

EXHIBITS

- A. Standing Operating Instructions to the Dam Tender
- B. Reservoir Regulation Schedule and Instructions to Dam Operator
- C. Pertinent Data for Prado Dam, Carbon Canyon Dam, and Villa Park Dam
- D. Environmental Evaluation
- E. Chain of Correspondence for Approval

Exhibit A

Standing Operating Instructions to the Dam Tender

**STANDING INSTRUCTIONS TO THE PROJECT
OPERATOR FOR WATER CONTROL**

SAN ANTONIO DAM

SAN ANTONIO CREEK

SANTA ANA RIVER BASIN

**Exhibit A
to the
Water Control Manual
for
San Antonio Dam**

**Los Angeles District Office
U.S. Army Corps of Engineers**

January 1990

STANDING INSTRUCTIONS TO THE PROJECT
OPERATOR FOR WATER CONTROL
SAN ANTONIO DAM

I. BACKGROUND AND RESPONSIBILITIES.

1-01 General Information.

(1) This exhibit is prepared in accordance with instructions contained in EM 1110-2-3600, paragraph 9-2, (Standing Instructions to Project Operators for Water Control), and ER 1110-2-240, and pertains to duties and responsibilities of dam tenders associated with the operation of San Antonio Dam.

Operational instructions to dam tenders are outlined with specific emphasis on flood emergencies when communication between the dam tender and the LAD Reservoir Operation Center (ROC) have been disrupted. This exhibit is designed to be used as an operational guide for the dam tender to use in implementing the San Antonio Dam and Reservoir Water Control Plan Reservoir Regulation schedule (Exhibit B). Associated plates are contained in the main body of the water control manual.

The dam tender is required to have available at the damsite this water control manual and exhibit, and the current version of other manuals that complement these standing instructions. These manuals are:

(a) "Instructions for Reservoir Operations Center Personnel"; (b) "Operation and Maintenance Manual for San Antonio Dam"; and (c) San Antonio Dam Flood Emergency Plan. The dam tender is required to be properly trained for using related control manuals when assigned duties at the damsite. Any deviation from Standing Instructions will require approval of the District Engineer.

(2) The purpose of the San Antonio Dam and Reservoir is to regulate flood flows and debris on San Antonio Creek. The project, including the regulating basin, dam, and channel improvements on San Antonio and Chino Creeks provides protection to a large area of agricultural, residential, commercial, and industrial properties. Protection is also provided to major federal, state, and county highways as well as several major railways.

(3) Table 9-01 is an organizational chart depicting the chain of command for reservoir regulation decisions.

Gate operation instructions to the dam tender are issued by the Reservoir Regulation Unit. Dam tenders are part of the Operations Branch, under the Construction-Operations Division.

(4) San Antonio Dam is located in the Santa Ana River Watershed on San Antonio Creek approximately ten and one-half (10.5) miles upstream from its confluence with Chino Creek. The Dam is located about thirty (30) miles east of the City of Los Angeles and twenty-two (22) miles west of San Bernardino. A small portion of the Dam and spillway is in Los Angeles County with the remainder in San Bernardino County. The Dam is sited at the mouth of the canyon where San Antonio creek emerges from the San Gabriel Mountains. It is approximately five (5) miles north of the communities of Claremont and Upland. Plate 2-01 shows the San Antonio Dam location and local project area.

(5) Debris accumulation on the trash racks can be an operational concern. During small inflow events, vegetative debris is primarily caught by a two thousand (2,000) acre-foot debris basin upstream of the outlet works. Larger inflows can bring debris into the reservoir as a single mass that catches on the trash racks. This debris can interfere with visual reading of water surface elevation and can alter the outlet elevation-discharge relationship.

(6) San Antonio Dam is owned, operated, and maintained by the U.S. Army Corps of Engineers, LAD, which has complete regulatory responsibility (CFR Title 33, Part 222.7). San Antonio Dam and Reservoir is operated for flood control on San Antonio Creek and water conservation.

1-02 Role of the Project Operator.

(1) Normal Conditions. The Project Operator (Dam tender) will be instructed by the Reservoir Regulation Unit as necessary for water control actions under normal conditions. The dam tender will verify that all equipment at the project is in good operating condition; test-operate gates and electrical facilities in the control house, and inspect all structures and equipment according to a pre-established schedule; and refer to the Operation and Maintenance Manual for instructions on actual operation procedures for all equipment.

(2) Emergency Conditions. The dam tender will be present at the dam during periods of significant runoff, as instructed by the Operations Branch; operate the dam in accordance with instructions from the Reservoir Regulation Section; and follow the Reservoir Regulation Schedule provided in Exhibit B during periods of communication disruption.

II. DATA COLLECTION AND REPORTING.

2-01 Normal Conditions.

(1) During normal conditions, measurements are made daily at 0800 hours local time by the dam tender to determine reservoir staff reading (water surface elevation), float well or manometer gage (tape) reading, incremental precipitation since last report, total accumulated precipitation for the season, the settings of each outlet gate, and the times of these measurements. This information will be logged on the appropriate forms and reported by radio to the Reservoir Regulation Unit, WUK4ROC, as requested.

(2) The dam tender will also maintain records, including water surface elevations, precipitation amounts, outlet gate settings, and log all radio and telephone communications on forms prescribed below.

(a) The Record of Calls Form (SPL-188) (fig. 9-05). This form is used each time a message is transmitted or received by radio or telephone. The purpose of every call will be noted, whether for a radio check, reservoir report, etc.

(b) Flood Control Basin Operation Report Form (SPL-19) (fig. 9-01). The dam tender should log all of the information on this form each time a water surface elevation measurement is taken or a gate change has been completed.

(c) Rainfall Record Form (SPL-31) (fig. 9-06). This form should be filled in each time a rainfall measurement is taken from a glass tube rainfall gage.

(d) Monitor for elevation 2175 to evaluate performance of toe drains. Log observation well depths and flow data using form (fig. 9-07).

(e) All of these forms should be submitted monthly to the Water Control Data Unit CESPL-ED-HR (BASEYARD) of the Reservoir Regulation Section for archival storage. A copy of each of these forms is included in the San Antonio Dam Water Control Manual in figures 9-01 through 9-07.

(2) Emergency Conditions.

During flood events, the dam tender should follow instructions as issued by the Reservoir Regulation Section on measurement type and frequency. Due to the speed with which events occur at San Antonio Dam, measurements at fifteen minute intervals are often necessary. When reporting to the Reservoir Regulation Section, the dam tender should clearly describe the silt and debris situation at the trash racks and gates. When instruments are not working or are stuck in the silt, the operator should not report the erroneous reading, but should rather state the instrument or staff problem. Care should be taken to avoid issuing misleading reports due to siltation at the reservoir staff boards. When debris or silt causes flows to be deceptively perched above the invert, or causes a loss of contact with the staff board, the dam tender should report a descriptive message identifying the limitations, and

quantifying the estimated reservoir depth. If the radio system, including the dam tender's mobile unit, malfunctions, the Reservoir Regulation Section will take a cellular phone to the Dam Tender to use during flood operations. It is especially important to maintain all records discussed above during emergency conditions.

2-03 Regional Hydrometeorological Conditions.

Dam tenders will be informed by the Reservoir Regulation Section of regional hydrometeorological conditions that may/will impact the San Antonio Dam. If regional conditions change, the dam tender should notify Reservoir Regulation Section of those conditions.

III. WATER CONTROL ACTION AND REPORTING.

3-01 Normal Conditions.

Except during times of emergency when fast action is critical, the Reservoir Regulation section must approve all gate changes. The Reservoir Regulation Section will originate the request for a gate change, and will provide settings for all three gates whenever a gate change is necessary. Generally, all three gates should be set at the same elevation. The dam tender should implement gate changes immediately following acknowledgment of instructions. Delaying a gate change may have serious impacts on affected activities. If other concurrent activities cause a delay in implementation of a gate change, the dam tender should advise the Reservoir Regulation Section by calling radio call sign WUK4ROC and request guidance.

Once a gate change is completed, the dam tender should radio back to the Reservoir Regulation Section (WUK4ROC) to report the time the change was completed, the staff and tape readings, and the current settings of all three gates. All individuals involved should strive to achieve accuracy and complete clarity regarding gate settings.

The three vertical lift gates are hydraulically controlled from the control house. The dam tender should refer to the O&M Manual for instructions on actual operating procedures.

3-02 Emergency Conditions.

During flood events and other emergency conditions, water control actions and reporting are vital to the successful operation of the dam reservoir.

If flooding conditions or some other emergency occurs at the dam, the dam tender should notify the Reservoir Regulation Section as soon as possible with a description of the conditions.

During an emergency condition such as a hazardous chemical spill or a potential drowning where immediate action is necessary, the dam tender should make the appropriate gate changes and report it to the Reservoir Regulation Section as soon as possible.

During a flood event, it is important to maintain the procedures for data collection and water control actions (gate changes) used during normal conditions.

The Reservoir Regulation Section should keep the dam tender apprised of operational objectives and critical operational constraints whenever possible. This will afford the dam tender a greater opportunity to recognize and identify potential problems in the field. The Reservoir Regulation Section may also provide additional water surface elevation criteria, instructing the dam tender to alert them via radio channel WUK4ROC when the reservoir pool reaches the indicated level. Such an action would normally be conducted during periods of intense storm runoff, and would require the operator to remain at the control house.

3-03 Inquiries.

All significant inquiries received by the dam tender from citizens, constituents, or interest groups regarding water control procedures or actions must be referred directly to the Reservoir Regulation Section.

3-04 Water Control Problems.

The Reservoir Regulation Section must be contacted immediately by the most rapid means available in the event that an operational malfunction, erosion, or other incident occurred that could impact project integrity in general or water control capability in particular.

Emergency departures from the regulation instructions issued by the Reservoir Regulation Section may be required, because of equipment failures, accidents, or other emergencies requiring immediate action. Under these situations, the dam tender should contact the Reservoir Regulation Section via radio for instructions. When communications are broken, or the situation demands immediate action, the dam tender may proceed independently. The Reservoir Regulation Section should be notified of such actions as soon as possible. All other emergency deviations from normal procedure should be approved in advance by the Reservoir Regulation Section. The District Engineer, Los Angeles District, U.S. Army Corps of Engineers, may make temporary modifications to the water control regulations. All planned deviations are subject to approval by the Division Engineer, South Pacific Division, U.S. Army Corps of Engineers.

The dam tender should immediately alert the Reservoir Regulation Section via radio channel WUK4ROC whenever the requested gate change cannot be fully implemented due to mechanical or other physical problems. For example, debris occasionally prevents total gate closure. The Reservoir Regulation Section will evaluate the problem and provide further instructions to the dam tender.

3-05 Communication Outage.

Coordination of flood control operation is under the direction of the Reservoir Regulation Section, Corps of Engineers, Los Angeles District. (Refer to Section 5-05 and 5-06). During flood periods, close contact will be maintained between operating personnel at San Antonio Dam and the Reservoir Regulation Section in Los Angeles. If communication is broken between the dam tender and the Reservoir Regulation Section, initially continue releases in accordance with the last instructions from the Reservoir Regulation Section, and make every attempt to re-establish communications. If this effort is unsuccessful for 3 hours, the dam tender should use staff readings of water surface elevations to make releases following the Reservoir Regulation Schedule (Exhibit B).

Emergency notifications are normally made by the Reservoir Regulation Section. However, if the dam tender loses communication with the Reservoir Regulation Section, and an emergency notification situation arises, such as an imminent dam failure or uncontrolled spillway flow (water surface elevation

above 2238 feet NGVD), the dam tender should make the necessary notifications. The parties listed below are to be immediately notified upon declaration of an uncontrollable emergency.

Corps Emergency Management Branch	213-894-3440
LA County Flood Control District	818-458-6309
San Bernardino County Transportation and Flood Control District	714-387-2800
Los Angeles County Sheriff (24-Hour) will notify all Stations	213-974-4211
San Bernardino County Sheriff, Ontario	714-988-6571

Notifications should include: (a) description of the type and extent of existing or impending emergency; (b) advisement for evacuation from the flood plain; (c) information on the time of initial release of hazardous amounts of water; (d) the depth of water behind the dam; and (e) the dam tender's name and telephone number.

In case of no phone communication, the dam tender can use his vehicle radio communications to call the Emergency Operations Branch and ask them to begin the notifications. If the ROC loses contact with the dam tender, Reservoir Regulation Section will arrange to have a cellular phone carried to the dam tender to use during flood operation.

Upon completing the above notifications, attempt to re-establish communications with the Reservoir Regulation Section. Document all notifications made, and refer to the Orange Book (Instructions for Reservoir Operations Center Personnel) for more information on additional emergency notifications and for radio call signs for LAD flood control personnel in case of telephone outage. The dam tender should not leave the dam unless his safety is in jeopardy.

Exhibit B

Reservoir Regulation Schedule and Instructions to Dam Operator

EXHIBIT B

San Antonio Dam Outlet Gate Operation Schedule (for rising and falling stages)

Step No.	When reservoir water surface is between elevations	Gate setting for gates as indicated			Computed discharge**
		No. 1	No. 2	No. 3	
	Feet above mean sea level	Feet of opening	Feet of opening	Feet of opening	Cubic feet per second
1....	2,125* - 2,164	.3	0	0	0 - 80
2....	2,164 - 2,165	.8	.8	.8	600 - 620
3....	2,165 - 2,166	1.3	1.3	1.3	980 - 1,020
4....	2,166 - 2,167	3.0	3.0	3.0	1,980 - 2,020
5....	2,167 - 2,168	4.7	4.7	4.7	2,980 - 3,020
6....	2,168 - 2,169	6.1	6.1	6.1	3,970 - 4,030
7....	2,169 - 2,170	7.5	7.5	7.5	4,970 - 5,030
8....	2,170 - 2,181	9.6	9.6	9.6	7,200 - 8,000
9....	2,181 - 2,195	8.8	8.8	8.8	7,100 - 8,000
10....	2,195 - 2,213	8.0	8.0	8.0	7,000 - 8,000
11....	2,213 - 2,235	7.3	7.3	7.3	7,300 - 8,000
12....	2,235** - 2,239.3	6.5	6.5	6.5	7,100 - 8,000
13....	2,239.3 - 2,240.2	5.4	5.4	5.4	6,800 - 8,000
14....	2,240.2 - 2,240.9	4.5	4.5	4.5	7,000 - 8,000
15....	2,240.9 - 2,241.4	3.6	3.6	3.6	7,000 - 8,000
16....	2,241.4 - 2,241.9	2.7	2.7	2.7	7,000 - 8,000
17....	2,241.9 - 2,242.3	1.8	1.8	1.8	7,200 - 8,000
18....	2,242.3 - 2,242.7	1.5	1.5	1.5	7,700 - 8,000
19....	2,242.7 - 2,243.1	.3	.3	.3	6,700 - 8,000
20....	2,243.1 and above	0	0	0	Spillway flow only

*Prior to forecasted inflow, gates should be set to pass low flows and prevent nuisance ponding in coordination with Pomona Valley Protective Association conservation operations when below elevation 2164. During falling stages, or small flood events in which the maximum reservoir stage is forecast not to exceed elevation 2176 feet, water conservation operations are permitted below elevation 2176 if the weather forecast and runoff predictions are favorable.

**Spillway crest elevation 2,238 feet NGVD.

DAM OPERATOR INSTRUCTIONS

1. Communication with the District is available.

a. Notify the Reservoir Operations Center when a gate change will be required according to the schedule.

b. Notify the Reservoir Operations Center if unable to set the gates as instructed.

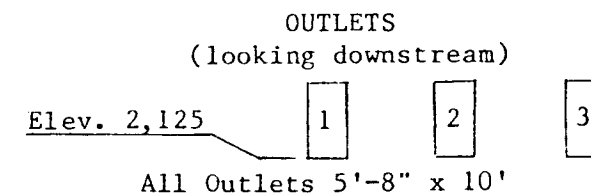
2. Communication with the District Office is not available.

a. Try to reestablish communications through the Los Angeles County Flood Control District (WUK 4470).

b. (i) Rising Stages. Do not operate gates below elevation 2176. Above elevation 2176, allow a period of 3 hours to pass to reestablish communication with the District Office. If after 3 hours communication is not reestablished follow the gate operation scheduled.

(ii) Falling Stages. Maintain current downstream gage height until communication is reestablished.

c. If one or more of the gates cannot be operated, adjust the remaining gates gradually and uniformly until the downstream gage height agrees with scheduled values. Keep a close check on gage height and change the gate opening as often as required. If the downstream gage height is not obtainable, adjust the gates that are functioning so that the sum of the gate openings will equal the sum of the openings shown in the schedule.



DECEMBER 1990

Exhibit C

Pertinent Data for Prado Dam, Carbon Canyon Dam, and Villa Park Dam

**PRADO DAM AND RESERVOIR
RIVERSIDE COUNTY, CALIFORNIA**

**PERTINENT DATA
(REVISED JUNE 1990)**

Construction Completed		April 1941
Stream System		Santa Ana River
Drainage Area	sq-mi	2,255
Reservoir:		
Elevation		
Streambed at dam	ft., m.s.l.	460.0
Debris pool	ft., m.s.l.	490.0
Buffer pool	ft., m.s.l.	494.0
Spillway Crest	ft., m.s.l.	543.0
Revised Standard Project Flood Level (1969)	ft., m.s.l.	554.6
Spillway Design Surcharge Level (1941)	ft., m.s.l.	556.0
Top of dam	ft., m.s.l.	566.0
Revised Probable Maximum Flood Level (1969)	ft., m.s.l.	570.3**
Area		
Debris pool	acres	917.7
Buffer pool	acres	1,294.0
Spillway crest	acres	6,630.0
Revised Standard Project Flood Level (1969)	acres	8,485.3
Spillway design surcharge Level (1941)	acres	8,769.5
Top of dam	acres	10,885.0
Revised Probable Maximum Flood Level (1969)	acres	11,900.0**
Capacity, gross (March 1980 Survey)		
Debris pool	ac-ft(in.)	4,474 (0.04*)
Buffer pool	ac-ft(in.)	8,915 (0.07*)
Spillway crest	ac-ft(in.)	196,235 (1.63*)
Revised Standard Project Flood Level (1969)	ac-ft(in.)	283,414 (2.36*)
Spillway design surcharge Level (1941)	ac-ft(in.)	295,581 (2.46*)
Top of dam	ac-ft(in.)	393,806 (3.27*)
Revised Probable Maximum Flood Level (1969)	ac-ft(in.)	436,000 (3.62**) **
Allowance for sediment (50 year)	ac-ft(in.)	12,000 (0.10*)
Dam: - Type		
	Earth-fill	
Height above original streambed	ft.	106
Top length	ft.	2,280
Top width	ft.	30
Design Freeboard (1941)	ft.	10
Spillway: - Type		
	Ungated ogee	
Crest length	ft.	1,000
Crest elevation	ft., m.s.l.	543
Design surcharge (1941)	ft.	13
Design discharge (1941)	cfs	181,000
Outlets:		
Uncontrolled (NOTE: Both uncontrolled outlets are plugged)		
Number and size		2 - 5.5' diameter
Entrance invert elevation	ft., m.s.l.	462
Controlled		
Gate type		Vertical lift
Number and size		6 - 7'W x 12'H
Entrance invert elevation	ft., m.s.l.	460
Conduits		
Number and size		2 - 13.5'W x 13.5'H
Length	gw.	750
Maximum capacity at spillway crest	cfs	17,000
Maximum regulated reservoir release	cfs	5,000
Revised Standard Project Flood (1969):		
Duration (Inflow)	Days	4
Total volume	ac-ft(in.)	488,000 (4.05*)
Maximum Water Surface Elevation	ft., m.s.l.	554.59
Inflow peak	cfs	282,000
Outflow peak	cfs	150,000
Revised Probable Maximum Flood (1969):		
Duration (Inflow)	Days	6**
Total volume	ac-ft(in.)	1,447,000 (12.24**) **
Maximum Water Surface Elevation	ft., m.s.l.	570.3**
Inflow peak	cfs	670,000**
Outflow peak	cfs	603,000**
Historic maximums:		
Maximum discharge on record	cfs	5,992
Date		2-22-80
Maximum water surface elevation	ft., m.s.l.(ac-ft)	528.0(111,316)
Date		2-22-80
Maximum inflow (1 hour average)	cfs	76,918
Date		1-25-69

* Inches of runoff over watershed

** NOTE: Dam is over-topped

CARBON CANYON DAM AND RESERVOIR
CARBON CANYON CREEK, ORANGE COUNTY, CALIFORNIA
PERTINENT DATA
DECEMBER 1989

Completion date.....	May 1961
Stream system.....	Carbon Canyon Creek
Drainage area.....mi ²	19.3
Reservoir:	
Elevation	
Streambed at dam.....ft, NGVD	400
Debris pool.....ft, NGVD	419
Flood control pool (spillway crest).....ft, NGVD	475
Original Spillway design surcharge level.....ft, NGVD	493.7
Revised PMF Spillway surcharge level.....ft, NGVD	491.9
Top of dam.....ft, NGVD	499
Area (based on original survey**)	
Debris pool.....ac	40.5
Spillway crest.....ac	223.5
Spillway design surcharge level (493.7).....ac	308.5
Top of dam.....ac	343.0
Capacity, gross (based on original survey**)	
Debris pool.....ac-ft	298 (0.29*)
Spillway crest.....ac-ft	7033 (6.83*)
Spillway design surcharge level (493.7).....ac-ft	12,063 (11.72*)
Top of dam.....ac-ft	13,781 (13.39*)
Allowance for sediment (50-year).....ac-ft	1500 (1.46*)
Allowance for sediment (100-year).....ac-ft	3000 (2.92*)
Area (based on 1969 survey***)	
Debris pool.....ac	33.8
Spillway crest.....ac	222.0
PMF Spillway surcharge level (491.9).....ac	287.0
Top of dam.....ac	305.6
Capacity (based on 1969 survey***)	
Debris pool.....ac-ft	228 (0.23*)
Spillway crest.....ac-ft	6615 (6.43*)
PMF Spillway surcharge level (491.9).....ac-ft	11,324 (11.0*)
Top of dam.....ac-ft	12,899 (12.53*)
Dam:	
Type.....	Earthfill
Height above original streambed.....ft	99
Top length.....ft	2610
Top width.....ft	20
Design Freeboard.....ft	5.3
PMF Freeboard.....ft	7.1
Spillway:	
Type.....	Ungated broad-crested weir
Crest width.....ft	125
Design discharge at surcharge elevation (493.7).....ft ³ /s	36,800
PMF discharge at surcharge elevation (491.9).....ft ³ /s	31,200
Outlets:	
Gates - type..... Hydraulic slide	
Number and size.....	2 - 5'W x 6.5'H
Entrance invert elevation.....ft, NGVD	403
Conduits - type..... Rectangular	
Number and size.....	1 - 4.75'W x 7'H
Length (including transition section).....ft	549
Entrance invert elevation.....ft, NGVD	403
Maximum Discharge at spillway crest elevation.....ft ³ /s	1270
Maximum Discharge at top of dam elevation.....ft ³ /s	1480
Reservoir design flood (SPF):	
Total inflow volume (2-day).....ac-ft	8030 (7.80*)
Inflow peak.....ft ³ /s	9300
Spillway design flood:	
Design total inflow volume (1-day).....ac-ft	10,600 (10.30*)
Design inflow peak.....ft ³ /s	56,000
PMF total inflow volume (15-hour).....ac-ft	11,800 (11.46*)
PMF inflow peak.....ft ³ /s	52,000
Historic maximums:	
Maximum release(01 Mar 83).....ft ³ /s	703
Maximum water surface elevation(01 Mar 83).....ft, NGVD	430.9
Maximum storage (26 Feb 69).....ac-ft	891.7
Maximum peak inflow (1-hour)(02 Mar 83).....ft ³ /s	1727

* inches of runoff

** based on surveys of October 1937, August 1941, August 1949, and bottom resurvey of March 1961.

*** based on resurvey of September 1969.

VILLA PARK DAM AND RESERVOIR
 ORANGE COUNTY, CALIFORNIA
 PROJECT OWNER AND OPERATOR: OCEMA

PERTINENT DATA
 (FROM "VILLA PARK OPERATION MANUAL" DATED NOVEMBER 1984)

Construction Completed	1963
Stream System	Santiago Creek
Drainage Area	83.4 sq. miles
Reservoir:	
Elevation	
Streambed at dam	ft, m.s.l. 480
Debris pool	ft, m.s.l. 510
Spillway crest	ft, m.s.l. 566
Spillway design surcharge level	ft, m.s.l. 577
Top of dam	ft, m.s.l. 584
Area	
Debris pool	acres 65
Spillway crest	acres 480
Spillway design surcharge level	acres 540
Top of dam	acres 570
Capacity, gross (January 1971 Survey)	
Debris pool	acre-ft(in.) 700 (0.16*)
Spillway crest	acre-ft 16,000 (3.60*)
Spillway design surcharge level	acre-ft 21,800 (4.91*)
Top of dam	acre-ft 25,000 (5.63*)
Dam: - Type	Earthfill
Height above original streambed	ft 104
Top length	ft 1,460
Top width	ft 20
Freeboard	ft 7
Spillway: - Type	Detached, broad-crested
Crest width	ft 200
Crest elevation	ft 566
Design surcharge	ft 11
Design discharge	c.f.s 29,000
Outlets:	
Gates - Type	Hydraulic slide
Number and size	3 - 6'W x 12'H
Sill elevation	ft., m.s.l. 484
Conduits	
Number and Size	1 - 13'W x 13'H
Length	ft 440
Discharge at spillway crest elevation	c.f.s 6,000
Regulated capacity at spillway	c.f.s 6,000
Reservoir Project Design Flood (OCEMA routing - 6,000 cfs max outflow):	
Duration (inflow)	Days 1
Total volume	acre-ft 33,500 (7.54*)
Maximum Water Surface Elevation	ft 571.5
Inflow peak	c.f.s 24,500
Outflow peak	c.f.s 9,200

*inches in runoff

Exhibit D

Environmental Evaluation

Finding of No Significant Impact
San Antonio Dam Water Control Manual
Los Angeles and San Bernardino Counties, California

I have reviewed the Environmental Assessment (EA) prepared for the San Antonio Dam Water Control Manual, Los Angeles and San Bernardino Counties, California. Under the new plan, San Antonio Dam will limit its maximum release to 8000 cubic feet per second (cfs), instead of the current release schedule of 8500 cfs.

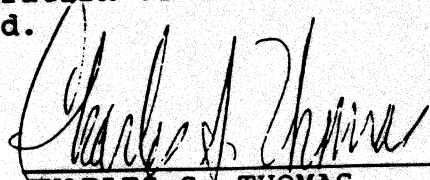
The change in operation was made because of increasing urbanization downstream from the dam; and studies of the downstream channel indicated a freeboard deficiency exists which necessitated modification of the operations schedule. I have considered the possible impacts of implementation of the revised operation schedule on the environment, including those associated with significant resources as discussed in the Environmental Assessment. Previous and on-going sediment removal operations within the Reservoir have disturbed a large area within the basin limiting the wildlife and vegetation at San Antonio Dam. Because of this operation and the minor change to the release schedule during a storm event, no significant impacts to the environment are anticipated.

Based on field surveys and information provided by the U.S. Fish and Wildlife Service, the action will not affect federally listed or proposed Endangered and Threatened species.

San Antonio Dam has been surveyed for cultural resources, and historic properties. No impacts are expected to occur as a result of the change in operation schedule in the basin.

I have considered the available information contained in the EA, and it is my determination that implementation of the revised plan will not result in a significant effect on the existing environment. Therefore, preparation of an Environmental Impact Statement (EIS) is not required.

27 Nov 91
Date



CHARLES S. THOMAS
Colonel, Corps of Engineers
District Engineer

Exhibit E

Chain of Correspondence for Approval



DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
P.O. BOX 2711
LOS ANGELES, CALIFORNIA 90053-2325

REPLY TO
ATTENTION OF

CESPL-ED-HR (110-2-240b)

27 June 1991

MEMORANDUM FOR Commander, South Pacific Division,
Attn: CESP-ED-W

SUBJECT: San Antonio Dam and Reservoir Water Control Manual

1. Enclosed are three copies of the San Antonio Dam Water Control Manual prepared in accordance with ETL 1110-2-251. Approval of the manual is requested.
2. The Draft Environmental Assessment for the Water Control Manual is being finalized and will be transmitted to you shortly.
3. If there are any questions, please contact Grigor Grigorian of the Reservoir Regulation Section at (213) 894-6915.

FOR THE COMMANDER:

Encls

Joseph B. Evelyn for
ROBERT E. KOPLIN, PE
Chief, Engineering Division

CESPD-ED-W (CESPL-ED-HR/27 Jun 91) (1110-2-240b) 1st End
Hsu/465-1550
SUBJECT: San Antonio Dam and Reservoir Water Control Manual

DA, South Pacific Division Corps of Engineers, 630 Sansome
Street, Room 720, San Francisco, CA 94111-2206 SEP 30 1991

For Commander, Los Angeles District, ATTN: CESPL-ED-HR

1. Subject water control manual has been reviewed and preliminary comments are attached, noting that SPD review process can not be completed until the final documentation (EA, FONSI, and letter of coordination) is provided to this office.
2. District is requested to modify the Water Control Manual accordingly and furnish three copies of the revised manual to CESPD-ED-W for review and approval.

2 Encl
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2 Cmts.

Walter P. Day
JAY K. SOPER
Director, Engineering

SOUTH PACIFIC DIVISION

Review Comments
for
San Antonio Dam and Reservoir Water Control Manual
(dated July 1991)

1. Pertinent Data of San Antonio Dam And Reservoir in the front cover page, the design discharge of spillway is shown as 51,160 cfs which is not consistent with the discharge 51,200 cfs as shown in Plate 8.01 and Paragraph 2-03 e. (2) on page II-3. Review these discharges and make appropriate revisions to the manual.
2. Paragraph 1-01 on page I-1 should be revised to include the ER 1110-2-240 has been published by the Federal Register as 33 CFR 222.7, and remove the last section of this paragraph since 33 CFR 208.11 does not apply to Corps projects and San Antonio Dam.
3. The narrative of Related Control Facilities as shown in Paragraph 2-04 on page II-3 is not consistent with the map as shown in Plate 2-13 in terms of orientation and locations. Coordinate these discrepancies.
4. Paragraph 3-01 on page III-1 should be revised to include San Antonio Dam was authorized by the Flood Control Act of 1936. The year 1932 as shown on line 3 of this paragraph is not consistent with the year 1938 as shown in paragraph 3-02. Revisions on the year are requested.
5. Paragraph 4-01 on page IV-1, the elevation of San Antonio Peak is shown as 10,064 which is not consistent with the elevation 10,080 as shown in Plate 4.01. Coordinate this discrepancy.
6. Paragraph 4-03 on page IV-2 should be revised to include the magnitude of the San Fernando earthquake in 1971 and how many miles from the San Antonio Dam.
7. Paragraph 4-05, sub-paragraph b. on page IV-3 states "Plate 4-05 shows the mean annual precipitation ..." which is not consistent with the title of Plate 4-05 shown as "... ISOHYETS OF MEAN SEASONAL PRECIPITATION ...". Coordinate this discrepancy.
8. Table 6-01 on page VI-2 should be revised to include a note for the symbol "?" used in the Table.
9. Paragraph 6-03 on page VI-2, the description is not consistent with the statement in Exhibit B which says "water conservation operations are permitted below elevation 2176 if the weather forecast and runoff predictions are favorable". Thus, descriptions

Enclosure 2

of tools for conservation purpose forecasts and how to use these tools should be included in the manual.

10. Paragraph 7-12, sub-paragraph a. on page VII-4 should be revised to include the definition of "NET CAPACITY" as shown in Plate 7-02.

11. Paragraph 7-13, sub-paragraph a. on page VII-5 should be revised to include the appropriate coordination with Water Control Center of South Pacific Division must be made as soon as is practical.

12. Paragraph 7-13, sub-paragraph c. on page VII-5 should be revised to include the approval must be given by Water Control Center of South Pacific Division prior to implementation of planned deviations.

13. Paragraph 7-15 should be revised to include SARRT Water Control System.

14. The last line on page VIII-1 should be revised as "is 59,700 cfs which is almost identical to ...".

15. Paragraph 8-02, sub-paragraph b. on page VIII-2 should be revised to explain why that San Antonio Dam provides better than SPF protection with the 1991 operations criteria when conditions are the same with the original criteria.

16. Figure 9-07 on page IX-10 should be revised to include underline spaces for the data of (c) quantity of flow from the toe drain, and (d) notation of any seepage or boils observed. Brief procedures to obtain the quantity of flow from the toe drain are needed.

17. Plate 2-13 should be revised to include San Antonio Spreading Grounds, Pomona Spreading Grounds and North arrow of map.

18. Plate 4-01 should be revised to have uniform landscape labelings.

19. Plate 4-02 should be revised to show the Cucamonga fault and the year and magnitude of earthquakes with magnitude 5.0 and greater (two of those are missing).

20. Plate 4-04 should be revised to include the most recent data. DWR of California may be requested for such data if it is not available from NOAA.

21. Plate 7-02 should be revised to include the corresponding year for the curves presented. The label "1990 SURVEY" should be changed

Enclosure 2

to "1990 GROSS CAPACITY".

22. Plate 8-02, explanations are required for why the curve of water surface elevations which do not begin and end at debris pool 2164 feet.

23. Exhibit A, paragraph 1-01 on page A-1 should be revised to include the dam tender is required to be properly trained for using related water control manuals when assigned duties at the damsite.

24. Exhibit A, paragraph 1-01, sub-paragraph (6) on page A-2 should be revised to include the applicable CFR Title 33, Part 222.7.

25. Exhibit A, paragraph 3-04 on page A-6, "Permanent changes are subject to ..." should be revised to "All planned deviations are subject to ...".

26. Exhibit A, paragraph 3-05 on page A-6 should be revised to include or refer to paragraphs 5-05 and 5-06 on page V-3.

27. Exhibit A, Standing Instructions to the Project Operator - page A-7. Under emergency conditions telephone communications may be out. Refer to the Flood Emergency Plan or other source for radio frequencies or other means to contact the agencies listed.

28. Exhibit B, the gate settings are not consistent with the description as shown in paragraph 7-03 on page VII-2. Dam Operator Instructions 1 should be revised to include water conservation operations.

29. A final EA, a signed FONSI, and copies of letters received as a result of the public review of the EA/FONSI should be submitted with the revised water control manual for final review comments and approval.

30. The revised Water Control Manual (WCM) should be free of hand-writing labelings.

31. Draft EA, paragraph 2.3.1, "Between 2,169 to 2,170 all ..." should be revised to "Between 2,164 to 2,170 all ...".

32. Draft EA, paragraph 2.3.2.5 should be revised to include the same comments 11 and 12 as shown above.

33. Draft EA, paragraph 3.1 should be revised to include the same reasons as stated in paragraph 3-05 sub-paragraph e. on page III-3 of WCM.

Enclosure 2

CESPL-ED-HR (CESPD-ED-W/30 Sep 91) (1110-2-240b) 2nd End
Wallace/dg/FTS 798-2994
Subject: San Antonio Dam

DA, Los Angeles District, Corps of Engineers, P.O. Box 2711,
Los Angeles, CA 90053-2325 10 March 1992

FOR Commander, South Pacific Division, Attn: CESPD-ED-W

1. Request the approval of the final San Antonio Dam Water Control Manual prepared in accordance with ETL 1110-2-251. Responses to CESPD comments provided by 1st endorsement have been incorporated into the four enclosed manuals. These manuals include the final FONSI document required by South Pacific Division.
2. If there are any questions, please contact Grigor Grigorian, Chief of the Reservoir Regulation Section at (213) 894-6915.

FOR THE COMMANDER:

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1. as


ROBERT E. KOPLIN, PE
Chief, Engineering Division



DEPARTMENT OF THE ARMY
SOUTH PACIFIC DIVISION, CORPS OF ENGINEERS
630 Sansome Street, Room 720
San Francisco, California 94111-2206

REPLY TO
ATTENTION OF:

S: 24 April 1992

CESPD-ED-W (1110-2-240)

10 April 1992

MEMORANDUM FOR CDR, USACE, (CECW-EH-W), 20 Massachusetts Ave. NW,
Washington, DC 20314-1000

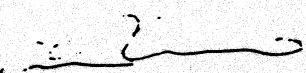
SUBJECT: San Antonio Dam and Water Control Manual

1. Reference CECW-EH-W memorandum, 19 Apr 91, subject: Interim Guidance for Implementing Section 310.(b), Water Resources Development Act of 1990.

2. Enclosed is a copy of the final San Antonio Dam and Reservoir Water Control Manual with Final EA and signed FONSI. Also enclosed are South Pacific Division comments that are being forwarded to the Los Angeles District for response. Request your review and comment on the subject reports prior to the public meeting required by reference 1. Unless comments are received by this office by 24 April 1992, it may be assumed that there will be no comment from HQUSACE.

3. If there are any questions concerning the above, please contact Mr. Boni Bigornia at (415) 705-2415.

Encls


JAY K. SOPER
Director, Engineering

CESPD-ED-W (CESPL-ED-HR/27 Jun 91) (1110-2-240) 3rd End
Bigornia/ah/465-2415
SUBJECT: San Antonio Dam and Water Control Manual

DA, South Pacific Division, Corps of Engineers, 630 Sansome
Street, Room 720, San Francisco, CA 94111-2206

14 APR 1992

FOR Commander, Los Angeles District, ATTN: CESPL-ED-HR

1. References:

a. Memorandum CESPL-ED-HR, 27 Apr 91, SAB, with endorsements
1 and 2.

b. Memorandum CECW-EH-W, 19 Apr 91, subject: Interim
Guidance for Implementing Section 310.(b), Water Resources
Development Act of 1990.

c. Memorandum CESPD-ED-W, 10 Apr 92, SAB.

2. Subject water control manual and FONSI document have been
reviewed and final comments are attached. District is requested
to modify the documents accordingly and furnish five copies of
said documents for approval.

3. In order to comply with reference b, the District must hold a
public meeting to brief the general public on the water control
plan for the San Antonio Dam and Reservoir project. Results of
the meeting should be documented and kept on file at the District
and the transmittal letter to the Division should indicate that
the requirements of reference b. have been met.

4. Enclosed reference c. requests HQUSACE review of the subject
documents prior to the District meeting the requirements of
holding the public meeting. The memorandum acknowledges that the
transmittal of the final water control manual to HQUSACE will be
made after the requirement for a public meeting has been met.

5. If there are any questions concerning the above, please
contact Mr. Boni Bigornia at FTS 465-2415 or commercial (415)
705-2415.

Encls



JAY K. SOPER

Director, Engineering

SOUTH PACIFIC DIVISION

Review Comments for
San Antonio Dam and Reservoir
Water Control Manual, May 1991
and

Final Environmental Assessment, November, 1991

CESPD-ED-W:

1. Sec 2-04, 2nd para. Change "Pomona Valley Protection" to "Pomona Valley Protective"
2. Sec 7-03, 4th para. Change "250 cfs to 5,030 cfs" to "80 cfs to 5,030 cfs" to coincide with the Reservoir Regulation Schedule of Appendix B.
3. Sec 7-13, para b. Coordination, with and approval from SPD is also required for minor deviations.
4. Plate 2-13. Indicate where Baseline Road and the MWD inlet are located. Fix the label that reads "channels with _____" by filling in the blank.
5. Plate 7-02. Indicate the year of the survey from which the area-capacity curves were developed.
6. Exhibit A, Sec 3-05. In the second last paragraph, change "Emergency Branch" to "Emergency Management Branch"
7. DEA, Sec 2.3.2.5. Unplanned minor deviations and planned deviations both require approval from SPD.

CESPD-PD:

8. Planning Directorate has reviewed the subject document and notes that the proposed plan recommends decreasing the maximum releases from the project into the downstream channel from 8,500 cfs to 8,000 cfs because of a decrease in available channel capacity for releases from the project. This will result in increased O&M costs because of higher pool elevations and associated reservoir pool areas for the design flood. The report states that the decreased downstream channel capacity is due to the development and associated local drainage flood control inflows. The additional O&M cost must be passed onto the appropriate local flood control district in charge of the interior flood control drainage system inflows which have reduced the available capacity of the San Antonio Creek channel downstream of the project.

CESPD-CO:

9. Section 5-05, page V-3. Reword the last sentence in the second paragraph. The word "regulate" should be "provide regulation

instructions" or "relay."

10. Exhibit A. Section 2-02, page A-4. In severe weather conditions, is it not expecting too much to have the telephone system as backup if the radio system malfunctions?

11. Exhibit A. Section 3-05, page A-7. There should be some alternate means of contacting the Sheriff's office via radio if all other communication lines are disabled.

CESPL-ED-HR (CESPD-ED-W/10 Apr 92) (1110-2-240b) 4th End
Wallace/dg/FTS 798-2994
Subject: San Antonio Dam and Water Control Manual

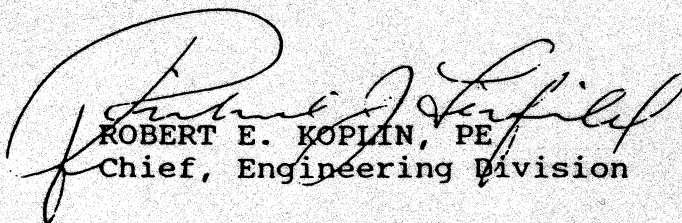
DA, Los Angeles District, Corps of Engineers, P.O. Box 2711,
Los Angeles, CA 90053-2325 17 July 1992

FOR Commander, South Pacific Division, Attn: CESPD-ED-W

1. Request the approval of the final San Antonio Dam Water Control Manual prepared in accordance with ETL 1110-2-251. Responses to CESPD comments provided by 3rd endorsement have been incorporated into the final manuals. Included are five copies of the final San Antonio Dam Water Control Manual.
2. In response to review comment 8: The reduction of maximum flood control releases from 8500 cfs to 8000 cfs will not result in increased O&M costs for the project. Higher pool elevations resulting from the proposed change in regulation will be of very small magnitude and duration. For example, for a standard project flood (estimated to be 200-year frequency), the increase in reservoir pool elevation and length of inundation are 1.4 feet and 0.5 hours, respectively. It should be noted that no development or structures exist within the reservoir area, hence there is no impact resulting in higher O&M costs. In addition, the 8000 cfs maximum release of proposed regulation plan matches the maximum release of the original 1956 reservoir regulation plan.
3. The Los Angeles District held a public meeting on 12 May 1992 to brief the general public on the water control plan for the San Antonio Dam. This meeting was held at Chino Basin Municipal Water District's Office on Archibald Avenue in Cucamonga, California. The documentation for this meeting is on file in Los Angeles District's Reservoir Regulation Section. This meeting fulfills the requirements for Section 310(b) of the Water Resources Development Act of 1990.
4. Please find also a memorandum from Environmental Resources Branch explaining the completed status of the EA for San Antonio Dam Water Control Manual.
5. If there are any questions, please contact Grigor Grigorian, Chief of the Reservoir Regulation Section at (213) 894-6915.

FOR THE COMMANDER:

- 2 Encls
1. WCM (5 cys)
2. Environmental
Resources Memo


ROBERT E. KOPLIN, PE
Chief, Engineering Division