

Cuantia: \$646,277

Num de cuenta: 20-5003-60215-555-213
20-6001-60010-555-214
30-50003-50031-555-215
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40-6001-600010-555-217

2017-P00047

Form 9-1366
(April 2015)

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

Customer #: 6000000503
Agreement #: 17ESFL000000402
Project #:
TIN #:
Fixed Cost Agreement Yes No

**FOR
WATER RESOURCES INVESTIGATIONS**

THIS AGREEMENT is entered into as of the 30 day of September of **2016**, 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.

1. 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)**, herein called the program. The USGS legal authority is 43 USC 36C; 43 USC 50; and 43 USC 50b.
2. 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) **\$133,533.00** by the party of the first part during the period
October 1, 2016 to September 30, 2017

(b) **\$512,744.00** by the party of the second part during the period
October 1, 2016 to September 30, 2017

(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:

(d) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.

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

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Form 9-1366
continued

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

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- 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 costs, 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.
- 9. USGS will issue billings utilizing Department of the Interior Down Payment (Bill) Request (form DI-1040). Billing documents are to be rendered **Quarterly**. Payments of bills are due within 60 days after the billing date. If not paid by the due date, interest will be charged at the current Treasury rate for each 30 day period, or portion thereof, that the payment is delayed beyond the due date. (31 USC 3717; Comptroller General File B-212222, August 23, 1983).

U.S. Geological Survey
United States
Department of the Interior

Commonwealth of Puerto Rico
Puerto Rico Electric Power Authority

USGS Point of Contact

Customer Point of Contact

Name: Rafael W. Rodríguez-Cruzado
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 Science Center
 4446 Pet Lane, Suite 108
 Lutz, Florida 33559
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 San Juan, Puerto Rico 00936-4267
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 Email:

Signatures

Signatures

By Rafael W. Rodríguez-Cruzado Date 9/1/16
 Name: Rafael W. Rodríguez-Cruzado
 Title: Director, USGS Caribbean-Florida
 Water Science Center

By Javier A. Quintana-Méndez Date 30/9/2016
 Name: Eng. Javier A. Quintana-Méndez
 Title: Executive Director

DUNS#: 176135952

By _____ Date _____
 Name:
 Title:

By _____ Date _____
 Name:
 Title:

COST ESTIMATES
(Cover Sheet)

**FY2017 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 TELEMETRY	\$96,894	\$34,190	\$131,084
ANNUAL OPERATION & MAINTENANCE OF LAKE STATIONS / COLLECTION & PROCESSING OF LAKE ELEVATION AND PRECIPITATION DATA AT NEAR REAL-TIME USING SATELLITE TELEMETRY	\$53,400	\$20,460	\$73,860
ANNUAL OPERATION & MAINTENANCE OF SURFACE WATER & RAIN- GAGE STATIONS / COLLECTION & PROCESSING OF GAGE HEIGHT, WATER DISCHARGE, AND PRECIPITATION DATA AT NEAR REAL-TIME USING SATELLITE TELEMETRY	\$48,950	\$13,833	\$62,783
IRRIGATION SYSTEMS -- ANNUAL OPERATION & MAINTENANCE OF SURFACE WATER STATIONS / COLLECTION & PROCESSING OF GAGE HEIGHT AND CONTINUOUS DISCHARGE AT NEAR REAL-TIME USING SATELLITE TELEMETRY	\$296,000	\$64,650	\$360,650
AUTOMATED DAM DATA ACQUISITION & ALARM REPORTING SYSTEM (ADDAARS SYSTEM)	\$16,000	\$0	\$16,000
ANNUAL OPERATION AND MAINTENANCE OF GATE-OPENING SENSORS	\$1,500	\$400	\$1,900
TOTALS	\$512,744	\$133,533	\$646,277

Attachment to: JFA 17ESFL000000402

PREPA

FY2017 COOPERATIVE MATCHING FUNDS
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 TELEMTRY** **96,894 34,190 131,084**

50010800 Lago Guajataca at Damsite near Quebradillas	7,908	2,700	10,608
50020100 Lago Garzas near Adjuntas	7,908	2,700	10,608
50026140 Lago Caonillas at Damsite near Utuado	7,908	2,700	10,608
50032590 Lago de Matrullas at Damsite near Orocovis	7,908	2,700	10,608
50039995 Lago Carite at Spillway (Lake elevation/continuous discharge)	14,430	6,760	21,190
50075550 Lago Icacos at Damsite (Office Display)	9,000	2,830	11,830
50093045 Lago Patillas at Damsite near Patillas (Rain Gage, Office Display)	10,200	3,000	13,200
50111300 Lago Guayabal at Damsite near Juana Díaz	7,908	2,700	10,608
50125780 Lago Lucchetti at Damsite near Yauco	7,908	2,700	10,608
50128900 Lago Loco at Damsite near Yauco	7,908	2,700	10,608
50141500 Lago Guayo at Damsite near Castañer	7,908	2,700	10,608

**ANNUAL OPERATION & MAINTENANCE OF LAKE STATIONS /
COLLECTION & PROCESSING OF LAKE ELEVATION AND PRECIPITATION
DATA AT NEAR REAL-TIME USING SATELLITE TELEMTRY** **53,400 20,460 73,860**

50020550 Lago Adjuntas at Damsite	8,900	3,410	12,310
50023110 Lago Vivi near Utuado	8,900	3,410	12,310
50032290 Lago El Guíneo at Damsite near Villalba	8,900	3,410	12,310
50095800 Lago Melanía near Guayama	8,900	3,410	12,310
50106850 Lago Coamo near Los Llanos	8,900	3,410	12,310
50141100 Lago Yahuecas near Adjuntas	8,900	3,410	12,310

**ANNUAL OPERATION & MAINTENANCE OF SURFACE WATER & RAIN-
GAGE STATIONS / COLLECTION & PROCESSING OF GAGE HEIGHT,
WATER DISCHARGE, AND PRECIPITATION DATA AT NEAR REAL-TIME
USING SATELLITE TELEMTRY** **48,950 13,833 62,783**

50126150 Río Yauco above Diversion Monserrate near Yauco (Rain Gage)	15,450	3,850	19,300
50011200 Río Guajataca below Lago Guajataca	13,300	4,000	17,300
50093120 Río Grande de Patillas below Lago Patillas	13,800	3,500	17,300
50010500 Río Guajataca at Lares (Rain Gage Only)	2,000	1,500	3,500
50999970 Barrio Apeadero Raingage near Villalba	4,400	983	5,383

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PROJECT	PREPA FUNDS	USGS FUNDS	TOTAL FUNDS
IRRIGATION SYSTEM PROGRAM			
ANNUAL OPERATION & MAINTENANCE OF SURFACE WATER STATIONS / COLLECTION & PROCESSING OF GAGE HEIGHT AND CONTINUOUS DISCHARGE AT NEAR REAL-TIME USING SATELLITE TELEMETRY	296,000	64,650	360,650
Guajataca Irrigation System	52,900	11,250	64,150
50011000 Canal Diversion Lago Guajataca	10,580	2,250	12,830
50011085 Canal de Moca above Lago Regulador (E-13), Isabela	10,580	2,250	12,830
50011128 Canal Moca above Aguadilla Plant, Aguadilla	10,580	2,250	12,830
50011180 Canal de Aguadilla above Lago Ramey, Aguadilla	10,580	2,250	12,830
182743067004200 Canal Principal Diversion Blw Forebay, Isabela, PR	10,580	2,250	12,830
Juana Díaz Irrigation System	45,340	10,450	55,790
50110650 Rio Jacaguas above Lago Guayabal	13,600	3,700	17,300
50111320 Canal de Juana Díaz at Piedra Aguzada near Juana Díaz	10,580	2,250	12,830
50111330 Canal de Juana Díaz at Paso Seco near Santa Isabel	10,580	2,250	12,830
50111340 Canal de Juana Díaz at Bo. Peñuelas near Salinas	10,580	2,250	12,830
Patillas Irrigation System	113,120	24,950	138,070
50093000 Rio Marin near Patillas	13,600	3,700	17,300
50093053 Canal de Patillas at Forebay	10,580	2,250	12,830
50093075 Canal de Patillas above Guayama filtration plant	10,580	2,250	12,830
50093078 Canal de Patillas below Guayama filtration plant	10,580	2,250	12,830
50093083 Canal de Patillas above AES intake at Guayama	10,580	2,250	12,830
50093084 AES Intake Canal at Canal de Patillas, Guayama	4,300	1,000	5,300
50093090 Canal de Patillas above El Legado intake	10,580	2,250	12,830
50093110 Canal de Patillas at Intake 113, Salinas	10,580	2,250	12,830
50093115 Canal de Patillas at Intake 123, Salinas	10,580	2,250	12,830
50094545 Canal Guamani at Carite Forebay	10,580	2,250	12,830
50095000 Canal de Guamani Oeste at Hwy 15, Guayama	10,580	2,250	12,830
Valle de Lajas Irrigation System	84,640	18,000	102,640
50128905 Canal de Riego de Lajas below Lago Loco Dam, Yauco	10,580	2,250	12,830
50128907 Lateral M5L, Canal de Riego de Lajas, Sabana Grande	10,580	2,250	12,830
50128920 Canal de Riego de Lajas above Majinas filtration plant	10,580	2,250	12,830
50128925 Canal de Riego de Lajas below Majinas filtration plant	10,580	2,250	12,830
50128933 Canal de Riego de Lajas above Lajas filtration plant, Lajas	10,580	2,250	12,830
50128940 Canal de Riego de Lajas below Lajas filtration plant, Lajas	10,580	2,250	12,830
50128945 Canal de Riego de Lajas at Barrio Palmarejo near Lajas	10,580	2,250	12,830
50128948 Canal de Riego de Lajas at Barrio Betances	10,580	2,250	12,830

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PROJECT	PREPA FUNDS	USGS FUNDS	TOTAL FUNDS
AUTOMATED DAM DATA ACQUISITION & ALARM REPORTING SYSTEM (ADDAARS SYSTEM)	16,000	0	16,000
ANNUAL OPERATION, MAINTENANCE, AND TROUBLESHOOTING OF FIELD EQUIPMENT TO SUPPORT THE FOLLOWING 25 ADDAARS-EQUIPPED LAKE STATIONS	8,000	0	8,000
1- 50010800 LAGO GUAJATACA AT DAMSITE NR QUEBRADILLAS, PR			
2- 50011088 LAGO REGULADOR DE ISABELA NR HWY 112 ISABELA, PR			
3- 50020100 LAGO GARZAS NR ADJUNTAS, PR			
4- 50020550 LAGO ADJUNTAS NR ADJUNTAS, PR			
5- 50023110 LAGO VIVI NR UTUADO, PR			
6- 50026140 LAGO CAONILLAS AT DAMSITE NR UTUADO, PR			
7- 50027100 LAGO DOS BOCAS AT DAMSITE NR UTUADO, PR			
8- 50032290 LAGO EL GUINEO AT DAMSITE NR VILLALBA, PR			
9- 50032590 LAGO DE MATRULLAS AT DAMSITE NR OROCOVIS, PR			
10- 50045000 LAGO LA PLATA AT DAMSITE NR TOA ALTA, PR			
11- 50047550 LAGO DE CIDRA AT DAMSITE NR CIDRA, PR			
12- 50095800 LAGO MELANIA NR GUAYAMA, PR			
13- 50106850 LAGO COAMO NR LOS LLANOS, PR			
14- 50111210 TOA VACA AT DAMSITE NR VILLALBA, PR			
15- 50111300 LAGO GUAYABAL AT DAMSITE NR JUANA DIAZ, PR			
16- 50113950 LAGO CERRILLOS AT DAMSITE NR PONCE, PR			
17- 50128900 LAGO LOCO AT DAMSITE NR YAUCO, PR			
18- 50141500 LAGO GUAYO AT DAMSITE NR CASTANER, PR			
19- 50146073 LAGO DAGUEY ABV ANASCO, PR			
20- 50039995 LAGO CARITE AT SPILLWAY, PR			
21- 50059000 LAGO LOIZA AT DAMSITE NR TRUJILLO ALTO, PR			
22- 50075000 LAGO ICACOS AT DAMSITE			
23- 50093045 LAGO PATILLAS AT DAMSITE NR PATILLAS, PR			
24- 50125780 LAGO LUCCHETTI AT DAMSITE NR YAUCO, PR			
25- 50141100 LAGO YAHUECAS NR ADJUNTAS, PR			
ADDAARS DATABASE AND SERVER MAINTENANCE	8,000	0	8,000
Includes visits from USGS personnel to PREPA facilities to verify proper functioning of equipment. Also includes visits from USGS to PREPA offices to offer training on how to access ADDAARS data and how to access this same information by radio.			

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PROJECT	PREPA FUNDS	USGS FUNDS	TOTAL FUNDS
ANNUAL OPERATION AND MAINTENANCE OF GATE-OPENING SENSORS	1,500	400	1,900
50093045 Lago Patillas at Damsite nr Patillas (3-gate opening sensors)			

Attachment to: JFA 17ESFL000000402

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