

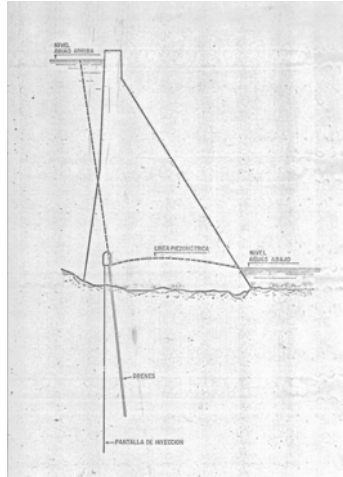
# SUBPRESIONES EN PRESAS

*COMPONENTE VERTICAL DEL FLUJO*

## Karl Terzaghi, 1929

- To pass judgement on the quality of a dam foundation is one of the most difficult and responsible tasks. It requires both careful consideration of the geological conditions and the capacity for evaluating the hydraulics of the geological facts which can only be obtained by a thorough training in the hydraulics of seepage.
  - *Citado por Artur Casagrande en la 1ª lección Rankine “Control of seepage through foundations and abutments of dams” 1961.*

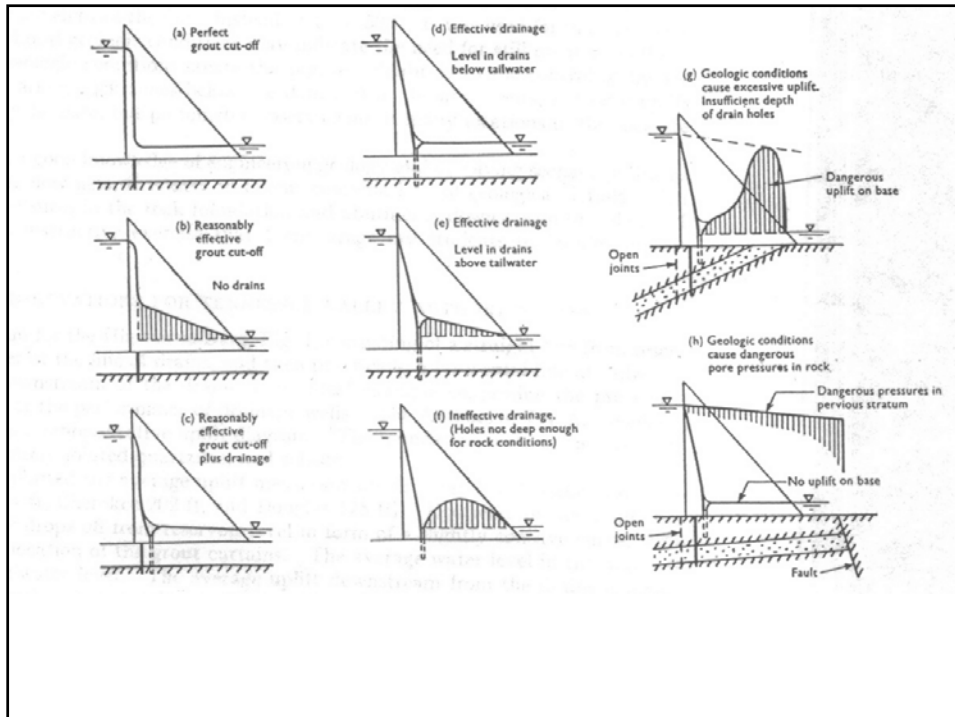
## Disposición clásica de pantalla de inyecciones y drenaje



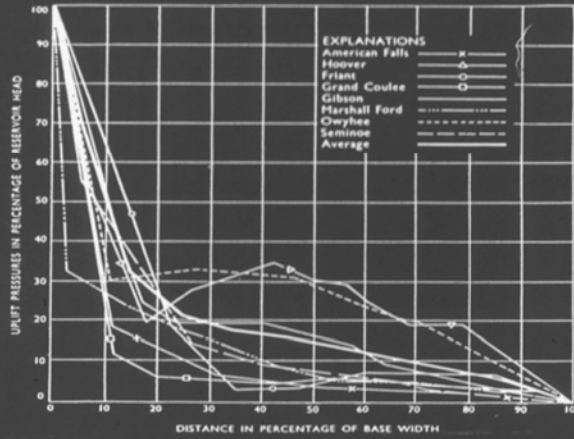
- La subpresión en las presas de gravedad es uno de los índices más importantes en la consideración de la seguridad
- Una pantalla de inyección de una sola fila de sondeos no sirve para nada. ¿Sirven las de 2 ó 3 filas?

HAY QUE DISCUTIR

- En realidad para reducir las subpresiones solo se puede fiar de los drenajes



PROFESSOR ARTHUR CASAGRANDE



2. Average uplift pressures at the base of eight Bureau of Reclamation Dams

DREN PUNTUAL

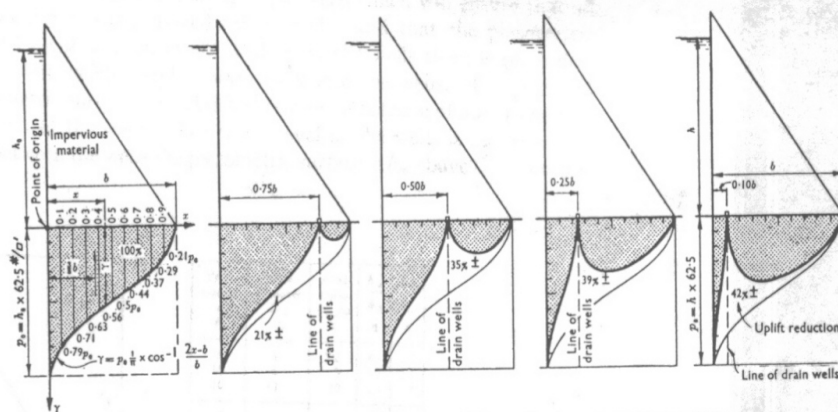
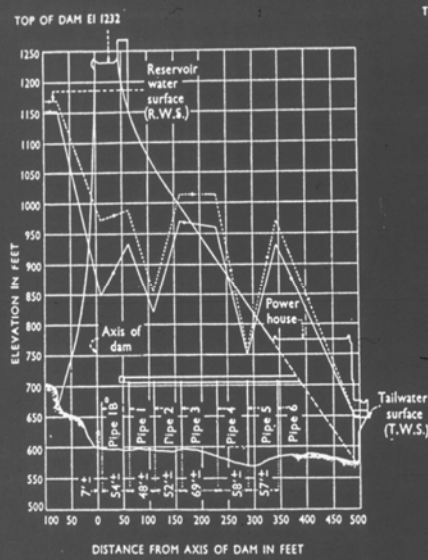
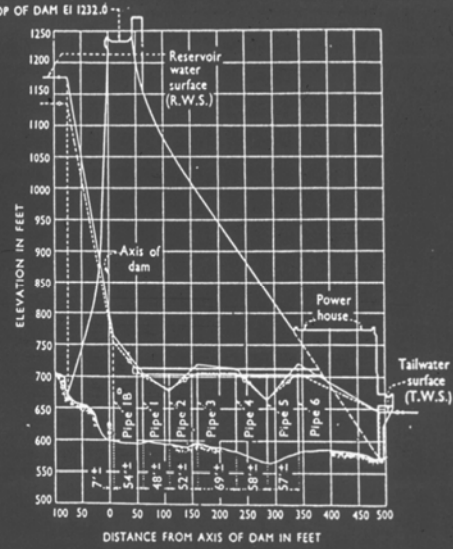


Fig. 2. Theoretical uplift pressure reduction caused by a drainage system which is effective at the foundation level

(Reproduced from Fig. 36 of Ref. (5))



(a)

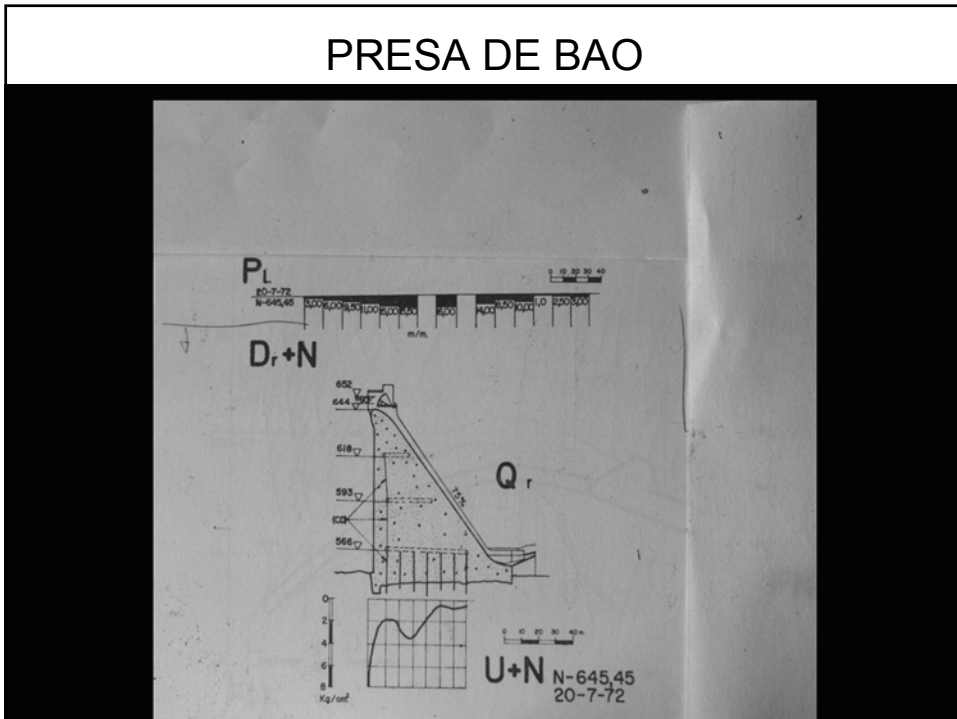


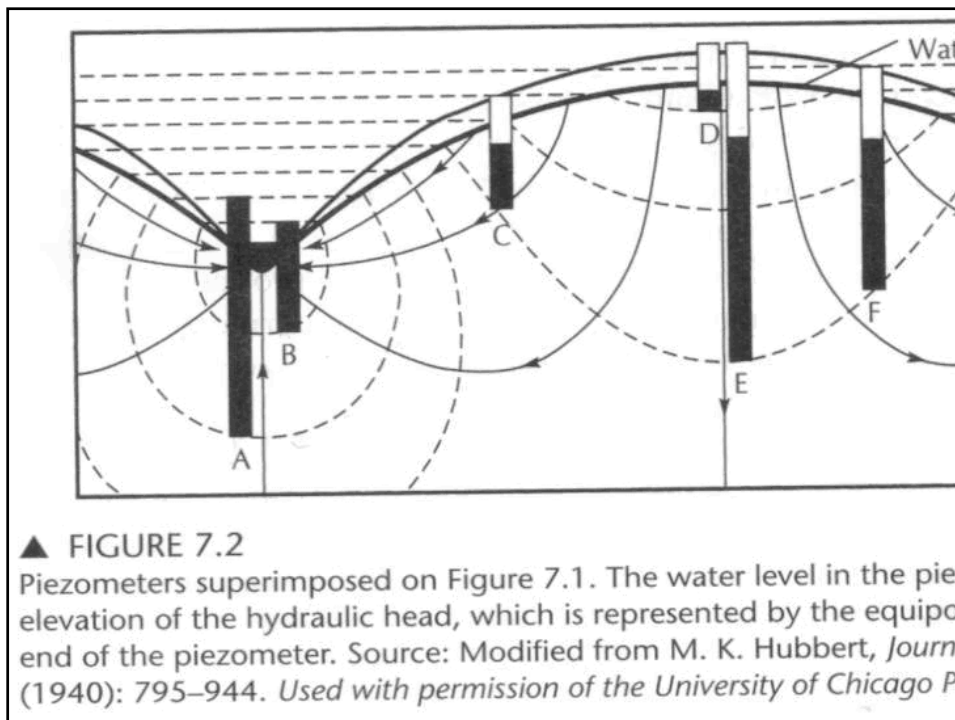
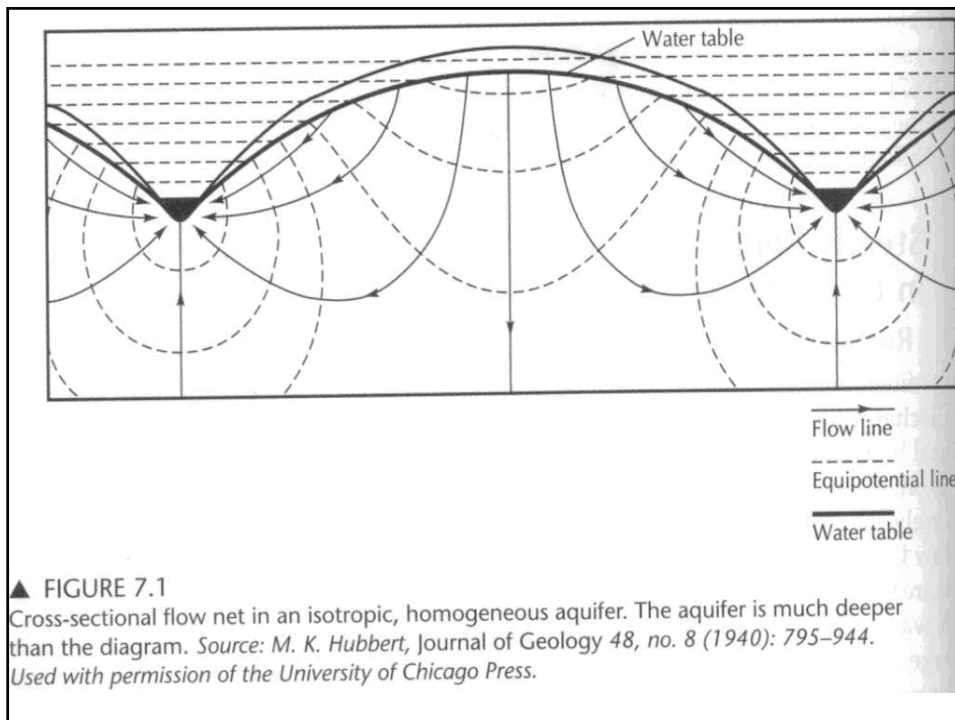
(b)

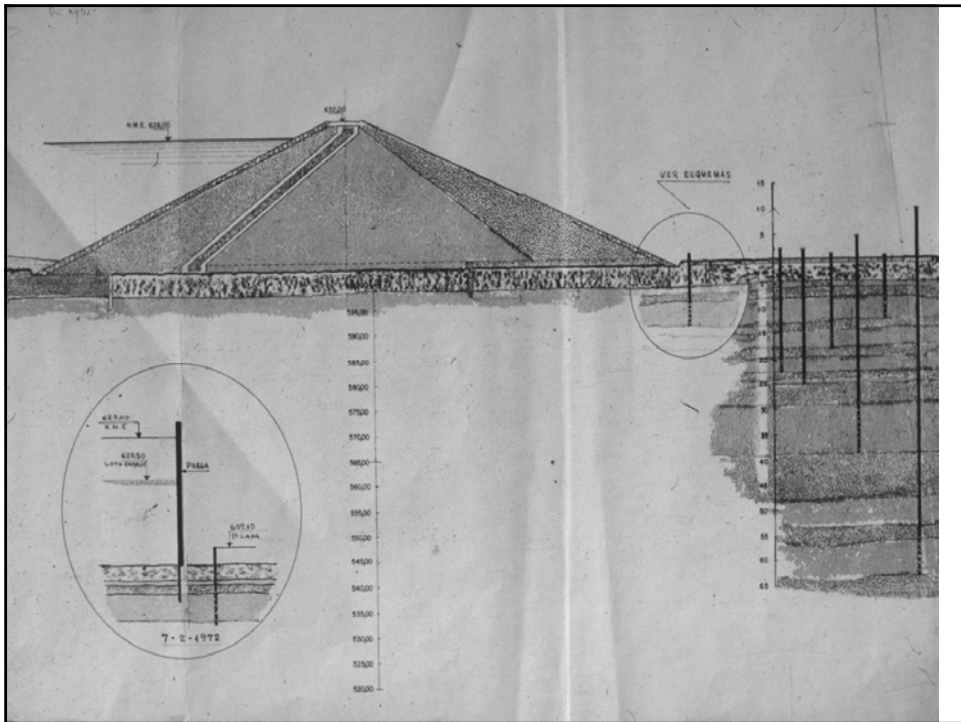
Fig. 14(a) and (b). Uplift pressure observations for Hoover Dam, line B, Bureau of Reclamation

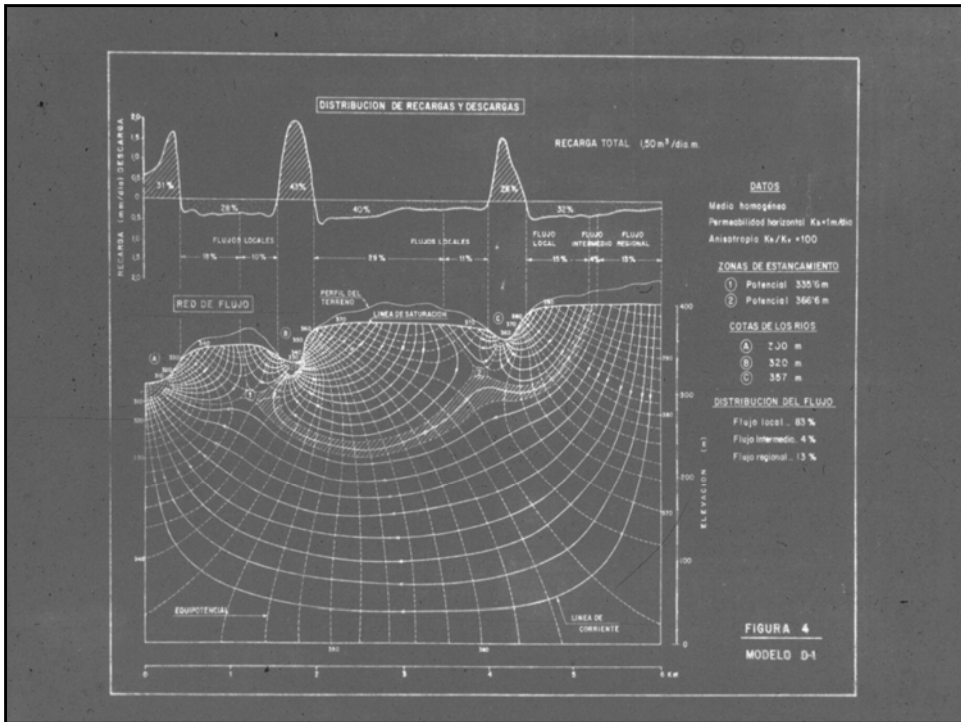


## PRESA DE BAO

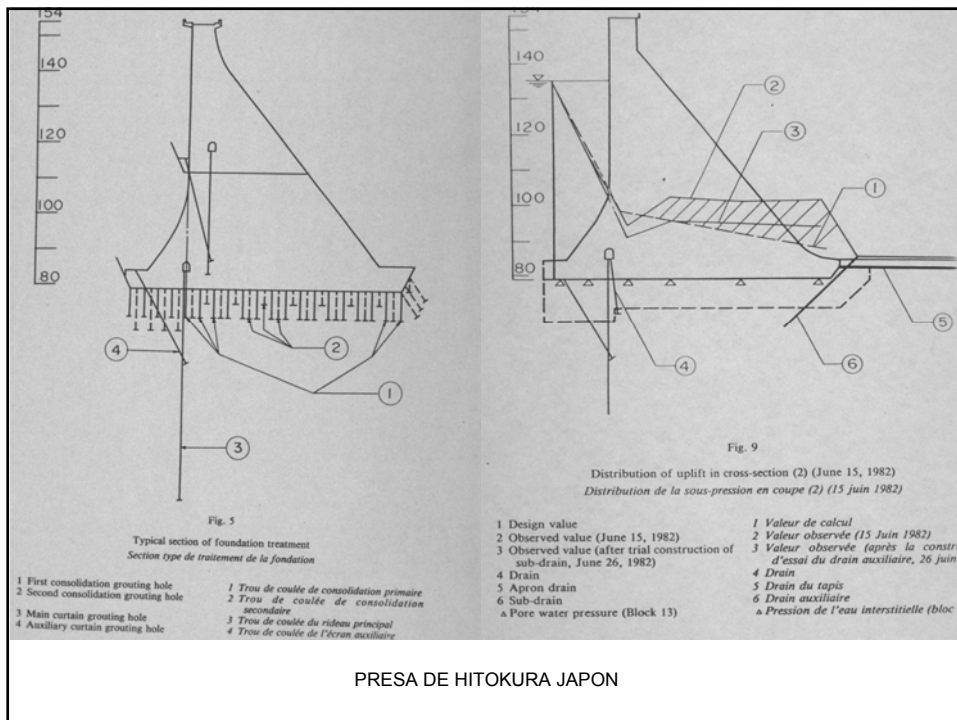
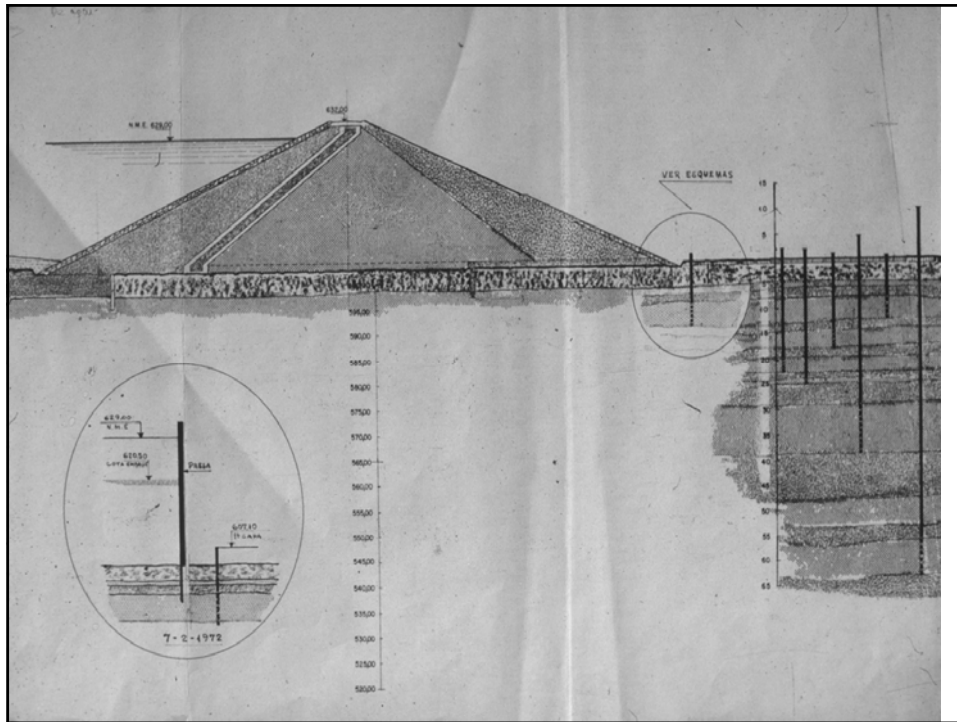




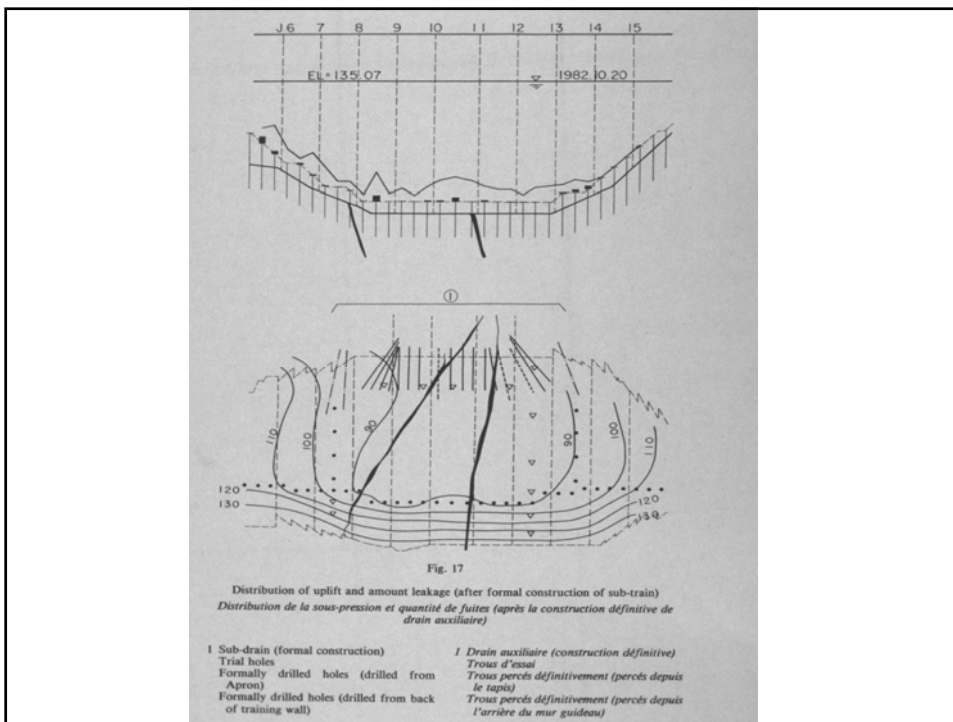
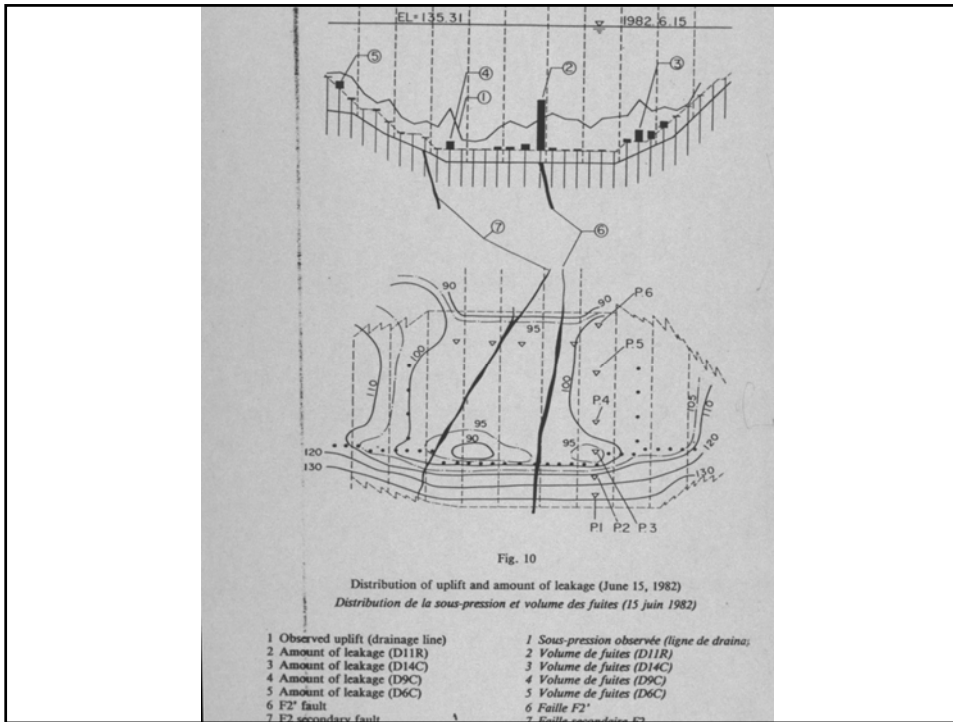




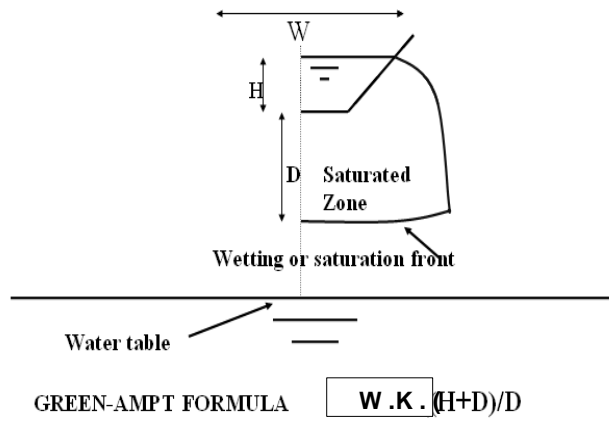




PRESA DE HITOKURA JAPON



# RÍO EFIMERO



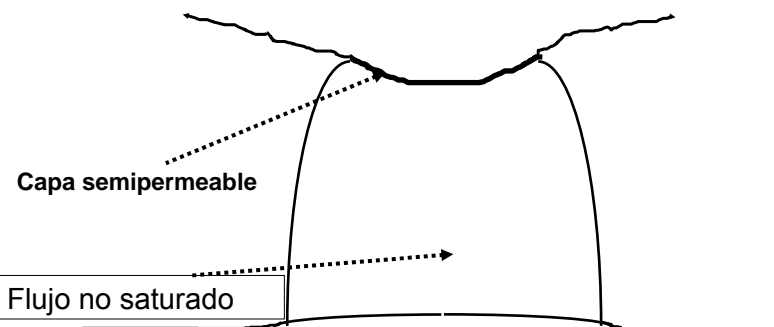
# MARIA CRISTINA DAM

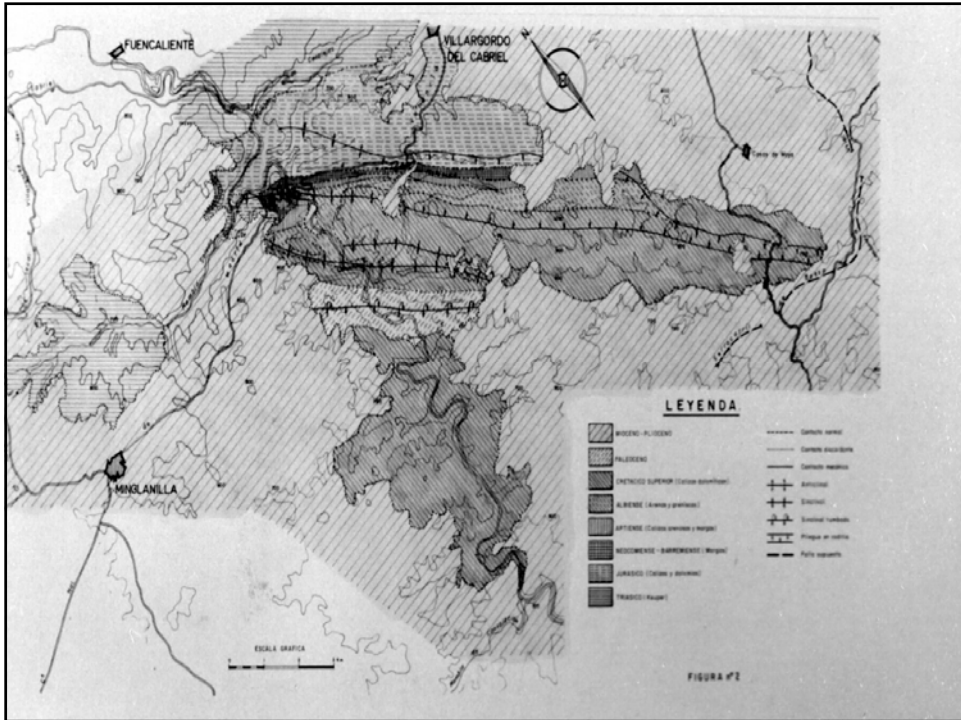
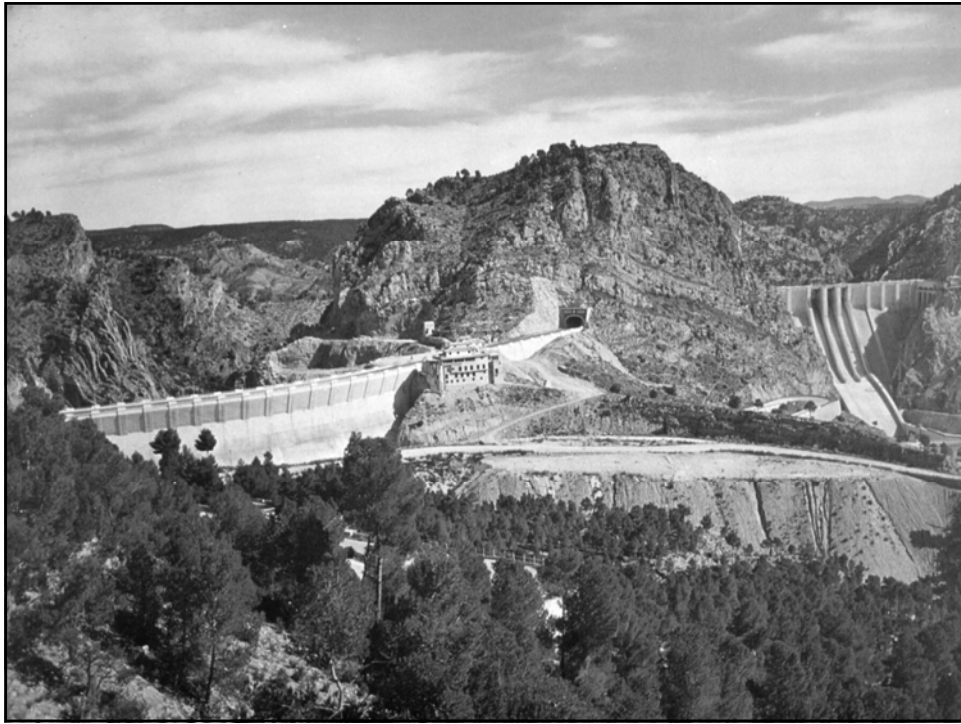


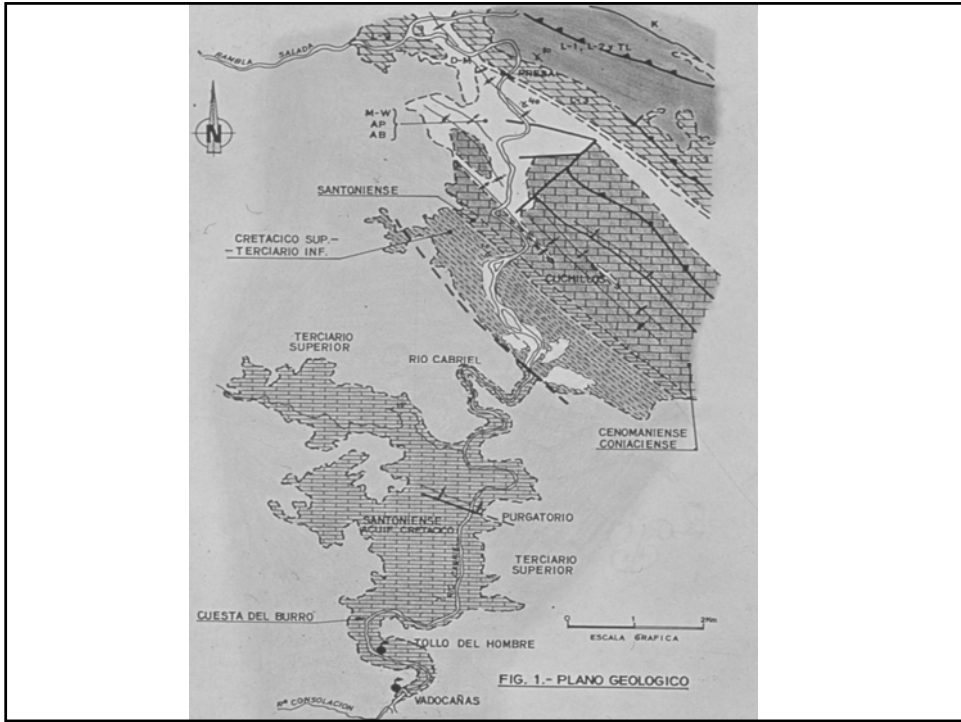


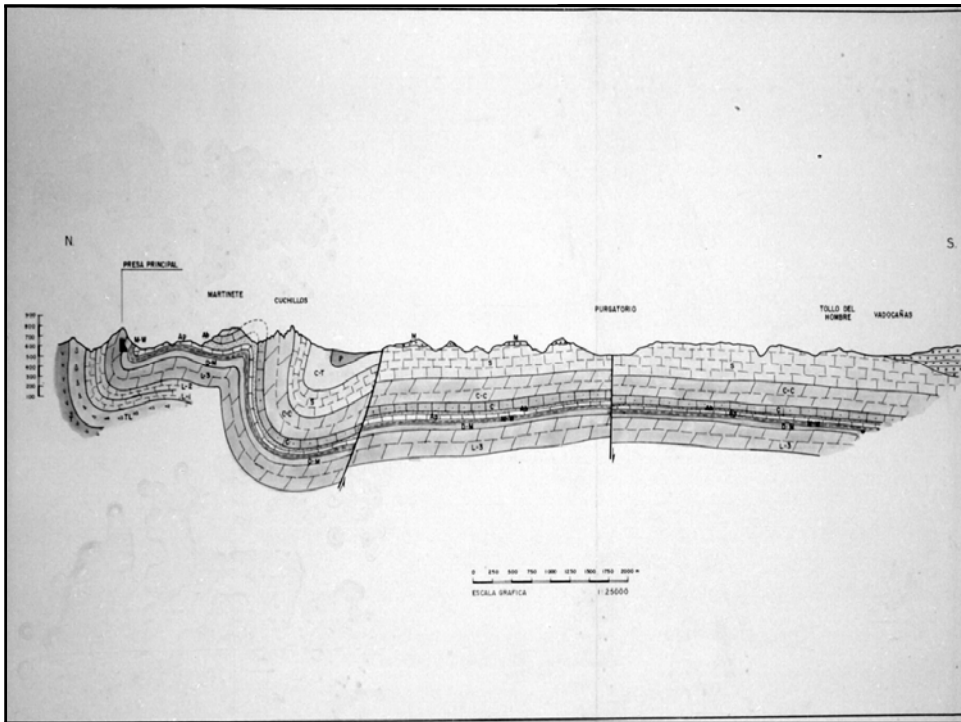
## Río colgado

- ♣ La situación puede ser natural o inducida por los bombeos de A. S
- ♣ Si los niveles acuíferos descienden por debajo del punto más bajo del cauce el acuífero deja de estar conectado
- ♣ Las pérdidas de agua del río permanecen constantes aun cuando desciendan los niveles del A. S Efecto ducha

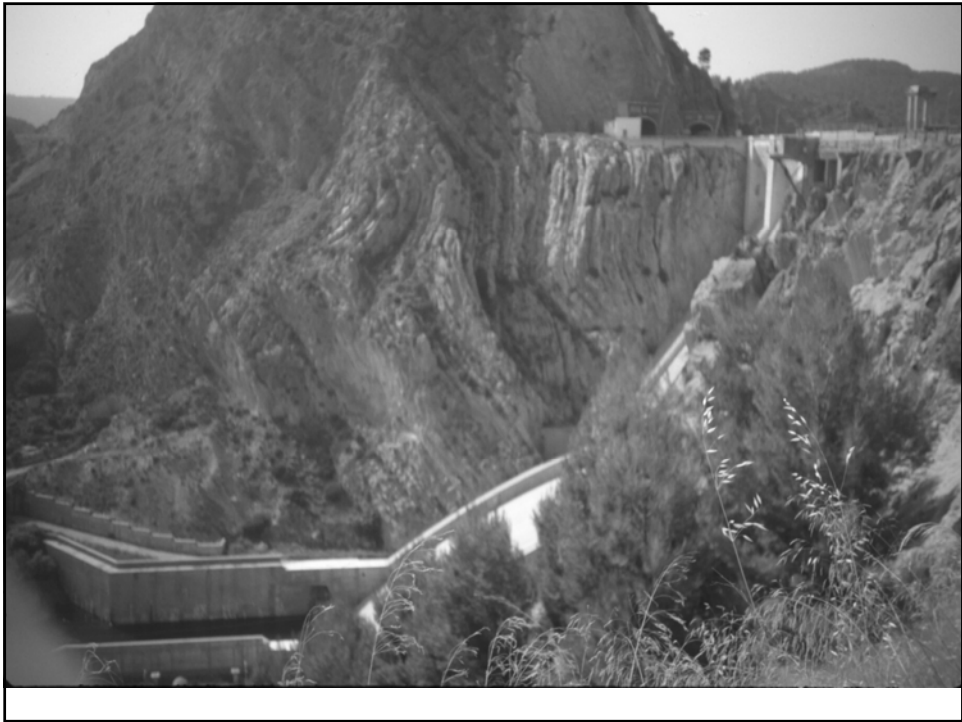


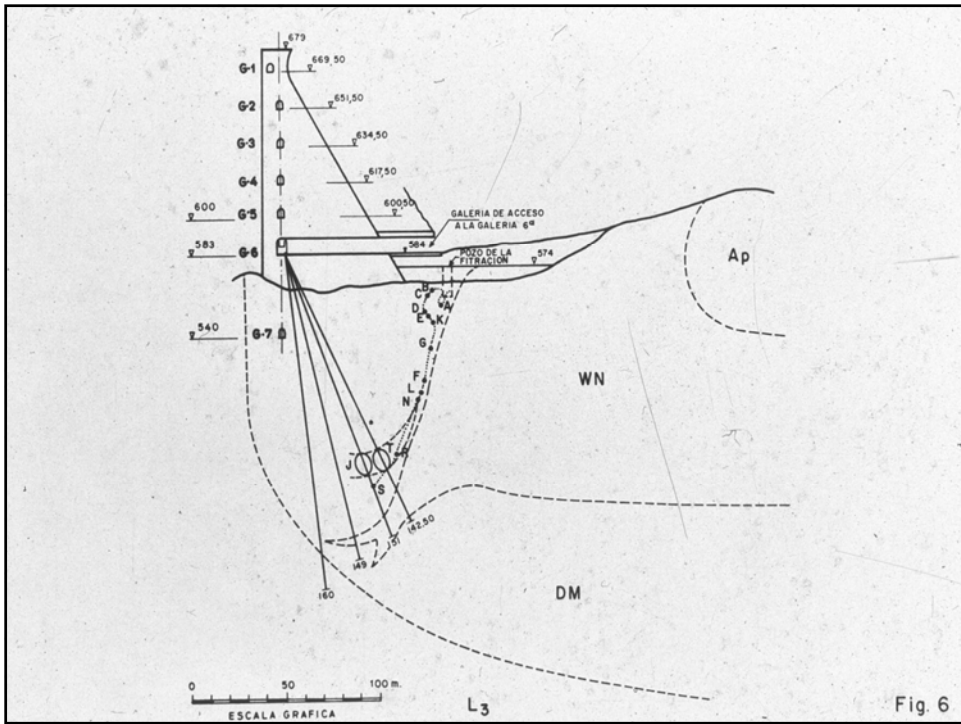
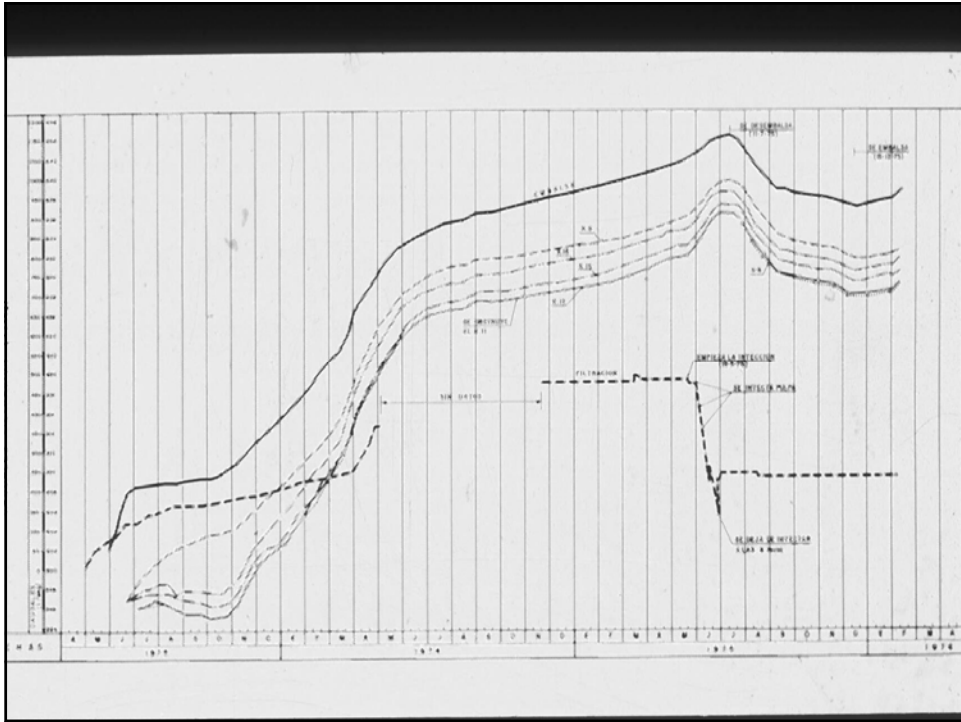


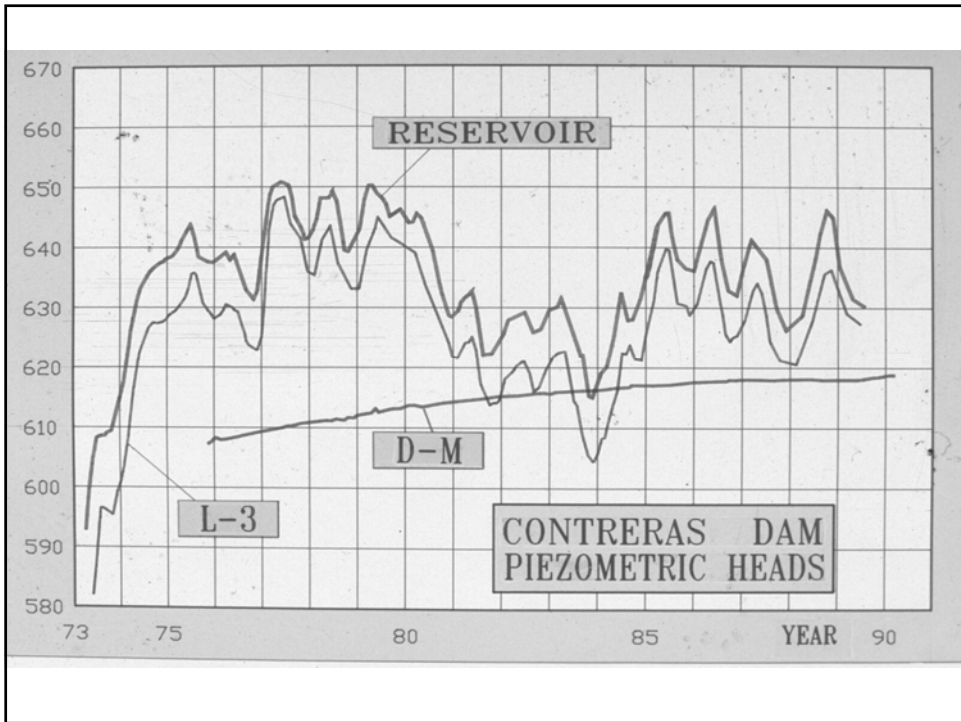
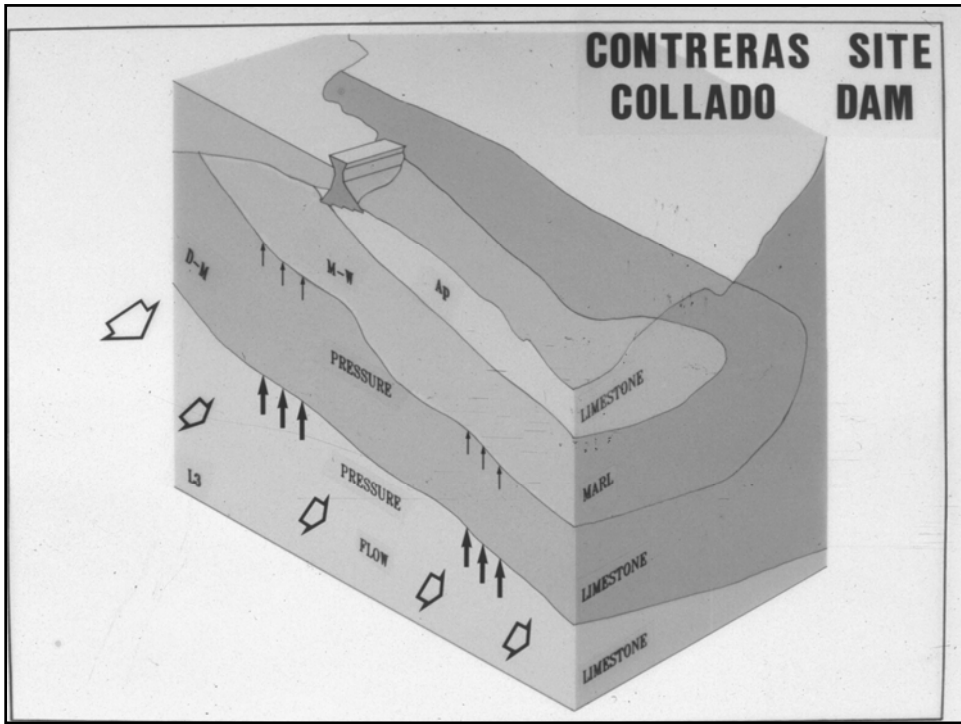












¿PREGUNTAS?