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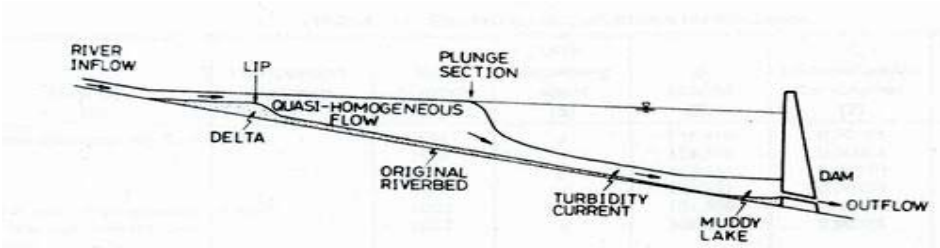
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(Fan and Morris 1992)



(Yu et al., 2000)

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(De Cesare et al., 2001)

(Alavian et al., 1992)

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$$A = f(L_R, B_R, H_R, k_s, S, l_{Th}, b_{Th}, h_{Th}, z_{Th}, Y_{out}, Z_{out}, D_{out}, \varphi, t, \rho_w, \mu, Q_{in}, Q_{out}, C_{s_{in}}, d_{50}, \rho_s, g, x, y, z) \quad ()$$

A ()

$S \quad k_s \quad H_R \quad B_R \quad L_R$



$$z_{Th}, h_{Th}, b_{Th}, l_{Th}$$

$$\phi, D_{out}, Z_{out}, Y_{out}$$

t .

$$\mu, \rho_w, C_{sin}, Q_{out}, Q_{in}$$

$$\rho_s, d_{50}$$

$$z, y, x, g$$

$$\rho_w, g, H_R$$

:

$$A^* = \psi_1 \left(\frac{L_R}{H_R}, \frac{B_R}{H_R}, \frac{k_s}{H_R}, S, \frac{l_{Th}}{L_R}, \frac{b_{Th}}{B_R}, \frac{h_{Th}}{H_R}, Z_{Th}, \frac{Y_{out}}{B_R}, \frac{Z_{out}}{H_R}, \frac{D_{out}}{H_R} \right) \quad ()$$

$$\phi, \frac{g^{0.5} t}{H_R^{0.5}}, \frac{\mu}{\rho_w g^{0.5} H_R^{1.5}}, \frac{Q_{in}}{g^{0.5} H_R^{2.5}}, \frac{Q_{out}}{B_R q_{in}}, \frac{C_{sin}}{\rho_w}, \frac{d_{50}}{k_s}, \frac{\rho_s}{\rho_w}, \frac{x}{L_R}, \frac{y}{B_R}, \frac{z}{H_R}$$

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$$\frac{\rho_s}{\rho_w} \frac{d_{50}}{k_s} \frac{Q_{out}}{Q_{in}} \frac{\mu}{\rho_w g^{0.5} H_R^{1.5}} \phi \frac{D_{out}}{H_R} \frac{Z_{out}}{H_R} \frac{Y_{out}}{B_R} \frac{k_s}{H_R} \frac{B_R}{H_R} \frac{L_R}{H_R}$$

$$\frac{z}{H_R} \frac{y}{B_R} \frac{x}{L_R}$$

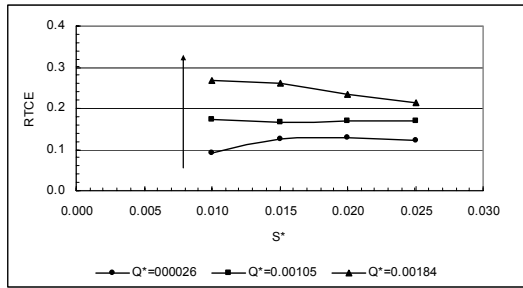
$$\frac{g^{0.5} t}{H_R^{0.5}}$$

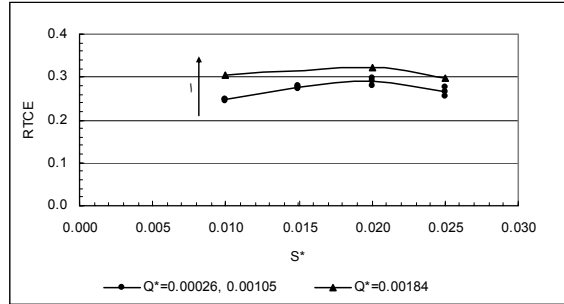
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$$A = C_{sout}$$

$$C_{sin} / \rho_w$$

$$A^* = C_{sout} / \rho_w$$





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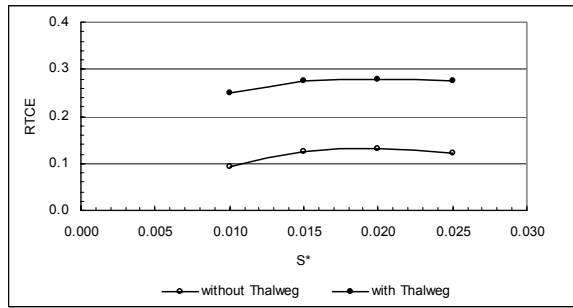
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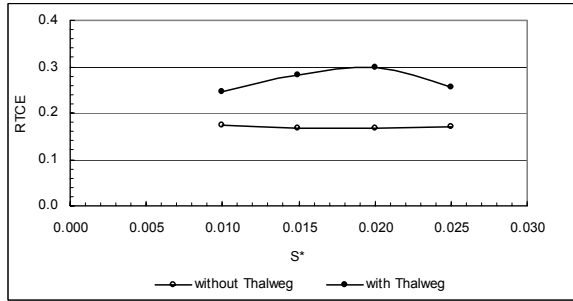
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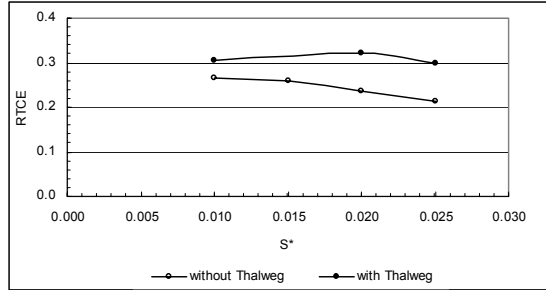


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$$RTCE_c = a(Q^*)^b (S^*)^c \quad ()$$



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b

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c

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a	1.852	0.540
b	0.397	0.053
c	-0.105	0.067

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