

Dam: Changuinola 1

Country Panama

River Changuinola

9°14'11.63"N 82°29'41.13"W

9.236564 -82.494759

Owner/Client AES (Allied Energy Systems Co.) Panama SRL

Designer/Engineer Vattenfall & MD&A

Contractor CCWJV (JV of Pihl and son, M.T. Hojgaard & Alstrom)

Purpose (code) H

Site start 01.04.2007

RCC start 03.12.2009

RCC completion 26.04.2011

Site completion 30.10.2011

Height (m) 105

Length (m) 595

Volume of RCC (m³x10³) 884

Total volume (m³x10³) 910

Reservoir capacity (m³x10⁶) 347

Upstream slope V

Forming of upstream face (code) (3')

Downstream slope 0.50
0.70

Forming of downstream face (code) (3') *
(3') *

Spillway slope 0.50

Forming of spillway face (code) (12)

Depth of layers (mm) 300

Depth of lifts (mm) 300

Cement content (kg/m³) 70
65

Pozzolan content (kg/m³) 145
150

Code for pozzolan (F)

RCCDAM Unique Serial No. RCCDAM0496

Under Construction



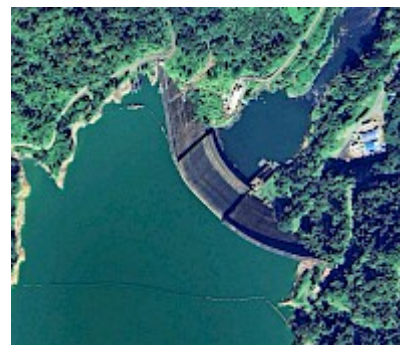
RCCDAM0496UC

Completed Dam



RCCDAM0496CD

Google Earth



RCCDAM0496GE

Guide to Abbreviations

Purpose

- E Environmental
- F Flood control
- G Groundwater recharge
- H Flood control
- I Irrigation
- N Navigation
- P Pollution control
- R Recreation
- W Water supply

Facing method

- (1) Traditional concrete against formwork
- (2) Traditional concrete against formwork with external geomembrane
- (3) RCC against formwork
- (4) RCC against formwork with external geomembrane
- (5) Traditional concrete against precast concrete panels
- (6) Traditional concrete against precast concrete panels with geomembrane
- (7) RCC against precast concrete panels
- (8) RCC against precast concrete panels with geomembrane
- (9) RCC against precast concrete panels with hot poured membrane
- (10) RCC against precast concrete blocks
- (11) Reinforced conventional concrete cast before RCC placement
- (12) Reinforced conventional concrete cast after RCC placement
- (13) Reinforced concrete cast against precast units or slip-formed facing elements
- (14) Slip-formed/extruded facing elements
- (15) RCC supported by fill shoulders
- (16) Mechanically compacted unformed face of RCC
- (17) Unformed face of RCC
 - ' GEVR/GE-RCC
 - * Stepped face

Pozzolans

- (-) No Pozzolan Used
- (C) High-lime flyash (ASTM Class C)
- (F) Low-lime flyash (ASTM Class F)
- (M) Milled sand
- (N) Natural pozzolan (ASTM Class N)
- (R) ROLAC (mixture of flyash and slag with or without limestone fines)
- (S) Ground-granulated blast-furnace slag
- (L) Mixture of GGBFS and limestone fines