# EXHIBIT C

Pertinent Data, Big Tujunga Dam and Reservoir

#### LOS ANGELES COUNTY FLOOD CONTROL DISTRICT

# **MEMORANDUM**

Mr. Mas Nagami

August 17, 1983

FROM:

C. J. Wilt

Hydraulic Division

File No. 63.121

Big Tujunga Dam and Reservoir

Operations Plan

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TLE

Recommendation

Concur

It is recommended that the operation plan for Big Tujunga Dam and Reservoir described herein be approved.

## Capital Flood Operations

No release plan would be effective for routing the capital flood through the dam with the peak inflow Q of 43,800 cfs passing virtually unchanged during the routing.

Deviation from the operation plan described below to accommodate large events will be implemented at the discretion of the operations engineer.

### Operations Plan

The proposed plan is similar to current practice (memorandum dated October 18, 1976, File No. same as above, from H. C. Martin to Mr. C. F. Eshelby) with emphasis placed on water conservation compatibility. The No. 1 valve is used to control the outflows from the smaller more frequent storms while the No. 2 and No. 3 outlets are reserved for the larger storms to prevent spillway flows, or in an emergency to reduce drawdown times. Frequent use of the No. 3 valve during it is used at 100 per cent open. the smaller storms increases its chance of failure. Therefore, if it is needed

My At the beginning of the season, the water surface in the dam will be held at the minimum cushion pool elevation of 2205 feet. As the storm season progresses, the water surface will be held below the State restricted elevation of 2213 will be returned to elevation 2205 feet. feet whenever possible, and as water conservation activities allow, the level 2213 Fr 1273 AF

A. Rising Reservoir

1053 AF

2290F- 5688AF

There is no change over the existing plan for this phase of the operation. The activities are designed to minimize spillway flow and to minimize excessive downstream discharge.

- During periods of low inflow, the reservoir will be held below elevation 2213 feet by using the No. A2 valve (25 cfs capacity at elevation 2213 feet).
- When the reservoir reaches elevation 2213 feet. water will be released in accordance with the following schedule:

| Elevation (Feet) | Storage ** (Acre-Feet) | Valve No. 1 (% Open) | Q<br>(cfs) |  |
|------------------|------------------------|----------------------|------------|--|
| 2213             | 1450                   | 12                   | 60         |  |
| 2215             | 1521 ·                 | 25                   | 125        |  |
| 2217             | 1594                   | 50                   | 250        |  |
| 2219             | 1670                   | 100                  | 470 .      |  |
| · 2290           | 5750                   | 100                  | 690        |  |
| 2291             | 5832                   | 0                    | 400*       |  |

- Spillway flow.
  - 3. As the storm progresses, and inflow rates, weather forecasts, or other conditions suggest that spillway flow may be prevented, by an increase in the above release rates, Valves Nos. 2 and 3 will be opened at the discretion of the operations engineer.
  - 4. Drawdown of the reservoir will follow the release schedule described below unless the safety and protection of downstream facilities warrant a temporary reduction or suspension of outflow. Conversely, a forecast of rain may necessitate drawdown releases greater than outlined below.

#### ... B. Falling Reservoir

Drawdown of the reservoir will be accomplished as follows:

- 1 hat 1. Valve No. 1 will be operated to limit the outflow to between 300 cfs in larger storms or initial inflow in smaller storms (whichever is less) to accommodate water conservation activities at Hansen Spreading Grounds. The duration for this release is to be for a maximum of 2 days.
- 2. After 2 days in the 300 cfs discharge mode, the outflow is to be limited to 200 cfs or initial inflow (whichever is less) for the next 30 days in order to draw the reservoir down at a reasonable rate. Any further releases for the following 30 days are to be limited to 150 cfs or inflow following the same rationale.

The proposed operating plan is based on the following considerations:

For normal storms (most probable storm events), the reservoir water surface will be above elevation 2213 feet for 2 to 5 days at an average elevation of 2234 feet, assuming no follow-up storm. Further, we could expect on the average of once in 10 years to experience an event that, using the proposed operating criteria, would cause the water surface to exceed elevation 2213 feet for a total of about a month with an average water surface elevation of 2222 feet. These types of events would produce spillway flow.

\*\* Storage figures from table dated 4/5/83

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#### Channel Restrictions

Flows in excess of 600 cfs begin to flood the Oro Vista Street crossing of Big Tujunga Wash impeding access to residents of Ebey and Doane Canyons. Since the discharge of the No. 1 valve is 470 cfs when first fully opened, the road should remain passable during most smaller storms. However, as the reservoir water surface elevation builds and flows from local drainage areas increase, the access could temporarily be lost.

James T. Sparks Operations Section Extension 4190

AMB:eq

Attach.

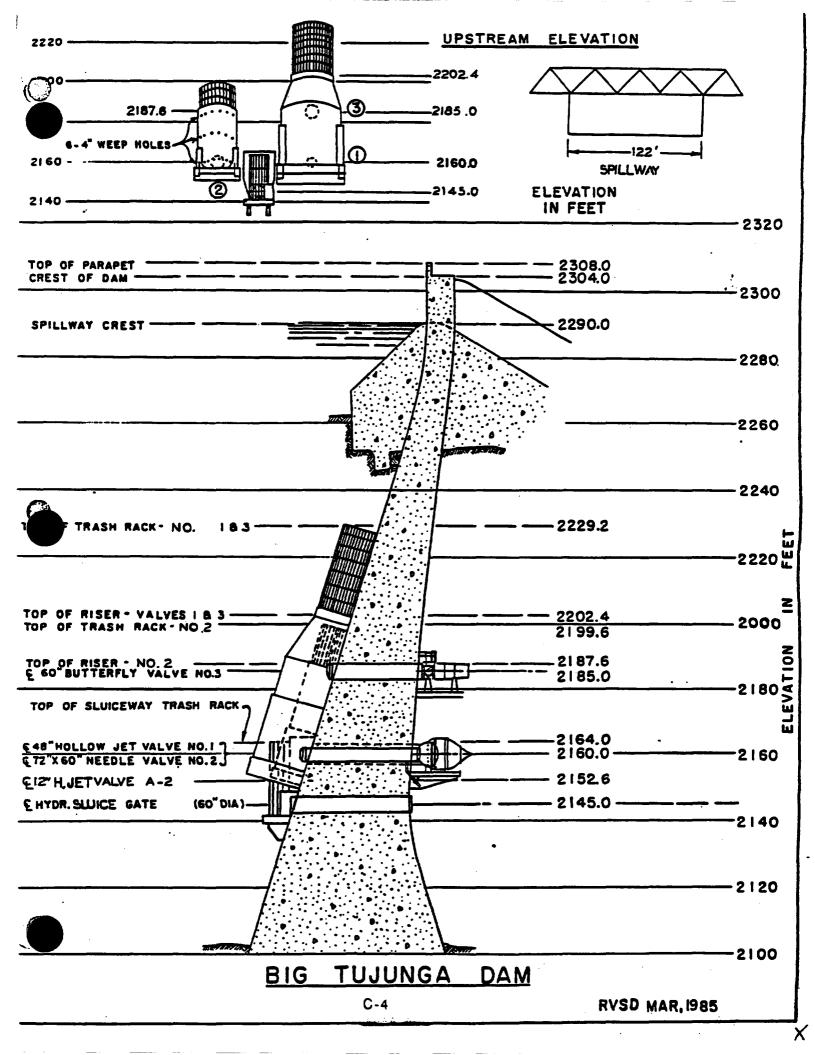
cc: Operation and Maintenance

Program Management

Hydraulic (2) (Operations, Files)

Water Conservation (2) (Erhard, Division)

General Files



#### Department of Public Works

#### FLOOD CONTROL DAM

| DATA SHEET   |  |   |  |  |  |
|--|--|---|--|--|--|
| MERAL  |  |   |  |  |  |
| ANCE - BIG TUJUNGA DAM OCATION - BIG TUJUNGA CANYON 10 MI. H.E. OF SUMLAND TREAM - BIG TUJUNGA CREEK URPOSE - PLOOD CONTROL AND CONSERVATION YPE - CONCRETE VARIABLE RADIUS ARCH                                 |  | BOND ISSUE - 1924<br>BRAINAGE AREA - 82.3 EQ. NI. FROM<br>ELEV. 2290 FT. TO ELEV. 7078 FT.<br>ABOVE NEAR SEA LEVEL                            |  |  |  |
| MSTRUCTION   |  |   |  |  |  |
| BEGAN - JARNARY 1930  COMPLETED - JULY 1931  COST - \$1,166,915.95  COST PER A.F. F.C. 156.42  COST PER A.F. F.C. CONSERV. 187.01  COSTS BASED ON ORIGINAL SURVEY DATA   |  | CONSTRUCTED BY L.E. DIXON CD. RESIDENT ENGINEER - E.J. MARRISON DESIGN AND CONFUTATIONS - LACYCD DESIGN DIVISION                              |  |  |  |
| DENSIONS   |  | EXCAVATION A  | ND FILL AS CONSTI  | WETED                                    |  |
| CREST BT. ABOVE ORIG. STREAMED 200.0 PT. CREST BT. ABOVE FOUNDATION 251.0 PT. CREST LENGTR (LESS SPILMAY) 505.0 PT. CREST VIDTH 8.0 PT. HEIGHT OF PARAPET WALL 4.0 PT. BASE TRICKNESS AT ELEV. 2060 PT. 73.0 PT. |  | TOTAL VOL. OF EXCAVATION 81,318 C.T. TOTAL VOL. OF CONCRETE 79,293 C.Y. TOTAL VOL. OF EARTHFILL 5,574 C.Y. CHARACTER OF FOUNDATION - 'CRAMITE |  |  |  |
| UTLETS   |  |   |  |  |  |
| 10. <u>1772</u>  | <u> 5122</u>                                   | RISER OR INLET<br>ELEVATION   | ¢ ELEV.  | MAX. DISCR. AT<br>SPILLMAY ELEV.<br>CPE. |  |
| FLOOD OPERATION VALVES   |  |   |  |  |  |
| (4) 1 BOLLOW JET  1A SLIDE GATE (B) 2 HEEDLE VALVE (3) 2A BUTTERFLY VALVE (5) 3 BUTTERFLY VALVE 2A BYB. GATE   | 48"<br>48"<br>72"<br>72"<br>60"<br>62"         | (1) 2202.4<br>2202.4<br>(1) 2187.6<br>2187.6<br>(1) 2202.4<br>2202.4  | 2160.0<br>2160.0<br>2160.0<br>2160.0<br>2185.0<br>2185.0 | 1175.<br>1035                            |  |
| SERVICE VALVES   |  |   | •  |  |  |
| (6) A2 MOLLOW JET<br>(2) A2A GATE VALVE<br>S.G. SLUICE GATE  | 12"<br>12"<br>6'± 6'                           | 2187.6<br>2187.6<br>· 2142.5  | 2152.6<br>2153.1<br>2145.0                               | 38.4                                     |  |
| SPILLMAY<br>NO. TYPE   | SILL<br>LLV. LENGTH                            | SPILLWAY ORIGINAL CAP.  | MAX. DISCN. AT<br>ASSUMED M.W.L.<br>CPS                  |  |  |
| 1 OPEN OGRE WEIR   | 2290.0 122.0                                   | 6240.   | 24,250 CFS   |  |  |
| ELEVATIONS   |  |   |  |  |  |
|  | ELEV. (FT.)                                    |   |  |  |  |
| ORIGINAL STREAMSED<br>LOWEST EXCAVATION<br>CREST<br>TOP OF PARAPET<br>ASSUMED N.W.L.   | 2104.0<br>2053.0<br>2304.0<br>2308.0<br>2304.0 | . •   |  |  |  |
| REMARKS  |  |   |  |  |  |

OF THE 12" B.J. ON 5/23/73.

(3) 72" BYD. BUTTERFLY INSTALLED OCTOBER 1956.

(4) 48" WOLLOW JET VALVE INSTALLED JUNE 1957.

(5) 60" BYD. BUTTERFLY INSTALLED ROYENBER 1960.

(6) 12" BOLLOW JET VALVE INSTALLED S/23/73 TO REPLACE ORIFICE PLATES.

2289.97 DBCS - 2290.0 SPILLMAY BATUM. SPILLMAY DATUM SHOWN.

LATEST STATE APPROVAL MAY 13, 1976. RESTRICTED BLEV. 2213 FT.

REVISED OCTOBER 1984