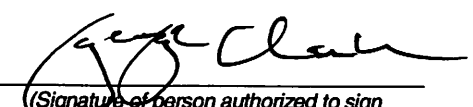
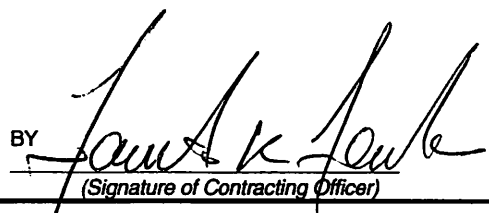


AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT				1. CONTRACT ID CODE		PAGE OF PAGES 1 3	
2. AMENDMENT/MODIFICATION NO. 0154		3. EFFECTIVE DATE See Block 16C		4. REQUISITION/PURCHASE REQ. NO.		5. PROJECT NO. (If applicable)	
6. ISSUED BY CODE SC Chicago Service Center Office of Science - Chicago U.S. Department of Energy 9800 South Cass Avenue Lemont IL 60439		892430		7. ADMINISTERED BY (If other than Item 6) Brookhaven Site Office U.S. Department of Energy 53 Bell Avenue, Building 464 Upton NY 11973		CODE 06005	
8. NAME AND ADDRESS OF CONTRACTOR (No. street, county, State and ZIP Code) Brookhaven Science Associates, LLC Attn: Kevin Fox Brookhaven National Laboratory Building 460, PO Box 5000 Upton New York 11973-5000				(x)		9. A. AMENDMENT OF SOLICITATION NO.	
						9. B. DATED (SEE ITEM 11)	
				X		10. A. MODIFICATION OF Contract/Order NO. DE-SC0012704	
						10. B. DATED (SEE ITEM 13) 12/22/2014	
CODE 027579460		FACILITY CODE N/A					
11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS							
<input type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers <input type="checkbox"/> is extended, <input type="checkbox"/> is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning ___ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.							
12. ACCOUNTING AND APPROPRIATION DATA (If required) N/A							
13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.							
<input type="checkbox"/> A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A. <input type="checkbox"/> B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B). <input type="checkbox"/> C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: <input checked="" type="checkbox"/> D. OTHER (Specify type of modification and authority) F.2 – Award Term Incentive; FAR 43.103 (a) Supplemental agreement							
E. IMPORTANT: Contractor <input type="checkbox"/> is not, <input checked="" type="checkbox"/> is required to sign this document and return <u>1</u> copies to the issuing office.							
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section heading, including solicitation/contract subject matter where feasible.) The purpose of this Modification is to extend the Period of Performance; revise Part I, Section B.3 – Performance Fee; revise Section F.1 – Period of Performance; revise Section H – Special Contract Requirements, TOC; update clause H.30; revise Part III, Section J – List of Documents, Exhibits, Attachments, TOC; update Appendix C – Special Financial Institution Account Agreement; and replace Appendix I – DOE Directives/List B.							
15A. NAME AND TITLE OF SIGNER (Type or print) George Clark Chief Financial Officer				16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Fausto R. Fernandez Contracting Officer			
15B. CONTRACTOR/OFFEROR		15C. DATE SIGNED 12/12/19		16B. UNITED STATES OF AMERICA		16C. DATE SIGNED 12/13/19	
 (Signature of person authorized to sign)				BY  (Signature of Contracting Officer)			

14. Description of Amendment/Modification (continued):

1. The purpose of this modification is to extend the period of performance end date from 1/4/2020 through 1/4/2024 in accordance with Federal Acquisition Regulation (FAR) 35.017. As Head of the Agency, The Department of Energy Secretary signed a memorandum to approve the continued sponsorship and designation of Brookhaven National Laboratory (BNL) as a Federally Funded Research and Development Center (FFRDC) dated 11/22/2019.
2. **Part I, Section B -Supplies or Services and Prices/Costs:** Section B is revised to update the following Sections.
 - a. **B.3 – Performance Fee, Paragraph (b):** This section is revised to add Award Term Earned table. See attachment provided herein.
 - b. **B.3 – Performance Fee, Paragraph (c):** This section is revised to update Award Term beyond date from January 4, 2020 to January 4, 2024. See attachment provided herein.
3. **Part I, Section F – Deliveries or Performance:** Section F is revised to update the following Section.
 - a. **F.1 – Period of Performance (a):** This section is revised to update the period of performance from January 4, 2020 to January 4, 2024. See the attachment provided herein.
4. **Part I, Section H – Special Contract Requirements, Table of Contents (TOC):** Section H is revised to update Clause H.30.

The following clause has been revised; replace the prior version with the updated attachment provided herein:

- a. **Clause H.30 – Lobby Restriction:** This clause is revised IAW PF 2019-09 Implementation of Division A, Title III and Title V of the Energy and Water, Legislative Branch, and Military Construction and Veterans Affairs Appropriations Act, 2019, Pub. L. No. 115-244.
5. **Part III, Section J – List of Documents, Exhibits, Attachments, Table of Contents (TOC):** Section J TOC is revised to reflect the following: update Appendix C – Special Financial Institution Account Agreement; and replace Appendix I – DOE Directives/List B.
 - a. **Appendix C – Special Financial Institution Account Agreement:** This section is revised to update the financial agreement. See the attachment provided herein.
 - b. **Appendix I – DOE Directives/List B** identified as Modification No. 0151 has been revised; replace the prior version with the attached Appendix I identified as Modification No. 0154. The revisions are as follows:

SUMMARY OF DIRECTIVE CHANGES			
ORDER	TITLE	CHANGE	NOTES
O 422.1 Chg 3 (MinChg)	Conduct of Operations	Update	Supersedes O 422.1 Chg. 2, and will replace O 422.1 Chg.1, which is currently in the BSA Prime Contract.
O 471.6 Chg 3 (Admin Chg)	Information Security	Update	Supersedes DOE O 471.6 Chg 2 (Admin Chg), dated 5-15-2015.

CONTINUATION SHEET	REFERENCE NO. OF DOCUMENT BEING CONTINUED DE-SC0012704/0154	PAGE 3	OF 3
---------------------------	--	-----------	---------

Attachments:

- Part I, Section B - Supplies or Services and Prices/Costs
 - ❖ B.3
- Part I, Section F – Deliveries or Performance
 - ❖ F.1
- Part I, Section H – Special Contract Requirements
 - ❖ H.30
- Part III, Section J – List of Documents, Exhibits, Attachments
 - ❖ Appendix C – Special Financial Institution Account Agreement
 - ❖ Appendix I – DOE Directives/List B

B.3 PERFORMANCE FEE

- (a) RESERVED
- (b) In implementation of the Section I Clause entitled "DEAR 970.5215-1 – Total Available Fee: Base Fee Amount and Performance Fee Amount", the Parties have agreed that the maximum available performance fees that may be earned by the Contractor in accordance with the provisions of Section J, Appendix B entitled "Performance Evaluation and Measurement Plan", for the performance of the work under this contract commencing January 5, 2015 are as follows:

Base Contract Period:

Performance Period	Performance Fee
1/5/15 – 9/30/15	\$5,175,000.00
10/1/15 – 9/30/16	\$6,900,000.00
10/1/16 – 9/30/17	\$6,900,000.00
10/1/17 – 9/30/18	\$6,900,000.00
10/1/18 – 9/30/19	\$6,900,000.00
10/1/19 – 1/4/20	\$1,725,000.00

Base fee under this contract is \$0. All fee dollars shall be in performance fee and at risk.

Award Term Earned:

Performance Period	Performance Fee
1/5/20 – 9/30/20	\$5,175,000.00
10/1/20 – 9/30/21	\$6,900,000.00
10/1/21 – 9/30/22	\$6,900,000.00
10/1/22 – 9/30/23	\$6,900,000.00
10/1/23 – 9/30/24	\$6,900,000.00

- (c) If DOE determines that the Contractor has earned any Award Term beyond January 4, 2024, in accordance with Section F.2 entitled "Award Term Incentive", the Parties have agreed that the maximum available annual performance fee that may be earned by the Contractor shall be:

Award Term Period:

Performance Period	Performance Fee
10/1/24 – 1/4/25	\$1,725,000.00

Base fee under this contract is \$0. All fee dollars shall be in performance fee and at risk.

- (d) The maximum available annual performance fee that may be earned by the Contractor for any additional extensions of the period of performance beyond the ten (10) years listed in the tables above shall be subject to negotiation between the Parties consistent with the Department of Energy Acquisition Regulation (DEAR) in effect at the time the fee is negotiated.
- (e) At the end of each fiscal year, there shall be no adjustment in the amount of the maximum available performance fee based on differences between any estimate of cost for performance of the work and the actual cost for performance of the work. Fee is subject to adjustment only –
 - 1) Under the provisions of Section I Clause entitled “DEAR 970.5243-1 – Changes”, or other contract provisions; or
 - 2) For a +/- 10 percent change in the estimated fee base of \$596,900,000.
- (f) Any adjustment in the amount of the fee under the provisions of paragraph (e) for the fees specified in paragraph (b) and (c) above, or negotiation of fee under paragraph (d) above, will be in accordance with the fee policy then in effect, utilizing the adjusted fee base and maintaining the same fee ratio proposed (i.e. proposed vs. maximum) by the Contractor during the contract competition and reflected in the current contract.

F.1 PERIOD OF PERFORMANCE

- (a) This contract shall be effective as specified in Block No. 28 – Award Date, of Standard Form 33, and shall continue up to and including January 4, 2024, unless sooner terminated according to its terms. The contract may be extended in accordance with Section F.2 entitled “Award Term Incentive”.
- (b) The contract transition period is from award date through January 4, 2015. The Contractor will assume full operational control of the Laboratory on January 5, 2015.
- (c) The contract's maximum period of performance, including the transition period and award term(s), if earned, shall not exceed 20 years, two (2) months.

CLAUSE H.30 – LOBBYING RESTRICTION

The Contractor agrees that none of the funds obligated on this award shall be expended, directly or indirectly, to influence congressional action on any legislation or appropriation matters pending before Congress, other than to communicate to Members of Congress as described in 18 USC § 1913. This restriction is in addition to those prescribed elsewhere in statute and regulation.

APPENDIX C

SPECIAL FINANCIAL INSTITUTION ACCOUNT AGREEMENT

**Applicable to the Operations of
Brookhaven National Laboratory**

**AMENDMENT TO
CHECKS-PAID METHOD OF LETTER OF CREDIT FINANCING**

This Amendment to Checks-Paid Method of Letter of Credit Financing is entered into as of November 19, 2019 (the "Amendment") by and among the United States of America, represented by the Department of Energy (referred to as the "Government" or the "DOE"); Brookhaven Science Associates, LLC, a Delaware limited liability company (referred to as the "Contractor"); and JPMorgan Chase Bank, N.A., a national banking association (referred to as the "Bank" or the "Financial Institution").

WITNESSETH

WHEREAS, on the effective date of December 22, 2014, DOE and Brookhaven Science Associates, LLC entered into Contract No. DE-SC0012704 which began on January 5, 2015 to manage and operate the Brookhaven National Laboratory, and provide for the transfer of funds on a payments-cleared basis;

WHEREAS, DOE required that amounts transferred to the Contractor thereunder be deposited in a special demand deposit account at a financial institution covered by Treasury-approved Government deposit insurance organizations that are identified in I TFM 6-9000;

WHEREAS, the special demand deposits were required to be kept separate from the Contractor's general or other funds, and the parties were agreeable to so depositing said amounts with the Financial Institution;

WHEREAS, with respect to the foregoing, the DOE, Contractor and Financial Institution entered into that certain "Checks-Paid Method of Letter of Credit Financing" as of August 10, 2015 (as the same may have been amended, supplemented or otherwise modified from time to time, the "Original Agreement");

WHEREAS, a complete and correct copy of the Original Agreement is attached hereto as Exhibit A; and

WHEREAS, DOE, Contractor and Financial Institution desire to amend the Original Agreement on the terms and subject to the conditions set forth herein.

NOW THEREFORE, in consideration of the benefits to be derived from this Amendment and the Original Agreement and of the mutual promises, obligations and agreements contained herein, the receipt and sufficiency of which is hereby acknowledged, the parties hereto, intending to be legally bound, do hereby agree as follows:

1. In the third paragraph of Covenant 5, the following sentence shall be deleted:

"The Financial Institution agrees that per-item costs, detailed in the Attachment A 'Quotation Pricing Sheet' will remain constant during the term of this Agreement."

and shall be replaced with the following sentence:

"The Financial Institution agrees that per-item costs, detailed in the Attachment A. 'Quotation Pricing Sheet' will remain constant through the 4th day of January 2020 and the per-item costs, detailed in the Attachment A-1 will be in effect from the 5th day of January 2020 through the 4th day of January 2025 (the 'Additional Term') and will remain constant during the Additional Term."

2. In Covenant 7, the first sentence shall be deleted and replaced with the following: "This Agreement, with all its provisions and covenants, shall be in effect through the 4th day of January, 2025."

3. Attachment A-1 of this Amendment shall be added at the end of the Original Agreement.

4. Except as amended by the provisions hereof, the Original Agreement shall remain in full force and effect in accordance with its terms.

5. This Amendment shall inure to the benefit of and shall be binding upon the DOE, Contractor and Financial Institution, their legal representatives, transferees, heirs, successors and assigns.

6. For the convenience of DOE, Contractor and Financial Institution, any number of counterparts hereof may be executed, and each such counterpart shall be deemed to be an original instrument.

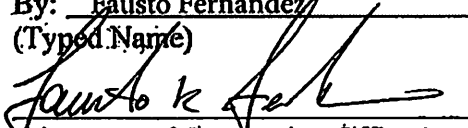
7. Capitalized terms used but not defined in this Amendment shall have the meanings given thereto in the Original Agreement.

[Remainder of Page Intentionally Left Blank].

IN WITNESS WHEREOF, the undersigned have executed this Amendment as of the date first above written.


Brookhaven Site Office
(Department of Energy Cognizant Office)

November 25, 2019
Date Signed

By: Fausto Fernandez
(Typed Name)

(Signature of Contracting Officer)
Contracting Officer,
Director of Business Division
(Title)
53 Bell Avenue, Building 464
Upton, New York 11973
(Address)

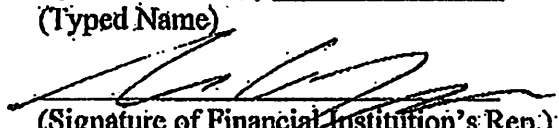
Brookhaven Science Associates, LLC
(Contractor)

November 22, 2019
Date Signed

By: George Clark
(Typed Name)

(Signature of Contractor's Rep.)
Chief Financial Officer
(Title)
40 Brookhaven Avenue, Building 460
Upton, New York 11973
(Address)

JPMorgan Chase Bank, N.A.
(Financial Institution)

11/19/19
Date Signed

By: Robert Young
(Typed Name)

(Signature of Financial Institution's Rep.)

Vice President
(Title)

601 Pennsylvania Avenue NW, Floor 6,
Washington, DC 20004
(Address)

Exhibit A

Copy of Original Agreement

[Attached]

APPENDIX C

SPECIAL FINANCIAL INSTITUTION ACCOUNT AGREEMENT

**Applicable to the Operations of
Brookhaven National Laboratory**

CHECKS-PAID METHOD OF LETTER OF CREDIT FINANCING

This agreement entered into August 10, 2015, between the United States of America, represented by the Department of Energy (referred to as the "Government" or the "DOE"); Brookhaven Science Associates, LLC, legal entity existing under the laws of the State of Delaware, or successor contractor, (also referred to as the "Contractor"); and JPMorgan Chase Bank, N.A., a national banking association organized under the laws of the United States of America with offices at 4 New York Plaza, Floor 13, New York, NY 10004 (also referred to as the "Bank" or the "Financial Institution").

RECITALS

(a) On the effective date of December 22, 2014, DOE and Brookhaven Science Associates, LLC entered into Contract No. DE-SC0012704 to begin on January 5, 2015 to manage and operate Brookhaven National Laboratory; and providing for the transfer of funds on a payments-cleared basis.

(b) DOE requires that amounts transferred to the Contractor there under be deposited in a special demand deposit account at a financial institution covered by Treasury-approved Government deposit insurance organizations that are identified in LTFM 6-9000.

These special demand deposits must be kept separate from the Contractor's general or other funds, and the parties are agreeable to so depositing said amounts with the Financial Institution.

(c) The special demand deposit account shall be designated Brookhaven Science Associates, LLC/ Brookhaven National Laboratory General Operating Account.

COVENANTS

In consideration of the foregoing, and for other good and valuable considerations, it is agreed that:

1. The Government shall have a title to the credit balance in said account to secure the repayment of all funds transferred to the Contractor, and said title shall be superior to any lien, title, or claim of the Financial Institution or others with respect to such accounts.
2. The Financial Institution shall be bound by the provisions of said Agreement(s) between DOE and the Contractor relating to the transfer of funds into the and withdrawal of funds from the above special demand deposit account, which are hereby incorporated into this Agreement by reference, but the Financial Institution shall not be responsible for the application of funds withdrawn from said account. After receipt by the Financial Institution of directions from DOE, the Financial Institution shall act thereon and shall be under no liability to any party hereto for any action taken in accordance with the said written directions. Any written directions received by the Financial Institution from the Government upon DOE stationery and purporting to be signed by, or signed at the written direction of, the Government may, insofar as the rights, duties, and liabilities of the Financial Institution are concerned, be considered as having been properly issued and filed with the Financial Institution by DOE.
3. DOE, or its authorized representatives, shall have access to financial records maintained by the Financial Institution with respect to such special demand deposit account at all reasonable times and for all reasonable purposes, including, but without limitation to, the inspection or copying of such financial records and any or all memoranda, checks, payment requests, correspondence, or documents pertaining thereto. Such financial records shall be preserved by the Financial Institution for a period of 6 years after the final payment under

the Agreement.

4. In the event of the service of any writ of attachment, levy of execution, or commencement of garnishment proceedings with respect to the special demand deposit account, the Financial Institution shall promptly notify DOE at:
U.S. Department of Energy, Brookhaven Site Office, Building 464, Upton, NY 11973
5. DOE shall authorize funds that shall remain available to the extent that obligations that have been incurred in good faith there under by the Contractor to the Bank for the benefit of the special demand deposit account. The Bank agrees to honor upon presentation for payment all payments issued by the Contractor and to restrict all withdrawals against the funds authorized to an amount sufficient to maintain the average daily balance in the special demand deposit account in a net positive as close to zero as administratively possible.

Notwithstanding the foregoing, in the event that the Bank has knowledge that funding in the DOE account at the Federal Reserve Bank of Richmond (the "DOE Fed Account") may be insufficient or unavailable, whereby the Bank would be unable to drawdown immediately available funds sufficient to fully fund the payments issued by the Contractor, the Bank may, in its sole discretion, hold and not release any or all of the payments issued by the Contractor. The Bank will resume normal processes once it is satisfied, in its sole discretion, that adequate funding is available via the DOE Fed Account.

The Financial Institution agrees to service the account in this manner based on the requirements and specifications contained in DOE Contract No. DE-SC0012704, dated December 22, 2014. The Financial Institution agrees that per-item costs, detailed in the Attachment A "Quotation Pricing Sheet" will remain constant during the term of this Agreement. The Financial Institution shall calculate the monthly fees based on services rendered and invoice the contractor. The contractor shall issue a check or automated clearinghouse authorization transfer to the Financial Institution in payment thereof.

6. The Financial Institution shall post collateral in accordance with 31 CFR 202 with the Federal Reserve Bank in an amount equal to the net balances in all of the accounts included in this Agreement (including the noninterest-bearing time deposit account), less the Treasury-approved deposit insurance.
7. This Agreement, with all its provisions and covenants, shall be in effect through the 4th day of January 2020. The Parties may extend the term of the Agreement for an additional period of time to be contemporaneous with any extension of time granted by DOE to the Contractor for the operation of Brookhaven National Laboratory. Such notice shall not commit DOE, the Contractor, or the Bank to the extension, which shall only occur after a formal amendment to the agreement is executed by the parties.
8. DOE, the Contractor, or the Financial Institution may terminate this Agreement at any time within the agreement period upon submitting written notification to the other parties 90 days prior to the desired termination date. The specific provisions for operating the account during this 90-day period are contained in Covenant 11.
9. DOE or the Contractor may terminate this Agreement at any time upon 30 days' written notice to the Financial Institution if DOE or the Contractor, or both parties, find that the Financial Institution has failed to substantially perform its obligations under this Agreement or that the Financial Institution is performing its obligation in a manner that precludes effective utilization of the Government's cash resources.
10. Notwithstanding the provisions of Covenants 8 and 9, in the event that the Agreement, referenced in Recital (a), between DOE and the Contractor is not renewed or is terminated, this Agreement between DOE, the Contractor, and the Financial Institution shall be

terminated automatically upon the delivery of written notice to the Financial Institution.

11. In the event of termination, the Financial Institution agrees to retain the Contractor's special demand deposit account for an additional 90-day period to clear outstanding payment items.

This Agreement shall continue in effect for the 90-day additional period, with exception of the following:

1. Term Agreement (Covenant 7)
2. Termination of Agreement (Covenant 8 and 9)

All terms and conditions of this agreement signed by the Financial Institution that are not inconsistent with this 90-day additional term shall remain in effect for this period.

The parties hereto have caused this Agreement, which consists of four pages including the signature page, to be executed as of the day and year first above written.

Brookhaven Site Office
(Department of Energy Cognizant Office)

August 10, 2015
Date Signed

By: Evelyn Landini
(Typed Name of Contracting Officer)

Evelyn Landini
(Signature of Contracting Officer)

Business Management Division Director
(Title)

P.O. Box 5000, Bldg. 464, Upton, NY 11973
(Address)

Brookhaven Science Associates, LLC
(M&O Contractor)

August 6, 2015
Date Signed

By: Peter Ferraro
(Typed name of Contractor's Representative)

Pt Ferraro
(Signature of Contractor's Representative)

Acting Chief Financial Officer
(Title)

P.O. Box 5000, Bldg. 400D, Upton, NY 11973
(Address)

JPMorgan Chase Bank, N.A.
(Typed name of Bank)

August 6, 2015
Date Signed

By: Eugene Waiters
(Name of Bank Representative)

Eugene T. Waiters
(Signature of Bank Representative)

Executive Director
(Title)

4 New York Plaza, Floor 13, New York, NY 10004
(Address)

Attachment A-1

[Attached]

J.P.Morgan

Catherine Ramm
Vice President
Treasury Services

July 17, 2018
Mr. Peter Ferrara
Fiscal Officer
Brookhaven Science Associates, LLC
Brookhaven National Laboratory
20 Brookhaven Avenue, Upton, NY 11973

Ref.: Add Bank Services to Existing Contract

Dear Peter,

As per your request, I am pleased to attach the fee schedule reflecting the 'Additional Payee name Verification' service. This letter serves to modify our August 10, 2015 Checks-Paid Method of Letter of Credit Financing Agreement by replacing Attachment A. The new Attachment A captures all the services used by Brookhaven Science Associates (BSA).

Our Payee Verification service enhances your protection against fraudulent checks when the payee name has been changed. It reduces the risk of payee line alteration by digitally comparing the payee field on check images to the corresponding payee name in the check issue file. This verification is provided as an extension of the Positive Pay service which allows you to monitor and control checks presented against your accounts.

The attached pricing also includes Quick Collect and associated services which were implemented as a contingency to Payroll payments in case of disaster recovery.

Kindly sign and return this letter for our mutual records.

Sincerely,

Catherine Ramm

Authorized BSA Officer Name and title (PRINT) George Clark, Chief Financial Officer

Signature:  Date: 07/20/2018

Authorized BSA Officer Name and title (PRINT) Robert Gordon Contracting Officer

Signature:  Date: 7-24-18

Catherine Ramm, Treasury Services Officer (PRINT): CATHERINE RAMM - VP

Signature:  Date: 7/19/18

Pricing quoted herein is valid for 60 days from the date of this presentation

Pro Forma Analysis

July 2018

J.P.Morgan

Customer: BROOKHAVEN SCIENCE ASSOC LLC
Banker/Treasury Sales Officer: CATHERINE RAMM

Service Analysis*

Service Description	AFP	Number of Units	Unit Price	Charge For Service	Annualized
ACCOUNT SERVICES					
105 - DAILY OVERDRAFT OCCURRENCE FEE	000212	1	\$0.0000	\$0.00	\$0.00
1005 - ACCOUNT MAINTENANCE	010000	5	\$24.0000	\$120.00	\$1,440.00
1006 - ACCT MAINT-INT	010010	1	\$31.1900	\$31.19	\$374.28
1010 - STATEMENT CYCLES	010307	6		\$0.00	\$0.00
+ 1304 - ARP PAID ITEM RETURN CREDIT	010101	1	\$0.0000	\$0.00	\$0.00
+ 1756 - ONLINE AUDIT CONFIRMATIONS	010630	2	\$0.0000	\$0.00	\$0.00
7640 - CREDIT POSTED - ELECTRONIC	010101	143	\$0.1300	\$18.59	\$223.08
7641 - DEBIT POSTED - ELECTRONIC	010100	240	\$0.0300	\$7.20	\$86.40
Subtotal				\$178.98	\$2,123.76
AUTOMATED CLEARING HOUSE					
2242 - FED CLEARING ORIGINATED ITEM	250199	5,171	\$0.0100	\$51.71	\$620.52
2244 - FED CLEARING ADDENDA	250199	1,025	\$0.0100	\$10.25	\$123.00
2695 - ACH MAINTENANCE	250000	2	\$75.0000	\$150.00	\$1,800.00
2700 - CREDIT ORIGINATED	250101	6,089	\$0.0700	\$426.23	\$5,114.76
2705 - DEBIT ORIGINATED	250100	30	\$0.0700	\$2.10	\$25.20
2716 - CREDIT RECEIVED	250201	92	\$0.0700	\$6.44	\$77.28
2717 - DEBIT RECEIVED	250200	161	\$0.0700	\$11.27	\$135.24
2763 - DELETION / REVERSAL - ELEC	250620	1	\$5.0000	\$5.00	\$60.00
2765 - ACH BATCH/FILE PROCESSED	250501	30	\$0.0000	\$0.00	\$0.00
2796 - ADDENDA RECORD ORIGINATED	250120	1,316	\$0.0200	\$26.32	\$315.84
+ 2809 - NOTIF OF CHANGE - EMAIL	251070	3	\$1.5000	\$4.50	\$54.00
+ 2810 - RETURN NOTIFICATION - EMAIL	250400	11	\$1.5000	\$16.50	\$198.00
2812 - NOTIF OF CHANGE - FAX	251071	3	\$4.0000	\$12.00	\$144.00
2821 - RETURN NOTIFICATION - FAX	250401	12	\$4.0000	\$48.00	\$576.00
+ 5159 - COP CLIENT PROGRAM MAINTENANCE	250000	1	\$150.0000	\$150.00	\$1,800.00
+ 5160 - COP TRANS DECLINE/EXPIRE	250101	1	\$0.2000	\$0.20	\$2.40
+ 5161 - COP TRANS ACCEPTED	250101	1	\$0.6500	\$0.65	\$7.80
Subtotal				\$920.32	\$11,054.04
BALANCE BASED CHARGES					
35 - BALANCE BASED CHARGES	000230	1	\$63.4800	\$63.48	\$761.76
Subtotal				\$63.48	\$761.76
BANKING CENTER SERVICES					
1306 - BRANCH CREDITS POSTED	100000	1	\$3.7500	\$3.75	\$45.00
Subtotal				\$3.75	\$45.00
DEPOSITORY SERVICES					
541 - REMOTE DEPOSIT CAPTURE ITEM	101320	67	\$0.1500	\$10.05	\$156.60
548 - REMOTE DEPOSIT CAPTURE MAINT	101300	2	\$20.0000	\$40.00	\$480.00
749 - COD DEPOSITORY CREDIT	999999	17	\$0.0000	\$0.00	\$0.00
1139 - SOFTWARE MAINTENANCE FEE	101300	1	\$20.0000	\$20.00	\$240.00
1400 - CREDITS POSTED	010101	13	\$1.1000	\$14.30	\$171.60
1435 - RETURN ITEM	100400	1	\$10.0000	\$10.00	\$120.00
1438 - RETURN ALTERNATE ADDRESS	100401	2	\$0.0000	\$0.00	\$0.00
1448 - RETURN DETAIL REPORTING	100411	2	\$1.5000	\$3.00	\$36.00
+ 1450 - RETURN ITEM REDEPOSIT	100402	1	\$8.0000	\$8.00	\$96.00
1455 - RETURN MAKER NAME	100430	2	\$0.5000	\$1.00	\$12.00
Subtotal				\$109.35	\$1,312.20
DISBURSEMENT SERVICES					
2205 - CONTROLLED DISB ACCT MAINT	150000	2	\$50.0000	\$100.00	\$1,200.00
2210 - CONTROLLED DISB CHECK POSTED	150110	1,214	\$0.0500	\$60.70	\$728.40
2338 - STOP PAYMENT AUTOMATIC RENEWAL	150412	2	\$4.0000	\$8.00	\$96.00
2370 - CHECK / DEBIT POSTED	010100	74	\$0.0400	\$2.96	\$35.52
3495 - IMAGE STORAGE PER ITEM	151351	1,212	\$0.0000	\$0.00	\$0.00
5234 - CONTROLLED DISB FUNDING	010112	42	\$0.0000	\$0.00	\$0.00
6618 - CHECK INQUIRY MAINTENANCE	151710	2	\$30.0000	\$60.00	\$720.00
6820 - RECON REPORT / STATEMENT MAINT	200306	2	\$18.0000	\$36.00	\$432.00
6825 - EXCEPTION NOTIFICATION - ACCT	150030	2	\$10.0000	\$20.00	\$240.00
6839 - STOP PAYMENT - ELECTRONIC	150410	13	\$7.0000	\$91.00	\$1,092.00
6844 - ISSUE INPUT UPLOAD	200201	28	\$10.0000	\$280.00	\$3,360.00
Subtotal				\$658.66	\$7,803.92
INT REC & PAY - REPORT					
+ 6179 - RECEIVABLES MAINT - ONLINE	050005	2	\$10.0000	\$20.00	\$240.00
+ 6187 - LONG TERM STORAGE - CHECK	050620	187	\$0.0000	\$0.00	\$0.00
Subtotal				\$20.00	\$240.00
INTERNATIONAL SERVICES					
3941 - DEPOSITED CHECK - CANADIAN	609999	1	\$25.0000	\$25.00	\$300.00
Subtotal				\$25.00	\$300.00
JPMORGAN ACCESS					
6040 - MONTHLY SERVICE	400810	1	\$0.0000	\$0.00	\$0.00
6041 - ACCOUNTS REPORTED	400442	6	\$98.6000	\$579.60	\$6,955.20

6043 - TRANSACTIONS REPORTED - 45 DAY	400682	477	\$0.1000	\$47.70	\$572.40
6052 - CONT DISB CHECKS REPORTED	400682	1,218	\$0.1000	\$121.80	\$1,481.60
6053 - EXTENDED TRANSACTION DETAIL	400682	4,846	\$0.0000	\$0.00	\$0.00
Subtotal				\$749.10	\$8,689.20
OTHER CHARGES AND CREDITS					
8809 - RESEARCH ADJUSTMENT CREDIT	999999	1	\$0.0000	\$0.00	\$0.00
8810 - RESEARCH ADJUSTMENT DEBIT	999999	1	\$0.0000	\$0.00	\$0.00
Subtotal				\$0.00	\$0.00
RECONCILIATION SERVICES					
3209 - PARTIAL RECONCILEMENT - MAINT	200020	2	\$125.0000	\$250.00	\$3,000.00
3210 - PARTIAL RECONCILIATION-PER ITEM	200120	1,214	\$0.0300	\$36.42	\$437.04
++ 3228 - PAYEE NAME VERIFICATION - Anticipated volume	150122	1439	\$0.0300	\$43.17	\$518.04
3262 - POSITIVE PAY MAINTENANCE	150030	2	\$0.0000	\$0.00	\$0.00
3263 - EXCEPTION ITEM	150300	2	\$2.0000	\$4.00	\$48.00
* 3272 - CHECK EXCEPTION RETURN	150320	2	\$10.0000	\$20.00	\$240.00
3291 - OUTPUT FILE		21	\$10.0000	\$210.00	\$2,520.00
3294 - DATA ENTRY - MANUAL	200210	2	\$2.5000	\$5.00	\$60.00
3386 - IMAGE CAPTURE PER ITEM	151351	1,212	\$0.0500	\$60.60	\$727.20
Subtotal				\$588.05	\$7,550.28
WIRE - U.S.					
5443 - SOFT STANDARD CALCULATION	409999	21	\$0.0000	\$0.00	\$0.00
* 5445 - FW SURCHARGE POST 5PM RECEIPT	350599	1	\$0.2600	\$0.26	\$3.12
* 5446 - FW SURCHARGE \$10 MILLION+ D/C	350599	1	\$0.0000	\$0.00	\$0.00
5822 - ELECTRONIC BOOK DEBIT S/T	350124	36	\$5.0000	\$180.00	\$2,160.00
5823 - ELECTRONIC BOOK DEBIT REPAIR	350122	2	\$5.0000	\$10.00	\$120.00
5824 - ELECTRONIC FED DEBIT S/T	350100	4	\$5.0000	\$20.00	\$240.00
5826 - ELECTRONIC CHIP DEBIT S/T	350110	9	\$5.0000	\$45.00	\$540.00
* 5827 - ELECTRONIC CHIP DEBIT REPAIR	350541	2	\$5.0000	\$10.00	\$120.00
5836 - ELECTRONIC FX DEBIT	600221	8	\$8.0000	\$64.00	\$768.00
5838 - ELECTRONIC FX DEBIT	600221	1	\$5.0000	\$5.00	\$60.00
5841 - BANK INITIATED BOOK DEBIT	350220	1	\$0.0000	\$0.00	\$0.00
5842 - BANK INITIATED FED DEBIT	350220	1	\$6.5000	\$6.50	\$78.00
* 5851 - ELECTRONIC FX DEBIT, "OUR"	600221	2	\$8.0000	\$16.00	\$192.00
** 5880 - ELECTRONIC LINESHEET SET-UP	359999	1	\$5.2500	\$5.25	\$63.00
5882 - REPETITIVE INSTRUCTION STORAGE	350551	4	\$0.0000	\$0.00	\$0.00
5883 - FED TRANSFER FEE	350599	26	\$0.0000	\$0.00	\$0.00
5884 - CHIPS MESSAGE FEE	350599	11	\$0.0000	\$0.00	\$0.00
5886 - BOOK CREDIT	350320	5	\$2.0000	\$10.00	\$120.00
5887 - FED CREDIT S/T	350300	23	\$8.5000	\$195.50	\$2,346.00
5889 - CHIPS CREDIT S/T	350300	5	\$8.5000	\$42.50	\$510.00
5890 - CHIPS CREDIT REPAIR	350330	1	\$10.7500	\$10.75	\$129.00
5927 - MAIL DEBIT ADVICE	350412	11	\$2.0000	\$22.00	\$264.00
5928 - MAIL CREDIT ADVICE	350412	29	\$2.0000	\$58.00	\$696.00
5962 - ELEC. DRAWDOWN FED REQUEST	350521	21	\$3.0000	\$63.00	\$756.00
5967 - RETURNED PAYMENT INVESTIGATION	350560	2	\$0.0000	\$0.00	\$0.00
5968 - UNEXECUTED PAYMENT	350560	1	\$25.0000	\$25.00	\$300.00
5979 - ESERVE INQUIRY CONFIRMATIONS	350560	1	\$0.0000	\$0.00	\$0.00
* 6300 - INV CREDIT NOT CHARGED	359999	1	\$0.0000	\$0.00	\$0.00
* 6327 - INVESTIGATION ADVICE - ALL	350402	1	\$0.0000	\$0.00	\$0.00
* 6408 - ADVICE - NOT CHARGE	999999	41	\$0.0000	\$0.00	\$0.00
* 8487 - INCOMING FX CREDIT	600221	1	\$2.0000	\$2.00	\$24.00
Subtotal				\$729.51	\$8,817.12

Total Charge for Services **\$4,042.20** **\$49,097.28**

Pro forma Notes, Assumptions & Disclaimers

* Volumes and Balances on this Pro Forma are estimated. Actual volumes and balances may be different, which will result in different charges than are specified above.

** Denotes Service is a one-time charge and will not appear on customer statement on a monthly basis.

++ Denotes a new service, additional volume, and/or a new price.

APPENDIX I

DOE Directives/List B

**Applicable to the Operations of
Brookhaven National Laboratory**

There is no List A to this Appendix.

List B to this Appendix contains the following:

Part I: "Directives List"

This section contains a list of Directives that are considered by DOE as applicable to the BNL contract.

Appendix I - Part I
DOE DIRECTIVES LIST

DOE Directives may be found at the following address: <http://www.directives.doe.gov>

ISSUED	TYPE	NUMBER	THROUGH CHANGE	TITLE Includes Compliance Notes as Necessary
9/29/1995	Order	130.1		Budget Formulation
9/4/2008	Manual	142.2-1	Chg. 1 (Admin Chg.) 6/27/13	Manual for Implementation of the Voluntary Offer Safeguards Agreement and Additional Protocol with the International Atomic Energy Agency
12/15/2006	Order	142.2A	Chg. 1 (Admin Chg.) 6/27/13	Voluntary Offer Safeguards Agreement and Additional Protocol with the International Atomic Energy Agency
10/14/2010	Order	142.3A	Chg.1 (Minor Chg.) 01/18/2017	Unclassified Foreign Visits and Assignments Program
3/31/2014	Order	150.1A		Continuity Programs
8/11/2016	Order	151.1D		Comprehensive Emergency Management System
6/27/2007	Order	153.1		Departmental Radiological Emergency Response Assets
12/23/2008	Order	200.1A	Chg.1 (Minor Chg.) 01/13/2017	Information Technology Management
1/7/2005	Order	203.1		Limited Personal Use of Government Office Equipment Including Information Technology
5/15/2019	Order	205.1C		Department of Energy Cyber Security Program
1/16/2009	Order	206.1	Chg.1 (Minor Chg.) 11/1/2018	Department of Energy Privacy Program
2/19/2013	Order	206.2		Identity, Credential and Access Management (ICAM)
4/8/2011	Order	210.2A		DOE Corporate Operating Experience Program
9/27/2016	Order	221.1B		Reporting Fraud, Waste, and Abuse to the Office of Inspector General
2/25/2008	Order	221.2A		Cooperation with the Office of Inspector General
3/4/2011	Order	225.1B		Accident Investigations
12/21/2015	Order	227.1A		Independent Oversight Program
6/27/2011	Order	231.1B	Chg. 1 (Admin Chg.) 11/28/12	Environment, Safety and Health Reporting
1/17/2017	Order	232.2A		Occurrence Reporting and Processing of Operations Information
12/13/2010	Order	241.1B	Chg. 1 (Admin Chg.) 4/26/16	Scientific and Technical Information Management
3/11/2013	Order	243.1B	Chg. 1 (Admin Chg.) 7/8/13	Records Management Program

Appendix I - Part I DOE DIRECTIVES LIST

DOE Directives may be found at the following address: <http://www.directives.doe.gov>

ISSUED	TYPE	NUMBER	THROUGH CHANGE	TITLE Includes Compliance Notes as Necessary
2/23/2011	Order	252.1A	Chg. 1 (Admin Chg.) 3/12/13	Technical Standards Program
11/19/2009	Order	313.1		Management and Funding of the Department's Overseas Presence
10/18/2007	Order	341.1A Parts: 1.(a- b) 2.a(1-3) 2.a(4)(a-h)		Federal Employee Health Services
9/30/1996	Order	350.1	Chg. 6 (Minor Chg.) 2/1/18	Contractor Human Resource Management Programs
8/17/2009	Order	410.2	Chg. 1 (Admin Chg.) 4/10/14	Management of Nuclear Materials
1/4/2017	Order	411.2		Scientific Integrity
1/4/2017	Policy	411.2A		Scientific Integrity Policy
10/28/2008	Order	413.1B		Internal Control Program
10/22/2015	Order	413.2C	Chg.1 (Minor Chg.) 8/2/18	Laboratory Directed Research and Development
11/29/2010	Order	413.3B	Chg. 5 (Minor Chg.) 4/12/18	Program and Project Management for the Acquisition of Capital Assets
4/25/2011	Order	414.1D	Chg. 1 (Admin Chg.) 5/8/13	Quality Assurance
12/3/2012	Order	415.1	Chg. 2 (Minor Chg.) 1/17/2017	Information Technology Project Management
12/4/2012	Order	420.1C	Chg.2 (Minor Chg.) 7/26/18	Facility Safety Compliance Note: CRD Chapters 1, 3, and 5 only are applicable to BNL Hazardous Category 1, 2, or 3 nuclear facilities. Currently these type of nuclear facilities do not exist at BNL. The requirements of DOE O 420. 1C Chg. 2 CRD Chapters 2 (Fire Protection) and 5 (Natural Phenomena Hazards Mitigation) apply to BNL
7/21/2011	Order	420.2C		Safety of Accelerator Facilities

Appendix I - Part I DOE DIRECTIVES LIST

DOE Directives may be found at the following address: <http://www.directives.doe.gov>

ISSUED	TYPE	NUMBER	THROUGH CHANGE	TITLE Includes Compliance Notes as Necessary
6/29/2010	Order	422.1	Chg. 3 (Minor Chg.) 10/4/19	Conduct of Operations Compliance Note: Applicable to Hazardous Category 1, 2, or 3 nuclear facilities and other facilities as defined by BSA in a Program Plan approved by BHSO
11/25/2016	Policy	434.1B		Conduct and Approval of Select Agent and Toxin Work at Department of Energy Sites
7/9/1999	Order	435.1	Chg. 1 (Pg Chg) 8/28/01	Radioactive Waste Management
7/9/1999	Manual	435.1-1	Chg. 1 (Admin Chg.) 6/19/01	Radioactive Waste Management Manual
5/2/2011	Order	436.1		Departmental Sustainability
6/15/2011	Order	440.2C	Chg. 1 (Admin Chg.) 6/22/11	Aviation Management and Safety
3/7/2008	Manual	441.1-1	Chg. 1 (Admin Chg.) 02/24/16	Nuclear Material Packaging Manual
1/31/2019	Order	442.1B		Department of Energy Employee Concerns Program
7/29/2011	Order	442.2	Chg.1 (Pg.Chg.) 10/5/2016	Differing Professional Opinions for Technical Issues Involving Environment, Safety and Health
3/17/2011	Order	443.1B	Chg. 1 (Pg.Chg.) 4/21/16	Protection of Human Research Subjects
7/21/2011	Order	452.8		Control of Nuclear Weapon Data
7/15/2016	Order	456.1A		The Safe Handling of Unbound Engineered Nanoparticles
2/11/2011	Order	458.1	Chg. 3 (Admin Chg.) 1/15/13	Radiation Protection of the Public and the Environment
12/20/2016	Order	460.1D		Hazardous Materials Packaging and Transportation Safety
12/22/2004	Order	460.2A		Departmental Material Transportation and Packaging Management
6/4/2008	Manual	460.2-1A		Radioactive Material Transportation Practices Manual
11/23/2016	Order	470.3C		Design Basis Threat (DBT) Order
7/21/2011	Order	470.4B	Chg. 2 (Minor Chg.) 1/17/2017	Safeguards and Security Program
6/2/2014	Order	470.5		Insider Threat Program

Appendix I - Part I DOE DIRECTIVES LIST

DOE Directives may be found at the following address: <http://www.directives.doe.gov>

ISSUED	TYPE	NUMBER	THROUGH CHANGE	TITLE Includes Compliance Notes as Necessary
9/2/2015	Order	470.6	Chg.1 (Minor Chg.) 1/11/2017	Technical Security Program
3/1/2010	Order	471.1B		Identification and Protection of Unclassified Controlled Nuclear Information
4/9/2003	Order	471.3	Chg. 1 (Admin Chg.) 1/13/2011	Identifying and Protecting Official Use Only Information
4/9/2003	Manual	471.3-1	Chg. 1 (Admin Chg.) 1/13/2011	Manual for Identifying and Protecting Official Use Only Information
6/20/2011	Order	471.6	Chg. 3 (Admin Chg.) 9/12/2019	Information Security
7/21/2011	Order	472.2	Chg. 1 (Pg Chg.) 7/9/14	Personnel Security
3/23/2016	Order	473.3A	Chg.1 (Minor Chg.) 1/2/2018	Protection Program Operations
6/27/2011	Order	474.2	Chg. 4 (Pg.Chg.) 9/13/2016	Nuclear Material Control and Accountability
12/10/2004	Order	475.1		Counterintelligence Program
10/3/2014	Order	475.2B		Identifying Classified Information
12/20/2018	Order	481.1E		Strategic Partnership Projects [Formerly Known as Work for Others (Non-Department of Energy Funded Work)]
12/20/2016	Order	483.1B	Chg. 1 (Minor Chg.) 2/8/2019	DOE Cooperative Research and Development Agreements
8/17/2006	Order	484.1	Chg. 2 (Admin Chg.) 6/30/14	Reimbursable Work for the Department of Homeland Security
1/19/2017	Policy	485.1		Foreign Engagements with DOE National Laboratories
6/7/2019	Order	486.1		Department of Energy Foreign Government Talent Recruitment Programs
8/2/2018	Order	522.1A		Pricing of Departmental Materials and Services
1/6/2003	Order	534.1B		Accounting
4/2/2012	Order	551.1D	Chg. 2 (Minor Chg.) 8/11/16	Official Foreign Travel

Appendix I - Part I
DOE DIRECTIVES LIST

DOE Directives may be found at the following address: <http://www.directives.doe.gov>

ISSUED	TYPE	NUMBER	THROUGH CHANGE	TITLE Includes Compliance Notes as Necessary
3/30/2012	Order	580.1A	Chg. 1 (Admin Chg.) 10/22/12	Department of Energy Personal Property Management Program