26306
SURNAME/FILES

State Water Resources Control Board

Division of Water Rights
1001 I Street, 14th Floor • Sacramento, California 95814 • (916) 341-5384
Mailing Address: P.O. Box 2000 • Sacramento, California • 95812-2000
FAX (916) 341-5400 • Web Site Address: http://www.swrcb.ca.gov
Division of Water Rights: http://www.waterrights.ca.gov

Winston H. Hickox
Secretary for Environmental Protection

Gray Davis
Governor

In Reply Refer
To:341:WCS:26306 & 26307

MAY 02 2001

Emmerson Investment, Inc.
c/o Jack G. Frost
P.O. Box 496014
Redding, CA 96049-6014

Gentlemen:

PERMITS 19164 AND 19165 (APPLICATIONS 26306 AND 26307) SHASTA RIVER IN SISKIYOU COUNTY

On April 17, 2001, I met with watermaster Keith Dick to view the installation and operation of the measuring devices (rectangular orifices in flashboards) installed to comply with term 16 of the above permits. These devices are to provide the required bypass flows for the gravity diversion and the pumped diversion serving the Hole-in-the-Ground Ranch.

Sometimes unforeseen field conditions make it necessary to adjust designs based on theoretical conditions. In the case of these two measuring devices, the discharge of each orifice was submerged by downstream backwater when installed in or near the lowest flashboard. This submergence affects the proper operation of the orifice and adds inaccuracy to the discharge as calculated by the theoretically-based formula.

Consequently, Mr. Dick and I decided to move the orifices higher up for both diversions to the middle flashboard. Because the reduced head on the orifice will reduce the discharge, I have made a recalculation of the size required (see enclosed sheet) for each diversion, in order to pass the required 1.0 cubic foot per second (cfs).

Mr. Dick has informed me that due to the very dry winter in your area and the accompanying low storage level in Lake Shastina no surplus water is available for diversion under Permits 19164 and 19165 for this irrigation season. As a result, use of these orifices will not be required until next season, or the next time surplus water is to be appropriated under these permits.

The next time flashboards are installed in these diversions and surplus water is to be appropriated, particular attention needs to be given to both the **size** and the **location** of the orifice and the **number** and **size** of the flashboards for each diversion. The proper size, location and operating head of each orifice are shown on the enclosed sketches. The operating head is the height of the upstream water level above the orifice. This operating head must be maintained at

SURNAME DWR 540	W.C. Frost 5-2-01	Dreder 5/2/01		

Emmerson Exhibit 31

all times that diversion is occurring. The required 1.0 cfs bypass will be discharged through the orifice only when the water level is as shown on the sketches (or higher, in which case excess water will spill over the top board). A copy of this sketch is also provided to ranch manager Pete Scala and watermaster Keith Dick. A copy will need to be provided to the person who installs the flashboards so the orifice can be cut the proper size and placed in the proper place with the proper size boards. I believe that neither of the orifices installed this year were of the size shown in Mr. Dick's sketch. As it turned out, this was of no consequence since no water is available for diversion under the permits. However, more attention will need to be given to this matter the next time surplus water is available.

Please give me a call at (916) 341-5384 if you have any questions. Please be advised that diversion of water under either of these permits without a properly installed orifice and/or without a 1.0 cfs bypass at all times may result in an Administrative Civil Liability fine of up to $500.00 per day.

Now it looks like all matters are in order. I will forward the files for the permits to our Division's Petition Unit for processing of your Petitions for Extensions of time.

Sincerely,

Wayne C. Smith
WRC Engineer
Licensing Unit

Enclosures

cc: Pete Scala
Shasta Springs Ranch
21305 Slough Road
Weed, CA 96097

Keith Dick
9106 Airport Road
Montague, CA 96064

WCSmith\lfischer
D:\wcs\26306 5/1/01

EMMERSON INVESTMENT, INC.
Hole in the Ground Ranch
Shasta River Pumped Diversion No. 166

Permit 19165
(Application 26307)

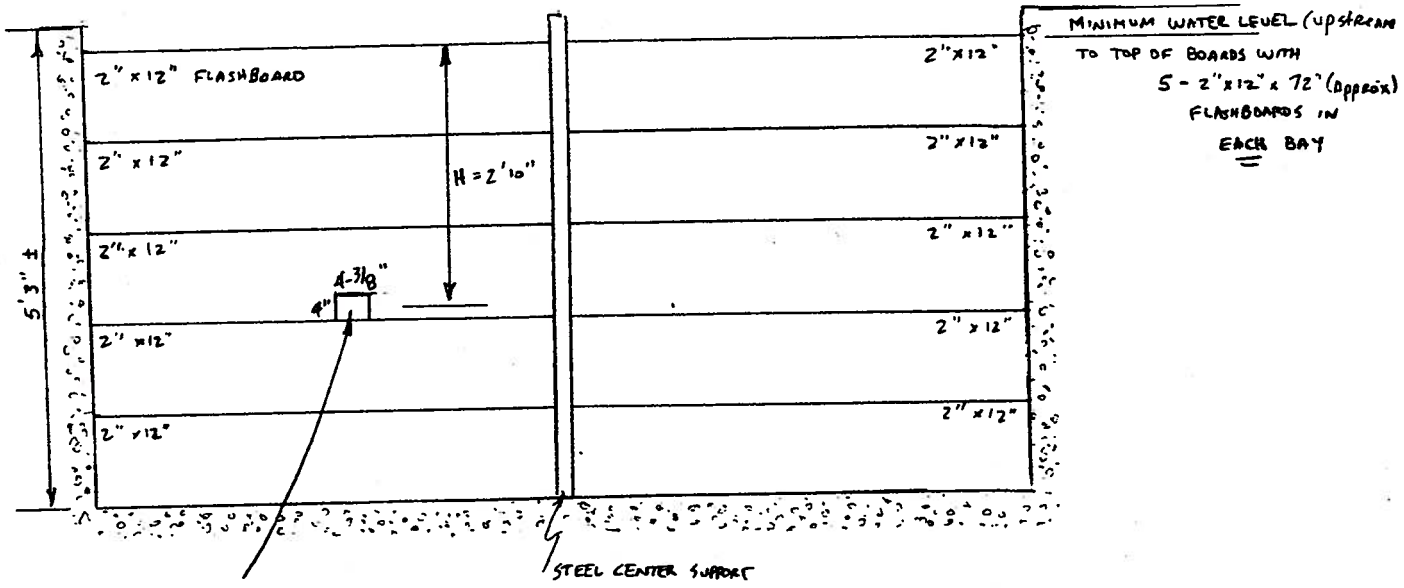
Discharge through Rectangular Orifice

$Q = 0.61 A \sqrt{2gH}$ $\quad A = 4" \times 4\,3/8" = 17.5\ in^2 = 0.122\ ft^2$

$Q = 0.61 \times 0.122 \sqrt{64.4 \times 2.833}$ $\quad 2g = 64.4$

$H = 2'10" = 2.833'$

$Q = 1.0$ cfs bypass required by Permit term 16



ORIFICE NOTCH MUST BE SIZED 4" x 4-3/8" with two 2" x 12" BOARDS BELOW AND TWO 2" x 12" BOARDS ABOVE BOARD WITH NOTCH

EMMERSON INVESTMENT, INC
Hole in the Ground Ranch
Shasta River Gravity Ditch Diversion
NO. 165

Permit 19164
(Application 26306)

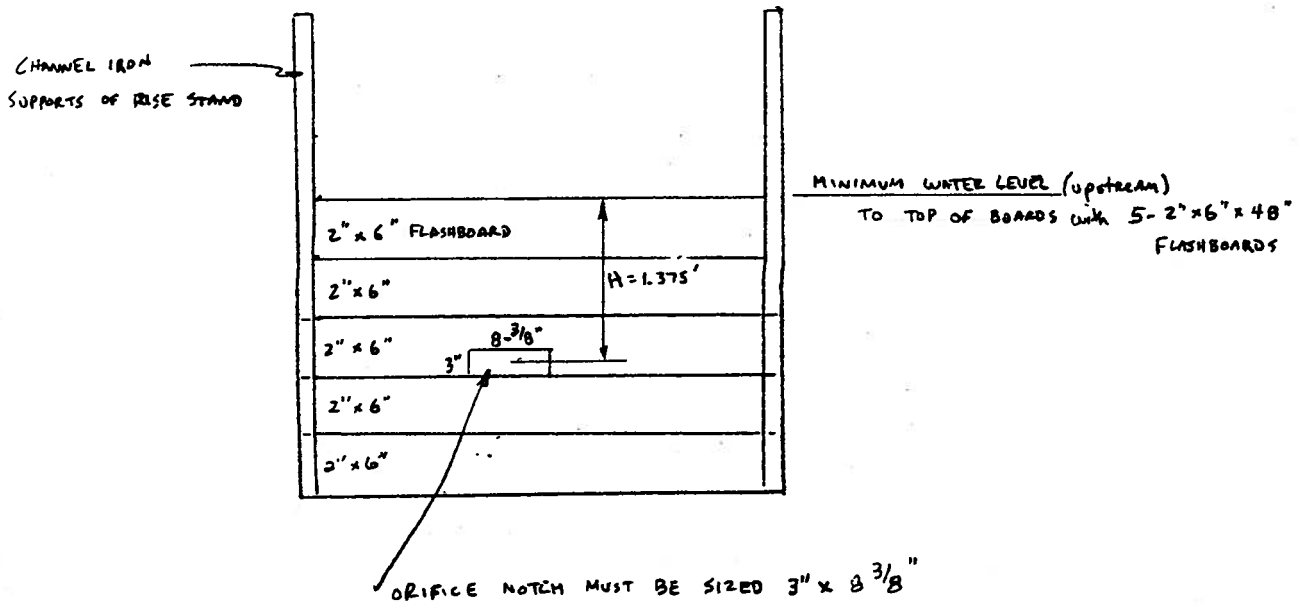
Discharge through Rectangular orifice

$Q = 0.61 A \sqrt{2gH}$ $\quad A = 3'' \times 8\frac{3}{8}'' = 25 \text{ in}^2 = 0.174 \text{ ft}^2$

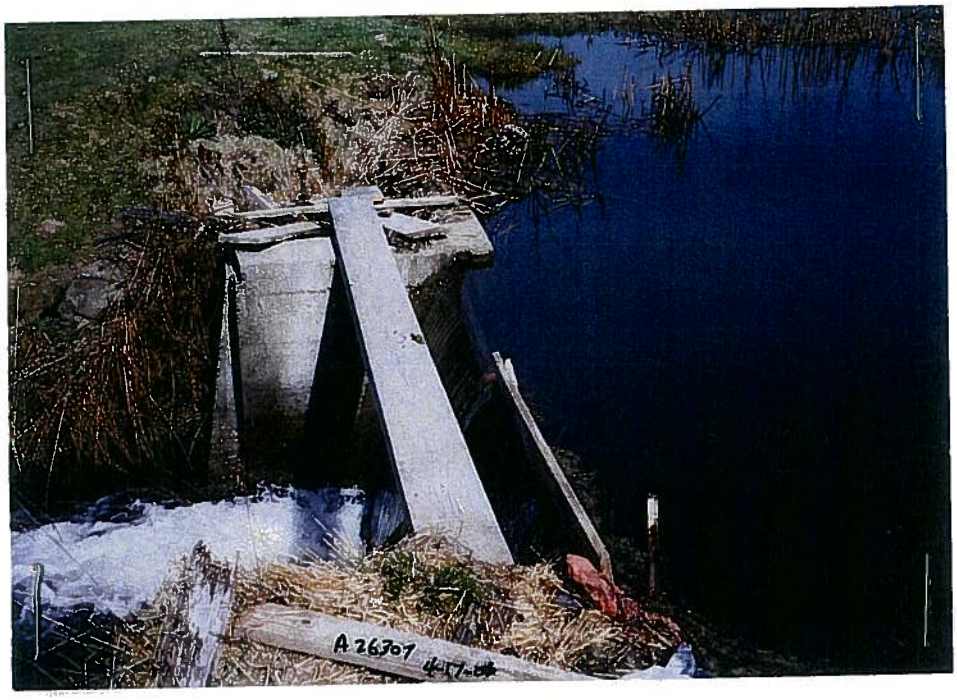
$Q = 0.61 \times 0.174 \sqrt{64.4 \times 1.375}$ $\quad 2g = 64.4$

$H = 1.375'$

$Q = 1.0$ cfs bypass required by Permit term 16



WBC Smith



ORIFICE IS IN BOTTOM BOARD OF RIGHT SIDE BAY (WITH POUR-OVER) AND IS SUBMERGED

PERMIT 19165 (A-26307)

4-17-01

WCS