COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

In the Matter of: : Addition of

Robindale Energy Services, Inc. : SMP No. 05090101 (Dudley Mine)

P. O. Box 228

Armagh, PA 15920-0228 : Alternative Financial Assurance

Mechanism

FIRST AMENDMENT TO POSTMINING TREATMENT TRUST CONSENT ORDER AND AGREEMENT

This First Amendment to the Post-Mining Treatment Trust Consent Order and Agreement entered into this /5 day of August, 2016 ("First Amendment"), amends the Post-Mining Treatment Trust Consent Order and Agreement dated November 19, 2014 ("2014 COA") between the Department of Environmental Protection (hereinafter "Department"), and Robindale Energy Services, Inc. (hereinafter "Robindale").

The Department has found and determined the following:

- A. Robindale is the permittee of the Dudley Mine site, SMP No. 05090101,
 ("Dudley Mine") located in Broad Top Township, Bedford County, which is associated with a
 post-mining discharge liability.
- B. The 2014 COA is being amended to add the Dudley Mine Site and the discharges associated with that site as well as amend certain provisions of the prior agreement. A copy of the 2014 COA is attached hereto as Exhibit K.

Dudley Mine (SMP No. 05090101)

- C. The original permit for the Dudley Mine was issued to Robindale on February 9, 2010.
 - D. The Dudley Mine is currently active with a pit open for coal removal.
 - E. The reclamation bonds currently posted for the Dudley Mine are:

| PERMIT NO. | BOND TYPE | FINANCIAL GUARANTOR | BOND INSTRUMENT NO. | BOND STATUS | BOND AMOUNT |
|------------|-----------------|------------------------|---------------------------|----------------|----------------|
| 05090101 | Surety | Rockwood CIC | ISM-2755 | Active | \$27,467.00 |
| 05090101 | Surety | Rockwood CIC | ISM-2794 | Active | \$337,939.00 |
| 05090101 | Financial Guar. | Commonwealth | 4840-173-FG | Active | \$100,000.00 |

- F. The Dudley Mine has two Sub-F discharges (SP3, SP15), and one new seep SP59 which are on property tracts owned by James K. Steele and by Robert S. and Ruth E. Figard. SP3 is treated by the addition of caustic soda in the ditchline. The discharge is then diverted to Passive Treatment System D8 operated by Broad Top Township. Plans are under consideration to divert SP3 to a new treatment system below Pond 3 as shown on Exhibit L. SP15 is diverted to a new treatment pond TP immediately below Pond 3 and treated with caustic soda. The new seep SP59 is diverted into Pond 3 and treated with hand mixed lime. As part of the 2015 Cumulative Hydrologic Impact Assessment ("CHIA") review, degradation was also noted at Sub-F monitoring points SP9 and SP44 on property tracts also owned by James K. Steele and by Robert S. and Ruth E. Figard as shown on the Exhibit L. These two Sub-F discharges are currently diverted to Passive Treatment System D5 which is operated by Broad Top Township. SP9 and SP44 are being monitored due to changes in the water quality. These two additional mine drainage seeps fall under this Trust amendment. Additional treatment for SP9 and SP44 may be required in the future in order to meet effluent limits.
 - G. A map with the location of the SP3, SP15, SP59, SP9, and SP44 is attached in Exhibit L.

The latitude and longitude coordinates for SP3 are: latitude 40° 08' 26" and longitude -78° 11' 46".

The latitude and longitude coordinates for SP15 are: latitude 40° 08' 22" and longitude -78° 11' 42".

The latitude and longitude coordinates for SP59 are: latitude 40° 08' 21.81" and longitude - 78° 11' 45.77

The latitude and longitude coordinates for SP9 are: latitude 40° 08' 30" and longitude -78° 11' 39".

The latitude and longitude coordinates for SP44 are: latitude 40° 08' 30" and longitude -78° 11' 41".

- H. The raw water quality of the SP3, SP15, Pond 3, SP9, and SP44 discharges is set forth in Exhibit M.
- I. The current effluent limits, as set forth in NPDES Permit PA 0226781, applicable to Pond 3, (and discharges SP9 and SP44 if treatment by Robindale is required) are:

Effluent Limits for Pond 3 Discharges:

| | 30-Day | Daily | Instantaneous |
|--|-----------|---------------------|---------------|
| Parameter | Average | Maximum | Maximum |
| Iron (total) | 1.5 mg/I | 3.0 mg/l | 3.5 mg/l |
| Manganese (total) | 1.0 mg/l | 2.0 mg/l | 2.5 mg/l |
| Aluminum (total) | 0.75 mg/l | 1.5 mg/l | 1.9 mg/l |
| Suspended solids | 35 mg/l | 70 mg/l | 90 mg/l |
| pH^{I} | | greater than 6.0; l | ess than 9.0 |
| Alkalinity greater than acidity ¹ | | | |

Effluent Limits for SP3 and SP15 Discharges:

| Monitoring Point Hydrologic Unit | or | SP3 | | | | | | |
|-------------------------------------|-------------------------------|---------------------------|-----------------------|------------------------|--|--|--|--|
| Parameter | Monthly Average lbs/day | Instan. Max Ibs/day | Sampling Frequency | Reporting Frequency | | | | |
| Net Acidity | 0.5 | 1.1 | 2/Month | Monthly | | | | |
| Iron | * | * | 2/Month | Monthly | | | | |
| Manganese | * | * | 2/Month | Monthly | | | | |
| Aluminum | 0.05 | 0.09 | 2/Month | Monthly | | | | |

| Monitoring Point Hydrologic Unit | tor | SP15 | | | | | | |
|-------------------------------------|-------------------------------|---------------------------|-----------------------|------------------------|--|--|--|--|
| Parameter | Monthly Average Ibs/day | Instan. Max Ibs/day | Sampling Frequency | Reporting Frequency | | | | |
| Net Acidity | 2.0 | 7.7 | 2/Month | Monthly | | | | |
| Iron | * | * | 2/Month | Monthly | | | | |
| Manganese | * | * | 2/Month | Monthly | | | | |
| Aluminum | 0.1 | 0.7 | 2/Month | Monthly | | | | |

- J. NPDES Permit PA0262781 for Dudley Mine was renewed on January 12, 2016. Pursuant to 25 Pa. Code Chapter 92a, the effluent limits may change at the time of renewal or as required by the Department.
- K. Discharges SP3, SP15, and SP59 flow into treatment systems which are treated with liquid caustic soda NaOH. Discharges SP9 and SP44 flow into passive treatment systems operated by Broad Top Township.
- L. The permitted treatment systems identified in Paragraph F are situated on land owned by James K. Steele. Robindale shall submit within sixty (60) days of its execution of this COA, a properly executed Consent to Right of Entry form from James K. Steele which grants the parties and the trustee access to the treatment system. A copy of the Consent to Right of Entry is attached as Exhibit N.

Post-Mining Treatment Trust

- M. Robindale agrees it has the legal responsibility, pursuant inter alia to the Surface Mining Act and the Clean Streams Law, to properly treat or abate the discharges as identified in Paragraphs F through N above.
- N. Robindale has established a post-mining treatment trust ("Global Trust") with First National Trust Co. as an alternative financial assurance mechanism, (and a financially-backed enforceable contract), in order to provide for the long-term treatment of post-mining discharges and secure the release of reclamation bonds upon completion of all other reclamation requirements and upon completion of the funding of the Global Trust.
- O. In order to calculate the amount necessary to fully fund the trust, the

 Department and Robindale have agreed to use actual operation and maintenance costs from

past operations of the treatment systems used for SP3, SP15, and SP59, and/or AMDTreat cost estimates. In addition, the operations cost covers the monitoring of SP9 and SP44 by Robindale. A summary of current annual operation and maintenance costs for these treatment systems is as follows:

Table of Current Annual Operation and Maintenance Costs

| CATEGORY | SAMPLING | LABOR | MAINTENANCE | INSURANCE | CHEMICAL | SLUDGE |
|-------------|----------------|-------------|-----------------|-----------|----------|---------|
| | | | | | | REMOVAL |
| Rate | (\$35./sample) | (\$35./hr.) | (3.5% of total) | | | |
| Annual Cost | \$1120 | \$7280 | \$846 | \$400 | \$14,225 | \$1150 |

Based on actual operation and maintenance costs from the year 2014-2015 and AMDTreat cost estimates, the current annual cost of operating and maintaining the treatment systems is \$25,021.00. But, treatment costs for SP9 and SP44 may increase if on-going site monitoring determines that additional treatment facilities are required to meet effluent limits.

- P. In order to calculate the amount necessary to fully fund the portion of the Global Trust that address the Dudley Mine, the Department and Robindale have agreed to use recapitalization and demolition cost data generated by the Department's AMDTreat software tool. According to the AMDTreat software tool, the present value of recapitalization costs for Dudley Mine is \$8,411.00. Attached as Exhibit O, is the AMDTreat Recapitalization Cost schedule for Dudley Mine treatment system.
- S. The parties agree that the present value of a fully-funded trust for the discharges at the Dudley Mine covered by this Amended COA is \$595,323.59. This sum constitutes the current present value of the estimated future operation and maintenance costs, of the estimated future recapitalization costs, and of the liability insurance costs for the treatment systems at the Dudley Site. The parties have agreed to the amended Global Trust payment schedule found in Exhibit P.

ORDER

After full and complete negotiation of all matters set forth in this Consent Order and Agreement and upon mutual exchange of covenants contained herein, the parties intending to be legally bound, it is hereby ORDERED by the Department and AGREED to by Robindale as follows:

- 1. This Consent Order and Agreement is an Order of the Department authorized and issued pursuant to Sections 5 and 610 of the Clean Streams Law, 35 P.S. §§ 691.5 and 691.610; Section 4.3 of the Surface Mining Act, 52 P.S. §§ 1396.4c; Sections 3.1 and 9 of the Coal Refuse Disposal Act, 52 P.S. §§ 30.53a and 30.59; Section 9 of the Subsidence Act, 52 P.S. §§ 1409.9, and Section 1917-A of the Administrative Code, 71 P.S. § 510-17. The failure of Robindale to comply with any term or condition of this Consent Order and Agreement shall subject Robindale to all penalties and remedies provided by those statutes for failing to comply with an order of the Department.
 - 2. Paragraph 2 of the 2014 COA is revised as follows:

2. Findings

- a. Robindale agrees that the findings in Paragraphs A through CG of the 2014 COA and Paragraphs A-S of this Amended Postmining Treatment Trust are true and correct, and in any matter or proceeding involving Robindale and the Department, Robindale shall not challenge the accuracy or validity of these findings.
- b. The parties do not authorize any other persons to use the findings in this Amended Postmining Treatment Trust in any matter or proceeding.
- c. These findings are hereby incorporated into the 2014 COA and into Exhibit F of the 2014 COA by reference as if fully set forth therein.
- 3. Paragraph 5(a) of the 2014 COA is revised as follows:
- 5. Treatment Trust

- Simultaneously with the execution of this COA, a. Robindale shall execute the First Amendment to the Post-Mining Treatment Trust Agreement ("Trust Agreement") for the Robindale Global Treatment Trust with the Department. The First Amendment to the Trust Agreement shall secure Robindale's obligation to treat the discharges known as: UD2, MD-1, SW4, LW-1, RP15, PU, SP3, SP9, SP15, SP44 and SP59, including its legal obligation to operate and maintain the treatment systems in perpetuity or until water treatment is no longer necessary. The Robindale Global Treatment Trust shall also secure Robindale's obligation to provide financial resources to the Department and the citizens of the Commonwealth sufficient to operate and maintain the treatment systems and to treat the mine drainage in perpetuity in the event Robindale becomes unable or unwilling to meet these obligations. The Robindale Global Treatment Trust shall provide for the demolition of treatment facilities and reclamation of the treatment site should treatment no longer be needed. The First Amendment to the Trust Agreement is hereby incorporated into the 2014 COA and into Exhibit F of the 2014 COA by reference as if fully set forth therein.
- 4. Paragraph 6(b) of the 2014 COA is revised as follows:
 - 6. Funding of the Primary Trust Account
 - b. Ongoing Payments to the Primary Trust Account:

Robindale will deposit subsequent payments as per Exhibit P into the Primary Trust Account as follows:

- i. On January 1, 2015, Robindale shall deposit \$492,000.00 into the
 Primary Trust Account
 - ii. On January 1, 2016, Robindale shall deposit \$492,000.00 into the

Primary Trust Account

- ii. On January 1, 2017, Robindale shall deposit \$492,000.00 into the
 Primary Trust Account.
- iii. On January 1, 2018, Robindale shall deposit \$225,000.00 into the Primary Trust Account.
- iv. On January 1, 2019, Robindale shall deposit \$225,000.00 into the
 Primary Trust Account.
- v. On January 1, 2020, Robindale shall deposit \$219,465.07 into the Primary Trust Account.

This final payment amount may need adjusted to correspond with the performance of the Trust Fund. Payments will be required without notice.

- Exhibit H of the 2014 COA is being replaced with Exhibit P to this amended COA.
- 6. <u>Counterparts</u>. This document may be executed through counterparts of the signature page(s) transmitted by facsimile or electronically by portable document format ("pdf").
- Except as modified or amended in this First Amendment, provisions of the
 2014 CO&A remain in full force and effect.

IN WITNESS WHEREOF, the parties hereto have caused this Consent Order and Agreement to be executed by their duly authorized representatives. The undersigned representatives of Robindale certify under penalty of law, as provided by 18 Pa. C.S. § 4904, that they are authorized to execute this First Amendment Consent Order and Agreement on behalf of Robindale; that Robindale consents to the entry of this Consent Order and Agreement as a final ORDER of the Department; and that Robindale hereby knowingly waives its rights to appeal this Consent Order and Agreement and to challenge its content or validity, which rights may be available under Section 4 of the Environmental Hearing Board Act, the Act of July 13, 1988, P.L. 530, No 1988-94, 35 P.S. § 7514; the Administrative Agency Law, 2 Pa. C.S. § 103(a) and Chapters 5A and 7A; or any other provision of law. Signature by Robindale's attorney certifies only that the agreement has been signed after consulting with counsel.

FOR ROBINDALE ENERY SERVICES, INC.:

James F. Panaro

Executive Vice President

Marie L. McCombs

Treasurer

R. Christopher Anderson Attorney for Robindale Energy

Services, Inc.

FOR THE COMMONWEALTH

OF

PENNSYLVANIA, DEPARTMENT OF ENVIRONMENTAL

PROTECTION:

Danjel Sammarco

District Mining Manager

Nels J. Taber

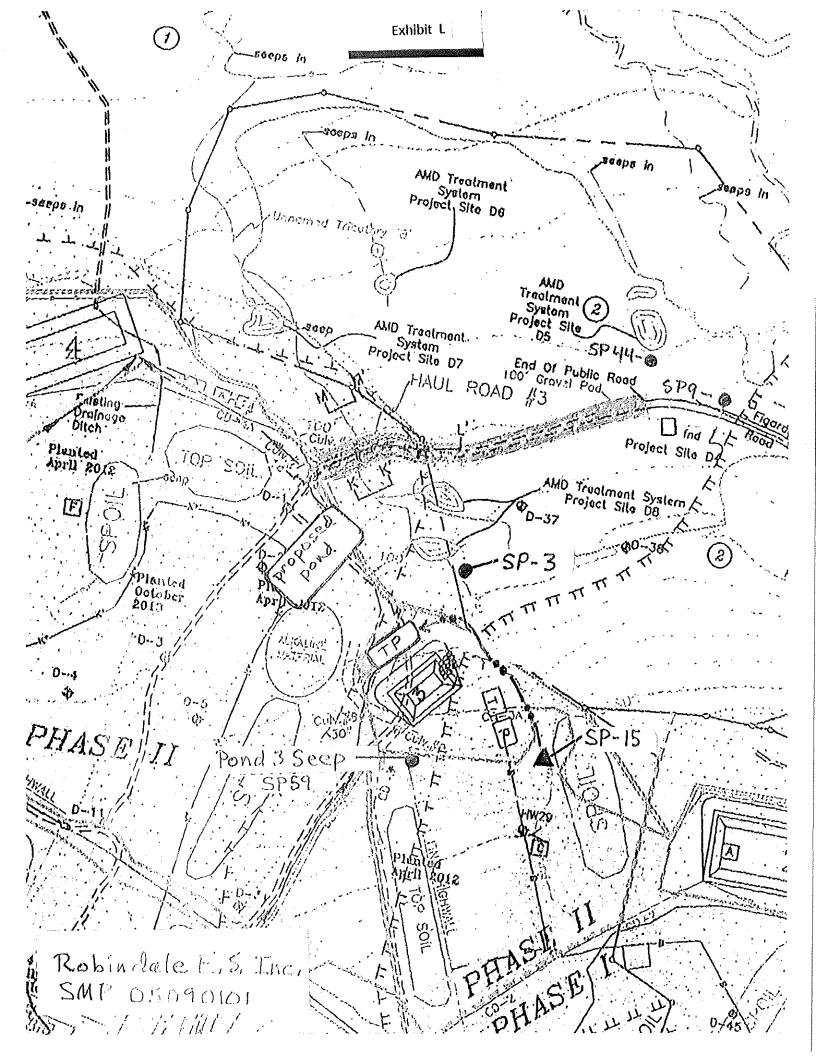
Regional Counsel

Southcentral Region OCC

List of Exhibits

| K. | 2014 | CO&A |
|-----|------|------|
| 77. | 2011 | |

- L. Mine Site Map
- M. Raw Water Quality
- N. Right of Entry for Additional Property Owners
- O. AMD Treatment Recapitalization Cost
- P. Payment Plan



SP59 Pond 3 Seep

| Date | Sample ID | Flow | рН | Alkalinity | Acidity | lron | Manganese | Aluminum | Sulfate | TSS |
|-------------------|-------------------|-------|-------------|------------|---------|------|-----------|----------|---------|-----|
| 6/11/201 3 | 4 336 -363 | 5-7 | 6 | 20.8 | 13.8 | 9.6 | 7.1 | 3.6 | 477.3 | 20 |
| 3/17/2014 | 4 336-1 98 | | 3.7 | 0 | 185.0 | 38.5 | 18.5 | _ 16.9 | 752.0 | 22 |
| 5/27/2014 | 4 336-3 55 | | 3.2 | 0 | 181.4 | 24.6 | 9.1 | 12.8 | 508.8 | <5 |
| 9/3/2014 | | 10 | | | | | | | | |
| 9/10/2014 | 4336-457 | | 3.2 | 0 | 286.4 | 55.3 | 18.4 | 23.1 | 811.4 | 8 |
| 12/9/2014 | | 25 | | | | | | | | |
| 3/31/201 5 | 4336-178 | 20-25 | 3 .3 | 0 | 248.0 | 50.1 | 15.4 | 16.4 | 718.7 | <5 |
| 5/20/201 5 | | 10 | | | | | | | | |
| Average | | | 3,35 | | 182.9 | 35.6 | 13.7 | 14.6 | 653.6 | |

Results in mod

Exhibit M

SP-3

| Date | Flow | Acidity | Iron | Manganese | Aluminum | sulfates |
|-------------|-------|---------|------|-----------|----------|----------|
| 4/14/2014 | 8.89 | 73.5 | 0.29 | 11.3 | 10.1 | 556 |
| 4/22/2014 | 8.98 | 66.9 | 0.09 | 9.6 | 8.09 | 537 |
| 4/30/2014 | 9.94 | 84.3 | 0.05 | 8.6 | 7.19 | 505 |
| 5/3/2014 | 11.67 | 67.8 | 0.04 | 9.7 | 8.47 | 528 |
| 5/13/2014 | 9.94 | 72.9 | 0.12 | 8.9 | 7.89 | 527 |
| 5/23/2015 | 14.79 | 68 | 0.19 | 9.3 | 8.61 | 482 |
| 5/29/2015 | 13.77 | 66.9 | 0.09 | 9.3 | 8.07 | 493 |
| 6/4/2014 | 8.98 | 65.8 | 0.19 | 10.4 | 7.99 | 522 |
| 6/11/2014 | 13.77 | 67.1 | 0.25 | . 10.1 | 8.67 | 472 |
| 6/13/2014 | 13.77 | 70.4 | 0.25 | 9.9 | 8.24 | 490 |
| 6/25/2015 | 13.77 | 75.3 | 0.23 | 10.5 | 10.6 | 503 |
| 7/1/2014 | 10.79 | 67.1 | 0.12 | 10.7 | 9.53 | 528 |
| 7/7/2014 | 9.94 | 74.1 | 0.1 | 12.1 | 7.62 | 588 |
| 7/17/2014 | 11.67 | 89,6 | 0.12 | 11.6 | 9.25 | - 582 |
| 7/25/2014 | 6.84 | 76 | 0.12 | 12.1 | 9.84 | 535 |
| 7/31/2014 | 5.84 | 67.2 | 0.2 | 11.4 | 7.23 | 552 |
| 8/6/2014 | 4,92 | 62.3 | 7.3 | 26 | 31.8 | 524 |
| 8/13/2014 | 4.92 | 77 | 0.25 | 12.2 | 7.99 | 596 |
| . 8/21/2014 | 3.91 | 80 | 0.04 | 12.34 | 10.83 | 534.4 |
| 8/26/2014 | 8.23 | 72 | 0.03 | 11.35 | 9.78 | 550 |
| 9/22/2014 | 4.4 | 104 | 0.02 | 12.85 | 10.61 | 628.06 |
| 10/21/2014 | 2.94 | 96 | 0.1 | 14.89 | 12.05 | 826.03 |
| 11/20/2014 | 5.2 | 112 | 0.22 | 16.65 | 14.17 | 889.03 |
| 12/18/2014 | 13.77 | 112 | 0.39 | 17.41 | 15.32 | 715.8 |
| 1,/27/2015 | 2.23 | 148 | 0.06 | 17.58 | 17.99 | 744.44 |
| 2721/2015 | 2.58 | 122 | 0.27 | 15.31 | 15.52 | 784.92 |
| 3/2//2015 | 9.94 | 110 | 0.03 | 14.13 | 13.25 | 696.57 |
| 4 (23/2015 | 5.48 | 74 | 0.02 | 11.25 | 9.91 | 538.23 |
| 5/14/2015 | 7.51 | 84 | 0.07 | 10.5 | 9.68 | 657.79 |
| av. | 3,9 | 83.0 | 0.4 | 12.3 | 10.9 | 589.1 |

Remits in mg/l flowingum

| a cours in mg, | /1 | | EVITIDIT IAL | | | |
|---------------------------|---------------------|---------|----------------|--------------|----------|----------------|
| Flow in gpm | | | SP-15 | | | |
| | | 1 | T . | | | T |
| Fate | loм | Acidity | Iron | Manganese | Aluminum | SO4 |
| 10/21/2011 | | | 0.19 | 1.18 | 1.18 | -{ |
| 03/15/2011 | | | 0.25 | 1.95 | 1.85 | |
| 12/14/2011 | | | 0.23 | 1.37 | 2.05 | · |
| 1/19/2012 | | | 0.14 | 1.04 | 1.45 | · |
| 2/7/2012 | | | 0.24 | 1.33 | 2.01 | |
| 87, 5/2012 | | | 0.2 | 1.33 | 1.57 | |
| 4/17/2012 | | ļ | 0.13 | 1.54 | 2.04 | |
| 1/ 1/2012 | | | 0.34 | 1.58 | 1.89 | |
| C/1.1/2012 | | | 0.22 | 1.86 | 2.89 | |
| 7/30/2012 | **** | | 0.41 | 2.6 | 3,23 | |
| 3 17 13/20 <u>12</u> | | | 0.47 | 3.2 | 4.87 | |
| 9 7/20 12 | | | 0.44 | 3.6 | 4.86 | 401 |
| 10/4/2012 | | | 0.64 | 4.6 | 7.94 | 516 |
| . 1/ 2/2012 | ···· | | 0.93 | 7.2 | 8.85 | 499 |
| 12/7/2012 | | | 0.95 | 5.3 | 6.77 | 538 |
| 1/2/2013 | | | 2.66 | 9.1 | 11.6 | 754 |
| 7 7/2013 | | | 4.45 | 11.8 | 16.8 | 852 |
| 1 1/2013 | | | 1.83 | 14 | 17.9 | 900 |
| 42 1/2013 | | | 3.66 | 10.7 | 15.8 | 698 |
| 111/2013 | | | 1.35 | 15.1 | 16.6 | 886 |
| 1 1/1 //2013 | | | 3.01 | 15.8 | 26.9 | 1210 |
| 1.723/2013 | | | 2.66 | 17.3 | 28.9 | 1510 |
| 17/1/2013 | , | | 2.94 | 17.3 | 30.8 | 1350 |
| 6±√2013 | | | 2.61 | 17.5 | 28 | 1370 |
| 7/1/2013 | | | 4.93 | -22.1 | 36,5 | 1120 |
| E/20/2013 | | | 5.2 | 16. 5 | 21 | 1040 |
| 1 1/5/2014 | | 323.4 | 15.2 | 21 .2 | 32.1 | 1864 |
| - 17 - F2014 T | 12.79 | 266.3 | 10.8 | 18.5 | 27.3 | 1074 |
| 1 37 72 14 | 8.98 | 289.3 | 9.4 | 20.8 | 30.6 | 1480 |
| /2014 | 4,92 | 322.5 | 10.7 | 23.7 | . 33.6 | 1560 |
| 72.14 | 14.79 | 298.3 | 11.7 | 20.1 | 29.1 | 1420 |
| 7.014 | 8.98 | 322.9 | 9.6 | 21.5 | 29.8 | 1750 |
| /.1/2016 | 8.23 | 306.5 | 8.3 | 24.9 | 34.2 | 1750 |
| 7./2014 | 5.48 | 323.4 | 8.6 | 25 | 36.9 | 1860 |
| 1772014 | 3.37 | 352 | 8.6 | 28 | 33.3 | 2140 |
| 7 7/2014 | 12.79 | 325.3 | 10.1 | 23.3 | 28.8 | 1750 |
| 757/2014 | 4.92 | 352.5 | 10.7 | 28 | 40.9 | |
| | 4.4 | 351.3 | 7.9 | 26.5 | | 1700 |
| 1/4.014 | 3.37 | | - | | 32.4 | 1890 |
| ; | | 314.8 | 0.18 6.5 | 13.6 | 8.23 | 1850 |
| 1 7 7 141 <u>7 7 141 </u> | 3.37 | 333.6 | | 23.6 | 29.1 | 1510 |
| i | 3.91 | 450 | 9.31 | 30.05 | 41.68 | 1161 |
| | 9,941 | 500 | 9.06 | 30.88 | 41.03 | 2166.3 |
| | 2.23 | 386 | 10.27 | 32.13 | 41.95 | 2013.7 |
| | 1.07 | 392 | 9.2 | 27.55 | 36.7 | 1940.24 |
| | 0.7 | 386 | 11.6 | 28.7 | 36.55 | 1678.08 |
| | 1.07 | 454 | 9.58 | 26.83 | 37.4 | 1845.89 |
| | $\frac{1.35}{1.35}$ | 364 | 11.18 | . 25.18 | 32.98 | 1678.08 |
| [14] - (14) - | 6.2 | 540 | 11.76 | 32.38 | 43.2 | 1736.11 |
| 1 2 1/2 141_ | 10.79 | 550 | 11.9 | 29.65 | 41.2 | 1736.11 |
| | 4.92 | 500 | 14.65 | 28.9 | 39.5 | 1261 |
| 1.77914 | 2.96 | 562 | 13.33 | 29.83 | 42.93 | 1273.44 |
| | 22.41 | 410 | 8.77 | 23.3 | 29.43 | 1225.49 |
| . 700 ML | <u> (88</u>) | 282 | 5.48 | 19.4 | 24.2 | 1256.13 |
| ha Zira | 2.51; | 350 | 6.96 | 22.45 | 29.25 | 1181.11 |
| 17 | 6.6 | 380.9 | 9,5 | 25.4 | 33.8 | 1625.4 |
| | | | | | | |

Exhibit M

SP-9

| Date | Flow | 27 | Alk | / idity | Iron | Mn | Al | SO4 | Notes |
|--------------------------|--------------|--------------|---------------|----------------|-------|-------|---|---------------------------------|---------------------------|
| 2/1/2001 | 3 | 2.5 | 0 | 44 | 9.84 | 3,23 | 0.677 | 266.8 | Pre-treatment |
| 3/29/2001 | 1 | 3.6 | 0 | 44 | 12 | 3.18 | | 248 | Pre-treatment |
| 5/14/2001 | 1 | 3.8 | 0 | 48 | 11.2 | 3.23 | <.5 | 264.2 | Pre-treatment |
| 7/10/2001 | 1.2 | 3.5 | 0 | 59.2 | 8.28 | 2.89 | <. 5 | 264.6 | Pre-treatment |
| 7/31/2001 | 1 | 3.5 | 0 | 57 | 9,52 | 3.22 | 0.597 | 300.3 | Pre-treatment |
| 9/26/2001 | 1.4 | 3.4 | 0 | 62.6 | 10.2 | 3.28 | <.5 | 216.8 | Pre-treatment |
| Ave | 1.43 | 3.62 | 0.00 | 52.47 | 10.17 | 3.17 | 0.64 | 260.12 | |
| Median | 1,10 | 3,05 | 0.00 | 52.50 | 10.02 | 3.23 | 0.64 | 264.40 | |
| | | | | | | | | | |
| 7/14/2008 | 1.5 | 6.3 | 37,3 | -18.8 | 19 | 2.55 | 0.1 | | Post-treatment Background |
| 8/11/2008 | 2 | 6.28 | 3 .5 | -13.3 | 27 | 3.1 | 0.16 | | Post-treatment Background |
| 9/12/2008 | 0.4 | - 3 3 | 4 .8 | 4 | 26 | . 3 | 0.11 | 26 1 | Post-treatment Background |
| 10/14/2008 | 0.4 | | 41.3 | 0 | 23.6 | 3 | 0,13 | 271 | Post-treatment Background |
| 11/19/2008 | 2.7 | 7 | 160 | -4.3 | 3.71 | 0.23 | 0.08 | 16.5 | Post-treatment Background |
| 12/15/2008 | 0.3 9 | | 51.3 | -7.5 | 25.3 | 3 | 0.07 | 201 | Post-treatment Background |
| 1/12/2009 | 3. 6 | 5 6 | 5 3 | -30.7 | 12.1 | 2.4 | 0.05 | | Post-treatment system |
| 2/9/2009 | 3 | [6.39] | 4 4.8 | -27.8 | 17.7 | 2,24 | 0.14 | | Post-treatment system |
| 6/11/2009 | 4 | 6.7 | 63.8 | -20.4 | 9.41 | 1.99 | ,, , , , , , , , , , , , , , , , , , , | | DEP Background |
| Ave | 1.9 4 | 6,34 | 43.73 | -13.20 | 18.20 | 2.39 | 0.11 | 195.89 | |
| Median | 2.0 0 | 6.32 | 48.30 | -13.30 | 19.00 | 2,55 | 0.11 | 2 07 . 5 0 | |
| | | , | | | | | | | |
| 5/10/2013 | 4.77 | 6.02 | 3 1.6 | 0 | 19.7 | 4.5 | 0.28 | 439 | |
| 9/ 9/2 013 | 1.5 | 1.07 | 2 .3 | 56.5 | 33,8 | 11.2 | 1.08 | 768 | |
| 11/6/2013 | 3. 5 | | 2 2 | 74.3 | 39.5 | 11.9 | 1.84 | 926 | |
| 2/7/2014 | <u>.</u> | 2.0 | 1.5 | 10) | 44.1 | 12.6 | 3.94 | 1304 | |
| 5/23/2014 | | | 1 1 4 | 67.4 | 36.6 | 9.9 | 2.99 | 579 | |
| 8/ 22/2014 | 3 | | 2 | 113.5 | 47.3 | 12.1 | 5,61 | 932 | |
| 11/ 11/2014 | 3 | .56 | 1- 9 | 128.1 | 57 | 17.3 | 9.38 | 1018 | |
| 12/9/2014 | 2 | 6 | 3 .5 | 90.8 | 48,04 | 13.28 | 7.14 | | DEP |
| 3/ 3/2015 | 2. 5 | 1-,26 | .2 | 158.6 | 49,6 | 13.4 | 3.91 | 1030 | |
| Ave | 3.25 | 5.70 | 19,/7 | 8 7. 80 | 41,74 | 11.80 | 4.02 | 8 52.29 | |
| Median | 3.0 0 | 5.67 | 1 6.70 | 90.80 | 44.10 | 12.10 | 3.91 | 92 9.00 | |

. Increase in acidity, Iron, an one, alumina in any sulfates noted since 9/9/13

Results in mg/f. Flow in apm

Exhibit M -

SP-44

| Date | Flow | | Alk | A idity | Iron | Mn | Al | SO4 | Notes |
|--------------------|-------------------|---------------------------------------|------|---------|-------|----------------|--------------|----------------|---------------------------|
| 1/ 10/2001 | 15 | 3.8 | 0 | 46 | <.3 | 4.81 | 5.55 | 265.1 | Pre-treatment |
| 2/1/2001 | 11 | 4 | 4 | 46 | <.3 | 3.88 | 4.92 | 225 | Pre-treatment |
| 3/29/2001 | 3 0 | 4 | 1.4 | 28 | <,3 | 1.91 | 2.59 | 121 | Pre-treatment |
| 5/14/2001 | 12 | 4 | 4 | 42 | <.3 | 2.54 | 4.72 | 170.4 | Pre-treatment |
| 7/10/2001 | 6. 6 | 3.6 | 0 | 87.2 | <.3 | 3.29 | 5.47 | 245.6 | Pre-treatment |
| 7/31/2001 | 6 | 3.7 | 0 | 85 | <.3 | 4.13 | 6.06 | 222 | Pre-treatment |
| 9/26/2001 | 4 | 3.7 | 0 | 78.6 | <.3 | 4.92 | 5.25 | 194 | Pre-treatment |
| | · | · · · · · · · · · · · · · · · · · · · | | | | · · · · | | | |
| 9/ 10/2008 | 5 | 1.06 | 0 | 56.3 | 0.1 | 4.4 | 6.4 | 240 | Post-treatment Background |
| 10/14/2008 | 0.36 | .76 | () | 43,3 | 0.08 | 4.9 | 6.28 | 24 9 | Post-treatment Background |
| 11/ 16/2003 | 3 | .33 | 0 | 50.3 | 0.11 | 5.3 | 5.98 | 251 | Post-treatment Background |
| 12/3 /24 | 12.89 | . 3 | .) | 30 | 0.1 | 3.7 | 4.8 | 16 2 | Post-treatment Background |
| 1/12/25 0 | 21.0 | .55 | - 1 | :5 | 0.04 | 2.8 | 4.33 | 98.5 | Post-treatment Background |
| 2/ 9/2009 | 2 | 98 | - 5 | 25.5 | 0.13 | 2.6 | 4.35 | 12 2 | Post-treatment Background |
| 6/ 11/2009 | 3() | 3.8 | ņ | 36.6 | <.3 | 1.96 | 4.39 | 152.4 | DEP Background |
| Λve | 13.41 | 2.11 | 0.63 | 40,00 | 0.09 | 3.67 | 5.2 2 | 1 82.13 | |
| Median | 12.8 8 | 3,33 | 0.39 | 40.00 | 0.10 | 3.70 | 4.8 0 | 162.00 | • |
| 11 /6/2013 | 4.7 | 4.04 | ol | 109.8 | 0.41 | 12.3 | 17.5 | 802 | |
| 2/7/2011 | 15 | -1.5 | 0 | 165.4 | 0.21 | 12.9 | 20.6 | 984 | |
| 5/22/2011 | 3() | 4.5 | 0 | 197.4 | 0.19 | 14.2 | 27.9 | 743 | |
| 8/22/2011 | 4.5 | 4.5 | 0 | 162.5 | 1.25 | 1 6.2 | 21.6 | 926 | |
| 11/11/2011 | 2 0 | 5.52 | 0 | 239.7 | 0.52 | 21.1 | 30.1 | 1104 | |
| 12, 1/3/ | _ · · | | 0 | 207.6 | 0.733 | 17.1 81 | 26.667 | | DEP Sample |
| 3,3/2 | | 1.75 | 0 | 163.4 | 0.35 | 15.2 | 12.4 | 1002 | |
| Ave | 12.8 | | 0.10 | 177.97 | 0.52 | 15.58 | 22.40 | 923.41 | |
| Median | 9,83 | 4.04 | 0.00 | 165,40 | 0.41 | 15,20 | 21.60 | 926.00 | • |

increase in acidity, many \pm 1, 3.0 minum and sulfates noted since 2/7/13.

Result din mg/L Flow hage



COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION BULGIAU OF MINING AND RECLAMATION

| Exhibit N | SMP 05090101 | |
|-----------|--------------|--|
| | Permit No. | |

CONSENTED RIGHT OF ENTRY FOR OPERATION AND MAINTENANCE OF A MINE DRAINAGE TREATMENT FACILITY COVERED BY A BOND OR A POST-MINING DISCHARGE TREATMENT TRUST AGREEMENT

| ement. | ;: List everyone with an ownership interest in the property which is the subject of thi |
|---|--|
| No .e: | Name: |
| Address: | Address: |
| WHERE described in Do the Property); | me Propery Owner(s) own surface property containing acres located in Township, County, Pennsylvania, and County Recorder's Office |
| b conized to a 2.S. §§ 1390. 541 | the Commonwealth of Pennsylvania, Department of Environmental Protection (DEP) is enister and enforce the Surface Mining Conservation and Reclamation Act 34.19a, the Chan Streams Law, 35 P.S. §§ 691.1-691.1001, and their implementing regulations the construction, operation and maintenance of facilities designed to remediate the effects of mineral construction. |
| WHEREAS the Properly pursua | ("Operator") conducted surface mining activities on or adjacent to Surface Mining Permit No; |
| from or passing | Bitch has determined that mine drainage caused by <i>Operator's</i> mining activities is discharging against the Property, and the mine drainage on the Property is causing pollution, or a danger of the Dommonwealth; |
| and maintain rates | Operator is required, under the mining law and its surface mining permit, to construct, operate discharge treatment facilities on a portion of the Property (the Treatment Facility Property), for any potational discharge(a); |
| WHE R | map showing the boundaries of the Treatment Facility Property is attached as Exhibit A; |
| institution as come Operator's legal of | Operator has posted a bond with the Department, or has established a trust with a financial derivative financial assurance mechanism, in order to provide sufficient funds to guarantee faction to operate and maintain the mine drainage treatment facilities on the Property and the for long-term treatment, or abatement, of the post-mining pollutional discharge(s) on the |
| WHEP to a document to the second second the second to the | some concliance with its legal obligations, Operator and DEP [and the Trustee] must have sent Facility Property to conduct and/or oversee the mine drainage treatment activities required and/or oversee. |
| WHER IT (and Trusto 1). (i) tain mine (| percent and DEP have requested and the Property Owner(s) is willing to grant Operator and ight of entry into, under, over and upon the Treatment Facility Property to construct, operate and jet a month of clittle ; |
| WHER: | the Property Owner(s) acknowledge that treatment of the mine drainage on the Property will a Property Owner and to the Commonwealth through abatement of a nuisance, restoration of a parations and to vention of pollution to waters of the Commonwealth: |

| 5 % 1 -FM-MR047 0 / | · |
|---|---|
| | * EFOLE, in consideration of the benefits which the Property Owner(s) and the general public will intention of being legally bound, it is agreed as follows: |
| Trus tee], its complete the T reatme nt of | <u>of Entry.</u> The Property Owner(s) hereby grants and conveys to <i>Operator</i> and DEP [and e.s., agents, survants, contractors and subcontractors, a right of entry into, under, over and upon ty Property. This right of entry includes all necessary rights of ingress, egress and regress with all and equipment needed to perform the discharge treatment activities. |
| macessary to comunication and and and and and and and and and an | Right of Entry. The term of this Right of Entry shall extend for the length of time lete the discharge treatment activities in accordance with applicable law. It is specifically that the term of this Right of Entry extends for the length of time necessary to operate and thage treatment facilities on the Treatment Facility Property, and shall only terminate when such a no longer necessary to remediate or prevent pollution to waters of the Commonwealth. |
| C. ↓ the require re | nce. DEP vill require Cocrator to obtain and keep in force insurance coverage in accordance is of 25 Pa. Co to § 86.168. |
| watton consta | orty U.e. During the term of this Right of Entry, the Property Owner(s) will not, without the LaP, make any use of the Property which will interfere with the construction, operation or Franchise reatment facilities installed on the Treatment Facility Property. |
| Projectly Owner, thin Right of En | and Property Owner(s) chall advise DEP, by notifying the Department representative whose |
| 6. orized to g | <u>sentetion of its mosts.</u> The Property Owners represent that they are the only persons access to the Totalment Facility Property. |
| | 10^{-50} Successes 8 . All the covenants, representations, consents, waivers and agreements 80° of the fing 6 on and increate the benefit of the parties and their heirs, successors and assigns. |
| For [Operator, | |
| Rane. | Witness |
| the Departmen | of Environmental Protection: |
| N | Witness |
| Mar Cl Office | TIMOGO |
| IN W⊓ acceptable and acceptable acceptable and acceptable and acceptable and acceptable and acceptable and acceptable and acc | WARREOF, lach of the parties set its respective hand and seal, for itself, its heirs, executors, and ascigns, intending to be legally bound, thisday of |
| , | V / V V V V V V V V V V V V V V V V V V |

. . Brita e: primi

T Property (195**h owne**r styr)

ted**rina**me un

(8) **À pi**int - **si**gn (ura.)

Exhibit N

5000-FM-MR0470 / 15

ACKNOWLEDGEMENT

| DIATE OF COUNTY OF | | : : | ss |
|--|---|--------------------|---|
| On this, the | day of | , 20 | , before me, the undersigned Notary, personally appeared |
| <u></u> | · | | (Name (s)) |
| eroom to me () e e e ow ladged l' : : | sfactority proves) to be , she or they) here exac | the persuted the s | son(s) whose name(s) is/are subscribed to this instrument, and who ame and desire it to be recorded. . |
| IN W(II) | V. EREOF, I h. ve here | under set | my hand and official seal, |
| (CEAU) | Hotary Pubac | | My Commission Expires: |

Company Notice Robindale Dudley

Project <u>Dudloy</u> Site 11. <u>Dudley</u>

AMD TREAT RECAPITIZALITION COST



AMOTREAT

Calculation Period 75 yrs Inflation Rate 8.43 % 3.10 % Net Return Rate Reconitizatition Non

| Recapitizalition Name | | <u> </u> | , | | | |
|-----------------------|-----------------------|----------|--------------------|---------------|----------------------|-------------|
| Λ. | В | С | D | E | F | G |
| Description of L.C | Unit Cost Per Item | Quantity | Total Item Cost | Life Cycle | Number of Periods | Total PV |
| 1. Ponds | 5,000 | 2 | 1 0,0 00 | 25 | 3 | 3,869 |
| 2. Caustic tank | 6,000 | 1 | 6,0 00 | 25 | 3 | 2,321 |
| 3. Divining | 500 | 1 | 500 | 10 | 7 | 740 |
| 4. Aldess Road | 1,000 | 1 | 1,000 | 10 | 7 | 1,481 |
| 5. | 0 | 0 | 0 | 0 | 0 | 0 |
| 6. | 0 | 0 | 0 | 0 | 0 | 0 |
| 7. | 0 | 0 | 0 | 0 | 0 | 0 |
| 8. | 0 | U | 0 | 0 | 0 | 0 |
| 9. | 0 | 0 | 0 | 0 | 0 | 0 |
| 10. | 0 | o | 0 | 0 | 0 | 0 |
| 11. | 0 | 0 | 0 | 0 | 0 | 0 |
| 12. | 0 | С | О | 0 | 0 | 0 |
| 13. | 0 | (: | С | 0 | 0 | 0 |
| 14. | O | 0 | 0 | 0 | 0 | 0 |
| 15. | o | o | 0 | 0 | 0 | . 0 |
| 16. | С | 0 | G | 0 | 0 | 0 |
| 17. | . 0 | (, | O | 0 | 0 | 0 |
| 18. | 0 | 0 | 0 | 0 | 0 | 0 |
| 19. | 0 | () | . 0 | 0 | 0 | 0 |
| 20. | U | 0 | υ | 0 | 0 | 0 |

Total Capital Cost 77,500 \$ PV Grand Total

8,411

Company Name Riche fale Dudley

Project Density
The Name Density

Life of Franch and 75 yrs

Inflation Eate 3.10 %

Reduce 1.2 8.43 %

AMD TREAT RECAPITIZALITION COST



| <u>'D</u> 146141. | אדםאה | | | | | 8.43 % | Kritti (C.) | |
|---------------------|-----------------------------|------------------------------|-------------------|--------|---------------------|-----------------------------|-------------------------------|------------------|
| nd Payout | Trust Fund | Tru st Fu nd | Year | | Payout | Trust Fund | TrustFen | Year |
| Schodul | Growth Fund After Payout | Growth Fund Before Payout | 10111 | | Schedule | Growth Fund After Payout | Grovat Fund Before Palitin | |
| yout | Tond Allor Layout | T und boloic i ayout | · | | Initial Fund Amount | 8,431 | | |
| 895 | 29,895 | 2 9,895 | 51 | | 0 | 9,120 | 9,120 | |
| | 32,415 | 32,415 | 52 | | 0 | 9,819 | | 2 |
| | 35,148 | 35,148 | <u>:/-E</u> 53 | 10 | 0 | 10,722 | | |
| | 38,111 | 38,111 | 54 | | 0 | 11,606 | 1 | 3 |
| | 41,324 | 41,324 | 55 | | 0 | 12,606 | | |
| | 44,807 | 44,807 | 56 | | 0 | 13,66 9 | , j | -6 |
| | 48,585 | 48,585 | 57 | 14, 44 | 0 | 14,872 | - | 7 |
| | 52,680 | 52,680 | 9.1 | | . 0 | 16,071 | 16. | |
| | 57,121 | 57,121 | 59 | | 0 | 17,4.6 | | |
| | 52,569 | 01,937 | | | 2,035 | 16,269 | | |
| | 57,001 | 7,001 | - <u>34</u> - | | 0 | 18,281 | | 11 |
| | 61,806 | 61,806 | 62 | | | 19,8. 2 | | |
| | 67,017 | 67,017 | 63 | | | 21,41 3 | | |
| | 72,666 | 72,666 | 64 | | 0 | 23,3, 5 | | |
| | 78,792 | 72,000 | | | <u>0</u> | 25,5. 3 | | |
| | | 05, 434 | -65 | | 0 | | | - ; |
| <u></u> | 85,434 | ୍ୟ 636 | 66 7 | | 0 | 27,400 | | <u> </u> |
| | 92,636 | | | | 0 | 29, 1 3 | | |
| | 100,445 | 100,445 | - 58 | | | \$2,2 4 | | 1 |
| | 108,913 | 103,913 | | | 0 700 | 34) | | 19 |
| | 105,383 | 1 8,095 | 70 | | 2,762 | 35,1-7 | | <u></u> 20 |
| | 114,267 | 114.267 | 1 | | 0 | 3:, 2 | | _2 |
| | 123,900 | 173,000 | 72 | | 0 | 41,2 | | _ 2 |
| | 134,344 | 134.544 | 113 | | 0 | 44,712 | | _2: .! |
| | 145,670 | 143,970 | 74 | | 0 | 48,6. 5 | | 24 |
| -0 157,950 | | 157,950 | 75 | | 34,323 | 18,3:4 | : | <u>2</u> ,, |
| 0 0 | | | 7.6 | | 0 | 19,6-7 | 1 4 | <u></u> |
| 0 0 | | 0 | _77 | | 0 | 21,5.0 | | 27 |
| 0 0 | | 0 | 7/3 | | 0 | 25,5 - } | | <u>.</u> |
| 0 0 | | 0 | _79 | | 0 | 25,3-1 | | 2 |
| 0 0 | | 0 | 60 | - i j | 3,748 | 25,65 | | |
| 0 0 | | 0 | 51 | | 0 | 25,62 | <u> </u> | 3_ |
| 0 0 | | 0 | | | 0 | 27, - 7 | | 52 |
| 0 0 | 0 | 0 | | | 0 | 30,100 | | 3 1 |
| 0 0 | 0 | . 0 | _4_1 | A 1 | 0 | 32. | | |
| 0 0 | 0 | . 0 | 60 | | 0 | 35,1 7 | · · | 35 |
| 0 0 | 0 | 0 | 16 | | 0 | 33,4.3 | | <u> </u> |
| 0 0 | 0 | 0 | _{57 | | . 0 | 41.7.3 | 4 | 37 |
| 0 0 | 0 | 0 | 1.3 | | 0 | 40,717 | | 26 |
| 0 0 | 0 | - 0 | _{-1. | | 0 | 12,6 | | × . |
| 0 0 | 0 | 0 | | | 5,086 | . 46(0 °) | | _44 |
| 0 0 | 0 | 0 | Ş- | 1 | 0 | $f(x_i) = f(x_i)$ | | 4.1 |
| 0 0 | 0 | 0 | _C2 | 1 | 6 | ₹ C, ! - ' | | 4 |
| 0 0 | 0 | 0 | Ę3 [] | | C | 611 7 | · | |
| 0 0 | 0 | G - | 14 | , | 0 | Lo to all | | 37 |
| 0 0 | 0 | 0 | 65 | : | 0 | 72 :] | | 45 |
| 0 0 | 0 | () | | | С | 76.11 | | 1 |
| — } , | 0 | 0 | : / | | 0 | 84, | | 4 [|
| | 0 | 0 | - · · · · · | | 0 | 9.1 | | |
| | 0 | 0 | | | 0 | | | 4. |
| ···· | 0 | . () | 100 | \$ | 80,532 | | | - :-: |

EXDIBIT P (Revised 7-19-16 for Amendment)

| | Á | Roded Dudicy (= S6SC,675,53) |
|-----------------------------------|----------------|---|
| Nacedsary <u>Tr</u> ost Velue | \$2,031,740,85 | \$3,104,070,124,07 \$3,104,070,12 \$3,201,024,08 \$3,300,462,1 \$3,300,462,1 |
| Calculy ted Ing <u>a Yalun</u> | \$442,000,000 | \$969,215,40 \$1,411,001,131 \$2,098,185,80 \$2,600,066,12 \$2,505,821,60 \$0,402,776,53 |
| | | deposit by January 1, 2015 deposit by January 1, 2015 deposit by January 1, 2018 deposit by January 1, 2018 deposit by January 1, 2019 deposit by January 1, 2019 |
| Annus! Contribution | () () | 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 |
| Initial Contribution | | |
| | ; ; | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |

ે આપ્તારા કાર્યા હતા પ્રાપ્ત કરણ હવા છે. 2010 જવક કાં, 451, 514,03 Primary TargetValuation as per May 5, 2016 annual trust fund meeting was \$3,011,610.26

| 20108 | 307.00 |
|-------------|------------|
| Inflation = | Earnings = |

Note: the final emount deposited by January 1, 2020 may need to be adjusted to correspond with the performance of the Trust Fund.