to the line items presented in the statement of net assets available for benefits.

Ferro Corporation Pension Plan for Legacy Employees

Notes to Financial Statements

6. Actuarial Present Value of Accumulated Plan Benefits

The actuarial present value of accumulated plan benefits was determined by an actuarial consulting firm, and it is that amount that results from applying actuarial assumptions to adjust the accumulated plan benefits to reflect the probability of payment and the time-value of money between the valuation date and the expected date of payment. The significant actuarial assumptions used to calculate the value of vested benefits and accrued benefits for the year beginning January 1, 2018 and for the short plan year beginning October 31, 2017 include:

- Expected investment return rate of 7.00% for 2018 and 7.75% for 2017;
- Assumed rates of mortality, turnover, and disability based on published statistical data;
- Assumed a range of 70% to 85% of participants are married, with males having spouses who are three years younger and females having spouses who are three years older;
- Normal retirement at age 65,
- Administrative expenses will continue to be paid from the trust.

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.

The total actuarial present value of accumulated plan benefits as of January 1, 2018 and October 31, 2017 is as follows:

	January 1, 2018	October 31, 2017
Vested benefits		
Participants currently receiving payments	\$ 161,013,107	\$ 178,458,715
Other participants	60,261,742	60,810,641
Total vested benefits	221,274,849	239,269,356
Nonvested benefits	1,036,108	1,451,333
Total actuarial present value of accumulated plan benefits	\$ 222,310,957	\$ 240,720,689

Ferro Corporation Pension Plan for Legacy Employees

Notes to Financial Statements

The changes in the actuarial present value of accumulated Plan benefits from the previous benefit information date were as follows:

Actuarial present value of accumulated Plan benefits, October 31, 2017	\$ 240,720,689
Increase (decrease) during the year due to:	
Benefits accumulated and losses	13,142,553
Decrease in discount period	2,782,100
Benefits paid	(4,163,094)
Plan's purchase of annuities (December 2017)	(43,578,100)
Change in actuarial assumptions	13,406,809

Actuarial present value of accumulated Plan benefits, January 1, 2018	\$ 222,310,957
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The primary difference between the Plan's purchase of annuities (December 2017) line item included in the table above and the amount reported as benefits paid to insurance carrier for the provision of benefits on the statements of changes in net assets available for benefits is a receivable due to an amendment of the annuity contract.

7. Funding Policy

The Company has voluntarily agreed to make contributions to the Plan sufficient to provide the Plan with assets with which to pay pension benefits to Plan participants. The Company's contributions are determined pursuant to an actuarial cost method and are designed to meet the minimum funding requirements of ERISA. The Company's contribution for 2018 met the ERISA minimum funding requirements as determined by independent actuaries. The Company did not make a contribution to the Plan during 2017.

8. Plan Termination

Although it has not expressed any intention to do so, the Company has the right under the Plan to discontinue its contributions at any time and to terminate the Plan subject to provisions set forth in ERISA.

Under provisions of ERISA, if the Plan is terminated, the Company may be obligated to make termination payments to the Plan and participants may be eligible for continuation of benefits under insurance provided by the Pension Benefit Guaranty Corporation (PBGC).

Certain benefits under the Plan are insured by the PBGC if the Plan terminates. Generally, the PBGC guarantees most vested normal-age retirement benefits, early retirement benefits, and certain disability and survivor's pensions. However, the PBGC does not guarantee all types of benefits under the Plan and the amount of benefit protection is subject to certain limitations.

In the event of a complete termination of the Plan, the assets then remaining in the Plan, after providing for expenses of administration, shall be allocated, to the extent that they shall be sufficient, for the purpose of funding the accrued benefits to the date of termination of the Plan for all pensioners, participants, vested former participants, and beneficiaries in the manner and order of precedence required under the terms of Section 4044 of ERISA. Any funds remaining in the Plan after funding in full all of the accrued benefits to the termination date of the Plan, shall revert

Ferro Corporation Pension Plan for Legacy Employees

Notes to Financial Statements

to the Company. In the event of a partial termination of the Plan, the portion of the assets of the Plan relating to the terminated portion of the Plan shall be allocated as aforesaid for the purpose of funding the accrued benefits of pensioners, participants, vested former participants, and beneficiaries whose benefit rights are affected by such partial termination.

9. Party-in-Interest Transactions

Certain Plan investments were/are managed by SEI Private Trust Company (trustee), Prudential Retirement Insurance & Annuity Company (custodian) and Aetna Life and Casualty Insurance Company (custodian). The Plan paid certain expenses related to plan operations and investment activities to these service providers.

10. Federal Income Tax Status

The Plan obtained its latest determination letter on July 13, 2018, in which the Internal Revenue Service stated that the Plan, as then designed, was in compliance with the applicable requirements of the Internal Revenue Code. The plan administrator and the Plan's tax counsel believe that the Plan is currently designed and is being operated in compliance with the applicable requirements of the Internal Revenue Code. Therefore, no provision for income taxes has been included in the Plan's financial statements.

Accounting principles generally accepted in the United States of America 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 tax authorities. The plan administrator has analyzed the tax positions taken by the Plan, and has concluded that as of December 31, 2018 and 2017, there are no uncertain positions taken or expected to be taken that would require recognition of a liability (or asset) or disclosure in the financial statements. The Plan is subject to routine audits by taxing jurisdictions; however, there are currently no audits for any tax periods in progress.

Schedule SB, Line 26 — Schedule of Active Participant Data

ATTAINED AGE	YEARS OF CREDITED SERVICE										TOTAL
	UNDER 1	1–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40 & UP	
Under 25											0
25–29											0
30–34											0
35–39	1	1	1								3
40–44		2	18	2							22
45–49		7	28	10	4						49
50–54		1	24	17	23	9					74
55–59		3	33	17	17	22	8	2			102
60–64		2	45	7	10	6	10	3			83
65–69		2	13	2		2		7			26
70 & up					1		1	3			5
Total	1	18	162	55	55	39	19	15	0	0	364

In each cell, the 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, 2018 FUNDING VALUATION

DISCOUNT RATE SPONSOR ELECTIONS

• Segment rates or full yield curve	Segment	
• Look-back months	0	
	<u>Stabilized</u>	<u>Nonstabilized</u>
• First 5 years	3.92%	1.81%
• Next 15 years	5.52%	3.68%
• Over 20 years	6.29%	4.53%

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 projected with mortality improvement based on Scale MP-2016.	
• Pre-1995 disabilities	None	
• Post-1994 disabilities	<u>Former Corporate Plan</u>	<u>Former Hourly Plan</u>
	Revenue Ruling 96-7 table for participants who became disabled after 1994 and are eligible for Social Security disability benefits.	Same as healthy

Other economic assumptions

• Salary increases	Not applicable.
• Flat-dollar benefit increases	Not applicable.
• Social Security wage base	Not applicable.
• Inflation	Not applicable.
• Expected investment return	7.00% per year for 2018, 7.75% per year for 2017 and 8.00% per year for 2016
• Expenses	\$2,040,000 added to current year normal cost.

*Schedule SB, Part V — Statement of Actuarial Assumptions/Methods***RATIONALE FOR ECONOMIC ASSUMPTIONS**

- **Discount Rate** - These are the IRS prescribed rates. The plan sponsor elected this methodology from alternative IRS prescribed options.
- **Mortality sponsor elections** - These are the current IRS prescribed table and mortality improvement projection scale. The plan sponsor elected this methodology from alternative IRS prescribed options.
- **Expected investment return** – The interest rate is based on a 65% historical and 35% forward-looking blend of the capital market assumptions published in Mercer Investment Consulting's Capital Market Outlook dated July 2017 for the plan's target asset mix, net of an adjustment of 20 basis points for investment expenses assumed to be paid from plan assets, rounded to the nearest 25 basis points.
- **Expenses** - Expenses are based on year-by-year experience for actual administrative expenses paid from plan assets. Adjustments are made for any known significant changes.

DEMOGRAPHIC ASSUMPTIONS

	<u>Former Corporate Plan</u>	<u>Former Hourly Plan</u>
• Withdrawal	See table of sample rates.	For employees with less than five years of service, 20% withdrawal rate is assumed for all ages. For employees with five to ten years of service, 10% withdrawal rate is assumed for all ages. For participants with more than ten years of service, see table of sample rates.
• Disability incidence	The assumed incidence of disability is based on rates from the 1985 Pension Disability Table, Class 1, for male and females. See table of sample rates.	The assumed incidence of disability is based on rates from the 1985 Pension Disability Table, Class 3, for male and females. See table of sample rates.

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

- Retirement age for Former Corporate Plan

Attained age	Percentage
Under 55	0%
55	5%
56	5%
57	5%
58	5%
59	5%
60	15%
61	15%
62	15%
63	25%
64	25%
65	40%
66	40%
67 and above	100%

- Retirement age for Former Hourly Plan

Attained Age	All Employees (except Cleveland Participants with 30+ years of credit benefit service)	Attained Age	Cleveland Participants with 30+ years of credited benefit service
60	10.00%	55-59	15.00%
61	10.00%	60	15.00%
62	20.00%	61	15.00%
63	15.00%	62	40.00%
64	15.00%	63	40.00%
65	40.00%	64	40.00%
66	40.00%	65	100.00%
67	100.00%		

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

• Benefit commencement age for		
– Future & Current vested deferred	65	
• Spouse assumptions	<u>Male participants</u>	<u>Female participants</u>
– Percentage married for Former Corporate Plan	70%	70%
– Percentage married for Former Hourly Plan	85%	85%
– Spouse age difference	3 years younger	3 years older
Form of payment for Former Corporate Plan	<u>Life annuity with 10 years certain</u>	<u>50% Joint & Survivor with 10 years certain</u>
• Active retirements	30%	70%
• Future vested deferred	30%	70%
• Future disabilities	30%	70%
• Future deaths	30%	70%
• Current vested deferred	30%	70%
Form of payment for Former Hourly Plan	<u>Single Life</u>	<u>50% J&S</u>
• Active retirements	50%	50%
• Future vested deferred	50%	50%
• Future disabilities	100%	0%
• Future deaths	0%	100%
• Current vested deferred	50%	50%
100% of Cleveland participants are assumed to take a life annuity for active retirement and future vested deferred benefits.		
Unpredictable contingent event assumptions	Not applicable.	
At-risk assumptions		
• Special retirement rates	Not applicable.	
• Most valuable form of payment	Not applicable.	

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

Table of Sample Rates for Former Corporate Plan

ATTAINED AGE	PERCENTAGE		
	WITHDRAWAL	DISABILITY INCIDENCE	
		MALE	FEMALE
20	24.00%	0.029%	0.030%
25	24.00	0.038	0.047
30	18.20	0.048	0.080
35	14.70	0.069	0.136
40	12.90	0.117	0.211
45	12.10	0.202	0.323
50	11.60	0.358	0.533
55	10.40	0.722	0.952
60	9.40	1.256	1.159
65	0.00	1.753	1.358

Table of Sample Rates for Former Hourly Plan

ATTAINED AGE	PERCENTAGE		
	WITHDRAWAL (WITH MORE THAN 10 YEARS OF SERVICE)	DISABILITY INCIDENCE	
		MALE	FEMALE
20	12.30%	0.151%	0.089%
25	10.30	0.219	0.150
30	8.20	0.309	0.252
35	6.40	0.431	0.388
40	5.00	0.597	0.547
45	3.90	0.829	0.777
50	3.00	1.224	1.201
55	2.30	2.118	1.962
60	1.70	3.240	2.326
65	0.00	4.369	2.718

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

RATIONALE FOR DEMOGRAPHIC ASSUMPTIONS

- **Retirement Age** – Retirement age assumption has been developed based on the historical experience of the plan. Annual review of the experience has shown that this assumption provides similar results to the actual retirement ages experienced under the plan.
- **Turnover Rates** - Turnover rates have been developed based on the historical experience of the plan. Annual review of the experience has shown that these rates provide similar results to the actual rates of termination experienced under the plan.
- **Retirement Rates** - Retirement rates have been developed based on the historical experience of the plan and the retirement subsidies the plan offers at various ages. Annual review of the experience has shown that these rates provide similar results to the actual rates of retirement experienced under the plan.
- **Disability Rates** – Based on the 1985 Pension Disability Study rates, applicable to the populations of each former plan. Annual review of the experience has shown that these rates provide similar results to the actual rates of disability experienced under the plan.
- **Percent Married/Spouse Age Difference** –The assumptions regarding percent married/spouse age difference at benefit commencement are based on an evaluation of the employer's past experience.
- **Form of payment Election** – The assumptions regarding form of payment election at benefit commencement are based on an evaluation of the employer's past experience.

*Schedule SB, Part V — Statement of Actuarial Assumptions/Methods***ACTUARIAL METHODS FOR FUNDING****Asset Methods**

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

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

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 for only those employees who have completed the plan's eligibility requirements and are included in the valuation of liabilities.
- **Participants excluded:** No actuarial liability is included for nonvested participants who terminated prior to the valuation date. For this purpose, participants with a break in service on the valuation date are treated as terminated participants.
- **Insurance contracts:** Liabilities and assets from insurance contracts have been included in the valuation.

*Schedule SB, Part V — Statement of Actuarial Assumptions/Methods***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 are the sum of the component funding targets and target normal costs associated with the various anticipated separation dates.
- This plan provides benefits that are not a function of a participant's accrued benefit or years of service. This benefit is allocated to funding target based on the ratio of the participant's service at the beginning of the plan year to their service at each decrement age and is allocated to target normal cost based on the proportionate benefit attributable to the increase in the participant's service and compensation during the plan year.
- This plan provides disability/death benefits that are only partially based on a participant's accrued benefit or years of service. This benefit is allocated to funding target based on the accrued benefit on the valuation date plus a portion of the excess of the benefit over the accrued benefit multiplied by the ratio of the participant's service at the beginning of the plan year to their service at each decrement age. This benefit is allocated to target normal cost based on the proportionate benefit attributable to the increase in the participant's service and compensation during the plan year.
- The plan's **target normal cost** is the sum of the individual target normal costs, and the plan's **funding target** is the sum of the individual funding targets for all participants under the plan.

Ferro Corporation Pension Plan for Legacy Employees

Schedule H, Line 4j - Schedule of Reportable Transactions

EIN: 34-0217820

Plan No: 007

Year Ended December 31, 2018

(a) & (b)	(c)	(d)	(g)	(h)	(i)
Description of Asset and Identity of Party Involved	Purchase Price	Selling Price	Cost of Asset	Current Value of Asset on Transaction Date	Net Gain (Loss)
Category (i) - Single transactions in excess of 5% of plan assets					
SEI Government Fund (1 transaction)	\$ 12,600,000		\$ 12,600,000	\$ 12,600,000	
SEI Government Fund (1 transaction)		\$ 12,600,000	\$ 12,600,000	\$ 12,600,000	\$ -
SEI Large Cap Fund (1 transaction)	\$ 15,098,978		\$ 15,098,978	\$ -	
SEI Core Property Collective Inv Trust (1 transaction)		\$ 12,600,000	\$ 7,437,963	\$ 12,600,000	\$ 5,162,037
Category (iii) - Series of transactions in excess of 5% of plan assets					
SEI Government Fund (62 transactions)	\$ 14,316,452		\$ 14,316,452	\$ 14,316,452	
SEI Government Fund (41 transactions)		\$ 14,319,489	\$ 14,319,489	\$ 14,319,489	\$ -
SEI Large Cap Fund (25 transactions)	\$ 19,785,384		\$ 19,785,384	\$ 19,785,384	
SEI Large Cap Fund (103 transactions)		\$ 8,176,347	\$ 8,139,509	\$ 8,176,347	\$ 36,838
SEI Opportunistic Income Fund (21 transactions)	\$ 7,980,927		\$ 7,980,927	\$ 7,980,927	
SEI Opportunistic Income Fund (103 transactions)		\$ 5,745,543	\$ 5,725,281	\$ 5,745,543	\$ 20,262

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 2018 This Form is Open to Public Inspection
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For calendar plan year 2018 or fiscal plan year beginning 01/01/2018 and ending 12/31/2018

► **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 Ferro Corporation Pension Plan for Legacy Employees	B Three-digit plan number (PN) ► 007
C Plan sponsor's name as shown on line 2a of Form 5500 or 5500-SF Ferro Corporation	D Employer Identification Number (EIN) 34-0217820
E Type of plan: ☒ Single ☐ Multiple-A ☐ Multiple-B	F Prior year plan size: ☐ 100 or fewer ☐ 101-500 ☒ More than 500

Part I Basic Information			
1 Enter the valuation date: Month 01 Day 01 Year 2018			
2 Assets:			
a Market value.....		2a	239,261,171
b Actuarial value.....		2b	239,261,171
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	1,331	180,021,865	180,021,865
b For terminated vested participants	764	37,328,516	37,328,516
c For active participants	364	32,738,496	34,134,511
d Total	2,459	250,088,877	251,484,892
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	5.61%	
6 Target normal cost	6	2,057,014	

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	JFT	9/24/19
James Trotier	Signature of actuary	Date
Mercer	Type or print name of actuary	1708425
	Firm name	Most recent enrollment number
200 Public Square		216-830-8027
Suite 3760		Telephone number (including area code)
Cleveland OH 44114	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 ☐

For Paperwork Reduction Act Notice, see the Instructions for Form 5500 or 5500-SF.

Schedule SB (Form 5500) 2018
v. 171027

Part II Beginning of Year Carryover and Prefunding Balances

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	6,540,424
8	Portion elected for use to offset prior year's funding requirement (line 35 from prior year)	0	9,292
9	Amount remaining (line 7 minus line 8).....	0	6,531,132
10	Interest on line 9 using prior year's actual return of <u>13.97%</u>	0	152,067
11	Prior year's excess contributions to be added to prefunding balance:		
	a Present value of excess contributions (line 38a from prior year).....		0
	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 <u>5.78%</u>		0
	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.....		0
	d Portion of (c) to be added to prefunding balance.....		0
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	6,683,199

Part III Funding Percentages

14	Funding target attainment percentage	14	92.48%
15	Adjusted funding target attainment percentage	15	93.59%
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	100.44%
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:

Contributions made to the plan for the plan year by employer(s) and employee.					
(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
09/06/2019	1,235,834	0			
			Totals ►	18(b)	1,235,834 18(c)

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	1,127,583

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
0	0	0	0

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

21 Discount rate:				
a Segment rates:	1st segment: 3.92 %	2nd segment: 5.52 %	3rd segment: 6.29 %	☐ N/A, full yield curve used
b Applicable month (enter code)	21b			0
22 Weighted average retirement age	22			62
23 Mortality table(s) (see instructions)	Prior regulation:	☐ Prescribed - combined	☐ Prescribed - separate	☐ Substitute
	Current regulation:	☐ Prescribed - combined	☒ Prescribed - separate	☐ Substitute

Part VI Miscellaneous Items

24 Has a change been made in the non-prescribed actuarial assumptions for the current plan year? If "Yes," see instructions regarding required attachment.	☒ Yes	☐ No
25 Has a method change been made for the current plan year? If "Yes," see instructions regarding required attachment.	☐ Yes	☒ No
26 Is the plan required to provide a Schedule of Active Participants? If "Yes," see instructions regarding required attachment.	☒ Yes	☐ No
27 If the plan is subject to alternative funding rules, enter applicable code and see instructions regarding attachment	27	

Part VII Reconciliation of Unpaid Minimum Required Contributions For Prior Years

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

Part VIII Minimum Required Contribution For Current Year

31 Target normal cost and excess assets (see instructions):			
a Target normal cost (line 6)	31a	2,057,014	
b Excess assets, if applicable, but not greater than line 31a	31b	0	
32 Amortization installments:	Outstanding Balance	Installment	
a Net shortfall amortization installment	18,906,920	3,086,552	
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	5,143,566	
	Carryover balance	Prefunding balance	Total balance
35 Balances elected for use to offset funding requirement	0	4,015,983	4,015,983
36 Additional cash requirement (line 34 minus line 35)	36	1,127,583	
37 Contributions allocated toward minimum required contribution for current year adjusted to valuation date (line 19c)	37	1,127,583	
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, 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.

Group A

Retirement Rate for Cleveland Participants with 30+ Years of Credited Vesting Service

(A)	(B)	(C)	(D)	(E)
RETIREMENT AGE	RETIREMENT PERCENT	LX	NUMBER OF EMPLOYEES EXPECTED TO RETIRE (B) x (C)	(A) x (D)
55	15%	100,000	15,000	825,000
56	15%	85,000	12,750	714,000
57	15%	72,250	10,838	617,738
58	15%	61,413	9,212	534,289
59	15%	52,201	7,830	461,976
60	15%	44,371	6,656	399,335
61	15%	37,715	5,657	345,092
62	40%	32,058	12,823	795,031
63	40%	19,235	7,694	484,713
64	40%	11,541	4,616	295,444
65	100%	6,924	6,924	450,090
Total			100,000	5,922,706
Average				59.23

*Schedule SB, Line 22 — Description of Weighted Average Retirement Age***Group B**

Retirement Rate for Participants at all former Various Plan Locations except Cleveland Participants with 30+ Years of Credited Vesting Service.

(A)	(B)	(C)	(D)	(E)
RETIREMENT AGE	RETIREMENT PERCENT	LX	NUMBER OF EMPLOYEES EXPECTED TO RETIRE (B) x (C)	(A) x (D)
55	0%	100,000	0	0
56	0%	100,000	0	0
57	0%	100,000	0	0
58	0%	100,000	0	0
59	0%	100,000	0	0
60	10%	100,000	10,000	600,000
61	10%	90,000	9,000	549,000
62	20%	81,000	16,200	1,004,400
63	15%	64,800	9,720	612,360
64	15%	55,080	8,262	528,768
65	40%	46,818	18,727	1,217,268
66	40%	28,091	11,236	741,597
67	100%	16,854	16,854	1,129,250
Total			100,000	6,382,643
Average				63.83

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

Group C

Retirement Rate for Participants of former Corporate Plan

(A)	(B)	(C)	(D)	(E)
RETIREMENT AGE	RETIREMENT PERCENT	LX	NUMBER OF EMPLOYEES EXPECTED TO RETIRE (B) x (C)	(A) x (D)
55	5%	100,000	5,000	275,000
56	5%	95,000	4,750	266,000
57	5%	90,250	4,513	257,213
58	5%	85,738	4,287	248,639
59	5%	81,451	4,073	240,279
60	15%	77,378	11,607	696,403
61	15%	65,771	9,866	601,808
62	15%	55,906	8,386	519,923
63	25%	47,520	11,880	748,437
64	25%	35,640	8,910	570,238
65	40%	26,730	10,692	694,977
66	40%	16,038	6,415	423,402
67	100%	9,623	9,623	644,725
Total			100,000	6,187,044
Average				61.87

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

DEVELOPMENT OF AVERAGE RETIREMENT AGE

	(1)	(2)	(3)
	NUMBER OF ACTIVE PARTICIPANTS	WEIGHTED AVERAGE RETIREMENT AGE	(1) X (2)
Group A	43	59.23	2,546.89
Group B	80	63.83	5,106.40
Group C	241	61.87	14,910.67
Total	364		22,563.96

Item 22: Weighted Average Retirement Age = **62.00**
Total (3) / Total (1)

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

ACTUARIAL ASSUMPTIONS FOR JANUARY 1, 2018 FUNDING VALUATION

DISCOUNT RATE SPONSOR ELECTIONS

• Segment rates or full yield curve	Segment	
• Look-back months	0	
	<u>Stabilized</u>	<u>Nonstabilized</u>
• First 5 years	3.92%	1.81%
• Next 15 years	5.52%	3.68%
• Over 20 years	6.29%	4.53%

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 projected with mortality improvement based on Scale MP-2016.	
• Pre-1995 disabilities	None	
• Post-1994 disabilities	<u>Former Corporate Plan</u> Revenue Ruling 96-7 table for participants who became disabled after 1994 and are eligible for Social Security disability benefits.	<u>Former Hourly Plan</u> Same as healthy

Other economic assumptions

• Salary increases	Not applicable.
• Flat-dollar benefit increases	Not applicable.
• Social Security wage base	Not applicable.
• Inflation	Not applicable.
• Expected investment return	7.00% per year for 2018, 7.75% per year for 2017 and 8.00% per year for 2016
• Expenses	\$2,040,000 added to current year normal cost.

*Schedule SB, Part V — Statement of Actuarial Assumptions/Methods***RATIONALE FOR ECONOMIC ASSUMPTIONS**

- **Discount Rate** - These are the IRS prescribed rates. The plan sponsor elected this methodology from alternative IRS prescribed options.
- **Mortality sponsor elections** - These are the current IRS prescribed table and mortality improvement projection scale. The plan sponsor elected this methodology from alternative IRS prescribed options.
- **Expected investment return** – The interest rate is based on a 65% historical and 35% forward-looking blend of the capital market assumptions published in Mercer Investment Consulting's Capital Market Outlook dated July 2017 for the plan's target asset mix, net of an adjustment of 20 basis points for investment expenses assumed to be paid from plan assets, rounded to the nearest 25 basis points.
- **Expenses** - Expenses are based on year-by-year experience for actual administrative expenses paid from plan assets. Adjustments are made for any known significant changes.

DEMOGRAPHIC ASSUMPTIONS

	<u>Former Corporate Plan</u>	<u>Former Hourly Plan</u>
• Withdrawal	See table of sample rates.	For employees with less than five years of service, 20% withdrawal rate is assumed for all ages. For employees with five to ten years of service, 10% withdrawal rate is assumed for all ages. For participants with more than ten years of service, see table of sample rates.
• Disability incidence	The assumed incidence of disability is based on rates from the 1985 Pension Disability Table, Class 1, for male and females. See table of sample rates.	The assumed incidence of disability is based on rates from the 1985 Pension Disability Table, Class 3, for male and females. See table of sample rates.

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

- Retirement age for Former Corporate Plan

Attained age	Percentage
Under 55	0%
55	5%
56	5%
57	5%
58	5%
59	5%
60	15%
61	15%
62	15%
63	25%
64	25%
65	40%
66	40%
67 and above	100%

- Retirement age for Former Hourly Plan

Attained Age	All Employees (except Cleveland Participants with 30+ years of credit benefit service)	Attained Age	Cleveland Participants with 30+ years of credited benefit service
60	10.00%	55-59	15.00%
61	10.00%	60	15.00%
62	20.00%	61	15.00%
63	15.00%	62	40.00%
64	15.00%	63	40.00%
65	40.00%	64	40.00%
66	40.00%	65	100.00%
67	100.00%		

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

• Benefit commencement age for		
– Future & Current vested deferred	65	
• Spouse assumptions	<u>Male participants</u>	<u>Female participants</u>
– Percentage married for Former Corporate Plan	70%	70%
– Percentage married for Former Hourly Plan	85%	85%
– Spouse age difference	3 years younger	3 years older
Form of payment for Former Corporate Plan	<u>Life annuity with 10 years certain</u>	<u>50% Joint & Survivor with 10 years certain</u>
• Active retirements	30%	70%
• Future vested deferred	30%	70%
• Future disabilities	30%	70%
• Future deaths	30%	70%
• Current vested deferred	30%	70%
Form of payment for Former Hourly Plan	<u>Single Life</u>	<u>50% J&S</u>
• Active retirements	50%	50%
• Future vested deferred	50%	50%
• Future disabilities	100%	0%
• Future deaths	0%	100%
• Current vested deferred	50%	50%
100% of Cleveland participants are assumed to take a life annuity for active retirement and future vested deferred benefits.		
Unpredictable contingent event assumptions	Not applicable.	
At-risk assumptions		
• Special retirement rates	Not applicable.	
• Most valuable form of payment	Not applicable.	

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

Table of Sample Rates for Former Corporate Plan

ATTAINED AGE	PERCENTAGE		
	WITHDRAWAL	DISABILITY INCIDENCE	
		MALE	FEMALE
20	24.00%	0.029%	0.030%
25	24.00	0.038	0.047
30	18.20	0.048	0.080
35	14.70	0.069	0.136
40	12.90	0.117	0.211
45	12.10	0.202	0.323
50	11.60	0.358	0.533
55	10.40	0.722	0.952
60	9.40	1.256	1.159
65	0.00	1.753	1.358

Table of Sample Rates for Former Hourly Plan

ATTAINED AGE	PERCENTAGE		
	WITHDRAWAL (WITH MORE THAN 10 YEARS OF SERVICE)	DISABILITY INCIDENCE	
		MALE	FEMALE
20	12.30%	0.151%	0.089%
25	10.30	0.219	0.150
30	8.20	0.309	0.252
35	6.40	0.431	0.388
40	5.00	0.597	0.547
45	3.90	0.829	0.777
50	3.00	1.224	1.201
55	2.30	2.118	1.962
60	1.70	3.240	2.326
65	0.00	4.369	2.718

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

RATIONALE FOR DEMOGRAPHIC ASSUMPTIONS

- **Retirement Age** – Retirement age assumption has been developed based on the historical experience of the plan. Annual review of the experience has shown that this assumption provides similar results to the actual retirement ages experienced under the plan.
- **Turnover Rates** - Turnover rates have been developed based on the historical experience of the plan. Annual review of the experience has shown that these rates provide similar results to the actual rates of termination experienced under the plan.
- **Retirement Rates** - Retirement rates have been developed based on the historical experience of the plan and the retirement subsidies the plan offers at various ages. Annual review of the experience has shown that these rates provide similar results to the actual rates of retirement experienced under the plan.
- **Disability Rates** – Based on the 1985 Pension Disability Study rates, applicable to the populations of each former plan. Annual review of the experience has shown that these rates provide similar results to the actual rates of disability experienced under the plan.
- **Percent Married/Spouse Age Difference** –The assumptions regarding percent married/spouse age difference at benefit commencement are based on an evaluation of the employer's past experience.
- **Form of payment Election** – The assumptions regarding form of payment election at benefit commencement are based on an evaluation of the employer's past experience.

*Schedule SB, Part V — Statement of Actuarial Assumptions/Methods***ACTUARIAL METHODS FOR FUNDING****Asset Methods**

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

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

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 for only those employees who have completed the plan's eligibility requirements and are included in the valuation of liabilities.
- **Participants excluded:** No actuarial liability is included for nonvested participants who terminated prior to the valuation date. For this purpose, participants with a break in service on the valuation date are treated as terminated participants.
- **Insurance contracts:** Liabilities and assets from insurance contracts have been included in the valuation.

*Schedule SB, Part V — Statement of Actuarial Assumptions/Methods***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 are the sum of the component funding targets and target normal costs associated with the various anticipated separation dates.
- This plan provides benefits that are not a function of a participant's accrued benefit or years of service. This benefit is allocated to funding target based on the ratio of the participant's service at the beginning of the plan year to their service at each decrement age and is allocated to target normal cost based on the proportionate benefit attributable to the increase in the participant's service and compensation during the plan year.
- This plan provides disability/death benefits that are only partially based on a participant's accrued benefit or years of service. This benefit is allocated to funding target based on the accrued benefit on the valuation date plus a portion of the excess of the benefit over the accrued benefit multiplied by the ratio of the participant's service at the beginning of the plan year to their service at each decrement age. This benefit is allocated to target normal cost based on the proportionate benefit attributable to the increase in the participant's service and compensation during the plan year.
- The plan's **target normal cost** is the sum of the individual target normal costs, and the plan's **funding target** is the sum of the individual funding targets for all participants under the plan.

Schedule SB, Part V — Summary of Plan Provisions
SUMMARY OF MAJOR PLAN PROVISIONS

Effective date and plan year	<u>Former Corporate Plan</u>	<u>Former Hourly Plan</u>
	Original plan: December 31, 1976 Restated plan: December 31, 1997 Plan year: the twelve-month period commencing each January 1 and terminating each subsequent December 31	Original plan: January 1, 1981 Restated plan: January 1, 1997 Plan year: the twelve-month period commencing each January 1 and terminating each subsequent December 31
Status of the plan	The plan, the Ferro Corporation Pension Plan for Legacy Employees, was spun-off from the Ferro Corporation Pension Plan effective October 31, 2017.	
Significant events that occurred during the year	The plan is frozen to all new participants and benefit accruals are frozen for all locations.	
	None	

*Schedule SB, Part V — Summary of Plan Provisions***DEFINITIONS**

- Covered employees

All hourly employees of the Toccoa, Orrville, Edison (PDI), Shreve (Diamonite), Evansville, Stryker, Baton Rouge, Penn Yan, Wayside, Walton Hills, Buffalo, and Crooksville plants of Ferro Corporation (other than leased workers and independent contractors).

All bargaining unit employees of the Cleveland, East 56th Plant of Ferro Corporation, who have completed one year of credited vesting service.

Any salaried covered employee, plus members of certain groups of hourly paid employees hired before July 1, 2003.

Locations closed to new participants:

Location Name	Closed to new participants after:
Baton Rouge	December 31, 2007
Buffalo	October 30, 1992
Cleveland (E. 56th St.)	October 12, 1998
Crooksville	June 29, 2003
East Liverpool	October 31, 2002
Edison	December 31, 2007
Evansville	December 31, 2007
Niagara Falls	August 26, 2001
Orrville	December 31, 2010
Penn Yan	December 31, 2007
Stryker	April 26, 1999
Toccoa	January 23, 2001
Wayside	June 30, 2004
Walton Hills	September 10, 2005

- Employee contributions

All locations are closed as of December 31, 2010.

Baton Rouge Participants:

Effective September 1, 1990, employee contributions shall no longer be permitted.

Niagara Falls Participants:

For periods on and after November 1, 2001, each active participant employed at the employer's Niagara Falls, New York plant shall contribute toward the cost of his benefits \$28.00 for each of the first 180 months of his participation in the plan.

All other locations:

Participants shall make no contributions under the plan.

Schedule SB, Part V — Summary of Plan Provisions

• Service considered	<p><u>For the Crooksville location:</u></p> <p>All service measured in full and fractional years from the employee's last hiring date.</p> <p>For Service prior to June 1, 1976, a full year was earned for each year with at least 1,600 hours. A fractional year was earned if hours worked were between 400 and 1,600. No service was credited for less than 400 hours.</p> <p>For Service after June 1, 1976, a full year is earned for each year with at least 1,000 hours. A fractional year is earned if hours worked are between 250 and 1,000. No service is credited for less than 250 hours.</p> <p>For past service before June 1, 1969, Service is limited to 25 years.</p> <p>Benefit accruals were frozen on June 29, 2003 for Crooksville, and October 31, 2002 for East Liverpool.</p> <p><u>For all other locations:</u></p> <p>All service measured in full and fractional years from the employee's last hiring date.</p> <p>All benefit accruals are frozen as of December 31, 2010.</p>				
• Pensionable earnings	<table> <tr> <th><u>Former Corporate Plan</u></th><th><u>Former Hourly Plan</u></th></tr> <tr> <td>Includes regular salary or wages and overtime, but excludes bonuses, commissions, and incentive pay.</td><td>Earnings are defined as all wages including incentive compensation and reduced for certain reimbursements and fringe benefits. Earnings are limited in accordance with Internal Revenue Code Section 401(a)(17).</td></tr> </table>	<u>Former Corporate Plan</u>	<u>Former Hourly Plan</u>	Includes regular salary or wages and overtime, but excludes bonuses, commissions, and incentive pay.	Earnings are defined as all wages including incentive compensation and reduced for certain reimbursements and fringe benefits. Earnings are limited in accordance with Internal Revenue Code Section 401(a)(17).
<u>Former Corporate Plan</u>	<u>Former Hourly Plan</u>				
Includes regular salary or wages and overtime, but excludes bonuses, commissions, and incentive pay.	Earnings are defined as all wages including incentive compensation and reduced for certain reimbursements and fringe benefits. Earnings are limited in accordance with Internal Revenue Code Section 401(a)(17).				
• Final average earnings	<table> <tr> <th><u>Former Corporate Plan</u></th><th><u>Former Hourly Plan</u></th></tr> <tr> <td>Highest average monthly basic compensation over any 5 consecutive calendar years of employment. If compensation in the year of termination or retirement is used, the final rate of pay is projected to the end of the year.</td><td>Highest 60 consecutive calendar months of Earnings, divided by 60.</td></tr> </table>	<u>Former Corporate Plan</u>	<u>Former Hourly Plan</u>	Highest average monthly basic compensation over any 5 consecutive calendar years of employment. If compensation in the year of termination or retirement is used, the final rate of pay is projected to the end of the year.	Highest 60 consecutive calendar months of Earnings, divided by 60.
<u>Former Corporate Plan</u>	<u>Former Hourly Plan</u>				
Highest average monthly basic compensation over any 5 consecutive calendar years of employment. If compensation in the year of termination or retirement is used, the final rate of pay is projected to the end of the year.	Highest 60 consecutive calendar months of Earnings, divided by 60.				

Schedule SB, Part V — Summary of Plan Provisions

<ul style="list-style-type: none"> Accrued benefit for Former Corporate Plan 	<p>The product of (i) and (ii):</p> <ul style="list-style-type: none"> (i) the greater of 60% of Credited Basic Compensation minus 50% of the Primary Social Security Benefit, and \$750; and (ii) The fraction whose numerator is Credited Benefit Service at the determination date (not greater than 30), and whose denominator is 30. <p>Benefit accruals are frozen as of March 31, 2006. Former TAM Plan participants: benefits previously earned under the TAM Plan based on credited service accrued under that plan, plus benefits earned under the Retirement Plan based on credited service accrued after December 31, 1999.</p> <p>Former DMC2 Plan participants: benefits previously earned under the DMC2 Plan based on credited service accrued under that plan, plus benefits earned under the Retirement Plan based on credited service accrued after September 7, 2001.</p>
<ul style="list-style-type: none"> Accrued benefit for Former Hourly Plan 	<p><u>For the Penn Yan plant:</u></p> <p>Greater of \$36.00 or 1.1% of average monthly earnings, multiplied by Credited Benefit Service at any date of determination. Average monthly earnings are computed by dividing total earnings for the 60 full consecutive calendar months prior to termination by 60. Special rules apply if the participant has worked fewer than 60 months, or if breaks in service have occurred.</p> <p><u>For the Cleveland location:</u></p> <p>Average monthly earnings times 33% plus 1.2% for each year of service in excess of 30 if 30 or more years of service, or 1.1% for each year of service if less than 30. This amount determined above is then increased by 15% effective October 12, 1993. Average monthly earnings times present benefit level based on years of service.</p> <p><u>Minimum pension for Cleveland location equal to:</u></p> <p>\$17.50 for each of the 1st 15 years of service plus \$19.00 for each of the next 15 years plus \$20.50 for each additional year.</p>

Schedule SB, Part V — Summary of Plan Provisions

- Accrued benefit for Former Hourly Plan (continued)

For all other locations:

The accrued benefit is service multiplied by the appropriate benefit level outlined below:

Plant	Level	Effective
Baton Rouge:	\$21.50	July 4, 1999
	\$23.50	July 2, 2000
Buffalo: (sold location)	\$25.00	August 28, 1992
Crooksville:	\$32.50	December 1, 1999
(sold location)	\$34.00	December 1, 2000
	\$36.00	December 1, 2001
	\$36.50	December 1, 2002
	\$37.00	December 1, 2003
East Liverpool:	\$27.50	June 24, 2000
(sold location)	\$29.50	June 24, 2001
	\$30.50	June 24, 2002
Edison (PDI):	\$27.50	June 1, 1998
Stryker:	\$22.50	April 19, 2001
	\$23.50	April 19, 2002
	\$24.50	April 19, 2003
	\$25.50	April 19, 2004
Evansville:	\$15.50	January 1, 1995
	\$18.00	January 1, 2001
Niagara Falls:	\$36.00	November 1, 2000
(sold location)	\$37.00	November 1, 2002
	\$38.00	November 1, 2003
	\$39.00	November 1, 2004
	\$40.00	November 1, 2005
Orrville:	\$21.00	December 10, 2000
	\$23.00	December 10, 2001
	\$24.00	December 10, 2002
	\$25.00	December 10, 2003
	\$27.00	December 10, 2004
Toccoa:	\$14.50	January 1, 1998
Wayside: (sold location)	\$25.00	July 1, 2003
Walton Hills:	\$35.00	September 10, 1999
(sold location)	\$38.00	September 10, 2000
	\$41.00	September 10, 2001
	\$45.00	September 10, 2002
	\$50.00	September 10, 2003

Schedule SB, Part V — Summary of Plan Provisions

<ul style="list-style-type: none"> Accrued benefit for Former Hourly Plan (continued) 	Locations where benefit accruals were frozen and the effective date of the freeze are summarized as follows:	
	Location Name	Effective Date:
	Buffalo	October 30, 1992
	Toccoa	February 10, 2001
	Cleveland (E. 56th St.)	August 31, 2007
	Penn Yan	December 31, 2007
	Edison	December 31, 2007
	Baton Rouge	December 31, 2007
	Evansville	December 31, 2007
	Wayside	December 31, 2007
	Stryker	December 31, 2008
	Walton Hills	December 31, 2008
	Orrville	December 31, 2010

NORMAL RETIREMENT

- Eligibility First of the month coinciding with or next following 65th birthday.
(For Cleveland, 30 years of service regardless of age)
- Benefit Accrued benefit, payable on the normal retirement date

EARLY RETIREMENT

- Eligibility

<u>Former Corporate Plan</u> Age 55 with 10 years of vesting service	<u>Former Hourly Plan</u> Age 55 with 10 years of vesting service, except as noted below: <u>For the Buffalo, Cleveland, and Niagara Falls plants:</u> Age 60 with 15 years of Credited Vesting Service <u>For the Baton Rouge plant:</u> Age 60 with 10 years of Credited Vesting Service <u>For the Walton Hills plant:</u> Age 60 with 5 years of Credited Vesting Service
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Schedule SB, Part V — Summary of Plan Provisions

• Benefit

Former Corporate Plan**Non-DMC2 participants:**

The Accrued Benefit, fractionally reduced by 1/2% per month for each month prior to age 65 to a maximum of 30%, plus 1/3% per month for each month prior to age 60.

DMC2 participants:

The Accrued Benefit, fractionally reduced by 1/4% per month for each month prior to age 65.

Former Hourly Plan**For the Baton Rouge and Crooksville plants Retirements:**

Accrued benefit, deferred to age 65 or reduced amount (by 5/9 of 1% for each month early) starting immediately.

For the Cleveland plant Retirements:

Accrued benefit, deferred to age sixty-five or actuarially reduced amount starting immediately.

For the Wayside plant Retirements:

Accrued benefit, deferred to age sixty-five or reduced amount (by 5/9ths of 1% for each month early up to 60 and by 5/18ths of 1% for each month early in excess of 60).

For Walton Hills plant Retirements:

Accrued benefit, deferred to age sixty-five or starting immediately, reduced by 1/4 of a percent for each month benefits start before age sixty five.

For all other plants Retirements:

Accrued benefit, deferred to age 65 or reduced amount (by .5% for each month early) starting immediately.

DEFERRED VESTED

- Eligibility Five years of vesting service.
- Benefit Accrued benefit at termination, payable at age 65.

Schedule SB, Part V — Summary of Plan Provisions

DISABILITY		
• Eligibility	<u>Former Corporate Plan</u> Ten years of vesting service.	<u>Former Hourly Plan</u> <u>For the Crooksville, Wayside, and Walton Hills plants:</u> Totally and permanently disabled with at least 5 years of Credited Vesting Service. <u>For the Cleveland plant:</u> Totally and permanently disabled with at least 15 years of Credited Vesting Service. <u>For all other plants:</u> Totally and permanently disabled with at least 10 years of Credited Vesting Service.
• Benefit	<u>Former Corporate Plan</u> Accrued benefit as of the termination date.	<u>Former Hourly Plan</u> <u>For the Cleveland plant:</u> Accrued benefit as of date of disability increased by \$230/mo. until age 62 and unreduced for early commencement. <u>For all other plants:</u> Accrued benefit as of date of disability unreduced for early commencement.

Schedule SB, Part V — Summary of Plan Provisions
PRE-RETIREMENT DEATH

• Eligibility	Five years of vesting service.	
• Primary death benefit	<p><u>Former Corporate Plan</u></p> <p>Ten years certain annuity, payable to the named beneficiary on the earliest date the participant would have been eligible to receive a benefit (or deferred to no later than the participant's Normal Retirement Date). In the event of the death of an active vested participant, the monthly payments will equal the amount the participant would have been eligible to receive on the Commencement Date had employment been terminated on the date of death. Otherwise, the benefit will equal the amount the participant would have been eligible to receive on the Commencement Date had the death not occurred.</p>	<p><u>Former Hourly Plan</u></p> <p>The benefit is equal to one half of the benefit the employee could have received by electing early retirement payments under a 50% joint and survivor option commencing on the earliest retirement age. This benefit will commence following the month in which the earliest retirement age occurs and will continue until the death of the spouse.</p>
• Supplemental spouse's benefit	<p><u>Former Corporate Plan</u></p> <p>Single life annuity payable to the Qualified Spouse, equal to one-half of the Primary Death Benefit amount, commencing with the month following the final payment of the Primary Death Benefit.</p>	<p><u>Former Hourly Plan</u></p> <p><u>For the Cleveland Plant only:</u></p> <p>An employee with 15 years of service who is eligible to retire with an immediate benefit, or a participant who is receiving retirement benefits, who at the date of death has been married to his spouse continuously for one year will be entitled to a supplemental spouse's death benefit. The benefit will be equal to one-half of the accrued benefit as of the date of death. The benefit will commence following the month in which death occurs and will continue until the month in which the death of the spouse occurs.</p>

*Schedule SB, Part V — Summary of Plan Provisions***FORM OF BENEFITS**

<ul style="list-style-type: none"> Automatic form for unmarried participants 	<u>Former Corporate Plan</u>	<u>Former Hourly Plan</u>
	Ten year certain and life.	Single life annuity.
<ul style="list-style-type: none"> Automatic form for married participants 	Joint and 50% Survivor with ten years certain.	Joint and 50% survivor annuity.
<ul style="list-style-type: none"> Optional forms 	<u>Former Corporate Plan</u>	<u>Former Hourly Plan</u>
	<ul style="list-style-type: none"> Joint and 75% Survivor. No other optional forms are available, except as follows: TAM participants (only with respect to the TAM portion of the accrued benefit): Life annuity, 10 year certain and life annuity, life and 50% or 100% continued. <p>DMC2 participants (only with respect to the DMC2 portion of the accrued benefit):</p> <ul style="list-style-type: none"> Life annuity; Joint and 50% or 100% Survivor; 5, 10, or 15 years certain and life annuity; life with level income annuity. DMC2 participants who are former participants in the Degussa Corporation Retirement Plan have further options available. 	<p>Optional forms differ by location:</p> <ul style="list-style-type: none"> Joint and Survivor-Full, Two-thirds, or half. Niagara Falls participants also have the option of Joint and Survivor– specified percentage where the specified percentage is between 50% and 100%. Penn Yan participants also have the option of Ten or Five years certain.
<ul style="list-style-type: none"> Lump sum benefit 	Participants with lump sum values of \$100,000 or less are eligible to receive their pension benefit as a lump sum.	Participants with lump sum values of \$100,000 or less are eligible to receive their pension benefit as a lump sum.

Schedule SB, Part V — Summary of Plan Provisions

- Optional form conversion factors

Former Corporate Plan

- Interest - "applicable interest rate" under code Section 417(e)(3)(C), which is the adjusted first, second, and third segment rates applied under rules similar to the rules of Code Section 430(h)(2)(C) for the second full calendar month immediately preceding the start of the calendar quarter in which the distribution is made.
- Mortality - the applicable mortality table published by the Internal Revenue Service under Code Section 417(e)(3).
- TAM participants use an interest rate of 7%.
- DMC2 participants use adjustment factors from the normal form of a life annuity.

Former Hourly Plan**For the Buffalo and Cleveland plants:**

Amount of an alternative form of benefit (other than a lump sum) which has a value equivalent to the benefit or benefits otherwise payable under the plan, computed on the basis of an 8% compound annual interest rate and the 1971 Group Annuity Mortality Table with a two-year set-back for males and an eight-year set-back for females.

For the Crooksville plant:

Amount of an alternative form of benefit (other than a lump sum) which has a value equivalent to the benefit or benefits otherwise payable under the plan, computed on the basis of a 2.5% compound annual interest rate and the 1951 Group Annuity Table with six-year set-back.

All other members of the Former Hourly Plan:

Amount of an alternative form of benefit (other than a lump sum) which has a value equivalent to the benefit or benefits otherwise payable under the plan, computed on the basis of a 7% compound annual interest rate and the Unisex Pension 1984 Mortality Table with no year set-back.

MISCELLANEOUS

- Maximum benefits

Annual benefits may not exceed the limits in IRC Section 415. This limit is indexed annually. For 2018, the limit is \$220,000.

Schedule SB, Part V — Summary of Plan Provisions

Benefits Included or Excluded

Unless noted below, all benefits provided by the plan, as effective and amended through the First Amendment, are included in this valuation.

- **Most recent plan amendments included:** The First Amendment is included because it was adopted prior to the valuation date. Note that the Second Amendment, which allows for active participants who have attained age 62 to receive their pension benefits as in-service distributions, has not yet been reflected in the funding valuation (since it was effective April 11, 2018), but will be taken into account for the year-end December 31, 2018 accounting valuation.
- **Plan amendments excluded:** None
- **Late retirement increases:**
 - *Active participants:* The plan provides benefit suspension notices to participants who work beyond normal retirement; therefore, late retirement actuarial increases only apply to participants who defer retirement beyond age 70½. This valuation includes increases for current participants over age 70.
 - *Deferred vested participants:* Current deferred vested participants over normal retirement age are valued including the late retirement actuarial increase.
- **Internal Revenue Code limitations:** The limitations of Internal Revenue Code Sections 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 percent of the present value for all participants). However, we expect that the plan is not top-heavy due to the large number of rank-and-file participants; therefore, the funding target and target normal cost do not reflect any liability for top-heavy benefit accruals.
- **IRC Section 436 benefit restrictions:**
 - *Unpredictable contingent event benefits:* This valuation excludes restricted contingent event benefits that occurred before the valuation date but includes contingent event benefits which are expected to occur on or after the valuation date regardless of anticipated funding-based limitations.
 - *Plan amendments:* See above.
 - *Prohibited payments:* Limitations on prohibited benefits (if any) are reflected for annuity starting dates before the valuation date but are ignored for annuity starting dates on or after the valuation date.
 - *Benefit accruals:* The plan's funding target does not reflect any limitation on benefit accruals. The target normal cost does not reflect any limitation on benefit accruals.
- **Unpredictable contingent event benefits:** The plan does not have any unpredictable contingent event benefits.

Schedule SB, Part V — Summary of Plan Provisions

PLAN PROVISION CHANGES SINCE PRIOR VALUATION

Effective October 31, 2017, the plan, Ferro Corporation Pension Plan for Legacy Employees, was spun-off from the Ferro Corporation Pension Plan.

Maximum benefit amounts under IRS rules were updated from 2017 to 2018.

Schedule SB, Line 24 — Change in Actuarial Assumptions

- Interest discounts and mortality rates were updated from 2017 to 2018 in accordance with PPA.
- The expense component of normal cost increased from \$1,251,267 to \$2,040,000 to reflect our expectations for the current plan year.

Schedule SB, Line 26 — Schedule of Active Participant Data

ATTAINED AGE	YEARS OF CREDITED SERVICE										TOTAL
	UNDER 1	1–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40 & UP	
Under 25											0
25–29											0
30–34											0
35–39	1	1	1								3
40–44		2	18	2							22
45–49		7	28	10	4						49
50–54		1	24	17	23	9					74
55–59		3	33	17	17	22	8	2			102
60–64		2	45	7	10	6	10	3			83
65–69		2	13	2		2		7			26
70 & up					1		1	3			5
Total	1	18	162	55	55	39	19	15	0	0	364

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

Schedule SB, Line 32 — Schedule of Amortization Bases

The total shortfall amortization charge is the sum of the individual shortfall amortization installments for each plan year since the IRC section 430 changes made by the Pension Protection Act of 2006 (PPA) took effect for the plan. Although an individual shortfall amortization installment can be negative, the combined shortfall amortization charge cannot be less than \$0.

SHORTFALL BASES			
YEAR ESTABLISHED	OUTSTANDING BALANCE	YEARS REMAINING	2018 INSTALLMENT
2018	\$ 18,906,920	7	\$ 3,086,552
Total	\$ 18,906,920		\$ 3,086,552

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.

Group A

Retirement Rate for Cleveland Participants with 30+ Years of Credited Vesting Service

(A)	(B)	(C)	(D)	(E)
RETIREMENT AGE	RETIREMENT PERCENT	LX	NUMBER OF EMPLOYEES EXPECTED TO RETIRE (B) x (C)	(A) x (D)
55	15%	100,000	15,000	825,000
56	15%	85,000	12,750	714,000
57	15%	72,250	10,838	617,738
58	15%	61,413	9,212	534,289
59	15%	52,201	7,830	461,976
60	15%	44,371	6,656	399,335
61	15%	37,715	5,657	345,092
62	40%	32,058	12,823	795,031
63	40%	19,235	7,694	484,713
64	40%	11,541	4,616	295,444
65	100%	6,924	6,924	450,090
Total			100,000	5,922,706
Average				59.23

*Schedule SB, Line 22 — Description of Weighted Average Retirement Age***Group B**

Retirement Rate for Participants at all former Various Plan Locations except Cleveland Participants with 30+ Years of Credited Vesting Service.

(A) RETIREMENT AGE	(B) RETIREMENT PERCENT	(C) LX	(D) NUMBER OF EMPLOYEES EXPECTED TO RETIRE (B) x (C)	(E) (A) x (D)
55	0%	100,000	0	0
56	0%	100,000	0	0
57	0%	100,000	0	0
58	0%	100,000	0	0
59	0%	100,000	0	0
60	10%	100,000	10,000	600,000
61	10%	90,000	9,000	549,000
62	20%	81,000	16,200	1,004,400
63	15%	64,800	9,720	612,360
64	15%	55,080	8,262	528,768
65	40%	46,818	18,727	1,217,268
66	40%	28,091	11,236	741,597
67	100%	16,854	16,854	1,129,250
Total			100,000	6,382,643
Average				63.83

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

Group C

Retirement Rate for Participants of former Corporate Plan

(A)	(B)	(C)	(D)	(E)
RETIREMENT AGE	RETIREMENT PERCENT	LX	NUMBER OF EMPLOYEES EXPECTED TO RETIRE (B) x (C)	(A) x (D)
55	5%	100,000	5,000	275,000
56	5%	95,000	4,750	266,000
57	5%	90,250	4,513	257,213
58	5%	85,738	4,287	248,639
59	5%	81,451	4,073	240,279
60	15%	77,378	11,607	696,403
61	15%	65,771	9,866	601,808
62	15%	55,906	8,386	519,923
63	25%	47,520	11,880	748,437
64	25%	35,640	8,910	570,238
65	40%	26,730	10,692	694,977
66	40%	16,038	6,415	423,402
67	100%	9,623	9,623	644,725
Total			100,000	6,187,044
Average				61.87

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

DEVELOPMENT OF AVERAGE RETIREMENT AGE

	(1)	(2)	(3)
	NUMBER OF ACTIVE PARTICIPANTS	WEIGHTED AVERAGE RETIREMENT AGE	(1) X (2)
Group A	43	59.23	2,546.89
Group B	80	63.83	5,106.40
Group C	241	61.87	14,910.67
Total	364		22,563.96

Item 22: Weighted Average Retirement Age = **62.00**
Total (3) / Total (1)

Schedule SB, Part V — Summary of Plan Provisions
SUMMARY OF MAJOR PLAN PROVISIONS

Effective date and plan year	<u>Former Corporate Plan</u>	<u>Former Hourly Plan</u>
	Original plan: December 31, 1976	Original plan: January 1, 1981
	Restated plan: December 31, 1997	Restated plan: January 1, 1997
	Plan year: the twelve-month period commencing each January 1 and terminating each subsequent December 31	Plan year: the twelve-month period commencing each January 1 and terminating each subsequent December 31
	The plan, the Ferro Corporation Pension Plan for Legacy Employees, was spun-off from the Ferro Corporation Pension Plan effective October 31, 2017.	
Status of the plan	The plan is frozen to all new participants and benefit accruals are frozen for all locations.	
Significant events that occurred during the year	None	

*Schedule SB, Part V — Summary of Plan Provisions***DEFINITIONS**

- Covered employees

All hourly employees of the Toccoa, Orrville, Edison (PDI), Shreve (Diamonite), Evansville, Stryker, Baton Rouge, Penn Yan, Wayside, Walton Hills, Buffalo, and Crooksville plants of Ferro Corporation (other than leased workers and independent contractors).

All bargaining unit employees of the Cleveland, East 56th Plant of Ferro Corporation, who have completed one year of credited vesting service.

Any salaried covered employee, plus members of certain groups of hourly paid employees hired before July 1, 2003.

Locations closed to new participants:

Location Name	Closed to new participants after:
Baton Rouge	December 31, 2007
Buffalo	October 30, 1992
Cleveland (E. 56th St.)	October 12, 1998
Crooksville	June 29, 2003
East Liverpool	October 31, 2002
Edison	December 31, 2007
Evansville	December 31, 2007
Niagara Falls	August 26, 2001
Orrville	December 31, 2010
Penn Yan	December 31, 2007
Stryker	April 26, 1999
Toccoa	January 23, 2001
Wayside	June 30, 2004
Walton Hills	September 10, 2005

- Employee contributions

All locations are closed as of December 31, 2010.

Baton Rouge Participants:

Effective September 1, 1990, employee contributions shall no longer be permitted.

Niagara Falls Participants:

For periods on and after November 1, 2001, each active participant employed at the employer's Niagara Falls, New York plant shall contribute toward the cost of his benefits \$28.00 for each of the first 180 months of his participation in the plan.

All other locations:

Participants shall make no contributions under the plan.

Schedule SB, Part V — Summary of Plan Provisions

• Service considered	<p><u>For the Crooksville location:</u></p> <p>All service measured in full and fractional years from the employee's last hiring date.</p> <p>For Service prior to June 1, 1976, a full year was earned for each year with at least 1,600 hours. A fractional year was earned if hours worked were between 400 and 1,600. No service was credited for less than 400 hours.</p> <p>For Service after June 1, 1976, a full year is earned for each year with at least 1,000 hours. A fractional year is earned if hours worked are between 250 and 1,000. No service is credited for less than 250 hours.</p> <p>For past service before June 1, 1969, Service is limited to 25 years.</p> <p>Benefit accruals were frozen on June 29, 2003 for Crooksville, and October 31, 2002 for East Liverpool.</p> <p><u>For all other locations:</u></p> <p>All service measured in full and fractional years from the employee's last hiring date.</p> <p>All benefit accruals are frozen as of December 31, 2010.</p>	
• Pensionable earnings	<p><u>Former Corporate Plan</u></p> <p>Includes regular salary or wages and overtime, but excludes bonuses, commissions, and incentive pay.</p>	<p><u>Former Hourly Plan</u></p> <p>Earnings are defined as all wages including incentive compensation and reduced for certain reimbursements and fringe benefits. Earnings are limited in accordance with Internal Revenue Code Section 401(a)(17).</p>
• Final average earnings	<p><u>Former Corporate Plan</u></p> <p>Highest average monthly basic compensation over any 5 consecutive calendar years of employment. If compensation in the year of termination or retirement is used, the final rate of pay is projected to the end of the year.</p>	<p><u>Former Hourly Plan</u></p> <p>Highest 60 consecutive calendar months of Earnings, divided by 60.</p>

Schedule SB, Part V — Summary of Plan Provisions

<ul style="list-style-type: none"> Accrued benefit for Former Corporate Plan 	<p>The product of (i) and (ii):</p> <ul style="list-style-type: none"> (i) the greater of 60% of Credited Basic Compensation minus 50% of the Primary Social Security Benefit, and \$750; and (ii) The fraction whose numerator is Credited Benefit Service at the determination date (not greater than 30), and whose denominator is 30. <p>Benefit accruals are frozen as of March 31, 2006. Former TAM Plan participants: benefits previously earned under the TAM Plan based on credited service accrued under that plan, plus benefits earned under the Retirement Plan based on credited service accrued after December 31, 1999.</p> <p>Former DMC2 Plan participants: benefits previously earned under the DMC2 Plan based on credited service accrued under that plan, plus benefits earned under the Retirement Plan based on credited service accrued after September 7, 2001.</p>
<ul style="list-style-type: none"> Accrued benefit for Former Hourly Plan 	<p><u>For the Penn Yan plant:</u></p> <p>Greater of \$36.00 or 1.1% of average monthly earnings, multiplied by Credited Benefit Service at any date of determination. Average monthly earnings are computed by dividing total earnings for the 60 full consecutive calendar months prior to termination by 60. Special rules apply if the participant has worked fewer than 60 months, or if breaks in service have occurred.</p> <p><u>For the Cleveland location:</u></p> <p>Average monthly earnings times 33% plus 1.2% for each year of service in excess of 30 if 30 or more years of service, or 1.1% for each year of service if less than 30. This amount determined above is then increased by 15% effective October 12, 1993. Average monthly earnings times present benefit level based on years of service.</p> <p><u>Minimum pension for Cleveland location equal to:</u></p> <p>\$17.50 for each of the 1st 15 years of service plus \$19.00 for each of the next 15 years plus \$20.50 for each additional year.</p>

Schedule SB, Part V — Summary of Plan Provisions

- Accrued benefit for Former Hourly Plan (continued)

For all other locations:

The accrued benefit is service multiplied by the appropriate benefit level outlined below:

Plant	Level	Effective
Baton Rouge:	\$21.50	July 4, 1999
	\$23.50	July 2, 2000
Buffalo: (sold location)	\$25.00	August 28, 1992
Crooksville:	\$32.50	December 1, 1999
(sold location)	\$34.00	December 1, 2000
	\$36.00	December 1, 2001
	\$36.50	December 1, 2002
	\$37.00	December 1, 2003
East Liverpool:	\$27.50	June 24, 2000
(sold location)	\$29.50	June 24, 2001
	\$30.50	June 24, 2002
Edison (PDI):	\$27.50	June 1, 1998
Stryker:	\$22.50	April 19, 2001
	\$23.50	April 19, 2002
	\$24.50	April 19, 2003
	\$25.50	April 19, 2004
Evansville:	\$15.50	January 1, 1995
	\$18.00	January 1, 2001
Niagara Falls:	\$36.00	November 1, 2000
(sold location)	\$37.00	November 1, 2002
	\$38.00	November 1, 2003
	\$39.00	November 1, 2004
	\$40.00	November 1, 2005
Orrville:	\$21.00	December 10, 2000
	\$23.00	December 10, 2001
	\$24.00	December 10, 2002
	\$25.00	December 10, 2003
	\$27.00	December 10, 2004
Toccoa:	\$14.50	January 1, 1998
Wayside: (sold location)	\$25.00	July 1, 2003
Walton Hills:	\$35.00	September 10, 1999
(sold location)	\$38.00	September 10, 2000
	\$41.00	September 10, 2001
	\$45.00	September 10, 2002
	\$50.00	September 10, 2003

Schedule SB, Part V — Summary of Plan Provisions

- Accrued benefit for Former Hourly Plan (continued)

Locations where benefit accruals were frozen and the effective date of the freeze are summarized as follows:

Location Name	Effective Date:
Buffalo	October 30, 1992
Toccoa	February 10, 2001
Cleveland (E. 56th St.)	August 31, 2007
Penn Yan	December 31, 2007
Edison	December 31, 2007
Baton Rouge	December 31, 2007
Evansville	December 31, 2007
Wayside	December 31, 2007
Stryker	December 31, 2008
Walton Hills	December 31, 2008
Orrville	December 31, 2010

NORMAL RETIREMENT

- Eligibility First of the month coinciding with or next following 65th birthday.
(For Cleveland, 30 years of service regardless of age)
- Benefit Accrued benefit, payable on the normal retirement date

EARLY RETIREMENT

- Eligibility

<u>Former Corporate Plan</u> Age 55 with 10 years of vesting service	<u>Former Hourly Plan</u> Age 55 with 10 years of vesting service, except as noted below: <u>For the Buffalo, Cleveland, and Niagara Falls plants:</u> Age 60 with 15 years of Credited Vesting Service <u>For the Baton Rouge plant:</u> Age 60 with 10 years of Credited Vesting Service <u>For the Walton Hills plant:</u> Age 60 with 5 years of Credited Vesting Service
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Schedule SB, Part V — Summary of Plan Provisions

- Benefit

Former Corporate Plan**Non-DMC2 participants:**

The Accrued Benefit, fractionally reduced by 1/2% per month for each month prior to age 65 to a maximum of 30%, plus 1/3% per month for each month prior to age 60.

DMC2 participants:

The Accrued Benefit, fractionally reduced by 1/4% per month for each month prior to age 65.

Former Hourly Plan**For the Baton Rouge and Crooksville plants Retirements:**

Accrued benefit, deferred to age 65 or reduced amount (by 5/9 of 1% for each month early) starting immediately.

For the Cleveland plant Retirements:

Accrued benefit, deferred to age sixty-five or actuarially reduced amount starting immediately.

For the Wayside plant Retirements:

Accrued benefit, deferred to age sixty-five or reduced amount (by 5/9ths of 1% for each month early up to 60 and by 5/18ths of 1% for each month early in excess of 60).

For Walton Hills plant Retirements:

Accrued benefit, deferred to age sixty-five or starting immediately, reduced by 1/4 of a percent for each month benefits start before age sixty five.

For all other plants Retirements:

Accrued benefit, deferred to age 65 or reduced amount (by .5% for each month early) starting immediately.

DEFERRED VESTED

- Eligibility Five years of vesting service.
- Benefit Accrued benefit at termination, payable at age 65.

Schedule SB, Part V — Summary of Plan Provisions

DISABILITY		
• Eligibility	<u>Former Corporate Plan</u> Ten years of vesting service.	<u>Former Hourly Plan</u> <u>For the Crooksville, Wayside, and Walton Hills plants:</u> Totally and permanently disabled with at least 5 years of Credited Vesting Service. <u>For the Cleveland plant:</u> Totally and permanently disabled with at least 15 years of Credited Vesting Service. <u>For all other plants:</u> Totally and permanently disabled with at least 10 years of Credited Vesting Service.
	<u>Former Corporate Plan</u> Accrued benefit as of the termination date.	<u>Former Hourly Plan</u> <u>For the Cleveland plant:</u> Accrued benefit as of date of disability increased by \$230/mo. until age 62 and unreduced for early commencement. <u>For all other plants:</u> Accrued benefit as of date of disability unreduced for early commencement.

Schedule SB, Part V — Summary of Plan Provisions
PRE-RETIREMENT DEATH

• Eligibility	Five years of vesting service.	
• Primary death benefit	<p><u>Former Corporate Plan</u></p> <p>Ten years certain annuity, payable to the named beneficiary on the earliest date the participant would have been eligible to receive a benefit (or deferred to no later than the participant's Normal Retirement Date). In the event of the death of an active vested participant, the monthly payments will equal the amount the participant would have been eligible to receive on the Commencement Date had employment been terminated on the date of death. Otherwise, the benefit will equal the amount the participant would have been eligible to receive on the Commencement Date had the death not occurred.</p>	<p><u>Former Hourly Plan</u></p> <p>The benefit is equal to one half of the benefit the employee could have received by electing early retirement payments under a 50% joint and survivor option commencing on the earliest retirement age. This benefit will commence following the month in which the earliest retirement age occurs and will continue until the death of the spouse.</p>
• Supplemental spouse's benefit	<p><u>Former Corporate Plan</u></p> <p>Single life annuity payable to the Qualified Spouse, equal to one-half of the Primary Death Benefit amount, commencing with the month following the final payment of the Primary Death Benefit.</p>	<p><u>Former Hourly Plan</u></p> <p><u>For the Cleveland Plant only:</u></p> <p>An employee with 15 years of service who is eligible to retire with an immediate benefit, or a participant who is receiving retirement benefits, who at the date of death has been married to his spouse continuously for one year will be entitled to a supplemental spouse's death benefit. The benefit will be equal to one-half of the accrued benefit as of the date of death. The benefit will commence following the month in which death occurs and will continue until the month in which the death of the spouse occurs.</p>

*Schedule SB, Part V — Summary of Plan Provisions***FORM OF BENEFITS**

• Automatic form for unmarried participants	<u>Former Corporate Plan</u> Ten year certain and life.	<u>Former Hourly Plan</u> Single life annuity.
• Automatic form for married participants	Joint and 50% Survivor with ten years certain.	Joint and 50% survivor annuity.
• Optional forms	<u>Former Corporate Plan</u> <ul style="list-style-type: none"> Joint and 75% Survivor. No other optional forms are available, except as follows: TAM participants (only with respect to the TAM portion of the accrued benefit): Life annuity, 10 year certain and life annuity, life and 50% or 100% continued. DMC2 participants (only with respect to the DMC2 portion of the accrued benefit): Life annuity; Joint and 50% or 100% Survivor; 5, 10, or 15 years certain and life annuity; life with level income annuity. DMC2 participants who are former participants in the Degussa Corporation Retirement Plan have further options available. 	<u>Former Hourly Plan</u> <p>Optional forms differ by location:</p> <ul style="list-style-type: none"> Joint and Survivor-Full, Two-thirds, or half. Niagara Falls participants also have the option of Joint and Survivor– specified percentage where the specified percentage is between 50% and 100%. Penn Yan participants also have the option of Ten or Five years certain.
• Lump sum benefit	Participants with lump sum values of \$100,000 or less are eligible to receive their pension benefit as a lump sum.	Participants with lump sum values of \$100,000 or less are eligible to receive their pension benefit as a lump sum.

Schedule SB, Part V — Summary of Plan Provisions

- Optional form conversion factors

Former Corporate Plan

- Interest - "applicable interest rate" under code Section 417(e)(3)(C), which is the adjusted first, second, and third segment rates applied under rules similar to the rules of Code Section 430(h)(2)(C) for the second full calendar month immediately preceding the start of the calendar quarter in which the distribution is made.
- Mortality - the applicable mortality table published by the Internal Revenue Service under Code Section 417(e)(3).
- TAM participants use an interest rate of 7%.
- DMC2 participants use adjustment factors from the normal form of a life annuity.

Former Hourly Plan**For the Buffalo and Cleveland plants:**

Amount of an alternative form of benefit (other than a lump sum) which has a value equivalent to the benefit or benefits otherwise payable under the plan, computed on the basis of an 8% compound annual interest rate and the 1971 Group Annuity Mortality Table with a two-year set-back for males and an eight-year set-back for females.

For the Crooksville plant:

Amount of an alternative form of benefit (other than a lump sum) which has a value equivalent to the benefit or benefits otherwise payable under the plan, computed on the basis of a 2.5% compound annual interest rate and the 1951 Group Annuity Table with six-year set-back.

All other members of the Former Hourly Plan:

Amount of an alternative form of benefit (other than a lump sum) which has a value equivalent to the benefit or benefits otherwise payable under the plan, computed on the basis of a 7% compound annual interest rate and the Unisex Pension 1984 Mortality Table with no year set-back.

MISCELLANEOUS

- Maximum benefits

Annual benefits may not exceed the limits in IRC Section 415. This limit is indexed annually. For 2018, the limit is \$220,000.

Schedule SB, Part V — Summary of Plan Provisions

Benefits Included or Excluded

Unless noted below, all benefits provided by the plan, as effective and amended through the First Amendment, are included in this valuation.

- **Most recent plan amendments included:** The First Amendment is included because it was adopted prior to the valuation date. Note that the Second Amendment, which allows for active participants who have attained age 62 to receive their pension benefits as in-service distributions, has not yet been reflected in the funding valuation (since it was effective April 11, 2018), but will be taken into account for the year-end December 31, 2018 accounting valuation.
- **Plan amendments excluded:** None
- **Late retirement increases:**
 - *Active participants:* The plan provides benefit suspension notices to participants who work beyond normal retirement; therefore, late retirement actuarial increases only apply to participants who defer retirement beyond age 70½. This valuation includes increases for current participants over age 70.
 - *Deferred vested participants:* Current deferred vested participants over normal retirement age are valued including the late retirement actuarial increase.
- **Internal Revenue Code limitations:** The limitations of Internal Revenue Code Sections 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 percent of the present value for all participants). However, we expect that the plan is not top-heavy due to the large number of rank-and-file participants; therefore, the funding target and target normal cost do not reflect any liability for top-heavy benefit accruals.
- **IRC Section 436 benefit restrictions:**
 - *Unpredictable contingent event benefits:* This valuation excludes restricted contingent event benefits that occurred before the valuation date but includes contingent event benefits which are expected to occur on or after the valuation date regardless of anticipated funding-based limitations.
 - *Plan amendments:* See above.
 - *Prohibited payments:* Limitations on prohibited benefits (if any) are reflected for annuity starting dates before the valuation date but are ignored for annuity starting dates on or after the valuation date.
 - *Benefit accruals:* The plan's funding target does not reflect any limitation on benefit accruals. The target normal cost does not reflect any limitation on benefit accruals.
- **Unpredictable contingent event benefits:** The plan does not have any unpredictable contingent event benefits.

Schedule SB, Part V — Summary of Plan Provisions

PLAN PROVISION CHANGES SINCE PRIOR VALUATION

Effective October 31, 2017, the plan, Ferro Corporation Pension Plan for Legacy Employees, was spun-off from the Ferro Corporation Pension Plan.

Maximum benefit amounts under IRS rules were updated from 2017 to 2018.

Ferro Corporation Pension Plan for Legacy Employees

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

EIN: 34-0217820

Plan No: 007

December 31, 2018

(a)	(b)	(c)	(d)	(e)
	Identity of issue, borrower, lessor or similar party	Description of investment	Cost	Current value
*	SEI Large Cap Fund	Registered Investment Company	\$ 86,919,213	\$ 66,301,658
*	SEI Opportunistic Income Fund	Registered Investment Company	54,454,283	53,566,786
*	SEI World Equity Ex-US Fund	Registered Investment Company	33,182,297	34,010,764
*	SEI Core Property Collective Investment Trust	Common/Collective Trust	7,062,037	12,772,740
*	SEI Institutional Investment Trust	Registered Investment Company	14,068,903	12,270,218
*	SEI Small Cap Fund	Registered Investment Company	10,755,932	9,442,304
*	SEI Emerging Markets Debt Fund	Registered Investment Company	9,782,383	8,396,177
*	Ferro Corporation Stock	Common Equity Security	6,395,700	4,439,024
*	Prudential Retirement Insurance & Annuity Company	Pooled Separate Accounts	1,486,877	1,425,384
*	Aetna Life and Casualty Insurance Company	Group Annuity Contract GA-2951	1,150,975	1,141,439
*	Prudential Retirement Insurance & Annuity Company	General Account	679,148	582,062
			\$ 225,937,748	\$ 204,348,556

* Indicates party-in-interest to the Plan

Schedule SB, Line 32 — Schedule of Amortization Bases

The total shortfall amortization charge is the sum of the individual shortfall amortization installments for each plan year since the IRC section 430 changes made by the Pension Protection Act of 2006 (PPA) took effect for the plan. Although an individual shortfall amortization installment can be negative, the combined shortfall amortization charge cannot be less than \$0.

SHORTFALL BASES			
YEAR ESTABLISHED	OUTSTANDING BALANCE	YEARS REMAINING	2018 INSTALLMENT
2018	\$ 18,906,920	7	\$ 3,086,552
Total	\$ 18,906,920		\$ 3,086,552

Schedule SB, Line 24 — Change in Actuarial Assumptions

- Interest discounts and mortality rates were updated from 2017 to 2018 in accordance with PPA.
- The expense component of normal cost increased from \$1,251,267 to \$2,040,000 to reflect our expectations for the current plan year.