

PANAMA CANAL AUTHORITY	VARIATION	PAGE 1 OF 5
1. REQUEST FOR PROPOSAL No.: RFP-76161	2. CONTRACT No.: CMC-221427	3. DATE: January 6, 2011
		4. VARIATION No.: 011

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) Grupo Unidos por el Canal, S.A. Building 732, Corozal West Panama, Republic of Panama	7. CONTRACTOR'S TELEPHONE NUMBER: 507-316-9900
	8. CONTRACTOR'S FACSIMILE NUMBER: 507-317-6736

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], 4th 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) Antonio Maria Zaffaroni Contractor's Representative	12. NAME AND TITLE OF THE EMPLOYER'S REPRESENTATIVE/CONTRACTING OFFICER (Type or print) Jorge de la Guardia, Employer's Representative
13. CONTRACTOR  (Authorized signature)	14. DATE: 12/11/2011
	15. PANAMA CANAL AUTHORITY  (Employer's Representative/Contracting Officer's signature)
	16. DATE: 6 / I / 2011

Variation No. 011 is issued to incorporate the following changes:

1. **Volume II, Part 1, Section 01 81 26 [Communications, Control, Safety and Security Systems]** – Delete Paragraphs 1.05 C.2, 1.05 C.3 and 1.05 D.5.b.4 and replace them with the following: “Reserved” (RFV 022)
2. **Volume II, Part 1, Section 01 81 26 [Communications, Control, Safety and Security Systems]** – Replace Paragraph 1.05 D.5.b.4 and incorporate Paragraphs 1.05 D.9, and 1.05 D.10 as follows:

***1.05 D.5.b.4:** This phase ends with the event of the finalization of the locks main control building civil design, including control and equipment rooms. At this phase, all centralized controls for machinery or equipment details shall be clearly defined, including selection and configuration of PLCs and HMI. Scope includes definition of all development software, modeling and simulation software, diagnostic software, and all other software as required.*

***1.05 D.9:** This design submittal shall consist of a “top down” approach to the overall communications, control, safety, and security systems to demonstrate to the Employer’s Representative and the Employer’s Operations and Maintenance organization that the Contractor shall design, manufacture, install, and commission CCSS system that shall be “fit for purpose” and provide the level of operability required by the Employer.*

***1.05 D.10:** Provide an analysis of the design that shall include a written explanation of the systems’ design and equipment selection. It shall contain a summary of the criteria applied to each system, including codes, references, safety, ergonomics, corrosion protection, fault tolerance, redundancy and common fault mode mitigation. Summary shall briefly justify the criteria used. (RFV 022)*

3. **Volume II, Part 1, Section 01 81 29 [Electrical and Lighting Systems]** – Replace Paragraph 1.05 C.3 [Preliminary QCP and TIP] which states the following:

***“1.05 C.3 [Preliminary QCP and TIP]:** The preliminary 30% design data shall include the Quality Control Plan, its procedure for identifying and resolving non-conformances, and the documented non-conformances. The quality control program (QCP) and the testing and inspection program (TIP) shall respectively describe the quality assurance and testing and inspection programs. Copies of certifications issued to the Contractor and Subcontractors shall be included along with these programs. NDT programs and procedures shall be clearly outlined in the QCP”.*

With the following text:

"1.05 C.3 [Preliminary QCP]: The preliminary 30% design data shall include the Quality Control Plan, its procedure for identifying and resolving non-conformances, and the documented non-conformances. The quality control program (QCP) shall respectively describe the quality assurance program. Copies of certifications issued to the Contractor and Subcontractors shall be included along with this program. NDT programs and procedures shall be clearly outlined in the QCP".

The change stated above is subject to the following conditions: 1. The Contractor submits the TIP with the Intermediate Design. 2. The TIP, if submitted with the Intermediate Design, will be the Final TIP since there are no other TIP submittals required under Section 01 81 29 of the Employer's Requirements. (RFV-16)

4. **Volume II, Part 1, Section 35 73 00 [Borinquen Dams 2E, 1W and 2W] – Paragraph 1.04 B.3.d.2** - Replace the entire paragraph with the following text:

"Be sufficiently thick to convey seepage without building up phreatic surface in the downstream shell. The thicknesses shall be at least 1.5 times the fault displacement amount, in both horizontal and vertical directions (see Subparagraph 1.04 C.3.)".
(RFI-0235)

5. **Volume II, Part 1, Section 40 00 00 [Process System Integration]** – Replace Paragraph 1.05 B in its entirety and replace it with the following:

"Within 119 Days from Commencement Date":

1. Critical path method (CPM) diagram, including estimated dates for design Conferences.
2. A communications, control, security and safety (CCSS) system wide preliminary design description, including a block diagram with similar or better detail to Figure 40 00 00-1 (*Conceptual Process Integration Block Diagram*)
3. Reserved
4. Reserved
5. From this point on, all submittals here described shall be updated monthly, if and where changes apply, as the design progresses into final form. Presenting changes shall include a change list consisting of item number and description.
(RFV-022)

6. **Volume II, Part 1, Section 40 00 00 [Process System Integration]** – In Paragraph 1.05 C, include the following:

29. *Manufacturer's qualifications in accordance with Section 01.81.26 Paragraphs 1.03 Z [System Suppliers] and 1.04 D.5. [PCS Manufacturer].*

30. Quality Assurance and control plans.

(RFV-022)

7. **Volume II, Part 1, Section 40 95 13 [Process Control Hardware]** – Replace Paragraph 1.03 E.1 [Computer Server Room] with the following paragraph:

*“1. **PCS Equipment Rooms:** PCS equipment shall be installed in 483 mm (19 inch) wide racks, located in the PCS equipment rooms in the control buildings at any floor except the control room floor. The computers and servers servicing control stations shall also be installed in these racks. Other closed circuit video system (CCVS), firefighting, and PCS equipment and other related hardware shall be installed in adjacent racks”.* (RFI-0228)

8. **Volume II, Part 2, Section 26 32 13.13 [Diesel Engine Driven Generator Sets]** – Replace in its entirety Paragraph 1.05 A [With the Intermediate Design] and Paragraph 1.05 B.1 with the following:

1.05 A. With the Intermediate Design:

1. **Design Drawings:** Submit complete sets of design drawings for review. Design drawings shall include dimensional data, one-line, elementary diagrams to indicate functions of equipment components, equipment plan layout and diagrams for wiring external to panels. The drawings shall show control equipment components, operation sequences, and any other details required to demonstrate that the system has been coordinated and will function properly as a whole.

2. **Equipment Descriptive Data:** Submit technical data of the proposed generator sets.

3. **Calculations:** Submit emergency power generator set(s) size calculation.

1.05 B. Final Design:

1. **Design Drawings:** Submit complete sets of design drawings for review. Design drawings shall include outline and dimensional data, and one-line, elementary diagrams to indicate functions of equipment components, and equipment plan layout, point to point wiring diagrams, and riser diagrams. The drawings shall show control equipment components, operation sequences, and any other details required to demonstrate that the system has been coordinated and will function properly as a whole. Diagrams for wiring external to panels shall include the corresponding cable markings, color coding, and identifiers. (RFV-033)

9. **Volume II, Part 2, Section 26 41 16 [Lightning Prevention and Dissipation Systems]** – Paragraph 1.03 B.3- Replace the entire paragraph with the following text:

"3. Grounding Busbars: *Shall be solid copper with rectangular cross section for low resistance and low inductance. Ampacity shall be equal or larger than a #2/0 copper conductor".* (RFV-014)

10. **Volume II, Part 2, Section 26 41 16 [Lightning Prevention and Dissipation Systems]** – Include in Paragraph 1.03 B., the following:

"8. Cables: *Shall be standard stranded copper conductors in accordance with Section 26 05 26 [Grounding and Bonding for Electrical Systems]. Solid copper conductors are also acceptable".* (RFV-014)

11. **Volume II, Part 2, Section 27 05 28 [Communications Pathways for Inside Plant]** – Paragraph 1.03 B.2 - Change the title of the paragraph from [Communications Equipment Rooms and Process Control System (PCS) Server Rooms (at ground floor of main control buildings)] to [Communications Equipment Rooms and Process Control System (PCS) Server Rooms (at floors other than the control room floor)]. (RFI-228)

12. **Volume II, Part 2, Section 27 31 23 [IP-Based Telephone Systems]** – Paragraph 1.03 D.3 – Replace the entire paragraph with the following text:

"3. Gateways: *Shall be no less than one for Atlantic Locks complex, and one for Pacific Locks complex, and shall be installed in the telecommunications room(s) at any floor except the control room floor".* (RFI-228)

13. **Volume II, Part 3, Sub-Part 1, Section 01 31 00 [Project Management and Coordination]** – Paragraph 1.02 B. - Replace the entire paragraph with the following text:

"B. Meeting Documentation: *The Contractor shall prepare agendas, issue meeting invitations, and take notes for all meetings and conferences specified herein. Meeting notes shall include attendees, a record of topics discussed, and action items. Draft meeting notes shall be provided to the Employer's Representative for review and input within 3 days after the meeting".* (RFV-028)

14. **Volume III, Sub-Clause 14.6** – Add a third sentence to the first paragraph, to read as follows:

"A copy of the Interim Payment Certificate summary sheets, signed by the Employer's Representative, will be issued to the Contractor together with the corresponding Payment Validation Work Sheets" (RFV-031)

The changes included in this Variation No. 011 have no cost or time implications to the Third Set of Locks Contract (CMC-221427).