

# NOTAS DE AFOROS

## POR: TOPOGRAFIA Y AFOROS



PARA: **CELSIA**

|                                                               |                                              |                         |                     |                                     |                                                                          |          |       |       |          |           |             |        |  |
|---------------------------------------------------------------|----------------------------------------------|-------------------------|---------------------|-------------------------------------|--------------------------------------------------------------------------|----------|-------|-------|----------|-----------|-------------|--------|--|
| Quebrada:                                                     | La Montera.<br>Central Hidroeléctrica Lorena |                         |                     |                                     |                                                                          | N/A      | Hora  |       |          |           |             |        |  |
|                                                               |                                              | Ubicación: 940529 Norte |                     |                                     |                                                                          | 0.895    | 11:20 |       |          |           |             |        |  |
| Nº Aforo:                                                     | 03                                           |                         | 355589 Este         |                                     |                                                                          |          | 0.895 | 12:05 |          |           |             |        |  |
| Aforador:                                                     | J. Enrique González                          | Calculado y Revisado:   | J. Enrique González |                                     |                                                                          |          |       |       |          |           |             |        |  |
| Fecha: 07 de septiembre 2017                                  |                                              |                         |                     |                                     | Aforo realizado a ±1.2 Km aguas arriba de la confluencia a Río Chiriquí. |          |       |       |          |           |             |        |  |
| Método: 0.2, 0.6, 0.8                                         |                                              |                         | Molinete:           |                                     | Red Back serie 16-15<br>Prueba de giro: 2min 50 Seg                      |          |       |       |          |           |             |        |  |
| Temperatura y aspecto general del agua: Turbia y fresca, 23°C |                                              |                         |                     |                                     | Tipo de Aforo: Por vadeo                                                 |          |       |       |          |           |             |        |  |
| Área=                                                         | 10.153 M²                                    |                         | Caudal=             | 3.573 M³/Seg = 3573 Litros/Segundos |                                                                          |          |       |       | RadHid=  | 0.561 M   |             |        |  |
| Ancho=                                                        | 18.10 M                                      |                         | Vel=                | 0.352 M/Seg                         |                                                                          |          |       |       | Pmojado= | 18.59 M   |             |        |  |
| # Est                                                         | Estación                                     | Profund.                | Revoluc.            | Tiempo                              | V. Punto                                                                 | V. Media | Área  | Ancho | Caudal   | Per_Mojad | Caudal en % |        |  |
| 1                                                             | 0.70                                         | 0.00                    |                     |                                     | 0.043                                                                    | 0.043    | 0.117 | 0.65  | 0.005    | 0.743     | 0.001       | 0.0014 |  |
| 2                                                             | 2.00                                         | 0.36                    | 8                   | 44                                  | 0.130                                                                    | 0.130    | 0.414 | 1.15  | 0.054    | 1.235     | 0.015       | 0.017  |  |
| 3                                                             | 3.00                                         | 0.45                    | 11                  | 41                                  | 0.191                                                                    | 0.191    | 0.450 | 1.00  | 0.086    | 1.020     | 0.024       | 0.041  |  |
| 4                                                             | 4.00                                         | 0.56                    | 21                  | 41                                  | 0.361                                                                    | 0.357    | 0.560 | 1.00  | 0.200    | 1.031     | 0.056       | 0.096  |  |
| 5                                                             | 5.00                                         | 0.70                    | 28                  | 41                                  | 0.480                                                                    | 0.336    | 0.700 | 1.00  | 0.235    | 1.004     | 0.066       | 0.162  |  |
| 6                                                             | 6.00                                         | 0.65                    | 11                  | 41                                  | 0.191                                                                    |          |       |       |          |           |             |        |  |
| 7                                                             | 7.00                                         | 0.72                    | 26                  | 40                                  | 0.457                                                                    | 0.370    | 0.650 | 1.00  | 0.241    | 1.000     | 0.067       | 0.230  |  |
| 8                                                             | 8.00                                         | 0.70                    | 16                  | 40                                  | 0.283                                                                    |          |       |       |          |           |             |        |  |
| 9                                                             | 9.00                                         | 0.75                    | 31                  | 41                                  | 0.531                                                                    | 0.446    | 0.720 | 1.00  | 0.321    | 1.001     | 0.090       | 0.319  |  |
| 10                                                            | 10.00                                        | 0.73                    | 21                  | 41                                  | 0.361                                                                    |          |       |       |          |           |             |        |  |
| 11                                                            | 11.00                                        | 0.78                    | 30                  | 40                                  | 0.527                                                                    | 0.402    | 0.700 | 1.00  | 0.281    | 1.000     | 0.079       | 0.398  |  |
| 12                                                            | 12.00                                        | 0.71                    | 16                  | 41                                  | 0.276                                                                    |          |       |       |          |           |             |        |  |
| 13                                                            | 13.00                                        | 0.69                    | 34                  | 40                                  | 0.597                                                                    | 0.411    | 0.750 | 1.00  | 0.308    | 1.000     | 0.086       | 0.484  |  |
| 14                                                            | 14.00                                        | 0.52                    | 13                  | 41                                  | 0.225                                                                    |          |       |       |          |           |             |        |  |
| 15                                                            | 15.00                                        | 0.49                    | 34                  | 40                                  | 0.597                                                                    | 0.419    | 0.730 | 1.00  | 0.306    | 1.000     | 0.086       | 0.570  |  |
| 16                                                            | 16.00                                        | 0.41                    | 14                  | 41                                  | 0.242                                                                    |          |       |       |          |           |             |        |  |
| 17                                                            | 17.00                                        | 0.41                    | 32                  | 40                                  | 0.562                                                                    | 0.466    | 0.780 | 1.00  | 0.363    | 1.000     | 0.102       | 0.672  |  |
| 18                                                            | 18.00                                        | 0.32                    | 21                  | 40                                  | 0.370                                                                    |          |       |       |          |           |             |        |  |
| 19                                                            | 18.80                                        | 0.00                    | 30                  | 40                                  | 0.527                                                                    | 0.387    | 0.710 | 1.00  | 0.275    | 1.004     | 0.077       | 0.749  |  |
|                                                               |                                              |                         | 14                  | 40                                  | 0.248                                                                    |          |       |       |          |           |             |        |  |
|                                                               |                                              |                         | 33                  | 40                                  | 0.579                                                                    | 0.433    | 0.690 | 1.00  | 0.299    | 1.018     | 0.084       | 0.832  |  |
|                                                               |                                              |                         | 17                  | 42                                  | 0.286                                                                    |          |       |       |          |           |             |        |  |
|                                                               |                                              |                         | 28                  | 40                                  | 0.492                                                                    | 0.457    | 0.520 | 1.00  | 0.238    | 1.020     | 0.067       | 0.899  |  |
|                                                               |                                              |                         | 24                  | 40                                  | 0.422                                                                    |          |       |       |          |           |             |        |  |
|                                                               |                                              |                         | 13                  | 41                                  | 0.225                                                                    | 0.225    | 0.490 | 1.00  | 0.110    | 1.006     | 0.031       | 0.930  |  |
|                                                               |                                              |                         |                     |                                     |                                                                          |          |       |       |          |           |             |        |  |
|                                                               |                                              |                         | 16                  | 40                                  | 0.283                                                                    | 0.283    | 0.410 | 1.00  | 0.116    | 1.003     | 0.032       | 0.962  |  |
|                                                               |                                              |                         |                     |                                     |                                                                          |          |       |       |          |           |             |        |  |
|                                                               |                                              |                         | 10                  | 42                                  | 0.170                                                                    | 0.170    | 0.410 | 1.00  | 0.070    | 1.000     | 0.019       | 0.982  |  |
|                                                               |                                              |                         |                     |                                     |                                                                          |          |       |       |          |           |             |        |  |
|                                                               |                                              |                         | 12                  | 40                                  | 0.213                                                                    | 0.213    | 0.288 | 0.90  | 0.061    | 0.989     | 0.017       | 0.999  |  |
|                                                               |                                              |                         |                     |                                     |                                                                          |          |       |       |          |           |             |        |  |
|                                                               |                                              |                         |                     |                                     | 0.071                                                                    | 0.071    | 0.064 | 0.40  | 0.005    | 0.512     | 0.001       | 1.000  |  |