

Form 9-1366
(May 2018)

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement

Customer #: 600000503
Agreement #: 19MCJFA0400
Project #:
TIN #:
Fixed Cost Agreement Yes No

FOR
WATER RESOURCES INVESTIGATIONS

THIS AGREEMENT is entered into as of the 19 day of December of 2018, by the U.S. GEOLOGICAL SURVEY, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the PUERTO RICO ELECTRIC POWER AUTHORITY, party of the second part.

- The parties hereto agree that subject to availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation **WATER RESOURCES INVESTIGATIONS (Annual Program) – Scope of Work (SOW) in Attachment(s)**, herein called the program. The USGS legal authority is 43 USC 36C; 43 USC 50; and 43 USC 50b.
- The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program. 2(b) includes In-Kind Services in the amount of \$0.

(a) **\$169,533.00** by the party of the first part during the period
January 1, 2019 to December 31, 2019

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(b) **\$600,527.00** by the party of the second part during the period
January 1, 2019 to December 31, 2019

Total: \$770,060

(c) Contributions are provided by the party of the first part through other USGS regional or national programs, in the amount of \$0.

Description of the USGS regional / national program:

(e) The performance period may be changed by mutual agreement and set forth in an exchange of letters between both parties.

3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.

4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part. **If a station is found malfunctioning, it must be repaired or serviced by the USGS within 30 working days.**

5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the party of the first part to insure the required standards of accuracy subject to modification by mutual agreement.

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continued

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6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner, either party may terminate this agreement upon 60 days written notice to the other party.
7. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other party.
8. The maps, records, or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records, or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program, and, if already published by the party of the first part shall, upon request, be furnished by the party of the first part, at cost, impressions suitable for purposes of reproduction similar to that for which the original copy was prepared. The maps, records, or reports published by either party shall contain a statement of the cooperative relations between the parties.
The Parties acknowledge that scientific information and data developed as a result of the Scope of Work (SOW) are subject to applicable USGS review, approval, and release requirements, which are available on the USGS Fundamental Science Practices website (<https://www2.usgs.gov/fsp/>).
9. *DMK* Billing for this agreement will be rendered **QUARTERLY**. Invoices not paid within 60 days from the billing date will bear Interest, Penalties, and Administrative cost at the annual rate pursuant the Debt Collection Act of 1982, (codified at 31 U.S.C. § 3717) established by the U.S. Treasury.

U.S. Geological Survey (USGS)
United States
Department of the Interior

Commonwealth of Puerto Rico
Puerto Rico Electric Power Authority (PREPA)

USGS Technical Point of Contact

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Hydrologic Data Chief – San Juan
Office

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PREPA Technical Point of Contact

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Form 9-1366
continued

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement

Customer #: 6000000503
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Project #:
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USGS Billing Point of Contact

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U.S. Geological Survey (USGS)
United States
Department of the Interior

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Commonwealth of Puerto Rico
Puerto Rico Electric Power Authority (PREPA)

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San Juan, Puerto Rico 00936-4267

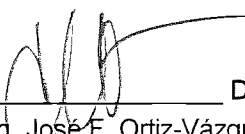
Telephone: (787) 521-4667
Email: jose.ortiz@prepa.com

Signatures

By  Date 7-26-18
Name: David M. Sumner, Ph.D., PG
Title: Director, USGS Caribbean-Florida Water
Science Center

S.S.
DUNS#:

Signatures

By  Date December 19, 2018
Name: Eng. José F. Ortiz-Vázquez
Title: Chief Executive Officer

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COST ESTIMATES

(Cover Sheet)

JAN. 1, 2019 TO DEC. 31, 2019 COOPERATIVE WATER RESOURCES INVESTIGATIONS PROGRAM PUERTO RICO ELECTRIC POWER AUTHORITY (PREPA) AND U.S. GEOLOGICAL SURVEY (USGS)

PROJECTS	PREPA FUNDS	USGS FUNDS	TOTAL FUNDS
SURFACE-WATER PROGRAM			
ANNUAL OPERATION & MAINTENANCE OF LAKE STATIONS / COLLECTION & PROCESSING OF LAKE ELEVATION DATA AT NEAR REAL-TIME USING SATELLITE TELEMTRY	\$61,450	\$43,550	\$105,000
ANNUAL OPERATION & MAINTENANCE OF LAKE AND RAIN-GAGE STATIONS / COLLECTION & PROCESSING OF LAKE ELEVATION AND PRECIPITATION DATA AT NEAR REAL-TIME USING SATELLITE TELEMTRY	\$66,010	\$33,600	\$99,610
ANNUAL OPERATION & MAINTENANCE OF CONTINUOUS DISCHARGE & RAIN-GAGE STATIONS / COLLECTION & PROCESSING OF DISCHARGE, AND PRECIPITATION DATA AT NEAR REAL-TIME USING SATELLITE TELEMTRY	\$40,820	\$17,350	\$58,170
IRRIGATION SYSTEMS -- ANNUAL OPERATION & MAINTENANCE OF RIVER AND CANAL CONTINUOUS DISCHARGE STATIONS / COLLECTION & PROCESSING OF CONTINUOUS DISCHARGE DATA AT NEAR REAL-TIME USING SATELLITE TELEMTRY	\$421,850	\$71,150	\$493,000
STAND ALONE RAIN GAGE NETWORK - ANNUAL OPERATION & MAINTENANCE OF STAND ALONE RAIN GAGES	\$6,717	\$3,483	\$10,200
GATE-OPENING SENSORS - ANNUAL OPERATION AND MAINTENANCE	\$3,680	\$400	\$4,080
TOTALS	\$600,527	\$169,533	\$770,060

Attachment to: JFA 19MCGJFA0400

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**CALENDAR YEAR 2019 COOPERATIVE WATER RESOURCES INVESTIGATIONS PROGRAM
PUERTO RICO ELECTRIC POWER AUTHORITY (PREPA) AND U.S. GEOLOGICAL SURVEY (USGS)
(Detailed Cost Estimates for Station Operations)**

PROJECT	PREPA FUNDS	USGS FUNDS	TOTAL FUNDS
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SURFACE-WATER PROGRAM

ANNUAL OPERATION & MAINTENANCE OF LAKE STATIONS / COLLECTION & PROCESSING OF LAKE ELEVATION DATA AT NEAR REAL-TIME USING SATELLITE TELEMETRY	61,450	43,550	105,000
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1	50010800	Lago Guajataca at Damsite near Quebradillas	5,700	4,700	10,400
2	50020100	Lago Garzas near Adjuntas	5,700	4,700	10,400
3	50020550	Lago Adjuntas at Damsite	5,990	4,410	10,400
4	50026140	Lago Caonillas at Damsite near Utuado	5,700	4,700	10,400
5	50048680	Lago Las Curias at Damsite near Rio Piedras	5,990	4,410	10,400
6	50075550	Lago Icacos at Damsite (Office Display)	7,570	3,830	11,400
7	50111300	Lago Guayabal at Damsite near Juana Díaz	5,700	4,700	10,400
8	50125780	Lago Lucchetti at Damsite near Yauco	5,700	4,700	10,400
9	50128900	Lago Loco at Damsite near Yauco	6,700	3,700	10,400
10	50141500	Lago Guayo at Damsite near Castañer	6,700	3,700	10,400

ANNUAL OPERATION & MAINTENANCE OF LAKE AND RAIN GAGE STATIONS / COLLECTION & PROCESSING OF LAKE ELEVATION AND PRECIPITATION DATA AT NEAR REAL-TIME USING SATELLITE TELEMETRY	66,010	33,600	99,610
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1	50023110	Lago Vivi near Utuado	8,640	4,410	13,050
2	50032290	Lago El Guineo at Damsite near Villalba	8,640	4,410	13,050
3	50032590	Lago de Matrullas at Damsite near Orocovis	8,850	4,200	13,050
4	50039995	Lago Carite Spillway (Lake Elev, High flow discharge, Rain Gage)	12,530	7,760	20,290
5	50093045	Lago Patillas at Damsite near Patillas (Office Display)	10,070	4,000	14,070
6	50095800	Lago Melanía near Guayama	8,640	4,410	13,050
7	50106850	Lago Coamo near Los Llanos	8,640	4,410	13,050

ANNUAL OPERATION & MAINTENANCE OF CONTINUOUS DISCHARGE & RAIN-GAGE STATIONS / COLLECTION & PROCESSING OF DISCHARGE AND PRECIPITATION DATA AT NEAR REAL-TIME USING SATELLITE TELEMETRY	40,820	17,350	58,170
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1	50126150	Río Yauco above Diversion Monserrate near Yauco (Rain Gage)	14,440	5,850	20,290
2	50011200	Río Guajataca below Lago Guajataca	11,640	6,000	17,640
3	50093120	Río Grande de Patillas below Lago Patillas	13,140	4,500	17,640
4	50010500	Río Guajataca at Lares (Add on Rain Gage Only)	1,600	1,000	2,600

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PROJECT	PREPA FUNDS	USGS FUNDS	TOTAL FUNDS
IRRIGATION SYSTEM PROGRAM			
ANNUAL OPERATION & MAINTENANCE OF RIVER AND CANAL CONTINUOUS DISCHARGE STATIONS / COLLECTION AND PROCESSING OF CONTINUOUS DISCHARGE AT NEAR REAL-TIME USING SATELLITE TELEMTRY	421,850	71,150	493,000
Guajataca Irrigation System	77,860	13,500	91,360
1 5011000 Canal Diversion Lago Guajataca	15,390	2,250	17,640
2 5011085 Canal de Moca above Lago Regulador (E-13), Isabela	15,390	2,250	17,640
3 5011128 Canal Moca above Aguadilla Plant, Aguadilla	15,390	2,250	17,640
4 5011180 Canal de Aguadilla above Lago Ramey, Aguadilla (Gage Height Only)	8,150	2,250	10,400
5 182743067004200 Canal Principal Diversion Blw Forebay, Isabela, PR	15,390	2,250	17,640
6 182830067035901 Canal Principal Diversion Abv. Lago Guerrero, Isabela, PR	8,150	2,250	10,400
Juana Díaz Irrigation System	67,260	13,700	80,960
1 50110650 Río Jacaguas above Lago Guayabal	12,940	4,700	17,640
2 50111320 Canal de Juana Díaz at Piedra Aguzada near Juana Díaz	15,390	2,250	17,640
3 50111330 Canal de Juana Díaz at Paso Seco near Santa Isabel	15,390	2,250	17,640
4 50111340 Canal de Juana Díaz at Bo. Peñuelas near Salinas	15,390	2,250	17,640
5 50111311 Canal East and West Forebay below Lago Guayabal	8,150	2,250	10,400
Patillas Irrigation System	153,610	25,950	179,560
1 50093000 Río Marin near Patillas	12,940	4,700	17,640
2 50093053 Canal de Patillas at Forebay	15,390	2,250	17,640
3 50093075 Canal de Patillas above Guayama filtration plant	15,390	2,250	17,640
4 50093078 Canal de Patillas below Guayama filtration plant	15,390	2,250	17,640
5 50093083 Canal de Patillas above AES intake at Guayama	15,390	2,250	17,640
6 50093084 AES Intake Canal at Canal de Patillas, Guayama (Gage Height only)	9,400	1,000	10,400
7 50093090 Canal de Patillas above El Legado intake	15,390	2,250	17,640
8 50093110 Canal de Patillas at Intake 113, Salinas	15,390	2,250	17,640
9 50093115 Canal de Patillas at Intake 123, Salinas	15,390	2,250	17,640
10 50094545 Canal Guamani at Carite Forebay (Gage Height only)	8,150	2,250	10,400
11 50095000 Canal de Guamani Oeste at Hwy 15, Guayama	15,390	2,250	17,640
Valle de Lajas Irrigation System	123,120	18,000	141,120
1 50128905 Canal de Riego de Lajas below Lago Loco Dam, Yauco	15,390	2,250	17,640
2 50128907 Lateral M5L, Canal de Riego de Lajas, Sabana Grande	15,390	2,250	17,640
3 50128920 Canal de Riego de Lajas above Majinas filtration plant	15,390	2,250	17,640
4 50128925 Canal de Riego de Lajas below Majinas filtration plant	15,390	2,250	17,640
5 50128933 Canal de Riego de Lajas above Lajas filtration plant, Lajas	15,390	2,250	17,640
6 50128940 Canal de Riego de Lajas below Lajas filtration plant, Lajas	15,390	2,250	17,640
7 50128945 Canal de Riego de Lajas at Barrio Palmarejo near Lajas	15,390	2,250	17,640
8 50128948 Canal de Riego de Lajas at Barrio Betances	15,390	2,250	17,640

PROJECT	PREPA FUNDS	USGS FUNDS	TOTAL FUNDS
STAND ALONE RAIN GAGE NETWORK	6,717	3,483	10,200
1 182134066544600 Rio Guajataca at PR-455 near Juncal	3,100	2,000	5,100
2 50999970 Barrio Apeadero Raingage near Villalba	3,617	1,483	5,100
ANNUAL OPERATION AND MAINTENANCE OF GATE-OPENING SENSORS			
1 50093045 Lago Patillas at Damsite nr Patillas (3-gate opening sensors)	3,680	400	4,080

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