APPENDIX B-3
GILMAN HYDROELECTRIC PROJECT (P-2392) FINAL MINIMUM FLOW RELEASE PLAN, WATER QUALITY MANAGEMENT PLAN, AND RUN-OF-RIVER MANAGEMENT PLAN
DTD AUGUST 11, 1994

Don,
This is The Final FERC plan For dam operation. I Feel you need To Know what is in it as it relates To your area.
Dave

OFFICE OF THE SECRETARY
94 AUG 11 PM 4:26
FEDERAL ENERGY REGULATORY COMMISSION

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August 11, 1994

HAND DELIVERY

Ms. Lois D. Cashell, Secretary
Federal Energy Regulatory Commission
825 North Capitol Street, N.E.
Room 3110
Washington, D.C. 20426

Re: Project No. 2392, Gilman Hydroelectric Project

Dear Ms. Cashell:

Pursuant to Articles 403 and 404 of its new license for the above-referenced project, issued April 13, 1994, 67 FERC ¶ 62,038, Simpson Paper (Vermont) Company (Simpson) hereby encloses its final minimum flow release plan, water quality management plan, and run-of-river management plan. These plans have been revised to incorporate agency comments on the draft plans which were previously circulated to the agencies. The draft plans and written agency comments were filed with the Commission by letter dated July 12, 1994.

In its July 12 letter, Simpson explained that it had received the comments of the Vermont Agency of Natural Resources (VANR) on the run-of-river management plan too late to be considered prior to filing of the draft plan. Simpson subsequently consulted with the VANR regarding its comments and has clarified the plan to address those comments.

Also enclosed is a letter dated July 12, 1994 from the New Hampshire Fish and Game Department commenting on the draft plans. The letter was received following Simpson's filing of the draft plans, and states that the plans are satisfactory.

If you have any questions, please feel free to call the undersigned or Mr. David G. Blanchette, Energy Manager, Simpson Paper Company Centennial Mill at (802) 892-5515.

Respectfully submitted,

Michael A. Swiger

Michael A. Swiger
Counsel for Simpson Paper (Vermont) Company

cc: J. Mark Robinson, Federal Energy Regulatory Commission
Richard A. Flanders, Jr., New Hampshire Department of Environmental Services
William Ingham, New Hampshire Fish & Game Department
John Warner, U.S. Fish & Wildlife Service
Jeffrey Cueto, Vermont Agency of Natural Resources

ATTACHMENT A

MINIMUM FLOW RELEASE PLAN

Simpson Paper Company
Gilman, Vermont

Gilman Project
FERC No. 2392

Minimum Flow Release Plan

INTRODUCTION

Pursuant to Articles 402 and 403 of the new project license and condition A of the Vermont 401 certification, this plan sets forth the method by which Simpson Paper will discharge the minimum flow volume (210 cfs). The plan outlines the methods by which Simpson will monitor river flow, pond level, and assure dependable and reliable flow data. The plan also presents the method by which Simpson will record, compile and report the required data.

Between June 1 and October 15, annually, Simpson is required to maintain a spillage at the dam of at least 210 cfs (or inflow, whichever is less) whenever river flow is equal to or less than 1000 cfs. Simpson will use the crest gate located in the middle of the spillway structure as the means to provide and monitor this discharge (See Figure 1). This crest gate is a manually operated, hydraulically actuated gate installed in 1979. The gate has a total width of 22 feet between the cylinder connections and 27 feet overall and a gate invert at Elevation 815.4'.

CALCULATION OF SPILLAGE

During normal operation, the headpond level is maintained at Elevation 833.25'. This level is controlled through the automatic pond level control system installed for Unit 1.

Hydraulic conditions using both the critical depth method and the standard weir flow formula have indicated that lowering the crest gate 1.96 feet below the headpond level will result in a discharge of 210 cfs. This figure includes the leakage flow around the side seals of the gate which was estimated to be 20 cfs. Simpson proposes to use a gate setting of 2.0 feet below the headpond level which will provide a margin of conservatism to the required discharge. A copy of the computations used to determine the indicated gate position is attached.

PLAN FOR PROVIDING MINIMUM FLOW RELEASE

Operation of the crest gate is through manual control of the hydraulic system. Access to the gate is via a walkway system (See Figure 1). During periods when spillage is required, the station operator will check and record that the gate position is constantly set 2.0 feet below Elevation 833.25' twice during each shift (4 hour intervals) . Gate position will be determined using a calibrated cylinder extension located on the cylinder closest to the powerhouse. The extension will be clearly marked to the required position so that the operators can position the gate to proper setting.

Headpond level will be checked and recorded manually at the same intervals as the gate monitoring and confirmed using the pond level transducer that has been installed as part of the pond level control system for Unit 1. The consistent flow characteristics of the river, the pond level control system installed for Unit 1, and years of operational experience assure that the required spillage will be maintained using a 4 hour monitoring interval.

Additionally, Simpson has made arrangements to interrogate the USGS gage on the Connecticut River near Dalton via conventional phone lines. This will ensure that this station operator will be fully aware of when a minimum flow release is required (i.e., river flow is 1,000 cfs or less).

RECORDING AND REPORTING PROCEDURES

Simpson currently logs station output, headpond level, gate position and other pertinent station data every four hours. These readings are recorded by the station operators and are part of the daily station log. Simpson proposes to continue this process with the addition of recording the gage interrogation data. These records will be compiled and will be made available upon request.

A summary report will be compiled and submitted to the Vermont Agency of Natural Resources (VANR) and New Hampshire Department of Environmental Services on an annual basis. Any deviations during periods of required spillage where the gate position and headpond level are not at the levels specified in this plan will be noted in the annual reports. During the first year, filing of the data with the VANR will occur at two month intervals. In subsequent years, a single annual summary will be provided by January 31 of the following year. Data will be provided to the VANR in tabular form, both hardcopy and on a 3-1/2 inch disk as a Quattro-Pro (*.WQ1) spreadsheet file. The VANR may, at its discretion, suspend the requirement of a hardcopy submittal.

When Simpson becomes aware of any occurrence when the facility varies, or varied, from the minimum flow release requirements of condition A of the 401 certification, Simpson will report such variance to the VANR on the same business day if during business hours, or on the next business day if not during business hours. Such reporting shall not constitute legal determination of liability or non-compliance. Upon request by the VANR, Simpson will make reasonable modifications to the minimum flow release plan as necessary to provide for and demonstrate compliance with the minimum flow release conditions of condition A of the 401 Certification.

526-011-99-00
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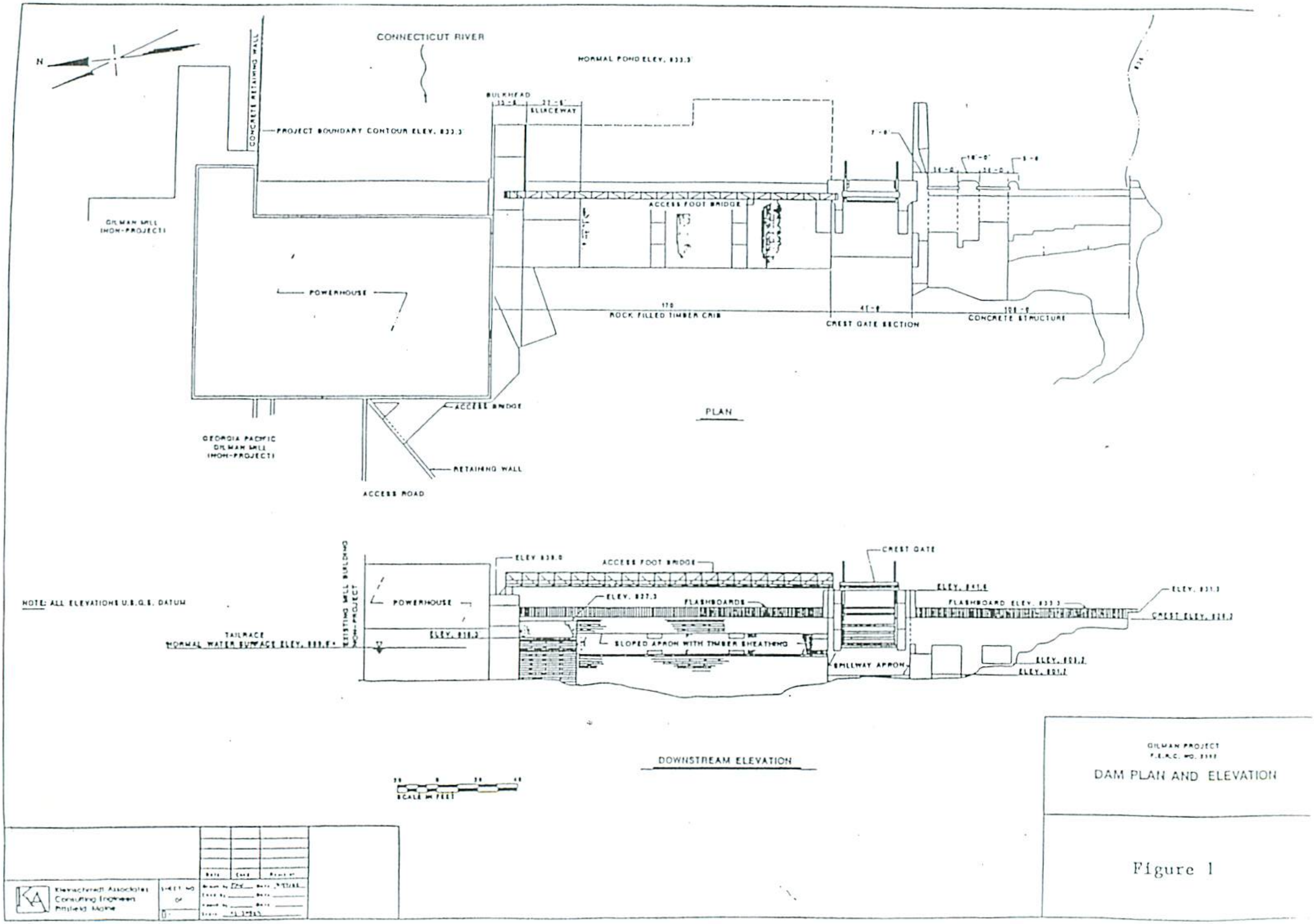
CONNECTICUT RIVER
NORMAL POND ELEV. 833.3
N
CONCRETE RETAINING WALL
PROJECT BOUNDARY CONTOUR ELEV. 833.3
BULKHEAD
SLUICEWAY
GILMAN MILL (NON-PROJECT)
POWERHOUSE
ACCESS FOOT BRIDGE
ROCK FILLED TIMBER CRIB
CREST GATE SECTION
CONCRETE STRUCTURE
ACCESS BRIDGE
GEORGIA PACIFIC GILMAN MILL (NON-PROJECT)
RETAINING WALL
ACCESS ROAD
PLAN
NOTE: ALL ELEVATIONS U.S.G.S. DATUM
TAILRACE
NORMAL WATER SURFACE ELEV.
EXISTING MILL BUILDING NON-PROJECT
POWERHOUSE
ELEV. 837.3
ACCESS FOOT BRIDGE
FLASHBOARDS
SLOPED APRON WITH TIMBER SHEATHING
CREST GATE
SPILLWAY APRON
FLASHBOARD ELEV. 833.3
CREST ELEV.
DOWNSTREAM ELEVATION
SCALE IN FEET
Kleinschmidt Associates
Consulting Engineers
Pittsfield, Maine
GILMAN PROJECT
DAM PLAN AND ELEVATION

Figure 1

SIMPSON PAPER COMPANY
GILMAN DAM

HYDRAULICS OF CREST GATE
SUMMARY OF CALCULATIONS

GIVEN: Downward-opening crest gate at Gilman Dam
Top of flashboards = El. 833.33'
Normal Pond El. = 1" below top boards = 833.25' = HW

DETERMINE: Position of top of gate to pass 210 cfs.

PROCEDURE:

Summary: Our approach uses two methods for calculating the flow through the gate at a given position, each providing a check on the other. First, we have utilized a spreadsheet analysis to analyze the hydraulic conditions. A printout for the computed condition is attached. The calculations are based on an assumption of critical flow at the top of the gate and weir flow over the two "lugs" at the sides of the gate. The program then uses the Standard Step Method to compute the water-surface profile upstream of the gate. Finally, the headloss through the gate entrance is computed with the submerged-weir equation (Brater & King, 1976, Eqn. (5-50). The calculations are done as a trial-and-error process, varying the gate position each time, until the computed headpond elevation matches the given headpond elevation. A diskette copy of the spreadsheet (Lotus 1-2-3 format) is available from Kleinschmidt Associates on request. Second, the discharge is calculated using the Weir Equation as a check.

Backwater Analysis: Do trial-and-error analysis as follows:

1. Select trial gate extension.

2. Compute flow through "side slots" (between gate and walls) and over top "lugs." Conservatively estimate "side" flow as 10 cfs for each side of the gate (20 cfs total), for gate extensions of two feet or greater, based on visual observation of the flow around the gate through a range of gate positions. Calculate flow over the "lugs" using the weir equation ($Q = CLh^{1.5}$), with C=3.0 and L=5.0 ft.

3. Compute "remaining" flow to be passed over the gate top. ($Q_{GATE} = 210 - Q_{SLOTS} - Q_{LUGS}$)

4. Compute critical depth over gate top.

5. Compute a backwater profile upstream from the top of the gate to the sill. Using the Standard Step Method, select incremental distances upstream from the gate to the gate bay entrance. Assume a Water-Surface Elevation (W.S.E.), then compute actual W.S.E. Reiterate by trial until the assumed and calculated agree.

6. Compute headwater elevation required to produce the given flow (210 cfs) over the gate bay, using the submerged weir equation.

7. Compare HW elevation computed at Step 6 with "actual" HW:

   a. If the two HW values are equal, stop.

   b. If not equal, return to Step 1, repeat with new gate extension.

Weir Equation/Check: Use the Weir Equation to calculate flow over the gate for the top-of-gate elevation determined above. Use a discharge coefficient of 3.33 and a gate width of 22 ft.

SIMPSON PAPER/GILMAN DAM 07-Oct-93 :jhc

HYDRAULICS OF CREST GATE - DETERMINE POSITION TO PASS MINIMUM FLOW ka # 526-011-99

file: GILMAN2.WR1

TOTAL FLOW = 210 CFS POND ELEV. = 833.25 FT
GATE TOTAL LENGTH = 18.5 FT
SILL ELEV. = 815.40 FT
BOTTOM HINGE ELEV. = 814.83 FT (C.L.)

1. TRIAL GATE EXTENSION = 5.31 FT
   GATE ANGLE (FROM CLOSED POS.) = 17.52 DEGREES
   ELEV. OF GATE TOP = 831.29 FT
   ELEV. OF GATE TOP "LUGS"= 832.71 FT
2. FLOW THRU GATE "SIDE SLOTS" = 20 CFS
   FLOW OVER GATE TOP LUGS = 6 CFS
3. "REMAINING" FLOW OVER GATE TOP = 184 CFS
4. CRITICAL DEPTH OVER GATE "TOP" = 1.30 FT

GATE WIDTH = 22.0 FT @ TOP
GATE BAY WIDTH = 27.0 FT (total)

5. CHANNEL WATER PROFILE: MANNING'S N = 0.013 (STEEL & CONC.)

LOCATION U/S FROM GATE TOP (%)	(FT)	BOTTOM ELEV. (FT)	CHANNEL WIDTH (FT)	ASSUMED DEPTH (FT)	ASSUMED WATER SURFACE (FT)	TOTAL FLOW @ X-SEC (CFS)	VELOCITY (FT/S)	HYDRAUL. RADIUS (FT)	ENERGY SLOPE	CALC. WATER SURFACE (FT)
0	0.0	831.29	22.00	1.30	832.59	184	6.46	1.16	0.00261	
10	0.9	829.65	27.00	3.52	833.17	210	2.21	2.79	0.00009	833.17
20	1.7	828.01	27.00	5.20	833.21	210	1.50	3.75	0.00003	833.21
30	2.6	826.37	27.00	6.86	833.23	210	1.13	4.55	0.00001	833.23
40	3.4	824.73	27.00	8.51	833.24	210	0.91	5.22	0.00001	833.24
60	5.1	821.45	27.00	11.80	833.25	210	0.66	6.30	0.00000	833.25
80	6.8	818.17	27.00	15.08	833.25	210	0.52	7.12	0.00000	833.25
100	8.5	814.89	27.00	18.36	833.25	210	0.42	7.78	0.00000	833.25

6. SUBMERGED WEIR EQUATION: BROAD-CRESTED WEIR: C = 2.65

SUB-MERGED FLOW (CFS)	H2 (FT)	ASSUMED POND (FT)	H1 (FT)	VELOCITY INTO WEIR (FT/SEC)	QS UNSUBMERG. FLOW (CFS)	QS/Q	CALC. H2/H1	CALC. POND (FT)	
210	17.85	833.25	17.85	0.44	4282.78	0.049	1.000	833.25	OK

CONCLUSIONS:

REQUIRED ELEV. OF GATE TOP:	831.29 FT ========
DROP FROM FULL-UP POSITION (EL. 833.05'):	1.81 FT ========
ELEV. DIFF. FROM HEADPOND TO GATE TOP:	1.96 FT ========
CYLINDER EXTENSION FROM GATE FULL-UP:	5.31 FT ========

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CALCULATION SHEET

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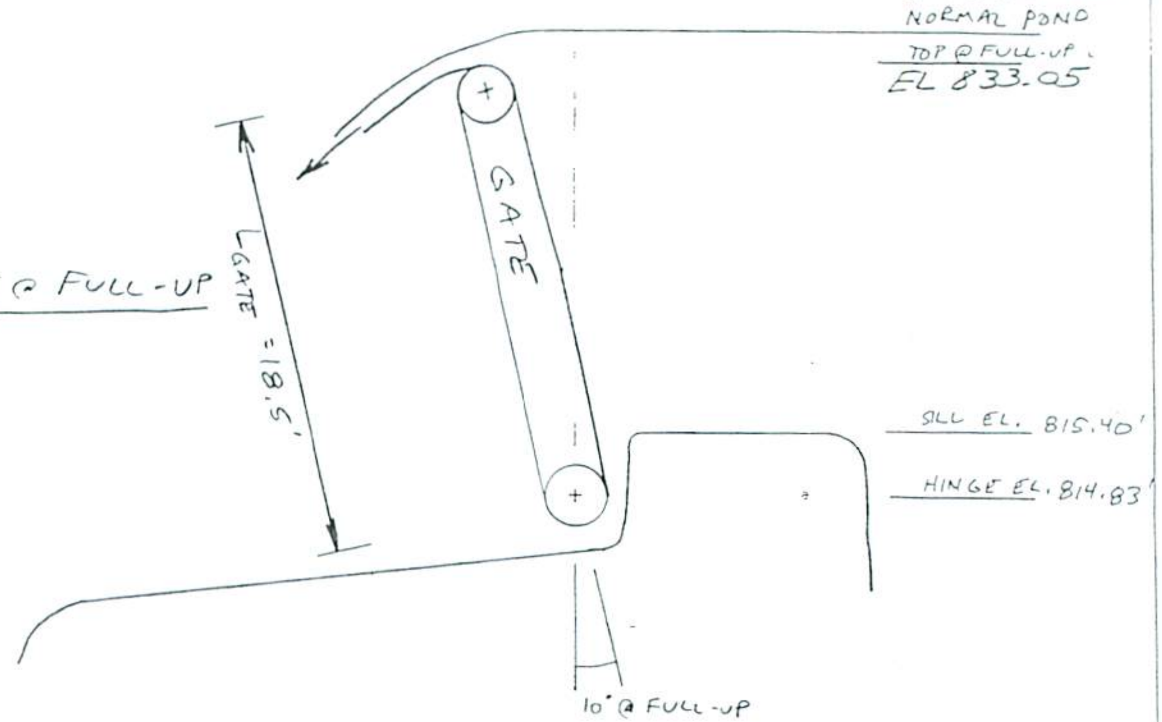
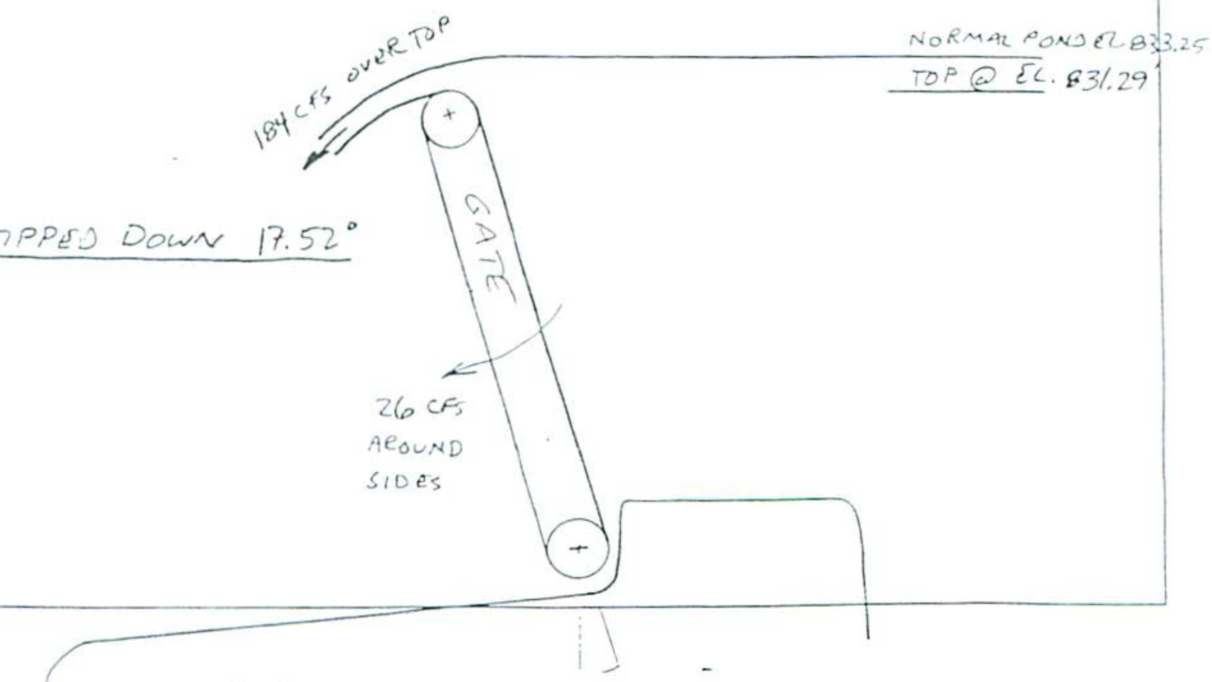
Project: SIMPSON/GILMAN	By: JHC Date: 9/29/93
Subject: CREST GATE	Checked: TLK Date: 9/30/93

ANALYSIS: CALCULATIONS ARE SUMMARIZED ON SYMPHONY SPREADSHEET "GILMAN2" - COPY ATTACHED. FIGURES BELOW FOR REFERENCE:

(1) GATE @ FULL-UP



(2) GATE TIPPED DOWN 17.52°



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CALCULATION SHEET

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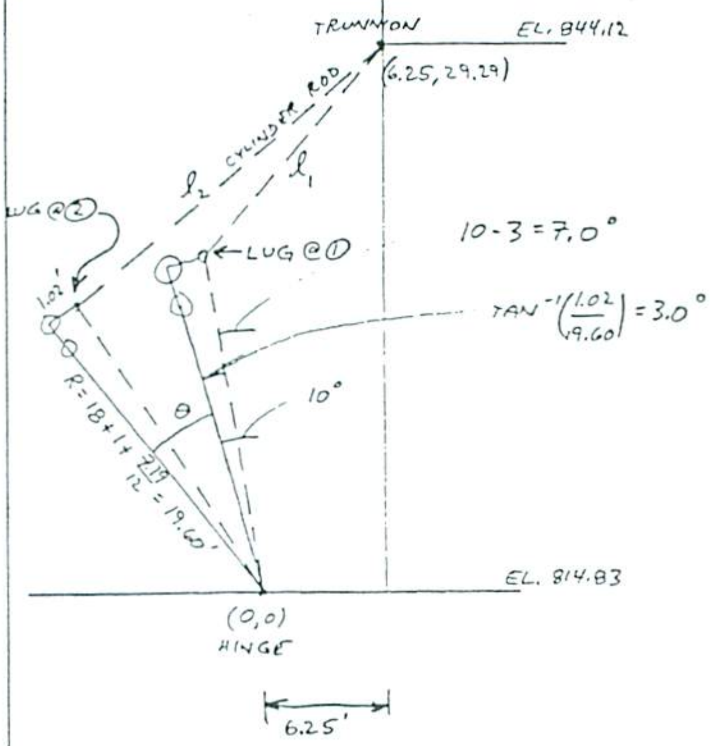
Subject: CREST GATE
Checked: Date:

SPREADSHEET VERIFICATION [PAGES CG-2 THRU CG-8]

① SELECT TRIAL GATE EXTENSION ⇒ X =

COMPUTE GATE ∡ FOR GIVEN EXTENSION ⇒



LUG @ POSITION ① ⇒

$(X_1, Y_1) = (-19.6 \sin 7°, 19.6 \cos 7°)$

$= (-2.39, 19.45)$

LUG @ POSITION ② ⇒

$(X_2, Y_2) = (-19.6 \sin(7+\theta), 19.6 \cos(7+\theta))$

LENGTH $\ell_1 = \sqrt{(6.25-(-2.39))^2 + (29.29-19.45)^2}$

$= 13.09'$

LENGTH $\ell_2 = \sqrt{(6.25+19.6\sin(7+\theta))^2 + (29.29-19.6\cos(7+\theta))^2}$

$\therefore X = \Delta\ell = \ell_2 - \ell_1 = \sqrt{(6.25+19.6\sin(7+\theta))^2 + (29.29-19.6\cos(7+\theta))^2} - 13.09$

[IN SPREADSHEET, SELECT GATE ∡ θ, TO PROVIDE DESIRED EXTENSION, X]

FOR X = 5.31', θ = 17.52°

SPREADSHEET VERIFICATION (CONT.)

(2) COMPUTE FLOW THRU "SIDE SLOTS" ⟹

BASED ON VISUAL OBSERVATIONS OF FLOW AROUND GATE FOR RANGE OF GATE EXTENSIONS (0-15') AT HEADPOND LEVEL OF 833.6' ± ON 10/5/93, THIS FLOW IS A LIMITED AMOUNT. THE FOLLOWING ESTIMATES WERE MADE IN THE FIELD:

GATE EXTENSION	FLOW AROUND SIDES (@ TOP)*	FLOW AROUND SEALS*	TOTAL FLOW (BOTH SIDES)
0'	1 CFS	0 CFS	2 CFS
1	2	<1	5
2	4	1 ±	10
3	5	3	16
4	6	5	22
5	5	5 ±	20
6	5	5 ±	20
7	5	5 ±	20

*FLOW @ EACH SIDE OF GATE.

FOR SIMPLICITY, ASSUME TOTAL FLOW AS FOLLOWS:

GATE EXTENSION = 0 ⟹ Q = 2 CFS
" " = 0-2' ⟹ Q = 10 CFS
" " $\geq 2'$ ⟹ Q = 20 CFS

∴ FOR EXTENSION = 5.31', $Q_{SOES} = 20$ CFS

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CALCULATION SHEET

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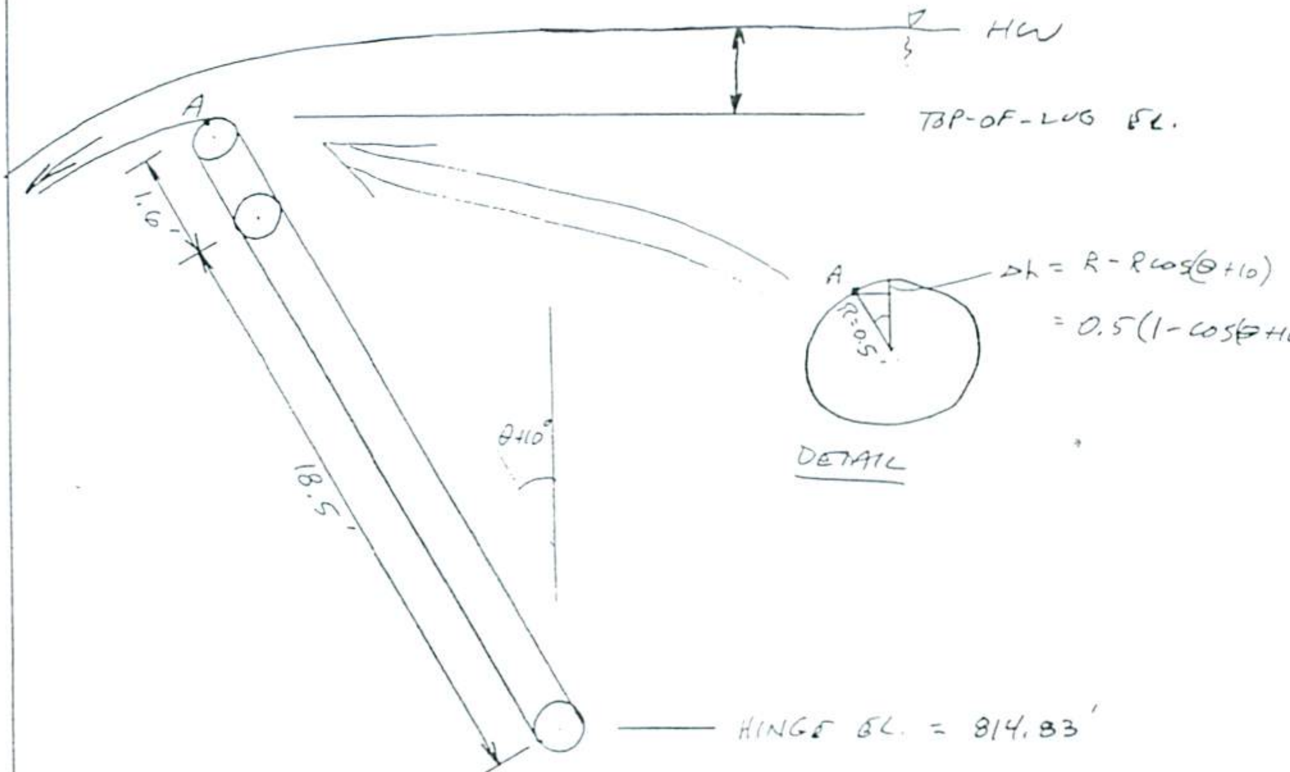
VERIFICATION (CONT.)

② "SIDE SLOTS" (CONT.)

EST. FLOW OVER "LUGS" @ TOP OF GATE – USE WEIR EQN.



ELEV. @ "A" = HINGE EL. + (18.5 + 1.6 = 20.1') cos(θ+10°) = 814.83 + 20.1 cos(θ+10)

ELEV. @ TOP OF LUG = EL. @ A + Δh = 814.83 + 20.1 cos(θ+10) + 0.5[1 − cos(θ+10)]

∴ θ = 17.52° ⇒ TOP-OF-LUG ELEV. = 814.83 + 20.1 cos(27.52) + 0.5[1 − cos(27.52)]
= 832.71'

EFFECTIVE WIDTH OF LUGS = 2.5 − 3.0' EACH SIDE ⇒
CONSERVATIVELY USE 2.5' ⇒ TOTAL WIDTH = 2(2.5) = 5.0'

VERIFICATION (CONT)

① "SIDE SLOTS" (CONT.)

USE COEFFICIENT = 3.0 (CONSERVATIVELY LOW, TO ACCOUNT FOR INTERFERENCES OF BRACKETS & HYDRAULIC ARM)

$\therefore Q_{LUGS} = CLH^{1.5} = (3)(5)(HW - 814.83 + 20.1\cos(\theta+10) + 0.5 - 0.5\cos(\theta+10))$

$\theta = 17.52^\circ \Rightarrow Q_{LUGS} = 15(833.25 - 832.71 = 0.54')^{1.5} = 6.0$

$Q_{LUGS} = 6$ CFS

③ COMPUTE "REMAINING" FLOW OVER "CENTRE" OF GATE TOP (I.E. BETWEEN LUGS) ⇒

$Q_{GATE\ TOP} = Q_{TOTAL} - Q_{SIDES} - Q_{LUGS}$

$= 210 - 20 - 6 = 210 - 26$

$= \underline{184}$ CFS

VERIFICATION (CONT.)

(4) - COMPUTE CRITICAL DEPTH OVER GATE TOP ⇒

BRATER & KING (1976) EQN. (8-19) ⇒ $\frac{Q^2}{g} = \frac{A^3}{T}$ @ CRITICAL FLOW

WHERE Q = DISCHARGE = 98 CFS

$g = 32.2$ FT/SEC²

A = FLOW AREA = $d_c T$

T = TOP WIDTH OF FLOW

d_c = CRITICAL DEPTH

$T = 2\left[(13'\text{-}11\tfrac{1}{4}") - 4" - 6\tfrac{1}{8}" - (2'\text{-}0") - \tfrac{1}{2}"\right] \Rightarrow \underline{22.1'}$ [REF.: KA DWG. NO. 100, RECORD DWG. DATED 12/18/91]

$$\therefore \frac{Q^2}{g} = \frac{A^3}{T} = \frac{(d_c T)^3}{T} = d_c^3 T^2 \Rightarrow d_c = \left(\frac{Q^2}{gT^2}\right)^{1/3}$$

$$\therefore d_c = \left[\frac{184^2}{(32.2)(22.1)^2}\right]^{1/3} = \underline{1.29 \text{ FT}}$$

(5) COMPUTE BACKWATER PROFILE FROM TOP OF GATE U/S TO SILL ⇒
USE STANDARD STEP METHOD [REF: V.T. CHOW (1959), PP 265-268].
SEE SPREADSHEET CALCS. (ATTACHED), WHICH GIVE SUMMARY VALUES FOR EACH DISTANCE U/S FROM GATE TOP.
NOTE THAT CHANNEL WIDTH INCREASES FROM 22' TO 27' FOR DISTANCES MORE THAN 0.5' U/S OF GATE TOP - LIFTING LUGS ARE ONLY @ TOP 0.5' OF GATE.

Kleinschmidt Associates	KLEINSCHMIDT ASSOCIATES Consulting Engineers Pittsfield, Maine 04967 (207) 487-3328 (207) 487-3211 CALCULATION SHEET	Page: CG-7 Project No.: 526-011-99-00
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VERIFICATION (CONT.)

(5) BACKWATER PROFILE (CONT.)

U/S OF GATE LUGS, REDUCE EFFECTIVE CHANNEL WIDTH BECAUSE OF SIDE WALLS:

∴ WIDTH = 28 − 1 = 27'

ALSO, INCREASE FLOW MOVING U/S, TO PROVIDE COMPLETE 210 CFS @ 10% OF GATE DISTANCE U/S.

HEADWATER ELEV. @ U/S END = 833.25'

(6) COMPUTE HEADWATER ELEV. REQD. IN HEADPOND ⇒

BRATER & KING (1976) EQN. (5-50) ⇒ SUBMERGED WEIR EQN.

$$\frac{Q}{Q_s} = \left[1 - \left(\frac{H_2}{H_1}\right)^{1.5}\right]^{0.385}$$

WHERE Q_s = WEIR DISCHARGE (UNSUBMERGED) $= CLH_1^{1.5}$

Q = SUBMERGED DISCHARGE = 210 CFS

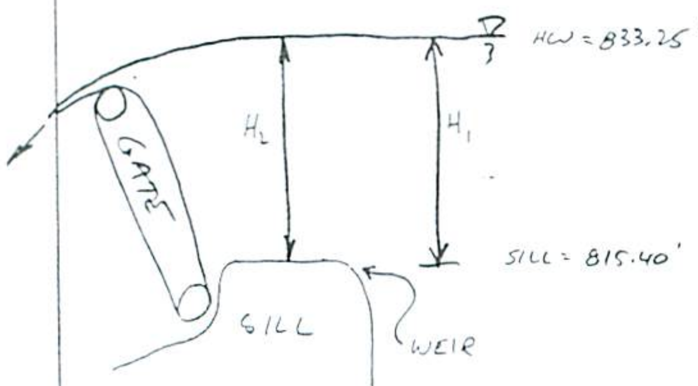
C = 2.65 (BROAD-CRESTED WEIR)

$L = 25' - 0.2H_1 = 25 - (0.2)(17.85) = 21.4'$

(TRIAL) H_1 = U/S HEAD ON WEIR = 833.25 − 815.4 = 17.85'

H_2 = D/S HEAD ON WEIR = 17.85'

$Q_s = (2.65)(21.4)(17.85)^{1.5} = 4277$ CFS



TRANSPOSITION OF ABOVE EQN. ⇒

$$\frac{H_2}{H_1} = \left[1 - \left(\frac{Q}{Q_s}\right)^{\frac{1}{0.385}}\right]^{2/3} = \left[1 - \left(\frac{210}{4277}\right)^{\frac{1}{0.385}}\right]^{2/3} = 0.9996, \text{ SAY } 1.00$$

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Subject: CREST GATE

Checked: Date:

VERIFICATION (CONT.)

(6) HEADPOND ELEV. (CONT.)

$\therefore H_1 = H_2 = 17.85' \Rightarrow$ HW ELEV. = 815.4 + 17.85 = 833.25'

(7) COMPARE W/ "ACTUAL" HEADPOND ELEV. $\Rightarrow$ OK

NOTE THAT HEAD LOSS THRU GATE OPENING IS NEGLIGIBLE (< 0.01') BECAUSE THE AVG. VELOCITY IS SO SMALL (0.44 FT/SEC $\Rightarrow$ VEL. HEAD = $\frac{V^2}{2g} < 0.01'$).

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CALCULATION SHEET

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Project: SIMPSON CREST GATE
By: MCS Date: 10/7/93
Subject: MINIMUM FLOW
Checked: JHC Date: 10/7/93

ALTERNATIVE METHOD

GATE WIDTH = 22'
ASSUME SQUARE EDGE ENTRANCE $k=0.1$
Flow required = 200 CFS
Assume 10 cfs for leakage

Head Required	Lnet	C	Q
1	21.8	3.33	72.6
2	21.6	3.33	203 cfs

CRITICAL DEPTH METHOD = 1.96' Depth
CHECKS against weir flow method

ATTACHMENT B

WATER QUALITY MANAGEMENT PLAN

Simpson Paper Company
Gilman, Vermont

Water Quality Management Plan

Continued water quality monitoring is required by the Article 404 of the new project license for the Gilman Project, FERC No. 2392. This monitoring will consist of dissolved oxygen (DO) and water temperature monitoring downstream and upstream of the Gilman Project.

Monitoring will be conducted over a three-day period at the same monitoring locations used over the past several years. These are described in Table 1 below. Sampling will consist of measurements taken in the late afternoon and the following morning prior to local sunrise to document the diurnal range of any oxygen and temperature fluctuation. Monitoring will be conducted over one period in each July, August and September for three years (1994, 1995, and 1996). Timing of these samplings will be to coincide with low flow periods of the river.

Table 1 - Sampling locations

River Mile	Description
302.9	Railroad Bridge
300.5	upstream of Gilman dam
300.0	Dalton-Gilman Bridge

Total Connecticut River flow at the Dalton, NH USGS gage and estimated spillage at the dam at the time of sampling will also be recorded.

DO and temperature will be measured in-situ by use of a portable DO and temperature meter. Before calibration of the meter each day, the meter must be turned on for a minimum of 15 to 20 minutes to allow the probe to polarize. Once calibrated, the meter must be left on through the entire sampling run to maintain the polarization. Following the sampling run, the calibration will again be checked to determine any drift. If a drift equal to or greater than 0.3 mg/l is found, the DO results must be adjusted commensurately.

Following completion of the September sampling a summary report will be prepared and submitted to the New Hampshire Department of Environmental Services, the New Hampshire Fish and Game Department, and the Vermont Agency of Natural Resources. A final report will be prepared at the end of the three years of monitoring. Following submittal of the final report, Simpson will consult with these agencies to determine if further sampling is needed.

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ATTACHMENT C

RUN-OF-RIVER MANAGEMENT PLAN

Simpson Paper Company
Gilman, Vermont

Run-of-River Management Plan

Run-of-river operation of the Gilman Project is required by the Article 401 of the new project license and Condition A of the Vermont 401 Certification. This run-of-river operation at the Gilman dam will be ensured by maintaining the water level in the impoundment within 6 inches of the top of flashboards, targeting to be at approximately one-inch below the top of flashboards. The 6-inch maximum operating band will only be used to comply with the project's run-of-river requirements, no project cycling will be done. Therefore, outflows will approximate the sum of the inflows to the project reservoir.

Unit settings will be established based on existing flow conditions. The unit settings will be modified as required if a change in river flow occurs that changes the headpond levels. This will be determined by headpond water level during periodic (4-hour) monitoring. During re-establishment of normal pond level to within one inch of top of flashboards, the project discharge will be no less than 90% of project inflow in order to maintain flows below the dam.

Headpond water level, total river flow, and output of the hydroelectric generating station will be monitored and recorded every four hours by the shift electrician. Records will be maintained at Simpson Paper for inspection during normal business hours by federal or state officials.

Under Article 401, run-of-river operation may be temporarily modified if required by operating emergencies beyond the control of Simpson Paper Co., or for short periods upon mutual agreement between Simpson Paper Co. the Vermont Agency of Natural Resources, The New Hampshire Fish and Game Department, and the U.S. Fish and Wildlife Service.

If the flow is modified by an emergency condition, Simpson Paper Co. shall notify the Commission, the above resource agencies, and the New Hampshire Department of Environmental Services as soon as possible, but no later than 10 days after each such incident. Notification will include the reason for the modification, the duration of the modification, an estimate of how much outflows varied from inflow, and what steps, if any, will be taken to avoid recurrence of the emergency condition.