PANAMA CANAL

GAILLARD CUT (CULEBRA CUT)

by
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AGENDA

- BRIEF INTRODUCTION TO PANAMA CANAL
- GAIL LLARD CUT
The Canal Zone.
Geologic profile of the Canal. Atlantic Ocean is to the left.
Culebra Formation (4) – Dark well laminated beds of soft shales, sandy limestone and calcareous sandstone.
Cucaracha Formation (5) – Very fine grained clayey rock.
Culebra Cut was the “special wonder” of the canal. Here, men and machines labored to conquer the 8.75-mile stretch extending through the Continental Divide from Gamboa on the Chagres River at the north to Pedro Miguel on the south. The lowest point in the saddle between Gold Hill on the east and Contractors Hill on the west was at elevation 333.5 feet above sea level.

Three major slide areas 1) East Culebra, 2) West Culebra and 3) Cucaracha.

Four different types of slides 1) Gravity, 2) Structural, 3) Deformation and 4) Combination.

Worst of the slides occurred in 1912 in front of the town of Culebra, West bank of the cut. 75 acres broke away. 10,000,000 cy and 7,000,000 cy from the East bank. Took 1/3 of a year dig out.
View looking south toward the eastern bank of Gaillard Cut, opposite Contractors Hill, showing the terraced bank as it was in 1890. This was the condition the French left it in. Construction did not start back up until 1905.
Culebra cut in 1904 prior to start of American construction activities. Construction activities within this section started back up in 1905.
View of a small slide in the west bank of the cut below Culebra Hill, October 16, 1909. A major slide in this area occurred in 1912 when 75 acres slid into the cut, approximately 10,000,000 CY.
View from Contractors Hill looking north, June, 1912.
This slide is classified as a “structural break” or “deformation” slides. In these, factors such as unstable geological rock formations, slope steepness and height and the effects of blasting combine to form a slide. At the Canal, excavation removed lateral support from the high banks created in the deepest portions of Culebra Cut. Unable to sustain the weight above it, the slopes sheared
In 1913, the canal was filled with water. Due to continued landslides, the canal wasn’t opened until August 1914.
Dredging operations at Culebra Cut 1913
A fissure formed in connection with the breaking down of the face of Zion Hill, West Culebra slide area, August 8, 1915.
West Culebra Slide. View looking south from the edge of the slide, August 8, 1915.
Staff
Panama Canal – Present
Gaillard Cut section