E. Prath

Book L

SUPPLEMENT TO STANDARD OPERATION AND MAINTENANCE MANUAL

SACRAMENTO RIVER
FLOOD CONTROL PROJECT
UNIT NO. 158
SACRAMENTO WEIR
SACRAMENTO RIVER, CALIFORNIA

SACRAMENTO DISTRICT

CORPS OF ENGINEERS

U. S. ARMY

SACRAMENTO, CALIFORNIA

CORPS OF ENGINEERS
U. S. ARMY

SUPPLEMENT TO STANDARD OPERATION AND MAINTENANCE MANUAL SACRAMENTO RIVER FLOOD CONTROL PROJECT

UNIT NO. 158
SACRAMENTO WEIR
SACRAMENTO RIVER, CALIFORNIA

Prepared by the Sacramento District
Corps of Engineers, U. S. Army
August 1955

SUPPLEMENT TO STANDARD
OPERATION AND MAINTENANCE MANUAL
SACRAMENTO RIVER FLOOD CONTROL PROJECT

UNIT NO. 158

SACRAMENTO WEIR
SACRAMENTO RIVER, CALIFORNIA

LOCATION	ADDITION OR REVISION	DATE
	Delete Exhibit H dated 25 Nov 1940	Feb 1966
	Add Exhibit H dated Nov 1963	Feb 1966
	Delete Exhibit H dated Nov 1963	Dec 1966
	Add Exhibit H dated Dec 1966	Dec 1966
	Add letter from state department of water resources dated 19 Dec 1966	Dec 1966
	Delete Exhibit H dated Dec 1966	May 1975
	*Add Exhibit H dated Mar 1975	May 1975
	Add letter from state department of water resources dated 28 Jan 1975	May 1975
	Paragraph 1-05 revised (Page 1 and 2)	May 1976
	*Add letter from state divisions of resource development dated 30 Jan 1975	Mar 1976
Exhibit F	Add copy of letter of transfer dated 8 Dec 1951	28 Dec 2010
1-04	Add subparagraph a	28 Dec 2010
Exhibit F	Add copy of letter of transfer dated 14 Jan 1987	28 Dec 2010

* This revision changes the datum on the staff gage at the Sacramento Weir to coincide with the datum of the gage located at the I Street Bridge. Elevation of 0.00 feet on the gage at the weir equals 0.00 feet U.S.C.&G.S. datum (see page 1 and 2 for more details). The above is in conformance with the letter from the Division of Resources Development, attached.

UNIT NO. 158
TABLE OF CONTENTS
SUBJECT

SECTION I - INTRODUCTION

SECTION II - FEATURES OF THE PROJECT SUBJECT TO FLOOD CONTROL REGULATIONS

SECTION III - REPAIR OF DAMAGE TO PROJECT WORKS AND METHODS OF COMBATING FLOOD CONDITIONS

TABLE OF CONTENTS
(Continued)

EXHIBITS

SUPPLEMENT TO STANDARD
OPERATION AND MAINTENANCE MANUAL
SACRAMENTO RIVER FLOOD CONTROL PROJECT

UNIT NO. 158
SACRAMENTO WEIR

See Exhibit H for Schedule of Operation

SECTION I – INTRODUCTION

1-01. Location. The improvement covered by this manual is that part of the Sacramento River Flood Control Project which comprises the Sacramento Weir together with its adjoining channel, levees at the abutments, railroad bridge, highway bridge and appurtenances, as shown on the location map, Exhibit A-1 and drawings of Exhibit B. The weir is located in Yolo County, California along the right bank of the Sacramento River near Bryte, California and about 3.1 miles northwesterly form the City of Sacramento.

1-02. Project Works. The Sacramento Weir is a reinforced concrete weir with wooden needles that provide a movable crest. There are 48 weir sections of each 38 feet long. A highway bridge 36* feet wide and a single track railroad traverses the length of the weir. Concrete abutments at each end tie into the west levee of the Sacramento River and the north and south levees of the Sacramento Bypass. For more complete details of these structures, see drawings of Exhibit B.

1-03. Protection Provided. The Sacramento Weir is designed to protect the City of Sacramento and adjacent area from flood damage by providing means for release of excess overflow waters of the Sacramento and American Rivers into the Yolo Bypass system. The project design capacity of the Sacramento Weir is 112,000 cubic feet per second.

1-04. Construction Data and Contractor. The Sacramento Weir was constructed by Teichert & Ambrose under contract which was awarded by the City of Sacramento in June 1916. Subsequently the city was reimbursed for the costs of construction by the Sacramento District. In addition to structures built by local interests, construction required by the U.S. Corps of Engineers to perform emergency repairs and to bring this unit to project standards was accomplished under the following contracts:

a. Emergency repairs to the Sacramento River Weir were completed on 3 November 1986 under Contract No. DACW05-86-C-0116.

1-05. Flood Flows. For purposes of this manual, the term “flood” or “high water period” shall refer to flows when the water surface in the Sacramento River reaches or exceeds the reading of 25.0 on the continuous water stage recorder and staff gage of the U.S. Weather Bureau and State Division of Water Resources located on the left bank of the Sacramento River at the foot of “I” Street, City of Sacramento. Zero of staff gage and recorders is set at elevation in 3.00 U.S. Corps of Engineers datum and 0.00 foot U.S.G.S. datum. The term “flood” or “high water period” may also apply when the water surface in the Sacramento River reaches or exceeds

*Highway bridge formerly 20 feet. 36 feet constructed in 1977. Re: Reclamation Board #11625 and 5589 Stop Logs.

the reading of 29.0 m.s.l. on the continuous water stage recorder and staff gage of the U.S. Corps of Engineers and the State Department of Water Resources located of the U.S. Corps of Engineers and the State Department of Water Resources located on the pile dolphin on the right bank of the Sacramento River 100 feet downstream from the Sacramento Weir. Zero of this gage is set at 3.00 feet U.S. Corps of Engineers datum and 0.00 feet U.S.G.S. datum.

1-06. Assurances Provided by Local Interests. Assurances of cooperation by local interests is provided by State legislation as contained in Chapter 3, Part 2, Division 5 of the State Water Code (see paragraph 2-02a of the Standard Manual).

1-07. Acceptance by the State Reclamation Board. Responsibility for operating and maintaining the completed works was officially accepted by the Reclamation Board of the State of California on 18 December 1951, as shown on the attached letter of acceptance, Exhibit F.

1-08. Superintendent. The name and address of the superintendent appointed by the State or acting as a representative of the State Division of Water Resources for the continuous inspection, operation and maintenance of the Project works shall be furnished the District Engineer, and in case of any change of superintendent, the District Engineer shall be so notified.

SECTION II
FEATURES OF THE PROJECT SUBJECT TO FLOOD CONTROL REGULATIONS

REC BOARD PERMIT

2-01. Drainage and Weir Structure. RB# 5589 STOP LOGS & GUIDES INSTALLED

a. Description. The Sacramento Weir is a reinforced fixed concrete structure located along the right bank of the Sacramento River about 3.1 miles northwesterly from the City of Sacramento. A concrete sheet pile cut-off wall extends the full length of the weir, a distance of 1,980 feet. The weir crest elevation is 24.75 feet. Hinged 3" x 12" wooden needles backed by a 20" x 28" wooden needle beam make it possible to raise the crest to elevation 31.0. ~~A float release mechanism capable of dropping the needle gates to elevation 25.0 can be adjusted to release when the water level reaches any elevation from 31.0 to 38.0.~~ Concrete piers on 41.25 foot centers carry highway and railroad bridges across the weir. Concrete abutments at each end of the weir tie into the levees on the west side of the Sacramento River at this location. The abutments also tie into the north and south levees of the Sacramento Bypass. The leveed bypass has an average channel width of 1,800 feet and extends southwesterly from the weir to the Yolo Bypass. For more complete details of these structures see drawings of Exhibit B.

b. For pertinent Requirements of the Code of Federal Regulations and other requirements see the following:

(1) Maintenance - Paragraph 5-02 of the Standard Manual.

(2) Check Lists - Exhibit E of this Supplement Manual.

(3) Operation - Paragraph 5-04 of the Standard Manual.

(4) Additional Requirements - Paragraph 5-05 of the Standard Manual.

(5) Safety Requirements - Paragraph 5-06 of the Standard Manual.

c. Special requirements pertaining to the Sacramento Weir:

(1) All missing parts of the hinged needles shall be replaced immediately following each flood period and that another inspection is made prior to the next flood season to be certain that all missing posts have been replaced.

(2) On the tripping devices the Superintendent shall make certain that:

(a) No parts are missing.

(b) Metal parts are adequatly covered with paint.

(c) All movable parts are in satisfactory working order.

(d) All padlocks are not corroded and can be opened with a proper key.

(e) Sufficient replacement materials are on hand and will be readily available in times of emergency.

(3) A sufficient stockpile of needle beams, hinged needles, and cable is available for replacement in times of emergency. The extra beam used for raising needles is readily available and in good operating condition at all times. Make certain that arrangements have been made to employ a mobile crane capable of handling the needle beams if and when needed.

(4) There are no encreachments upon the right-of-way which might endanger the structure or hinder its functioning in time of flood.

(5) A schedule of operation for the movable top of the Sacramento Weir is contained in Exhibit H of this manual.

2-02. Channel.

a. Description. For purpose of this manual the channel will be considered as that portion which extends from the Sacramento River to a point 200 feet downstream from the lower face of the weir structure. Beyond this point the channel maintenance is covered by other manuals.

b. For pertinent Requirements of the Code of Federal Regulations and other requirements see the following:

(1) Maintenance - Paragraph 6-02 of the Standard Manual.

(2) Check Lists - Exhibit E of this Supplement Manual.

(3) Operation - Paragraph 6-04 of the Standard Manual.

(4) Safety Requirements - Paragraph 6-05 of the Standard Manual.

It shall be the duty of the Superintendent to maintain a patrol of the project works during all periods of flood flow in excess of a reading of 25.0 on the gage located at the foot of "I" Street or 29.0 on a gage located 100 feet downstream from the Sacramento Weir, as indicated in paragraph 1-05 of this manual. The Superintendent shall dispatch a message by the most suitable means to the District Engineer

whenever the water surface in the Sacramento River reaches the gage readings indicated above. The Superintendent shall cause readings to be taken at intervals of two to four hours during the period when the water surface is above flood-flow stage and record the time of the observations. One copy of the readings shall be forwarded to the District Engineer immediately following the flood, and a second copy transmitted as an inclosure to the semi-annual report in compliance with paragraph 3-06 of the Standard Manual.

2-03. Levees.

a. Description. The bypass levees will not be described in this manual, except that portion of the north and south levees of the Sacramento Weir north and south abutments and which may be considered a part thereof.

b. For pertinent Requirements of the Code of Federal Regulations and other requirements see the following:

(1) Maintenance - Paragraph 4-02 of the Standard Manual.

(2) Check Lists - Exhibit E of this Supplement Manual.

(3) Operation - Paragraph 4-04 of the Standard Manual.

(4) Special Instructions - Paragraph 4-05 of the Standard Manual.

2-04. Miscellaneous Facilities.

a. Description. Miscellaneous structures or facilities which were constructed as a part of, or in conjunction with, the protective works, and which might affect their functioning, include the following:

(1) Bridges.

(a) A reinforced concrete bridge over the Sacramento Weir * ~~20~~ feet wide that carries traffic of State Highway No. 16 and No. 24.

* WIDEN TO 36' IN 1977 REC. BOARD PERMIT # 11625

(b) A steel plate girder single track, bridge of the Sacramento Northern Railroad.

(2) Utility Relocation.

(a) A power pole line anchored to four wing walls. This line crosses the Sacramento Bypass channel and is parallel to and about 400 feet downstream from the railroad trestle.

(3) Hydrographic Facilities. Water level gages to be maintained by the following Government agencies within this unit are listed as follows:

(a) U. S. Weather Bureau and State Division of Water Resources gage located on the Sacramento River at the foot of "I" Street, City of Sacramento.

(b) U. S. Corps of Engineers and State Division of Water Resources gage located on the right bank of the Sacramento River about 100 feet downstream from the Sacramento Weir.

b. For pertinent Requirements of the Code of Federal Regulations and other requirements see the following:

(1) Maintenance - Paragraph 7-02 of the Standard Manual.

(2) Check Lists - Paragraph 7-03 of the Standard Manual.

(3) Operation - Paragraph 7-04 of the Standard Manual.

SECTION III
REPAIR OF DAMAGE TO PROJECT WORKS AND METHODS OF COMBATING FLOOD CONDITIONS

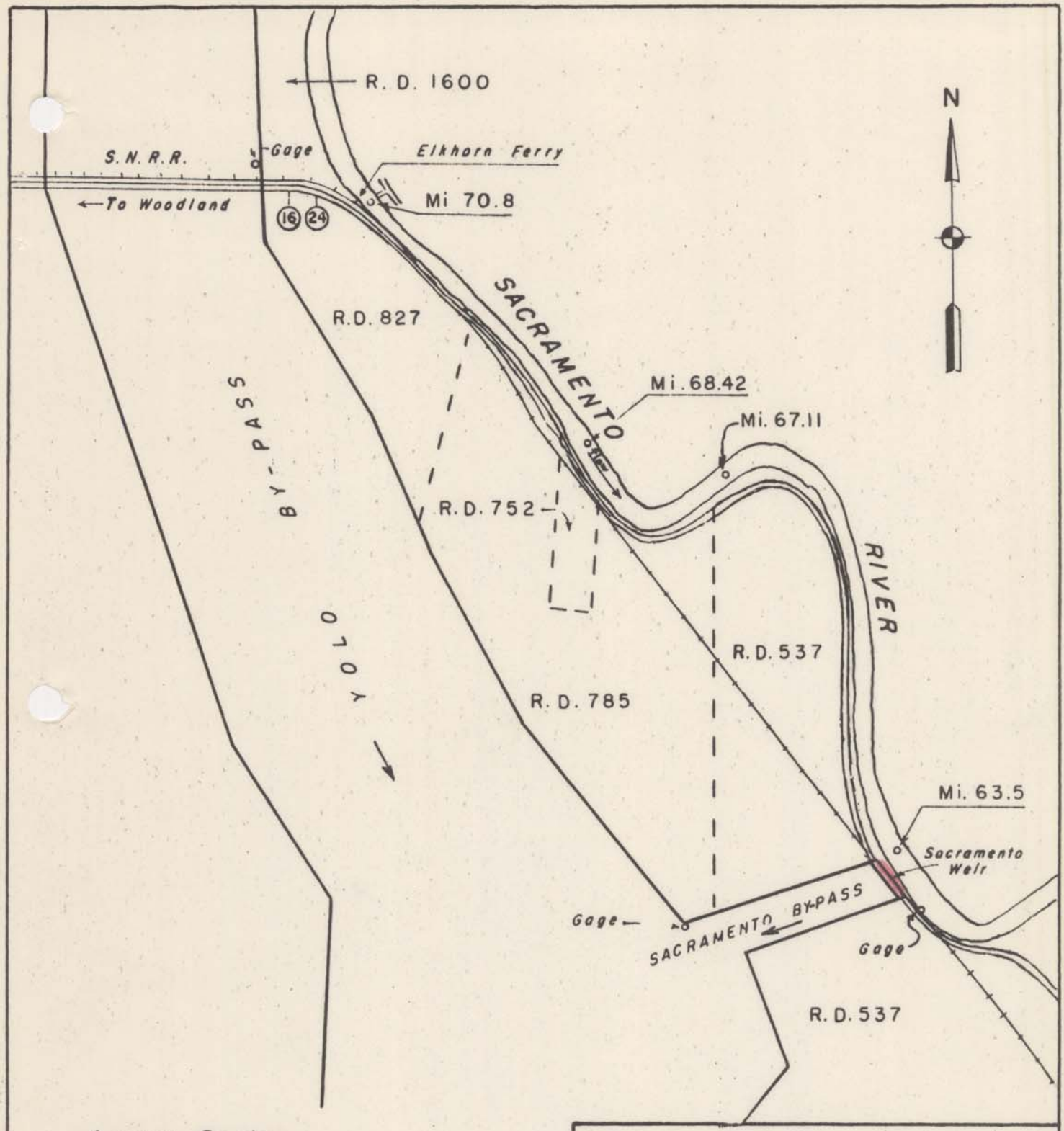
3-01. Repair of Damage. In the event of damage to the project works, whether due to flood conditions or other causes, and which may be beyond the capability of local interests to repair, the Superintendent will contact a representative of the Division of Water Resources, State of California, who coordinates maintenance of project works of the Sacramento River Flood Control Project. The State representative will give assistance or advice, or will determine appropriate action to be taken.

3-02. Applicable Methods of Combating Floods. For applicable methods of combating flood conditions reference is made to Section VIII of the Revised Standard Manual, where the subject is fully covered.

EXHIBIT A

FLOOD CONTROL REGULATIONS

(See Standard Manual)



Approx. Scale
One inch = One Mile

LEGEND

Area covered by this Manual.

LOCATION MAP

SACRAMENTO WEIR

SACRAMENTO RIVER,
CALIFORNIA
UNIT NO. 158

EXHIBIT A-1

EXHIBIT B

"AS CONSTRUCTED"
DRAWINGS

See separate folder for the following drawings:

File No.	Title
50-9-2985	General Location Plan - - - - - 1 sheet
50-9-2985	General Plan and Arrangement of Weirs and Levees - - - - - - Sheet No. 1c
50-9-2985	General Plan for Weir and Piers Sheet C2
50-9-2985	Details of Abutments - - - - - Sheet C3
50-9-2985	Details of Hinged Needle Connections - - - - - - - - - - - Sheet C4
50-9-2985	General Details of Railway and Highway Bridges - - - - - - Sheet C5
50-9-2985	Details of Float and Tripping Device - - - - - - - - - - - - Sheet C6
50-9-2985	Details of Highway Bridge Skew Spans - - - - - - - - - - - - - Sheet C7

EXHIBIT B
Unattached

EXHIBIT C

PLATES OF SUGGESTED FLOOD FIGHTING METHODS

(See Standard Manual)

EXHIBIT D

CHECK LIST NO. 1
LEVEE INSPECTION REPORT

(See Standard Manual)

EXHIBIT E

CHECK LISTS OF LEVEES, CHANNEL AND STRUCTURES

For definition of "flood" or "high water period" see paragraph 1-05 of this manual

CHECK LIST NO. 2

SACRAMENTO WEIR

Inspector's Report Sheet No. _____ Inspector _____

Date _____ Superintendent _____

Item	Remarks
(a) Location by Station	
(b) Settlement, sloughing, or loss of grade	
(c) Erosion of both slopes	
(d) Condition of roadways, including ramps	
(e) Evidence of seepage	
(f) Condition of gates and fencing	
(g) Maintenance measures taken since last inspection	
(h) Comments	

INSTRUCTIONS FOR COMPLETING SHEET 2, EXHIBIT E

(To be printed on back of sheet 2)

Item (a) Indicate levee station of observation, obtained by pacing from nearest reference point; indicate right or left Bank.

Item (b) If sufficient settlement of earthwork has taken place to be noticeable by visual observation, indicate amount of settlement in tenths of a foot. If sloughing has caused a change in slope of the embankment sections, determine the new slope. Note areas where erosion or gullying of the section has occurred.

Item (c) If sufficient erosion or gullying of back face of back toe of levee has taken place to be noticeable by visual inspection, indicate area affected and depth.

Item (d) Note any natural change in any section of roadway or ramps. Indicate any inadequacy in surface drainage system.

Item (e) Indicate any evidence of seepage through the embankment section.

Item (f) Indicate the serviceability of all farm gates across the embankments and roadway, and indicate if repainting is required.

Item (g) Indicate maintenance measures that have been performed since last inspection and their condition at the time of this inspection.

Item (h) Record opinion, if any, of contributory causes for conditions observed and also any observations not covered under other columns.

NOTE: One copy of the Inspector's Report is to be mailed to the District Engineer immediately on completion, and one copy is to be attached to and submitted with the Superintendent's semi-annual report.

INSTRUCTION FOR COMPLETING SHEET 4, EXHIBIT E
(To be printed on back sheet 4)

Item (a) Indicate station of observation obtained by pacing from nearest reference point.

Item (b) Note nature, extent, and size of vegetal growth within the limits of flood flow channel.

Item (c) Note nature and extent of debris and refuse that might cause fouling of the bridges over the channel.

Item (d) Report any construction along or above the diversion channel that has come to the attention of the inspector and that might affect the functioning of the project.

Item (e) Indicate any change in grade or alignment of the channels, either by deposition of sediment or scour, that is noticeable by visual inspection. Estimate amount and extent.

Item (f) Indicate any change that has taken place in the riprap such as disintegration of the rock, erosion, or movement of the rock. Note the presence of vegetal growth through the riprap.

Item (g) Note any damage or settlement of the footings of the bridges. Indicate condition of wooden structures and if repainting is required. Indicate condition of bridge approaches, headwalls, other appurtenances.

Item (h) Indicate maintenance measures that have been performed since the last inspection and their condition at time of this inspection.

Item (i) Record opinion, if any, of contributory causes for conditions observed, also any observations not covered under other columns.

NOTE: One copy of the Inspector's Report is to be mailed to the District Engineer immediately on completion and one copy is to be attached to and submitted with the Superintendent's semi-annual report.

CHECK LIST NO. 4

WEIR STRUCTURE

SACRAMENTO WEIR

Inspector's Report Sheet No. _____ Inspector _____

Date _____ Superintendent _____

Item	Remarks
(a) Condition of concrete weir section stilling basin and abutments	
(b) Condition of concrete highway bridge	
(c) Condition of railroad bridge	
(d) Condition of needles, beams and tripping devices	
(e) Condition of concrete revetment	
(f) Vegetal growth	
(g) Accumulation of trash and debris	
(h) Measures taken since last inspection	
(i) Comments	

INSTRUCTIONS FOR COMPLETING SHEET 6, EXHIBIT E

(To be printed on back of sheet 6)

Item (a) Inspect condition of concrete weir, stilling basin and abutments with respect to abraision, chipping or spalling and record observations.

Item (b) Note condition of highway bridge for abraision, chipping, road surfacing or damage due to traffic.

Item (c) Note condition of railroad tracks, ties and beams or structural members of bridge.

Item (d) Note conditions of needles and beams as to state of preservation of wood and mechanical tripping mechanism.

Item (e) Note condition of concrete revetment such as erosion, undue settlement or mis-alignment.

Item (f) Note nature, extent, and size of vegetal growth in and around the weir structure with particular emphasis on growth on the upstream side between the weir and the Sacramento River.

Item (g) Note nature and extent of debris that might cause scour around the weir section or abutments or tend to decrease the channel capacity.

Item (h) Indicate maintenance measures that have been performed since the last inspection and their condition at time of this inspection.

Item (i) Record opinion, if any, of contributory causes for conditions observed, also any observations not covered under other items. A copy of the Inspector's Report is to be mailed to the District Engineer immediately on completion.

EXHIBIT F

LETTER OF ACCEPTANCE
BY STATE RECLAMATION BOARD

January 14, 1987

Navigation and Flood Control Unit

CERTIFIED
No. 785563
RETURN RECEIPT REQUESTED

The Reclamation Board
State of California
1416 - 9th Street, Room 455-6
Sacramento, California 95814

Members of the Board:

You are hereby notified that the Corps of Engineers has completed emergency repairs to project levees under authority of Section 5 of the Flood Control Act of August 18, 1941, as amended (Public Law 99, 84th Congress, 1st Session). The work was completed on November 3, 1986, and consisted of repairs to the Sacramento River Weir, in accordance with Contract Number DACW05-86-C-0116 and Drawing Number 5023-3769. This work shall be maintained in accordance with the assurances which your Board provided for the Sacramento River Flood Control Project. This portion of the work will be added by amendment to the Operation and Maintenance Manual, Supplement Numbers 115, 132 and 138, Sacramento River Flood Control Project. Copies will be furnished to your office at a later date.

Sincerely,

Wayne J. Scholl
Colonel, Corps of Engineers
District Engineer

cc:
E.M. (Garrett)
Ops Br
Engr Div (Civ Des Sec D - Pahl)
Valley Res Ofc (Cameron)

Copies furnished:

Commander, South Pacific Division, ATTN: SPCC-G
DWR, ATTN: J. Angel
DWR, ATTN: G. Knox

Units 114, 158, 122

ROMPALA/jg
KELLY
A. SMITH
HELM
FAST
DENNIS
McCOLLAM
SCHOLL
WANG #6290a

SAC. RIVER WEIR

THE RECLAMATION BOARD
OF THE
STATE OF CALIFORNIA

March 11, 1953

District Engineer
Sacramento District
Corps of Engineers, U.S. Army
P.O. Box 1739
Sacramento 8, California

Dear Sir:

Reference your letters file No. SPKKO-P 824.3 (Sac. R.F.C.P.) dated 1 December 1951, 3 December 1951, 4 December 1951, three letters dated 6 December 1951, 7 December 1951 and six letters dated 8 December 1951. Subject letters transferred to The Reclamation Board for operation and maintenance, various levee units of the Sacramento River Flood Control Project.

The Reclamation Board at its 18 December 1951 meeting, on behalf of the State of California, accepted certain of the transferred units together with their contiguous banks for operation and maintenance, and rejected others. A tabulation of the units so accepted or rejected is attached hereto.

Yours very truly,

THE RECLAMATION BOARD
A. M. BARTON
Chief Engineer and General Manager

Signed D. M. Carr
D. M. CARR

EXHIBIT F
Sheet 1 of 2

December 18, 1951

The Board accepted the transfer from the Corps of Engineer, in letters of dates listed below, the following reaches of levees and their contiguous waterway banks where applicable for flood control operation and maintenance, as complete and meeting the requirements of the Sacramento River Flood Control Project.

No.	Date of letter	Levee Location	Remarks
*	**********	**********	**********
11	8 Dec. 1951	Sacramento Weir	Maintained by State
*	**********	**********	**********

NOTE: Only item pertaining to Operation and Maintenance Manual No. 158 is included in the above copy.

EXHIBIT F
Sheet 2 of 2

C. de ARRIETA

RETURN MAIL
Return Receipt
Requested

Letter No. 12

(12)

SPKKA 824.3(Sac. Riv. F.C.P.)

8 DEC 1951

The Reclamation Board
State of California
1100 "G" Street
Sacramento 14, California

Gentlemen:

Reference is made to your letter of 22 June 1951 acknowledging that certain reaches of the levees of the Sacramento River Flood Control Project and the waterway bank contiguous to said levee reaches meet the requirements of the project as authorized prior to the Flood Control Act of 1944.

The levee reaches in question are located as follows:

140. a. Northerly levee of the American River from Jibboom Street Bridge to Sacramento River. 118.2 (?)

b. Easterly levee of the Sacramento River.

Reach 15 141. (1) American River to Natomas Cut. 60.25 to 79.0 124

Reach No. 11

142. (2) At Moulton Weir. (Man 2) 154

143. (3) Mile 158.5 (North End Moulton Weir) to Mile 164.4 (Princeton Ferry). (man 2) ? 136

Accepted by letter dated 9 March 1953 144. 144. (4) Mile 166.5 to Mile 166.9 (at Butte City). (man 2) ? 138

c. Westerly levee of the Sacramento River.

145. (1) Mile 59.9 to Mile 60.75. 116

146. (2) Mile 61.8 to Mile 62.65 (at Bryte Bend) 116

62.65

Letter 12 Items 140 to 198

(12)

Letter No. 12

12

SPKKA 624.3(Sac.Riv.F.C.P.)
The Reclamation Board

c. Westerly levee of the Sacramento River. (cont'd)

147. (3) Mile 62.65 to Mile 63.1 (South End Sacramento Weir). 116

148. (4) At Sacramento Weir. 158

149. (5) Mile 63.5 (North End Sacramento Weir) to Mile 67.11. 122

150. (6) Mile 68.42 to Mile 70.9. 122

151. (7) Mile 76.5 to Mile 81.7 (East End Fremont Weir). 123

152. (8) Along Fremont Weir. 157

153. (9) Mile 84.0 (West End Fremont Weir) to Mile 85.3. 128

154. (10) Mile 85.5 to Mile 85.9. 128

155. (11) Mile 87.6 to Mile 88.4. 128

156. (12) Mile 89.2 to Mile 89.8 (Knights Landing Highway Bridge). 128

Reach No. 5

157. (13) Mile 89.8 (Knights Landing Highway Bridge) to Sycamore Slough. 89.9 128

Reach No 4

158. (14) Mile 100.6 to Mile 101.4. 128

159. (15) Mile 110.9 to Mile 111.2. 128

d. Westerly levee of the Feather River.

Reach 39

160. (1). Sutter Bypass to Nicolaus Bridge. 143

161. (2) From a point 3.31 miles northerly from Nicolaus Bridge to the Fifth Street Bridge between Marysville and Yuba City. 143, 144

Reach 38

162. (3) From a point 1,400 feet northerly from the Fifth Street Bridge between Marysville and Yuba City to Station 774+00 "Y.C.N.B." Traverse. 144

163. (4) From a point east of Station 1188+00 "Y.C.N.B." Traverse to high ground just northerly from the Western Canal Headgate. 144

Reach 42

164. e. Easterly levee of the Sacramento River from Natomas Cut to Feather River. 141.1

12

Letter No. 12

12

SPKKA 824.3(Sac.Riv.F.C.P.)
The Reclamation Board

f. Easterly levee of the Feather River.

Reach 42 165. (1) Sacramento River to a point 2.37 miles southerly from Nicolaus Bridge. 141 Pt 1

Reach 41
166. (2) Bear River to Mile 14.4.
167. (3) Mile 14.4 to Mile 14.7.
168. (4) Mile 14.7 to Mile 21.5.
169. (5) Mile 21.5 to Mile 22.75. 145
170. (6) Mile 22.75 to Mile 26.5 (Point where levee and S.N.R.R. meet). 145

g. Levees protecting the City of Marysville. All 147

Reach 43
171. (1) From the W.P.R.R. at Simmerly Slough easterly to the Yuba River.
172. (2) Along the Yuba River from the "D" Street Bridge to the back levee near the Valley Meat Company.

h. Levees protecting Reclamation District No. 10.

Reach No. 40
173. (1) Northerly levee of Simmerly Slough from the W.P.R.R. to the S.P.R.R. 151
174. (2) Easterly levee of the Feather River from Simmerly Slough to a point 4.6 miles northerly from Simmerly Slough. 151

Reach 46 175. i. Northerly levee of the Yuba River from the back levee of the City of Marysville to a point 1.8 miles easterly from said back levee. 147

Reach 47 176. j. Southerly levee of the Yuba River from Feather River (i.e. S.N.R.R.) easterly to the S.P.R.R. Main Line. 147

45 177. k. Northerly levee of Bear River from Feather River easterly to the W. P.R.R. Interceptor. 145

45 178. l. Westerly levee of the W.P.R.R. Interceptor and Clark Slough Interceptor (i.e. back levee of Reclamation District No. 784) from Bear River to the southerly end of the Clark Slough Interceptor.

145

12

Letter No. 12

(12)

SPKKA 624.3(Sac.Riv.P.C.P.)
The Reclamation Board

m. Southerly levee of the American River.

Reach No. 25 179. (1) Sixteenth Street Bridge to the S.N.R.R. 118.1

180. (2) From a point 800 feet easterly from the W.P.R.R. to Mayhew Station. 118.1

n. Westerly levee of the Yolo Bypass.

181. (1) Sacramento River to Knights Landing Ridge Cut. 127

182. (2) Knights Landing Ridge Cut to the northeast corner of the Cache Creek Settling Basin. 126

28 183. (3) S.N.R.R. Woodland Branch to a point 1.6 miles southerly from said railroad. 121

28 184. (4) From a point 1.6 miles southerly from the S.N.R.R. Woodland Branch to the Willow Slough Pipes. 121

28 185. (5) From a point 1.48 miles southerly from the Willow Slough Pipes to a point 1.9 miles southerly from said pipes. 121

28 186. (6) From a point 1.9 miles southerly from the Willow Slough Pipes to the Willow Slough Interceptor. 121

28 187. (7) From the Willow Slough Interceptor to Highway U.S. 40. 120

29 188. (8) From Highway U.S. 40 to Putah Creek. 119

27 189 o. Easterly and Westerly training levees of Cache Creek Settling Basin from Cache Creek southerly. 126

28 190 p. Northerly and Southerly levees of the Willow Slough Interceptor from the S.P.R.R. to the Yolo Bypass. 120

29 191 q. Northerly levee of Putah Creek from Yolo Bypass westerly to high ground. 119

192 r. Southerly levee of Putah Creek from high ground on Dixon Ridge westerly to high ground. 119

s. Southerly levee of Knights Landing Ridge Cut. 127

96 193 (1) From Yolo Bypass westerly 600 feet. Also covered under Unit 96-A

96 194 (2) From a point 2,500 feet westerly from Yolo Bypass to a point 2,900 feet westerly from Yolo Bypass. 127
Also covered under 96-A

(12)

Letter No. 12

(12)

SPKKA 824.3(Sac.Riv.F.C.P.)
The Reclamation Board

s. Southerly levee of Knights Landing Ridge Cut. (cont'd)

26 195 (3) From a point 3,300 feet westerly from Yolo Bypass to a point 7,100 feet westerly from Yolo Bypass. 127
Also covered under Unit No. 96-A

35 196 t. That portion of the back or westerly levee of Hastings Tract which runs east and west along the County Road for a distance of approximately one mile. 107

197 u. Northerly levee of Sycamore Slough from Sacramento River to Knights Landing Outfall Gates. 130

198 v. Southerly levee of Sycamore Slough from Sacramento River to Knights Landing Outfall Gates. 132

The records of this office show that your Board has accepted the levees and/or works covered by Items b.(1), b.(2), b.(3), c.(2), c.(4), c.(8), c.(11), c.(12), c.(14), d.(1), d.(3), d.(4), f.(3), f.(5), g., h., i., l., m., n.(1), n.(2), n.(3), n.(6), n.(7), n.(8), o., p., q., r. and s.(1) above, as complete. Accordingly the waterway bank contiguous to said Items is hereby transferred to the State of California for maintenance and operation.

The levee covered by Items a., b.(4), c.(1), c.(3), c.(5), c.(6), c.(7), c.(9), c.(10), c.(13), c.(15), d.(2), e., f.(1), f.(2), f.(4), f.(6), j., k., n.(4), n.(5), s.(2), s.(3), t., u. and v., above, although complete has not been formally transferred as contemplated by the Project documents. Accordingly the levee covered by said Items, together with the waterway bank contiguous thereto, is hereby transferred to the State of California for maintenance and operation.

The maintenance work required under the provisions of the Sacramento River Flood Control Project shall be performed in accordance with existing Flood Control Regulations which have been prescribed by the Secretary of the Army pursuant to Section 3 of the Act of Congress approved 22 June 1936, as amended and supplemented. As provided under paragraph 208.10(10) of these regulations, a maintenance manual covering these works is in process of preparation and will be furnished your Board upon completion.

A copy of this letter is being transmitted to the State Engineer.

FOR THE DISTRICT ENGINEER:

Sincerely yours,

H. R. Reifsnyder
Lt. Colonel, Corps of Engineers
Executive Officer

Copy Furnished:
Office, Chief of Engrs.
So.Pac.Div. Engr.
State Engineer
Engr. Div. (2)
C. de Arrieta

(12)

EXHIBIT G

SUGGESTED SEMI-ANNUAL REPORT FORM

TO: The District Engineer
Sacramento District
Corps of Engineers
1209 - 8th Street
Sacramento, California

(1 May 19____)
(1 Nov 19____)

Dear Sir:

The semi-annual report for the period (1 May 19___ to 31 October 19___) (1 November 19____ to 30 April 19___) Sacramento River Flood Control Project, Sacramento Weir is as follows:

a. The physical condition of the protective works is indicated by the inspector's report, copies of which are inclosed, and may be summarized as follows:

(Superintendent's summary of conditions)

It is our intention to perform the following maintenance work in order to repair or correct the conditions indicated:

(Outline the anticipated maintenance operations for the following 6 months.)

b. During this report period, major high water stages (water level at 25.0 on the gage at foot of "I" Street or 29.0 on the gage 100 feet downstream from Sacramento Weir) occurred on the following dates:

Dates	Maximum Elevation
_____	_____
_____	_____
_____	_____

EXHIBIT G
Sheet 1 of 2

Comments on the behavior of the protective works during such high water periods are as follows:

(Superintendent's log of flood observations)

During the high water stages when the water level reached a height of _____, on the gage or excess thereof (dates)_____, it was necessary to organize and carry out flood operations as follows:

(See Maintenance Manual_____.)

c. The inspections have indicated (no) or (the following) encroachments or trespasses upon the project right-of-way.

d. (No) (_____) permits have been issued for (the following) improvements or construction within the project right-of-way.

Executed copies of the permit documents issued are transmitted for your files.

e. The status of maintenance measures, indicated in the previous semi-annual report as being required or as suggested by the representatives of the District Engineer, is as follows:

(Statement of maintenance operations, item by item with percent completion.)

f. The fiscal statement of the Superintendent's operations for the current report period is as follows:

	Labor	Material	Equipment	Overhead	Total
1. Inspection					
2. Maintenance					
3. Flood fighting operations					
TOTAL					

Respectfully submitted,

_____
Superintendent of Works

EXHIBIT G
Sheet 2 of 2

EXHIBIT H

SCHEDULE OF OPERATION, SACRAMENTO WEIR

(Letterhead) November 25, 1940

WAR DEPARTMENT
Calif. Debris Comm.
Sacramento, Calif.

File No. 662.8 (FC)1

Subject: Schedule of Operation, Sacramento Weir.

Mr. Edward Hyatt, State Engineer
Division of Water Resources
401 Public Works Building
Sacramento, Calif.

Dear Sir:

Reference is made to the proposed schedule for the operation of the movable top of the Sacramento Weir, ad outlined in our letter of November 4, 1940.

The California Debris Commission has formally adopted this schedule, which reads as follows:

"None of the weir gates shall be opened before a gage height of 27.5 feet is reached on the U. S. Weather Bureau gage at Sacramento, and the movable crest shall be operated in such a manner that the maximum flood height in the Sacramento River does not exceed 29.0 feet on this gage insofar as this is possible. In any event, on a rising stage only such gates shall be opened as required to hold the water surface in the river at Sacramento Weir at Elevation 31.0 U.S.E.D. Datum. The closing of the gates opened to effect the control outlined above shall be started as soon as the river stage at Sacramento Weir recedes to Elevation 28.5 U.S.E.D. Datum, and shall be prosecuted with faithfulness and energy, using adequate equipment, so that all gates are closed within as short a period as practicable."

In accordance with the terms and provisions of the existing law, it is requested that the State of California operate the Sacramento Weir in accordance with the above schedule.

FOR THE CALIFORNIA DEBRIS COMMISSION:

Yours very truly

R. C. Hunter
Lt. Col., Corps of Engineers
Member and Secretary

EXHIBIT H

Sheet 1 of 1

C
O
P
Y

C
O
P
Y

January 30, 1975

Mr. George C. Weddell
Chief of Engineering Division
Sacramento District, Corps of Engineers
Department of the Army
650 Capitol Mall
Sacramento, California 95814

Dear Mr. Weddell:

In accordance with discussions between Mr. Joe Countryman of your staff and Robert Whiting of our Department, this is to propose that the datum base of our stream gaging station "Sacramento River at Sacramento Weir, DWR No. A-9-2105" be reset to mean seal level (USC&GS datum), so that it will be at the same base as the station "Sacramento River at Sacramento, DWR No. A-0-2100".

We believe that possible confusion in the operating criteria for the Weir could be avoided in the future if these gages are both set at USC&GS datum.

We have consulted with other concerned offices, including Mr. John Duensing of the U. S. Geological Survey, and they have no objection to this change.

Sincerely yours,

/s/ Herbert W. Greydanus
HERBERT W. GREYDANUS
Division Engineer
Division of Resources
Development

C
O
P
Y

STATE OF CALIFORNIA - RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

C
O
P
Y

January 28, 1975

Mr. George C. Weddell
Chief of Engineering Division
Sacramento District, Corps of Engineers
Department of the Army
650 Capitol Mall
Sacramento, California 95814

Dear Mr. Weddell:

This letter is in regard to the proposal considered by our staffs to modify the operating criteria for the Sacramento Weir to reduce the effects on improvements within the channel in the vicinity of the Weir.

We have no objection to reverting back to the approved weir operating criteria that were used for operation of the Weir from 1940 to 1963, as set forth in the War Department's letter of November 25, 1940, subject to a one-half foot datum change that was made at the Weir in 1966.

We understand that you intend to document in a memorandum the reasons for reverting back to the earlier operating criteria, and that you will coordinate this with the Department of Water Resources and the State Reclamation Board.

We have appreciated your close coordination on this subject, and will work with you as necessary to complete action on it.

Sincerely yours,

/s/ Herbert W. Greydanus
HERBERT W. GREYDANUS
Division Engineer
Division of Resources
Development

UNIT NO. 158

SACRAMENTO WEIR

The Sacramento Weir will be operated by the Department of Water Resources of the State of California in accordance with the following schedule adopted in 1975:

SCHEDULE OF OPERATION - SACRAMENTO WEIR

The operational objectives of the Sacramento Weir are to limit flood stages in the Sacramento River to the project flood plane, insofar as possible, with maximum feasible utilization of the flood capacity of the Sacramento River Channel below the weir. In order to accomplish these objectives, the following schedule of operation shall be used.

1. Opening of the weir gates will not be initiated until a stage of 27.5 feet msl datum is exceeded at the I Street gage, Sacramento.

2. As many gates as necessary shall be opened so that the stage at I Street does not exceed 29.0 feet msl datum, insofar as possible.

3. Subject to provisions 1 and 2 above, the stage at the Sacramento Weir shall be maintained during the gate opening period at 27.5 feet msl datum, insofar as practicable.

4. Gates shall be closed at the stage drops below 25.0 feet msl datum at the Sacramento Weir. The gate closing shall be prosecuted with dispatch so that all gates are closed within as short a period as practicable.

This schedule of operation is subject to temporary modification by the District Engineer, Corps of Engineers, if found necessary.

STANDARD OPERATION PROCEEDURES

FOR THE

SACRAMENTO WEIR

SACRAMENTO RIVER FLOOD CONTROL PROJECT

NOVEMBER 1965

MANUAL NO.158

FOLDER NO. 63

STANDARD OPERATION PROCEDURES FOR THE

SACRAMENTO WEIR,

SACRAMENTO RIVER FLOOD CONTROL PROJECT

STANDARD OPERATION PROCEDURES FOR THE
SACRAMENTO WEIR,
SACRAMENTO RIVER FLOOD CONTROL PROJECT

Purpose

The purpose of the Standard Operation Procedures for the Sacramento Weir is to set forth the operational criteria and procedures to be followed by the Department of Water Resources during high water periods.

Additional miscellaneous information concerning the Sacramento Weir, including a description of the facilities, maintenance and inspection requirements, and various check lists and reports is contained in the "Supplement to Standard Operation and Maintenance Manual, Sacramento River Flood Control Project, Unit No. 158, Sacramento Weir," a publication of the Corps of Engineers.

Authority

State legislation authorizing the Department to maintain and operate the Sacramento Weir with its adjoining channel is contained in Sections 8360 and 8361 under Division 5, Part 2, Chapter 3, Article 2 of the Water Code.

Schedule of Operation

The recommendation to the Chief of Flood Operations for the opening or closing of either all or part of the 48 flood gates comprising the Sacramento Weir shall be determined by the Forecasting Unit of the Flood Operations Center. This recommendation will be made using criteria as set forth in the letter from the Corps of Engineers on schedule of operation, Sacramento Weir, dated November 19, 1963, as follows:

"The objectives of the operation of Sacramento Weir are to limit flood stages in Sacramento River from Verona to Isleton to the project flood plane, insofar as possible, with maximum feasible utilization of the flood capacity of the Sacramento River channel below that weir. In order to accomplish these objectives, the following schedule of operation shall be used. None of the weir gates shall be opened before a gage height of 28.0 feet m.s.l. datum is reached on the I Street Gage at Sacramento. When this 28.0 foot stage at I Street Gage is exceeded with a further rise anticipated, the gates shall be opened progressively to maintain the I Street stage between 28.0 and 29.0 feet and to limit the maximum I Street stage to 29.0 feet, insofar as this is possible. The number of gates opened to accomplish these criteria shall be kept to a practical minimum. After the peak of the flood has passed and the river stage at Sacramento Weir has receded to 28.0 feet C of E datum, the closing of the gates shall be initiated and prosecuted with dispatch so that, insofar as practicable, all gates in excess of minimum anticipated requirements are closed before the arrival of the next flood wave that might require a new cycle of weir operation in accordance with the provisions of these regulations.

"This schedule of operation is subject to temporary modification by the District Engineer, Corps of Engineers, if found necessary."

Chain of Command

Upon the recommendation of the Forecasting Unit, the Chief of Flood Operations or his appointed assistant will make the decision for the opening or closing of the flood gates and transmit the command to the person in charge at the Sacramento Weir Maintenance Yard. The number of gates to be opened or closed and time of same will be given to the person in charge at the Maintenance Yard by the Chief of Flood Operations by radio or phone and confirmed in writing. The physical operation of the flood gates will be carried out by personnel from the Sacramento Weir Maintenance Yard.

Safety Requirements

Only those personnel trained in the proper operation of the weir and instructed in the proper safety measures to be employed may participate in operating the flood gates. Stringent safety measures will be adhered to

which will be the responsibility of the person in charge at the Sacramento Maintenance Yard. The person in charge of the physical opening and closing of the weir gates shall provide any necessary precautions with regard to traffic control.

Forms

Attached are samples of two forms which are for use in recording data pertinent to the operation of the weir. The first, DWR 1886, "Weir and Flood Data," shall be used to record date and time of opening or closing of individual weir gates, with the corresponding staff gage reading. On the second form, DWR 2127, "Flood Data - Gage Heights," a gage height reading of the Sacramento Weir staff gage shall be noted hourly during the entire period of flow over the weir.

After the flood gates of the weir are secured in a closed position, copies of both forms shall be transmitted in duplicate to the Flood Operations Center.

Responsibility of the Flood Operations Center

The Chief of Flood Operations shall be responsible for transmitting a report to the Corps of Engineers, Sacramento, after the operation of the flood gates. The report shall contain all pertinent data concerning the operation of the weir.

The Flood Operations Center shall be responsible for disseminating information and coordination of efforts regarding the operation of the weir.

State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES
FLOOD OPERATIONS CENTER

WEIR AND FLOOD DATA

Sacramento Weir
Sacramento River Flood Control Project

Date	Time	Gate No.* (opened or closed)	Sacto. Weir Staff Reading	Entered by	Remarks

*Gates numbered consecutively from north end

DWR 1886

State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES
FLOOD OPERATIONS CENTER

FLOOD DATA – GAGE HEIGHTS–

Sacramento Weir
Sacramento River Flood Control Project

Number of Gates Opened During Period_____

Number of Gates Closed During Period_____

Date_____, 19_____

GAGE HEIGHTS

Time	G.H.	Time	G.H.	Time	G.H.	Time	G.H.
0000		0600		1200		1800	
0030		0630		1230		1830	
0100		0700		1300		1900	
0130		0730		1330		1930	
0200		0800		1400		2000	
0230		0830		1430		2030	
0300		0900		1500		2100	
0330		0930		1530		2130	
0400		1000		1600		2200	
0430		1030		1630		2230	
0500		1100		1700		2300	
0530		1130		1730		2330	

Eng

STATE OF CALIFORNIA—RESOURCES AGENCY

EDMUND G. BROWN, Governor

DEPARTMENT OF WATER RESOURCES
P. O. BOX 388
SACRAMENTO

December 19, 1966

Mr. A. Gomez, Chief
Engineering Division
Sacramento District, Corps of Engineers
650 Capitol Mall
Sacramento, California 95814

Attention: Hydrology Section

Dear Mr. Gomez:

The purpose of this letter is to clarify operational procedures necessitated by the datum change at the Sacramento Weir staff gage.

As you are aware, Standard Operating Procedures for the Sacramento Weir were reviewed and minor revisions made in the fall of 1963. These revised operating procedures were documented in a letter from the Corps of Engineers dated November 19, 1963.

Subsequent to that date all staff gages in the Sacramento-San Joaquin tidal influence area set at, or near, U.S.E.D. datum were reset. These gages were reset so that zero on the gage equals -3.00 feet U.S.C. & G.S. datum.

The gage at the Sacramento Weir was one of those that was reset. The effect of this resetting is that a stage of 28.0 feet as previously set would now read 27.5 feet.

The Standard Operating Procedures for the Sacramento Weir (as referred to above) require that gate closing activities begin when the stage has receded to 28.0 feet at the weir. The equivalent stage of 27.5 feet will, therefore, be used henceforth as the stage to initiate gate closing activities.

In summary, it seems pertinent to note that this stage of 27.5 feet (with the changed datum) results in the same flow of water over the weir as resulted from the previous stage of 28.0 feet. As documented in previous operating procedures, it is this flow of water over the weir which has been established as being most effective and safe for gate closing operations.

Sincerely yours,

William L. Horn, Chief
Flood Operations
Statewide Operations Office

December 1966

UNIT NO. 158

SACRAMENTO WEIR

The Sacramento Weir will be operated by the Department of Water Resources of the State of California in accordance with the following schedule adopted in 1963:

SCHEDULE OF OPERATION - SACRAMENTO WEIR

The objectives of the operation of Sacramento Weir are to limit flood stages in Sacramento River from Verona to Isleton to the project flood plane, insofar as possible, with maximum feasible utilization of the flood capacity of the Sacramento River channel below that weir. In order to accomplish these objectives, the following schedule of operation shall be used. None of the weir gates shall be opened before a gage height of 28.0 feet m.s.l. datum is reached on the I Street Gage at Sacramento. When this 28.0 foot stage at I Street Gage is exceeded with a further rise anticipated, the gates shall be opened progressively to maintain the I Street stage between 28.0 and 29.0 feet and to limit the maximum I Street stage to 29.0 feet, insofar as this is possible. The number of gates opened to accomplish these criteria shall be kept to a practical minimum. After the peak of the flood has passed and the river stage at Sacramento Weir has receded to 27.5 feet C of E datum, the closing of the gates shall be initiated and prosecuted with dispatch so that, insofar as practicable, all gates in excess of minimum anticipated requirements are closed before the arrival of the next flood wave that might require a new cycle of weir operation in accordance with the provisions of these regulations.

This schedule of operation is subject to temporary modification by the District Engineer, Corps of Engineers, if found necessary.

EXHIBIT H
Sheet 1 of 1
(revised 1966)

EXHIBIT H

SCHEDULE OF OPERATION, SACRAMENTO WEIR

December 1966

UNIT NO. 158

SACRAMENTO WEIR

The Sacramento Weir will be operated by the Department of Water Resources of the State of California in accordance with the following schedule adopted in 1963:

SCHEDULE OF OPERATION - SACRAMENTO WEIR

The objectives of the operation of Sacramento Weir are to limit flood stages in Sacramento River from Verona to Isleton to the project flood plane, insofar as possible, with maximum feasible utilization of the flood capacity of the Sacramento River channel below that weir. In order to accomplish these objectives, the following schedule of operation shall be used. None of the weir gates shall be opened before a gage height of 28.0 feet m.s.l. datum is reached on the I Street Gage at Sacramento. When this 28.0 foot stage at I Street Gage is exceeded with a further rise anticipated, the gates shall be opened progressively to maintain the I Street stage between 28.0 and 29.0 feet and to limit the maximum I Street stage to 29.0 feet, insofar as this is possible. The number of gates opened to accomplish these criteria shall be kept to a practical minimum. After the peak of the flood has passed and the river stage at Sacramento Weir has receded to 27.5 feet C of E datum, the closing of the gates shall be initiated and prosecuted with dispatch so that, insofar as practicable, all gates in excess of minimum anticipated requirements are closed before the arrival of the next flood wave that might require a new cycle of weir operation in accordance with the provisions of these regulations.

This schedule of operation is subject to temporary modification by the District Engineer, Corps of Engineers, if found necessary.

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
650 CAPITOL MALL
SACRAMENTO, CALIFORNIA 95814

IN REPLY REFER TO
SPKGD-L

4 January 1967

Department of Water Resources
State of California
ATTN: Mr. W. L. Horn
Sacramento, California

221.1
9.16

Gentlemen:

Reference is made to your letter of 19 December 1966 requesting a revision for Standard Operating Procedures for the Sacramento Weir.

In compliance with your request a revision has been made to our Standard Operating Procedures for the Sacramento Weir to conform to the new gage setting so that a stage of 28.0 feet as previously set would now read 27.5 feet. There are inclosed four copies of a revision for Unit No. 158 of the Supplement to the Standard Operation and Maintenance Manual for the Sacramento River Flood Control Project, and eleven copies of a corresponding revision of page 20-a in the Master Manual of Reservoir Regulation for Sacramento River Basin, California.

Copies of the revision to Unit No. 158 are also being furnished the State Reclamation Board at this time.

Sincerely yours,

A. GOMEZ
for Chief, Engineering Division

2 Incl
1. Revision to Unit No. 158 (4 cys)
2. Revision to R.R. Manual (11 cys)

C O P Y

STATE OF CALIFORNIA - RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

C O P Y

January 28, 1975

Mr. George C. Weddell
Chief of Engineering Division
Sacramento District, Corps of Engineers
Department of the Army
650 Capitol Mall
Sacramento, California 95814

Dear Mr. Weddell:

This letter is in regard to the proposal considered by our staffs to modify the operating criteria for the Sacramento Weir to reduce the effects on improvements within the channel in the vicinity of the Weir.

We have no objection to reverting back to the approved weir operating criteria that were used for operation of the Weir from 1940 to 1963, as set forth in the War Department's letter of November 25, 1940, subject to a one-half foot datum change that was made at the Weir in 1966.

We understand that you intend to document in a memorandum the reasons for reverting back to the earlier operating criteria, and that you will coordinate this with the Department of Water Resources and the State Reclamation Board.

We have appreciated your close coordination on this subject, and will work with you as necessary to complete action on it.

Sincerely yours,

/s/ Herbert W. Greydanus
HERBERT W. GREYDANUS
Division Engineer
Division of Resources
Development

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
650 CAPITOL MALL
SACRAMENTO, CALIFORNIA 95814

REPLY TO
ATTENTION OF SPKED-T

28 January 1975

Mr. Stanley J. Gale
Gale & Goldstein, Inc.
1214 F Street
Sacramento, CA 95814

Dear Mr. Gale:

This is in further reply to your prior letters regarding operation of the Sacramento Weir.

We have completed an investigation of the operation of the Sacramento Weir. The study has included an evaluation of the existing operating criteria and of the effects that modifications of these criteria (including your proposal) would have on the flow regimen of the Sacramento River. The study was conducted with the objective of determining the operating schedule that would best serve the overall public interest. Our findings have been coordinated with the California Department of Water Resources and with the California State Reclamation Board.

In your initial letter you requested two specific modifications to the existing criteria:

a. Operating the Weir to maintain a maximum stage of 26 feet m.s.l. in the Sacramento River between the Sacramento Weir and I Street gage, insofar as possible.

b. Using an upstream gage (at either the Interstate 880 Bridge or the Elkhorn Bridge) as an index in addition to the I Street gage. Adoption of these suggestions would reduce river stages up to 3 feet in the vicinity of your property during moderate flood events. River stages would not be reduced during large floods (February 1963 and December 1964 events for example) nor during small floods where flows below Verona do not exceed 70,000 cfs (approximately 50% of the years). This plan of operation would have detrimental effects both to landowners along the Sacramento River and landowners in the Yolo Bypass. During those years in which a stage reduction would be effected, the velocities in the Sacramento River could be increased approximately 20 to 25% in the channel between Verona and the Sacramento Weir.

These increased velocities would accelerate bank and channel erosion. In addition, the peak and volume of flows to the bypass would be substantially increased during these same years, thereby increasing the frequency, depth and duration of flooding in the bypass, which affects landowners there. Primarily because of these hydraulic factors, together with legal and operational considerations, adoption of your proposed modifications is not considered to be in the overall public interest.

During investigation of your suggested proposal we studied several other possible modifications to the existing criteria, in addition to an intensive study of existing criteria. On the basis of these studies we have concluded that substantially following the operating criteria in effect prior to 1963 would best serve all interests. These criteria are as follows:

a. No gates shall be opened until the stage at the I Street gage exceeds 27.5 feet m.s.l.

b. Gates shall be opened so that the stage at I Street does not exceed 29 feet m.s.l., insofar as possible.

c. Subject to provisions a. and b. above, the stage at the Sacramento Weir shall be maintained during the gate-opening period at 30.5 feet CofE Datum (equivalent to 27.5 feet m.s.l.) insofar as possible.

d. Gates shall be closed as rapidly as practicable when the stage drops below 28.0 feet CofE Datum (25.0 m.s.l.) at the Sacramento Weir.

Reverting to the pre-1963 operating criteria will provide a river stage reduction in the vicinity of the Sacramento Weir of 1.5 feet (maximum). This is in addition to the stage reduction presently provided under existing criteria. The maximum reduction will only be achieved or approached during certain moderate floods. We plan to change the operation of the Sacramento Weir in the near future to the operation described in the preceding paragraph. The criteria may be modified in the future as additional data are obtained.

Again, I would like to stress that our primary objective in prescribing operating criteria for the Sacramento River Flood Control project is to serve the overall public interest, giving consideration to all concerns of interested groups and agencies.

SPKED-T
Mr. Stanley J. Gale

28 January 1975

Should you wish further discussions on the operation of the Sacramento Weir, I would be happy to meet with you.

Sincerely yours,

F. G. ROCKWELL, JR.
Colonel, CE
District Engineer

CF:
DWR
Rec Board

SUPPLEMENT TO STANDARD
OPERATION AND MAINTENANCE MANUAL
SACRAMENTO RIVER FLOOD CONTROL PROJECT

UNIT NO. 158

SACRAMENTO WEIR
SACRAMENTO RIVER, CALIFORNIA

REVISIONS OR ADDITIONS

REVISIONS	DATE
Delete Exhibit H dated December 1966	May 1975
*Add Exhibit H dated March 1975	May 1975
Add letter from State Department of Water Resources dated 28 January 1975	May 1975

* This revision for operation of the Sacramento Weir was made to conform with the revision (sheet 20a) dated March 1975, to the Master Manual of Reservoir Regulation, Sacramento River Basin, California.

UNIT NO. 158

SACRAMENTO WEIR

The Sacramento Weir will be operated by the Department of Water Resources of the State of California in accordance with the following schedule adopted in 1975:

SCHEDULE OF OPERATION - SACRAMENTO WEIR

The operational objectives of the Sacramento Weir are to limit flood stages in the Sacramento River to the project flood plane, insofar as possible, with maximum feasible utilization of the flood capacity of the Sacramento River Channel below the weir. In order to accomplish these objectives, the following schedule of operation shall be used.

1. Opening of the weir gates will not be initiated until a stage of 27.5 feet msl datum is exceeded at the I Street gage, Sacramento.

2. As many gates as necessary shall be opened so that the stage at I Street does not exceed 29.0 feet msl datum, insofar as possible.

3. Subject to provisions 1 and 2 above, the stage at the Sacramento Weir shall be maintained during the gate opening period at 27.5 feet msl datum, insofar as practicable.

4. Gates shall be closed at the stage drops below 25.0 feet msl datum at the Sacramento Weir. The gate closing shall be prosecuted with dispatch so that all gates are closed within as short a period as practicable.

This schedule of operation is subject to temporary modification by the District Engineer, Corps of Engineers, if found necessary.

EXHIBIT H
Sheet 1 of 1
(Revised May