

PANAMA CANAL AUTHORITY		VARIATION	PAGE 1 OF 4
1. REQUEST FOR PROPOSAL No.:	2. CONTRACT No.:	3. DATE:	4. VARIATION No.:
RFP-76161	CMC-221427	July 9, 2012	44

5. ISSUED BY:

PANAMA CANAL AUTHORITY  
Employer's Representative  
Locks Project Management Division  
Building 740, Corozal  
Panama, Republic of Panama

6. NAME AND ADDRESS OF CONTRACTOR (INCLUDE PHYSICAL & POSTAL ADDRESS)	7. CONTRACTOR'S TELEPHONE NUMBER:
Grupo Unidos por el Canal, S.A. Building 22B, Brujas Road Cocoli, Republic of Panama	507-316-9900
	8. CONTRACTOR'S FACSIMILE NUMBER:

9. VARIATION:


- The contract referred to in item No. 2 is hereby varied as set forth in item 10, entitled "DESCRIPTION OF VARIATION".  
 YES.  NO. The contractor shall send a copy, duly signed, of this Variation to the Employer's Representative/Contracting Officer.

	9 A. THIS VARIATION IS EXECUTED ON THE BASIS OF: (Specify the legal authority). THE VARIATION DESCRIBED IN ITEM 10 IS HEREBY INCORPORATED AND MADE A PART OF THE CONTRACT.
	9 B. THE CONTRACT REFERRED TO IN ITEM NO. 2, IS VARIED TO INCORPORATE ADMINISTRATIVE CHANGES (such as the paying office, account numbers, etc.).
X	9 C. THIS BILATERAL AGREEMENT IS SIGNED AND INCORPORATED INTO THE CONTRACT REFERRED TO IN ITEM NO. 2 OF THIS FORM, ON THE BASIS OF: (Specify the legal authority) Volume III, Conditions of Contract, Sub-Clause 1.16 [Entire Agreement], 4 <sup>th</sup> Paragraph
	9 D. OTHER. (Specify manner and the legal authority).
	9 E. ACCOUNT NUMBER (If required):

10. DESCRIPTION OF THE VARIATION (List in accordance with the order of the Contract. If additional space is required, use blank sheets).

**See attached**

Except for the variation(s) herein specified, all other terms and conditions of the Contract remain unchanged.

11. NAME AND TITLE OF THE PERSON AUTHORIZED TO SIGN (Type or print)	12. NAME AND TITLE OF THE EMPLOYER'S REPRESENTATIVE/CONTRACTING OFFICER (Type or print)
Bernardo Gonzalez Contractor's Representative	Jorge de la Guardia, Employer's Representative
13. CONTRACTOR	14. DATE:
	15. PANAMA CANAL AUTHORITY
(Authorized signature)	16. DATE:
	
	(Employer's Representative/Contracting Officer's signature)

Variation No. 44 is issued to incorporate the following:

1. **Volume II, Part 1, Section 40 00 00 [Process Systems Integration]**- Delete Paragraph 1.03 B.2.c.2 entirely and replace it with the following:

- 2) "Reserved" (RFV-122)

2. **Volume II, Part 1, Section 40 00 00 [Process Systems Integration]**- Delete Paragraph 1.03 H.1 entirely and replace it with the following:

- "1. PCS network topology shall be ring, star, or hybrid ring-star, and shall ensure that the network does not encounter a single point of failure where."  
(RFV-125)

3. **Volume II, Part 1, Section 40 00 00 [Process Systems Integration]**- After Paragraph 1.04 B.10 add new Paragraphs 1.04 B.11 through 1.04 B.13 as follows:

- "11. The use of distributed PLCs in a double star network configuration as an alternative to a centralized Master PLC architecture in ring architecture is permitted.

12. The use of producer/consumer networking model as an alternative to master/slave or source/destination approach is permitted.

13. The use of distributed interlocks as an alternative to centralized interlocks is permitted."  
(RFV-125)

4. **Volume II, Part 2, Section 27 21 00 [Data Communications Equipment]**- Delete Paragraph 1.03 A.3 entirely and replace it with the following:

- "3. **Interoperability and Coordination:**

- a. New DCE shall interoperate and be coordinated with the Employer's WAN equipment.

- b. The Contractor shall furnish access concentrators as required for the new locks.

- c. (Reserved)

- d. (Reserved)"  
(RFIs 342 to 354)

5. **Volume II, Part 2, Section 33 81 26 [Outside Plant Pathways for Underground Communication]**- Delete Paragraph 1.03 D.5.a entirely and replace it with the following:



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"a. *Minimum depth or earth cover shall be 1.25m when directly buried, or 0.60 m when embedded in concrete. Duct lines shall gradually change depth as required to cross streets and reach duct-bridges. Concrete encasement shall be in accordance with Paragraph 1.04 A.2 [Design and Performance Requirements/Duct Lines/Concrete Encasement] of Section 26 05 43 [Underground Ducts and Raceways for Electrical Systems] of the Employer's Requirements.*" (RFV-123)

6. **Volume II, Part 2, Section 40 91 00 [Primary Process Measurement Devices]-** Delete the first line of Table 40 91 00-3 of Paragraph 1.03 B.19.b and replace it as follows:

<i>Specific Conductivity</i>	<i>0 to 70 millimho/cm</i>	<ul style="list-style-type: none"> <li>• <i>0.1 micromho/cm for sensors installed at the lake side of the locks</i></li> <li>• <i>0.5 micromho/cm for sensors installed at the sea side of the locks</i></li> </ul>
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(RFV-114)

7. **Volume II, Part 2, Section 40 91 00 [Primary Process Measurement Devices]-** Delete Paragraph 1.03 B.19.c entirely and replace it as follows:

"c. *Transducers shall have a continuous 12 or 24 VDC power source.*"

(RFV-114)

8. **Volume II, Part 2, Section 40 91 00 [Primary Process Measurement Devices]-** Delete Paragraph 1.03 B.19.d and replace it as follows:

"d. *Process values and relevant control functions shall be available to the nearest PLC remote I/O rack.*"

(RFV-114)

9. **Volume II, Part 2, Section 40 91 00 [Primary Process Measurement Devices]-** After Paragraph 1.03 C.14, add Paragraphs 1.03 C.15 and 1.03 C.16 as follows:

"15. *Reserved*

16. *Water Quality Sensors:*

a. *Transducers shall be permanently installed at two depths per installation. One pair of sensors shall be on Gatun Lake side, and the other pair shall be in the sea side of the locks.*

b. *Measurements shall be at adjustable depths, ranging from 1 m below water surface to 1 m above the bottom.*

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c. *Installation design shall allow for ease of maintenance and replacement.*"  
(RFV-114)

There is no time or cost impact to the Locks Contract as a consequence of this Variation.

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