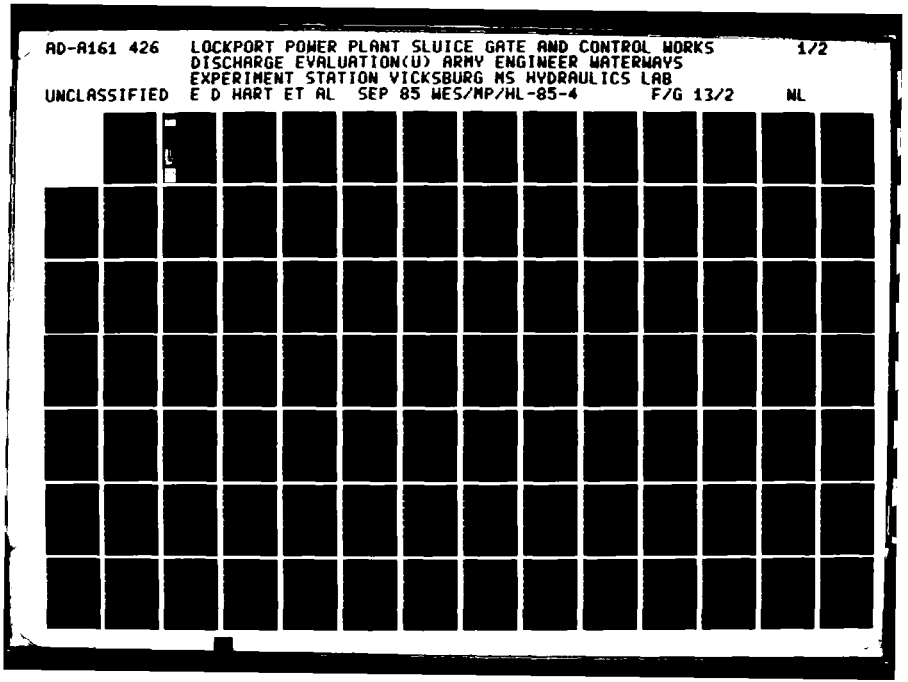
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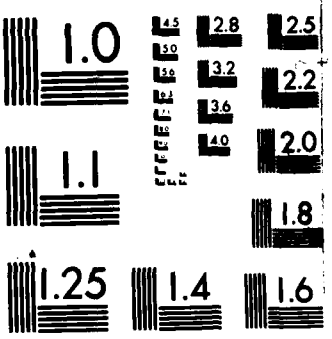

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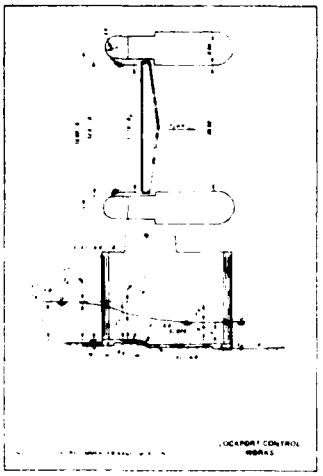

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LOCKPORT POWER PLANT SLUICE GATE AND CONTROL WORKS DISCHARGE EVALUATION

by

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Hydraulics Laboratory

DEPARTMENT OF THE ARMY
Waterways Experiment Station, Corps of Engineers
PO Box 631, Vicksburg, Mississippi 39180-0631

September 1985
Final Report

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The US Army Engineer Waterways Experiment Station conducted an evaluation of the discharge rating curves being used for determining flow rates through the Lockport control works and the power plant sluice gates. The revised curves are to be used by The Metropolitan Sanitary District of Chicago, Illinois, in future flow computations. The study resulted in the recomputation of the rating curves for the power plant sluice gates and for the control works. The control works analysis covered both submerged and unsubmerged flow

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20. ABSTRACT (Continued).

conditions. Operational recommendations and proposed flow monitoring revisions were also addressed.

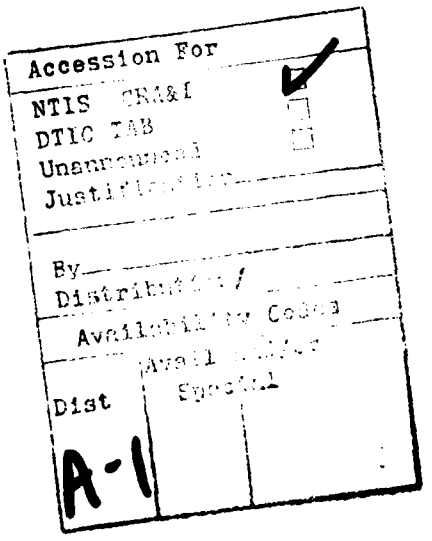
PREFACE

The study described herein was performed by the US Army Engineer Waterways Experiment Station (WES) under the sponsorship of the US Army Engineer District, Chicago, during the period August 1982 through March 1984.

The study was conducted under the general supervision of Messrs. H. B. Simmons and F. A. Herrmann, Jr., former and present Chiefs of the Hydraulics Laboratory, and M. B. Boyd, Chief of the Hydraulic Analysis Division. The work was performed by Messrs. E. D. Hart, Chief of the Prototype Evaluation Branch, and R. G. McGee, Engineer, Prototype Evaluation Branch. Assistance in this study was provided by Dr. F. M. Neilson, Dr. R. H. Multer, and Mr. M. T. Hebler of WES. This report was edited by Mrs. Beth F. Vavra, Publications and Graphic Arts Division.

Acknowledgment is made to the personnel of the Chicago District for their assistance in the investigation.

COL Tilford C. Creel, CE, and COL Robert C. Lee, CE, were Commanders and Directors of WES during the conduct of the study. COL Allen F. Grum, USA, was Director of WES during the preparation and publication of this report. Mr. Fred R. Brown and Dr. Robert W. Whalin were Technical Directors.



CONTENTS

CONVERSION FACTORS, NON-SI TO SI (METRIC) UNITS OF MEASUREMENT

Non-SI units of measurement used in this report can be converted to SI (metric) units as follows:

Multiply	By	To Obtain
cubic feet per second	0.02831685	cubic metres per second
feet	0.3048	metres
miles (US statute)	1.609347	kilometres
square feet	0.09290304	square metres

LOCKPORT POWER PLANT SLUICE GATE AND CONTROL WORKS DISCHARGE EVALUATION

PART I: INTRODUCTION

Background

1. The US Army Engineer District, Chicago (NCC), requested assistance from the US Army Engineer Waterways Experiment Station (WES) in evaluating the discharge rating curves being used for determining flow rates through the Lockport control works and power plant sluice gates. The revised curves would be used by the Metropolitan Sanitary District (MSD) of Chicago, Illinois, in future flow computations.

Purpose and Scope

2. On 3 August 1982, WES submitted a proposal* to analyze and revise (if necessary) the existing rating curves for the control works and power plant sluice gates. This work included:

a. A review of the old power plant sluice gate model study (Muga 1961), previous computations, drawings, and results.

b. Recomputation of the rating curves considering structure features, hydraulic characteristics, and in the case of the power plant sluice gates, those features not considered in the model study, such as the trashracks.

c. Determinations of operational recommendations such as the sequence of gate openings.

d. Determination of any needed monitoring revisions such as possible relocation of water-level gages.

3. This report is a compilation of three letter reports previously submitted by WES to NCC explaining the results of each stage of the study. The letter reports are combined herein to reduce duplication and to optimize data interpretation.

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* US Army Engineer Waterways Experiment Station, Memorandum for Record, SUBJECT: Lockport Sluice Gate and Control Works Discharge Evaluation, dated 3 Aug 1982; Letter of Transmittal from WESHP to US Army Engineer District, Chicago, Chicago, Ill., dated 6 Aug 1982.

PART II: LOCKPORT POWER PLANT SLUICES

Project Geometry

4. A total of nine sluice gates are utilized in the power plant to discharge flow through the facility. Three 9-ft*-wide by 14-ft-high screw-stemmed sluice gates were installed in each of bays 3, 4, and 7 of the power plant (Plate 1). The turbines were removed and the chambers structurally modified to close the number 4 draft tube in each bay. A typical bay cross section is shown in Plate 2.

5. The model study considered upper pool (UP) elevations (el) -10 to 0 City of Chicago Datum (CCD) and a tailwater (TW) range from -39 to -33 CCD. NCC requested that the revised discharge ratings include UP el -12 to +1 CCD and TW el -39 to -33 CCD.

Data Evaluation

6. The following procedure for evaluating the model data was developed by Dr. F. M. Neilson of WES. Three flow-control conditions occur over the range of measured discharges. The three conditions and corresponding discharge equations are:

Condition	Equation	
Sluice gate control: (no tailwater effect)	$Q = CA\sqrt{2gH_1}$	(1)
Draft tube control: (tailwater effect)	$Q = C'A\sqrt{2g\Delta H}$	(2)
Critical flow: (no tailwater effect)	$Q = 3.09\ wH_1^{3/2}$	(3)

where

Q = discharge, cfs

C = discharge coefficient, sluice gate

---

* A table of factors for converting non-SI units of measurements to SI (metric) units is presented on page 3.

A = gate area, ft^2

g = 32.2, ft/sec^2

H_1 = total upstream head on the gate sill, ft

C' = discharge coefficient, overall structure

ΔH = total head loss, ft

w = gate width, ft

Gate Operation

7. The bays are operated with one, two, or three gates fully open. The study does not consider partially open gates. To simplify the gate opening designation the number 1 is used to represent a fully open gate and 5 a closed gate.

a. Single gate operation ($-12 \leq CCD \leq +1$). The rating for single gate operation is independent of tailwater (Muga 1961); therefore Equation 1 applies. Using the values of measured model piezometric head (y_1) and discharge (Q), the coefficient C was determined. The entrance velocity head ($V_1^2/2g$) was then computed and added to the measured piezometric head to give H_1. This value was added to the sill elevation (-28.42 CCD) to give the UP elevation at a location upstream of the gate drawdown zone. This procedure was repeated to derive a series of C versus UP values from which the equation C = f(UP) was developed. The discharge was then computed in 0.05-ft increments of UP elevation using Equation 1 and H_1. The discharge for gate configuration 515 is listed in Table 1; Table 2 presents the same information for configurations 551 and 155. A curve for each of these configurations is presented in Plate 3. Some values from the MSD computations are plotted in Plate 3 for comparison.

b. Two-gate operation ($-12 \leq CCD \leq +1$). The rating for two-gate operation is also independent of tailwater (Muga 1961). The same procedure was used to provide the tabular listing for gate configuration 151 in Table 3 and configurations 511 and 115 in Table 4. Plate 4 presents the rating curves for these configurations with MSD values plotted for comparison.

c. Three-gate operation ($-10 \leq CCD \leq +1$). Between UP el -10 to +1 CCD the rating is influenced by the tailwater (Muga 1961); for these elevations, Equation 2 applies. As above, the prototype C' values were determined from the model data. Because of the tailwater effect the coefficients vary significantly for different headwater-tailwater conditions, resulting in an array of values. The array is shown in graphical form in Plate 5 and is divided into zones of average values of C'. With the UP and TW elevations, the C' value is determined from the graph. Taking

this value and ΔH to the appropriate table (Tables 5 to 9), the discharge can be read. The discharge can also be obtained using ΔH with the appropriate rating curve from Plates 6-8. An example of this procedure is presented for demonstration:

Given:	UP el = -4.20 CCD
	TW el = -35.25 CCD
From Plate 5:	C' = 0.452
Compute:	ΔH = -4.20 - (-35.25) = 31.05 ft
From Table 9:	(C' = 0.452 and DEL H = 31.05)
Read:	Q = 7,633 cfs

d. Three-gate operation ($-12 \leq$ CCD < -10). When $H_1/b < 1.2$ approximately, the water surface at the entrance clears the gate and the flow there is critical (Henderson 1966). The Lockport gate height (b) is 14 ft and the sill is at el -28.42. Theoretically, then, critical flow would occur at UP el -11.6 CCD and lower. For this condition, Equation 3 would apply. As a check for Lockport conditions, the discharge was computed using both Equations 2 and 3. When plotted (Q versus CCD), it was determined that the curves intersected at el -10 CCD). Equation 3 was then used to compute three-gate operation at UP elevations below -10, i.e., $-12 \leq$ CCD < -10 . Table 10 presents the listing for this condition and Plate 9 the rating curve. Some values from the MSD computations are plotted in Plate 9 for comparison.

Trashrack Losses

8. These losses were computed using information from Zowski (1960) and USACE (1952). The trashrack loss (H_{tr}) is defined as a coefficient (k) times the entrance velocity head, i.e.,

$$H_{tr} = k \frac{V_1^2}{2g} \tag{4}$$

The value of k for a clean trashrack of the Lockport geometry was computed to be 0.07. The head loss value was subtracted from H_1 in Equations 1 and 3 and ΔH in Equation 2 before computing the discharge.

Estimated Errors

9. The errors to be considered are those incurred in the model

measurements of Q and y_1, the model-to-prototype (MP) conversion error (which includes consideration of the limited model forebay width) and the measurement of H_1 in the prototype. The quoted error (Muga 1961) in discharge measurement was ±2 percent. Elevation was measured to the nearest 0.001 ft (Muga 1961). At a head on the sill of 22.42 ft prototype (el -6.0 CCD), the error of measurement would be 0.09 percent. The error in computing C then is approximately equal to the error of Q measurement, i.e.,

$$C(\%) \approx \pm Q(\%) \approx \pm 2\% \tag{5}$$

The prototype water surface can be determined within ±0.05 ft (±0.22 percent of H_1 at el -6.0 CCD). The MP conversion error is estimated to be ±5 percent or less. The total estimated discharge error is:

$$Q(\%) \approx MP(\%) + C(\%) + \frac{1}{2} H_1(\%) \approx \pm 5\% \pm 2\% \pm 0.1\% \approx 7.1\% \tag{6}$$

Though not model-tested, errors for UP el $-12 \leq$ CCD < 10 are estimated to be of the same magnitude.

10. As discussed by the Review Committee (Espey, Barnes, and Vegander (1981), the model forebay was limited to the width at the entrance and was therefore not representative of the approach flow to the trashracks. However, the round-nose piers which separate each bay and extend 15 to 20 ft upstream form a partial forebay width constriction. An analytical approach to correct for this difference was not attempted. It is assumed that this discrepancy is included in the estimated MP conversion error. The Committee also recommended using partial gate openings. MSD felt that this would cause undesired gate wear due to vibrations which have been observed during partial gate opening operation.

PART III: LOCKPORT CONTROL WORKS

Project Geometry

11. The dimensions of the project were taken from drawings provided by NCC. These dimensions were then confirmed in discussions with district personnel. Plate 10 shows that the gate section sill (weir) has a vertical upstream face and is 1 ft high by 9.5 ft long with a 1:1 sloping downstream face. The discharge rating curves and tables were derived using these dimensions. It is therefore recommended that the user ensure that the sill area remains clear of deposition through periodic inspections (soundings) and maintenance.

Contraction

12. The effective width of a gate section is determined by considering the contraction caused by abutments and piers. An equation for computing the effective width B_a is given in the Hydraulic Design Criteria (HDC) (USACE 1952):

$$(N + 1)B_a = (N + 1)B' - 2(Nk_p + k_a)H_1 \tag{7}$$

where

N = number of piers (6)

B' = net bay width (see Plate 10)

k_p = pier contraction coefficient

k_a = abutment contraction coefficient

H_1 = energy head on the sill (sill elevation = -15 CCD)

NCC specified a drawdown range from el -1 CCD to el -10 CCD with an average elevation of -6 CCD (H = 9.0 ft). Using this average head the effective gate bay width was computed to be 31.67 ft. With all gates open and using the computed effective width the error introduced at the two extreme elevations is a discharge overestimate of 0.6 percent at el -1 CCD and an underestimate of 1.5 percent at el -10 CCD. The effective width is applied the same for both the submerged and unsubmerged flow conditions.

Mooring Piers

13. The 30-ft-diam mooring piers are located upstream of the control works as shown in Plate 11. Because of their distance from the control works, it is assumed that piers 1 and 2 are outside the water-surface drawdown zone. However, because of its proximity to the control works, pier 3 will likely have some effect on flow through bays 6 and 7.

14. To estimate this effect, the area of approach was taken as the average depth at the piers times the length of a line passing from one control works abutment, through the piers, to the other abutment. The velocity of approach was estimated by dividing the total discharge for a particular pool elevation by this area. The head loss at pier 3 was then estimated by multiplying the computed velocity head times a loss coefficient for a cylinder perpendicular to the flow at the appropriate Reynolds number. That is:

$$H_L = k \frac{V_1^2}{2g} \tag{8}$$

where, from Rouse (1950), $k = 0.35$. It was found that the computed discharge through bays 6 and 7 changed by less than 2 percent for pool el -10 CCD through -1 CCD.

15. An equation for pier 3 head loss as a function of the water-surface elevation was developed and included in the discharge computations for bays 6 and 7. This equation was applied the same for both the unsubmerged and the submerged flow conditions.

Gage Locations

16. Strategically located upstream and downstream water-surface gages are essential to maximize the accuracy of the rating curves. The present gage locations (Plate 11) introduce an excessive error in the determination of total head entering the control works and the downstream pool elevation.

17. It is recommended that an upstream water-surface gage be installed in a location well outside the drawdown zone of any combination of open gates. Specifically, it is suggested that a gage be located approximately 265 ft north of the existing gage. As shown in Plate 11, this would be at the north end of nonoperative bay 15 and near the southern boundary of a loading facility.

18. At the present upstream gage location, the measured depth on the sill (y_1) and the velocity head ($V_1^2/2g$) will vary depending on which gates are open. At a pool elevation of -5 CCD (y_1 = 10 ft), a discharge error up to 20 percent could be introduced, again depending on which gates are open. If, however, the gage is outside the drawdown zone, there will be no significant velocity head and y_1 will equal H_1. In the latter situation, one rating curve will suffice for all gate opening combinations.

19. NCC proposed an alternative to positioning a new upstream gage at the recommended location. This would consist of reading the elevation at a station 2.9 miles upstream and with backwater computations, determine the water-surface elevation at the control works. If the flow is steady and if the Manning equation can be applied to segments of constant slope, cross section, and roughness along the canal, the elevation could be accurately computed with an estimated error of approximately ±0.1 ft. If, however, as is more likely, the flow is unsteady and/or the channel cannot be segmented as described, the computed elevation could be in error by as much as ±1.0 ft.

20. The present location of the downstream gage is unacceptable. It is located just behind a gate pier and does not accurately reflect the tailwater elevation. Accurate tailwater elevation measurements are critical in the computation of the submerged weir flow rating curves. To ensure a correct downstream water-surface elevation a gage should be installed at a location at least four gate bay widths downstream. A recommended location is shown in Plate 11.

21. The computations for control works flow, both unsubmerged and submerged, assume that the gages will be relocated as recommended in the preceding paragraphs.

Unsubmerged Flow Condition

Computations

22. A relationship between head and discharge has been developed for flow over a weir (Henderson 1966; Hulsing 1968; Rouse 1950, 1962; Tracy 1957). The discharge per bay (Q_b) is a function of the effective bay width, a coefficient C, and the energy head on the crest; that is:

$$Q_b = CB_a H_1^{3/2} \tag{9}$$

23. The coefficient C varies with the head and geometric configuration of the sill (Hulsing 1968; Thomas 1966; Tracy 1957). Plate 12 presents a graph of C versus y_1/L (L being the weir length) which was taken from Hulsing (1968). With this information, the discharge Q and energy head H_1 were determined. A relationship of C versus H_1/L for use at Lockport was then determined and is plotted in Plate 12. The equation of this curve was determined for use in the program written to compute Q_b in increments of H_1 .

24. Tracy (1957) defines a weir length as short when the ratio $H_1/L > 0.4$. For the Lockport control works the weir is short when H_1 exceeds 3.8 ft (el -11.2 CCD). As this ratio increases the influence of the weir length diminishes, resulting in a substantial increase in discharge. This is reflected in the graph of Plate 12.

25. Table 11 is a printout of the computed data in energy head increments of 0.05 ft. From left to right the columns are: upstream elevation at the gage (CCD); energy head on the crest, the coefficient C , and the discharge per bay. Column 4 lists the discharges for bays 1-5. Column 5 lists the discharges for bays 6-7 and includes the effects of the mooring pier head loss. The head versus discharge per bay data are also shown as a curve in Plate 13. The graph does not consider mooring pier losses so it is only applicable to gates 1-5.

Estimated error

26. The error involved in determining the control works discharge is a function of the terms of Equation 9. Using the mean energy head of 9.0 ft the error involved in computing the effective bay width is estimated to be ±2.5 percent. From the references, the error in determining the coefficient C is approximately ±3.0 percent. If a gage is installed as proposed in paragraph 17, the water surface can be determined within ±0.05 ft (±0.5 percent at -6 CCD). To estimate the total error the terms of Equation 9 are added as follows:

$$\text{Estimated error} = (C\%) + (B_a\%) + \frac{3}{2}(H_1\%) \qquad (10)$$

$$= (\pm 3.0\%) + (2.5\%) + \frac{3}{2}(\pm 0.5\%) \approx 6.2\%$$

Errors due to the varying head and number of gate bays used (Equation 7) are computed and added to Equation 10. These increases and resulting discharge errors are listed below.

Estimated Error of Discharge Computation

WS Elevation CCD (a)	Head on Sill ft (b)	Number Gates Open (c)	Effective Width ft (d)	Width Error* percent (e)	Maximum Discharge Error** percent (f)	Computed Discharge† cfs (g)	Maximum Discharge Error†† cfs (h)
-10.00	5.00	1	31.47	0.6	6.8	953	65
		2	31.87	0.6	6.8	1,906	130
		3	32.00	1.0	7.2	2,860	206
		4	32.07	1.3	7.5	3,813	286
		5	32.11	1.4	7.6	4,766	362
		6	32.14	1.5	7.7	5,719	440
		7	32.16	1.5	7.7	6,673	514
-6.00	9.00	1	29.97	5.4	11.6	2,478	287
		2	30.96	2.2	8.4	4,955	416
		3	31.29	1.2	7.4	7,433	550
		4	31.46	0.7	6.9	9,910	684
		5	31.55	0.4	6.6	12,388	818
		6	31.62	0.2	6.4	14,866	951
		7	31.67	0.0	6.2	17,343	1,075
-1.00	14.00	1	27.63	12.8	19.0	5,280	1,003
		2	29.87	5.7	11.9	10,560	1,257
		3	30.62	3.3	9.5	15,840	1,505
		4	30.99	2.1	8.3	21,121	1,753
		5	31.21	1.4	7.6	26,401	2,006
		6	31.36	1.0	7.2	31,681	2,281
		7	31.47	0.6	6.8	36,961	2,514

* $\frac{31.67 - (d)}{31.67} \times 100$.

** (e) + 6.2%.

† Equation 9.

†† (g) × (f).

27. For comparative purposes the MSD computed discharges at el -1, -6, and -10 CCD are shown relative to the WES computed curve in Plate 13. The percentage differences are also shown, using the MSD data as base. Between el -7 and -1 CCD the computations differ by less than 10 percent. It appears that a constant coefficient was used in the MSD computations whereas in the WES computations, as discussed in paragraph 23, the coefficient varied with the head on the sill.

Submerged Flow Condition

Approach

28. Experiments for determining discharge coefficients for submerged broad-crested weirs have been performed by a number of different experimenters in recent years. Most of these studies were quite specific in their scope and were not found to be applicable to the subject study. A paper presented by Thomas (1966) attempts to determine a general discharge relationship for submerged weirs by correcting the free-flow discharge coefficients for submerged-flow conditions. However, these results are again limited to specific weir geometries.

29. The HDC (USACE 1952) presents Chart 111-4 (Plate 14) for determining submerged crest coefficients for overflow dams. This chart is based on extensive experimentation and is applicable to many crest shapes. As with Thomas (1966), the coefficients in HDC Chart 111-4 are based on a relationship that corrects the free-flow discharge coefficients for submerged conditions. Because of its general nature, the authors felt it would be better suited for this study. Further, a comparison of HDC Chart 111-4 with the specific weir geometries presented in Thomas' paper showed a very close agreement of results at all heads, thus adding credence to the chart.

30. Because of downstream flow control under submerged conditions, the discharge must be determined for varying tailwater levels at specific upstream heads. This requires a separate rating curve for each desired head. Therefore a computer program was written to compute the discharge rating curves by first using HDC Chart 111-4 to calculate the decrease in the coefficient of discharge for free flow caused by submerged flow. The modified coefficient was then applied to the known relationship between head and discharge for computing flow over the weir.

31. The coefficient C in Equation 9 for unsubmerged weir flows varies with the head and geometric configuration of the sill (Hulsing 1968, Rouse 1962, Tracy 1957). Plate 12 presents the graph of C versus H_1/L (L = weir length) used to compute the free flow coefficient for each value of H_1

32. In the case of submergence, the same equation is used except that the coefficient C is no longer constant for a given head, rather it varies with changing tailwater levels. Therefore the equation used for discharge under submerged conditions is

$$Q_b = C_s B_a H_1^{3/2} \quad (11)$$

where C_s is the coefficient of discharge for submerged flow computed as a percent reduction applied to C .

Incipient submergence

33. The rating curves assume a submerged downstream condition. The point of incipient submergence, i.e. the point at which submergence begins, has been found to lie between a ratio of downstream depth on the sill (y_d) to the upstream depth (y_1) of 0.75 to 0.85 (Henderson 1966, Hulsing 1968, Thomas 1966, Tracy 1957). For these computations, the point of incipient submergence was assumed to lie at a ratio of downstream depth (y_d) to total head on the crest (H_1) of 0.80 ($H_1 = y_1$ at the recommended gage location).

Output

34. Table 12 is a printout of the computed data. Tables were computed for total heads of 2 to 17 ft with TW levels ranging from $H_d/H_1 = 0.20$ to $H_d/H_1 = 0.0$ at increments of 0.005 ft/ft. (Note: $H_d/H_1 = 1 - y_d/H_1$ where $H_d = H_1 - y_d$.) From left to right the columns are: ratio of the UP elevation minus TW elevation to the upstream head (H_d/H_1), reduction in the free-flow discharge coefficient due to submergence, the submerged flow discharge coefficient, and the discharge per bay. Rating curves for each head showing discharge per bay (bays 1-5 only) versus a varying tailwater elevation expressed as H_d/H_1 are given in Plates 15 to 17.

Example calculation

35. The following example is given to outline the use of the rating tables and curves.

Given: Weir crest elvation, CCD(W) = -15.00
Upstream pool elevation, CCD(U) = -13.00
Tailwater elevation, CCD(T) = -13.20

Compute: $H_1 = U - W = -13.00 - (-15.00) = 2.00$
$y_d = T - W = -13.20 - (-15.00) = 1.80$
$H_d = H_1 - y_d = 2.00 - 1.80 = 0.20$
$H_d/H_1 = 0.20/2.00 = 0.10$

(Continued)

From Table 12: For H_1 = 2.00 ; C = 2.63
At H_d/H_1 = 0.10
Free-flow coefficient reduction, % = 22.09
Submerged coefficient (C_s) = 2.05
Discharge per bay; bays 1-5 = 183.74 cfs
bays 6,7 = 183.74 cfs

Estimated error

36. The error involved in determining the control works discharge under submerged conditions is a function of the terms of Equation 9 and the term C_s of Equation 11. From paragraphs 12 and 26, the estimated maximum errors (all gates open) for coefficient (C), effective bay width, and water surface (H_1) are given as ±3.0, ±4.0, and ±0.5 percent, respectively. The error in C_s is the accuracy to which HDC Chart 111-4 can be read. By interpolating with a scale, values of percent reduction in coefficient were read to the nearest 0.2 percent for a maximum error estimate of ±2.0 percent. Therefore, to estimate the maximum total error for the all gates open condition, the terms of Equations 9 and 11 are added as follows:

$$\text{Maximum estimated error} = (C\%) + (C_s\%) + (B_a\%) + \frac{3}{2}(H_1\%)$$

$$= (\pm 3.0\%) + (\pm 2.0\%) + (\pm 4.0\%) + \frac{3}{2}(\pm 0.5\%) \qquad (12)$$

$$\approx 10\%$$

37. Coefficient reduction factors near the assumed incipient submergence (H_d/H_1 = 0.20) are questionable since they do not reach zero on HDC Chart 111-4 as assumed in paragraph 34. The value of Q_b at H_d/H_1 = 0.20 was computed to agree exactly with the computed free-flow discharge for each head. In order that this criterion be met, coefficient reduction values between H_d/H_1 values of 0.18 to 0.20 were forced to deviate from those given in HDC Chart 111-4 in order to match the unsubmerged discharges at the point of incipient submergence (Plates 15-17). The values of the coefficient reduction given in HDC Chart 111-4 for $H_d/H_1 > 0.20$ (assumed to be zero percent for this study) are actually less than 10 percent and decrease as H_d/H_1 increases.

PART IV: RECOMMENDATIONS

38. The recommendations of this report are summarized below:

a. Power plant

(1) Open gates fully, when in use, for all heads.

(2) Make a calibration check of the upper and lower pool water-level gages when possible.

(3) Where possible make field verifications of the discharge equations.

b. Control works

(1) Relocate the upstream gage outside the drawdown zone as recommended in paragraph 17.

(2) Relocate the tailwater gage as recommended in paragraph 20.

(3) If possible, open all gates fully for all head conditions.

(4) If less than seven gates must be opened, start with number 1 and proceed northward, in order.

(5) At higher heads, open a minimum of three adjacent gates.

(6) Keep the sill clean to ensure accuracy of flow rate prediction.

(7) Where possible, field verification and updating (based on new information) are recommended.

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THE FOLLOWING
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PG. 9

TABLE 1

LOCKPORT POWERPLANT SLUICE GATES

ONE GATE(515)

ELEV CCD	HEAD FT	COEFF C	DISCH CFS	ELEV CCD	HEAD FT	COEFF C	DISCH CFS	ELEV CCD	HEAD FT	COEFF C	DISCH CFS
-12.00	16.42	0.4297	1758.	-9.80	18.62	0.4586	1998.	-7.60	20.82	0.4802	2212.
-11.95	16.47	0.4305	1763.	-9.75	18.67	0.4592	2003.	-7.55	20.87	0.4806	2217.
-11.90	16.52	0.4313	1769.	-9.70	18.72	0.4598	2008.	-7.50	20.92	0.4811	2222.
-11.85	16.57	0.4320	1775.	-9.65	18.77	0.4603	2013.	-7.45	20.97	0.4815	2226.
-11.80	16.62	0.4328	1781.	-9.60	18.82	0.4609	2018.	-7.40	21.02	0.4819	2231.
-11.75	16.67	0.4335	1786.	-9.55	18.87	0.4614	2023.	-7.35	21.07	0.4823	2235.
-11.70	16.72	0.4343	1792.	-9.50	18.92	0.4619	2028.	-7.30	21.12	0.4827	2240.
-11.65	16.77	0.4350	1798.	-9.45	18.97	0.4625	2034.	-7.25	21.17	0.4831	2245.
-11.60	16.82	0.4357	1804.	-9.40	19.02	0.4630	2039.	-7.20	21.22	0.4836	2249.
-11.55	16.87	0.4364	1809.	-9.35	19.07	0.4635	2044.	-7.15	21.27	0.4840	2254.
-11.50	16.92	0.4371	1815.	-9.30	19.12	0.4641	2049.	-7.10	21.32	0.4844	2258.
-11.45	16.97	0.4379	1821.	-9.25	19.17	0.4646	2054.	-7.05	21.37	0.4848	2263.
-11.40	17.02	0.4386	1826.	-9.20	19.22	0.4651	2059.	-7.00	21.42	0.4852	2267.
-11.35	17.07	0.4393	1832.	-9.15	19.27	0.4656	2064.	-6.95	21.47	0.4856	2272.
-11.30	17.12	0.4400	1837.	-9.10	19.32	0.4661	2069.	-6.90	21.52	0.4860	2276.
-11.25	17.17	0.4406	1843.	-9.05	19.37	0.4667	2073.	-6.85	21.57	0.4864	2281.
-11.20	17.22	0.4413	1849.	-9.00	19.42	0.4672	2078.	-6.80	21.62	0.4868	2285.
-11.15	17.27	0.4420	1854.	-8.95	19.47	0.4677	2083.	-6.75	21.67	0.4872	2290.
-11.10	17.32	0.4427	1860.	-8.90	19.52	0.4682	2088.	-6.70	21.72	0.4875	2294.
-11.05	17.37	0.4433	1865.	-8.85	19.57	0.4687	2093.	-6.65	21.77	0.4879	2299.
-11.00	17.42	0.4440	1871.	-8.80	19.62	0.4692	2098.	-6.60	21.82	0.4883	2303.
-10.95	17.47	0.4447	1876.	-8.75	19.67	0.4697	2103.	-6.55	21.87	0.4887	2308.
-10.90	17.52	0.4453	1882.	-8.70	19.72	0.4701	2108.	-6.50	21.92	0.4891	2312.
-10.85	17.57	0.4460	1887.	-8.65	19.77	0.4706	2113.	-6.45	21.97	0.4895	2317.
-10.80	17.62	0.4466	1892.	-8.60	19.82	0.4711	2118.	-6.40	22.02	0.4898	2321.
-10.75	17.67	0.4473	1898.	-8.55	19.87	0.4716	2122.	-6.35	22.07	0.4902	2325.
-10.70	17.72	0.4479	1903.	-8.50	19.92	0.4721	2127.	-6.30	22.12	0.4906	2330.
-10.65	17.77	0.4485	1909.	-8.45	19.97	0.4725	2132.	-6.25	22.17	0.4909	2334.
-10.60	17.82	0.4492	1914.	-8.40	20.02	0.4730	2137.	-6.20	22.22	0.4913	2339.
-10.55	17.87	0.4498	1919.	-8.35	20.07	0.4735	2142.	-6.15	22.27	0.4917	2343.
-10.50	17.92	0.4504	1925.	-8.30	20.12	0.4740	2146.	-6.10	22.32	0.4920	2347.
-10.45	17.97	0.4510	1930.	-8.25	20.17	0.4744	2151.	-6.05	22.37	0.4924	2352.
-10.40	18.02	0.4516	1935.	-8.20	20.22	0.4749	2156.	-6.00	22.42	0.4928	2356.
-10.35	18.07	0.4522	1941.	-8.15	20.27	0.4753	2161.	-5.95	22.47	0.4931	2360.
-10.30	18.12	0.4528	1946.	-8.10	20.32	0.4758	2165.	-5.90	22.52	0.4935	2365.
-10.25	18.17	0.4534	1951.	-8.05	20.37	0.4762	2170.	-5.85	22.57	0.4938	2369.
-10.20	18.22	0.4540	1956.	-8.00	20.42	0.4767	2175.	-5.80	22.62	0.4942	2373.
-10.15	18.27	0.4546	1962.	-7.95	20.47	0.4771	2180.	-5.75	22.67	0.4945	2378.
-10.10	18.32	0.4552	1967.	-7.90	20.52	0.4776	2184.	-5.70	22.72	0.4949	2382.
-10.05	18.37	0.4558	1972.	-7.85	20.57	0.4780	2189.	-5.65	22.77	0.4952	2386.
-10.00	18.42	0.4564	1977.	-7.80	20.62	0.4785	2194.	-5.60	22.82	0.4956	2391.
-9.95	18.47	0.4569	1982.	-7.75	20.67	0.4789	2198.	-5.55	22.87	0.4959	2395.
-9.90	18.52	0.4575	1988.	-7.70	20.72	0.4793	2203.	-5.50	22.92	0.4963	2399.
-9.85	18.57	0.4581	1993.	-7.65	20.77	0.4798	2208.	-5.45	22.97	0.4966	2404.

(Continued)

TABLE 1 (Concluded)

ELEV CCD	HEAD FT	COEFF C	DISCH CFS	ELEV CCD	HEAD FT	COEFF C	DISCH CFS	ELEV CCD	HEAD FT	COEFF C	DISCH CFS
-5.40	23.02	0.4970	2408.	-3.25	25.17	0.5101	2585.	-1.10	27.32	0.5209	2750.
-5.35	23.07	0.4973	2412.	-3.20	25.22	0.5104	2589.	-1.05	27.37	0.5212	2754.
-5.30	23.12	0.4976	2416.	-3.15	25.27	0.5107	2593.	-1.00	27.42	0.5214	2758.
-5.25	23.17	0.4980	2421.	-3.10	25.32	0.5109	2597.	-0.95	27.47	0.5216	2761.
-5.20	23.22	0.4983	2425.	-3.05	25.37	0.5112	2600.	-0.90	27.52	0.5218	2765.
-5.15	23.27	0.4986	2429.	-3.00	25.42	0.5115	2604.	-0.85	27.57	0.5221	2769.
-5.10	23.32	0.4990	2433.	-2.95	25.47	0.5117	2608.	-0.80	27.62	0.5223	2772.
-5.05	23.37	0.4993	2437.	-2.90	25.52	0.5120	2612.	-0.75	27.67	0.5225	2776.
-5.00	23.42	0.4996	2442.	-2.85	25.57	0.5123	2616.	-0.70	27.72	0.5227	2780.
-4.95	23.47	0.4999	2446.	-2.80	25.62	0.5125	2620.	-0.65	27.77	0.5230	2784.
-4.90	23.52	0.5003	2450.	-2.75	25.67	0.5128	2624.	-0.60	27.82	0.5232	2787.
-4.85	23.57	0.5006	2454.	-2.70	25.72	0.5131	2628.	-0.55	27.87	0.5234	2791.
-4.80	23.62	0.5009	2458.	-2.65	25.77	0.5133	2632.	-0.50	27.92	0.5236	2795.
-4.75	23.67	0.5012	2463.	-2.60	25.82	0.5136	2636.	-0.45	27.97	0.5238	2798.
-4.70	23.72	0.5015	2467.	-2.55	25.87	0.5139	2640.	-0.40	28.02	0.5240	2802.
-4.65	23.77	0.5019	2471.	-2.50	25.92	0.5141	2644.	-0.35	28.07	0.5243	2806.
-4.60	23.82	0.5022	2475.	-2.45	25.97	0.5144	2647.	-0.30	28.12	0.5245	2809.
-4.55	23.87	0.5025	2479.	-2.40	26.02	0.5146	2651.	-0.25	28.17	0.5247	2813.
-4.50	23.92	0.5028	2483.	-2.35	26.07	0.5149	2655.	-0.20	28.22	0.5249	2817.
-4.45	23.97	0.5031	2487.	-2.30	26.12	0.5151	2659.	-0.15	28.27	0.5251	2820.
-4.40	24.02	0.5034	2492.	-2.25	26.17	0.5154	2663.	-0.10	28.32	0.5253	2824.
-4.35	24.07	0.5037	2496.	-2.20	26.22	0.5156	2667.	-0.05	28.37	0.5255	2827.
-4.30	24.12	0.5040	2500.	-2.15	26.27	0.5159	2671.	-0.00	28.42	0.5258	2831.
-4.25	24.17	0.5043	2504.	-2.10	26.32	0.5161	2674.	0.05	28.47	0.5260	2835.
-4.20	24.22	0.5046	2508.	-2.05	26.37	0.5164	2678.	0.10	28.52	0.5262	2838.
-4.15	24.27	0.5049	2512.	-2.00	26.42	0.5166	2682.	0.15	28.57	0.5264	2842.
-4.10	24.32	0.5052	2516.	-1.95	26.47	0.5169	2686.	0.20	28.62	0.5266	2846.
-4.05	24.37	0.5055	2520.	-1.90	26.52	0.5171	2690.	0.25	28.67	0.5268	2849.
-4.00	24.42	0.5058	2524.	-1.85	26.57	0.5174	2694.	0.30	28.72	0.5270	2853.
-3.95	24.47	0.5061	2528.	-1.80	26.62	0.5176	2697.	0.35	28.77	0.5272	2856.
-3.90	24.52	0.5064	2532.	-1.75	26.67	0.5179	2701.	0.40	28.82	0.5274	2860.
-3.85	24.57	0.5067	2537.	-1.70	26.72	0.5181	2705.	0.45	28.87	0.5276	2864.
-3.80	24.62	0.5070	2541.	-1.65	26.77	0.5183	2709.	0.50	28.92	0.5278	2867.
-3.75	24.67	0.5073	2545.	-1.60	26.82	0.5186	2713.	0.55	28.97	0.5280	2871.
-3.70	24.72	0.5076	2549.	-1.55	26.87	0.5188	2716.	0.60	29.02	0.5282	2874.
-3.65	24.77	0.5079	2553.	-1.50	26.92	0.5191	2720.	0.65	29.07	0.5284	2878.
-3.60	24.82	0.5081	2557.	-1.45	26.97	0.5193	2724.	0.70	29.12	0.5286	2881.
-3.55	24.87	0.5084	2561.	-1.40	27.02	0.5195	2728.	0.75	29.17	0.5288	2885.
-3.50	24.92	0.5087	2565.	-1.35	27.07	0.5198	2731.	0.80	29.22	0.5290	2889.
-3.45	24.97	0.5090	2569.	-1.30	27.12	0.5200	2735.	0.85	29.27	0.5292	2892.
-3.40	25.02	0.5093	2573.	-1.25	27.17	0.5202	2739.	0.90	29.32	0.5294	2896.
-3.35	25.07	0.5096	2577.	-1.20	27.22	0.5205	2743.	0.95	29.37	0.5296	2899.
-3.30	25.12	0.5098	2581.	-1.15	27.27	0.5207	2746.	1.00	29.42	0.5298	2903.

TABLE 2

LOCKPORT POWERPLANT SLUICE GATES

ONE GATE(551 & 155)

ELEV CCD	HEAD FT	COEFF C	DISCH CFS	ELEV CCD	HEAD FT	COEFF C	DISCH CFS	ELEV CCD	HEAD FT	COEFF C	DISCH CFS
-12.00	16.42	0.3738	1529.	-9.80	18.62	0.4107	1789.	-7.60	20.82	0.4471	2060.
-11.95	16.47	0.3746	1534.	-9.75	18.67	0.4116	1795.	-7.55	20.87	0.4479	2066.
-11.90	16.52	0.3755	1540.	-9.70	18.72	0.4124	1801.	-7.50	20.92	0.4487	2072.
-11.85	16.57	0.3763	1546.	-9.65	18.77	0.4132	1807.	-7.45	20.97	0.4495	2078.
-11.80	16.62	0.3772	1552.	-9.60	18.82	0.4140	1813.	-7.40	21.02	0.4503	2085.
-11.75	16.67	0.3780	1558.	-9.55	18.87	0.4149	1819.	-7.35	21.07	0.4512	2091.
-11.70	16.72	0.3789	1564.	-9.50	18.92	0.4157	1825.	-7.30	21.12	0.4520	2097.
-11.65	16.77	0.3797	1569.	-9.45	18.97	0.4165	1832.	-7.25	21.17	0.4528	2104.
-11.60	16.82	0.3805	1575.	-9.40	19.02	0.4174	1838.	-7.20	21.22	0.4536	2110.
-11.55	16.87	0.3814	1581.	-9.35	19.07	0.4182	1844.	-7.15	21.27	0.4544	2116.
-11.50	16.92	0.3822	1587.	-9.30	19.12	0.4190	1850.	-7.10	21.32	0.4553	2123.
-11.45	16.97	0.3831	1593.	-9.25	19.17	0.4199	1856.	-7.05	21.37	0.4561	2129.
-11.40	17.02	0.3839	1599.	-9.20	19.22	0.4207	1862.	-7.00	21.42	0.4569	2135.
-11.35	17.07	0.3848	1605.	-9.15	19.27	0.4215	1868.	-6.95	21.47	0.4577	2141.
-11.30	17.12	0.3856	1610.	-9.10	19.32	0.4223	1874.	-6.90	21.52	0.4585	2148.
-11.25	17.17	0.3864	1616.	-9.05	19.37	0.4232	1880.	-6.85	21.57	0.4594	2154.
-11.20	17.22	0.3873	1622.	-9.00	19.42	0.4240	1886.	-6.80	21.62	0.4602	2161.
-11.15	17.27	0.3881	1628.	-8.95	19.47	0.4248	1892.	-6.75	21.67	0.4610	2167.
-11.10	17.32	0.3890	1634.	-8.90	19.52	0.4256	1899.	-6.70	21.72	0.4618	2173.
-11.05	17.37	0.3898	1640.	-8.85	19.57	0.4265	1905.	-6.65	21.77	0.4626	2180.
-11.00	17.42	0.3907	1646.	-8.80	19.62	0.4273	1911.	-6.60	21.82	0.4634	2186.
-10.95	17.47	0.3915	1652.	-8.75	19.67	0.4281	1917.	-6.55	21.87	0.4643	2192.
-10.90	17.52	0.3923	1658.	-8.70	19.72	0.4290	1923.	-6.50	21.92	0.4651	2199.
-10.85	17.57	0.3932	1664.	-8.65	19.77	0.4298	1929.	-6.45	21.97	0.4659	2205.
-10.80	17.62	0.3940	1669.	-8.60	19.82	0.4306	1935.	-6.40	22.02	0.4667	2211.
-10.75	17.67	0.3949	1675.	-8.55	19.87	0.4314	1942.	-6.35	22.07	0.4675	2218.
-10.70	17.72	0.3957	1681.	-8.50	19.92	0.4323	1948.	-6.30	22.12	0.4683	2224.
-10.65	17.77	0.3965	1687.	-8.45	19.97	0.4331	1954.	-6.25	22.17	0.4692	2231.
-10.60	17.82	0.3974	1693.	-8.40	20.02	0.4339	1960.	-6.20	22.22	0.4700	2237.
-10.55	17.87	0.3982	1699.	-8.35	20.07	0.4347	1966.	-6.15	22.27	0.4708	2243.
-10.50	17.92	0.3990	1705.	-8.30	20.12	0.4356	1973.	-6.10	22.32	0.4716	2250.
-10.45	17.97	0.3999	1711.	-8.25	20.17	0.4364	1979.	-6.05	22.37	0.4724	2256.
-10.40	18.02	0.4007	1717.	-8.20	20.22	0.4372	1985.	-6.00	22.42	0.4732	2263.
-10.35	18.07	0.4015	1723.	-8.15	20.27	0.4380	1991.	-5.95	22.47	0.4740	2269.
-10.30	18.12	0.4024	1729.	-8.10	20.32	0.4388	1997.	-5.90	22.52	0.4749	2276.
-10.25	18.17	0.4032	1735.	-8.05	20.37	0.4397	2004.	-5.85	22.57	0.4757	2282.
-10.20	18.22	0.4041	1741.	-8.00	20.42	0.4405	2010.	-5.80	22.62	0.4765	2288.
-10.15	18.27	0.4049	1747.	-7.95	20.47	0.4413	2016.	-5.75	22.67	0.4773	2295.
-10.10	18.32	0.4057	1753.	-7.90	20.52	0.4421	2022.	-5.70	22.72	0.4781	2301.
-10.05	18.37	0.4066	1759.	-7.85	20.57	0.4430	2028.	-5.65	22.77	0.4789	2308.
-10.00	18.42	0.4074	1765.	-7.80	20.62	0.4438	2035.	-5.60	22.82	0.4797	2314.
-9.95	18.47	0.4082	1771.	-7.75	20.67	0.4446	2041.	-5.55	22.87	0.4806	2321.
-9.90	18.52	0.4091	1777.	-7.70	20.72	0.4454	2047.	-5.50	22.92	0.4814	2327.
-9.85	18.57	0.4099	1783.	-7.65	20.77	0.4462	2053.	-5.45	22.97	0.4822	2334.

(Continued)

TABLE 2 (Concluded)

ELEV CCD	HEAD FT	COEFF C	DISCH CFS	ELEV CCD	HEAD FT	COEFF C	DISCH CFS	ELEV CCD	HEAD FT	COEFF C	DISCH CFS
-5.40	23.02	0.4830	2340.	-3.25	25.17	0.5012	2540.	-1.10	27.32	0.5115	2700.
-5.35	23.07	0.4838	2347.	-3.20	25.22	0.5015	2544.	-1.05	27.37	0.5117	2704.
-5.30	23.12	0.4846	2353.	-3.15	25.27	0.5018	2547.	-1.00	27.42	0.5119	2708.
-5.25	23.17	0.4854	2360.	-3.10	25.32	0.5020	2551.	-0.95	27.47	0.5121	2711.
-5.20	23.22	0.4862	2366.	-3.05	25.37	0.5023	2555.	-0.90	27.52	0.5124	2715.
-5.15	23.27	0.4871	2373.	-3.00	25.42	0.5025	2559.	-0.85	27.57	0.5126	2718.
-5.10	23.32	0.4879	2379.	-2.95	25.47	0.5028	2563.	-0.80	27.62	0.5128	2722.
-5.05	23.37	0.4887	2386.	-2.90	25.52	0.5030	2567.	-0.75	27.67	0.5130	2726.
-5.00	23.42	0.4895	2392.	-2.85	25.57	0.5033	2570.	-0.70	27.72	0.5132	2729.
-4.95	23.47	0.4903	2399.	-2.80	25.62	0.5035	2574.	-0.65	27.77	0.5134	2733.
-4.90	23.52	0.4911	2405.	-2.75	25.67	0.5038	2578.	-0.60	27.82	0.5136	2736.
-4.85	23.57	0.4919	2412.	-2.70	25.72	0.5040	2582.	-0.55	27.87	0.5138	2740.
-4.80	23.62	0.4925	2417.	-2.65	25.77	0.5043	2586.	-0.50	27.92	0.5140	2743.
-4.75	23.67	0.4928	2421.	-2.60	25.82	0.5045	2589.	-0.45	27.97	0.5142	2747.
-4.70	23.72	0.4931	2425.	-2.55	25.87	0.5048	2593.	-0.40	28.02	0.5144	2751.
-4.65	23.77	0.4934	2429.	-2.50	25.92	0.5050	2597.	-0.35	28.07	0.5147	2754.
-4.60	23.82	0.4937	2433.	-2.45	25.97	0.5053	2601.	-0.30	28.12	0.5149	2758.
-4.55	23.87	0.4940	2437.	-2.40	26.02	0.5055	2604.	-0.25	28.17	0.5151	2761.
-4.50	23.92	0.4943	2441.	-2.35	26.07	0.5058	2608.	-0.20	28.22	0.5153	2765.
-4.45	23.97	0.4946	2445.	-2.30	26.12	0.5060	2612.	-0.15	28.27	0.5155	2768.
-4.40	24.02	0.4949	2449.	-2.25	26.17	0.5062	2616.	-0.10	28.32	0.5157	2772.
-4.35	24.07	0.4952	2453.	-2.20	26.22	0.5065	2619.	-0.05	28.37	0.5159	2775.
-4.30	24.12	0.4955	2457.	-2.15	26.27	0.5067	2623.	-0.00	28.42	0.5161	2779.
-4.25	24.17	0.4958	2461.	-2.10	26.32	0.5070	2627.	0.05	28.47	0.5163	2782.
-4.20	24.22	0.4960	2465.	-2.05	26.37	0.5072	2631.	0.10	28.52	0.5165	2786.
-4.15	24.27	0.4963	2469.	-2.00	26.42	0.5074	2634.	0.15	28.57	0.5167	2789.
-4.10	24.32	0.4966	2473.	-1.95	26.47	0.5077	2638.	0.20	28.62	0.5169	2793.
-4.05	24.37	0.4969	2477.	-1.90	26.52	0.5079	2642.	0.25	28.67	0.5171	2796.
-4.00	24.42	0.4972	2481.	-1.85	26.57	0.5081	2645.	0.30	28.72	0.5172	2800.
-3.95	24.47	0.4975	2485.	-1.80	26.62	0.5084	2649.	0.35	28.77	0.5174	2803.
-3.90	24.52	0.4977	2489.	-1.75	26.67	0.5086	2653.	0.40	28.82	0.5176	2807.
-3.85	24.57	0.4980	2493.	-1.70	26.72	0.5088	2656.	0.45	28.87	0.5178	2810.
-3.80	24.62	0.4983	2497.	-1.65	26.77	0.5090	2660.	0.50	28.92	0.5180	2814.
-3.75	24.67	0.4986	2501.	-1.60	26.82	0.5093	2664.	0.55	28.97	0.5182	2817.
-3.70	24.72	0.4988	2505.	-1.55	26.87	0.5095	2667.	0.60	29.02	0.5184	2821.
-3.65	24.77	0.4991	2509.	-1.50	26.92	0.5097	2671.	0.65	29.07	0.5186	2824.
-3.60	24.82	0.4994	2513.	-1.45	26.97	0.5099	2675.	0.70	29.12	0.5188	2828.
-3.55	24.87	0.4996	2516.	-1.40	27.02	0.5102	2678.	0.75	29.17	0.5190	2831.
-3.50	24.92	0.4999	2520.	-1.35	27.07	0.5104	2682.	0.80	29.22	0.5192	2835.
-3.45	24.97	0.5002	2524.	-1.30	27.12	0.5106	2686.	0.85	29.27	0.5193	2838.
-3.40	25.02	0.5004	2528.	-1.25	27.17	0.5108	2689.	0.90	29.32	0.5195	2842.
-3.35	25.07	0.5007	2532.	-1.20	27.22	0.5111	2693.	0.95	29.37	0.5197	2845.
-3.30	25.12	0.5010	2536.	-1.15	27.27	0.5113	2697.	1.00	29.42	0.5199	2848.

TABLE 3

LOCKPORT POWERPLANT SLUICE GATES

TWO GATE(151)

ELEV CCD	HEAD FT	COEFF C	DISCH CFS	ELEV CCD	HEAD FT	COEFF C	DISCH CFS	ELEV CCD	HEAD FT	COEFF C	DISCH CFS
-12.00	16.42	0.4251	3477.	-9.80	18.62	0.4567	3979.	-7.60	20.82	0.4831	4451.
-11.95	16.47	0.4259	3489.	-9.75	18.67	0.4573	3990.	-7.55	20.87	0.4836	4462.
-11.90	16.52	0.4267	3501.	-9.70	18.72	0.4580	4001.	-7.50	20.92	0.4842	4472.
-11.85	16.57	0.4275	3512.	-9.65	18.77	0.4586	4012.	-7.45	20.97	0.4847	4482.
-11.80	16.62	0.4282	3524.	-9.60	18.82	0.4593	4023.	-7.40	21.02	0.4853	4493.
-11.75	16.67	0.4290	3536.	-9.55	18.87	0.4599	4034.	-7.35	21.07	0.4858	4503.
-11.70	16.72	0.4298	3548.	-9.50	18.92	0.4605	4045.	-7.30	21.12	0.4864	4514.
-11.65	16.77	0.4306	3559.	-9.45	18.97	0.4612	4055.	-7.25	21.17	0.4869	4524.
-11.60	16.82	0.4313	3571.	-9.40	19.02	0.4618	4066.	-7.20	21.22	0.4875	4535.
-11.55	16.87	0.4321	3583.	-9.35	19.07	0.4624	4077.	-7.15	21.27	0.4880	4545.
-11.50	16.92	0.4328	3594.	-9.30	19.12	0.4630	4088.	-7.10	21.32	0.4885	4555.
-11.45	16.97	0.4336	3606.	-9.25	19.17	0.4637	4099.	-7.05	21.37	0.4891	4566.
-11.40	17.02	0.4344	3617.	-9.20	19.22	0.4643	4110.	-7.00	21.42	0.4896	4576.
-11.35	17.07	0.4351	3629.	-9.15	19.27	0.4649	4121.	-6.95	21.47	0.4901	4586.
-11.30	17.12	0.4358	3641.	-9.10	19.32	0.4655	4132.	-6.90	21.52	0.4907	4597.
-11.25	17.17	0.4366	3652.	-9.05	19.37	0.4661	4142.	-6.85	21.57	0.4912	4607.
-11.20	17.22	0.4373	3664.	-9.00	19.42	0.4668	4153.	-6.80	21.62	0.4917	4617.
-11.15	17.27	0.4381	3675.	-8.95	19.47	0.4674	4164.	-6.75	21.67	0.4923	4628.
-11.10	17.32	0.4388	3687.	-8.90	19.52	0.4680	4175.	-6.70	21.72	0.4928	4638.
-11.05	17.37	0.4395	3698.	-8.85	19.57	0.4686	4186.	-6.65	21.77	0.4933	4648.
-11.00	17.42	0.4402	3709.	-8.80	19.62	0.4692	4196.	-6.60	21.82	0.4938	4659.
-10.95	17.47	0.4410	3721.	-8.75	19.67	0.4698	4207.	-6.55	21.87	0.4944	4669.
-10.90	17.52	0.4417	3732.	-8.70	19.72	0.4704	4218.	-6.50	21.92	0.4949	4679.
-10.85	17.57	0.4424	3744.	-8.65	19.77	0.4710	4229.	-6.45	21.97	0.4954	4690.
-10.80	17.62	0.4431	3755.	-8.60	19.82	0.4716	4239.	-6.40	22.02	0.4959	4700.
-10.75	17.67	0.4438	3766.	-8.55	19.87	0.4722	4250.	-6.35	22.07	0.4964	4710.
-10.70	17.72	0.4445	3778.	-8.50	19.92	0.4728	4261.	-6.30	22.12	0.4970	4720.
-10.65	17.77	0.4452	3789.	-8.45	19.97	0.4733	4271.	-6.25	22.17	0.4975	4730.
-10.60	17.82	0.4459	3800.	-8.40	20.02	0.4739	4282.	-6.20	22.22	0.4980	4741.
-10.55	17.87	0.4466	3812.	-8.35	20.07	0.4745	4293.	-6.15	22.27	0.4985	4751.
-10.50	17.92	0.4473	3823.	-8.30	20.12	0.4751	4303.	-6.10	22.32	0.4990	4761.
-10.45	17.97	0.4480	3834.	-8.25	20.17	0.4757	4314.	-6.05	22.37	0.4995	4771.
-10.40	18.02	0.4487	3845.	-8.20	20.22	0.4763	4324.	-6.00	22.42	0.5000	4782.
-10.35	18.07	0.4494	3856.	-8.15	20.27	0.4768	4335.	-5.95	22.47	0.5006	4792.
-10.30	18.12	0.4500	3868.	-8.10	20.32	0.4774	4346.	-5.90	22.52	0.5010	4802.
-10.25	18.17	0.4507	3879.	-8.05	20.37	0.4780	4356.	-5.85	22.57	0.5015	4812.
-10.20	18.22	0.4514	3890.	-8.00	20.42	0.4786	4367.	-5.80	22.62	0.5020	4822.
-10.15	18.27	0.4521	3901.	-7.95	20.47	0.4791	4377.	-5.75	22.67	0.5025	4832.
-10.10	18.32	0.4527	3912.	-7.90	20.52	0.4797	4388.	-5.70	22.72	0.5030	4843.
-10.05	18.37	0.4534	3923.	-7.85	20.57	0.4803	4398.	-5.65	22.77	0.5035	4853.
-10.00	18.42	0.4540	3934.	-7.80	20.62	0.4808	4409.	-5.60	22.82	0.5040	4863.
-9.95	18.47	0.4547	3946.	-7.75	20.67	0.4814	4420.	-5.55	22.87	0.5045	4873.
-9.90	18.52	0.4554	3957.	-7.70	20.72	0.4819	4430.	-5.50	22.92	0.5050	4883.
-9.85	18.57	0.4560	3968.	-7.65	20.77	0.4825	4441.	-5.45	22.97	0.5055	4893.

(Continued)

TABLE 3 (Concluded)

ELEV CCD	HEAD FT	COEFF C	DISCH CFS	ELEV CCD	HEAD FT	COEFF C	DISCH CFS	ELEV CCD	HEAD FT	COEFF C	DISCH CFS
-5.40	23.02	0.5060	4903.	-3.25	25.17	0.5228	5298.	-1.10	27.32	0.5345	5643.
-5.35	23.07	0.5065	4913.	-3.20	25.22	0.5231	5306.	-1.05	27.37	0.5347	5651.
-5.30	23.12	0.5070	4923.	-3.15	25.27	0.5234	5314.	-1.00	27.42	0.5350	5659.
-5.25	23.17	0.5075	4933.	-3.10	25.32	0.5237	5323.	-0.95	27.47	0.5352	5667.
-5.20	23.22	0.5080	4944.	-3.05	25.37	0.5240	5331.	-0.90	27.52	0.5355	5674.
-5.15	23.27	0.5084	4954.	-3.00	25.42	0.5243	5339.	-0.85	27.57	0.5357	5682.
-5.10	23.32	0.5089	4964.	-2.95	25.47	0.5246	5347.	-0.80	27.62	0.5360	5690.
-5.05	23.37	0.5094	4974.	-2.90	25.52	0.5249	5356.	-0.75	27.67	0.5362	5698.
-5.00	23.42	0.5099	4984.	-2.85	25.57	0.5251	5364.	-0.70	27.72	0.5364	5705.
-4.95	23.47	0.5104	4994.	-2.80	25.62	0.5254	5372.	-0.65	27.77	0.5367	5713.
-4.90	23.52	0.5108	5004.	-2.75	25.67	0.5257	5380.	-0.60	27.82	0.5369	5721.
-4.85	23.57	0.5113	5014.	-2.70	25.72	0.5260	5388.	-0.55	27.87	0.5371	5728.
-4.80	23.62	0.5118	5024.	-2.65	25.77	0.5263	5396.	-0.50	27.92	0.5374	5736.
-4.75	23.67	0.5123	5034.	-2.60	25.82	0.5266	5405.	-0.45	27.97	0.5376	5744.
-4.70	23.72	0.5128	5044.	-2.55	25.87	0.5268	5413.	-0.40	28.02	0.5379	5751.
-4.65	23.77	0.5132	5054.	-2.50	25.92	0.5271	5421.	-0.35	28.07	0.5381	5759.
-4.60	23.82	0.5137	5064.	-2.45	25.97	0.5274	5429.	-0.30	28.12	0.5383	5767.
-4.55	23.87	0.5142	5074.	-2.40	26.02	0.5277	5437.	-0.25	28.17	0.5386	5774.
-4.50	23.92	0.5146	5084.	-2.35	26.07	0.5280	5445.	-0.20	28.22	0.5388	5782.
-4.45	23.97	0.5151	5094.	-2.30	26.12	0.5282	5453.	-0.15	28.27	0.5390	5790.
-4.40	24.02	0.5156	5103.	-2.25	26.17	0.5285	5461.	-0.10	28.32	0.5392	5797.
-4.35	24.07	0.5159	5112.	-2.20	26.22	0.5288	5469.	-0.05	28.37	0.5395	5805.
-4.30	24.12	0.5162	5121.	-2.15	26.27	0.5290	5477.	-0.00	28.42	0.5397	5812.
-4.25	24.17	0.5165	5129.	-2.10	26.32	0.5293	5485.	0.05	28.47	0.5399	5820.
-4.20	24.22	0.5169	5138.	-2.05	26.37	0.5296	5493.	0.10	28.52	0.5401	5827.
-4.15	24.27	0.5172	5146.	-2.00	26.42	0.5299	5501.	0.15	28.57	0.5404	5835.
-4.10	24.32	0.5175	5155.	-1.95	26.47	0.5301	5509.	0.20	28.62	0.5406	5842.
-4.05	24.37	0.5178	5163.	-1.90	26.52	0.5304	5517.	0.25	28.67	0.5408	5850.
-4.00	24.42	0.5182	5172.	-1.85	26.57	0.5306	5525.	0.30	28.72	0.5410	5857.
-3.95	24.47	0.5185	5180.	-1.80	26.62	0.5309	5533.	0.35	28.77	0.5413	5865.
-3.90	24.52	0.5188	5189.	-1.75	26.67	0.5312	5541.	0.40	28.82	0.5415	5872.
-3.85	24.57	0.5191	5197.	-1.70	26.72	0.5314	5549.	0.45	28.87	0.5417	5880.
-3.80	24.62	0.5194	5206.	-1.65	26.77	0.5317	5557.	0.50	28.92	0.5419	5887.
-3.75	24.67	0.6197	5214.	-1.60	26.82	0.5320	5565.	0.55	28.97	0.5421	5895.
-3.70	24.72	0.5201	5223.	-1.55	26.87	0.5322	5573.	0.60	29.02	0.5424	5902.
-3.65	24.77	0.5204	6231.	-1.50	26.92	0.5325	5581.	0.65	29.07	0.5426	5910.
-3.60	24.82	0.5207	5239.	-1.45	26.97	0.5327	5589.	0.70	29.12	0.5428	5917.
-3.55	24.87	0.5210	5248.	-1.40	27.02	0.5330	5596.	0.75	29.17	0.5430	5925.
-3.50	24.92	0.5213	5256.	-1.35	27.07	0.5332	5604.	0.80	29.22	0.5432	5932.
-3.45	24.97	0.5216	5265.	-1.30	27.12	0.5335	5612.	0.85	29.27	0.5434	5939.
-3.40	25.02	0.5219	5273.	-1.25	27.17	0.5337	5620.	0.90	29.32	0.5436	5947.
-3.35	25.07	0.5222	5281.	-1.20	27.22	0.5340	5628.	0.95	29.37	0.5438	5954.
-3.30	25.12	0.5225	5290.	-1.15	27.27	0.5342	5636.	1.00	29.42	0.5441	5962.

TABLE 4

LOCKPORT POWERPLANT SLUICE GATES

TWO GATE(511 & 115)

ELEV CCD	HEAD FT	COEFF C	DISCH CFS	ELEV CCD	HEAD FT	COEFF C	DISCH CFS	ELEV CCD	HEAD FT	COEFF C	DISCH CFS
-12.00	16.42	0.4207	3441.	-9.80	18.62	0.4492	3913.	-7.60	20.82	0.4722	4351.
-11.95	16.47	0.4214	3453.	-9.75	18.67	0.4497	3924.	-7.55	20.87	0.4726	4360.
-11.90	16.52	0.4222	3464.	-9.70	18.72	0.4503	3934.	-7.50	20.92	0.4731	4370.
-11.85	16.57	0.4229	3475.	-9.65	18.77	0.4509	3944.	-7.45	20.97	0.4736	4380.
-11.80	16.62	0.4236	3486.	-9.60	18.82	0.4515	3954.	-7.40	21.02	0.4741	4389.
-11.75	16.67	0.4243	3497.	-9.55	18.87	0.4520	3965.	-7.35	21.07	0.4745	4399.
-11.70	16.72	0.4250	3508.	-9.50	18.92	0.4526	3975.	-7.30	21.12	0.4750	4408.
-11.65	16.77	0.4257	3519.	-9.45	18.97	0.4531	3985.	-7.25	21.17	0.4755	4418.
-11.60	16.82	0.4264	3530.	-9.40	19.02	0.4537	3995.	-7.20	21.22	0.4759	4427.
-11.55	16.87	0.4271	3541.	-9.35	19.07	0.4542	4005.	-7.15	21.27	0.4764	4437.
-11.50	16.92	0.4278	3552.	-9.30	19.12	0.4548	4015.	-7.10	21.32	0.4768	4446.
-11.45	16.97	0.4285	3563.	-9.25	19.17	0.4553	4025.	-7.05	21.37	0.4773	4456.
-11.40	17.02	0.4292	3574.	-9.20	19.22	0.4559	4036.	-7.00	21.42	0.4778	4465.
-11.35	17.07	0.4298	3585.	-9.15	19.27	0.4564	4046.	-6.95	21.47	0.4782	4475.
-11.30	17.12	0.4305	3596.	-9.10	19.32	0.4570	4056.	-6.90	21.52	0.4787	4484.
-11.25	17.17	0.4312	3607.	-9.05	19.37	0.4575	4066.	-6.85	21.57	0.4791	4494.
-11.20	17.22	0.4319	3618.	-9.00	19.42	0.4580	4076.	-6.80	21.62	0.4796	4503.
-11.15	17.27	0.4325	3629.	-8.95	19.47	0.4586	4086.	-6.75	21.67	0.4800	4513.
-11.10	17.32	0.4332	3639.	-8.90	19.52	0.4591	4096.	-6.70	21.72	0.4805	4522.
-11.05	17.37	0.4338	3650.	-8.85	19.57	0.4596	4106.	-6.65	21.77	0.4809	4531.
-11.00	17.42	0.4345	3661.	-8.80	19.62	0.4602	4116.	-6.60	21.82	0.4814	4541.
-10.95	17.47	0.4351	3672.	-8.75	19.67	0.4607	4126.	-6.55	21.87	0.4818	4550.
-10.90	17.52	0.4358	3682.	-8.70	19.72	0.4612	4136.	-6.50	21.92	0.4822	4560.
-10.85	17.57	0.4364	3693.	-8.65	19.77	0.4617	4146.	-6.45	21.97	0.4827	4569.
-10.80	17.62	0.4371	3704.	-8.60	19.82	0.4623	4155.	-6.40	22.02	0.4831	4578.
-10.75	17.67	0.4377	3715.	-8.55	19.87	0.4628	4165.	-6.35	22.07	0.4835	4588.
-10.70	17.72	0.4383	3725.	-8.50	19.92	0.4633	4175.	-6.30	22.12	0.4840	4597.
-10.65	17.77	0.4390	3736.	-8.45	19.97	0.4638	4185.	-6.25	22.17	0.4844	4606.
-10.60	17.82	0.4396	3746.	-8.40	20.02	0.4643	4195.	-6.20	22.22	0.4848	4616.
-10.55	17.87	0.4402	3757.	-8.35	20.07	0.4648	4205.	-6.15	22.27	0.4853	4625.
-10.50	17.92	0.4408	3767.	-8.30	20.12	0.4653	4215.	-6.10	22.32	0.4857	4634.
-10.45	17.97	0.4414	3778.	-8.25	20.17	0.4658	4224.	-6.05	22.37	0.4861	4644.
-10.40	18.02	0.4421	3789.	-8.20	20.22	0.4663	4234.	-6.00	22.42	0.4866	4653.
-10.35	18.07	0.4427	3799.	-8.15	20.27	0.4668	4244.	-5.95	22.47	0.4870	4662.
-10.30	18.12	0.4433	3810.	-8.10	20.32	0.4673	4254.	-5.90	22.52	0.4874	4671.
-10.25	18.17	0.4439	3820.	-8.05	20.37	0.4678	4263.	-5.85	22.57	0.4878	4681.
-10.20	18.22	0.4445	3830.	-8.00	20.42	0.4683	4273.	-5.80	22.62	0.4882	4690.
-10.15	18.27	0.4451	3841.	-7.95	20.47	0.4688	4283.	-5.75	22.67	0.4887	4699.
-10.10	18.32	0.4457	3851.	-7.90	20.52	0.4693	4293.	-5.70	22.72	0.4891	4708.
-10.05	18.37	0.4463	3862.	-7.85	20.57	0.4698	4302.	-5.65	22.77	0.4895	4717.
-10.00	18.42	0.4468	3872.	-7.80	20.62	0.4703	4312.	-5.60	22.82	0.4899	4727.
-9.95	18.47	0.4474	3882.	-7.75	20.67	0.4707	4322.	-5.55	22.87	0.4903	4736.
-9.90	18.52	0.4480	3893.	-7.70	20.72	0.4712	4331.	-5.50	22.92	0.4907	4745.
-9.85	18.57	0.4486	3903.	-7.65	20.77	0.4717	4341.	-5.45	22.97	0.4911	4754.

(Continued)

TABLE 4 (Concluded)

ELEV CCD	HEAD FT	COEFF C	DISCH CFS	ELEV CCD	HEAD FT	COEFF C	DISCH CFS	ELEV CCD	HEAD FT	COEFF C	DISCH CFS
-5.40	23.02	0.4916	4763.	-3.25	25.17	0.5060	5128.	-1.10	27.32	0.5165	5454.
-5.35	23.07	0.4920	4772.	-3.20	25.22	0.5063	5135.	-1.05	27.37	0.5168	5461.
-5.30	23.12	0.4924	4781.	-3.15	25.27	0.5065	5143.	-1.00	27.42	0.5170	5469.
-5.25	23.17	0.4928	4791.	-3.10	25.32	0.5068	5151.	-0.95	27.47	0.5172	5476.
-5.20	23.22	0.4932	4800.	-3.05	25.37	0.5071	5159.	-0.90	27.52	0.5174	5483.
-5.15	23.27	0.4936	4809.	-3.00	25.42	0.5073	5167.	-0.85	27.57	0.5176	5491.
-5.10	23.32	0.4940	4818.	-2.95	25.47	0.5076	5174.	-0.80	27.62	0.5179	5498.
-5.05	23.37	0.4944	4827.	-2.90	25.52	0.5078	5182.	-0.75	27.67	0.5181	5505.
-5.00	23.42	0.4948	4836.	-2.85	25.57	0.5081	5190.	-0.70	27.72	0.5183	5513.
-4.95	23.47	0.4952	4845.	-2.80	25.62	0.5084	5198.	-0.65	27.77	0.5185	5520.
-4.90	23.52	0.4956	4854.	-2.75	25.67	0.5086	5205.	-0.60	27.82	0.5187	5527.
-4.85	23.57	0.4960	4863.	-2.70	25.72	0.5089	5213.	-0.55	27.87	0.5189	5534.
-4.80	23.62	0.4964	4872.	-2.65	25.77	0.5091	5221.	-0.50	27.92	0.5192	5542.
-4.75	23.67	0.4968	4881.	-2.60	25.82	0.5094	5228.	-0.45	27.97	0.5194	5549.
-4.70	23.72	0.4972	4890.	-2.55	25.87	0.5096	5236.	-0.40	28.02	0.5196	5556.
-4.65	23.77	0.4975	4899.	-2.50	25.92	0.5099	5244.	-0.35	28.07	0.5198	5563.
-4.60	23.82	0.4979	4908.	-2.45	25.97	0.5101	5251.	-0.30	28.12	0.5200	5571.
-4.55	23.87	0.4983	4917.	-2.40	26.02	0.5104	5259.	-0.25	28.17	0.5202	5578.
-4.50	23.92	0.4987	4926.	-2.35	26.07	0.5106	5267.	-0.20	28.22	0.5204	5585.
-4.45	23.97	0.4991	4935.	-2.30	26.12	0.5109	5274.	-0.15	28.27	0.5206	5592.
-4.40	24.02	0.4995	4944.	-2.25	26.17	0.5111	5282.	-0.10	28.32	0.5208	5599.
-4.35	24.07	0.4998	4952.	-2.20	26.22	0.5114	5289.	-0.05	28.37	0.5210	5606.
-4.30	24.12	0.5001	4960.	-2.15	26.27	0.5116	5297.	-0.00	28.42	0.5213	5614.
-4.25	24.17	0.5004	4968.	-2.10	26.32	0.5119	5305.	0.05	28.47	0.5215	5621.
-4.20	24.22	0.5006	4977.	-2.05	26.37	0.5121	5312.	0.10	28.52	0.5217	5628.
-4.15	24.27	0.5009	4985.	-2.00	26.42	0.5124	5320.	0.15	28.57	0.5219	5635.
-4.10	24.32	0.5012	4993.	-1.95	26.47	0.5126	5327.	0.20	28.62	0.5221	5642.
-4.05	24.37	0.5015	5001.	-1.90	26.52	0.5128	5335.	0.25	28.67	0.5223	5649.
-4.00	24.42	0.5018	5009.	-1.85	26.57	0.5131	5342.	0.30	28.72	0.5225	5656.
-3.95	24.47	0.5021	5017.	-1.80	26.62	0.5133	5350.	0.35	28.77	0.5227	5664.
-3.90	24.52	0.5024	5025.	-1.75	26.67	0.5136	5357.	0.40	28.82	0.5229	5671.
-3.85	24.57	0.5027	5033.	-1.70	26.72	0.5138	5365.	0.45	28.87	0.5231	5678.
-3.80	24.62	0.5030	5041.	-1.65	26.77	0.5140	5372.	0.50	28.92	0.5233	5685.
-3.75	24.67	0.5032	5049.	-1.60	26.82	0.5143	5380.	0.55	28.97	0.5236	5692.
-3.70	24.72	0.5035	5057.	-1.55	26.87	0.5145	5387.	0.60	29.02	0.5237	5699.
-3.65	24.77	0.5038	5064.	-1.50	26.92	0.5147	5395.	0.65	29.07	0.5239	5706.
-3.60	24.82	0.5041	5072.	-1.45	26.97	0.5150	5402.	0.70	29.12	0.5240	5713.
-3.55	24.87	0.5044	5080.	-1.40	27.02	0.5152	5410.	0.75	29.17	0.5242	5720.
-3.50	24.92	0.5046	5088.	-1.35	27.07	0.5154	5417.	0.80	29.22	0.5244	5727.
-3.45	24.97	0.5049	5096.	-1.30	27.12	0.5156	5424.	0.85	29.27	0.5246	5734.
-3.40	25.02	0.5052	5104.	-1.25	27.17	0.5159	5432.	0.90	29.32	0.5248	5741.
-3.35	25.07	0.5054	5112.	-1.20	27.22	0.5161	5439.	0.95	29.37	0.5250	5748.
-3.30	25.12	0.5057	5120.	-1.15	27.27	0.5163	5447.	1.00	29.42	0.5252	5755.

TABLE 5

LOCKPORT POWERPLANT SLUICE GATES

THREE GATES(111)

DISCH COEF C' = 0.410

DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS
22.00	5826.	23.65	6041.	25.30	6248.	26.95	6449.	28.55	6638.	30.15	6822.
22.05	5832.	23.70	6047.	25.35	6255.	27.00	6455.	28.60	6644.	30.20	6828.
22.10	5839.	23.75	6053.	25.40	6261.	27.05	6461.	28.65	6650.	30.25	6834.
22.15	5845.	23.80	6060.	25.45	6267.	27.10	6467.	28.70	6656.	30.30	6839.
22.20	5852.	23.85	6066.	25.50	6273.	27.15	6473.	28.75	6662.	30.35	6845.
22.25	5859.	23.90	6073.	25.55	6279.	27.20	6479.	28.80	6667.	30.40	6851.
22.30	5865.	23.95	6079.	25.60	6285.	27.25	6485.	28.85	6673.	30.45	6856.
22.35	5872.	24.00	6085.	25.65	6291.	27.30	6491.	28.90	6679.	30.50	6862.
22.40	5878.	24.05	6092.	25.70	6298.	27.35	6497.	28.95	6685.	30.55	6867.
22.45	5885.	24.10	6098.	25.75	6304.	27.40	6503.	29.00	6691.	30.60	6873.
22.50	5892.	24.15	6104.	25.80	6310.	27.45	6509.	29.05	6696.	30.65	6879.
22.55	5898.	24.20	6111.	25.85	6316.	27.50	6515.	29.10	6702.	30.70	6884.
22.60	5905.	24.25	6117.	25.90	6322.	27.55	6521.	29.15	6708.	30.75	6890.
22.65	5911.	24.30	6123.	25.95	6328.	27.60	6527.	29.20	6714.	30.80	6896.
22.70	5918.	24.35	6130.	26.00	6334.	27.65	6533.	29.25	6719.	30.85	6901.
22.75	5924.	24.40	6136.	26.05	6340.	27.70	6539.	29.30	6725.	30.90	6907.
22.80	5931.	24.45	6142.	26.10	6347.	27.75	6545.	29.35	6731.	30.95	6912.
22.85	5937.	24.50	6148.	26.15	6353.	27.80	6550.	29.40	6737.	31.00	6918.
22.90	5944.	24.55	6155.	26.20	6359.	27.85	6556.	29.45	6742.	31.05	6924.
22.95	5950.	24.60	6161.	26.25	6365.	27.90	6562.	29.50	6748.	31.10	6929.
23.00	5957.	24.65	6167.	26.30	6371.	27.95	6568.	29.55	6754.	31.15	6935.
23.05	5963.	24.70	6174.	26.35	6377.	28.00	6574.	29.60	6760.	31.20	6940.
23.10	5970.	24.75	6180.	26.40	6383.	28.05	6580.	29.65	6765.	31.25	6946.
23.15	5976.	24.80	6186.	26.45	6389.	28.10	6586.	29.70	6771.	31.30	6951.
23.20	5983.	24.85	6192.	26.50	6395.	28.15	6592.	29.75	6777.	31.35	6957.
23.25	5989.	24.90	6199.	26.55	6401.	28.20	6598.	29.80	6782.	31.40	6963.
23.30	5996.	24.95	6205.	26.60	6407.	28.25	6603.	29.85	6788.	31.45	6968.
23.35	6002.	25.00	6211.	26.65	6413.	28.30	6609.	29.90	6794.	31.50	6974.
23.40	6009.	25.05	6217.	26.70	6419.	28.35	6615.	29.95	6800.	31.55	6979.
23.45	6015.	25.10	6224.	26.75	6425.	28.40	6621.	30.00	6805.	31.60	6985.
23.50	6021.	25.15	6230.	26.80	6431.	28.45	6627.	30.05	6811.	31.65	6990.
23.55	6028.	25.20	6236.	26.85	6437.	28.50	6633.	30.10	6817.	31.70	6996.
23.60	6034.	25.25	6242.	26.90	6443.						

TABLE 6

LOCKPORT POWERPLANT SLUICE GATES

THREE GATES(111)

DISCH COEF $C' = 0.425$

DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS
21.00	5899.	23.05	6181.	25.10	6451.	27.15	6710.	29.20	6959.	31.25	7200.
21.05	5906.	23.10	6188.	25.15	6458.	27.20	6716.	29.25	6965.	31.30	7206.
21.10	5914.	23.15	6195.	25.20	6464.	27.25	6722.	29.30	6971.	31.35	7212.
21.15	5921.	23.20	6202.	25.25	6470.	27.30	6729.	29.35	6977.	31.40	7217.
21.20	5928.	23.25	6208.	25.30	6477.	27.35	6735.	29.40	6983.	31.45	7223.
21.25	5935.	23.30	6215.	25.35	6483.	27.40	6741.	29.45	6989.	31.50	7229.
21.30	5942.	23.35	6222.	25.40	6490.	27.45	6747.	29.50	6995.	31.55	7235.
21.35	5949.	23.40	6228.	25.45	6496.	27.50	6753.	29.55	7001.	31.60	7240.
21.40	5956.	23.45	6235.	25.50	6503.	27.55	6759.	29.60	7007.	31.65	7246.
21.45	5963.	23.50	6242.	25.55	6509.	27.60	6766.	29.65	7013.	31.70	7252.
21.50	5969.	23.55	6248.	25.60	6515.	27.65	6772.	29.70	7019.	31.75	7257.
21.55	5976.	23.60	6255.	25.65	6522.	27.70	6778.	29.75	7025.	31.80	7263.
21.60	5983.	23.65	6262.	25.70	6528.	27.75	6784.	29.80	7031.	31.85	7269.
21.65	5990.	23.70	6268.	25.75	6534.	27.80	6790.	29.85	7037.	31.90	7275.
21.70	5997.	23.75	6275.	25.80	6541.	27.85	6796.	29.90	7042.	31.95	7280.
21.75	6004.	23.80	6282.	25.85	6547.	27.90	6802.	29.95	7048.	32.00	7286.
21.80	6011.	23.85	6288.	25.90	6553.	27.95	6808.	30.00	7054.	32.05	7292.
21.85	6018.	23.90	6295.	25.95	6560.	28.00	6815.	30.05	7060.	32.10	7297.
21.90	6025.	23.95	6301.	26.00	6566.	28.05	6821.	30.10	7066.	32.15	7303.
21.95	6032.	24.00	6308.	26.05	6572.	28.10	6827.	30.15	7072.	32.20	7309.
22.00	6039.	24.05	6314.	26.10	6579.	28.15	6833.	30.20	7078.	32.25	7314.
22.05	6046.	24.10	6321.	26.15	6585.	28.20	6839.	30.25	7084.	32.30	7320.
22.10	6052.	24.15	6328.	26.20	6591.	28.25	6845.	30.30	7089.	32.35	7326.
22.15	6059.	24.20	6334.	26.25	6598.	28.30	6851.	30.35	7095.	32.40	7332.
22.20	6066.	24.25	6341.	26.30	6604.	28.35	6857.	30.40	7101.	32.45	7337.
22.25	6073.	24.30	6347.	26.35	6610.	28.40	6863.	30.45	7107.	32.50	7343.
22.30	6080.	24.35	6354.	26.40	6617.	28.45	6869.	30.50	7113.	32.55	7348.
22.35	6087.	24.40	6360.	26.45	6623.	28.50	6875.	30.55	7119.	32.60	7354.
22.40	6093.	24.45	6367.	26.50	6629.	28.55	6881.	30.60	7125.	32.65	7360.
22.45	6100.	24.50	6373.	26.55	6635.	28.60	6887.	30.65	7130.	32.70	7365.
22.50	6107.	24.55	6380.	26.60	6642.	28.65	6893.	30.70	7136.	32.75	7371.
22.55	6114.	24.60	6386.	26.65	6648.	28.70	6899.	30.75	7142.	32.80	7377.
22.60	6121.	24.65	6393.	26.70	6654.	28.75	6905.	30.80	7148.	32.85	7382.
22.65	6127.	24.70	6399.	26.75	6660.	28.80	6911.	30.85	7154.	32.90	7388.
22.70	6134.	24.75	6406.	26.80	6667.	28.85	6917.	30.90	7159.	32.95	7394.
22.75	6141.	24.80	6412.	26.85	6673.	28.90	6923.	30.95	7165.	33.00	7399.
22.80	6148.	24.85	6419.	26.90	6679.	28.95	6929.	31.00	7171.	33.05	7405.
22.85	6155.	24.90	6425.	26.95	6685.	29.00	6935.	31.05	7177.	33.10	7410.
22.90	6161.	24.95	6432.	27.00	6691.	29.05	6941.	31.10	7183.	33.15	7416.
22.95	6168.	25.00	6438.	27.05	6698.	29.10	6947.	31.15	7188.	33.20	7422.
23.00	6175.	25.05	6445.	27.10	6704.	29.15	6953.	31.20	7194.		

TABLE 7

LOCKPORT POWERPLANT SLUICE GATES

THREE GATES(111)

DISCH COEF C' = 0.435

DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS
21.00	6038.	23.00	6320.	25.00	6590.	27.00	6849.	29.00	7099.	31.00	7340.
21.05	6045.	23.05	6327.	25.05	6596.	27.05	6855.	29.05	7105.	31.05	7346.
21.10	6053.	23.10	6334.	25.10	6603.	27.10	6862.	29.10	7111.	31.10	7352.
21.15	6060.	23.15	6341.	25.15	6610.	27.15	6868.	29.15	7117.	31.15	7358.
21.20	6067.	23.20	6348.	25.20	6616.	27.20	6874.	29.20	7123.	31.20	7363.
21.25	6074.	23.25	6354.	25.25	6623.	27.25	6881.	29.25	7129.	31.25	7369.
21.30	6081.	23.30	6361.	25.30	6629.	27.30	6887.	29.30	7135.	31.30	7375.
21.35	6089.	23.35	6368.	25.35	6636.	27.35	6893.	29.35	7141.	31.35	7381.
21.40	6096.	23.40	6375.	25.40	6642.	27.40	6900.	29.40	7147.	31.40	7387.
21.45	6103.	23.45	6382.	25.45	6649.	27.45	6906.	29.45	7154.	31.45	7393.
21.50	6110.	23.50	6389.	25.50	6656.	27.50	6912.	29.50	7160.	31.50	7399.
21.55	6117.	23.55	6395.	25.55	6662.	27.55	6918.	29.55	7166.	31.55	7405.
21.60	6124.	23.60	6402.	25.60	6669.	27.60	6925.	29.60	7172.	31.60	7411.
21.65	6131.	23.65	6409.	25.65	6675.	27.65	6931.	29.65	7178.	31.65	7416.
21.70	6138.	23.70	6416.	25.70	6682.	27.70	6937.	29.70	7184.	31.70	7422.
21.75	6145.	23.75	6423.	25.75	6688.	27.75	6944.	29.75	7190.	31.75	7428.
21.80	6153.	23.80	6429.	25.80	6695.	27.80	6950.	29.80	7196.	31.80	7434.
21.85	6160.	23.85	6436.	25.85	6701.	27.85	6956.	29.85	7202.	31.85	7440.
21.90	6167.	23.90	6443.	25.90	6708.	27.90	6962.	29.90	7208.	31.90	7446.
21.95	6174.	23.95	6450.	25.95	6714.	27.95	6969.	29.95	7214.	31.95	7452.
22.00	6181.	24.00	6456.	26.00	6721.	28.00	6975.	30.00	7220.	32.00	7457.
22.05	6188.	24.05	6463.	26.05	6727.	28.05	6981.	30.05	7226.	32.05	7463.
22.10	6195.	24.10	6470.	26.10	6734.	28.10	6987.	30.10	7232.	32.10	7469.
22.15	6202.	24.15	6477.	26.15	6740.	28.15	6994.	30.15	7238.	32.15	7475.
22.20	6209.	24.20	6483.	26.20	6746.	28.20	7000.	30.20	7244.	32.20	7481.
22.25	6216.	24.25	6490.	26.25	6753.	28.25	7006.	30.25	7250.	32.25	7487.
22.30	6223.	24.30	6497.	26.30	6759.	28.30	7012.	30.30	7256.	32.30	7492.
22.35	6230.	24.35	6503.	26.35	6766.	28.35	7018.	30.35	7262.	32.35	7498.
22.40	6237.	24.40	6510.	26.40	6772.	28.40	7025.	30.40	7268.	32.40	7504.
22.45	6244.	24.45	6517.	26.45	6779.	28.45	7031.	30.45	7274.	32.45	7510.
22.50	6251.	24.50	6523.	26.50	6785.	28.50	7037.	30.50	7280.	32.50	7516.
22.55	6258.	24.55	6530.	26.55	6791.	28.55	7043.	30.55	7286.	32.55	7521.
22.60	6265.	24.60	6537.	26.60	6798.	28.60	7049.	30.60	7292.	32.60	7527.
22.65	6272.	24.65	6543.	26.65	6804.	28.65	7056.	30.65	7298.	32.65	7533.
22.70	6279.	24.70	6550.	26.70	6811.	28.70	7062.	30.70	7304.	32.70	7539.
22.75	6286.	24.75	6557.	26.75	6817.	28.75	7068.	30.75	7310.	32.75	7545.
22.80	6292.	24.80	6563.	26.80	6823.	28.80	7074.	30.80	7316.	32.80	7550.
22.85	6299.	24.85	6570.	26.85	6830.	28.85	7080.	30.85	7322.	32.85	7556.
22.90	6306.	24.90	6577.	26.90	6836.	28.90	7086.	30.90	7328.	32.90	7562.
22.95	6313.	24.95	6583.	26.95	6843.	28.95	7092.	30.95	7334.	32.95	7568.

(Continued)

TABLE 7 (Concluded)

DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS
33.00	7573.	33.40	7619.	33.80	7665.	34.20	7710.	34.55	7749.	34.90	7789.
33.05	7579.	33.45	7625.	33.85	7670.	34.25	7716.	34.60	7755.	34.95	7794.
33.10	7585.	33.50	7631.	33.90	7676.	34.30	7721.	34.65	7761.	35.00	7800.
33.15	7591.	33.55	7636.	33.95	7682.	34.35	7727.	34.70	7766.	35.05	7805.
33.20	7596.	33.60	7642.	34.00	7687.	34.40	7733.	34.75	7772.	35.10	7811.
33.25	7602.	33.65	7648.	34.05	7693.	34.45	7738.	34.80	7777.	35.15	7817.
33.30	7608.	33.70	7653.	34.10	7699.	34.50	7744.	34.85	7783.	35.20	7822.
33.35	7613.	33.75	7659.	34.15	7704.						

TABLE 8

LOCKPORT POWERPLANT SLUICE GATES

THREE GATES(111)

DISCH COEF C' = 0.445

DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS
22.00	6323.	24.00	6605.	26.00	6875.	28.00	7135.	30.00	7386.	32.00	7629.
22.05	6330.	24.05	6612.	26.05	6882.	28.05	7142.	30.05	7392.	32.05	7635.
22.10	6337.	24.10	6619.	26.10	6888.	28.10	7148.	30.10	7399.	32.10	7641.
22.15	6344.	24.15	6625.	26.15	6895.	28.15	7154.	30.15	7405.	32.15	7647.
22.20	6352.	24.20	6632.	26.20	6902.	28.20	7161.	30.20	7411.	32.20	7653.
22.25	6359.	24.25	6639.	26.25	6908.	28.25	7167.	30.25	7417.	32.25	7659.
22.30	6366.	24.30	6646.	26.30	6915.	28.30	7173.	30.30	7423.	32.30	7665.
22.35	6373.	24.35	6653.	26.35	6921.	28.35	7180.	30.35	7429.	32.35	7671.
22.40	6380.	24.40	6660.	26.40	6928.	28.40	7186.	30.40	7435.	32.40	7677.
22.45	6387.	24.45	6667.	26.45	6934.	28.45	7192.	30.45	7441.	32.45	7682.
22.50	6394.	24.50	6673.	26.50	6941.	28.50	7199.	30.50	7448.	32.50	7688.
22.55	6402.	24.55	6680.	26.55	6948.	28.55	7205.	30.55	7454.	32.55	7694.
22.60	6409.	24.60	6687.	26.60	6954.	28.60	7211.	30.60	7460.	32.60	7700.
22.65	6416.	24.65	6694.	26.65	6961.	28.65	7218.	30.65	7466.	32.65	7706.
22.70	6423.	24.70	6701.	26.70	6967.	28.70	7224.	30.70	7472.	32.70	7712.
22.75	6430.	24.75	6707.	26.75	6974.	28.75	7230.	30.75	7478.	32.75	7718.
22.80	6437.	24.80	6714.	26.80	6980.	28.80	7237.	30.80	7484.	32.80	7724.
22.85	6444.	24.85	6721.	26.85	6987.	28.85	7243.	30.85	7490.	32.85	7730.
22.90	6451.	24.90	6728.	26.90	6993.	28.90	7249.	30.90	7496.	32.90	7736.
22.95	6458.	24.95	6735.	26.95	7000.	28.95	7256.	30.95	7502.	32.95	7742.
23.00	6465.	25.00	6741.	27.00	7006.	29.00	7262.	31.00	7509.	33.00	7747.
23.05	6472.	25.05	6748.	27.05	7013.	29.05	7268.	31.05	7515.	33.05	7753.
23.10	6479.	25.10	6755.	27.10	7019.	29.10	7274.	31.10	7521.	33.10	7759.
23.15	6486.	25.15	6762.	27.15	7026.	29.15	7281.	31.15	7527.	33.15	7765.
23.20	6493.	25.20	6768.	27.20	7032.	29.20	7287.	31.20	7533.	33.20	7771.
23.25	6500.	25.25	6775.	27.25	7039.	29.25	7293.	31.25	7539.	33.25	7777.
23.30	6507.	25.30	6782.	27.30	7045.	29.30	7299.	31.30	7545.	33.30	7783.
23.35	6514.	25.35	6788.	27.35	7052.	29.35	7306.	31.35	7551.	33.35	7788.
23.40	6521.	25.40	6795.	27.40	7058.	29.40	7312.	31.40	7557.	33.40	7794.
23.45	6528.	25.45	6802.	27.45	7065.	29.45	7318.	31.45	7563.	33.45	7800.
23.50	6535.	25.50	6809.	27.50	7071.	29.50	7324.	31.50	7569.	33.50	7806.
23.55	6542.	25.55	6815.	27.55	7078.	29.55	7330.	31.55	7575.	33.55	7812.
23.60	6549.	25.60	6822.	27.60	7084.	29.60	7337.	31.60	7581.	33.60	7818.
23.65	6556.	25.65	6829.	27.65	7090.	29.65	7343.	31.65	7587.	33.65	7823.
23.70	6563.	25.70	6835.	27.70	7097.	29.70	7349.	31.70	7593.	33.70	7829.
23.75	6570.	25.75	6842.	27.75	7103.	29.75	7355.	31.75	7599.	33.75	7835.
23.80	6577.	25.80	6849.	27.80	7110.	29.80	7361.	31.80	7605.	33.80	7841.
23.85	6584.	25.85	6855.	27.85	7116.	29.85	7368.	31.85	7611.	33.85	7847.
23.90	6591.	25.90	6862.	27.90	7122.	29.90	7374.	31.90	7617.	33.90	7853.
23.95	6598.	25.95	6868.	27.95	7129.	29.95	7380.	31.95	7623.	33.95	7858.

(Continued)

TABLE 8 (Concluded)

DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS
34.00	7864.	35.25	8008.	36.45	8143.	37.65	8276.	38.85	8407.	40.05	8536.
34.05	7870.	35.30	8013.	36.50	8149.	37.70	8282.	38.90	8413.	40.10	8542.
34.10	7876.	35.35	8019.	36.55	8154.	37.75	8287.	38.95	8418.	40.15	8547.
34.15	7881.	35.40	8025.	36.60	8160.	37.80	8293.	39.00	8424.	40.20	8552.
34.20	7887.	35.45	8030.	36.65	8165.	37.85	8298.	39.05	8429.	40.25	8558.
34.25	7893.	35.50	8036.	36.70	8171.	37.90	8304.	39.10	8434.	40.30	8563.
34.30	7899.	35.55	8042.	36.75	8177.	37.95	8309.	39.15	8440.	40.35	8568.
34.35	7905.	35.60	8047.	36.80	8182.	38.00	8315.	39.20	8445.	40.40	8574.
34.40	7910.	35.65	8053.	36.85	8188.	38.05	8320.	39.25	8451.	40.45	8579.
34.45	7916.	35.70	8059.	36.90	8193.	38.10	8326.	39.30	8456.	40.50	8584.
34.50	7922.	35.75	8064.	36.95	8199.	38.15	8331.	39.35	8461.	40.55	8590.
34.55	7928.	35.80	8070.	37.00	8204.	38.20	8337.	39.40	8467.	40.60	8595.
34.60	7933.	35.85	8076.	37.05	8210.	38.25	8342.	39.45	8472.	40.65	8600.
34.65	7939.	35.90	8081.	37.10	8215.	38.30	8347.	39.50	8477.	40.70	8605.
34.70	7945.	35.95	8087.	37.15	8221.	38.35	8353.	39.55	8483.	40.75	8611.
34.75	7951.	36.00	8093.	37.20	8227.	38.40	8358.	39.60	8488.	40.80	8616.
34.80	7956.	36.05	8098.	37.25	8232.	38.45	8364.	39.65	8494.	40.85	8621.
34.85	7962.	36.10	8104.	37.30	8238.	38.50	8369.	39.70	8499.	40.90	8627.
34.90	7968.	36.15	8109.	37.35	8243.	38.55	8375.	39.75	8504.	40.95	8632.
34.95	7973.	36.20	8115.	37.40	8249.	38.60	8380.	39.80	8510.	41.00	8637.
35.00	7979.	36.25	8121.	37.45	8254.	38.65	8386.	39.85	8515.	41.05	8642.
35.05	7985.	36.30	8126.	37.50	8260.	38.70	8391.	39.90	8520.	41.10	8648.
35.10	7991.	36.35	8132.	37.55	8265.	38.75	8396.	39.95	8526.	41.15	8653.
35.15	7996.	36.40	8137.	37.60	8271.	38.80	8402.	40.00	8531.	41.20	8658.
35.20	8002.										

TABLE 9

LOCKPORT POWERPLANT SLUICE GATES

THREE GATES(111)

DISCH COEF C' = 0.452

DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS
24.00	6709.	26.00	6983.	28.00	7247.	30.00	7502.	32.00	7749.	34.00	7988.
24.05	6716.	26.05	6990.	28.05	7254.	30.05	7509.	32.05	7755.	34.05	7994.
24.10	6723.	26.10	6997.	28.10	7260.	30.10	7515.	32.10	7761.	34.10	8000.
24.15	6730.	26.15	7003.	28.15	7267.	30.15	7521.	32.15	7767.	34.15	8005.
24.20	6737.	26.20	7010.	28.20	7273.	30.20	7527.	32.20	7773.	34.20	8011.
24.25	6744.	26.25	7017.	28.25	7280.	30.25	7534.	32.25	7779.	34.25	8017.
24.30	6751.	26.30	7024.	28.30	7286.	30.30	7540.	32.30	7785.	34.30	8023.
24.35	6758.	26.35	7030.	28.35	7293.	30.35	7546.	32.35	7791.	34.35	8029.
24.40	6764.	26.40	7037.	28.40	7299.	30.40	7552.	32.40	7797.	34.40	8035.
24.45	6771.	26.45	7044.	28.45	7306.	30.45	7559.	32.45	7803.	34.45	8041.
24.50	6778.	26.50	7050.	28.50	7312.	30.50	7565.	32.50	7809.	34.50	8046.
24.55	6785.	26.55	7057.	28.55	7318.	30.55	7571.	32.55	7815.	34.55	8052.
24.60	6792.	26.60	7064.	28.60	7325.	30.60	7577.	32.60	7821.	34.60	8058.
24.65	6799.	26.65	7070.	28.65	7331.	30.65	7583.	32.65	7827.	34.65	8064.
24.70	6806.	26.70	7077.	28.70	7338.	30.70	7590.	32.70	7833.	34.70	8070.
24.75	6813.	26.75	7083.	28.75	7344.	30.75	7596.	32.75	7839.	34.75	8076.
24.80	6820.	26.80	7090.	28.80	7350.	30.80	7602.	32.80	7845.	34.80	8081.
24.85	6827.	26.85	7097.	28.85	7357.	30.85	7608.	32.85	7851.	34.85	8087.
24.90	6834.	26.90	7103.	28.90	7363.	30.90	7614.	32.90	7857.	34.90	8093.
24.95	6840.	26.95	7110.	28.95	7370.	30.95	7620.	32.95	7863.	34.95	8099.
25.00	6847.	27.00	7117.	29.00	7376.	31.00	7627.	33.00	7869.	35.00	8105.
25.05	6854.	27.05	7123.	29.05	7382.	31.05	7633.	33.05	7875.	35.05	8110.
25.10	6861.	27.10	7130.	29.10	7389.	31.10	7639.	33.10	7881.	35.10	8116.
25.15	6868.	27.15	7136.	29.15	7395.	31.15	7645.	33.15	7887.	35.15	8122.
25.20	6875.	27.20	7143.	29.20	7401.	31.20	7651.	33.20	7893.	35.20	8128.
25.25	6882.	27.25	7150.	29.25	7408.	31.25	7657.	33.25	7899.	35.25	8134.
25.30	6888.	27.30	7156.	29.30	7414.	31.30	7664.	33.30	7905.	35.30	8139.
25.35	6895.	27.35	7163.	29.35	7420.	31.35	7670.	33.35	7911.	35.35	8145.
25.40	6902.	27.40	7169.	29.40	7427.	31.40	7676.	33.40	7917.	35.40	8151.
25.45	6909.	27.45	7176.	29.45	7433.	31.45	7682.	33.45	7923.	35.45	8157.
25.50	6916.	27.50	7182.	29.50	7439.	31.50	7688.	33.50	7929.	35.50	8162.
25.55	6922.	27.55	7189.	29.55	7446.	31.55	7694.	33.55	7935.	35.55	8168.
25.60	6929.	27.60	7195.	29.60	7452.	31.60	7700.	33.60	7941.	35.60	8174.
25.65	6936.	27.65	7202.	29.65	7458.	31.65	7706.	33.65	7947.	35.65	8180.
25.70	6943.	27.70	7208.	29.70	7465.	31.70	7712.	33.70	7952.	35.70	8185.
25.75	6950.	27.75	7215.	29.75	7471.	31.75	7719.	33.75	7958.	35.75	8191.
25.80	6956.	27.80	7221.	29.80	7477.	31.80	7725.	33.80	7964.	35.80	8197.
25.85	6963.	27.85	7228.	29.85	7484.	31.85	7731.	33.85	7970.	35.85	8203.
25.90	6970.	27.90	7234.	29.90	7490.	31.90	7737.	33.90	7976.	35.90	8208.
25.95	6977.	27.95	7241.	29.95	7496.	31.95	7743.	33.95	7982.	35.95	8214.

(Continued)

TABLE 9 (Concluded)

DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS	DEL H FT	DISCH CFS
36.00	8220.	36.75	8305.	37.45	8384.	38.15	8462.	38.85	8540.	39.55	8616.
36.05	8226.	36.80	8311.	37.50	8390.	38.20	8468.	38.90	8545.	39.60	8622.
36.10	8231.	36.85	8316.	37.55	8395.	38.25	8473.	38.95	8551.	39.65	8627.
36.15	8237.	36.90	8322.	37.60	8401.	38.30	8479.	39.00	8556.	39.70	8633.
36.20	8243.	36.95	8328.	37.65	8406.	38.35	8484.	39.05	8562.	39.75	8638.
36.25	8248.	37.00	8333.	37.70	8412.	38.40	8490.	39.10	8567.	39.80	8643.
36.30	8254.	37.05	8339.	37.75	8418.	38.45	8495.	39.15	8572.	39.85	8649.
36.35	8260.	37.10	8345.	37.80	8423.	38.50	8501.	39.20	8578.	39.90	8654.
36.40	8265.	37.15	8350.	37.85	8429.	38.55	8506.	39.25	8583.	39.95	8660.
36.45	8271.	37.20	8356.	37.90	8434.	38.60	8512.	39.30	8589.	40.00	8665.
36.50	8277.	37.25	8362.	37.95	8440.	38.65	8517.	39.35	8594.	40.05	8671.
36.55	8282.	37.30	8367.	38.00	8445.	38.70	8523.	39.40	8600.	40.10	8676.
36.60	8288.	37.35	8373.	38.05	8451.	38.75	8528.	39.45	8605.	40.15	8681.
36.65	8294.	37.40	8378.	38.10	8457.	38.80	8534.	39.50	8611.	40.20	8687.
36.70	8299.										

TABLE 10

LOCKPORT POWERPLANT SLUICE GATES

THREE GATES(111)

UP ELEV -12 TO -10

ELEV CCD	HEAD FT	DISCH CFS	ELEV CCD	HEAD FT	DISCH CFS	ELEV CCD	HEAD FT	DISCH CFS
-12.00	16.42	5549.	-11.30	17.12	5908.	-10.60	17.82	6274.
-11.95	16.47	5574.	-11.25	17.17	5934.	-10.55	17.87	6300.
-11.90	16.52	5600.	-11.20	17.22	5959.	-10.50	17.92	6326.
-11.85	16.57	5625.	-11.15	17.27	5985.	-10.45	17.97	6353.
-11.80	16.62	5651.	-11.10	17.32	6011.	-10.40	18.02	6380.
-11.75	16.67	5676.	-11.05	17.37	6037.	-10.35	18.07	6406.
-11.70	16.72	5702.	-11.00	17.42	6064.	-10.30	18.12	6433.
-11.65	16.77	5727.	-10.95	17.47	6090.	-10.25	18.17	6459.
-11.60	16.82	5753.	-10.90	17.52	6116.	-10.20	18.22	6486.
-11.55	16.87	5779.	-10.85	17.57	6142.	-10.15	18.27	6513.
-11.50	16.92	5804.	-10.80	17.62	6168.	-10.10	18.32	6539.
-11.45	16.97	5830.	-10.75	17.67	6195.	-10.05	18.37	6566.
-11.40	17.02	5856.	-10.70	17.72	6221.	-10.00	18.42	6593.
-11.35	17.07	5882.	-10.65	17.77	6247.	-9.95	18.47	6620.

TABLE 11

LOCKPORT CONTROL WORKS
UNSUBMERGED

SILL LENGTH = 9.50 SILL WIDTH = 31.70

ELEV CCD	HEAD FT	COEFF C	DISCH 1-5 CFS	DISCH 6&7 CFS	ELEV CCD	HEAD FT	COEFF C	DISCH 1-5 CFS	DISCH 6&7 CFS
-13.00	2.00	2.63	235.82	235.82	-11.00	4.00	2.66	673.71	672.46
-12.95	2.05	2.63	244.71	244.71	-10.95	4.05	2.66	686.74	685.69
-12.90	2.10	2.63	253.71	253.71	-10.90	4.10	2.66	699.87	699.02
-12.85	2.15	2.63	262.82	262.82	-10.85	4.15	2.66	713.09	712.45
-12.80	2.20	2.63	272.04	272.04	-10.80	4.20	2.66	726.42	725.98
-12.75	2.25	2.63	281.38	281.38	-10.75	4.25	2.66	739.85	739.62
-12.70	2.30	2.63	290.82	290.82	-10.70	4.30	2.67	753.38	753.36
-12.65	2.35	2.63	300.37	300.37	-10.65	4.35	2.67	767.00	766.80
-12.60	2.40	2.63	310.03	310.03	-10.60	4.40	2.67	780.73	780.31
-12.55	2.45	2.63	319.79	319.79	-10.55	4.45	2.67	794.55	793.91
-12.50	2.50	2.63	329.67	329.67	-10.50	4.50	2.67	808.48	807.61
-12.45	2.55	2.63	339.65	339.65	-10.45	4.55	2.67	822.50	821.41
-12.40	2.60	2.63	349.73	349.73	-10.40	4.60	2.68	836.63	835.31
-12.35	2.65	2.63	359.92	359.92	-10.35	4.65	2.68	850.85	849.30
-12.30	2.70	2.63	370.22	370.22	-10.30	4.70	2.68	865.18	863.39
-12.25	2.75	2.63	380.62	380.62	-10.25	4.75	2.68	879.60	877.57
-12.20	2.80	2.63	391.12	391.12	-10.20	4.80	2.68	894.13	891.86
-12.15	2.85	2.63	401.73	401.73	-10.15	4.85	2.68	908.75	906.24
-12.10	2.90	2.63	412.44	412.44	-10.10	4.90	2.69	923.48	920.72
-12.05	2.95	2.64	423.25	423.25	-10.05	4.95	2.69	938.30	935.30
-12.00	3.00	2.64	434.17	434.17	-10.00	5.00	2.69	953.23	949.97
-11.95	3.05	2.64	445.19	445.19	-9.95	5.05	2.69	968.26	964.74
-11.90	3.10	2.64	456.31	456.31	-9.90	5.10	2.69	983.38	979.61
-11.85	3.15	2.64	467.53	467.53	-9.85	5.15	2.70	998.61	994.58
-11.80	3.20	2.64	478.85	478.85	-9.80	5.20	2.70	1013.93	1009.65
-11.75	3.25	2.64	490.28	490.28	-9.75	5.25	2.70	1029.36	1024.81
-11.70	3.30	2.64	501.80	501.80	-9.70	5.30	2.70	1044.89	1040.07
-11.65	3.35	2.64	513.43	513.43	-9.65	5.35	2.70	1060.52	1055.43
-11.60	3.40	2.64	525.16	525.16	-9.60	5.40	2.71	1076.25	1070.89
-11.55	3.45	2.64	536.99	536.99	-9.55	5.45	2.71	1092.08	1086.44
-11.50	3.50	2.64	548.92	548.92	-9.50	5.50	2.71	1108.01	1102.10
-11.45	3.55	2.65	560.94	560.94	-9.45	5.55	2.71	1124.04	1117.85
-11.40	3.60	2.65	573.07	573.07	-9.40	5.60	2.71	1140.18	1133.70
-11.35	3.65	2.65	585.30	585.30	-9.35	5.65	2.72	1156.41	1149.65
-11.30	3.70	2.65	597.63	597.63	-9.30	5.70	2.72	1172.75	1165.70
-11.25	3.75	2.65	610.06	610.06	-9.25	5.75	2.72	1189.18	1181.85
-11.20	3.80	2.65	622.59	622.59	-9.20	5.80	2.72	1205.72	1198.10
-11.15	3.85	2.65	635.22	635.22	-9.15	5.85	2.73	1222.36	1214.44
-11.10	3.90	2.65	647.95	647.95	-9.10	5.90	2.73	1239.11	1230.88
-11.05	3.95	2.66	660.78	660.78	-9.05	5.95	2.73	1255.95	1247.43

(Continued)

TABLE 11 (Continued)

ELEV CCD	HEAD FT	COEFF C	DISCH 1-5 CFS	DISCH 6&7 CFS	ELEV CCD	HEAD FT	COEFF C	DISCH 1-5 CFS	DISCH 6&7 CFS
-9.00	6.00	2.73	1272.89	1264.07	-7.00	8.00	2.84	2034.79	2011.76
-8.95	6.05	2.73	1289.94	1280.81	-6.95	8.05	2.84	2055.96	2032.52
-8.90	6.10	2.74	1307.09	1297.65	-6.90	8.10	2.84	2077.22	2053.37
-8.85	6.15	2.74	1324.34	1314.59	-6.85	8.15	2.85	2098.59	2074.33
-8.80	6.20	2.74	1341.69	1331.63	-6.80	8.20	2.85	2120.06	2095.38
-8.75	6.25	2.74	1359.15	1348.77	-6.75	8.25	2.85	2141.63	2116.54
-8.70	6.30	2.75	1376.70	1366.01	-6.70	8.30	2.85	2163.31	2137.79
-8.65	6.35	2.75	1394.36	1383.35	-6.65	8.35	2.86	2185.09	2159.15
-8.60	6.40	2.75	1412.13	1400.79	-6.60	8.40	2.86	2206.97	2180.61
-8.55	6.45	2.75	1429.99	1418.33	-6.55	8.45	2.86	2228.96	2202.17
-8.50	6.50	2.76	1447.96	1435.96	-6.50	8.50	2.87	2251.05	2223.83
-8.45	6.55	2.76	1466.02	1453.70	-6.45	8.55	2.87	2273.24	2245.59
-8.40	6.60	2.76	1484.20	1471.54	-6.40	8.60	2.87	2295.53	2267.45
-8.35	6.65	2.76	1502.47	1489.48	-6.35	8.65	2.87	2317.93	2289.41
-8.30	6.70	2.77	1520.85	1507.51	-6.30	8.70	2.88	2340.43	2311.47
-8.25	6.75	2.77	1539.32	1525.65	-6.25	8.75	2.88	2363.04	2333.63
-8.20	6.80	2.77	1557.91	1543.89	-6.20	8.80	2.88	2385.74	2355.89
-8.15	6.85	2.77	1576.59	1562.23	-6.15	8.85	2.89	2408.55	2378.25
-8.10	6.90	2.78	1595.38	1580.67	-6.10	8.90	2.89	2431.46	2400.71
-8.05	6.95	2.78	1614.27	1599.21	-6.05	8.95	2.89	2454.48	2423.27
-8.00	7.00	2.78	1633.26	1617.85	-6.00	9.00	2.89	2477.60	2445.93
-7.95	7.05	2.78	1652.36	1636.59	-5.95	9.05	2.90	2500.81	2468.69
-7.90	7.10	2.79	1671.56	1655.43	-5.90	9.10	2.90	2524.14	2491.55
-7.85	7.15	2.79	1690.86	1674.37	-5.85	9.15	2.90	2547.56	2514.51
-7.80	7.20	2.79	1710.27	1693.41	-5.80	9.20	2.91	2571.08	2537.57
-7.75	7.25	2.80	1729.77	1712.55	-5.75	9.25	2.91	2594.71	2560.73
-7.70	7.30	2.80	1749.39	1731.79	-5.70	9.30	2.91	2618.44	2583.99
-7.65	7.35	2.80	1769.10	1751.14	-5.65	9.35	2.92	2642.27	2607.35
-7.60	7.40	2.80	1788.92	1770.58	-5.60	9.40	2.92	2666.20	2630.81
-7.55	7.45	2.81	1808.84	1790.12	-5.55	9.45	2.92	2690.24	2654.36
-7.50	7.50	2.81	1828.87	1809.77	-5.50	9.50	2.92	2714.38	2678.02
-7.45	7.55	2.81	1848.99	1829.52	-5.45	9.55	2.93	2738.61	2701.77
-7.40	7.60	2.81	1869.23	1849.36	-5.40	9.60	2.93	2762.95	2725.63
-7.35	7.65	2.82	1889.56	1869.31	-5.35	9.65	2.93	2787.39	2749.58
-7.30	7.70	2.82	1910.00	1889.36	-5.30	9.70	2.94	2811.93	2773.63
-7.25	7.75	2.82	1930.54	1909.51	-5.25	9.75	2.94	2836.57	2797.78
-7.20	7.80	2.83	1951.18	1929.76	-5.20	9.80	2.94	2861.32	2822.02
-7.15	7.85	2.83	1971.93	1950.11	-5.15	9.85	2.95	2886.16	2846.37
-7.10	7.90	2.83	1992.78	1970.56	-5.10	9.90	2.95	2911.10	2870.81
-7.05	7.95	2.83	2013.74	1991.11	-5.05	9.95	2.95	2936.15	2895.35

(Continued)

TABLE 11 (Continued)

ELEV CCD	HEAD FT	COEFF C	DISCH 1-5 CFS	DISCH 6&7 CFS	ELEV CCD	HEAD FT	COEFF C	DISCH 1-5 CFS	DISCH 6&7 CFS
-5.00	10.00	2.95	2961.29	2919.99	-3.00	12.00	3.07	4047.30	3983.76
-4.95	10.05	2.96	2986.54	2944.73	-2.95	12.05	3.07	4076.40	4012.26
-4.90	10.10	2.96	3011.88	2969.56	-2.90	12.10	3.08	4105.59	4040.84
-4.85	10.15	2.96	3037.32	2994.49	-2.85	12.15	3.08	4134.87	4069.51
-4.80	10.20	2.97	3062.87	3019.52	-2.80	12.20	3.08	4164.24	4098.27
-4.75	10.25	2.97	3088.51	3044.64	-2.75	12.25	3.09	4193.71	4127.12
-4.70	10.30	2.97	3114.25	3069.87	-2.70	12.30	3.09	4223.26	4156.06
-4.65	10.35	2.97	3140.10	3095.18	-2.65	12.35	3.09	4252.91	4185.09
-4.60	10.40	2.98	3166.04	3120.60	-2.60	12.40	3.09	4282.64	4214.20
-4.55	10.45	2.98	3192.08	3146.11	-2.55	12.45	3.10	4312.47	4243.40
-4.50	10.50	2.98	3218.22	3171.72	-2.50	12.50	3.10	4342.38	4272.69
-4.45	10.55	2.99	3244.45	3197.42	-2.45	12.55	3.10	4372.39	4302.07
-4.40	10.60	2.99	3270.79	3223.22	-2.40	12.60	3.11	4402.48	4331.53
-4.35	10.65	2.99	3297.22	3249.12	-2.35	12.65	3.11	4432.66	4361.08
-4.30	10.70	3.00	3323.75	3275.11	-2.30	12.70	3.11	4462.93	4390.72
-4.25	10.75	3.00	3350.38	3301.20	-2.25	12.75	3.11	4493.29	4420.44
-4.20	10.80	3.00	3377.11	3327.38	-2.20	12.80	3.12	4523.74	4450.25
-4.15	10.85	3.00	3403.93	3353.66	-2.15	12.85	3.12	4554.28	4480.14
-4.10	10.90	3.01	3430.86	3380.03	-2.10	12.90	3.12	4584.90	4510.12
-4.05	10.95	3.01	3457.87	3406.49	-2.05	12.95	3.12	4615.61	4540.19
-4.00	11.00	3.01	3484.99	3433.05	-2.00	13.00	3.13	4646.41	4570.34
-3.95	11.05	3.02	3512.20	3459.71	-1.95	13.05	3.13	4677.29	4600.57
-3.90	11.10	3.02	3539.51	3486.46	-1.90	13.10	3.13	4708.26	4630.89
-3.85	11.15	3.02	3566.92	3513.30	-1.85	13.15	3.14	4739.32	4661.29
-3.80	11.20	3.03	3594.42	3540.24	-1.80	13.20	3.14	4770.46	4691.77
-3.75	11.25	3.03	3622.01	3567.27	-1.75	13.25	3.14	4801.69	4722.34
-3.70	11.30	3.03	3649.70	3594.39	-1.70	13.30	3.14	4833.00	4752.99
-3.65	11.35	3.03	3677.49	3621.60	-1.65	13.35	3.15	4864.40	4783.73
-3.60	11.40	3.04	3705.37	3648.91	-1.60	13.40	3.15	4895.88	4814.54
-3.55	11.45	3.04	3733.35	3676.31	-1.55	13.45	3.15	4927.45	4845.44
-3.50	11.50	3.04	3761.42	3703.81	-1.50	13.50	3.15	4959.10	4876.42
-3.45	11.55	3.05	3789.59	3731.39	-1.45	13.55	3.16	4990.83	4907.48
-3.40	11.60	3.05	3817.85	3759.07	-1.40	13.60	3.16	5022.65	4938.63
-3.35	11.65	3.05	3846.21	3786.84	-1.35	13.65	3.16	5054.55	4969.85
-3.30	11.70	3.05	3874.65	3814.70	-1.30	13.70	3.16	5086.53	5001.16
-3.25	11.75	3.06	3903.20	3842.65	-1.25	13.75	3.17	5118.60	5032.54
-3.20	11.80	3.06	3931.83	3870.69	-1.20	13.80	3.17	5150.75	5064.01
-3.15	11.85	3.06	3960.56	3898.82	-1.15	13.85	3.17	5182.98	5095.56
-3.10	11.90	3.07	3989.38	3927.05	-1.10	13.90	3.17	5215.29	5127.18
-3.05	11.95	3.07	4018.29	3955.36	-1.05	13.95	3.18	5247.69	5158.89

(Continued)

TABLE 11 (Concluded)

ELEV CCD	HEAD FT	COEFF C	DISCH 1-5 CFS	DISCH 6&7 CFS
-1.00	14.00	3.18	5280.16	5190.67
-0.95	14.05	3.18	5312.72	5222.53
-0.90	14.10	3.18	5345.36	5254.48
-0.85	14.15	3.19	5378.08	5286.49
-0.80	14.20	3.19	5410.87	5318.59
-0.75	14.25	3.19	5443.75	5350.77
-0.70	14.30	3.19	5476.71	5383.02
-0.65	14.35	3.20	5509.74	5415.35
-0.60	14.40	3.20	5542.85	5447.75
-0.55	14.45	3.20	5576.05	5480.24
-0.50	14.50	3.20	5609.32	5512.79
-0.45	14.55	3.21	5642.67	5545.43
-0.40	14.60	3.21	5676.09	5578.14
-0.35	14.65	3.21	5709.59	5610.92
-0.30	14.70	3.21	5743.17	5643.78
-0.25	14.75	3.22	5776.83	5676.72
-0.20	14.80	3.22	5810.57	5709.73
-0.15	14.85	3.22	5844.37	5742.81
-0.10	14.90	3.22	5878.26	5775.97
-0.05	14.95	3.23	5912.22	5809.20
-0.00	15.00	3.23	5946.26	5842.50
0.05	15.05	3.23	5980.37	5875.88
0.10	15.10	3.23	6014.55	5909.33
0.15	15.15	3.24	6048.81	5942.85
0.20	15.20	3.24	6083.15	5976.44
0.25	15.25	3.24	6117.56	6010.11
0.30	15.30	3.24	6152.04	6043.85
0.35	15.35	3.25	6186.59	6077.66
0.40	15.40	3.25	6221.22	6111.54
0.45	15.45	3.25	6255.92	6145.49
0.50	15.50	3.25	6290.69	6179.51
0.55	15.55	3.25	6325.54	6213.60
0.60	15.60	3.26	6360.45	6247.76
0.65	15.65	3.26	6395.44	6281.99
0.70	15.70	3.26	6430.50	6316.29
0.75	15.75	3.26	6465.63	6350.66
0.80	15.80	3.27	6500.84	6385.10
0.85	15.85	3.27	6536.11	6419.61
0.90	15.90	3.27	6571.45	6454.18
0.95	15.95	3.27	6606.86	6488.83
1.00	16.00	3.27	6642.35	6523.54
1.05	16.05	3.28	6677.90	6558.32
1.10	16.10	3.28	6713.52	6593.17
1.15	16.15	3.28	6749.21	6628.08
1.20	16.20	3.28	6784.97	6663.06
1.25	16.25	3.28	6820.79	6698.11
1.30	16.30	3.29	6856.69	6733.22
1.35	16.35	3.29	6892.65	6768.40
1.40	16.40	3.29	6928.69	6803.65
1.45	16.45	3.29	6964.79	6838.96
1.50	16.50	3.30	7000.95	6874.34
1.55	16.55	3.30	7037.19	6909.78
1.60	16.60	3.30	7073.49	6945.29
1.65	16.65	3.30	7109.85	6980.86
1.70	16.70	3.30	7146.29	7016.50
1.75	16.75	3.31	7182.79	7052.20
1.80	16.80	3.31	7219.35	7087.97
1.85	16.85	3.31	7255.98	7123.80
1.90	16.90	3.31	7292.68	7159.70
1.95	16.95	3.31	7329.44	7195.65
2.00	17.00	3.32	7366.27	7231.68

TABLE 12

LOCKPORT CONTROL WORKS, SUBMERGED

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -13.00 HEAD(FT) = 2.00

FREE FLOW DISCH COEFF = 2.63

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	91.27	0.23	20.60	20.60
0.010	83.10	0.44	39.84	39.84
0.015	75.58	0.64	57.60	57.60
0.020	68.71	0.82	73.80	73.80
0.025	62.50	0.99	88.43	88.43
0.030	56.95	1.13	101.52	101.52
0.035	52.02	1.26	113.14	113.14
0.040	47.68	1.38	123.39	123.39
0.045	43.86	1.48	132.38	132.38
0.050	40.53	1.56	140.24	140.24
0.055	37.62	1.64	147.10	147.10
0.060	35.08	1.71	153.10	153.10
0.065	32.84	1.77	158.37	158.37
0.070	30.86	1.82	163.04	163.04
0.075	29.09	1.86	167.22	167.22
0.080	27.48	1.91	171.01	171.01
0.085	26.00	1.95	174.50	174.50
0.090	24.62	1.98	177.75	177.75
0.095	23.32	2.02	180.82	180.82
0.100	22.09	2.05	183.74	183.74
0.105	20.91	2.08	186.52	186.52
0.110	19.78	2.11	189.17	189.17
0.115	18.72	2.14	191.67	191.67
0.120	17.73	2.16	194.01	194.01
0.125	16.82	2.19	196.15	196.15
0.130	16.01	2.21	198.07	198.07
0.135	15.30	2.23	199.73	199.73
0.140	14.71	2.24	201.13	201.13
0.145	14.24	2.26	202.25	202.25
0.150	13.87	2.27	203.12	203.12
0.155	13.58	2.27	203.79	203.79
0.160	13.35	2.28	204.34	204.34
0.165	13.11	2.29	204.91	204.91
0.170	12.77	2.29	205.70	205.70
0.175	12.24	2.31	206.96	206.96
0.180	11.36	2.33	209.03	209.03
0.185	9.96	2.37	212.36	212.36
0.190	7.78	2.43	217.48	217.48
0.195	4.58	2.51	225.03	225.03
0.200	0.	2.63	235.82	235.82

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -12.80 HEAD(FT) = 2.20

FREE FLOW DISCH COEFF = 2.63

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	91.63	0.22	22.77	22.77
0.010	83.70	0.43	44.35	44.35
0.015	76.29	0.62	64.49	64.49
0.020	69.48	0.80	83.02	83.02
0.025	63.29	0.97	99.86	99.86
0.030	57.73	1.11	114.98	114.98
0.035	52.79	1.24	128.43	128.43
0.040	48.43	1.36	140.29	140.29
0.045	44.61	1.46	150.68	150.68
0.050	41.28	1.54	159.73	159.73
0.055	38.39	1.62	167.61	167.61
0.060	35.87	1.69	174.47	174.47
0.065	33.66	1.74	180.48	180.48
0.070	31.71	1.80	185.78	185.78
0.075	29.97	1.84	190.52	190.52
0.080	28.39	1.88	194.82	194.82
0.085	26.92	1.92	198.80	198.80
0.090	25.55	1.96	202.53	202.53
0.095	24.25	1.99	206.08	206.08
0.100	22.99	2.03	209.50	209.50
0.105	21.78	2.06	212.80	212.80
0.110	20.61	2.09	215.97	215.97
0.115	19.50	2.12	219.01	219.01
0.120	18.44	2.14	221.87	221.87
0.125	17.47	2.17	224.52	224.52
0.130	16.59	2.19	226.91	226.91
0.135	15.82	2.21	229.00	229.00
0.140	15.18	2.23	230.75	230.75
0.145	14.66	2.24	232.15	232.15
0.150	14.27	2.25	233.22	233.22
0.155	13.99	2.26	233.99	233.99
0.160	13.77	2.27	234.59	234.59
0.165	13.55	2.27	235.17	235.17
0.170	13.26	2.28	235.97	235.97
0.175	12.77	2.29	237.31	237.31
0.180	11.91	2.32	239.64	239.64
0.185	10.49	2.35	243.51	243.51
0.190	8.25	2.41	249.60	249.60
0.195	4.88	2.50	258.77	258.77
0.200	0.	2.63	272.04	272.04

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -12.60 HEAD(FT) = 2.40

FREE FLOW DISCH COEFF = 2.63

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	92.00	0.21	24.81	24.81
0.010	84.29	0.41	48.71	48.71
0.015	77.01	0.60	71.28	71.28
0.020	70.26	0.78	92.21	92.21
0.025	64.08	0.94	111.35	111.35
0.030	58.52	1.09	128.61	128.61
0.035	53.56	1.22	143.98	143.98
0.040	49.19	1.34	157.54	157.54
0.045	45.36	1.44	169.40	169.40
0.050	42.03	1.52	179.71	179.71
0.055	39.15	1.60	188.65	188.65
0.060	36.65	1.67	196.40	196.40
0.065	34.47	1.72	203.15	203.15
0.070	32.56	1.77	209.10	209.10
0.075	30.84	1.82	214.40	214.40
0.080	29.29	1.86	219.23	219.23
0.085	27.84	1.90	223.70	223.70
0.090	26.48	1.93	227.93	227.93
0.095	25.17	1.97	232.00	232.00
0.100	23.90	2.00	235.95	235.95
0.105	22.65	2.03	239.80	239.80
0.110	21.44	2.07	243.56	243.56
0.115	20.27	2.10	247.19	247.19
0.120	19.15	2.13	250.64	250.64
0.125	18.11	2.15	253.87	253.87
0.130	17.17	2.18	256.80	256.80
0.135	16.34	2.20	259.37	259.37
0.140	15.65	2.22	261.52	261.52
0.145	15.09	2.23	263.24	263.24
0.150	14.68	2.24	264.52	264.52
0.155	14.39	2.25	265.42	265.42
0.160	14.18	2.26	266.05	266.05
0.165	14.00	2.26	266.62	266.62
0.170	13.76	2.27	267.40	267.40
0.175	13.29	2.28	268.82	268.82
0.180	12.46	2.30	271.39	271.39
0.185	11.03	2.34	275.83	275.83
0.190	8.72	2.40	282.99	282.99
0.195	5.18	2.49	293.96	293.96
0.200	0.	2.63	310.03	310.03

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -12.50 HEAD(FT) = 2.50

FREE FLOW DISCH COEFF = 2.63

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	92.18	0.21	25.77	25.77
0.010	84.59	0.41	50.82	50.82
0.015	77.37	0.60	74.61	74.61
0.020	70.64	0.77	96.78	96.78
0.025	64.48	0.93	117.10	117.10
0.030	58.91	1.08	135.46	135.46
0.035	53.94	1.21	151.83	151.83
0.040	49.56	1.33	166.28	166.28
0.045	45.73	1.43	178.90	178.90
0.050	42.41	1.52	189.86	189.86
0.055	39.53	1.59	199.34	199.34
0.060	37.05	1.66	207.54	207.54
0.065	34.88	1.71	214.68	214.68
0.070	32.98	1.76	220.95	220.95
0.075	31.28	1.81	226.54	226.54
0.080	29.74	1.85	231.63	231.63
0.085	28.30	1.89	236.36	236.36
0.090	26.94	1.92	240.84	240.84
0.095	25.63	1.96	245.17	245.17
0.100	24.35	1.99	249.40	249.40
0.105	23.09	2.02	253.55	253.55
0.110	21.85	2.06	257.62	257.62
0.115	20.66	2.09	261.57	261.57
0.120	19.51	2.12	265.35	265.35
0.125	18.44	2.15	268.89	268.89
0.130	17.46	2.17	272.11	272.11
0.135	16.60	2.19	274.94	274.94
0.140	15.88	2.21	277.32	277.32
0.145	15.31	2.23	279.21	279.21
0.150	14.88	2.24	280.60	280.60
0.155	14.59	2.25	281.57	281.57
0.160	14.39	2.25	282.22	282.22
0.165	14.23	2.26	282.77	282.77
0.170	13.99	2.26	283.54	283.54
0.175	13.56	2.27	284.98	284.98
0.180	12.74	2.30	287.68	287.68
0.185	11.30	2.33	292.41	292.41
0.190	8.95	2.40	300.15	300.15
0.195	5.33	2.49	312.08	312.08
0.200	0.	2.63	329.67	329.67

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -12.40 HEAD(FT) = 2.60

FREE FLOW DISCH COEFF = 2.63

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	92.37	0.20	26.70	26.70
0.010	84.88	0.40	52.88	52.88
0.015	77.73	0.59	77.90	77.90
0.020	71.03	0.76	101.32	101.32
0.025	64.87	0.92	122.85	122.85
0.030	59.30	1.07	142.34	142.34
0.035	54.33	1.20	159.73	159.73
0.040	49.94	1.32	175.08	175.08
0.045	46.11	1.42	188.48	188.48
0.050	42.79	1.51	200.10	200.10
0.055	39.92	1.58	210.13	210.13
0.060	37.44	1.65	218.80	218.80
0.065	35.29	1.70	226.32	226.32
0.070	33.40	1.75	232.92	232.92
0.075	31.72	1.80	238.80	238.80
0.080	30.19	1.84	244.15	244.15
0.085	28.76	1.87	249.13	249.13
0.090	27.41	1.91	253.88	253.88
0.095	26.09	1.94	258.48	258.48
0.100	24.80	1.98	263.00	263.00
0.105	23.52	2.01	267.46	267.46
0.110	22.27	2.05	271.85	271.85
0.115	21.04	2.08	276.14	276.14
0.120	19.87	2.11	280.26	280.26
0.125	18.76	2.14	284.13	284.13
0.130	17.75	2.16	287.66	287.66
0.135	16.86	2.19	290.77	290.77
0.140	16.11	2.21	293.38	293.38
0.145	15.52	2.22	295.45	295.45
0.150	15.09	2.23	296.97	296.97
0.155	14.79	2.24	298.00	298.00
0.160	14.60	2.25	298.66	298.66
0.165	14.45	2.25	299.20	299.20
0.170	14.24	2.28	299.94	299.94
0.175	13.82	2.27	301.40	301.40
0.180	13.01	2.29	304.22	304.22
0.185	11.57	2.33	309.26	309.26
0.190	9.19	2.39	317.59	317.59
0.195	5.49	2.49	330.55	330.55
0.200	0.00	2.63	349.73	349.73

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -12.20 HEAD(FT) = 2.80

FREE FLOW DISCH COEFF = 2.63

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	92.73	0.19	28.43	28.43
0.010	85.47	0.38	56.82	56.82
0.015	78.44	0.57	84.31	84.31
0.020	71.81	0.74	110.28	110.28
0.025	65.66	0.90	134.30	134.30
0.030	60.09	1.05	156.12	156.12
0.035	55.10	1.18	175.63	175.63
0.040	50.69	1.30	192.84	192.84
0.045	46.86	1.40	207.86	207.86
0.050	43.54	1.49	220.84	220.84
0.055	40.68	1.56	232.01	232.01
0.060	38.22	1.63	241.62	241.62
0.065	36.10	1.68	249.92	249.92
0.070	34.25	1.73	257.17	257.17
0.075	32.60	1.78	263.63	263.63
0.080	31.09	1.81	269.51	269.51
0.085	29.69	1.85	275.02	275.02
0.090	28.34	1.89	280.29	280.29
0.095	27.01	1.92	285.46	285.46
0.100	25.70	1.96	290.59	290.59
0.105	24.40	1.99	295.70	295.70
0.110	23.10	2.03	300.78	300.78
0.115	21.82	2.06	305.79	305.79
0.120	20.58	2.09	310.64	310.64
0.125	19.40	2.12	315.23	315.23
0.130	18.33	2.15	319.43	319.43
0.135	17.38	2.18	323.15	323.15
0.140	16.58	2.20	326.27	326.27
0.145	15.95	2.21	328.74	328.74
0.150	15.49	2.23	330.52	330.52
0.155	15.20	2.23	331.69	331.69
0.160	15.02	2.24	332.37	332.37
0.165	14.90	2.24	332.85	332.85
0.170	14.72	2.25	333.54	333.54
0.175	14.35	2.26	335.01	335.01
0.180	13.56	2.28	338.07	338.07
0.185	12.11	2.31	343.74	343.74
0.190	9.66	2.38	353.34	353.34
0.195	5.79	2.48	368.48	368.48
0.200	0.00	2.63	391.12	391.12

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -12.00 HEAD(FT) = 3.00

FREE FLOW DISCH COEFF = 2.64

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	93.10	0.18	29.96	29.96
0.010	86.07	0.37	60.50	60.50
0.015	79.16	0.55	90.47	90.47
0.020	72.58	0.72	119.05	119.05
0.025	66.45	0.88	145.64	145.64
0.030	60.87	1.03	169.90	169.90
0.035	55.86	1.16	191.62	191.62
0.040	51.45	1.28	210.79	210.79
0.045	47.60	1.38	227.49	227.49
0.050	44.29	1.47	241.89	241.89
0.055	41.44	1.54	254.23	254.23
0.060	39.01	1.61	264.80	264.80
0.065	36.92	1.66	273.89	273.89
0.070	35.09	1.71	281.81	281.81
0.075	33.47	1.75	288.84	288.84
0.080	31.99	1.79	295.26	295.26
0.085	30.61	1.83	301.29	301.29
0.090	29.26	1.86	307.12	307.12
0.095	27.94	1.90	312.87	312.87
0.100	26.61	1.93	318.64	318.64
0.105	25.27	1.97	324.45	324.45
0.110	23.93	2.01	330.29	330.29
0.115	22.59	2.04	336.09	336.09
0.120	21.29	2.07	341.74	341.74
0.125	20.05	2.11	347.12	347.12
0.130	18.91	2.14	352.08	352.08
0.135	17.90	2.16	356.46	356.46
0.140	17.05	2.19	360.16	360.16
0.145	16.38	2.20	363.06	363.06
0.150	15.90	2.22	365.13	365.13
0.155	15.60	2.22	366.44	366.44
0.160	15.44	2.23	367.14	367.14
0.165	15.35	2.23	367.54	367.54
0.170	15.21	2.23	368.13	368.13
0.175	14.87	2.24	369.60	369.60
0.180	14.12	2.26	372.88	372.88
0.185	12.65	2.30	379.23	379.23
0.190	10.13	2.37	390.19	390.19
0.195	6.09	2.48	407.71	407.71
0.200	0.	2.64	434.17	434.17

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -11.80 HEAD(FT) = 3.20

FREE FLOW DISCH COEFF = 2.64

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	93.41	0.17	31.54	31.54
0.010	86.56	0.35	64.35	64.35
0.015	79.74	0.53	96.99	96.99
0.020	73.19	0.71	128.40	128.40
0.025	67.04	0.87	157.82	157.82
0.030	61.42	1.02	184.75	184.75
0.035	56.37	1.15	208.94	208.94
0.040	51.91	1.27	230.29	230.29
0.045	48.03	1.37	248.88	248.88
0.050	44.69	1.46	264.87	264.87
0.055	41.83	1.53	278.53	278.53
0.060	39.40	1.60	290.17	290.17
0.065	37.32	1.65	300.13	300.13
0.070	35.52	1.70	308.75	308.75
0.075	33.93	1.74	316.37	316.37
0.080	32.48	1.78	323.30	323.30
0.085	31.12	1.82	329.82	329.82
0.090	29.81	1.85	336.13	336.13
0.095	28.50	1.89	342.39	342.39
0.100	27.18	1.92	348.72	348.72
0.105	25.84	1.96	355.14	355.14
0.110	24.48	1.99	361.63	361.63
0.115	23.12	2.03	368.13	368.13
0.120	21.79	2.06	374.51	374.51
0.125	20.51	2.10	380.62	380.62
0.130	19.33	2.13	386.28	386.28
0.135	18.28	2.16	391.32	391.32
0.140	17.39	2.18	395.58	395.58
0.145	16.69	2.20	398.94	398.94
0.150	16.19	2.21	401.35	401.35
0.155	15.87	2.22	402.86	402.86
0.160	15.70	2.22	403.65	403.65
0.165	15.62	2.23	404.06	404.06
0.170	15.50	2.23	404.63	404.63
0.175	15.18	2.24	406.16	406.16
0.180	14.44	2.26	409.72	409.72
0.185	12.97	2.30	416.75	416.75
0.190	10.41	2.36	429.03	429.03
0.195	6.27	2.47	448.81	448.81
0.200	0.00	2.64	478.85	478.85

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70
CCD ELEV = -11.60 HEAD(FT) = 3.40
FREE FLOW DISCH COEFF = 2.64

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	93.73	0.17	32.94	32.94
0.010	87.06	0.34	67.97	67.97
0.015	80.33	0.52	103.31	103.31
0.020	73.79	0.69	137.64	137.64
0.025	67.63	0.86	169.99	169.99
0.030	61.97	1.01	199.74	199.74
0.035	56.87	1.14	226.51	226.51
0.040	52.37	1.26	250.16	250.16
0.045	48.45	1.36	270.73	270.73
0.050	45.08	1.45	288.39	288.39
0.055	42.22	1.53	303.42	303.42
0.060	39.80	1.59	316.17	316.17
0.065	37.73	1.65	327.01	327.01
0.070	35.95	1.69	336.34	336.34
0.075	34.39	1.73	344.55	344.55
0.080	32.97	1.77	352.00	352.00
0.085	31.64	1.81	358.99	358.99
0.090	30.35	1.84	365.78	365.78
0.095	29.06	1.87	372.56	372.56
0.100	27.74	1.91	379.45	379.45
0.105	26.40	1.94	386.50	386.50
0.110	25.03	1.98	393.69	393.69
0.115	23.65	2.02	400.93	400.93
0.120	22.29	2.05	408.09	408.09
0.125	20.98	2.09	414.98	414.98
0.130	19.76	2.12	421.40	421.40
0.135	18.66	2.15	427.15	427.15
0.140	17.73	2.17	432.02	432.02
0.145	17.00	2.19	435.88	435.88
0.150	16.47	2.21	438.66	438.66
0.155	16.14	2.22	440.40	440.40
0.160	15.97	2.22	441.28	441.28
0.165	15.89	2.22	441.69	441.69
0.170	15.79	2.23	442.24	442.24
0.175	15.49	2.23	443.82	443.82
0.180	14.76	2.25	447.66	447.66
0.185	13.29	2.29	455.39	455.39
0.190	10.68	2.36	469.06	469.06
0.195	6.45	2.47	491.27	491.27
0.200	0.00	2.64	525.16	525.16

SILL LENGTH = 9.50 SILL WIDTH = 31.70
CCD ELEV = -11.50 HEAD(FT) = 3.50
FREE FLOW DISCH COEFF = 2.64

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	93.88	0.16	33.57	33.57
0.010	87.31	0.34	69.68	69.68
0.015	80.62	0.51	106.38	106.38
0.020	74.09	0.69	142.20	142.20
0.025	67.92	0.85	176.07	176.07
0.030	62.24	1.00	207.27	207.27
0.035	57.12	1.13	235.37	235.37
0.040	52.59	1.25	260.22	260.22
0.045	48.66	1.36	281.82	281.82
0.050	45.28	1.45	300.34	300.34
0.055	42.42	1.52	316.08	316.08
0.060	39.99	1.59	329.39	329.39
0.065	37.94	1.64	340.68	340.68
0.070	36.17	1.69	350.38	350.38
0.075	34.62	1.73	358.88	358.88
0.080	33.22	1.77	366.58	366.58
0.085	31.90	1.80	373.81	373.81
0.090	30.62	1.83	380.84	380.84
0.095	29.34	1.87	387.88	387.88
0.100	28.03	1.90	395.06	395.06
0.105	26.69	1.94	402.44	402.44
0.110	25.31	1.98	409.98	409.98
0.115	23.92	2.01	417.61	417.61
0.120	22.54	2.05	425.17	425.17
0.125	21.21	2.08	432.48	432.48
0.130	19.97	2.12	439.30	439.30
0.135	18.85	2.15	445.42	445.42
0.140	17.91	2.17	450.62	450.62
0.145	17.15	2.19	454.75	454.75
0.150	16.61	2.21	457.72	457.72
0.155	16.28	2.21	459.58	459.58
0.160	16.11	2.22	460.51	460.51
0.165	16.03	2.22	460.92	460.92
0.170	15.93	2.22	461.45	461.45
0.175	15.64	2.23	463.05	463.05
0.180	14.92	2.25	467.03	467.03
0.185	13.44	2.29	475.12	475.12
0.190	10.82	2.36	489.53	489.53
0.195	6.54	2.47	513.00	513.00
0.200	0.00	2.64	548.92	548.92

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -11.40 HEAD(FT) = 3.60

FREE FLOW DISCH COEFF = 2.65

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	94.04	0.16	34.15	34.15
0.010	87.55	0.33	71.33	71.33
0.015	80.91	0.51	109.40	109.40
0.020	74.40	0.68	146.73	146.73
0.025	68.22	0.84	182.13	182.13
0.030	62.52	0.99	214.81	214.81
0.035	57.37	1.13	244.29	244.29
0.040	52.82	1.25	270.36	270.36
0.045	48.87	1.35	293.01	293.01
0.050	45.48	1.44	312.42	312.42
0.055	42.61	1.52	328.88	328.88
0.060	40.19	1.58	342.76	342.76
0.065	38.14	1.64	354.51	354.51
0.070	36.38	1.68	364.56	364.56
0.075	34.85	1.72	373.36	373.36
0.080	33.46	1.76	381.31	381.31
0.085	32.16	1.80	388.78	388.78
0.090	30.89	1.83	396.05	396.05
0.095	29.62	1.86	403.35	403.35
0.100	28.31	1.90	410.82	410.82
0.105	26.97	1.93	418.53	418.53
0.110	25.59	1.97	426.44	426.44
0.115	24.19	2.01	434.47	434.47
0.120	22.79	2.04	442.45	442.45
0.125	21.44	2.08	450.18	450.18
0.130	20.18	2.11	457.42	457.42
0.135	19.05	2.14	463.93	463.93
0.140	18.08	2.17	469.47	469.47
0.145	17.31	2.19	473.88	473.88
0.150	16.76	2.20	477.05	477.05
0.155	16.41	2.21	479.03	479.03
0.160	16.24	2.22	480.01	480.01
0.165	16.17	2.22	480.42	480.42
0.170	16.08	2.22	480.93	480.93
0.175	15.80	2.23	482.55	482.55
0.180	15.08	2.25	486.67	486.67
0.185	13.60	2.29	495.13	495.13
0.190	10.96	2.36	510.28	510.28
0.195	6.63	2.47	535.06	535.06
0.200	0.	2.65	573.07	573.07

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -11.20 HEAD(FT) = 3.80

FREE FLOW DISCH COEFF = 2.65

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	94.36	0.15	35.14	35.14
0.010	88.05	0.32	74.40	74.40
0.015	81.49	0.49	115.22	115.22
0.020	75.00	0.66	155.63	155.63
0.025	68.81	0.83	194.21	194.21
0.030	63.06	0.98	229.96	229.96
0.035	57.87	1.12	262.28	262.28
0.040	53.28	1.24	290.87	290.87
0.045	49.29	1.34	315.70	315.70
0.050	45.88	1.43	336.93	336.93
0.055	43.00	1.51	354.87	354.87
0.060	40.58	1.58	369.94	369.94
0.065	38.55	1.63	382.61	382.61
0.070	36.82	1.68	393.38	393.38
0.075	35.31	1.72	402.76	402.76
0.080	33.95	1.75	411.21	411.21
0.085	32.68	1.78	419.14	419.14
0.090	31.43	1.82	426.89	426.89
0.095	30.18	1.85	434.72	434.72
0.100	28.88	1.89	442.79	442.79
0.105	27.53	1.92	451.17	451.17
0.110	26.14	1.96	459.84	459.84
0.115	24.72	2.00	468.69	468.69
0.120	23.30	2.03	477.56	477.56
0.125	21.91	2.07	486.19	486.19
0.130	20.61	2.11	494.31	494.31
0.135	19.43	2.14	501.63	501.63
0.140	18.42	2.16	507.90	507.90
0.145	17.62	2.18	512.89	512.89
0.150	17.04	2.20	516.50	516.50
0.155	16.68	2.21	518.74	518.74
0.160	16.51	2.21	519.83	519.83
0.165	16.44	2.22	520.22	520.22
0.170	16.37	2.22	520.68	520.68
0.175	16.10	2.22	522.32	522.32
0.180	15.40	2.24	526.73	526.73
0.185	13.92	2.28	535.95	535.95
0.190	11.23	2.35	552.66	552.66
0.195	6.81	2.47	580.18	580.18
0.200	0.	2.65	622.69	622.69

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70
CCD ELEV = -11.00 HEAD(FT) = 4.00
FREE FLOW DISCH COEFF = 2.66

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	94.67	0.14	35.91	35.91
0.010	88.55	0.30	77.17	77.17
0.015	82.08	0.48	120.75	120.75
0.020	75.61	0.65	164.33	164.33
0.025	69.39	0.81	206.19	206.19
0.030	63.61	0.97	245.14	245.14
0.035	58.38	1.11	280.42	280.42
0.040	53.74	1.23	311.66	311.66
0.045	49.72	1.34	338.77	338.77
0.050	46.28	1.43	361.90	361.90
0.055	43.39	1.50	381.38	381.38
0.060	40.97	1.57	397.66	397.66
0.065	38.95	1.62	411.27	411.27
0.070	37.25	1.67	422.78	422.78
0.075	35.77	1.71	432.74	432.74
0.080	34.44	1.74	441.68	441.68
0.085	33.20	1.77	450.06	450.06
0.090	31.98	1.81	458.29	458.29
0.095	30.74	1.84	466.64	466.64
0.100	29.45	1.87	475.31	475.31
0.105	28.10	1.91	484.39	484.39
0.110	26.70	1.95	493.86	493.86
0.115	25.25	1.99	503.59	503.59
0.120	23.80	2.02	513.38	513.38
0.125	22.37	2.06	522.97	522.97
0.130	21.03	2.10	532.03	532.03
0.135	19.81	2.13	540.24	540.24
0.140	18.77	2.16	547.28	547.28
0.145	17.93	2.18	552.91	552.91
0.150	17.33	2.20	556.98	556.98
0.155	16.95	2.21	559.51	559.51
0.160	16.77	2.21	560.71	560.71
0.165	16.72	2.21	561.08	561.08
0.170	16.66	2.21	561.47	561.47
0.175	16.41	2.22	563.13	563.13
0.180	15.72	2.24	567.81	567.81
0.185	14.23	2.28	577.83	577.83
0.190	11.51	2.35	596.17	596.17
0.195	6.99	2.47	626.60	626.60
0.200	0.00	2.66	673.71	673.71

SILL LENGTH = 9.50 SILL WIDTH = 31.70
CCD ELEV = -10.80 HEAD(FT) = 4.20
FREE FLOW DISCH COEFF = 2.66

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	94.76	0.14	38.06	38.03
0.010	88.72	0.30	81.95	81.90
0.015	82.32	0.47	128.44	128.36
0.020	75.91	0.64	175.02	174.91
0.025	69.74	0.81	219.83	219.70
0.030	63.99	0.96	261.59	261.43
0.035	58.77	1.10	299.48	299.30
0.040	54.15	1.22	333.08	332.88
0.045	50.13	1.33	362.28	362.07
0.050	46.69	1.42	387.25	387.02
0.055	43.79	1.50	408.33	408.08
0.060	41.36	1.56	425.98	425.72
0.065	39.32	1.62	440.77	440.50
0.070	37.60	1.66	453.29	453.01
0.075	36.11	1.70	464.14	463.86
0.080	34.77	1.74	473.87	473.59
0.085	33.51	1.77	482.99	482.70
0.090	32.28	1.80	491.92	491.62
0.095	31.04	1.84	500.96	500.65
0.100	29.75	1.87	510.32	510.01
0.105	28.40	1.91	520.09	519.78
0.110	27.00	1.94	530.26	529.94
0.115	25.57	1.98	540.70	540.38
0.120	24.12	2.02	551.20	550.87
0.125	22.71	2.06	561.48	561.14
0.130	21.37	2.09	571.20	570.85
0.135	20.15	2.13	580.01	579.67
0.140	19.11	2.15	587.60	587.25
0.145	18.27	2.18	593.70	593.34
0.150	17.66	2.19	598.16	597.80
0.155	17.27	2.20	601.00	600.64
0.160	17.06	2.21	602.47	602.11
0.165	16.98	2.21	603.10	602.73
0.170	16.88	2.21	603.79	603.42
0.175	16.59	2.22	605.88	605.52
0.180	15.85	2.24	611.26	610.89
0.185	14.32	2.28	622.39	622.01
0.190	11.56	2.35	642.47	642.08
0.195	7.01	2.48	675.51	675.10
0.200	0.	2.66	726.42	725.98

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -10.60 HEAD(FT) = 4.40

FREE FLOW DISCH COEFF = 2.67

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	94.85	0.14	40.19	40.17
0.010	88.89	0.30	86.73	86.69
0.015	82.56	0.47	136.16	136.08
0.020	76.21	0.63	185.77	185.67
0.025	70.08	0.80	233.58	233.46
0.030	64.37	0.95	278.21	278.06
0.035	59.17	1.09	318.76	318.59
0.040	54.56	1.21	354.78	354.59
0.045	50.54	1.32	386.15	385.95
0.050	47.10	1.41	413.02	412.80
0.055	44.19	1.49	435.74	435.51
0.060	41.74	1.55	454.82	454.57
0.065	39.69	1.61	470.83	470.57
0.070	37.95	1.66	484.41	484.15
0.075	36.45	1.70	496.19	495.92
0.080	35.09	1.73	506.76	506.48
0.085	33.82	1.77	516.65	516.37
0.090	32.59	1.80	526.30	526.02
0.095	31.34	1.83	536.05	535.76
0.100	30.05	1.87	546.12	545.82
0.105	28.71	1.90	556.60	556.30
0.110	27.31	1.94	567.49	567.19
0.115	25.88	1.98	578.66	578.35
0.120	24.44	2.02	589.89	589.57
0.125	23.04	2.05	600.87	600.54
0.130	21.71	2.09	611.26	610.93
0.135	20.50	2.12	620.70	620.36
0.140	19.45	2.15	628.84	628.51
0.145	18.61	2.17	635.43	635.09
0.150	17.99	2.19	640.30	639.96
0.155	17.58	2.20	643.48	643.14
0.160	17.35	2.21	645.24	644.89
0.165	17.24	2.21	646.16	645.81
0.170	17.10	2.21	647.19	646.84
0.175	16.77	2.22	649.77	649.42
0.180	15.99	2.24	655.90	655.55
0.185	14.41	2.28	668.22	667.86
0.190	11.60	2.36	690.13	689.76
0.195	7.02	2.48	725.89	725.49
0.200	0.00	2.67	780.73	780.31

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -10.50 HEAD(FT) = 4.50

FREE FLOW DISCH COEFF = 2.67

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	94.90	0.14	41.25	41.20
0.010	88.98	0.29	89.12	89.03
0.015	82.68	0.46	140.02	139.87
0.020	76.36	0.63	191.16	190.96
0.025	70.25	0.79	240.50	240.24
0.030	64.55	0.95	286.58	286.27
0.035	59.37	1.09	328.49	328.13
0.040	54.76	1.21	365.74	365.35
0.045	50.75	1.32	398.22	397.79
0.050	47.30	1.41	426.06	425.60
0.055	44.39	1.49	449.62	449.14
0.060	41.94	1.55	469.43	468.92
0.065	39.88	1.61	486.07	485.55
0.070	38.13	1.65	500.20	499.66
0.075	36.61	1.69	512.46	511.91
0.080	35.25	1.73	523.46	522.89
0.085	33.98	1.76	533.74	533.17
0.090	32.74	1.80	543.77	543.18
0.095	31.49	1.83	553.88	553.29
0.100	30.20	1.86	564.31	563.70
0.105	28.86	1.90	575.16	574.54
0.110	27.47	1.94	586.42	585.79
0.115	26.04	1.98	597.96	597.32
0.120	24.61	2.01	609.55	608.89
0.125	23.20	2.05	620.8[illegible]	620.22
0.130	21.88	2.09	631.62	630.94
0.135	20.67	2.12	641.37	640.68
0.140	19.63	2.15	649.81	649.11
0.145	18.78	2.17	656.64	655.94
0.150	18.15	2.19	661.73	661.02
0.155	17.74	2.20	665.09	664.37
0.160	17.50	2.20	667.00	666.29
0.165	17.37	2.21	668.07	667.36
0.170	17.22	2.21	669.29	668.57
0.175	16.86	2.22	672.14	671.42
0.180	16.06	2.24	678.67	677.94
0.185	14.46	2.29	691.61	690.87
0.190	11.63	2.36	714.47	713.70
0.195	7.03	2.48	751.62	750.82
0.200	0.00	2.67	808.48	807.61

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -10.40 HEAD(FT) = 4.60

FREE FLOW DISCH COEFF = 2.68

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	94.94	0.14	42.30	42.24
0.010	89.06	0.29	91.50	91.36
0.015	82.80	0.46	143.88	143.65
0.020	76.50	0.63	196.57	196.26
0.025	70.43	0.79	247.43	247.04
0.030	64.74	0.94	294.98	294.51
0.035	59.57	1.08	338.26	337.73
0.040	54.97	1.20	376.77	376.17
0.045	50.95	1.31	410.36	409.71
0.050	47.51	1.40	439.18	438.49
0.055	44.59	1.48	463.61	462.88
0.060	42.13	1.55	484.16	483.39
0.065	40.06	1.60	501.45	500.65
0.070	38.31	1.65	516.13	515.31
0.075	36.78	1.69	528.88	528.04
0.080	35.42	1.73	540.32	539.47
0.085	34.14	1.76	551.01	550.14
0.090	32.90	1.80	561.42	560.53
0.095	31.64	1.83	571.90	571.00
0.100	30.35	1.86	582.70	581.78
0.105	29.01	1.90	593.92	592.98
0.110	27.62	1.94	605.55	604.59
0.115	26.20	1.97	617.46	616.48
0.120	24.77	2.01	629.42	628.42
0.125	23.37	2.05	641.12	640.10
0.130	22.05	2.09	652.19	651.16
0.135	20.84	2.12	662.27	661.22
0.140	19.80	2.15	670.99	669.93
0.145	18.95	2.17	678.08	677.01
0.150	18.32	2.19	683.39	682.30
0.155	17.89	2.20	686.93	685.85
0.160	17.64	2.20	689.01	687.92
0.165	17.50	2.21	690.25	689.16
0.170	17.33	2.21	691.67	690.57
0.175	16.95	2.22	694.79	693.69
0.180	16.12	2.24	701.74	700.63
0.185	14.50	2.29	715.32	714.19
0.190	11.65	2.36	739.14	737.97
0.195	7.04	2.49	777.73	776.50
0.200	0.00	2.68	836.63	835.30

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -10.20 HEAD(FT) = 4.80

FREE FLOW DISCH COEFF = 2.68

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	95.03	0.13	44.40	44.28
0.010	89.24	0.29	96.25	96.01
0.015	83.04	0.45	151.61	151.22
0.020	76.80	0.62	207.40	206.88
0.025	70.77	0.78	261.37	260.70
0.030	65.12	0.94	311.89	311.10
0.035	59.97	1.07	357.96	357.05
0.040	55.37	1.20	399.01	397.99
0.045	51.36	1.30	434.88	433.78
0.050	47.91	1.40	465.72	464.54
0.055	44.98	1.48	491.91	490.66
0.060	42.51	1.54	513.99	512.69
0.065	40.43	1.60	532.60	531.25
0.070	38.66	1.65	548.44	547.05
0.075	37.12	1.69	562.20	560.77
0.080	35.74	1.72	574.55	573.09
0.085	34.45	1.76	586.07	584.58
0.090	33.20	1.79	597.26	595.75
0.095	31.94	1.83	608.51	606.96
0.100	30.65	1.86	620.06	618.48
0.105	29.31	1.90	632.03	630.42
0.110	27.93	1.93	644.41	642.78
0.115	26.51	1.97	657.08	655.41
0.120	25.09	2.01	669.78	668.08
0.125	23.70	2.05	682.21	680.48
0.130	22.38	2.08	693.99	692.23
0.135	21.18	2.11	704.72	702.93
0.140	20.14	2.14	714.03	712.22
0.145	19.29	2.16	721.65	719.81
0.150	18.65	2.18	727.40	725.55
0.155	18.21	2.19	731.34	729.48
0.160	17.93	2.20	733.77	731.91
0.165	17.76	2.21	735.37	733.50
0.170	17.55	2.21	737.21	735.34
0.175	17.13	2.22	740.93	739.05
0.180	16.26	2.25	748.76	746.86
0.185	14.59	2.29	763.69	761.75
0.190	11.70	2.37	789.52	787.52
0.195	7.06	2.49	831.04	828.93
0.200	0.	2.68	894.13	891.86

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -10.00 HEAD(FT) = 5.00

FREE FLOW DISCH COEFF = 2.69

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	95.13	0.13	46.46	46.30
0.010	89.41	0.28	100.97	100.63
0.015	83.29	0.45	159.32	158.78
0.020	77.10	0.62	218.26	217.52
0.025	71.11	0.78	275.37	274.42
0.030	65.49	0.93	328.92	327.80
0.035	60.36	1.07	377.83	376.53
0.040	55.78	1.19	421.48	420.04
0.045	51.77	1.30	459.70	458.13
0.050	48.32	1.39	492.62	490.94
0.055	45.38	1.47	520.63	518.85
0.060	42.90	1.54	544.29	542.43
0.065	40.80	1.59	564.28	562.35
0.070	39.02	1.64	581.31	579.33
0.075	37.46	1.68	596.13	594.09
0.080	36.07	1.72	609.42	607.34
0.085	34.77	1.75	621.81	619.69
0.090	33.51	1.79	633.82	631.65
0.095	32.25	1.82	645.85	643.64
0.100	30.95	1.86	658.17	655.92
0.105	29.62	1.89	670.91	668.62
0.110	28.24	1.93	684.07	681.73
0.115	26.83	1.97	697.50	695.12
0.120	25.41	2.01	710.97	708.54
0.125	24.03	2.04	724.15	721.67
0.130	22.72	2.08	736.63	734.12
0.135	21.53	2.11	748.03	745.47
0.140	20.49	2.14	757.95	755.36
0.145	19.63	2.16	766.10	763.48
0.150	18.98	2.18	772.33	769.69
0.155	18.52	2.19	776.69	774.03
0.160	18.22	2.20	779.51	776.84
0.165	18.02	2.21	781.50	778.83
0.170	17.77	2.21	783.82	781.14
0.175	17.31	2.22	788.19	785.49
0.180	16.39	2.25	796.97	794.25
0.185	14.68	2.29	813.32	810.54
0.190	11.75	2.37	841.25	838.38
0.195	7.07	2.50	885.82	882.80
0.200	0.	2.69	953.23	949.97

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -9.80 HEAD(FT) = 5.20

FREE FLOW DISCH COEFF = 2.70

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	95.22	0.13	48.49	48.29
0.010	89.58	0.28	105.65	105.21
0.015	83.53	0.44	167.02	166.31
0.020	77.40	0.61	229.13	228.16
0.025	71.46	0.77	289.42	288.19
0.030	65.87	0.92	346.06	344.59
0.035	60.76	1.06	397.86	396.17
0.040	56.19	1.18	444.18	442.30
0.045	52.19	1.29	484.80	482.75
0.050	48.73	1.38	519.86	517.66
0.055	45.78	1.46	549.75	547.43
0.060	43.29	1.53	575.05	572.62
0.065	41.17	1.59	596.46	593.94
0.070	39.37	1.64	614.74	612.14
0.075	37.80	1.68	630.66	627.99
0.080	36.39	1.72	644.93	642.21
0.085	35.08	1.75	658.22	655.44
0.090	33.81	1.79	671.08	668.24
0.095	32.55	1.82	683.92	681.03
0.100	31.25	1.85	697.03	694.09
0.105	29.92	1.89	710.56	707.56
0.110	28.55	1.93	724.51	721.44
0.115	27.14	1.97	738.73	735.60
0.120	25.74	2.00	752.97	749.79
0.125	24.36	2.04	766.90	763.66
0.130	23.06	2.08	780.11	776.81
0.135	21.87	2.11	792.18	788.83
0.140	20.83	2.14	802.73	799.33
0.145	19.97	2.16	811.44	808.01
0.150	19.31	2.18	818.17	814.71
0.155	18.83	2.19	822.97	819.49
0.160	18.51	2.20	826.21	822.71
0.165	18.28	2.20	828.63	825.13
0.170	17.99	2.21	831.48	827.96
0.175	17.49	2.23	836.55	833.02
0.180	16.53	2.25	846.36	842.78
0.185	14.77	2.30	864.21	860.55
0.190	11.80	2.38	894.34	890.56
0.195	7.09	2.51	942.08	938.09
0.200	0.	2.70	1013.93	1009.65

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70
CCD ELEV = -9.60 HEAD(FT) = 5.40
FREE FLOW DISCH COEFF = 2.71

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	95.31	0.13	50.49	50.24
0.010	89.75	0.28	110.29	109.74
0.015	83.77	0.44	174.68	173.81
0.020	77.70	0.60	240.00	238.80
0.025	71.80	0.76	303.51	302.00
0.030	66.25	0.91	363.27	361.47
0.035	61.16	1.05	418.03	415.95
0.040	56.60	1.17	467.07	464.75
0.045	52.60	1.28	510.16	507.62
0.050	49.14	1.38	547.42	544.70
0.055	46.18	1.46	579.25	576.37
0.060	43.67	1.52	606.25	603.23
0.065	41.54	1.58	629.14	626.01
0.070	39.72	1.63	648.71	645.48
0.075	38.14	1.67	665.77	662.45
0.080	36.72	1.71	681.07	677.68
0.085	35.40	1.75	695.29	691.83
0.090	34.12	1.78	709.02	705.49
0.095	32.85	1.82	722.70	719.10
0.100	31.56	1.85	736.63	732.96
0.105	30.22	1.89	750.97	747.23
0.110	28.85	1.92	765.71	761.90
0.115	27.46	1.96	780.73	776.84
0.120	26.06	2.00	795.77	791.80
0.125	24.70	2.04	810.46	806.43
0.130	23.40	2.07	824.41	820.31
0.135	22.21	2.10	837.18	833.01
0.140	21.17	2.13	848.36	844.14
0.145	20.31	2.16	857.65	853.38
0.150	19.64	2.17	864.89	860.59
0.155	19.15	2.19	870.17	865.83
0.160	18.81	2.20	873.86	869.51
0.165	18.53	2.20	876.77	872.40
0.170	18.22	2.21	880.19	875.80
0.175	17.67	2.23	886.03	881.62
0.180	16.66	2.25	896.93	892.46
0.185	14.86	2.30	916.36	911.80
0.190	11.84	2.39	948.79	944.07
0.195	7.10	2.51	999.81	994.83
0.200	0.	2.71	1076.25	1070.89

SILL LENGTH = 9.50 SILL WIDTH = 31.70
CCD ELEV = -9.50 HEAD(FT) = 5.50
FREE FLOW DISCH COEFF = 2.71

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	95.35	0.13	51.48	51.20
0.010	89.84	0.28	112.59	111.99
0.015	83.89	0.44	178.49	177.54
0.020	77.85	0.60	245.42	244.11
0.025	71.97	0.76	310.56	308.91
0.030	66.43	0.91	371.91	369.93
0.035	61.36	1.05	428.17	425.88
0.040	56.81	1.17	478.59	476.04
0.045	52.80	1.28	522.94	520.15
0.050	49.34	1.37	561.32	558.32
0.055	46.38	1.45	594.14	590.97
0.060	43.86	1.52	622.01	618.69
0.065	41.73	1.58	645.66	642.21
0.070	39.90	1.63	665.90	662.34
0.075	38.31	1.67	683.54	679.89
0.080	36.88	1.71	699.36	695.63
0.085	35.55	1.75	714.07	710.26
0.090	34.27	1.78	728.25	724.36
0.095	33.00	1.82	742.35	738.39
0.100	31.71	1.85	756.70	752.67
0.105	30.38	1.89	771.45	767.34
0.110	29.01	1.92	786.60	782.41
0.115	27.62	1.96	802.03	797.75
0.120	26.22	2.00	817.46	813.10
0.125	24.86	2.04	832.55	828.10
0.130	23.57	2.07	846.87	842.35
0.135	22.38	2.10	859.98	855.39
0.140	21.35	2.13	871.49	866.84
0.145	20.48	2.15	881.08	876.38
0.150	19.80	2.17	888.59	883.85
0.155	19.31	2.19	894.11	889.34
0.160	18.95	2.20	898.04	893.25
0.165	18.66	2.20	901.20	896.39
0.170	18.33	2.21	904.93	900.10
0.175	17.76	2.23	911.18	906.32
0.180	16.73	2.26	922.65	917.73
0.185	14.90	2.31	942.91	937.88
0.190	11.87	2.39	976.53	971.32
0.195	7.11	2.52	1029.23	1023.73
0.200	0.	2.71	1108.01	1102.10

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -9.40 HEAD(FT) = 5.60

FREE FLOW DISCH COEFF = 2.71

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	95.40	0.12	52.45	52.16
0.010	89.92	0.27	114.88	114.23
0.015	84.01	0.43	182.30	181.26
0.020	78.00	0.60	250.84	249.42
0.025	72.14	0.76	317.62	315.82
0.030	66.62	0.91	380.56	378.40
0.035	61.56	1.04	438.33	435.84
0.040	57.01	1.17	490.16	487.37
0.045	53.01	1.28	535.77	532.73
0.050	49.54	1.37	575.29	572.02
0.055	46.58	1.45	609.12	605.66
0.060	44.06	1.52	637.87	634.25
0.065	41.91	1.58	662.29	658.53
0.070	40.08	1.63	683.21	679.33
0.075	38.48	1.67	701.45	697.47
0.080	37.04	1.71	717.81	713.74
0.085	35.71	1.74	733.01	728.85
0.090	34.43	1.78	747.64	743.40
0.095	33.15	1.81	762.18	757.86
0.100	31.86	1.85	776.95	772.54
0.105	30.53	1.89	792.12	787.62
0.110	29.16	1.92	807.68	803.10
0.115	27.77	1.96	823.51	818.84
0.120	26.38	2.00	839.35	834.58
0.125	25.03	2.03	854.82	849.97
0.130	23.74	2.07	869.52	864.58
0.135	22.56	2.10	882.99	877.98
0.140	21.52	2.13	894.83	889.75
0.145	20.65	2.15	904.72	899.58
0.150	19.97	2.17	912.50	907.32
0.155	19.46	2.19	918.28	913.06
0.160	19.10	2.20	922.46	917.22
0.165	18.79	2.20	925.88	920.63
0.170	18.44	2.21	929.93	924.65
0.175	17.85	2.23	936.60	931.28
0.180	16.80	2.26	948.66	943.28
0.185	14.95	2.31	969.77	964.27
0.190	11.89	2.39	1004.60	998.90
0.195	7.12	2.52	1059.01	1053.00
0.200	0.00	2.71	1140.18	1133.70

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -9.20 HEAD(FT) = 5.80

FREE FLOW DISCH COEFF = 2.72

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	95.49	0.12	54.37	54.03
0.010	90.10	0.27	119.41	118.65
0.015	84.25	0.43	189.86	188.66
0.020	78.30	0.59	261.66	260.00
0.025	72.49	0.75	331.74	329.64
0.030	67.00	0.90	397.91	395.39
0.035	61.95	1.04	458.73	455.83
0.040	57.42	1.16	513.40	510.16
0.045	53.42	1.27	561.61	558.05
0.050	49.95	1.36	603.45	599.63
0.055	46.98	1.44	639.33	635.29
0.060	44.44	1.51	669.89	665.65
0.065	42.28	1.57	695.90	691.50
0.070	40.43	1.62	718.21	713.67
0.075	38.82	1.67	737.69	733.02
0.080	37.37	1.71	755.15	750.38
0.085	36.03	1.74	771.36	766.48
0.090	34.73	1.78	786.93	781.95
0.095	33.45	1.81	802.36	797.28
0.100	32.16	1.85	817.99	812.82
0.105	30.83	1.88	834.00	828.72
0.110	29.47	1.92	850.40	845.02
0.115	28.09	1.96	867.05	861.57
0.120	26.71	2.00	883.70	878.11
0.125	25.36	2.03	899.97	894.28
0.130	24.08	2.07	915.43	909.63
0.135	22.90	2.10	929.62	923.74
0.140	21.86	2.13	942.12	936.16
0.145	20.99	2.15	952.63	946.60
0.150	20.30	2.17	960.98	954.90
0.155	19.78	2.18	967.28	961.16
0.160	19.39	2.20	971.99	965.84
0.165	19.05	2.20	975.98	969.81
0.170	18.66	2.21	980.71	974.50
0.175	18.03	2.23	988.27	982.02
0.180	16.93	2.26	1001.58	995.24
0.185	15.03	2.31	1024.45	1017.97
0.190	11.94	2.40	1061.78	1055.07
0.195	7.13	2.53	1119.71	1112.62
0.200	0.	2.72	1205.72	1198.10

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70
CCD ELEV = -9.00 HEAD(FT) = 6.00
FREE FLOW DISCH COEFF = 2.73

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	95.58	0.12	56.24	55.85
0.010	90.27	0.27	123.86	123.01
0.015	84.50	0.42	197.36	195.99
0.020	78.60	0.58	272.43	270.54
0.025	72.83	0.74	345.84	343.45
0.030	67.37	0.89	415.29	412.41
0.035	62.35	1.03	479.23	475.91
0.040	57.83	1.15	536.80	533.08
0.045	53.83	1.26	587.65	583.58
0.050	50.36	1.36	631.88	627.50
0.055	47.37	1.44	669.88	665.24
0.060	44.83	1.51	702.31	697.44
0.065	42.65	1.57	729.96	724.90
0.070	40.79	1.62	753.72	748.49
0.075	39.16	1.66	774.47	769.10
0.080	37.69	1.70	793.08	787.59
0.085	36.34	1.74	810.33	804.71
0.090	35.04	1.77	826.86	821.13
0.095	33.76	1.81	843.21	837.37
0.100	32.46	1.85	859.73	853.77
0.105	31.13	1.88	876.60	870.52
0.110	29.78	1.92	893.85	887.65
0.115	28.40	1.96	911.34	905.03
0.120	27.03	1.99	928.82	922.38
0.125	25.69	2.03	945.89	939.33
0.130	24.42	2.07	962.11	955.44
0.135	23.24	2.10	977.04	970.26
0.140	22.21	2.13	990.23	983.37
0.145	21.33	2.15	1001.37	994.43
0.150	20.63	2.17	1010.31	1003.31
0.155	20.09	2.18	1017.17	1010.12
0.160	19.68	2.19	1022.44	1015.35
0.165	19.31	2.20	1027.05	1019.93
0.170	18.88	2.22	1032.51	1025.35
0.175	18.22	2.23	1041.04	1033.82
0.180	17.07	2.27	1055.66	1048.34
0.185	15.12	2.32	1080.38	1072.90
0.190	11.99	2.40	1120.33	1112.56
0.195	7.15	2.54	1181.89	1173.69
0.200	0.	2.73	1272.89	1264.07

SILL LENGTH = 9.50 SILL WIDTH = 31.70
CCD ELEV = -8.80 HEAD(FT) = 6.20
FREE FLOW DISCH COEFF = 2.74

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	95.62	0.12	58.71	58.27
0.010	90.35	0.26	129.45	128.48
0.015	84.61	0.42	206.43	204.88
0.020	78.75	0.58	285.14	283.01
0.025	73.00	0.74	362.20	359.48
0.030	67.57	0.89	435.15	431.89
0.035	62.56	1.03	502.39	498.62
0.040	58.04	1.15	562.99	558.76
0.045	54.05	1.26	616.57	611.94
0.050	50.57	1.36	663.21	658.23
0.055	47.58	1.44	703.33	698.05
0.060	45.03	1.51	737.59	732.06
0.065	42.85	1.57	766.83	761.08
0.070	40.97	1.62	791.95	786.01
0.075	39.34	1.66	813.88	807.78
0.080	37.87	1.70	833.53	827.28
0.085	36.52	1.74	851.70	845.31
0.090	35.22	1.78	869.09	862.57
0.095	33.95	1.81	886.23	879.59
0.100	32.66	1.85	903.52	896.74
0.105	31.34	1.88	921.14	914.24
0.110	30.00	1.92	939.14	932.10
0.115	28.64	1.96	957.39	950.21
0.120	27.29	1.99	975.60	968.29
0.125	25.96	2.03	993.41	985.96
0.130	24.70	2.06	1010.36	1002.78
0.135	23.53	2.10	1025.98	1018.28
0.140	22.50	2.12	1039.83	1032.03
0.145	21.62	2.15	1051.59	1043.70
0.150	20.91	2.17	1061.11	1053.16
0.155	20.36	2.18	1068.55	1060.53
0.160	19.92	2.20	1074.39	1066.33
0.165	19.53	2.21	1079.63	1071.54
0.170	19.07	2.22	1085.85	1077.71
0.175	18.36	2.24	1095.36	1087.15
0.180	17.17	2.27	1111.33	1103.00
0.185	15.19	2.33	1137.93	1129.40
0.190	12.01	2.41	1180.50	1171.65
0.195	7.15	2.55	1245.70	1236.36
0.200	0.	2.74	1341.69	1331.63

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70
CCD ELEV = -8.60 HEAD(FT) = 6.40
FREE FLOW DISCH COEFF = 2.75

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	95.67	0.12	61.19	60.70
0.010	90.43	0.26	135.07	133.99
0.015	84.73	0.42	215.58	213.85
0.020	78.90	0.58	298.00	295.60
0.025	73.18	0.74	378.74	375.70
0.030	67.76	0.89	455.27	451.62
0.035	62.76	1.02	525.87	521.65
0.040	58.25	1.15	589.56	584.83
0.045	54.26	1.26	645.93	640.75
0.050	50.78	1.35	695.05	689.47
0.055	47.78	1.44	737.34	731.42
0.060	45.22	1.51	773.50	767.29
0.065	43.04	1.57	804.36	797.90
0.070	41.16	1.62	830.88	824.21
0.075	39.52	1.66	854.03	847.17
0.080	38.05	1.70	874.74	867.72
0.085	36.70	1.74	893.86	886.68
0.090	35.41	1.78	912.11	904.79
0.095	34.14	1.81	930.07	922.60
0.100	32.86	1.85	948.13	940.52
0.105	31.56	1.88	966.51	958.75
0.110	30.23	1.92	985.27	977.36
0.115	28.88	1.96	1004.26	996.20
0.120	27.54	1.99	1023.22	1015.01
0.125	26.23	2.03	1041.77	1033.41
0.130	24.98	2.06	1059.44	1050.94
0.135	23.82	2.10	1075.76	1067.12
0.140	22.79	2.12	1090.28	1081.53
0.145	21.91	2.15	1102.68	1093.83
0.150	21.20	2.17	1112.82	1103.88
0.155	20.63	2.18	1120.85	1111.85
0.160	20.17	2.20	1127.30	1118.25
0.165	19.75	2.21	1133.22	1124.13
0.170	19.25	2.22	1140.26	1131.11
0.175	18.50	2.24	1150.82	1141.58
0.180	17.27	2.28	1168.22	1158.84
0.185	15.25	2.33	1196.78	1187.17
0.190	12.04	2.42	1242.07	1232.09
0.195	7.16	2.55	1311.02	1300.49
0.200	0.	2.75	1412.13	1400.79

SILL LENGTH = 9.50 SILL WIDTH = 31.70
CCD ELEV = -8.50 HEAD(FT) = 6.50
FREE FLOW DISCH COEFF = 2.76

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	95.69	0.12	62.44	61.92
0.010	90.48	0.26	137.90	136.76
0.015	84.79	0.42	220.19	218.37
0.020	78.97	0.58	304.47	301.95
0.025	73.27	0.74	387.09	383.89
0.030	67.86	0.89	465.43	461.58
0.035	62.86	1.02	537.74	533.28
0.040	58.36	1.15	602.99	598.00
0.045	54.36	1.26	660.78	655.31
0.050	50.88	1.35	711.16	705.27
0.055	47.89	1.44	754.56	748.31
0.060	45.32	1.51	791.68	785.12
0.065	43.14	1.57	823.37	816.55
0.070	41.25	1.62	850.61	843.56
0.075	39.61	1.66	874.38	867.14
0.080	38.15	1.70	895.63	888.21
0.085	36.79	1.74	915.23	907.65
0.090	35.50	1.78	933.92	926.19
0.095	34.23	1.81	952.29	944.40
0.100	32.96	1.85	970.74	962.70
0.105	31.66	1.88	989.51	981.31
0.110	30.34	1.92	1008.64	1000.28
0.115	29.00	1.96	1028.01	1019.49
0.120	27.67	1.99	1047.34	1038.67
0.125	26.36	2.03	1066.26	1057.43
0.130	25.12	2.06	1084.30	1075.32
0.135	23.96	2.10	1100.97	1091.85
0.140	22.94	2.12	1115.83	1106.59
0.145	22.06	2.15	1128.55	1119.20
0.150	21.34	2.17	1139.00	1129.57
0.155	20.76	2.18	1147.34	1137.84
0.160	20.29	2.20	1154.12	1144.56
0.165	19.86	2.21	1160.40	1150.79
0.170	19.34	2.22	1167.86	1158.19
0.175	18.58	2.24	1178.98	1169.21
0.180	17.32	2.28	1197.11	1187.19
0.185	15.28	2.34	1226.69	1216.53
0.190	12.06	2.42	1273.37	1262.83
0.195	7.16	2.56	1344.24	1333.11
0.200	0.	2.76	1447.95	1435.96

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70
CCD ELEV = -8.40 HEAD(FT) = 6.60
FREE FLOW DISCH COEFF = 2.76

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	95.71	0.12	63.69	63.14
0.010	90.52	0.26	140.74	139.54
0.015	84.85	0.42	224.82	222.90
0.020	79.05	0.58	310.98	308.33
0.025	73.35	0.74	395.49	392.11
0.030	67.95	0.88	475.65	471.59
0.035	62.96	1.02	549.68	544.99
0.040	58.46	1.15	616.52	611.26
0.045	54.47	1.26	675.74	669.98
0.050	50.99	1.35	727.40	721.20
0.055	47.99	1.44	771.92	765.34
0.060	45.42	1.51	810.01	803.10
0.065	43.23	1.57	842.55	835.36
0.070	41.35	1.62	870.51	863.09
0.075	39.70	1.66	894.91	887.28
0.080	38.24	1.71	916.71	908.89
0.085	36.88	1.74	936.80	928.81
0.090	35.59	1.78	955.93	947.78
0.095	34.33	1.81	974.71	966.40
0.100	33.06	1.85	993.55	985.08
0.105	31.77	1.88	1012.70	1004.07
0.110	30.45	1.92	1032.21	1023.41
0.115	29.12	1.96	1051.96	1042.99
0.120	27.79	1.99	1071.67	1062.53
0.125	26.49	2.03	1090.96	1081.65
0.130	25.26	2.06	1109.36	1099.90
0.135	24.11	2.10	1126.38	1116.78
0.140	23.08	2.12	1141.58	1131.85
0.145	22.20	2.15	1154.64	1144.79
0.150	21.48	2.17	1165.41	1155.47
0.155	20.90	2.18	1174.06	1164.05
0.160	20.42	2.20	1181.17	1171.10
0.165	19.97	2.21	1187.82	1177.69
0.170	19.44	2.22	1195.73	1185.53
0.175	18.65	2.25	1207.41	1197.12
0.180	17.38	2.28	1226.30	1215.84
0.185	15.31	2.34	1256.92	1246.20
0.190	12.07	2.43	1305.03	1293.98
0.195	7.17	2.56	1377.85	1366.10
0.200	0.00	2.76	1484.19	1471.54

SILL LENGTH = 9.50 SILL WIDTH = 31.70
CCD ELEV = -8.20 HEAD(FT) = 6.80
FREE FLOW DISCH COEFF = 2.77

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	95.75	0.12	66.19	65.59
0.010	90.60	0.26	146.44	145.12
0.015	84.97	0.42	234.13	232.02
0.020	79.20	0.58	324.09	321.17
0.025	73.53	0.73	412.41	408.70
0.030	68.14	0.88	496.27	491.81
0.035	63.17	1.02	573.79	568.63
0.040	58.67	1.15	643.86	638.06
0.045	54.68	1.26	706.00	699.64
0.050	51.20	1.35	760.25	753.41
0.055	48.20	1.44	807.06	799.80
0.060	45.62	1.51	847.13	839.51
0.065	43.42	1.57	881.39	873.46
0.070	41.53	1.62	910.83	902.64
0.075	39.89	1.67	936.51	928.08
0.080	38.42	1.71	959.43	950.80
0.085	37.06	1.74	980.51	971.69
0.090	35.78	1.78	1000.54	991.54
0.095	34.52	1.81	1020.15	1010.97
0.100	33.26	1.85	1039.79	1030.43
0.105	31.98	1.89	1059.71	1050.17
0.110	30.68	1.92	1079.97	1070.25
0.115	29.36	1.96	1100.47	1090.57
0.120	28.05	1.99	1120.93	1110.84
0.125	26.76	2.03	1140.96	1130.69
0.130	25.54	2.06	1160.09	1149.65
0.135	24.40	2.10	1177.83	1167.23
0.140	23.38	2.12	1193.72	1182.98
0.145	22.50	2.15	1207.45	1196.58
0.150	21.76	2.17	1218.87	1207.91
0.155	21.16	2.18	1228.19	1217.14
0.160	20.66	2.20	1235.99	1224.87
0.165	20.19	2.21	1243.41	1232.22
0.170	19.62	2.23	1252.26	1240.99
0.175	18.79	2.25	1265.13	1253.75
0.180	17.48	2.29	1285.60	1274.03
0.185	15.38	2.35	1318.36	1306.50
0.190	12.10	2.44	1369.40	1357.08
0.195	7.17	2.57	1446.20	1433.19
0.200	0.	2.77	1557.91	1543.89

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -8.00 HEAD(FT) = 7.00

FREE FLOW DISCH COEFF = 2.78

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	95.79	0.12	68.70	68.05
0.010	90.68	0.26	152.17	150.73
0.015	85.09	0.41	243.50	241.21
0.020	79.35	0.57	337.31	334.13
0.025	73.70	0.73	429.51	425.45
0.030	68.34	0.88	517.13	512.25
0.035	63.37	1.02	598.21	592.56
0.040	58.88	1.14	671.56	665.22
0.045	54.90	1.25	736.67	729.72
0.050	51.41	1.35	793.59	786.10
0.055	48.40	1.44	842.73	834.78
0.060	45.82	1.51	884.85	876.50
0.065	43.62	1.57	920.87	912.17
0.070	41.72	1.62	951.83	942.85
0.075	40.07	1.67	978.83	969.59
0.080	38.60	1.71	1002.89	993.43
0.085	37.24	1.75	1024.99	1015.31
0.090	35.96	1.78	1045.93	1036.06
0.095	34.71	1.82	1066.39	1056.32
0.100	33.46	1.85	1086.82	1076.56
0.105	32.19	1.89	1107.51	1097.06
0.110	30.90	1.92	1128.53	1117.88
0.115	29.60	1.96	1149.78	1138.93
0.120	28.30	1.99	1170.99	1159.94
0.125	27.03	2.03	1191.77	1180.52
0.130	25.82	2.06	1211.63	1200.19
0.135	24.69	2.10	1230.09	1218.48
0.140	23.67	2.12	1246.69	1234.92
0.145	22.79	2.15	1261.10	1249.19
0.150	22.05	2.17	1273.20	1261.19
0.155	21.43	2.19	1283.21	1271.10
0.160	20.91	2.20	1291.74	1279.55
0.165	20.41	2.21	1299.99	1287.72
0.170	19.80	2.23	1309.83	1297.46
0.175	18.94	2.26	1323.96	1311.46
0.180	17.58	2.29	1346.10	1333.39
0.185	15.44	2.35	1381.10	1368.06
0.190	12.13	2.44	1435.17	1421.63
0.195	7.18	2.58	1516.07	1501.76
0.200	0.	2.78	1633.26	1617.84

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -7.80 HEAD(FT) = 7.20

FREE FLOW DISCH COEFF = 2.79

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	95.84	0.12	71.21	70.51
0.010	90.77	0.26	157.92	156.37
0.015	85.21	0.41	252.95	250.45
0.020	79.50	0.57	350.65	347.20
0.025	73.88	0.73	446.77	442.37
0.030	68.53	0.88	538.22	532.91
0.035	63.58	1.02	622.91	616.77
0.040	59.09	1.14	699.61	692.72
0.045	55.11	1.25	767.77	760.21
0.050	51.62	1.35	827.41	819.25
0.055	48.61	1.44	878.95	870.29
0.060	46.02	1.51	923.16	914.06
0.065	43.81	1.57	960.98	951.51
0.070	41.91	1.62	993.51	983.72
0.075	40.25	1.67	1021.85	1011.78
0.080	38.78	1.71	1047.09	1036.77
0.085	37.42	1.75	1070.22	1059.67
0.090	36.14	1.78	1092.10	1081.33
0.095	34.90	1.82	1113.41	1102.43
0.100	33.66	1.85	1134.65	1123.46
0.105	32.40	1.89	1156.11	1144.72
0.110	31.13	1.92	1177.89	1166.28
0.115	29.84	1.96	1199.89	1188.07
0.120	28.56	2.00	1221.85	1209.81
0.125	27.30	2.03	1243.37	1231.11
0.130	26.10	2.06	1263.97	1251.51
0.135	24.97	2.10	1283.15	1270.50
0.140	23.96	2.12	1300.46	1287.64
0.145	23.08	2.15	1315.58	1302.61
0.150	22.33	2.17	1328.39	1315.29
0.155	21.70	2.19	1339.11	1325.91
0.160	21.16	2.20	1348.42	1335.13
0.165	20.62	2.22	1357.55	1344.17
0.170	19.99	2.23	1368.44	1354.95
0.175	19.08	2.26	1383.91	1370.27
0.180	17.69	2.30	1407.79	1393.92
0.185	15.50	2.36	1445.13	1430.89
0.190	12.16	2.45	1502.35	1487.54
0.195	7.18	2.59	1587.46	1571.81
0.200	0.00	2.79	1710.26	1693.41

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -7.60 HEAD(FT) = 7.40

FREE FLOW DISCH COEFF = 2.80

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	95.88	0.12	73.73	72.97
0.010	90.85	0.26	163.70	162.03
0.015	85.33	0.41	262.45	259.76
0.020	79.65	0.57	364.10	360.36
0.025	74.05	0.73	464.20	459.44
0.030	68.72	0.88	559.53	553.79
0.035	63.78	1.02	647.90	641.26
0.040	59.30	1.14	728.01	720.55
0.045	55.32	1.25	799.28	791.09
0.050	51.83	1.35	861.70	852.86
0.055	48.81	1.43	915.69	906.31
0.060	46.22	1.51	962.04	952.18
0.065	44.00	1.57	1001.73	991.46
0.070	42.10	1.62	1035.86	1025.24
0.075	40.43	1.67	1065.58	1054.66
0.080	38.96	1.71	1092.02	1080.83
0.085	37.60	1.75	1116.21	1104.77
0.090	36.33	1.78	1139.03	1127.35
0.095	35.09	1.82	1161.21	1149.30
0.100	33.86	1.85	1183.26	1171.13
0.105	32.61	1.89	1205.50	1193.14
0.110	31.35	1.92	1228.04	1215.45
0.115	30.08	1.96	1250.79	1237.97
0.120	28.81	2.00	1273.49	1260.43
0.125	27.57	2.03	1295.75	1282.46
0.130	26.38	2.06	1317.09	1303.58
0.135	25.26	2.10	1337.00	1323.29
0.140	24.25	2.12	1355.04	1341.15
0.145	23.37	2.15	1370.87	1356.82
0.150	22.61	2.17	1384.41	1370.22
0.155	21.97	2.19	1395.89	1381.58
0.160	21.40	2.20	1406.02	1391.60
0.165	20.84	2.22	1416.08	1401.56
0.170	20.17	2.24	1428.09	1413.45
0.175	19.23	2.26	1444.97	1430.16
0.180	17.79	2.30	1470.69	1455.61
0.185	15.57	2.37	1510.47	1494.98
0.190	12.19	2.46	1570.93	1554.83
0.195	7.19	2.60	1660.37	1643.35
0.200	0.	2.80	1788.92	1770.58

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -7.50 HEAD(FT) = 7.50

FREE FLOW DISCH COEFF = 2.81

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	95.90	0.12	74.99	74.20
0.010	90.89	0.26	166.60	164.86
0.015	85.39	0.41	267.22	264.43
0.020	79.72	0.57	370.86	366.98
0.025	74.14	0.73	472.97	468.03
0.030	68.82	0.88	570.26	564.31
0.035	63.88	1.01	660.50	653.60
0.040	59.41	1.14	742.34	734.59
0.045	55.43	1.25	815.19	806.68
0.050	51.94	1.35	879.01	869.83
0.055	48.92	1.43	934.26	924.50
0.060	46.32	1.51	981.70	971.45
0.065	44.10	1.57	1022.33	1011.66
0.070	42.19	1.62	1057.28	1046.24
0.075	40.53	1.67	1087.71	1076.35
0.080	39.05	1.71	1114.76	1103.12
0.085	37.69	1.75	1139.48	1127.58
0.090	36.42	1.79	1162.78	1150.64
0.095	35.18	1.82	1185.39	1173.02
0.100	33.96	1.86	1207.85	1195.24
0.105	32.72	1.89	1230.49	1217.64
0.110	31.47	1.93	1253.40	1240.32
0.115	30.20	1.96	1276.53	1263.20
0.120	28.94	2.00	1299.60	1286.03
0.125	27.70	2.03	1322.23	1308.42
0.130	26.52	2.06	1343.93	1329.90
0.135	25.41	2.10	1364.22	1349.97
0.140	24.40	2.12	1382.62	1368.18
0.145	23.51	2.15	1398.82	1384.22
0.150	22.75	2.17	1412.73	1397.98
0.155	22.10	2.19	1424.61	1409.73
0.160	21.53	2.20	1435.16	1420.17
0.165	20.95	2.22	1445.70	1430.61
0.170	20.26	2.24	1458.30	1443.07
0.175	19.30	2.27	1475.92	1460.50
0.180	17.84	2.31	1502.59	1486.90
0.185	15.60	2.37	1543.62	1527.50
0.190	12.20	2.47	1605.75	1588.98
0.195	7.19	2.61	1697.40	1679.68
0.200	0.	2.81	1828.87	1809.77

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -7.40 HEAD(FT) = 7.60

FREE FLOW DISCH COEFF = 2.81

HD/HI	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	95.92	0.11	76.24	75.43
0.010	90.93	0.26	169.50	167.70
0.015	85.45	0.41	272.00	269.11
0.020	79.80	0.57	377.64	373.62
0.025	74.23	0.73	481.77	476.65
0.030	68.92	0.87	581.05	574.87
0.035	63.99	1.01	673.16	666.01
0.040	59.52	1.14	756.75	748.71
0.045	55.53	1.25	831.19	822.36
0.050	52.04	1.35	896.44	886.92
0.055	49.02	1.43	952.95	942.83
0.060	46.42	1.51	1001.50	990.86
0.065	44.20	1.57	1043.09	1032.00
0.070	42.28	1.62	1078.86	1067.40
0.075	40.62	1.67	1110.01	1098.21
0.080	39.14	1.71	1137.68	1125.59
0.085	37.78	1.75	1162.94	1150.58
0.090	36.51	1.79	1186.72	1174.11
0.095	35.28	1.82	1209.77	1196.92
0.100	34.06	1.86	1232.64	1219.54
0.105	32.82	1.89	1255.66	1242.32
0.110	31.58	1.93	1278.96	1265.37
0.115	30.32	1.96	1302.46	1288.62
0.120	29.07	2.00	1325.90	1311.81
0.125	27.84	2.03	1348.90	1334.56
0.130	26.66	2.06	1370.98	1356.41
0.135	25.55	2.10	1391.63	1376.84
0.140	24.55	2.12	1410.40	1395.41
0.145	23.66	2.15	1426.97	1411.81
0.150	22.90	2.17	1441.26	1425.95
0.155	22.24	2.19	1453.53	1438.09
0.160	21.65	2.21	1464.52	1448.96
0.165	21.06	2.22	1476.56	1459.88
0.170	20.35	2.24	1488.76	1472.94
0.175	19.37	2.27	1507.13	1491.12
0.180	17.89	2.31	1534.78	1518.47
0.185	15.63	2.37	1577.09	1560.33
0.190	12.21	2.47	1640.92	1623.48
0.195	7.19	2.61	1734.81	1716.38
0.200	0.00	2.81	1869.22	1849.36

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -7.20 HEAD(FT) = 7.80

FREE FLOW DISCH COEFF = 2.83

HD/HI	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	95.96	0.11	78.76	77.90
0.010	91.01	0.25	175.32	173.40
0.015	85.57	0.41	281.60	278.51
0.020	79.95	0.57	391.27	386.97
0.025	74.40	0.72	499.49	494.01
0.030	69.11	0.87	602.76	596.14
0.035	64.19	1.01	698.69	691.02
0.040	59.73	1.14	785.82	777.19
0.045	55.75	1.25	863.49	854.01
0.050	52.25	1.35	931.65	921.42
0.055	49.22	1.43	990.73	979.85
0.060	46.62	1.51	1041.52	1030.08
0.065	44.39	1.57	1085.06	1073.14
0.070	42.47	1.63	1122.52	1110.19
0.075	40.80	1.67	1155.11	1142.43
0.080	39.32	1.71	1184.04	1171.04
0.085	37.97	1.75	1210.41	1197.11
0.090	36.70	1.79	1235.17	1221.60
0.095	35.47	1.82	1259.10	1245.28
0.100	34.26	1.86	1282.79	1268.71
0.105	33.04	1.89	1306.60	1292.25
0.110	31.80	1.93	1330.65	1316.04
0.115	30.56	1.96	1354.89	1340.01
0.120	29.32	2.00	1379.07	1363.93
0.125	28.10	2.03	1402.81	1387.40
0.130	26.94	2.06	1425.62	1409.97
0.135	25.84	2.10	1447.02	1431.13
0.140	24.84	2.12	1466.53	1450.43
0.145	23.95	2.15	1483.86	1467.57
0.150	23.18	2.17	1498.93	1482.47
0.155	22.51	2.19	1512.02	1495.42
0.160	21.90	2.21	1523.92	1507.18
0.165	21.28	2.22	1536.00	1519.14
0.170	20.54	2.25	1550.46	1533.43
0.175	19.52	2.27	1570.40	1553.15
0.180	18.00	2.32	1600.06	1582.49
0.185	15.69	2.38	1645.01	1626.94
0.190	12.24	2.48	1712.31	1693.51
0.195	7.20	2.62	1810.78	1790.89
0.200	0.00	2.83	1951.18	1929.76

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -7.00 HEAD(FT) = 8.00

FREE FLOW DISCH COEFF = 2.84

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	96.01	0.11	81.27	80.35
0.010	91.10	0.25	181.15	179.10
0.015	85.69	0.41	291.25	287.95
0.020	80.10	0.56	404.99	400.40
0.025	74.57	0.72	517.35	511.49
0.030	69.30	0.87	624.67	617.60
0.035	64.40	1.01	724.47	716.27
0.040	59.94	1.14	815.21	805.98
0.045	55.96	1.25	896.17	886.03
0.050	52.46	1.35	967.29	956.34
0.055	49.43	1.43	1028.99	1017.35
0.060	46.82	1.51	1082.09	1069.84
0.065	44.58	1.57	1127.63	1114.87
0.070	42.66	1.63	1166.81	1153.61
0.075	40.98	1.67	1200.90	1187.31
0.080	39.50	1.72	1231.11	1217.18
0.085	38.15	1.75	1258.60	1244.35
0.090	36.88	1.79	1284.35	1269.81
0.095	35.66	1.83	1309.18	1294.36
0.100	34.46	1.86	1333.70	1318.60
0.105	33.25	1.89	1358.28	1342.91
0.110	32.03	1.93	1383.89	1367.44
0.115	30.80	1.96	1408.07	1392.13
0.120	29.58	2.00	1432.99	1416.77
0.125	28.37	2.03	1457.46	1440.96
0.130	27.22	2.06	1481.02	1464.25
0.135	26.13	2.10	1503.15	1486.14
0.140	25.13	2.12	1523.42	1506.18
0.145	24.24	2.15	1541.52	1524.08
0.150	23.46	2.17	1557.40	1539.77
0.155	22.78	2.19	1571.35	1553.56
0.160	22.14	2.21	1584.20	1566.26
0.165	21.50	2.23	1597.38	1579.30
0.170	20.72	2.25	1613.16	1594.90
0.175	19.66	2.28	1634.75	1616.25
0.180	18.10	2.32	1666.53	1647.66
0.185	15.75	2.39	1714.21	1694.81
0.190	12.27	2.49	1785.10	1764.90
0.195	7.20	2.63	1888.27	1866.89
0.200	0.00	2.84	2034.79	2011.76

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -6.80 HEAD(FT) = 8.20

FREE FLOW DISCH COEFF = 2.85

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	96.08	0.11	83.18	82.22
0.010	91.22	0.25	186.24	184.07
0.015	85.83	0.40	300.31	296.82
0.020	80.26	0.56	418.45	413.58
0.025	74.75	0.72	535.35	529.12
0.030	69.48	0.87	647.14	639.61
0.035	64.57	1.01	751.16	742.42
0.040	60.11	1.14	845.79	835.95
0.045	56.12	1.25	930.27	919.44
0.050	52.62	1.35	1004.48	992.79
0.055	49.58	1.44	1068.89	1056.45
0.060	46.97	1.51	1124.31	1111.22
0.065	44.73	1.57	1171.84	1158.20
0.070	42.80	1.63	1212.73	1198.62
0.075	41.12	1.68	1248.30	1233.77
0.080	39.63	1.72	1279.83	1264.93
0.085	38.28	1.76	1308.50	1293.27
0.090	37.01	1.79	1335.37	1319.83
0.095	35.79	1.83	1361.28	1345.44
0.100	34.58	1.86	1386.86	1370.72
0.105	33.37	1.90	1412.51	1396.07
0.110	32.15	1.93	1438.39	1421.65
0.115	30.92	1.97	1464.45	1447.40
0.120	29.70	2.00	1490.43	1473.08
0.125	28.50	2.04	1515.93	1498.28
0.130	27.34	2.07	1540.45	1522.52
0.135	26.25	2.10	1563.47	1545.28
0.140	25.26	2.13	1584.52	1566.08
0.145	24.38	2.15	1603.28	1584.62
0.150	23.60	2.18	1619.69	1600.84
0.155	22.92	2.20	1634.08	1615.06
0.160	22.30	2.21	1647.31	1628.13
0.165	21.66	2.23	1660.90	1641.57
0.170	20.89	2.25	1677.24	1657.72
0.175	19.83	2.28	1699.71	1679.93
0.180	18.26	2.33	1732.93	1712.76
0.185	15.90	2.40	1782.93	1762.18
0.190	12.39	2.50	1857.39	1835.78
0.195	7.27	2.64	1965.87	1942.99
0.200	0.00	2.85	2120.06	2095.38

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -6.60 HEAD(FT) = 8.40

FREE FLOW DISCH COEFF = 2.86

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	96.15	0.11	85.04	84.02
0.010	91.33	0.25	191.27	188.98
0.015	85.98	0.40	309.35	305.66
0.020	80.43	0.56	431.96	426.80
0.025	74.92	0.72	553.47	546.86
0.030	69.65	0.87	669.80	661.80
0.035	64.74	1.01	778.14	768.84
0.040	60.27	1.14	876.75	866.28
0.045	56.28	1.25	964.81	953.28
0.050	52.78	1.35	1042.19	1029.74
0.055	49.73	1.44	1109.35	1096.10
0.060	47.12	1.51	1167.15	1153.21
0.065	44.87	1.58	1216.71	1202.18
0.070	42.94	1.63	1259.35	1244.31
0.075	41.26	1.68	1296.44	1280.95
0.080	39.77	1.72	1329.30	1313.42
0.085	38.41	1.76	1359.20	1342.96
0.090	37.14	1.80	1387.20	1370.63
0.095	35.92	1.83	1414.21	1397.32
0.100	34.71	1.87	1440.88	1423.67
0.105	33.50	1.90	1467.62	1450.09
0.110	32.28	1.94	1494.60	1476.74
0.115	31.05	1.97	1521.75	1503.57
0.120	29.82	2.01	1548.81	1530.31
0.125	28.62	2.04	1575.36	1556.54
0.130	27.46	2.07	1600.87	1581.75
0.135	26.38	2.11	1624.79	1605.39
0.140	25.39	2.13	1646.63	1626.96
0.145	24.51	2.16	1666.05	1646.15
0.150	23.74	2.18	1683.00	1662.90
0.155	23.07	2.20	1697.83	1677.55
0.160	22.45	2.22	1711.43	1690.99
0.165	21.82	2.24	1725.44	1704.83
0.170	21.05	2.26	1742.33	1721.52
0.175	19.99	2.29	1765.70	1744.61
0.180	18.42	2.33	1800.40	1778.90
0.185	16.05	2.40	1852.78	1830.65
0.190	12.51	2.50	1930.93	1907.86
0.195	7.34	2.65	2044.89	2020.46
0.200	0.00	2.86	2206.97	2180.61

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -6.50 HEAD(FT) = 8.50

FREE FLOW DISCH COEFF = 2.87

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	96.18	0.11	85.95	84.91
0.010	91.39	0.25	193.76	191.42
0.015	86.06	0.40	313.87	310.07
0.020	80.51	0.56	438.72	433.42
0.025	75.01	0.72	562.58	555.77
0.030	69.74	0.87	681.21	672.97
0.035	64.83	1.01	791.73	782.16
0.040	60.36	1.14	892.36	881.57
0.045	56.37	1.25	982.24	970.36
0.050	52.86	1.35	1061.24	1048.40
0.055	49.81	1.44	1129.80	1116.14
0.060	47.19	1.51	1188.80	1174.42
0.065	44.94	1.58	1239.40	1224.41
0.070	43.01	1.63	1282.93	1267.41
0.075	41.33	1.68	1320.78	1304.81
0.080	39.84	1.72	1354.32	1337.95
0.085	38.48	1.76	1384.84	1368.09
0.090	37.21	1.80	1413.42	1396.33
0.095	35.99	1.83	1440.99	1423.57
0.100	34.78	1.87	1468.21	1450.46
0.105	33.56	1.90	1495.50	1477.42
0.110	32.34	1.94	1523.04	1504.62
0.115	31.11	1.97	1550.74	1531.99
0.120	29.88	2.01	1578.36	1559.27
0.125	28.68	2.04	1605.44	1586.03
0.130	27.52	2.08	1631.45	1611.72
0.135	26.44	2.11	1655.83	1635.81
0.140	25.45	2.14	1678.07	1657.77
0.145	24.58	2.16	1697.82	1677.29
0.150	23.81	2.18	1715.04	1694.30
0.155	23.14	2.20	1730.08	1709.16
0.160	22.53	2.22	1743.88	1722.79
0.165	21.90	2.24	1758.08	1736.82
0.170	21.14	2.26	1775.26	1753.80
0.175	20.08	2.29	1799.09	1777.33
0.180	18.50	2.34	1834.54	1812.36
0.185	16.12	2.40	1888.13	1865.30
0.190	12.57	2.51	1968.16	1944.36
0.195	7.38	2.65	2084.93	2059.71
0.200	0.00	2.87	2251.05	2223.83

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -6.40 HEAD(FT) = 8.60

FREE FLOW DISCH COEFF = 2.87

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	96.22	0.11	86.83	85.77
0.010	91.45	0.25	196.24	193.83
0.015	86.13	0.40	318.37	314.47
0.020	80.59	0.56	445.50	440.05
0.025	75.09	0.72	571.70	564.71
0.030	69.83	0.87	692.66	684.19
0.035	64.91	1.01	805.39	795.54
0.040	60.44	1.14	908.07	896.96
0.045	56.45	1.25	999.78	987.55
0.050	52.93	1.35	1080.40	1067.18
0.055	49.89	1.44	1150.38	1136.31
0.060	47.26	1.51	1210.60	1195.79
0.065	45.01	1.58	1262.25	1246.80
0.070	43.08	1.63	1306.67	1290.68
0.075	41.39	1.68	1345.30	1328.84
0.080	39.90	1.73	1379.53	1362.66
0.085	38.55	1.76	1410.67	1393.41
0.090	37.28	1.80	1439.84	1422.22
0.095	36.05	1.84	1467.97	1450.01
0.100	34.84	1.87	1495.75	1477.45
0.105	33.63	1.91	1523.60	1504.96
0.110	32.40	1.94	1551.70	1532.71
0.115	31.17	1.98	1579.97	1560.64
0.120	29.94	2.01	1608.14	1588.46
0.125	28.74	2.05	1635.76	1615.74
0.130	27.59	2.08	1662.27	1641.93
0.135	26.50	2.11	1687.11	1666.47
0.140	25.52	2.14	1709.75	1688.83
0.145	24.64	2.16	1729.84	1708.67
0.150	23.88	2.19	1747.33	1725.95
0.155	23.22	2.20	1762.59	1741.02
0.160	22.61	2.22	1776.57	1754.83
0.165	21.98	2.24	1790.98	1769.06
0.170	21.22	2.26	1808.44	1786.31
0.175	20.16	2.29	1832.73	1810.30
0.180	18.58	2.34	1868.94	1846.07
0.185	16.20	2.41	1923.77	1900.23
0.190	12.63	2.51	2005.70	1981.16
0.195	7.42	2.66	2125.31	2099.31
0.200	0.	2.87	2295.53	2267.45

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -6.20 HEAD(FT) = 8.80

FREE FLOW DISCH COEFF = 2.88

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	96.29	0.11	88.57	87.46
0.010	91.57	0.24	201.13	198.62
0.015	86.28	0.40	327.35	323.25
0.020	80.76	0.55	459.06	453.32
0.025	75.27	0.71	590.04	582.65
0.030	70.00	0.86	715.70	706.75
0.035	65.09	1.01	832.92	822.50
0.040	60.61	1.14	939.73	927.97
0.045	56.61	1.25	1035.18	1022.23
0.050	53.09	1.35	1119.11	1105.10
0.055	50.04	1.44	1191.96	1177.05
0.060	47.41	1.52	1254.66	1238.96
0.065	45.16	1.58	1308.43	1292.05
0.070	43.22	1.64	1354.67	1337.72
0.075	41.53	1.69	1394.88	1377.43
0.080	40.04	1.73	1430.51	1412.61
0.085	38.68	1.77	1462.92	1444.61
0.090	37.41	1.80	1493.28	1474.59
0.095	36.18	1.84	1522.55	1503.50
0.100	34.97	1.87	1551.46	1532.05
0.105	33.75	1.91	1580.45	1560.67
0.110	32.53	1.95	1609.69	1589.54
0.115	31.30	1.98	1639.10	1618.59
0.120	30.07	2.02	1668.40	1647.52
0.125	28.86	2.05	1697.11	1675.87
0.130	27.71	2.08	1724.64	1703.06
0.135	26.63	2.12	1750.41	1728.51
0.140	25.65	2.14	1773.86	1751.66
0.145	24.78	2.17	1794.63	1772.17
0.150	24.02	2.19	1812.66	1789.98
0.155	23.36	2.21	1828.35	1805.47
0.160	22.76	2.23	1842.71	1819.65
0.165	22.14	2.24	1857.52	1834.27
0.170	21.39	2.27	1875.55	1852.08
0.175	20.33	2.30	1900.76	1876.98
0.180	18.75	2.34	1938.53	1914.27
0.185	16.34	2.41	1995.86	1970.88
0.190	12.74	2.52	2081.69	2055.64
0.195	7.49	2.67	2207.12	2179.51
0.200	0.00	2.88	2385.74	2355.89

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -6.00 HEAD(FT) = 9.00

FREE FLOW DISCH COEFF = 2.89

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	96.36	0.11	90.23	89.08
0.010	91.69	0.24	205.95	203.32
0.015	86.43	0.39	336.28	331.99
0.020	80.92	0.55	472.64	466.60
0.025	75.44	0.71	608.46	600.68
0.030	70.18	0.86	738.92	729.48
0.035	65.26	1.01	860.70	849.70
0.040	60.78	1.14	971.74	959.32
0.045	56.77	1.25	1071.00	1057.31
0.050	53.25	1.35	1158.30	1143.49
0.055	50.19	1.44	1234.09	1218.32
0.060	47.56	1.52	1299.31	1282.71
0.065	45.30	1.58	1355.25	1337.93
0.070	43.36	1.64	1403.35	1385.42
0.075	41.67	1.69	1445.17	1426.71
0.080	40.17	1.73	1482.23	1463.29
0.085	38.81	1.77	1515.93	1496.56
0.090	37.54	1.81	1547.50	1527.72
0.095	36.31	1.84	1577.95	1557.78
0.100	35.10	1.88	1608.01	1587.46
0.105	33.88	1.91	1638.15	1617.22
0.110	32.65	1.95	1668.56	1647.23
0.115	31.42	1.99	1699.14	1677.42
0.120	30.19	2.02	1729.58	1707.48
0.125	28.99	2.06	1759.40	1736.91
0.130	27.83	2.09	1787.98	1765.13
0.135	26.76	2.12	1814.68	1791.49
0.140	25.78	2.15	1838.95	1815.45
0.145	24.91	2.17	1860.40	1836.63
0.150	24.16	2.20	1878.98	1854.97
0.155	23.51	2.21	1895.10	1870.89
0.160	22.92	2.23	1909.83	1885.42
0.165	22.30	2.25	1925.04	1900.44
0.170	21.55	2.27	1943.64	1918.81
0.175	20.50	2.30	1969.80	1944.63
0.180	18.91	2.35	2009.15	1983.48
0.185	16.49	2.42	2069.06	2042.62
0.190	12.86	2.52	2158.90	2131.31
0.195	7.56	2.68	2290.33	2261.06
0.200	0.00	2.89	2477.59	2445.93

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -5.80 HEAD(FT) = 9.20

FREE FLOW DISCH COEFF = 2.91

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	96.43	0.10	91.82	90.63
0.010	91.81	0.24	210.69	207.94
0.015	86.58	0.39	345.17	340.67
0.020	81.09	0.55	486.22	479.89
0.025	75.61	0.71	626.96	618.79
0.030	70.35	0.86	762.30	752.37
0.035	65.43	1.00	888.73	877.15
0.040	60.95	1.14	1004.07	990.99
0.045	56.94	1.25	1107.22	1092.79
0.050	53.41	1.35	1197.96	1182.35
0.055	50.34	1.44	1276.75	1260.11
0.060	47.70	1.52	1344.55	1327.03
0.065	45.44	1.59	1402.70	1384.42
0.070	43.50	1.64	1452.70	1433.77
0.075	41.81	1.69	1496.17	1476.67
0.080	40.31	1.73	1534.68	1514.67
0.085	38.95	1.77	1569.69	1549.23
0.090	37.67	1.81	1602.50	1581.61
0.095	36.44	1.85	1634.14	1612.84
0.100	35.23	1.88	1665.38	1643.68
0.105	34.01	1.92	1696.71	1674.59
0.110	32.78	1.95	1728.30	1705.77
0.115	31.54	1.99	1760.07	1737.13
0.120	30.31	2.03	1791.68	1768.33
0.125	29.11	2.06	1822.63	1798.87
0.130	27.96	2.09	1852.26	1828.12
0.135	26.88	2.13	1879.93	1855.43
0.140	25.91	2.15	1905.02	1880.20
0.145	25.04	2.18	1927.16	1902.05
0.150	24.30	2.20	1946.29	1920.92
0.155	23.66	2.22	1962.84	1937.26
0.160	23.07	2.24	1977.93	1952.15
0.165	22.46	2.25	1993.53	1967.55
0.170	21.72	2.28	2012.72	1986.48
0.175	20.66	2.31	2039.84	2013.25
0.180	19.07	2.35	2080.81	2053.69
0.185	16.64	2.42	2143.36	2115.42
0.190	12.98	2.53	2237.32	2208.16
0.195	7.63	2.68	2374.91	2343.96
0.200	0.00	2.91	2571.08	2537.57

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70
CCD ELEV = -5.60 HEAD(FT) = 9.40
FREE FLOW DISCH COEFF = 2.92

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	96.50	0.10	93.34	92.10
0.010	91.92	0.24	215.34	212.48
0.015	86.72	0.39	353.99	349.29
0.020	81.25	0.55	499.81	493.17
0.025	75.79	0.71	645.54	636.97
0.030	70.53	0.86	785.83	775.40
0.035	65.61	1.00	917.00	904.83
0.040	61.12	1.13	1036.73	1022.97
0.045	57.10	1.25	1143.84	1128.66
0.050	53.56	1.36	1238.08	1221.65
0.055	50.49	1.44	1319.93	1302.40
0.060	47.85	1.52	1390.37	1371.91
0.065	45.59	1.59	1450.77	1431.51
0.070	43.64	1.64	1502.70	1482.75
0.075	41.95	1.69	1547.85	1527.30
0.080	40.45	1.74	1587.84	1566.76
0.085	39.08	1.78	1624.20	1602.64
0.090	37.80	1.82	1658.27	1636.25
0.095	36.57	1.85	1691.12	1668.67
0.100	35.35	1.89	1723.57	1700.69
0.105	34.13	1.92	1756.10	1732.78
0.110	32.90	1.96	1788.90	1765.15
0.115	31.67	1.99	1821.88	1797.69
0.120	30.44	2.03	1854.69	1830.06
0.125	29.23	2.07	1886.78	1861.73
0.130	28.08	2.10	1917.49	1892.03
0.135	27.01	2.13	1946.12	1920.29
0.140	26.03	2.16	1972.06	1945.88
0.145	25.18	2.18	1994.89	1968.41
0.150	24.44	2.21	2014.56	1987.82
0.155	23.80	2.22	2031.54	2004.57
0.160	23.22	2.24	2046.99	2019.81
0.165	22.62	2.26	2062.99	2035.60
0.170	21.88	2.28	2082.75	2055.10
0.175	20.83	2.31	2110.85	2082.82
0.180	19.23	2.36	2153.48	2124.89
0.185	16.78	2.43	2218.74	2189.28
0.190	13.10	2.54	2316.93	2286.17
0.195	7.70	2.69	2460.87	2428.20
0.200	0.00	2.92	2666.20	2630.80

SILL LENGTH = 9.50 SILL WIDTH = 31.70
CCD ELEV = -5.50 HEAD(FT) = 9.50
FREE FLOW DISCH COEFF = 2.92

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	96.53	0.10	94.07	92.81
0.010	91.98	0.23	217.63	214.71
0.015	86.80	0.39	358.37	353.57
0.020	81.34	0.55	506.59	499.81
0.025	75.87	0.71	654.85	646.08
0.030	70.61	0.86	797.66	786.97
0.035	65.69	1.00	931.23	918.75
0.040	61.20	1.13	1053.18	1039.07
0.045	57.18	1.25	1162.30	1146.73
0.050	53.64	1.36	1258.32	1241.46
0.055	50.57	1.45	1341.71	1323.74
0.060	47.93	1.52	1413.49	1394.55
0.065	45.66	1.59	1475.03	1455.27
0.070	43.71	1.65	1527.95	1507.48
0.075	42.01	1.70	1573.94	1552.86
0.080	40.51	1.74	1614.69	1593.06
0.085	39.15	1.78	1651.73	1629.61
0.090	37.87	1.82	1686.44	1663.85
0.095	36.64	1.85	1719.91	1696.87
0.100	35.42	1.89	1752.96	1729.48
0.105	34.20	1.92	1786.10	1762.18
0.110	32.97	1.96	1819.52	1795.15
0.115	31.73	2.00	1853.11	1828.29
0.120	30.50	2.03	1886.52	1861.26
0.125	29.29	2.07	1919.20	1893.49
0.130	28.14	2.10	1950.46	1924.33
0.135	27.07	2.13	1979.58	1953.06
0.140	26.10	2.16	2005.94	1979.07
0.145	25.25	2.19	2029.12	2001.94
0.150	24.51	2.21	2049.06	2021.62
0.155	23.88	2.23	2066.25	2038.57
0.160	23.30	2.24	2081.88	2053.99
0.165	22.70	2.26	2098.08	2069.98
0.170	21.97	2.28	2118.13	2089.76
0.175	20.91	2.31	2146.72	2117.97
0.180	19.31	2.36	2190.19	2160.85
0.185	16.86	2.43	2256.83	2226.61
0.190	13.16	2.54	2357.19	2325.62
0.195	7.74	2.70	2504.36	2470.82
0.200	0.00	2.92	2714.37	2678.02

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -5.40 HEAD(FT) = 9.60

FREE FLOW DISCH COEFF = 2.93

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	96.57	0.10	94.78	93.50
0.010	92.04	0.23	219.89	216.92
0.015	86.87	0.38	362.74	357.84
0.020	81.42	0.54	513.38	506.44
0.025	75.96	0.70	664.17	655.20
0.030	70.70	0.86	809.51	798.58
0.035	65.78	1.00	945.50	932.73
0.040	61.28	1.13	1069.70	1055.24
0.045	57.26	1.25	1180.84	1164.89
0.050	53.72	1.36	1278.66	1261.39
0.055	50.65	1.45	1363.62	1345.20
0.060	48.00	1.52	1436.75	1417.34
0.065	45.73	1.59	1499.45	1479.19
0.070	43.78	1.65	1553.36	1532.37
0.075	42.08	1.70	1600.21	1578.59
0.080	40.58	1.74	1641.71	1619.53
0.085	39.22	1.78	1679.44	1656.76
0.090	37.94	1.82	1714.80	1691.63
0.095	36.70	1.85	1748.89	1725.26
0.100	35.48	1.89	1782.56	1758.48
0.105	34.26	1.93	1816.32	1791.78
0.110	33.03	1.96	1850.35	1825.35
0.115	31.79	2.00	1884.56	1859.10
0.120	30.56	2.03	1918.58	1892.67
0.125	29.36	2.07	1951.85	1925.48
0.130	28.21	2.10	1983.65	1956.85
0.135	27.13	2.14	2013.27	1986.07
0.140	26.16	2.16	2040.06	2012.50
0.145	25.31	2.19	2063.58	2035.71
0.150	24.58	2.21	2083.80	2055.65
0.155	23.95	2.23	2101.20	2072.81
0.160	23.38	2.25	2117.00	2088.41
0.165	22.79	2.26	2133.40	2104.58
0.170	22.05	2.28	2153.74	2124.65
0.175	21.00	2.32	2182.83	2153.34
0.180	19.39	2.36	2227.15	2197.07
0.185	16.93	2.43	2295.20	2264.19
0.190	13.22	2.54	2397.74	2365.35
0.195	7.77	2.70	2548.20	2513.77
0.200	0.00	2.93	2762.95	2725.63

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -5.20 HEAD(FT) = 9.80

FREE FLOW DISCH COEFF = 2.94

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	96.64	0.10	96.14	94.82
0.010	92.16	0.23	224.35	221.27
0.015	87.02	0.38	371.42	366.32
0.020	81.58	0.54	526.92	519.69
0.025	76.13	0.70	682.86	673.48
0.030	70.88	0.86	833.32	821.88
0.035	65.95	1.00	974.22	960.84
0.040	61.45	1.13	1102.96	1087.81
0.045	57.42	1.25	1218.22	1201.49
0.050	53.88	1.36	1319.69	1301.56
0.055	50.80	1.45	1407.82	1388.49
0.060	48.15	1.53	1483.68	1463.31
0.065	45.87	1.59	1548.72	1527.45
0.070	43.92	1.65	1604.64	1582.61
0.075	42.22	1.70	1653.24	1630.54
0.080	40.72	1.74	1696.28	1672.98
0.085	39.35	1.78	1735.41	1711.58
0.090	38.07	1.82	1772.07	1747.73
0.095	36.83	1.86	1807.43	1782.61
0.100	35.61	1.89	1842.34	1817.04
0.105	34.39	1.93	1877.35	1851.57
0.110	33.16	1.97	1912.64	1886.38
0.115	31.92	2.00	1948.11	1921.36
0.120	30.68	2.04	1983.37	1956.13
0.125	29.48	2.07	2017.82	1990.11
0.130	28.33	2.11	2050.73	2022.57
0.135	27.26	2.14	2081.35	2052.76
0.140	26.29	2.17	2108.99	2080.03
0.145	25.45	2.19	2133.22	2103.93
0.150	24.72	2.21	2153.99	2124.41
0.155	24.10	2.23	2171.80	2141.98
0.160	23.53	2.25	2187.96	2157.91
0.165	22.95	2.27	2204.74	2174.46
0.170	22.22	2.29	2225.67	2195.11
0.175	21.16	2.32	2255.76	2224.78
0.180	19.55	2.37	2301.81	2270.20
0.185	17.08	2.44	2372.70	2340.12
0.190	13.34	2.55	2479.71	2445.66
0.195	7.84	2.71	2636.87	2600.66
0.200	0.00	2.94	2861.31	2822.02

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -5.00 HEAD(FT) = 10.00

FREE FLOW DISCH COEFF = 2.95

HD/HI	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	96.71	0.10	97.41	96.05
0.010	92.28	0.23	228.69	225.50
0.015	87.17	0.38	380.01	374.71
0.020	81.75	0.54	540.44	532.90
0.025	76.31	0.70	701.58	691.80
0.030	71.05	0.86	857.25	845.30
0.035	66.13	1.00	1003.13	989.14
0.040	61.62	1.13	1136.51	1120.66
0.045	57.59	1.25	1255.96	1238.44
0.050	54.04	1.36	1361.14	1342.15
0.055	50.95	1.45	1452.51	1432.25
0.060	48.29	1.53	1531.16	1509.80
0.065	46.02	1.59	1598.59	1576.29
0.070	44.06	1.65	1656.56	1633.45
0.075	42.36	1.70	1706.93	1683.12
0.080	40.85	1.75	1751.53	1727.11
0.085	39.48	1.79	1792.09	1767.09
0.090	38.20	1.83	1830.08	1804.55
0.095	36.96	1.86	1866.72	1840.69
0.100	35.74	1.90	1902.91	1876.37
0.105	34.52	1.93	1939.19	1912.14
0.110	33.28	1.97	1975.76	1948.21
0.115	32.04	2.01	2012.51	1984.44
0.120	30.81	2.04	2049.02	2020.44
0.125	29.60	2.08	2084.68	2055.60
0.130	28.45	2.11	2118.72	2089.17
0.135	27.38	2.15	2150.35	2120.35
0.140	26.42	2.17	2178.86	2148.47
0.145	25.58	2.20	2203.79	2173.06
0.150	24.86	2.22	2225.11	2194.07
0.155	24.24	2.24	2243.34	2212.05
0.160	23.69	2.25	2259.84	2228.32
0.165	23.11	2.27	2277.00	2245.25
0.170	22.38	2.29	2298.52	2266.46
0.175	21.33	2.32	2329.63	2297.14
0.180	19.72	2.37	2377.45	2344.29
0.185	17.22	2.45	2451.26	2417.07
0.190	13.46	2.56	2562.85	2527.10
0.195	7.92	2.72	2726.89	2688.85
0.200	0.00	2.95	2961.29	2919.99

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -4.80 HEAD(FT) = 10.20

FREE FLOW DISCH COEFF = 2.97

HD/HI	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	96.74	0.10	99.86	98.45
0.010	92.32	0.23	235.11	231.78
0.015	87.22	0.38	391.34	385.80
0.020	81.81	0.54	557.15	549.26
0.025	76.37	0.70	723.80	713.56
0.030	71.11	0.86	884.84	872.32
0.035	66.18	1.00	1035.78	1021.12
0.040	61.68	1.14	1173.77	1157.16
0.045	57.64	1.26	1297.34	1278.98
0.050	54.09	1.36	1406.12	1386.22
0.055	51.01	1.45	1500.59	1479.35
0.060	48.35	1.53	1581.88	1559.49
0.065	46.08	1.60	1651.55	1628.17
0.070	44.12	1.66	1711.42	1687.20
0.075	42.43	1.71	1763.43	1738.47
0.080	40.92	1.75	1809.49	1783.88
0.085	39.55	1.79	1851.38	1825.17
0.090	38.27	1.83	1890.63	1863.87
0.095	37.04	1.87	1928.52	1901.23
0.100	35.81	1.90	1965.97	1938.15
0.105	34.59	1.94	2003.54	1975.18
0.110	33.35	1.98	2041.44	2012.54
0.115	32.11	2.01	2079.53	2050.10
0.120	30.87	2.05	2117.40	2087.43
0.125	29.66	2.09	2154.38	2123.89
0.130	28.51	2.12	2189.67	2158.68
0.135	27.44	2.15	2222.45	2191.00
0.140	26.47	2.18	2251.98	2220.11
0.145	25.63	2.21	2277.77	2245.53
0.150	24.91	2.23	2299.77	2267.22
0.155	24.30	2.25	2318.54	2285.72
0.160	23.75	2.26	2335.48	2302.42
0.165	23.17	2.28	2353.08	2319.78
0.170	22.45	2.30	2375.19	2341.57
0.175	21.41	2.33	2407.25	2373.18
0.180	19.79	2.38	2456.68	2421.91
0.185	17.30	2.45	2533.13	2497.28
0.190	13.52	2.57	2648.90	2611.41
0.195	7.95	2.73	2819.26	2779.36
0.200	0.00	2.97	3062.87	3019.52

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -4.60 HEAD(FT) = 10.40

FREE FLOW DISCH COEFF = 2.98

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	96.77	0.10	102.31	100.84
0.010	92.37	0.23	241.56	238.09
0.015	87.28	0.38	402.75	396.97
0.020	81.87	0.54	574.02	565.78
0.025	76.43	0.70	746.27	735.56
0.030	71.17	0.86	912.77	899.67
0.035	66.24	1.01	1068.84	1053.50
0.040	61.73	1.14	1211.53	1194.14
0.045	57.70	1.26	1339.28	1320.06
0.050	54.15	1.37	1451.72	1430.88
0.055	51.06	1.46	1549.34	1527.10
0.060	48.41	1.54	1633.30	1609.86
0.065	46.14	1.60	1705.24	1680.76
0.070	44.19	1.66	1767.04	1741.68
0.075	42.49	1.71	1820.71	1794.58
0.080	40.99	1.76	1868.25	1841.43
0.085	39.63	1.80	1911.48	1884.05
0.090	38.35	1.84	1952.02	1924.01
0.095	37.11	1.87	1991.18	1962.60
0.100	35.89	1.91	2029.90	2000.77
0.105	34.66	1.95	2068.79	2039.10
0.110	33.42	1.98	2108.03	2077.78
0.115	32.17	2.02	2147.50	2116.68
0.120	30.93	2.06	2186.75	2155.36
0.125	29.72	2.09	2225.07	2193.14
0.130	28.57	2.13	2261.65	2229.19
0.135	27.49	2.16	2295.60	2262.66
0.140	26.53	2.19	2326.17	2292.78
0.145	25.69	2.21	2352.82	2319.06
0.150	24.97	2.23	2375.52	2341.43
0.155	24.36	2.25	2394.83	2360.46
0.160	23.81	2.27	2412.21	2377.59
0.165	23.24	2.29	2430.25	2395.37
0.170	22.52	2.31	2452.94	2417.74
0.175	21.48	2.34	2485.96	2450.29
0.180	19.87	2.39	2537.02	2500.61
0.185	17.37	2.46	2616.17	2578.63
0.190	13.58	2.57	2736.21	2696.94
0.195	7.99	2.74	2913.02	2871.22
0.200	0.	2.98	3166.04	3120.60

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -4.50 HEAD(FT) = 10.50

FREE FLOW DISCH COEFF = 2.98

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	96.78	0.10	103.53	102.03
0.010	92.39	0.23	244.79	241.25
0.015	87.31	0.38	408.49	402.59
0.020	81.90	0.54	582.52	574.10
0.025	76.46	0.70	757.60	746.65
0.030	71.20	0.86	926.86	913.47
0.035	66.27	1.01	1085.53	1069.85
0.040	61.76	1.14	1230.59	1212.81
0.045	57.73	1.26	1360.46	1340.80
0.050	54.18	1.37	1474.75	1453.44
0.055	51.09	1.46	1573.96	1551.22
0.060	48.44	1.54	1659.27	1635.30
0.065	46.17	1.61	1732.35	1707.33
0.070	44.22	1.66	1795.13	1769.19
0.075	42.53	1.71	1849.64	1822.92
0.080	41.03	1.76	1897.92	1870.50
0.085	39.66	1.80	1941.83	1913.78
0.090	38.38	1.84	1983.02	1954.37
0.095	37.14	1.88	2022.82	1993.60
0.100	35.92	1.91	2062.20	2032.40
0.105	34.69	1.95	2101.74	2071.38
0.110	33.45	1.99	2141.67	2110.73
0.115	32.20	2.02	2181.84	2150.32
0.120	30.96	2.06	2221.78	2189.68
0.125	29.75	2.10	2260.79	2228.13
0.130	28.59	2.13	2298.02	2264.82
0.135	27.52	2.16	2332.57	2298.87
0.140	26.55	2.19	2363.65	2329.50
0.145	25.71	2.22	2390.75	2356.21
0.150	25.00	2.24	2413.80	2378.92
0.155	24.39	2.26	2433.38	2398.22
0.160	23.84	2.27	2450.98	2415.57
0.165	23.27	2.29	2469.24	2433.56
0.170	22.56	2.31	2492.22	2456.22
0.175	21.52	2.34	2525.73	2489.24
0.180	19.91	2.39	2577.61	2540.37
0.185	17.40	2.46	2658.13	2619.72
0.190	13.61	2.58	2780.33	2740.16
0.195	8.01	2.74	2960.42	2917.65
0.200	0.	2.98	3218.22	3171.72

(Continued)

TABLE 12 (Continued)

LOCKPORT CONTROL WORKS
SUBMERGED

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -4.40 HEAD(FT) = 10.60

FREE FLOW DISCH COEFF = 2.99

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	96.80	0.10	104.74	103.22
0.010	92.42	0.23	248.03	244.42
0.015	87.33	0.38	414.25	408.22
0.020	81.93	0.54	591.06	582.46
0.025	76.49	0.70	768.99	757.80
0.030	71.23	0.86	941.03	927.35
0.035	66.30	1.01	1102.32	1086.29
0.040	61.79	1.14	1249.77	1231.60
0.045	57.75	1.26	1381.78	1361.68
0.050	54.20	1.37	1497.93	1476.14
0.055	51.12	1.46	1598.74	1575.49
0.060	48.47	1.54	1685.42	1660.91
0.065	46.20	1.61	1759.65	1734.06
0.070	44.25	1.67	1823.41	1796.89
0.075	42.56	1.72	1878.77	1851.45
0.080	41.06	1.76	1927.79	1899.76
0.085	39.70	1.80	1972.39	1943.71
0.090	38.42	1.84	2014.23	1984.94
0.095	37.18	1.88	2054.67	2024.79
0.100	35.96	1.91	2094.70	2064.24
0.105	34.73	1.95	2134.92	2103.87
0.110	33.49	1.99	2175.54	2143.90
0.115	32.24	2.03	2216.41	2184.18
0.120	30.99	2.06	2257.06	2224.23
0.125	29.78	2.10	2296.76	2263.36
0.130	28.62	2.13	2334.64	2300.69
0.135	27.55	2.17	2369.79	2335.33
0.140	26.58	2.20	2401.40	2366.48
0.145	25.74	2.22	2428.94	2393.62
0.150	25.02	2.24	2452.34	2416.68
0.155	24.42	2.26	2472.19	2436.24
0.160	23.87	2.28	2490.01	2453.80
0.165	23.31	2.29	2508.49	2472.01
0.170	22.59	2.31	2531.77	2494.95
0.175	21.56	2.35	2565.76	2528.45
0.180	19.94	2.39	2618.47	2580.40
0.185	17.44	2.47	2700.37	2661.18
0.190	13.64	2.58	2824.75	2783.67
0.195	8.03	2.75	3008.16	2964.41
0.200	0.00	2.99	3270.79	3223.22

LOCKPORT CONTROL WORKS
SUBMERGED

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -4.20 HEAD(FT) = 10.80

FREE FLOW DISCH COEFF = 3.00

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	96.83	0.10	107.17	105.59
0.010	92.46	0.23	254.52	250.77
0.015	87.39	0.38	425.83	419.56
0.020	81.99	0.54	608.25	599.30
0.025	76.55	0.70	791.94	780.28
0.030	71.29	0.86	969.62	955.34
0.035	66.36	1.01	1136.21	1119.47
0.040	61.85	1.15	1288.50	1269.52
0.045	57.81	1.27	1424.82	1403.84
0.050	54.26	1.37	1544.74	1521.99
0.055	51.18	1.47	1648.79	1624.51
0.060	48.53	1.54	1738.22	1712.63
0.065	46.26	1.61	1814.78	1788.06
0.070	44.32	1.67	1880.52	1852.82
0.075	42.63	1.72	1937.58	1909.05
0.080	41.13	1.77	1988.11	1958.84
0.085	39.77	1.81	2034.10	2004.14
0.090	38.49	1.85	2077.26	2046.67
0.095	37.25	1.88	2119.00	2087.80
0.100	36.03	1.92	2160.35	2128.54
0.105	34.80	1.96	2201.93	2169.51
0.110	33.55	1.99	2243.95	2210.90
0.115	32.30	2.03	2286.24	2252.58
0.120	31.06	2.07	2328.32	2294.03
0.125	29.84	2.11	2369.42	2334.53
0.130	28.68	2.14	2408.63	2373.16
0.135	27.60	2.17	2445.00	2409.00
0.140	26.63	2.20	2477.68	2441.20
0.145	25.79	2.23	2506.12	2469.21
0.150	25.08	2.25	2530.23	2492.97
0.155	24.47	2.27	2550.62	2513.06
0.160	23.93	2.28	2568.89	2531.06
0.165	23.37	2.30	2587.80	2549.69
0.170	22.67	2.32	2611.67	2573.21
0.175	21.63	2.35	2646.64	2607.66
0.180	20.02	2.40	2701.03	2661.25
0.185	17.51	2.48	2785.72	2744.70
0.190	13.70	2.59	2914.53	2871.61
0.195	8.07	2.76	3104.66	3058.94
0.200	0.	3.00	3377.11	3327.38

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -4.00 HEAD(FT) = 11.00

FREE FLOW DISCH COEFF = 3.01

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	96.86	0.09	109.58	107.94
0.010	92.51	0.23	261.03	257.14
0.015	87.45	0.38	437.48	430.96
0.020	82.05	0.54	625.60	616.28
0.025	76.61	0.70	815.14	802.99
0.030	71.35	0.86	998.53	983.65
0.035	66.41	1.01	1170.49	1153.05
0.040	61.90	1.15	1327.70	1307.91
0.045	57.87	1.27	1468.40	1446.51
0.050	54.31	1.38	1592.14	1568.41
0.055	51.23	1.47	1699.48	1674.15
0.060	48.59	1.55	1791.70	1765.00
0.065	46.32	1.62	1870.62	1842.74
0.070	44.38	1.68	1938.36	1909.47
0.075	42.69	1.73	1997.15	1967.38
0.080	41.20	1.77	2049.21	2018.67
0.085	39.84	1.81	2096.59	2065.35
0.090	38.56	1.85	2141.09	2109.18
0.095	37.33	1.89	2184.16	2151.61
0.100	36.10	1.93	2226.85	2193.66
0.105	34.87	1.96	2269.81	2235.98
0.110	33.62	2.00	2313.25	2278.77
0.115	32.37	2.04	2356.99	2321.87
0.120	31.12	2.08	2400.53	2364.75
0.125	29.90	2.11	2443.05	2406.64
0.130	28.73	2.15	2483.62	2446.61
0.135	27.65	2.18	2521.23	2483.65
0.140	26.69	2.21	2554.99	2516.92
0.145	25.84	2.23	2584.34	2545.82
0.150	25.13	2.26	2609.16	2570.28
0.155	24.53	2.27	2630.11	2590.92
0.160	23.99	2.29	2648.82	2609.34
0.165	23.44	2.31	2668.16	2628.40
0.170	22.74	2.33	2692.62	2652.50
0.175	21.70	2.36	2728.57	2687.91
0.180	20.10	2.41	2784.67	2743.17
0.185	17.58	2.48	2872.19	2829.39
0.190	13.76	2.60	3005.52	2960.73
0.195	8.11	2.77	3202.51	3154.79
0.200	0.	3.01	3484.99	3433.05

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -3.80 HEAD(FT) = 11.20

FREE FLOW DISCH COEFF = 3.03

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	96.88	0.09	111.97	110.29
0.010	92.56	0.23	267.55	263.52
0.015	87.50	0.38	449.21	442.44
0.020	82.11	0.54	643.10	633.40
0.025	76.67	0.71	838.56	825.92
0.030	71.41	0.86	1027.75	1012.26
0.035	66.47	1.01	1205.17	1187.01
0.040	61.96	1.15	1367.36	1346.75
0.045	57.92	1.27	1512.51	1489.71
0.050	54.37	1.38	1640.13	1615.41
0.055	51.29	1.47	1750.80	1724.41
0.060	48.65	1.55	1845.85	1818.02
0.065	46.38	1.62	1927.16	1898.11
0.070	44.44	1.68	1996.92	1966.82
0.075	42.76	1.73	2057.45	2026.44
0.080	41.27	1.78	2111.06	2079.24
0.085	39.91	1.82	2159.86	2127.30
0.090	38.64	1.86	2205.71	2172.46
0.095	37.40	1.89	2250.12	2216.20
0.100	36.17	1.93	2294.17	2259.59
0.105	34.94	1.97	2338.53	2303.28
0.110	33.69	2.01	2383.42	2347.49
0.115	32.43	2.04	2428.64	2392.04
0.120	31.18	2.08	2473.66	2436.37
0.125	29.96	2.12	2517.64	2479.69
0.130	28.79	2.15	2559.58	2521.00
0.135	27.71	2.19	2598.45	2559.28
0.140	26.74	2.22	2633.32	2593.63
0.145	25.90	2.24	2663.59	2623.44
0.150	25.19	2.26	2689.14	2648.61
0.155	24.59	2.28	2710.64	2669.79
0.160	24.05	2.30	2729.79	2688.64
0.165	23.50	2.31	2749.56	2708.12
0.170	22.81	2.34	2774.61	2732.79
0.175	21.78	2.37	2811.56	2769.18
0.180	20.17	2.41	2869.37	2826.12
0.185	17.66	2.49	2959.78	2915.17
0.190	13.82	2.61	3097.71	3051.02
0.195	8.14	2.78	3301.71	3251.94
0.200	0.	3.03	3594.42	3540.24

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -3.60 HEAD(FT) = 11.40

FREE FLOW DISCH COEFF = 3.04

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	96.91	0.09	114.35	112.61
0.010	92.60	0.22	274.09	269.91
0.015	87.56	0.38	461.01	453.99
0.020	82.17	0.54	660.74	650.67
0.025	76.73	0.71	862.21	849.07
0.030	71.47	0.87	1057.28	1041.17
0.035	66.53	1.02	1240.24	1221.34
0.040	62.01	1.15	1407.49	1386.04
0.045	57.98	1.28	1557.14	1533.41
0.050	54.43	1.38	1688.70	1662.96
0.055	51.35	1.48	1802.74	1775.27
0.060	48.71	1.56	1900.65	1871.69
0.065	46.45	1.63	1984.38	1954.14
0.070	44.51	1.69	2056.19	2024.86
0.075	42.83	1.74	2118.49	2086.21
0.080	41.34	1.78	2173.66	2140.53
0.085	39.98	1.82	2223.89	2190.00
0.090	38.71	1.86	2271.11	2236.51
0.095	37.47	1.90	2316.88	2281.58
0.100	36.25	1.94	2362.32	2326.32
0.105	35.01	1.97	2408.10	2371.41
0.110	33.76	2.01	2454.46	2417.06
0.115	32.50	2.05	2501.18	2463.07
0.120	31.24	2.09	2547.71	2508.89
0.125	30.02	2.13	2593.16	2553.65
0.130	28.85	2.16	2636.51	2596.34
0.135	27.76	2.19	2676.66	2635.88
0.140	26.79	2.22	2712.66	2671.32
0.145	25.95	2.25	2743.85	2702.04
0.150	25.24	2.27	2770.14	2727.93
0.155	24.64	2.29	2792.20	2749.65
0.160	24.12	2.30	2811.78	2768.94
0.165	23.57	2.32	2831.99	2788.83
0.170	22.88	2.34	2857.63	2814.08
0.175	21.85	2.37	2895.57	2851.45
0.180	20.25	2.42	2955.13	2910.10
0.185	17.73	2.50	3048.48	3002.02
0.190	13.88	2.62	3191.09	3142.46
0.195	8.18	2.79	3402.21	3350.37
0.200	0.	3.04	3705.38	3648.91

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -3.50 HEAD(FT) = 11.50

FREE FLOW DISCH COEFF = 3.04

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	96.93	0.09	115.54	113.77
0.010	92.63	0.22	277.36	273.11
0.015	87.59	0.38	466.93	459.78
0.020	82.20	0.54	669.61	659.35
0.025	76.76	0.71	874.12	860.73
0.030	71.50	0.87	1072.16	1055.73
0.035	66.56	1.02	1257.92	1238.65
0.040	62.04	1.15	1427.72	1405.85
0.045	58.00	1.28	1579.65	1555.45
0.050	54.45	1.39	1713.19	1686.95
0.055	51.38	1.48	1828.94	1800.92
0.060	48.73	1.56	1928.30	1898.76
0.065	46.48	1.63	2013.24	1982.40
0.070	44.54	1.69	2086.09	2054.13
0.075	42.86	1.74	2149.28	2116.36
0.080	41.37	1.78	2205.23	2171.45
0.085	40.02	1.83	2256.19	2221.63
0.090	38.74	1.86	2304.10	2268.81
0.095	37.51	1.90	2350.56	2314.55
0.100	36.28	1.94	2396.69	2359.98
0.105	35.05	1.98	2443.20	2405.77
0.110	33.79	2.01	2490.30	2452.15
0.115	32.53	2.05	2537.79	2498.91
0.120	31.27	2.09	2585.07	2545.48
0.125	30.05	2.13	2631.28	2590.97
0.130	28.87	2.16	2675.33	2634.35
0.135	27.79	2.20	2716.13	2674.53
0.140	26.82	2.23	2752.70	2710.53
0.145	25.98	2.25	2784.36	2741.71
0.150	25.27	2.27	2811.02	2767.96
0.155	24.67	2.29	2833.36	2789.96
0.160	24.15	2.31	2853.16	2809.46
0.165	23.60	2.32	2873.58	2829.56
0.170	22.91	2.35	2899.52	2855.10
0.175	21.89	2.38	2937.96	2892.96
0.180	20.29	2.43	2998.40	2952.47
0.185	17.76	2.50	3093.23	3045.85
0.190	13.91	2.62	3238.22	3188.61
0.195	8.20	2.79	3452.96	3400.07
0.200	0.	3.04	3761.42	3703.81

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -3.40 HEAD(FT) = 11.60

FREE FLOW DISCH COEFF = 3.05

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	96.94	0.09	116.72	114.92
0.010	92.65	0.22	280.63	276.31
0.015	87.61	0.38	472.87	465.59
0.020	82.23	0.54	678.51	668.06
0.025	76.79	0.71	886.08	872.44
0.030	71.53	0.87	1087.11	1070.37
0.035	66.59	1.02	1275.69	1256.04
0.040	62.07	1.16	1448.07	1425.77
0.045	58.03	1.28	1602.29	1577.62
0.050	54.43	1.39	1737.83	1711.07
0.055	51.40	1.48	1855.29	1826.72
0.060	48.76	1.56	1956.10	1925.98
0.065	46.51	1.63	2042.27	2010.83
0.070	44.57	1.69	2116.16	2083.58
0.075	42.89	1.74	2180.24	2146.68
0.080	41.41	1.79	2236.99	2202.55
0.085	40.05	1.83	2288.67	2253.44
0.090	38.78	1.87	2337.29	2301.30
0.095	37.55	1.90	2384.43	2347.72
0.100	36.32	1.94	2431.27	2393.83
0.105	35.08	1.98	2478.50	2440.34
0.110	33.83	2.02	2526.35	2487.45
0.115	32.56	2.06	2574.61	2534.96
0.120	31.31	2.09	2622.66	2582.28
0.125	30.08	2.13	2669.62	2628.52
0.130	28.90	2.17	2714.40	2672.60
0.135	27.82	2.20	2755.85	2713.42
0.140	26.84	2.23	2792.98	2749.98
0.145	26.00	2.26	2825.13	2781.63
0.150	25.29	2.28	2852.16	2808.24
0.155	24.70	2.30	2874.78	2830.52
0.160	24.18	2.31	2894.79	2850.22
0.165	23.64	2.33	2915.43	2870.54
0.170	22.95	2.35	2941.66	2896.36
0.175	21.93	2.38	2980.60	2934.71
0.180	20.32	2.43	3041.93	2995.09
0.185	17.80	2.51	3138.26	3089.94
0.190	13.94	2.62	3285.64	3235.05
0.195	8.22	2.80	3504.04	3450.08
0.200	0.	3.05	3817.85	3759.07

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -3.20 HEAD(FT) = 11.80

FREE FLOW DISCH COEFF = 3.06

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	96.97	0.09	119.06	117.21
0.010	92.70	0.22	287.18	282.71
0.015	87.67	0.38	484.79	477.25
0.020	82.29	0.54	696.42	685.59
0.025	76.85	0.71	910.16	896.01
0.030	71.58	0.87	1117.23	1099.86
0.035	66.64	1.02	1311.50	1291.11
0.040	62.13	1.16	1489.09	1465.93
0.045	58.09	1.28	1647.94	1622.31
0.050	54.54	1.39	1787.52	1759.72
0.055	51.46	1.49	1908.44	1878.77
0.060	48.82	1.57	2012.19	1980.90
0.065	46.57	1.63	2100.84	2068.17
0.070	44.64	1.69	2176.82	2142.97
0.075	42.96	1.75	2242.71	2207.83
0.080	41.48	1.79	2301.05	2265.27
0.085	40.12	1.83	2354.20	2317.59
0.090	38.85	1.87	2404.21	2366.83
0.095	37.62	1.91	2452.75	2414.61
0.100	36.39	1.95	2501.01	2462.12
0.105	35.15	1.98	2549.71	2510.06
0.110	33.90	2.02	2599.08	2558.66
0.115	32.63	2.06	2648.89	2607.70
0.120	31.37	2.10	2698.51	2656.55
0.125	30.13	2.14	2747.00	2704.28
0.130	28.96	2.17	2793.22	2749.79
0.135	27.87	2.21	2836.00	2791.90
0.140	26.90	2.24	2874.29	2829.60
0.145	26.05	2.26	2907.39	2862.18
0.150	25.35	2.28	2935.17	2889.53
0.155	24.76	2.30	2958.36	2912.35
0.160	24.24	2.32	2978.81	2932.49
0.165	23.70	2.33	2999.86	2953.21
0.170	23.02	2.36	3026.68	2979.62
0.175	22.00	2.39	3066.64	3018.96
0.180	20.40	2.44	3129.76	3081.09
0.185	17.87	2.51	3229.11	3178.90
0.190	14.00	2.63	3381.34	3328.76
0.195	8.26	2.81	3607.15	3551.06
0.200	0.	3.06	3931.83	3870.69

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70
CCD ELEV = -3.00 HEAD(FT) = 12.00
FREE FLOW DISCH COEFF = 3.07

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.00	0.09	121.38	119.47
0.010	92.74	0.22	293.73	289.12
0.015	87.73	0.38	496.77	488.97
0.020	82.35	0.54	714.45	703.24
0.025	76.91	0.71	934.45	919.78
0.030	71.64	0.87	1147.64	1129.63
0.035	66.70	1.02	1347.69	1326.53
0.040	62.18	1.16	1530.54	1506.51
0.045	58.14	1.29	1694.09	1667.49
0.050	54.59	1.39	1837.76	1808.91
0.055	51.52	1.49	1962.19	1931.38
0.060	48.88	1.57	2068.91	2036.43
0.065	46.63	1.64	2160.06	2126.15
0.070	44.70	1.70	2238.15	2203.02
0.075	43.03	1.75	2305.87	2269.67
0.080	41.55	1.80	2365.82	2328.68
0.085	40.20	1.84	2420.45	2382.45
0.090	38.93	1.88	2471.89	2433.08
0.095	37.69	1.91	2521.83	2482.24
0.100	36.46	1.95	2571.54	2531.17
0.105	35.22	1.99	2621.73	2580.57
0.110	33.96	2.03	2672.64	2630.68
0.115	32.70	2.07	2724.03	2681.27
0.120	31.43	2.11	2775.24	2731.67
0.125	30.19	2.14	2825.28	2780.93
0.130	29.01	2.18	2872.98	2827.88
0.135	27.92	2.21	2917.11	2871.31
0.140	26.95	2.24	2956.57	2910.16
0.145	26.11	2.27	2990.64	2943.69
0.150	25.40	2.29	3019.18	2971.78
0.155	24.82	2.31	3042.93	2995.16
0.160	24.30	2.33	3063.81	3015.72
0.165	23.77	2.34	3085.29	3036.85
0.170	23.09	2.36	3112.89	3063.83
0.175	22.08	2.39	3153.68	3104.17
0.180	20.48	2.44	3218.60	3168.07
0.185	17.94	2.52	3321.03	3268.89
0.190	14.06	2.64	3478.20	3423.59
0.195	8.30	2.82	3711.55	3653.28
0.200	0.	3.07	4047.30	3983.77

SILL LENGTH = 9.50 SILL WIDTH = 31.70
CCD ELEV = -2.00 HEAD(FT) = 12.20
FREE FLOW DISCH COEFF = 3.08

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.03	0.09	123.68	121.72
0.010	92.79	0.22	300.28	295.52
0.015	87.78	0.38	508.80	500.74
0.020	82.41	0.54	732.61	721.00
0.025	76.97	0.71	958.93	943.74
0.030	71.70	0.87	1178.34	1159.67
0.035	66.76	1.02	1384.23	1362.30
0.040	62.24	1.16	1572.42	1547.51
0.045	58.20	1.29	1740.73	1713.15
0.050	54.65	1.40	1888.54	1858.62
0.055	51.58	1.49	2016.52	1984.57
0.060	48.94	1.57	2126.24	2092.55
0.065	46.69	1.64	2219.92	2184.75
0.070	44.76	1.70	2300.16	2263.72
0.075	43.09	1.75	2369.71	2332.17
0.080	41.62	1.80	2431.29	2392.77
0.085	40.27	1.84	2487.42	2448.01
0.090	39.00	1.88	2540.29	2500.04
0.095	37.76	1.92	2591.67	2550.61
0.100	36.54	1.96	2642.83	2600.96
0.105	35.29	1.99	2694.53	2651.85
0.110	34.03	2.03	2747.01	2703.50
0.115	32.76	2.07	2800.01	2755.65
0.120	31.49	2.11	2852.83	2807.63
0.125	30.25	2.15	2904.45	2858.44
0.130	29.07	2.19	2953.65	2906.86
0.135	27.98	2.22	2999.15	2951.63
0.140	27.00	2.25	3039.80	2991.65
0.145	26.16	2.28	3074.86	3026.14
0.150	25.46	2.30	3104.16	3054.98
0.155	24.87	2.32	3128.47	3078.91
0.160	24.36	2.33	3149.79	3099.89
0.165	23.84	2.35	3171.68	3121.43
0.170	23.16	2.37	3199.67	3148.98
0.175	22.15	2.40	3241.68	3190.32
0.180	20.55	2.45	3308.44	3256.03
0.185	18.02	2.53	3413.98	3359.90
0.190	14.12	2.65	3576.17	3519.52
0.195	8.33	2.83	3817.21	3756.74
0.200	0.	3.08	4164.24	4098.27

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -2.60 HEAD(FT) = 12.40

FREE FLOW DISCH COEFF = 3.09

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.06	0.09	125.95	123.94
0.010	92.84	0.22	306.82	301.92
0.015	87.84	0.38	520.87	512.55
0.020	82.47	0.54	750.88	738.88
0.025	77.03	0.71	983.61	967.89
0.030	71.76	0.87	1209.30	1189.97
0.035	66.82	1.03	1421.11	1398.40
0.040	62.30	1.17	1614.72	1588.92
0.045	58.25	1.29	1787.84	1759.27
0.050	54.70	1.40	1939.85	1908.85
0.055	51.63	1.50	2071.42	2038.31
0.060	49.00	1.58	2184.17	2149.27
0.065	46.75	1.65	2280.41	2243.97
0.070	44.83	1.71	2362.81	2325.05
0.075	43.16	1.76	2434.22	2395.32
0.080	41.68	1.80	2497.45	2457.53
0.085	40.34	1.85	2555.09	2514.25
0.090	39.07	1.89	2609.41	2567.71
0.095	37.84	1.92	2662.23	2619.69
0.100	36.61	1.96	2714.88	2671.49
0.105	35.36	2.00	2768.12	2723.88
0.110	34.10	2.04	2822.19	2777.08
0.115	32.83	2.08	2876.81	2830.84
0.120	31.55	2.12	2931.27	2884.43
0.125	30.31	2.16	2984.50	2936.81
0.130	29.13	2.19	3035.22	2986.72
0.135	28.03	2.23	3082.11	3032.85
0.140	27.06	2.26	3123.97	3074.05
0.145	26.21	2.28	3160.82	3109.52
0.150	25.51	2.30	3190.09	3139.11
0.155	24.93	2.32	3214.98	3163.60
0.160	24.42	2.34	3236.72	3185.00
0.165	23.90	2.35	3259.02	3206.94
0.170	23.23	2.38	3287.60	3235.06
0.175	22.23	2.41	3330.64	3277.41
0.180	20.63	2.46	3399.25	3344.93
0.185	18.09	2.53	3507.96	3451.90
0.190	14.18	2.66	3675.25	3616.52
0.195	8.37	2.83	3924.12	3861.41
0.200	0.	3.09	4282.64	4214.20

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -2.50 HEAD(FT) = 12.50

FREE FLOW DISCH COEFF = 3.10

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.07	0.09	127.07	125.03
0.010	92.86	0.22	310.09	305.12
0.015	87.87	0.38	526.92	518.47
0.020	82.50	0.54	760.05	747.86
0.025	77.06	0.71	996.02	980.04
0.030	71.79	0.87	1224.88	1205.22
0.035	66.85	1.03	1439.69	1416.58
0.040	62.32	1.17	1636.02	1609.77
0.045	58.28	1.29	1811.57	1782.50
0.050	54.73	1.40	1965.70	1934.15
0.055	51.66	1.50	2099.08	2065.39
0.060	49.03	1.58	2213.37	2177.84
0.065	46.78	1.65	2310.89	2273.80
0.070	44.86	1.71	2394.38	2355.95
0.075	43.19	1.76	2466.73	2427.14
0.080	41.72	1.81	2530.78	2490.16
0.085	40.37	1.85	2589.18	2547.63
0.090	39.11	1.89	2644.23	2601.80
0.095	37.87	1.93	2697.79	2654.49
0.100	36.64	1.96	2751.18	2707.03
0.105	35.40	2.00	2805.19	2760.17
0.110	34.14	2.04	2860.07	2814.17
0.115	32.86	2.08	2915.52	2868.73
0.120	31.59	2.12	2970.81	2923.13
0.125	30.34	2.16	3024.85	2976.30
0.130	29.16	2.20	3076.34	3026.97
0.135	28.06	2.23	3123.93	3073.79
0.140	27.08	2.26	3166.41	3115.59
0.145	26.24	2.29	3202.96	3151.55
0.150	25.54	2.31	3233.42	3181.52
0.155	24.96	2.33	3258.58	3206.29
0.160	24.45	2.34	3280.54	3227.89
0.165	23.93	2.36	3303.05	3250.04
0.170	23.27	2.38	3331.92	3278.44
0.175	22.27	2.41	3375.48	3321.30
0.180	20.67	2.46	3445.02	3389.73
0.185	18.12	2.54	3555.33	3498.27
0.190	14.21	2.66	3725.20	3665.42
0.195	8.39	2.84	3978.03	3914.19
0.200	0.	3.10	4342.38	4272.69

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -2.40 HEAD(FT) = 12.60

FREE FLOW DISCH COEFF = 3.11

HD/HI	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.09	0.09	128.19	126.13
0.010	92.88	0.22	313.36	308.31
0.015	87.89	0.38	532.99	524.40
0.020	82.53	0.54	769.26	756.86
0.025	77.09	0.71	1008.48	992.23
0.030	71.82	0.87	1240.53	1220.54
0.035	66.87	1.03	1458.34	1434.84
0.040	62.35	1.17	1657.43	1630.72
0.045	58.31	1.29	1835.42	1805.84
0.050	54.76	1.40	1991.68	1959.58
0.055	51.69	1.50	2126.88	2092.60
0.060	49.06	1.58	2242.71	2206.56
0.065	46.81	1.65	2341.53	2303.79
0.070	44.89	1.71	2426.11	2387.01
0.075	43.23	1.76	2499.39	2459.11
0.080	41.75	1.81	2564.28	2522.95
0.085	40.41	1.85	2623.45	2581.17
0.090	39.14	1.89	2679.23	2636.06
0.095	37.91	1.93	2733.52	2689.47
0.100	36.68	1.97	2787.66	2742.74
0.105	35.44	2.00	2842.46	2796.65
0.110	34.17	2.04	2898.14	2851.44
0.115	32.89	2.08	2954.42	2906.81
0.120	31.62	2.12	3010.55	2962.03
0.125	30.37	2.16	3065.41	3016.01
0.130	29.18	2.20	3117.68	3067.44
0.135	28.09	2.23	3165.97	3114.95
0.140	27.11	2.26	3209.07	3157.35
0.145	26.27	2.29	3246.12	3193.81
0.150	25.57	2.31	3276.97	3224.16
0.155	24.99	2.33	3302.42	3249.20
0.160	24.48	2.34	3324.59	3271.02
0.165	23.97	2.36	3347.30	3293.36
0.170	23.31	2.38	3376.46	3322.05
0.175	22.30	2.41	3420.54	3365.42
0.180	20.70	2.46	3491.02	3434.76
0.185	18.16	2.54	3602.94	3544.88
0.190	14.24	2.66	3775.42	3714.58
0.195	8.41	2.84	4032.25	3967.26
0.200	0.	3.11	4402.48	4331.53

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -2.20 HEAD(FT) = 12.80

FREE FLOW DISCH COEFF = 3.12

HD/HI	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.12	0.09	130.41	128.29
0.010	92.93	0.22	319.89	314.69
0.015	87.95	0.38	545.14	536.29
0.020	82.59	0.54	787.74	774.94
0.025	77.15	0.71	1033.52	1016.73
0.030	71.88	0.88	1272.02	1251.35
0.035	66.93	1.03	1495.90	1471.60
0.040	62.41	1.17	1700.54	1672.91
0.045	58.36	1.30	1883.46	1852.87
0.050	54.82	1.41	2044.01	2010.81
0.055	51.75	1.50	2182.89	2147.43
0.060	49.12	1.59	2301.82	2264.43
0.065	46.87	1.66	2403.25	2364.21
0.070	44.96	1.72	2490.04	2449.58
0.075	43.29	1.77	2565.21	2523.54
0.080	41.82	1.81	2631.77	2589.01
0.085	40.48	1.85	2692.48	2648.74
0.090	39.22	1.89	2749.75	2705.08
0.095	37.98	1.93	2805.52	2759.94
0.100	36.75	1.97	2861.18	2814.70
0.105	35.51	2.01	2917.55	2870.16
0.110	34.24	2.05	2974.87	2926.54
0.115	32.96	2.09	3032.83	2983.56
0.120	31.68	2.13	3090.65	3040.44
0.125	30.43	2.17	3147.17	3096.04
0.130	29.24	2.21	3201.01	3149.01
0.135	28.14	2.24	3250.74	3197.93
0.140	27.16	2.27	3295.07	3241.54
0.145	26.32	2.30	3333.14	3279.00
0.150	25.62	2.32	3364.78	3310.12
0.155	25.04	2.34	3390.80	3335.71
0.160	24.54	2.35	3413.40	3357.94
0.165	24.03	2.37	3436.51	3380.68
0.170	23.38	2.39	3466.25	3409.94
0.175	22.38	2.42	3511.37	3454.32
0.180	20.78	2.47	3583.74	3525.52
0.185	18.23	2.55	3698.92	3638.83
0.190	14.30	2.67	3876.67	3813.69
0.195	8.45	2.85	4141.59	4074.31
0.200	0.	3.12	4523.74	4450.25

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -2.00 HEAD(FT) = 13.00

FREE FLOW DISCH COEFF = 3.13

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.15	0.09	132.60	130.43
0.010	92.98	0.22	326.40	321.06
0.015	88.01	0.38	557.33	548.20
0.020	82.65	0.54	806.33	793.12
0.025	77.21	0.71	1058.74	1041.41
0.030	71.94	0.88	1303.75	1282.41
0.035	66.99	1.03	1533.79	1508.68
0.040	62.46	1.17	1744.03	1715.48
0.045	58.42	1.30	1931.96	1900.33
0.050	54.87	1.41	2096.85	2062.52
0.055	51.80	1.51	2239.44	2202.77
0.060	49.18	1.59	2361.51	2322.84
0.065	46.94	1.66	2465.57	2425.20
0.070	45.02	1.72	2554.58	2512.76
0.075	43.36	1.77	2631.66	2588.58
0.080	41.89	1.82	2699.91	2655.71
0.085	40.55	1.86	2762.18	2716.95
0.090	39.29	1.90	2820.94	2774.76
0.095	38.06	1.94	2878.21	2831.09
0.100	36.82	1.98	2935.41	2887.35
0.105	35.58	2.01	2993.38	2944.37
0.110	34.31	2.05	3052.36	3002.39
0.115	33.02	2.09	3112.03	3061.08
0.120	31.74	2.13	3171.56	3119.64
0.125	30.49	2.17	3229.76	3176.88
0.130	29.30	2.21	3285.20	3231.41
0.135	28.19	2.25	3336.37	3281.75
0.140	27.21	2.28	3381.97	3326.60
0.145	26.37	2.30	3421.08	3365.07
0.150	25.67	2.32	3453.50	3396.96
0.155	25.10	2.34	3480.09	3423.12
0.160	24.61	2.36	3503.11	3445.76
0.165	24.10	2.37	3526.62	3468.88
0.170	23.45	2.39	3556.94	3498.70
0.175	22.45	2.42	3603.10	3544.11
0.180	20.86	2.47	3677.39	3617.19
0.185	18.31	2.55	3795.87	3733.73
0.190	14.36	2.68	3978.97	3913.83
0.195	8.49	2.86	4252.13	4182.52
0.200	0.	3.13	4646.41	4570.34

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -1.80 HEAD(FT) = 13.20

FREE FLOW DISCH COEFF = 3.14

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.18	0.09	134.75	132.53
0.010	93.02	0.22	332.90	327.40
0.015	88.06	0.37	569.54	560.15
0.020	82.71	0.54	825.00	811.40
0.025	77.27	0.71	1084.13	1066.25
0.030	72.00	0.88	1335.73	1313.70
0.035	67.05	1.03	1571.99	1546.06
0.040	62.52	1.18	1787.91	1758.42
0.045	58.48	1.30	1980.89	1948.21
0.050	54.93	1.41	2150.17	2114.71
0.055	51.86	1.51	2296.52	2258.64
0.060	49.23	1.59	2421.75	2381.81
0.065	47.00	1.66	2528.47	2486.77
0.070	45.08	1.72	2619.73	2576.52
0.075	43.43	1.78	2698.74	2654.22
0.080	41.96	1.82	2768.69	2723.02
0.085	40.62	1.86	2832.52	2785.80
0.090	39.36	1.90	2892.80	2845.08
0.095	38.13	1.94	2951.58	2902.89
0.100	36.90	1.98	3010.33	2960.68
0.105	35.65	2.02	3069.92	3019.29
0.110	34.38	2.06	3130.59	3078.95
0.115	33.09	2.10	3191.99	3139.34
0.120	31.80	2.14	3253.26	3199.60
0.125	30.55	2.18	3313.17	3258.52
0.130	29.35	2.22	3370.23	3314.64
0.135	28.25	2.25	3422.88	3366.42
0.140	27.27	2.28	3469.75	3412.52
0.145	26.42	2.31	3509.90	3452.00
0.150	25.73	2.33	3543.12	3484.67
0.155	25.16	2.35	3570.28	3511.39
0.160	24.67	2.36	3593.72	3534.44
0.165	24.17	2.38	3617.62	3557.95
0.170	23.52	2.40	3648.51	3588.33
0.175	22.53	2.43	3695.73	3634.77
0.180	20.93	2.48	3771.95	3709.74
0.185	18.38	2.56	3893.78	3829.55
0.190	14.43	2.69	4082.32	4014.98
0.195	8.52	2.87	4363.85	4291.87
0.200	0.	3.14	4770.46	4691.77

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -1.60 HEAD(FT) = 13.40

FREE FLOW DISCH COEFF = 3.15

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.20	0.09	136.87	134.60
0.010	93.07	0.22	339.37	333.73
0.015	88.12	0.37	581.78	572.12
0.020	82.77	0.54	843.77	829.75
0.025	77.33	0.71	1109.68	1091.24
0.030	72.06	0.88	1367.95	1345.22
0.035	67.11	1.04	1610.49	1583.74
0.040	62.58	1.18	1832.17	1801.73
0.045	58.53	1.31	2030.25	1996.52
0.050	54.98	1.42	2203.98	2167.36
0.055	51.92	1.51	2354.11	2315.00
0.060	49.29	1.60	2482.55	2441.30
0.065	47.06	1.67	2591.95	2548.89
0.070	45.15	1.73	2685.47	2640.85
0.075	43.49	1.78	2766.42	2720.46
0.080	42.03	1.83	2838.08	2790.93
0.085	40.70	1.87	2903.50	2855.26
0.090	39.43	1.91	2965.30	2916.04
0.095	38.20	1.95	3025.61	2975.35
0.100	36.97	1.98	3085.94	3034.67
0.105	35.72	2.02	3147.17	3094.89
0.110	34.44	2.06	3209.54	3156.22
0.115	33.15	2.10	3272.69	3218.33
0.120	31.87	2.15	3335.74	3280.32
0.125	30.61	2.18	3397.38	3340.94
0.130	29.41	2.22	3456.08	3398.66
0.135	28.30	2.26	3510.22	3451.91
0.140	27.32	2.29	3558.39	3499.27
0.145	26.48	2.31	3599.59	3539.79
0.150	25.78	2.34	3633.61	3573.24
0.155	25.22	2.35	3661.36	3600.52
0.160	24.73	2.37	3685.20	3623.97
0.165	24.23	2.39	3709.49	3647.86
0.170	23.59	2.41	3740.95	3678.80
0.175	22.60	2.44	3789.22	3726.27
0.180	21.01	2.49	3867.40	3803.15
0.185	18.45	2.57	3992.61	3926.28
0.190	14.48	2.69	4186.67	4117.12
0.195	8.56	2.88	4476.71	4402.34
0.200	0.	3.15	4895.88	4814.55

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -1.50 HEAD(FT) = 13.50

FREE FLOW DISCH COEFF = 3.15

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.22	0.09	137.92	135.62
0.010	93.09	0.22	342.60	336.89
0.015	88.14	0.37	587.91	578.11
0.020	82.80	0.54	853.18	838.96
0.025	77.36	0.71	1122.51	1103.80
0.030	72.09	0.88	1384.14	1361.07
0.035	67.13	1.04	1629.86	1602.69
0.040	62.61	1.18	1854.43	1823.51
0.045	58.56	1.31	2055.09	2020.83
0.050	55.01	1.42	2231.05	2193.86
0.055	51.94	1.52	2383.10	2343.37
0.060	49.32	1.60	2513.14	2471.25
0.065	47.09	1.67	2623.90	2580.16
0.070	45.18	1.73	2718.56	2673.23
0.075	43.53	1.78	2800.48	2753.79
0.080	42.07	1.83	2873.01	2825.11
0.085	40.73	1.87	2939.22	2890.22
0.090	39.47	1.91	3001.79	2951.75
0.095	38.24	1.95	3062.87	3011.81
0.100	37.00	1.99	3124.00	3071.92
0.105	35.75	2.03	3186.05	3132.94
0.110	34.48	2.07	3249.29	3195.12
0.115	33.19	2.11	3313.33	3258.09
0.120	31.90	2.15	3377.27	3320.97
0.125	30.64	2.19	3439.79	3382.44
0.130	29.44	2.23	3499.31	3440.98
0.135	28.33	2.26	3554.21	3494.96
0.140	27.35	2.29	3603.03	3542.96
0.145	26.50	2.32	3644.76	3584.00
0.150	25.81	2.34	3679.19	3617.85
0.155	25.24	2.36	3707.21	3645.41
0.160	24.76	2.37	3731.27	3669.06
0.165	24.27	2.39	3755.75	3693.14
0.170	23.63	2.41	3787.50	3724.35
0.175	22.64	2.44	3836.29	3772.34
0.180	21.05	2.49	3915.45	3850.18
0.185	18.49	2.57	4042.38	3974.99
0.190	14.52	2.70	4239.23	4168.56
0.195	8.58	2.88	4533.58	4458.00
0.200	0.	3.15	4959.10	4876.42

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -1.40 HEAD(FT) = 13.60

FREE FLOW DISCH COEFF = 3.16

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.23	0.09	138.96	136.63
0.010	93.11	0.22	345.82	340.04
0.015	88.17	0.37	594.04	584.11
0.020	82.83	0.54	862.61	848.18
0.025	77.39	0.71	1135.38	1116.39
0.030	72.12	0.88	1400.39	1376.97
0.035	67.16	1.04	1649.30	1621.71
0.040	62.63	1.18	1876.78	1845.39
0.045	58.59	1.31	2080.03	2045.23
0.050	55.04	1.42	2258.25	2220.47
0.055	51.97	1.52	2412.21	2371.86
0.060	49.35	1.60	2543.88	2501.32
0.065	47.12	1.67	2655.99	2611.56
0.070	45.21	1.73	2751.79	2705.75
0.075	43.56	1.78	2834.69	2787.27
0.080	42.10	1.83	2908.09	2859.44
0.085	40.77	1.87	2975.10	2925.33
0.090	39.51	1.91	3038.44	2987.61
0.095	38.27	1.95	3100.29	3048.43
0.100	37.04	1.99	3162.22	3109.32
0.105	35.79	2.03	3225.11	3171.16
0.110	34.51	2.07	3289.21	3234.19
0.115	33.22	2.11	3354.14	3298.03
0.120	31.93	2.15	3418.98	3361.79
0.125	30.67	2.19	3482.39	3424.13
0.130	29.46	2.23	3542.75	3483.48
0.135	28.36	2.26	3598.41	3538.21
0.140	27.37	2.29	3647.88	3586.85
0.145	26.53	2.32	3690.14	3628.41
0.150	25.84	2.34	3724.97	3662.66
0.155	25.27	2.36	3753.28	3690.50
0.160	24.79	2.38	3777.55	3714.35
0.165	24.30	2.39	3802.22	3738.62
0.170	23.66	2.41	3834.25	3770.10
0.175	22.68	2.44	3883.58	3818.61
0.180	21.08	2.49	3963.72	3897.42
0.185	18.92	2.57	4092.37	4023.92
0.190	14.55	2.70	4292.04	4220.24
0.195	8.60	2.89	4590.72	4513.93
0.200	0.	3.16	5022.65	4938.63

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -1.20 HEAD(FT) = 13.80

FREE FLOW DISCH COEFF = 3.17

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.26	0.09	141.00	138.63
0.010	93.16	0.22	352.24	346.31
0.015	88.23	0.37	606.32	596.11
0.020	82.89	0.54	881.54	866.69
0.025	77.46	0.71	1161.23	1141.67
0.030	72.18	0.88	1433.06	1408.92
0.035	67.22	1.04	1688.39	1659.96
0.040	62.69	1.18	1921.75	1889.39
0.045	58.64	1.31	2130.22	2094.35
0.050	55.09	1.42	2312.97	2274.02
0.055	52.03	1.52	2470.81	2429.20
0.060	49.41	1.60	2605.73	2561.85
0.065	47.18	1.67	2720.58	2674.76
0.070	45.28	1.73	2818.67	2771.20
0.075	43.63	1.79	2903.55	2854.65
0.080	42.17	1.83	2978.69	2928.52
0.085	40.84	1.88	3047.31	2995.99
0.090	39.58	1.92	3112.20	3059.79
0.095	38.35	1.95	3175.61	3122.14
0.100	37.11	1.99	3239.15	3184.60
0.105	35.86	2.03	3303.72	3248.09
0.110	34.58	2.07	3369.58	3312.83
0.115	33.29	2.11	3436.31	3378.44
0.120	31.99	2.16	3502.97	3443.98
0.125	30.73	2.20	3568.16	3508.07
0.130	29.52	2.23	3630.21	3569.07
0.135	28.41	2.27	3687.40	3625.30
0.140	27.42	2.30	3738.20	3675.24
0.145	26.58	2.33	3781.54	3717.86
0.150	25.89	2.35	3817.18	3752.90
0.155	25.33	2.37	3846.07	3781.30
0.160	24.85	2.38	3870.73	3805.55
0.165	24.36	2.40	3895.78	3830.18
0.170	23.73	2.42	3928.37	3862.22
0.175	22.75	2.45	3978.76	3911.76
0.180	21.16	2.50	4060.90	3992.51
0.185	18.59	2.58	4193.02	4122.41
0.190	14.61	2.71	4398.37	4324.30
0.195	8.64	2.90	4705.84	4626.59
0.200	0.	3.17	5150.75	5064.01

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -1.00 HEAD(FT) = 14.00

FREE FLOW DISCH COEFF = 3.18

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.29	0.09	143.01	140.59
0.010	93.21	0.22	358.64	352.56
0.015	88.28	0.37	618.66	608.12
0.020	82.95	0.54	900.53	885.27
0.025	77.52	0.71	1187.22	1167.10
0.030	72.24	0.88	1465.93	1441.09
0.035	67.28	1.04	1727.77	1698.49
0.040	62.75	1.18	1967.07	1933.73
0.045	58.70	1.31	2180.81	2143.85
0.050	55.15	1.43	2368.14	2328.01
0.055	52.09	1.52	2529.89	2487.01
0.060	49.47	1.61	2668.10	2622.88
0.065	47.24	1.68	2785.70	2738.48
0.070	45.34	1.74	2886.11	2837.19
0.075	43.70	1.79	2972.97	2922.58
0.080	42.24	1.84	3049.86	2998.17
0.085	40.91	1.88	3120.11	3067.22
0.090	39.65	1.92	3186.57	3132.56
0.095	38.42	1.96	3251.56	3196.45
0.100	37.19	2.00	3316.72	3260.50
0.105	35.93	2.04	3382.99	3325.65
0.110	34.65	2.08	3450.62	3392.14
0.115	33.35	2.12	3519.19	3459.54
0.120	32.05	2.16	3587.69	3526.88
0.125	30.78	2.20	3654.69	3592.74
0.130	29.58	2.24	3718.45	3655.43
0.135	28.46	2.27	3777.20	3713.18
0.140	27.48	2.31	3829.33	3764.43
0.145	26.64	2.33	3873.77	3808.11
0.150	25.94	2.35	3910.23	3843.95
0.155	25.39	2.37	3939.69	3872.91
0.160	24.91	2.39	3964.75	3897.56
0.165	24.43	2.40	3990.17	3922.54
0.170	23.80	2.42	4023.32	3955.13
0.175	22.83	2.45	4074.78	4005.71
0.180	21.24	2.50	4158.92	4088.43
0.185	18.67	2.59	4294.57	4221.78
0.190	14.67	2.71	4505.69	4429.32
0.195	8.68	2.90	4822.07	4740.34
0.200	0.	3.18	5280.17	5190.67

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -0.80 HEAD(FT) = 14.20

FREE FLOW DISCH COEFF = 3.19

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.32	0.09	144.98	142.51
0.010	93.25	0.22	365.00	358.77
0.015	88.34	0.37	630.89	620.13
0.020	83.00	0.54	919.59	903.91
0.025	77.58	0.72	1213.34	1192.65
0.030	72.30	0.88	1499.01	1473.45
0.035	67.34	1.04	1767.42	1737.28
0.040	62.80	1.19	2012.72	1978.39
0.045	58.75	1.32	2231.79	2193.73
0.050	55.21	1.43	2423.75	2382.41
0.055	52.14	1.53	2589.44	2545.27
0.060	49.53	1.61	2730.97	2684.39
0.065	47.30	1.68	2851.34	2802.71
0.070	45.40	1.74	2954.09	2903.71
0.075	43.76	1.79	3042.95	2991.05
0.080	42.31	1.84	3121.61	3068.37
0.085	40.98	1.88	3193.48	3139.02
0.090	39.72	1.92	3261.53	3205.90
0.095	38.49	1.96	3328.11	3271.35
0.100	37.26	2.00	3394.91	3337.01
0.105	36.00	2.04	3462.91	3403.85
0.110	34.72	2.08	3532.34	3472.10
0.115	33.42	2.12	3602.76	3541.31
0.120	32.12	2.17	3673.13	3610.49
0.125	30.84	2.21	3741.96	3678.14
0.130	29.63	2.24	3807.46	3742.52
0.135	28.52	2.28	3867.78	3801.82
0.140	27.53	2.31	3921.27	3854.40
0.145	26.69	2.34	3966.80	3899.15
0.150	26.00	2.36	4004.09	3935.80
0.155	25.44	2.38	4034.12	3965.32
0.160	24.97	2.39	4059.59	3990.35
0.165	24.50	2.41	4085.37	4015.69
0.170	23.87	2.43	4119.07	4048.82
0.175	22.98	2.46	4171.59	4100.45
0.180	21.31	2.51	4257.76	4185.15
0.185	18.74	2.59	4396.98	4321.99
0.190	14.73	2.72	4613.94	4535.25
0.195	8.71	2.91	4939.39	4855.15
0.200	0.	3.19	5410.88	5318.60

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -0.60 HEAD(FT) = 14.40

FREE FLOW DISCH COEFF = 3.20

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.35	0.08	146.91	144.39
0.010	93.30	0.21	371.32	364.95
0.015	88.40	0.37	643.19	632.15
0.020	83.06	0.54	938.71	922.60
0.025	77.64	0.72	1239.59	1218.32
0.030	72.36	0.88	1532.29	1506.00
0.035	67.39	1.04	1807.34	1776.33
0.040	62.86	1.19	2058.69	2023.37
0.045	58.81	1.32	2283.15	2243.98
0.050	55.26	1.43	2479.78	2437.24
0.055	52.20	1.53	2649.45	2603.99
0.060	49.59	1.61	2794.32	2746.38
0.065	47.36	1.68	2917.50	2867.44
0.070	45.47	1.74	3022.59	2970.73
0.075	43.83	1.80	3113.47	3060.05
0.080	42.38	1.84	3193.91	3139.11
0.085	41.05	1.89	3267.43	3211.37
0.090	39.80	1.93	3337.06	3279.81
0.095	38.57	1.97	3405.25	3346.82
0.100	37.33	2.01	3473.72	3414.12
0.105	36.07	2.05	3543.46	3482.66
0.110	34.79	2.09	3614.71	3552.69
0.115	33.48	2.13	3687.00	3623.74
0.120	32.18	2.17	3759.27	3694.77
0.125	30.90	2.21	3829.96	3764.24
0.130	29.69	2.25	3897.21	3830.35
0.135	28.57	2.29	3959.13	3891.20
0.140	27.58	2.32	4014.00	3945.13
0.145	26.74	2.34	4060.64	3990.97
0.150	26.05	2.37	4098.75	4028.43
0.155	25.50	2.38	4129.36	4058.51
0.160	25.03	2.40	4155.22	4083.92
0.165	24.56	2.41	4181.35	4109.61
0.170	23.95	2.43	4215.60	4143.27
0.175	22.98	2.46	4269.20	4195.95
0.180	21.39	2.52	4357.41	4282.65
0.185	18.81	2.60	4500.24	4423.03
0.190	14.79	2.73	4723.13	4642.09
0.195	8.75	2.92	5057.77	4970.99
0.200	0.	3.20	5542.86	5447.76

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -0.50 HEAD(FT) = 14.50

FREE FLOW DISCH COEFF = 3.20

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.36	0.08	147.85	145.31
0.010	93.32	0.21	374.47	368.03
0.015	88.42	0.37	649.33	638.16
0.020	83.09	0.54	948.29	931.97
0.025	77.67	0.72	1252.76	1231.20
0.030	72.39	0.88	1549.00	1522.35
0.035	67.42	1.04	1827.39	1795.95
0.040	62.89	1.19	2081.80	2045.98
0.045	58.84	1.32	2308.97	2269.24
0.050	55.29	1.43	2507.95	2464.80
0.055	52.23	1.53	2679.62	2633.51
0.060	49.62	1.61	2826.18	2777.55
0.065	47.40	1.69	2950.76	2899.98
0.070	45.50	1.75	3057.04	3004.44
0.075	43.86	1.80	3148.93	3094.74
0.080	42.41	1.85	3230.26	3174.68
0.085	41.09	1.89	3304.61	3247.74
0.090	39.83	1.93	3375.04	3316.97
0.095	38.60	1.97	3444.04	3384.77
0.100	37.37	2.01	3513.34	3452.89
0.105	36.11	2.05	3583.96	3522.29
0.110	34.82	2.09	3656.13	3593.22
0.115	33.51	2.13	3729.37	3665.20
0.120	32.21	2.17	3802.60	3737.16
0.125	30.93	2.21	3874.22	3807.56
0.130	29.72	2.25	3942.37	3874.53
0.135	28.60	2.29	4005.09	3936.17
0.140	27.61	2.32	4060.65	3990.78
0.145	26.77	2.35	4107.85	4037.16
0.150	26.08	2.37	4146.38	4075.03
0.155	25.53	2.39	4177.27	4105.39
0.160	25.07	2.40	4203.32	4130.99
0.165	24.60	2.42	4229.63	4156.85
0.170	23.98	2.44	4264.16	4190.78
0.175	23.02	2.47	4318.28	4243.98
0.180	21.42	2.52	4407.53	4331.68
0.185	18.85	2.60	4552.17	4473.84
0.190	14.82	2.73	4778.06	4695.84
0.195	8.77	2.92	5117.34	5029.29
0.200	0.	3.20	5609.32	5512.80

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -0.40 HEAD(FT) = 14.60

FREE FLOW DISCH COEFF = 3.21

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.38	0.08	148.79	146.22
0.010	93.35	0.21	377.61	371.09
0.015	88.45	0.37	655.48	644.16
0.020	83.12	0.54	957.88	941.35
0.025	77.70	0.72	1265.96	1244.11
0.030	72.41	0.89	1565.76	1538.74
0.035	67.45	1.04	1847.51	1815.63
0.040	62.91	1.19	2104.99	2068.66
0.045	58.86	1.32	2334.88	2294.59
0.050	55.32	1.43	2536.23	2492.46
0.055	52.26	1.53	2709.91	2663.14
0.060	49.65	1.62	2858.16	2808.83
0.065	47.43	1.69	2984.15	2932.65
0.070	45.53	1.75	3091.61	3038.26
0.075	43.90	1.80	3184.51	3129.56
0.080	42.45	1.85	3266.75	3210.37
0.085	41.12	1.89	3341.92	3284.25
0.090	39.87	1.93	3413.16	3354.26
0.095	38.64	1.97	3482.97	3422.86
0.100	37.40	2.01	3553.12	3491.80
0.105	36.14	2.05	3624.62	3562.07
0.110	34.85	2.09	3697.71	3633.90
0.115	33.55	2.13	3771.91	3706.81
0.120	32.24	2.17	3846.09	3779.72
0.125	30.96	2.22	3918.66	3851.04
0.130	29.75	2.25	3987.70	3918.89
0.135	28.63	2.29	4051.23	3981.32
0.140	27.64	2.32	4107.49	4036.61
0.145	26.79	2.35	4155.25	4083.54
0.150	26.11	2.37	4194.20	4121.82
0.155	25.56	2.39	4225.37	4152.45
0.160	25.10	2.40	4251.62	4178.25
0.165	24.63	2.42	4278.10	4204.28
0.170	24.02	2.44	4312.90	4238.47
0.175	23.05	2.47	4367.56	4292.19
0.180	21.46	2.52	4457.84	4380.91
0.185	18.88	2.60	4604.31	4524.86
0.190	14.85	2.73	4833.21	4749.80
0.195	8.79	2.93	5177.18	5087.83
0.200	0.	3.21	5676.09	5578.14

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = -0.20 HEAD(FT) = 14.80

FREE FLOW DISCH COEFF = 3.22

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.41	0.08	150.63	148.01
0.010	93.39	0.21	383.85	377.19
0.015	88.51	0.37	667.76	656.17
0.020	83.18	0.54	977.10	960.14
0.025	77.76	0.72	1292.44	1270.02
0.030	72.47	0.89	1599.41	1571.65
0.035	67.51	1.05	1887.93	1855.17
0.040	62.97	1.19	2151.59	2114.25
0.045	58.92	1.32	2386.97	2345.54
0.050	55.37	1.44	2593.07	2548.07
0.055	52.31	1.54	2770.80	2722.72
0.060	49.70	1.62	2922.45	2871.74
0.065	47.49	1.69	3051.29	2998.33
0.070	45.60	1.75	3161.14	3106.28
0.075	43.96	1.80	3256.08	3199.57
0.080	42.52	1.85	3340.11	3282.15
0.085	41.19	1.89	3416.95	3357.65
0.090	39.94	1.93	3489.81	3429.25
0.095	38.71	1.97	3561.25	3499.45
0.100	37.47	2.01	3633.10	3570.05
0.105	36.21	2.05	3706.38	3642.06
0.110	34.92	2.10	3781.34	3715.71
0.115	33.61	2.14	3857.46	3790.52
0.120	32.30	2.18	3933.59	3865.33
0.125	31.02	2.22	4008.07	3938.51
0.130	29.80	2.26	4078.91	4008.12
0.135	28.68	2.30	4144.08	4072.16
0.140	27.69	2.33	4201.74	4128.82
0.145	26.85	2.36	4250.62	4176.86
0.150	26.16	2.38	4290.41	4215.96
0.155	25.62	2.39	4322.16	4247.15
0.160	25.16	2.41	4348.79	4273.32
0.165	24.70	2.42	4375.62	4299.68
0.170	24.09	2.44	4410.95	4334.40
0.175	23.13	2.47	4466.68	4389.17
0.180	21.54	2.53	4559.04	4479.92
0.185	18.85	2.61	4709.20	4627.48
0.190	14.91	2.74	4944.20	4858.39
0.195	8.83	2.94	5297.63	5205.69
0.200	0.	3.22	5810.57	5709.73

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70
CCD ELEV = 0. HEAD(FT) = 15.00
FREE FLOW DISCH COEFF = 3.23

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.44	0.08	152.42	149.76
0.010	93.44	0.21	390.05	383.24
0.015	88.56	0.37	680.03	668.17
0.020	83.24	0.54	996.37	978.98
0.025	77.82	0.72	1319.04	1296.02
0.030	72.53	0.89	1633.23	1604.74
0.035	67.57	1.05	1928.59	1894.94
0.040	63.03	1.19	2198.49	2160.13
0.045	58.98	1.32	2439.41	2396.84
0.050	55.43	1.44	2650.32	2604.07
0.055	52.37	1.54	2832.13	2782.71
0.060	49.76	1.62	2987.21	2935.08
0.065	47.55	1.69	3118.90	3064.48
0.070	45.66	1.75	3231.15	3174.77
0.075	44.03	1.81	3328.14	3270.07
0.080	42.59	1.85	3413.99	3354.42
0.085	41.27	1.90	3492.51	3431.57
0.090	40.01	1.94	3566.99	3504.75
0.095	38.78	1.98	3640.08	3576.57
0.100	37.55	2.02	3713.64	3648.84
0.105	36.28	2.06	3788.73	3722.62
0.110	34.99	2.10	3865.57	3798.12
0.115	33.68	2.14	3943.64	3874.83
0.120	32.37	2.18	4021.74	3951.57
0.125	31.08	2.23	4098.15	4026.64
0.130	29.86	2.26	4170.82	4098.05
0.135	28.73	2.30	4237.64	4163.70
0.140	27.74	2.33	4296.72	4221.75
0.145	26.90	2.36	4346.75	4270.90
0.150	26.22	2.38	4387.38	4310.83
0.155	25.67	2.40	4419.70	4342.58
0.160	25.22	2.41	4446.70	4369.11
0.165	24.76	2.43	4473.86	4395.80
0.170	24.16	2.45	4509.73	4431.04
0.175	23.20	2.48	4566.54	4486.86
0.180	21.61	2.53	4660.99	4579.66
0.185	19.03	2.61	4814.89	4730.88
0.190	14.97	2.75	5056.05	4967.83
0.195	8.87	2.94	5419.08	5324.53
0.200	0.	3.23	5946.26	5842.50

SILL LENGTH = 9.50 SILL WIDTH = 31.70
CCD ELEV = 0.20 HEAD(FT) = 15.20
FREE FLOW DISCH COEFF = 3.24

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.47	0.08	154.16	151.45
0.010	93.49	0.21	396.20	389.25
0.015	88.62	0.37	692.29	680.15
0.020	83.30	0.54	1015.67	997.85
0.025	77.88	0.72	1345.73	1322.13
0.030	72.59	0.89	1667.23	1637.98
0.035	67.62	1.05	1969.48	1934.94
0.040	63.08	1.20	2245.68	2206.29
0.045	59.03	1.33	2492.19	2448.47
0.050	55.48	1.44	2707.94	2660.44
0.055	52.43	1.54	2893.87	2843.11
0.060	49.82	1.62	3052.40	2998.86
0.065	47.61	1.70	3186.98	3131.07
0.070	45.72	1.76	3301.64	3243.73
0.075	44.10	1.81	3400.69	3341.04
0.080	42.66	1.86	3488.36	3427.17
0.085	41.34	1.90	3568.57	3505.98
0.090	40.09	1.94	3644.70	3580.77
0.095	38.86	1.98	3719.45	3654.21
0.100	37.62	2.02	3794.74	3728.18
0.105	36.35	2.06	3871.65	3803.73
0.110	35.06	2.10	3950.40	3881.10
0.115	33.74	2.15	4030.44	3959.75
0.120	32.43	2.19	4110.54	4038.43
0.125	31.14	2.23	4188.90	4115.42
0.130	29.91	2.27	4263.42	4188.64
0.135	28.79	2.31	4331.92	4255.93
0.140	27.79	2.34	4392.43	4315.39
0.145	26.95	2.37	4443.61	4365.67
0.150	26.27	2.39	4485.09	4406.42
0.155	25.73	2.41	4517.97	4438.72
0.160	25.28	2.42	4545.35	4465.62
0.165	24.83	2.43	4572.84	4492.63
0.170	24.23	2.45	4609.23	4528.38
0.175	23.28	2.48	4667.12	4585.25
0.180	21.69	2.54	4763.67	4680.11
0.185	19.10	2.62	4921.35	4835.03
0.190	15.03	2.75	5168.77	5078.10
0.195	8.90	2.95	5541.53	5444.33
0.200	0.	3.24	6083.15	5976.45

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = 0.40 HEAD(FT) = 15.40

FREE FLOW DISCH COEFF = 3.25

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.49	0.08	155.85	153.10
0.010	93.53	0.21	402.29	395.20
0.015	88.68	0.37	704.53	692.11
0.020	83.36	0.54	1035.00	1016.76
0.025	77.94	0.72	1372.52	1348.32
0.030	72.65	0.89	1701.38	1671.38
0.035	67.68	1.05	2010.60	1975.15
0.040	63.14	1.20	2293.15	2252.72
0.045	59.09	1.33	2545.30	2500.42
0.050	55.54	1.44	2765.94	2717.17
0.055	52.48	1.54	2956.02	2903.90
0.060	49.88	1.63	3118.03	3063.06
0.065	47.67	1.70	3255.50	3198.11
0.070	45.79	1.76	3372.59	3313.13
0.075	44.16	1.81	3473.72	3412.48
0.080	42.72	1.86	3563.23	3500.40
0.085	41.41	1.90	3645.13	3580.87
0.090	40.16	1.94	3722.91	3657.28
0.095	38.93	1.98	3799.34	3732.36
0.100	37.69	2.02	3876.38	3808.04
0.105	36.43	2.06	3955.12	3885.39
0.110	35.13	2.11	4035.80	3964.65
0.115	33.81	2.15	4117.84	4045.24
0.120	32.49	2.19	4199.96	4125.91
0.125	31.20	2.23	4280.30	4204.84
0.130	29.97	2.27	4356.69	4279.88
0.135	28.84	2.31	4426.88	4348.83
0.140	27.85	2.34	4488.85	4409.71
0.145	27.00	2.37	4541.19	4461.12
0.150	26.32	2.39	4583.51	4502.70
0.155	25.79	2.41	4616.97	4535.57
0.160	25.34	2.42	4644.71	4562.82
0.165	24.89	2.44	4672.52	4590.14
0.170	24.30	2.46	4709.42	4626.39
0.175	23.35	2.49	4768.39	4684.32
0.180	21.77	2.54	4867.07	4781.26
0.185	19.17	2.62	5028.57	4939.91
0.190	15.09	2.76	5282.31	5189.18
0.195	8.94	2.96	5664.95	5565.07
0.200	0.	3.25	6221.22	6111.54

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = 0.50 HEAD(FT) = 15.50

FREE FLOW DISCH COEFF = 3.25

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.51	0.08	156.68	153.91
0.010	93.56	0.21	405.32	398.16
0.015	88.70	0.37	710.64	698.08
0.020	83.39	0.54	1044.68	1026.22
0.025	77.97	0.72	1385.95	1361.45
0.030	72.68	0.89	1718.52	1688.14
0.035	67.71	1.05	2031.24	1995.34
0.040	63.17	1.20	2316.99	2276.04
0.045	59.11	1.33	2571.98	2526.52
0.050	55.57	1.44	2795.07	2745.67
0.055	52.51	1.54	2987.24	2934.44
0.060	49.91	1.63	3151.00	3095.31
0.065	47.70	1.70	3289.93	3231.78
0.070	45.82	1.76	3408.24	3348.00
0.075	44.20	1.81	3510.41	3448.36
0.080	42.76	1.86	3600.84	3537.19
0.085	41.44	1.90	3683.60	3618.49
0.090	40.19	1.94	3762.21	3695.71
0.095	38.97	1.98	3839.48	3771.62
0.100	37.73	2.03	3917.39	3848.16
0.105	36.46	2.07	3997.06	3926.42
0.110	35.16	2.11	4078.72	4006.63
0.115	33.84	2.15	4161.77	4088.21
0.120	32.52	2.19	4244.90	4169.87
0.125	31.23	2.24	4326.24	4249.77
0.130	30.00	2.28	4403.58	4325.75
0.135	28.87	2.31	4474.62	4395.53
0.140	27.87	2.35	4537.32	4457.12
0.145	27.03	2.37	4590.24	4509.10
0.150	26.35	2.39	4632.99	4551.11
0.155	25.82	2.41	4666.73	4584.25
0.160	25.37	2.43	4694.65	4611.67
0.165	24.93	2.44	4722.61	4639.14
0.170	24.34	2.46	4759.78	4675.65
0.175	23.39	2.49	4819.28	4734.11
0.180	21.80	2.54	4919.03	4832.09
0.185	19.21	2.63	5082.45	4992.62
0.190	15.12	2.76	5339.39	5245.02
0.195	8.96	2.96	5727.01	5625.79
0.200	0.	3.25	6290.70	6179.51

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70
CCD ELEV = 0.60 HEAD(FT) = 15.60
FREE FLOW DISCH COEFF = 3.26

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.52	0.08	157.49	154.70
0.010	93.58	0.21	408.34	401.10
0.015	88.73	0.37	716.74	704.04
0.020	83.42	0.54	1054.37	1035.69
0.025	78.00	0.72	1399.40	1374.60
0.030	72.71	0.89	1735.69	1704.94
0.035	67.74	1.05	2051.93	2015.57
0.040	63.20	1.20	2340.90	2299.42
0.045	59.14	1.33	2598.73	2552.69
0.050	55.60	1.45	2824.30	2774.26
0.055	52.54	1.55	3018.56	2965.08
0.060	49.94	1.63	3184.08	3127.66
0.065	47.73	1.70	3324.47	3265.56
0.070	45.85	1.76	3444.00	3382.98
0.075	44.23	1.82	3547.21	3484.36
0.080	42.79	1.86	3638.56	3574.10
0.085	41.48	1.91	3722.18	3656.23
0.090	40.23	1.95	3801.62	3734.27
0.095	39.00	1.99	3879.74	3811.00
0.100	37.76	2.03	3958.54	3888.40
0.105	36.50	2.07	4039.14	3967.57
0.110	35.20	2.11	4121.77	4048.74
0.115	33.88	2.15	4205.83	4131.32
0.120	32.55	2.20	4289.99	4213.98
0.125	31.26	2.24	4372.34	4294.87
0.130	30.03	2.28	4450.62	4371.77
0.135	28.90	2.32	4522.52	4442.39
0.140	27.90	2.35	4585.96	4504.70
0.145	27.06	2.38	4639.46	4557.26
0.150	26.38	2.40	4682.64	4599.68
0.155	25.84	2.41	4716.66	4633.09
0.160	25.40	2.43	4744.76	4660.69
0.165	24.96	2.44	4772.88	4688.31
0.170	24.37	2.46	4810.29	4725.07
0.175	23.43	2.49	4870.34	4784.05
0.180	21.84	2.55	4971.16	4883.09
0.185	19.24	2.63	5136.52	5045.51
0.190	15.15	2.76	5396.67	5301.06
0.195	8.98	2.96	5789.31	5686.74
0.200	0.	3.26	6360.46	6247.76

SILL LENGTH = 9.50 SILL WIDTH = 31.70
CCD ELEV = 0.80 HEAD(FT) = 15.20
FREE FLOW DISCH COEFF = 3.27

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.55	0.08	159.08	156.24
0.010	93.63	0.21	414.32	406.95
0.015	88.79	0.37	728.93	715.95
0.020	83.48	0.54	1073.75	1054.64
0.025	78.06	0.72	1426.36	1400.97
0.030	72.77	0.89	1770.14	1738.63
0.035	67.80	1.05	2093.47	2056.20
0.040	63.25	1.20	2388.91	2346.38
0.045	59.20	1.33	2652.48	2605.26
0.050	55.65	1.45	2883.01	2831.68
0.055	52.60	1.55	3081.49	3026.63
0.060	50.00	1.63	3250.53	3192.66
0.065	47.79	1.70	3393.86	3333.44
0.070	45.92	1.77	3515.85	3453.26
0.075	44.30	1.82	3621.16	3556.63
0.080	42.86	1.87	3714.36	3648.23
0.085	41.55	1.91	3799.69	3732.05
0.090	40.30	1.95	3880.81	3811.72
0.095	39.08	1.99	3960.63	3890.12
0.100	37.84	2.03	4041.21	3969.26
0.105	36.57	2.07	4123.69	4050.27
0.110	35.27	2.11	4208.29	4133.37
0.115	33.94	2.16	4294.40	4217.94
0.120	32.61	2.20	4380.62	4302.63
0.125	31.32	2.24	4464.99	4385.50
0.130	30.08	2.28	4545.20	4464.28
0.135	28.95	2.32	4618.83	4536.60
0.140	27.95	2.35	4683.74	4600.36
0.145	27.11	2.38	4738.42	4654.06
0.150	26.43	2.40	4782.46	4697.32
0.155	25.90	2.42	4817.04	4731.29
0.160	25.46	2.43	4845.50	4759.23
0.165	25.03	2.45	4873.91	4787.14
0.170	24.44	2.47	4911.83	4824.39
0.175	23.50	2.50	4972.96	4884.42
0.180	21.92	2.55	5075.94	4985.57
0.185	19.32	2.63	5245.19	5151.81
0.190	15.21	2.77	5511.83	5413.70
0.195	9.02	2.97	5914.61	5809.31
0.200	0.	3.27	6500.84	6385.10

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70
CCD ELEV = 1.00 HEAD(FT) = 16.00
FREE FLOW DISCH COEFF = 3.27

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.58	0.08	160.61	157.74
0.010	93.67	0.21	420.25	412.74
0.015	88.84	0.37	741.09	727.83
0.020	83.54	0.54	1093.16	1073.60
0.025	78.12	0.72	1453.40	1427.40
0.030	72.83	0.89	1804.74	1772.46
0.035	67.85	1.05	2135.21	2097.02
0.040	63.31	1.20	2437.17	2393.58
0.045	59.25	1.33	2706.53	2658.12
0.050	55.71	1.45	2942.06	2889.44
0.055	52.66	1.55	3144.79	3088.54
0.060	50.06	1.64	3317.39	3258.05
0.065	47.85	1.71	3463.67	3401.71
0.070	45.98	1.77	3588.13	3523.95
0.075	44.36	1.82	3695.54	3629.44
0.080	42.93	1.87	3790.61	3722.81
0.085	41.62	1.91	3877.67	3808.31
0.090	40.38	1.95	3960.48	3889.64
0.095	39.15	1.99	4042.01	3969.71
0.100	37.91	2.03	4124.38	4050.61
0.105	36.64	2.07	4208.75	4133.47
0.110	35.33	2.12	4295.35	4218.53
0.115	34.01	2.16	4383.52	4305.12
0.120	32.68	2.20	4471.83	4391.85
0.125	31.38	2.25	4558.26	4476.73
0.130	30.14	2.29	4640.40	4557.40
0.135	29.00	2.32	4715.79	4631.44
0.140	28.00	2.36	4782.19	4696.66
0.145	27.16	2.38	4838.07	4751.53
0.150	26.49	2.41	4882.97	4795.63
0.155	25.96	2.42	4918.11	4830.14
0.160	25.52	2.44	4946.90	4858.42
0.165	25.09	2.45	4975.61	4886.62
0.170	24.51	2.47	5014.03	4924.35
0.175	23.58	2.50	5076.24	4985.44
0.180	21.99	2.55	5181.38	5088.71
0.185	19.39	2.64	5354.58	5258.80
0.190	15.27	2.77	5627.78	5527.13
0.195	9.06	2.98	6040.84	5932.79
0.200	0.	3.27	6642.35	6523.54

SILL LENGTH = 9.50 SILL WIDTH = 31.70
CCD ELEV = 1.20 HEAD(FT) = 16.20
FREE FLOW DISCH COEFF = 3.28

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.61	0.08	162.09	159.18
0.010	93.72	0.21	426.12	418.46
0.015	88.90	0.36	753.21	739.68
0.020	83.60	0.54	1112.57	1092.58
0.025	78.18	0.72	1480.51	1453.91
0.030	72.89	0.89	1839.47	1806.42
0.035	67.91	1.05	2177.15	2138.03
0.040	63.36	1.20	2485.69	2441.03
0.045	59.31	1.34	2760.88	2711.27
0.050	55.76	1.45	3001.45	2947.53
0.055	52.71	1.55	3208.46	3150.81
0.060	50.12	1.64	3384.63	3323.82
0.065	47.92	1.71	3533.88	3470.39
0.070	46.05	1.77	3660.83	3595.05
0.075	44.43	1.82	3770.36	3702.61
0.080	43.00	1.87	3867.30	3797.81
0.085	41.69	1.91	3956.09	3885.01
0.090	40.45	1.95	4040.59	3968.00
0.095	39.22	2.00	4123.86	4049.76
0.100	37.98	2.04	4208.04	4132.43
0.105	36.71	2.08	4294.32	4217.17
0.110	35.40	2.12	4382.94	4304.19
0.115	34.07	2.16	4473.20	4392.82
0.120	32.74	2.21	4563.62	4481.63
0.125	31.43	2.25	4652.12	4568.53
0.130	30.20	2.29	4736.23	4651.13
0.135	29.06	2.33	4813.38	4726.90
0.140	28.06	2.36	4881.29	4793.59
0.145	27.22	2.39	4938.37	4849.64
0.150	26.54	2.41	4984.13	4894.58
0.155	26.02	2.43	5019.83	4929.64
0.160	25.59	2.44	5048.97	4958.25
0.165	25.16	2.46	5077.96	4986.73
0.170	24.59	2.48	5116.87	5024.93
0.175	23.65	2.51	5180.15	5087.08
0.180	22.07	2.56	5287.49	5192.48
0.185	19.46	2.64	5464.66	5366.47
0.190	15.33	2.78	5744.51	5641.30
0.195	9.09	2.98	6167.96	6057.14
0.200	0.	3.28	6784.97	6663.06

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = 1.40 HEAD(FT) = 16.40

FREE FLOW DISCH COEFF = 3.29

HD/HI	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.64	0.08	163.51	160.56
0.010	93.77	0.21	431.92	424.13
0.015	88.95	0.36	765.30	751.49
0.020	83.66	0.54	1132.00	1111.57
0.025	78.24	0.72	1507.69	1480.48
0.030	72.95	0.89	1874.32	1840.50
0.035	67.97	1.05	2219.27	2179.22
0.040	63.42	1.20	2534.44	2488.70
0.045	59.36	1.34	2815.51	2764.70
0.050	55.82	1.45	3061.17	3005.93
0.055	52.77	1.55	3272.48	3213.42
0.060	50.17	1.64	3452.25	3389.95
0.065	47.98	1.71	3604.49	3539.44
0.070	46.11	1.77	3733.93	3666.55
0.075	44.50	1.83	3845.59	3776.19
0.080	43.07	1.87	3944.41	3873.23
0.085	41.76	1.92	4034.95	3962.13
0.090	40.52	1.96	4121.16	4046.78
0.095	39.29	2.00	4206.16	4130.25
0.100	38.05	2.04	4292.17	4214.71
0.105	36.78	2.08	4380.38	4301.33
0.110	35.47	2.12	4471.05	4390.35
0.115	34.14	2.17	4563.40	4481.05
0.120	32.80	2.21	4655.97	4571.94
0.125	31.49	2.25	4746.57	4660.91
0.130	30.25	2.30	4832.65	4745.44
0.135	29.11	2.33	4911.60	4822.96
0.140	28.11	2.37	4981.03	4891.15
0.145	27.27	2.39	5039.31	4948.37
0.150	26.60	2.42	5085.95	4994.16
0.155	26.07	2.43	5122.20	5029.77
0.160	25.65	2.45	5151.67	5058.70
0.165	25.22	2.46	5180.93	5087.44
0.170	24.66	2.48	5220.32	5126.12
0.175	23.73	2.51	5284.68	5189.31
0.180	22.15	2.56	5394.21	5296.87
0.185	19.53	2.65	5575.41	5474.79
0.190	15.40	2.78	5861.99	5756.20
0.195	9.13	2.99	6295.97	6182.36
0.200	0.	3.29	6928.69	6803.65

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = 1.50 HEAD(FT) = 16.50

FREE FLOW DISCH COEFF = 3.30

HD/HI	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.65	0.08	164.20	161.23
0.010	93.79	0.20	434.80	426.94
0.015	88.98	0.36	771.32	757.37
0.020	83.69	0.54	1141.71	1121.07
0.025	78.27	0.72	1521.30	1493.79
0.030	72.98	0.89	1891.80	1857.58
0.035	68.00	1.05	2240.40	2199.88
0.040	63.45	1.20	2558.91	2512.63
0.045	59.39	1.34	2842.93	2791.52
0.050	55.85	1.45	3091.15	3035.24
0.055	52.80	1.56	3304.62	3244.86
0.060	50.20	1.64	3486.20	3423.15
0.065	48.01	1.71	3639.94	3574.11
0.070	46.14	1.77	3770.63	3702.44
0.075	44.53	1.83	3883.36	3813.13
0.080	43.11	1.87	3983.12	3911.08
0.085	41.80	1.92	4074.54	4000.85
0.090	40.56	1.96	4161.60	4086.34
0.095	39.33	2.00	4247.48	4170.67
0.100	38.09	2.04	4334.40	4256.02
0.105	36.81	2.08	4423.59	4343.59
0.110	35.50	2.13	4515.27	4433.61
0.115	34.17	2.17	4608.70	4525.36
0.120	32.83	2.21	4702.35	4617.30
0.125	31.52	2.26	4794.00	4707.30
0.130	30.28	2.30	4881.09	4792.82
0.135	29.14	2.33	4960.94	4871.22
0.140	28.14	2.37	5031.14	4940.15
0.145	27.30	2.40	5090.02	4997.97
0.150	26.62	2.42	5137.10	5044.19
0.155	26.10	2.44	5173.63	5080.07
0.160	25.68	2.45	5203.26	5109.16
0.165	25.26	2.46	5232.66	5138.03
0.170	24.69	2.48	5272.28	5176.94
0.175	23.76	2.51	5337.19	5240.66
0.180	22.18	2.56	5447.82	5349.30
0.185	19.57	2.65	5631.04	5529.20
0.190	15.43	2.79	5921.01	5813.93
0.195	9.15	2.99	6360.31	6246.29
0.200	0.	3.30	7000.96	6874.34

(Continued)

TABLE 12 (Continued)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = 1.60 HEAD(FT) = 16.60

FREE FLOW DISCH COEFF = 3.30

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.67	0.08	164.87	161.88
0.010	93.81	0.20	437.66	429.73
0.015	89.01	0.36	777.34	763.25
0.020	83.72	0.54	1151.43	1130.56
0.025	78.30	0.72	1534.93	1507.11
0.030	73.01	0.89	1909.30	1874.70
0.035	68.03	1.05	2261.57	2220.58
0.040	63.48	1.20	2583.43	2536.61
0.045	59.42	1.34	2870.42	2818.40
0.050	55.87	1.46	3121.20	3064.63
0.055	52.83	1.56	3336.85	3276.38
0.060	50.23	1.64	3520.24	3456.44
0.065	48.04	1.71	3675.49	3608.88
0.070	46.17	1.78	3807.44	3738.43
0.075	44.56	1.83	3921.23	3850.16
0.080	43.14	1.88	4021.94	3949.04
0.085	41.84	1.92	4114.23	4039.67
0.090	40.59	1.96	4202.15	4126.00
0.095	39.37	2.00	4288.91	4211.18
0.100	38.12	2.04	4376.76	4297.44
0.105	36.85	2.08	4466.93	4385.97
0.110	35.54	2.13	4559.63	4477.00
0.115	34.20	2.17	4654.14	4569.79
0.120	32.86	2.21	4748.86	4662.80
0.125	31.55	2.26	4841.58	4753.84
0.130	30.31	2.30	4929.68	4840.33
0.135	29.17	2.34	5010.43	4919.62
0.140	28.16	2.37	5081.40	4989.31
0.145	27.32	2.40	5140.90	5047.72
0.150	26.65	2.42	5188.41	5094.38
0.155	26.13	2.44	5225.22	5130.52
0.160	25.71	2.45	5255.01	5159.77
0.165	25.29	2.46	5284.54	5188.76
0.170	24.73	2.48	5324.40	5227.91
0.175	23.80	2.51	5389.84	5292.15
0.180	22.22	2.57	5501.58	5401.88
0.185	19.60	2.65	5686.83	5583.77
0.190	15.46	2.79	5980.22	5871.84
0.195	9.17	3.00	6424.88	6308.43
0.200	0.	3.30	7073.49	6945.30

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = 1.80 HEAD(FT) = 16.80

FREE FLOW DISCH COEFF = 3.31

HD/H1	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.70	0.08	166.17	163.15
0.010	93.86	0.20	443.32	435.26
0.015	89.07	0.36	789.34	774.97
0.020	83.78	0.54	1170.86	1149.55
0.025	78.36	0.72	1562.22	1533.79
0.030	73.07	0.89	1944.39	1909.01
0.035	68.09	1.06	2304.05	2262.12
0.040	63.53	1.21	2632.64	2584.73
0.045	59.48	1.34	2925.60	2872.36
0.050	55.93	1.46	3181.54	3123.64
0.055	52.88	1.56	3401.56	3339.65
0.060	50.29	1.64	3588.59	3523.29
0.065	48.10	1.72	3746.86	3678.67
0.070	46.24	1.78	3881.33	3810.69
0.075	44.63	1.83	3997.27	3924.52
0.080	43.21	1.88	4099.87	4025.26
0.085	41.91	1.92	4193.93	4117.60
0.090	40.67	1.96	4283.57	4205.62
0.095	39.44	2.00	4372.10	4292.53
0.100	38.20	2.04	4461.80	4380.60
0.105	36.92	2.09	4553.93	4471.06
0.110	35.61	2.13	4648.72	4564.12
0.115	34.27	2.17	4745.38	4659.02
0.120	32.93	2.22	4842.29	4754.17
0.125	31.61	2.26	4937.16	4847.31
0.130	30.36	2.30	5027.28	4935.79
0.135	29.22	2.34	5109.85	5016.86
0.140	28.22	2.37	5182.38	5088.07
0.145	27.37	2.40	5243.10	5147.68
0.150	26.70	2.42	5291.49	5195.19
0.155	26.19	2.44	5328.85	5231.87
0.160	25.77	2.46	5358.95	5261.42
0.165	25.36	2.47	5388.73	5290.67
0.170	24.88	2.49	5429.07	5330.26
0.175	23.88	2.52	5495.57	5395.56
0.180	22.30	2.57	5609.55	5507.46
0.185	19.68	2.66	5798.90	5693.37
0.190	15.52	2.79	6099.16	5988.17
0.195	9.21	3.00	6554.63	6435.34
0.200	0.	3.31	7219.36	7087.98

(Continued)

TABLE 12 (Concluded)

SILL LENGTH = 9.50 SILL WIDTH = 31.70

CCD ELEV = 2.00 HEAD(FT) = 17.00

FREE FLOW DISCH COEFF = 3.32

HD/HI	FREE FLOW COEFF REDUCTION %	SUBMERGED COEFF CS	DISCH 1-5 CFS	DISCH 6-7 CFS
0.	100.00	0.	0.	0.
0.005	97.73	0.08	167.41	164.36
0.010	93.91	0.20	448.92	440.72
0.015	89.12	0.36	801.29	786.65
0.020	83.84	0.54	1190.29	1168.54
0.025	78.42	0.72	1589.57	1560.52
0.030	73 3	0.89	1979.60	1943.42
0.035	68.14	1.06	2346.69	2303.81
0.040	63.59	1.21	2682.08	2633.07
0.045	59.53	1.34	2981.05	2926.58
0.050	55.99	1.46	3242.19	3182.94
0.055	52.94	1.56	3466.60	3403.25
0.060	50.35	1.65	3657.30	3590.47
0.065	48.16	1.72	3818.60	3748.83
0.070	46.30	1.78	3955.60	3883.32
0.075	44.70	1.83	4073.69	3999.26
0.080	43.28	1.88	4178.20	4101.85
0.085	41.98	1.92	4274.02	4195.93
0.090	40.74	1.96	4365.41	4285.64
0.095	39.51	2.01	4455.71	4374.29
0.100	38.27	2.05	4547.28	4464.19
0.105	36.99	2.09	4641.40	4556.59
0.110	35.68	2.13	4738.28	4651.70
0.115	34.33	2.18	4837.12	4748.74
0.120	32.99	2.22	4936.24	4846.05
0.125	31.67	2.27	5033.28	4941.31
0.130	30.42	2.31	5125.45	5031.79
0.135	29.27	2.34	5209.87	5114.67
0.140	28.27	2.38	5283.96	5187.41
0.145	27.43	2.41	5345.91	5248.23
0.150	26.76	2.43	5395.18	5296.59
0.155	26.24	2.45	5433.08	5333.81
0.160	25.83	2.46	5463.50	5363.67
0.165	25.42	2.47	5493.53	5393.15
0.170	24.87	2.49	5534.32	5433.19
0.175	23.95	2.52	5601.90	5499.54
0.180	22.37	2.57	5718.11	5613.63
0.185	19.75	2.66	5911.60	5803.58
0.190	15.58	2.80	6218.82	6105.19
0.195	9.25	3.01	6685.21	6563.06
0.200	0.	3.32	7366.28	7231.68

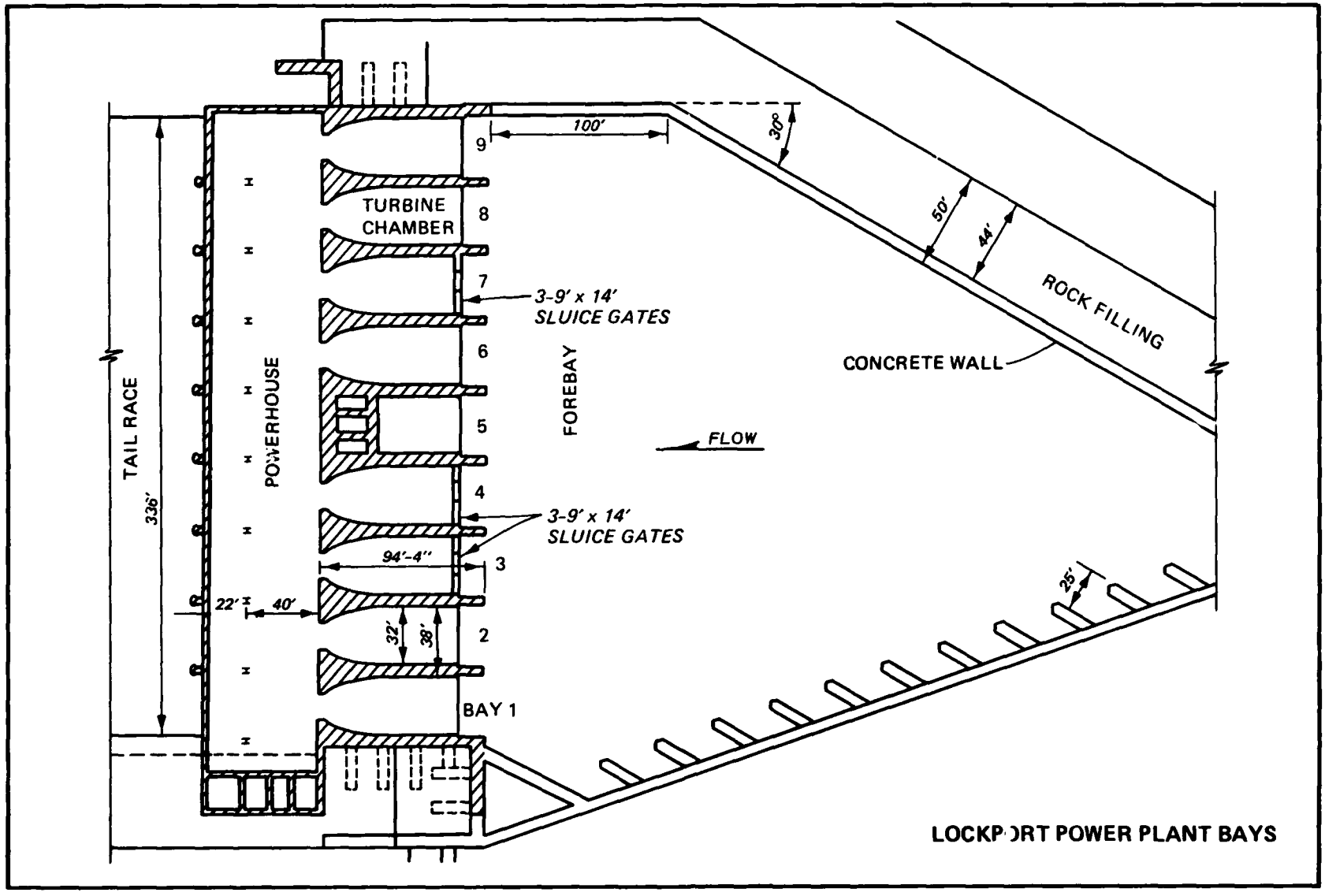
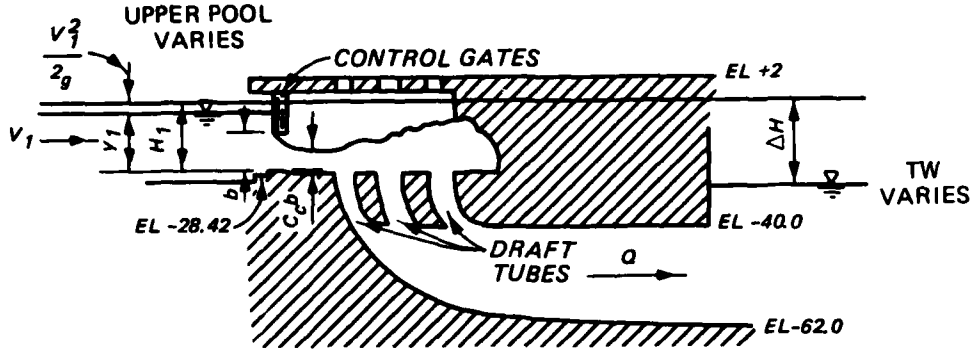
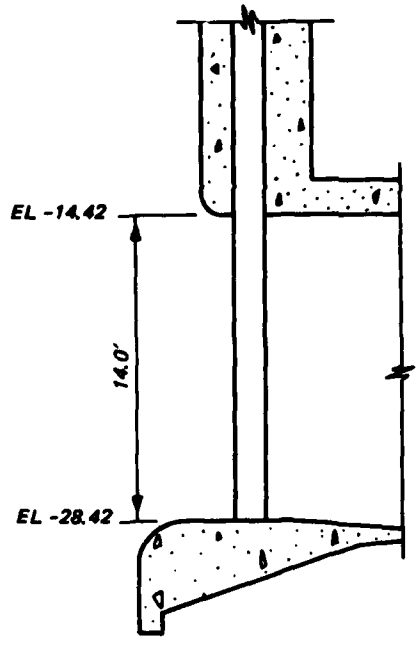

100'
30°
50'
44'
ROCK FILLING
CONCRETE WALL
TURBINE CHAMBER
9
8
7
6
5
4
3
2
BAY 1
3-9' x 14' SLUICE GATES
3-9' x 14' SLUICE GATES
FOREBAY
FLOW
TAIL RACE
336'
POWERHOUSE
94'-4"
22'
40'
32'
38'
25'
LOCKPORT POWER PLANT BAYS

PLATE 1



LOCKPORT BAY SECTION

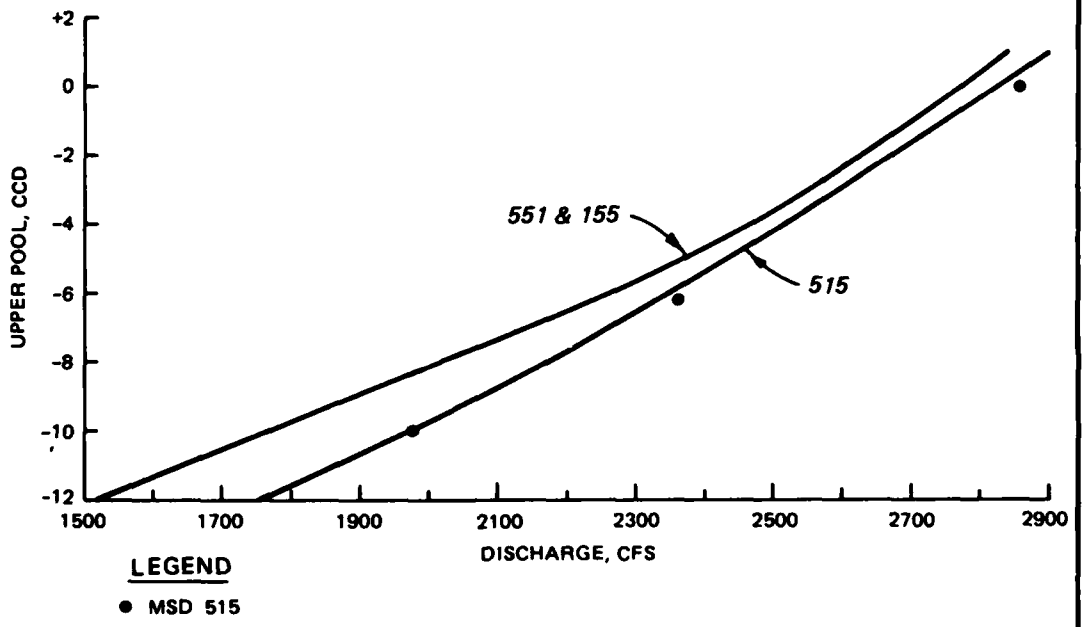


INTAKE SECTION

NOTE: ALL ELEVATIONS (EL)
CHICAGO CITY DATUM (CCD)

LOCKPORT POWER PLANT SECTIONS

PLATE 2

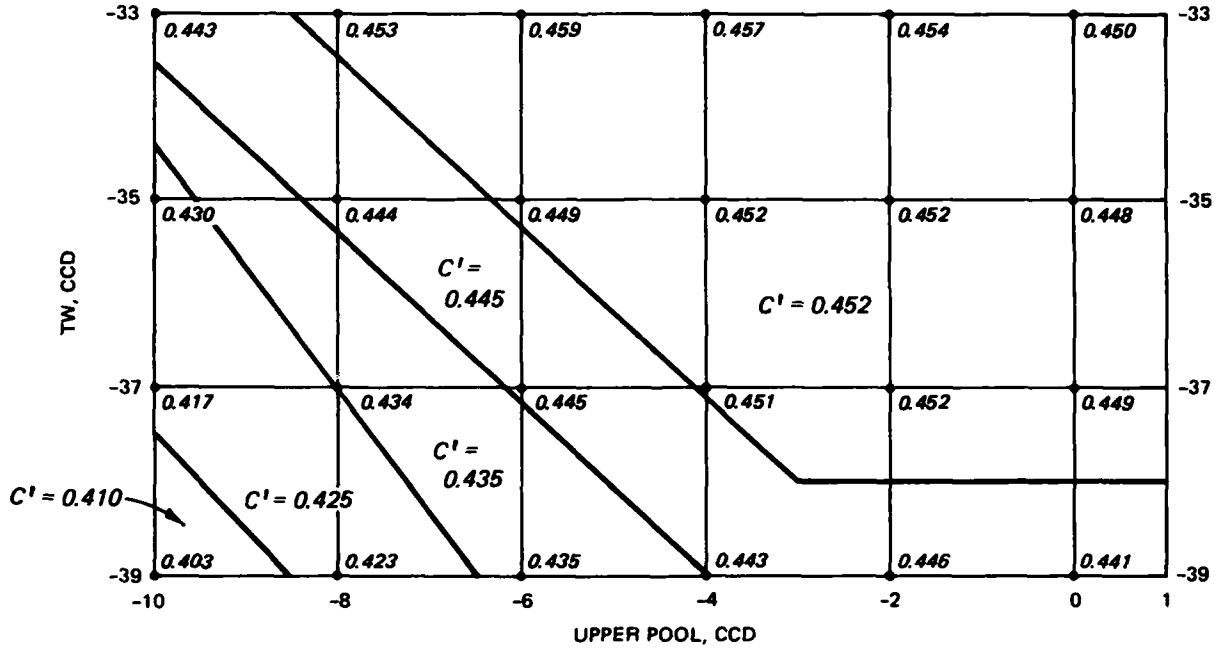


LEGEND

● MSD 515

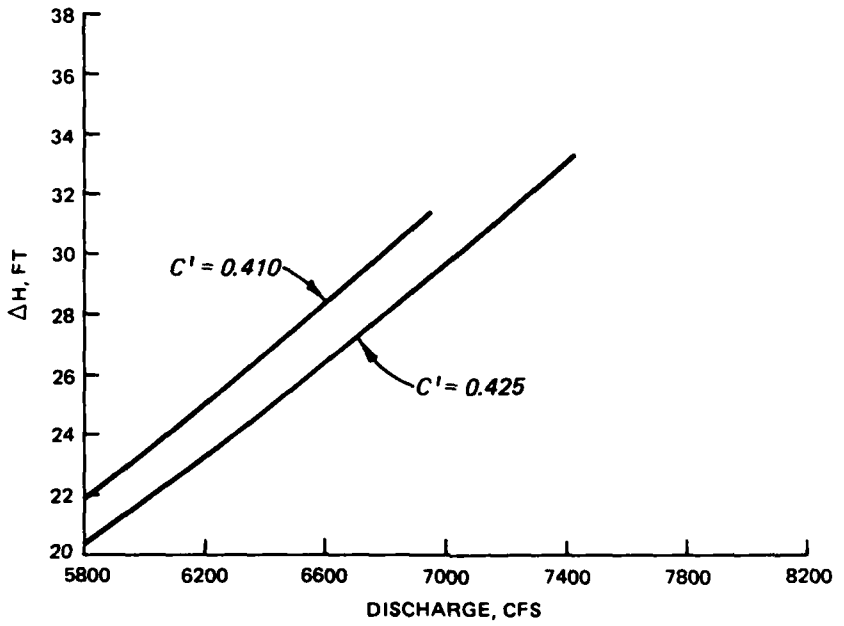
LOCKPORT POWER PLANT
DISCHARGE (ONE GATE)

PLATE 3



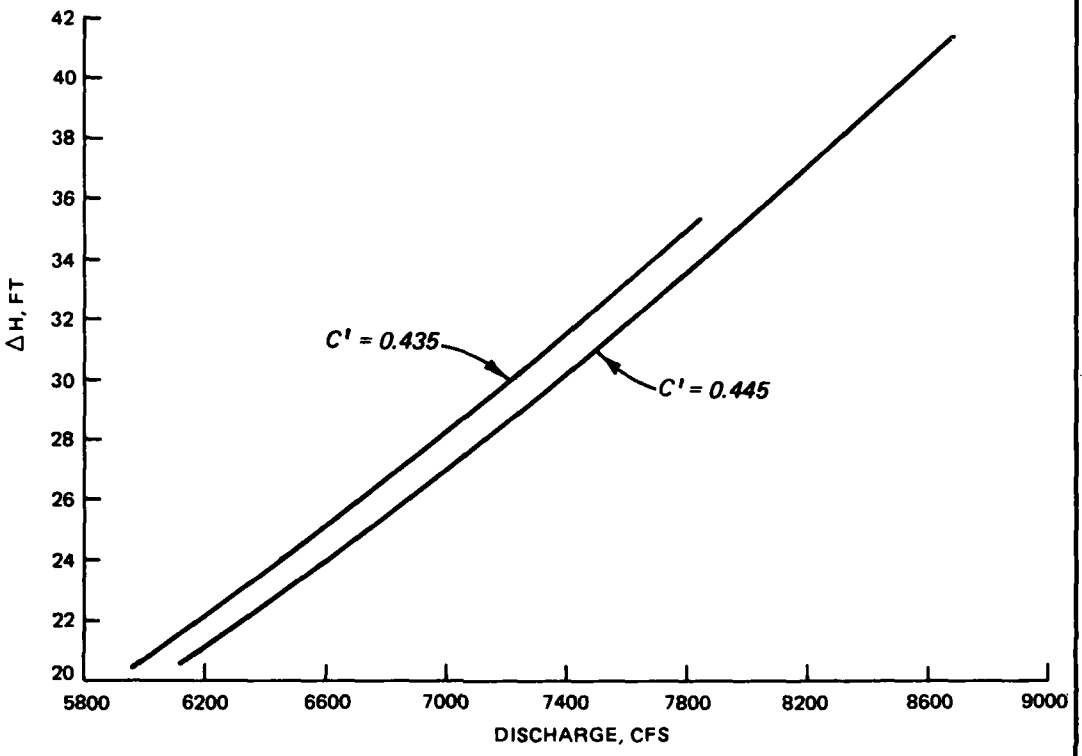
LOCKPORT POWER PLANT DISCHARGE
C'
THREE GATES

PLATE 5



LOCKPORT POWER PLANT
DISCHARGE (THREE GATES)
C' = 0.410 AND C' = 0.425

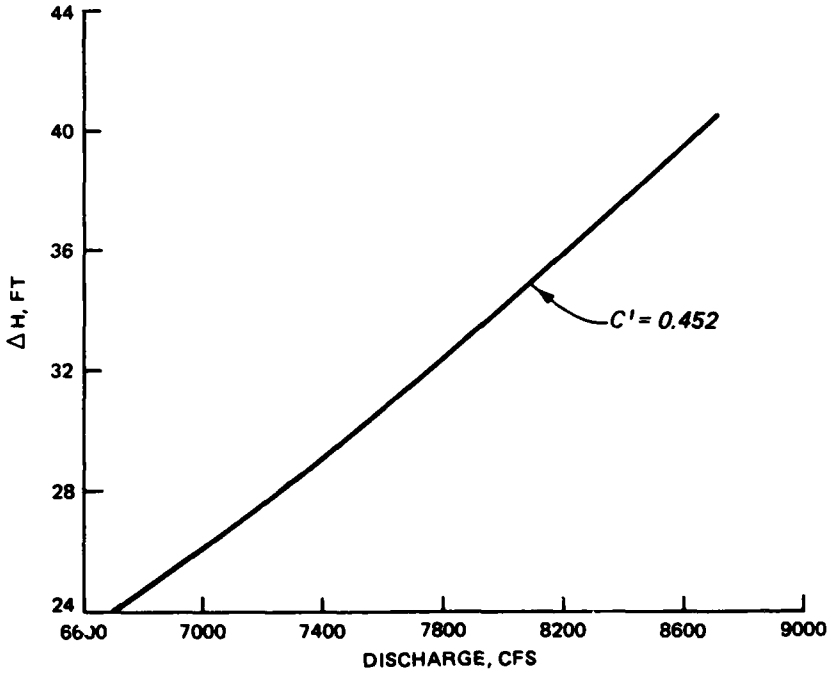
PLATE 6



LOCKPORT POWER PLANT
DISCHARGE (THREE GATES)

C' = 0.435 AND C' = 0.445

PLATE 7

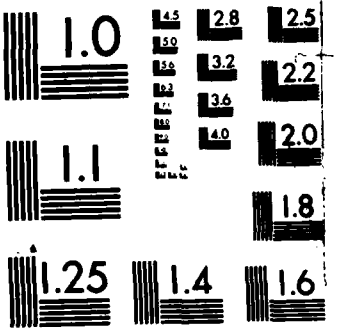


LOCKPORT POWER PLANT
DISCHARGE (THREE GATES)
$C' = 0.452$

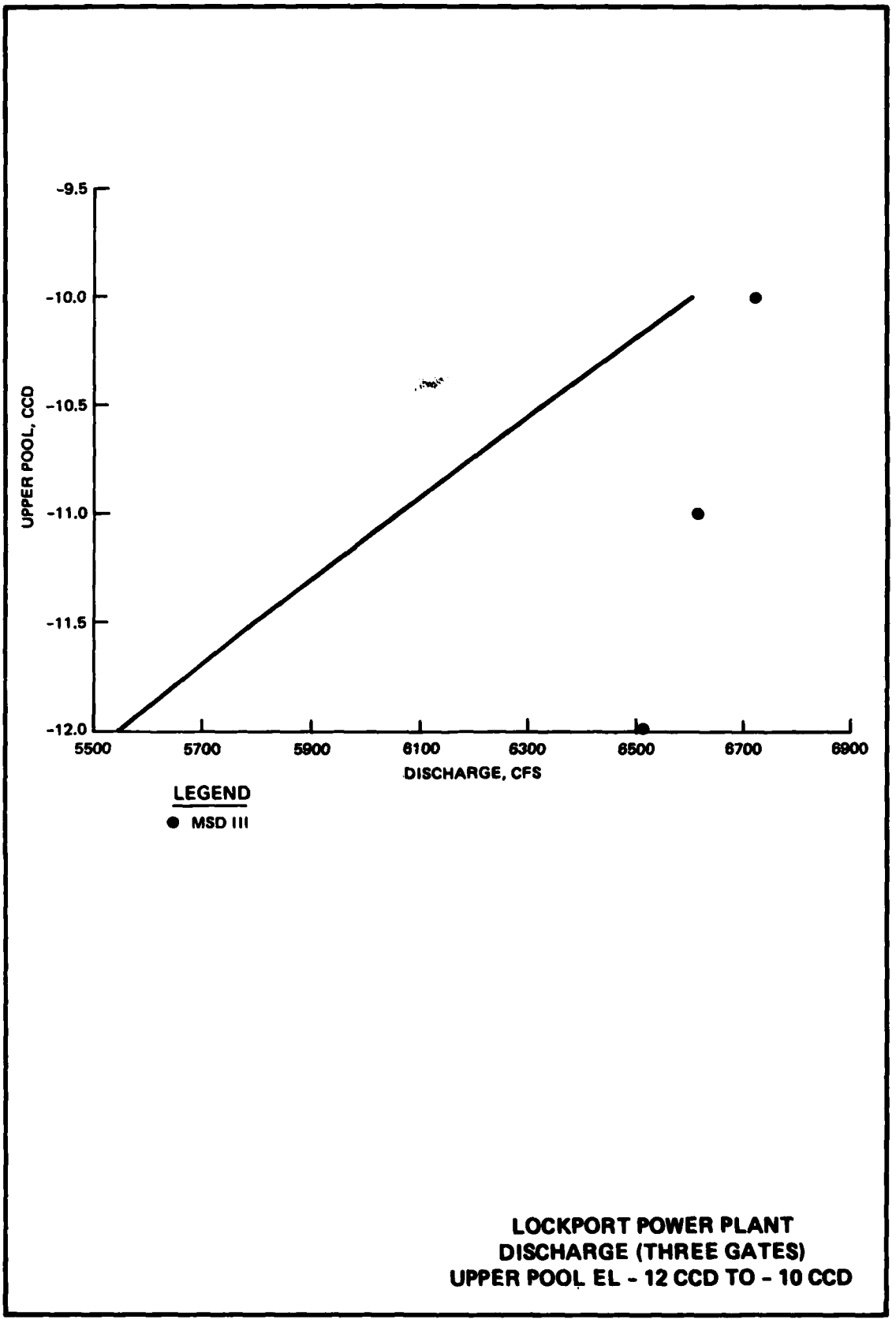
PLATE 8

AD-A161 426 LOCKPORT POWER PLANT SLUICE GATE AND CONTROL WORKS DISCHARGE EVALUATION(U) ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG MS HYDRAULICS LAB 2/2

UNCLASSIFIED E D HART ET AL SEP 85 WES/MP/HL-85-4 F/G 13/2 NL

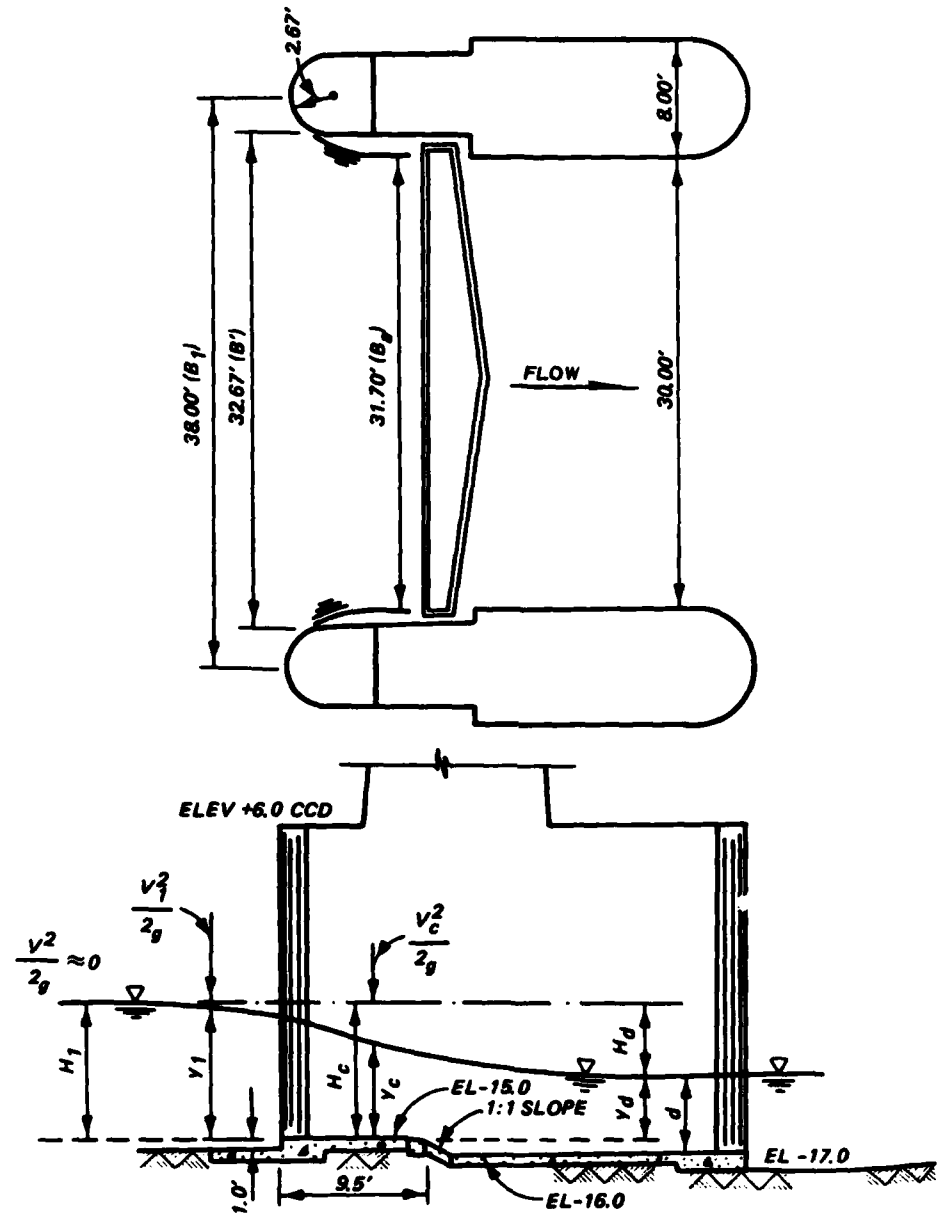


MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A



LOCKPORT POWER PLANT
DISCHARGE (THREE GATES)
UPPER POOL EL - 12 CCD TO - 10 CCD

PLATE 9



LOCKPORT CONTROL WORKS

GATE SECTION

NOTE: $H_1 = y_1$ AT RECOMMENDED GAGE LOCATION.

PLATE 10

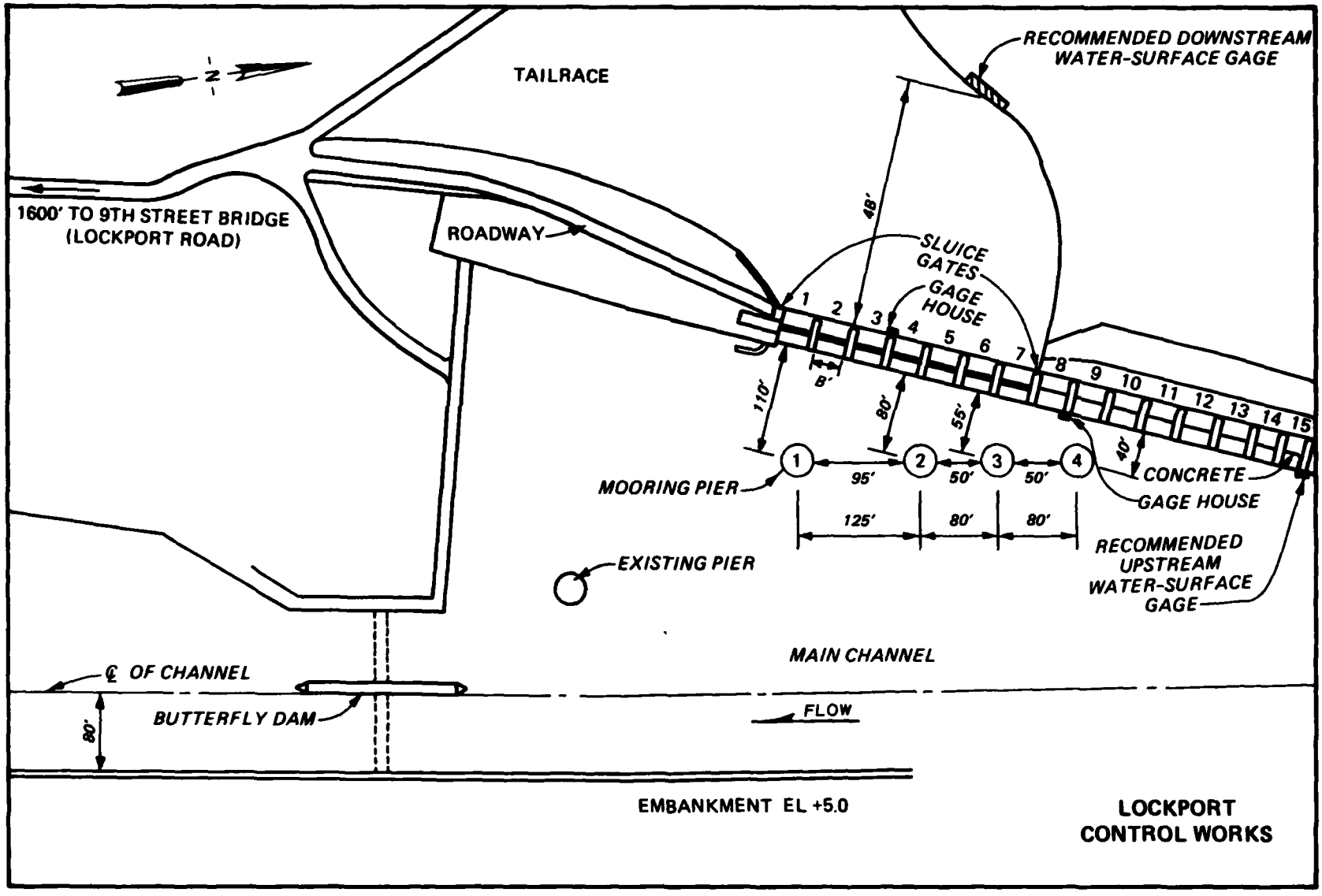
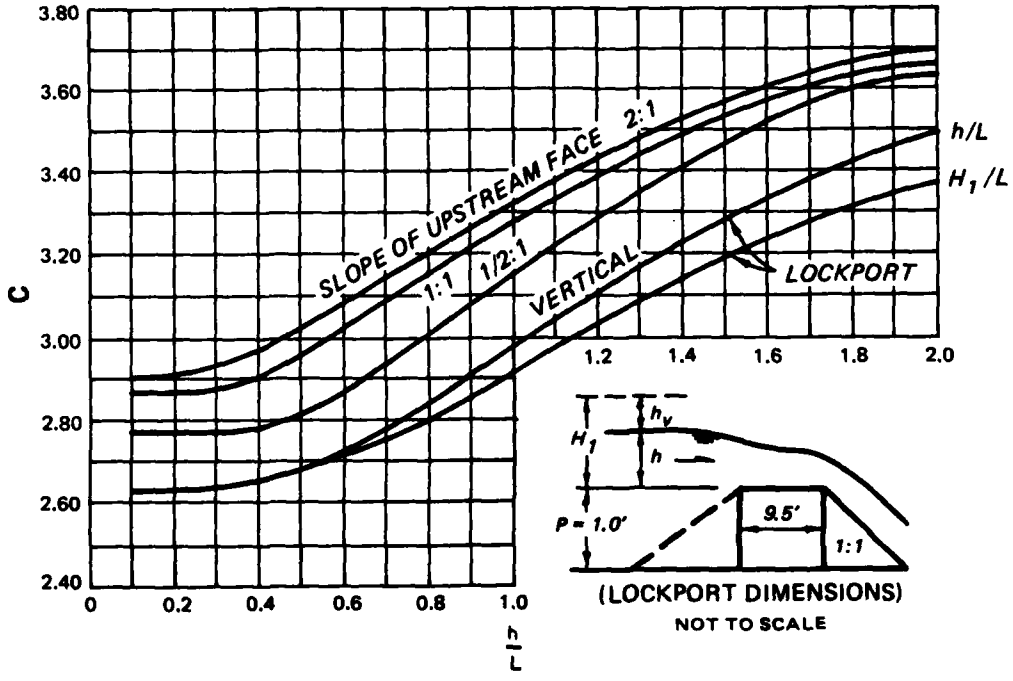

N
TAILRACE
RECOMMENDED DOWNSTREAM WATER-SURFACE GAGE
1600' TO 9TH STREET BRIDGE (LOCKPORT ROAD)
ROADWAY
48'
SLUICE GATES
GAGE HOUSE
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
8'
110'
80'
55'
40'
1 2 3 4
95' 50' 50'
MOORING PIER
CONCRETE GAGE HOUSE
125' 80' 80'
EXISTING PIER
RECOMMENDED UPSTREAM WATER-SURFACE GAGE
MAIN CHANNEL
℄ OF CHANNEL
80'
BUTTERFLY DAM
FLOW
EMBANKMENT EL +5.0
LOCKPORT CONTROL WORKS

PLATE 11

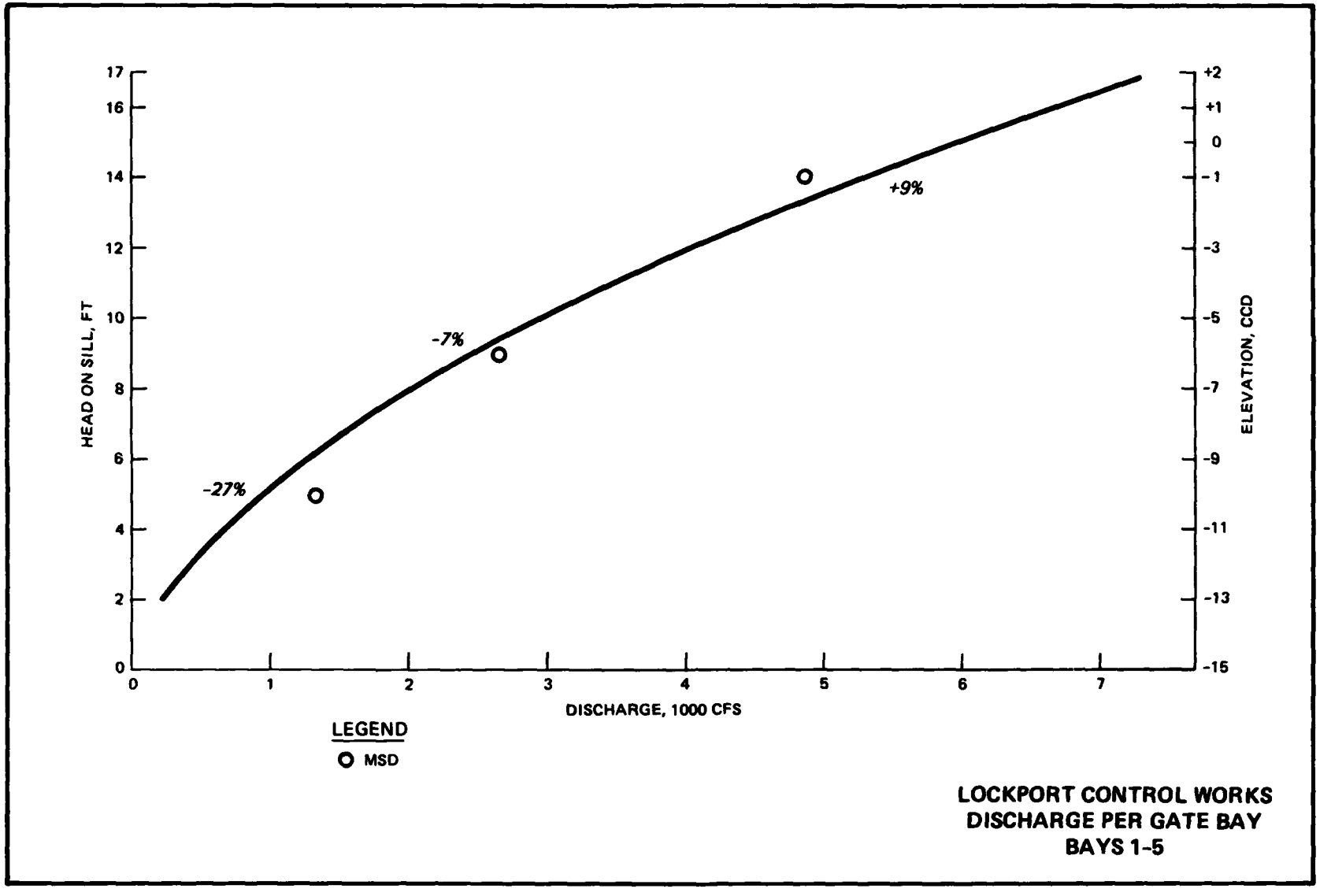


$$h = y_1 \quad H_1 = y_1 + \frac{V_1^2}{2g}$$

COEFFICIENTS OF DISCHARGE FOR FULL WIDTH, BROAD-CRESTED WEIRS WITH DOWNSTREAM SLOPE ≥ 1:1 AND VARIOUS UPSTREAM SLOPES *(FROM HULSING 1968).*

LOCKPORT
DISCHARGE COEFFICIENTS

PLATE 12



LOCKPORT CONTROL WORKS
DISCHARGE PER GATE BAY
BAYS 1-5

PLATE 13

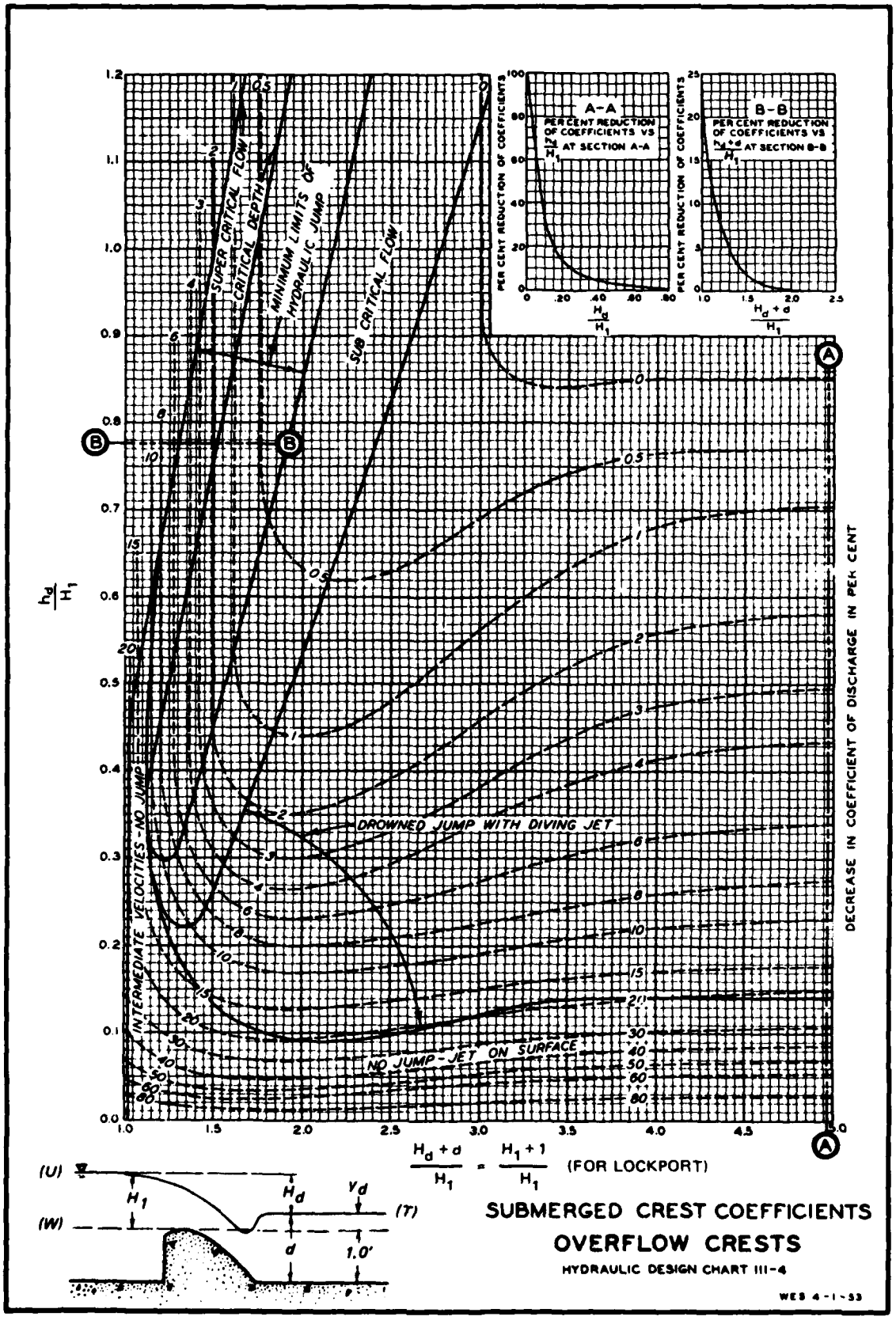
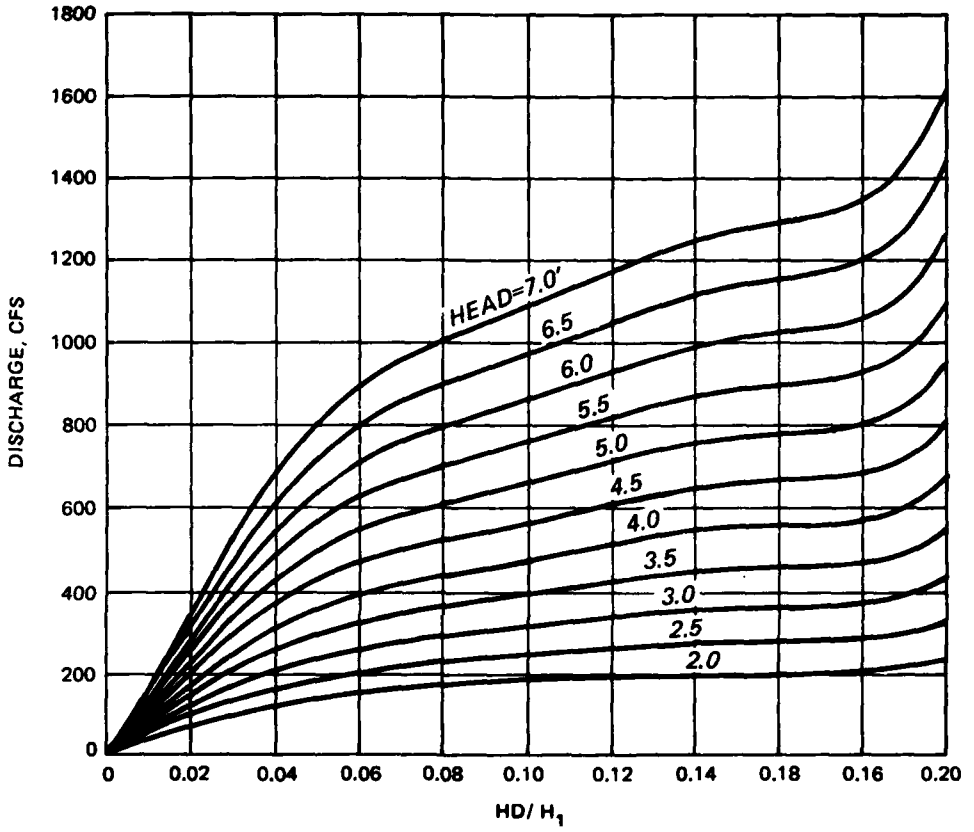
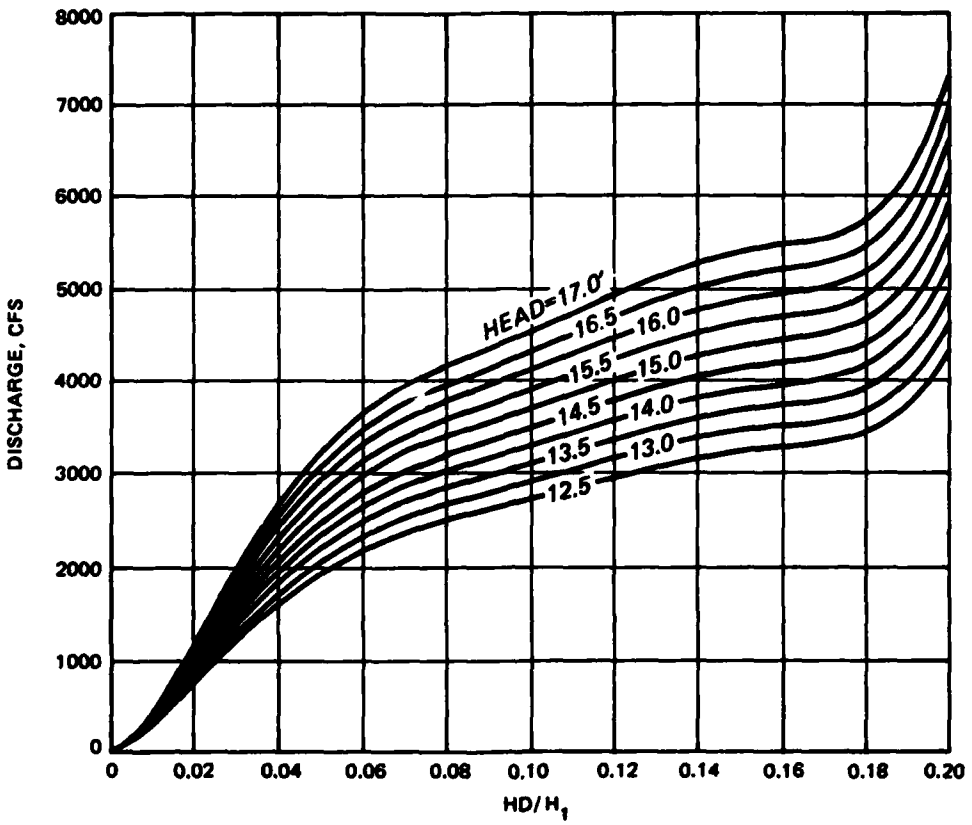

A-A
PER CENT REDUCTION OF COEFFICIENTS VS $\frac{H_d}{H_1}$ AT SECTION A-A
PER CENT REDUCTION OF COEFFICIENTS
$\frac{H_d}{H_1}$
B-B
PER CENT REDUCTION OF COEFFICIENTS VS $\frac{H_d+d}{H_1}$ AT SECTION B-B
PER CENT REDUCTION OF COEFFICIENTS
$\frac{H_d+d}{H_1}$
SUPER CRITICAL FLOW
CRITICAL DEPTH
MINIMUM LIMITS OF HYDRAULIC JUMP
SUB CRITICAL FLOW
INTERMEDIATE VELOCITIES - NO JUMP
DROWNED JUMP WITH DIVING JET
NO JUMP - JET ON SURFACE
$\frac{h_d}{H_1}$
DECREASE IN COEFFICIENT OF DISCHARGE IN PER CENT
$\frac{H_d+d}{H_1} = \frac{H_1+1}{H_1}$ (FOR LOCKPORT)
(U)
(W)
(T)
H_1
H_d
V_d
d
1.0'
SUBMERGED CREST COEFFICIENTS
OVERFLOW CRESTS
HYDRAULIC DESIGN CHART III-4
WES 4-1-33

PLATE 14



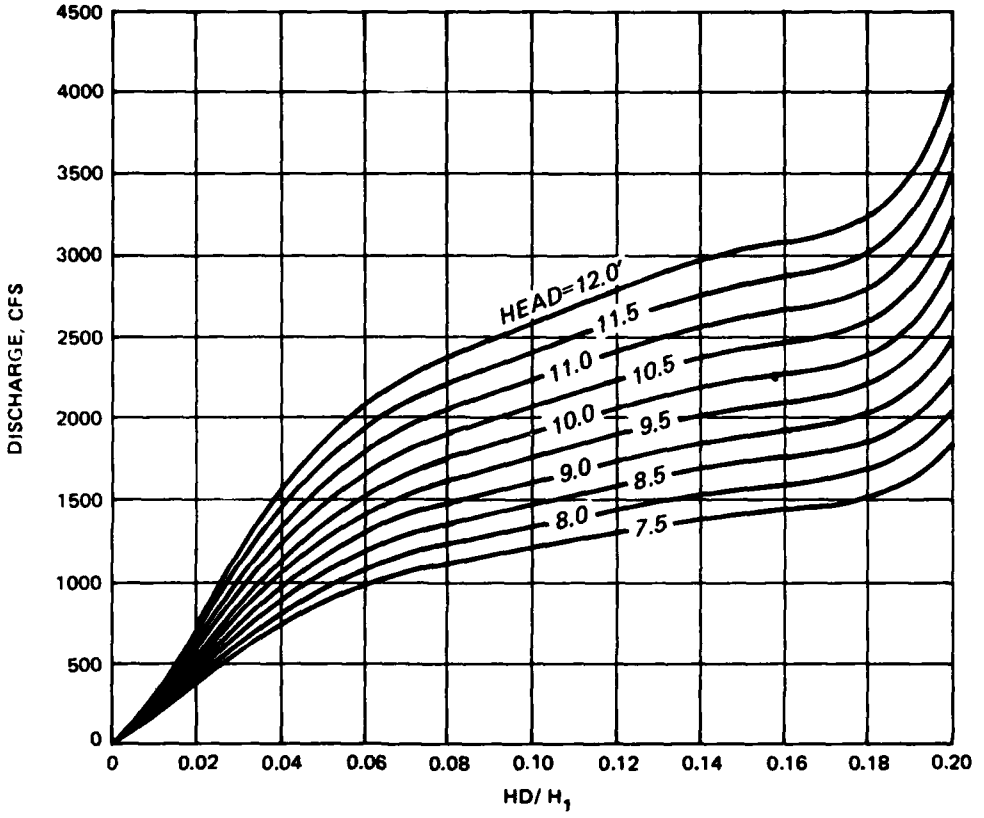
LOCKPORT CONTROL WORKS
DISCHARGE PER GATE BAY
BAYS 1-5
HEAD = 2' TO 7'

PLATE 15



LOCKPORT CONTROL WORKS
DISCHARGE PER GATE BAY
BAYS 1-5
HEAD = 12.5' TO 17.0'

PLATE 16



LOCKPORT CONTROL WORKS
DISCHARGE PER GATE BAY
BAYS 1-5
HEAD = 7.5' TO 12.0'

PLATE 17

END

FILMED

1-86

DTIC