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|  | **CALCULO PERDIDA DE CARGA AMPLIACION ARBORL DE DESCARGA** | | | | | | | | | | |
|  | **POZO SUSTITUTO PROYECTADO PS - 315** | | | | | |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  | **1. ESQUEMA DE AMPLIACION** | | | |  |  |  |  |  |  |  |
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|  | **1.1. Datos Iniciales** | | |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  | **DATOS TECNICO DE LOS TRAMOS** | | | | |  |  |  |  |  |  |
|  | Descripcion | | | | **TRAMO 01** | |  | | --- | |  | |  |  |  |  |  |
|  | Caudal bombeo | | | | 25 |  |  |  |  |  |  |
|  | Periodo Optimo de Diseño | | | | 10 |  |  |  |  |  |  |
|  | Longitud ampliacion de arbol | | | | 10.5 |  |  |  |  |  |  |
|  | Diámetro de Impulsion | | | | 150 |  |  |  |  |  |  |
|  | Situación de Tuberia | | |  | Proyectado |  |  |  |  |  |  |
|  | Antigüedad de la tuberia (años) | | | | - |  |  |  |  |  |  |
|  | Material | | | | HD |  |  |  |  |  |  |
|  | Coeficiente de rugocidad Hazen y W. (C) o Equivalente | | | | 130 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  | HD = Hierro Ductil |  | AC = Asbesto Cemento | | | HDPE = POLIETILENO ALTA DENSIDAD |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | |  |
|  | **1.2 CALCULO DE LA ALTURA DINAMICA DEL PS-315 ( Ht )** | | | | | | |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  | Ht = hf + hk |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  | hf = Perdidas de carga por fricción | | | |  |  |  |  |  |  |  |
|  | hk = Perdidas de carga singulares | | | |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  | Para el cálculo de las pérdidas de carga es utilizada la ecuación de Hazen-Williams: | | | | | | |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  | hf = | 10,643\*C-1,85 D-4,87 Q1,85 L + 0,0826 K D-4 Q2 | | | |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  | donde: |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  | C = | Coeficiente de fricción de la tubería | | | |  |  |  |  |  |  |
|  | D = | Diámetro de la tubería (m) | | |  |  |  |  |  |  |  |
|  | Q = | Caudal (m3/s) | |  |  |  |  |  |  |  |  |
|  | L = | Longitud de la tubería (m) | | |  |  |  |  |  |  |  |
|  | K = | Coeficiente de Pérdidas | | |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | **1.2.1.- Cálculo de pérdidas de carga en la ampliación árbol de descarga del PS 315** | | | | | | |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | **hf por TUBERIAS:** | | |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | C = | 130 | HD |  |  |  |  |  |  |  |
|  |  | D = | 0.15 | m |  |  |  |  |  |  |  |
|  |  | L = | 10.5 | m |  |  |  |  |  |  |  |
|  |  | Q = | 25 | l/s |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | **hf por ACCESORIOS :** | | |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | **Nº** | **Accesorios** | |  | **K** | **Kt** | **DN** |  | **hf** |  |
|  |  | 5 | Codo 45º |  |  | 2 | 10 | 150.00 |  | 1632.13 | Q2 |
|  |  |  |  |  |  |  |  |  |  | **1632.13** | **Q2** |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | hf-tuberia |  | hf-accesorios | |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | **hf1** | = | 141.22 | Q1,85 + | 1632.13 | Q2 |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | **hf1 =** | **1.17** | **m** |  |  |  |  |  |  |
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