



## Ocean Blue Engineers, Inc.

August 4, 1993

1131.93.02-02B

Cape Environmental Management, Inc.  
20280 S. Vermont Avenue  
Torrance, CA 90502

Attention: Mr. Kurt Gates

**SUBJECT:    ADDITIONAL DATA REGARDING WATER DEPTH IN THE VICINITY OF  
              MALIBU PARK SCHOOL, MALIBU, CALIFORNIA AND A BRIEF REVIEW OF  
              THE PREVIOUS INVESTIGATION REPORTS BY ESE**

Dear Mr. Gates:

The well data sheets and historical water level data for the three nearest wells to the above referenced site (Well No. 2156, 2186 and 2187B) have been obtained from the Los Angeles County Department of Public Works, Groundwater Recharge and Water Quality Section, Hydraulic/Water Conservation Division. Figure 1 enclosed in Appendix A presents the site location in relation to the wells.

The well data sheets enclosed in Appendix B suggest that the three above wells are public supply wells, equipped with pumps. However, the data sheets did not include screen intervals, or the boring logs for the wells.

The historical water level data for these wells cover the period 1956 to 1978. The data enclosed in Appendix C shows that in all the wells large fluctuations in water level has occurred. However, it must be appreciated that due to pumping of the wells large fluctuations are likely to occur. In addition, other reasons for the fluctuations include natural recharge as well as pumping of irrigation water wells (if any present) in the locality.

According to the USGS map for the area, the site elevation is approximately 100 feet above mean sea level (MSL), while the approximate elevation of the wells referenced above is as follows:

Well No. 2156           Elevation = Approximately 26 feet

Well No. 2186           Elevation = Approximately 90 feet

Well No. 2187B         Elevation = Approximately 54 feet

These wells are located close to the creeks in the area, while the site is located at a higher elevation. Based on the available water level data for the above referenced wells, the maximum and minimum recorded water elevations are as follows:

|                |                               |                                |
|----------------|-------------------------------|--------------------------------|
| Well No. 2156  | Maximum Elevation = 16.9 feet | Minimum Elevation = -1 foot    |
| Well No. 2186  | Maximum Elevation = 79.8 feet | Minimum Elevation = -2.2 feet  |
| Well No. 2187B | Maximum Elevation = 38.6 feet | Minimum Elevation = -15.9 feet |

Earth Systems Environmental, Inc. (ESE) conducted two phases of subsurface investigation in the vicinity of the excavation of two former underground storage tanks. In the first phase of the investigations, several borings were drilled, including boring B-3 to a depth of 40 feet from the ground surface. Groundwater was not encountered in the borings. The second phase of the investigations was conducted in January 1993 after heavy rain falls in the area. It appears that groundwater was encountered at a depth of approximately 40 feet from the surface (approximate elevation of 60 feet) in borings B-9 and B-11 drilled to 40 foot depths. Since the borings were terminated at an apparent groundwater surface, it is not possible to conclude if perched water or a continuous aquifer was encountered. Based on this and other water elevation data presented above and considering the locations of the site and the water wells, it is not possible to conclude if the water encountered at the site is located within the same aquifer(s), as the above referenced production wells or not.

The literature search showed that the soil lithology in the Malibu region is fairly complicated with many faults and at times lenticular (consisting mostly of one type of formation with lenses of other formations). In addition, the boring logs from the site also show that the lithology at the site is somewhat lenticular (consisting mostly of clays with clayey sand or clayey silt lenses). It is probable that in the vicinity of the site the lenses are connected in the subsurface, and as a result, groundwater can flow from the horizon and locations detected previously to lower horizons and other locations. Groundwater may not be in a continuous aquifer, but in a perched aquifer, in clayey silt/clayey sand lenses. Therefore, the flow of groundwater can be of concern at the site, as it may cause possible migration of the contaminants from the site.

In addition, it is significant to note that the groundwater gradient may not be so readily established because of the lenticular nature of the lithology, and the possible flow of the perched groundwater from the site. If groundwater monitoring wells are included in future subsurface investigations at the site, it is prudent to first install one well to assess the subsurface lithology and groundwater depth, and if justified, install two additional wells to determine the groundwater gradient at the site.

The analyses of the soil samples from boreholes B-9 and B-11 showed that benzene, toluene, ethylbenzene and total xylenes (BTEX) were present from a depth of about 25 feet to about 40 feet, while only insignificant concentrations of TPH were detected. However, considering that the former tanks at the site stored only diesel, the source of the BTEX has not been investigated. In addition, the conclusion that the groundwater has been impacted with diesel is not reasonable at this time, as adequate data in this regard is not currently available.

If you have any questions or require additional information, please call us at (310) 473-5911.

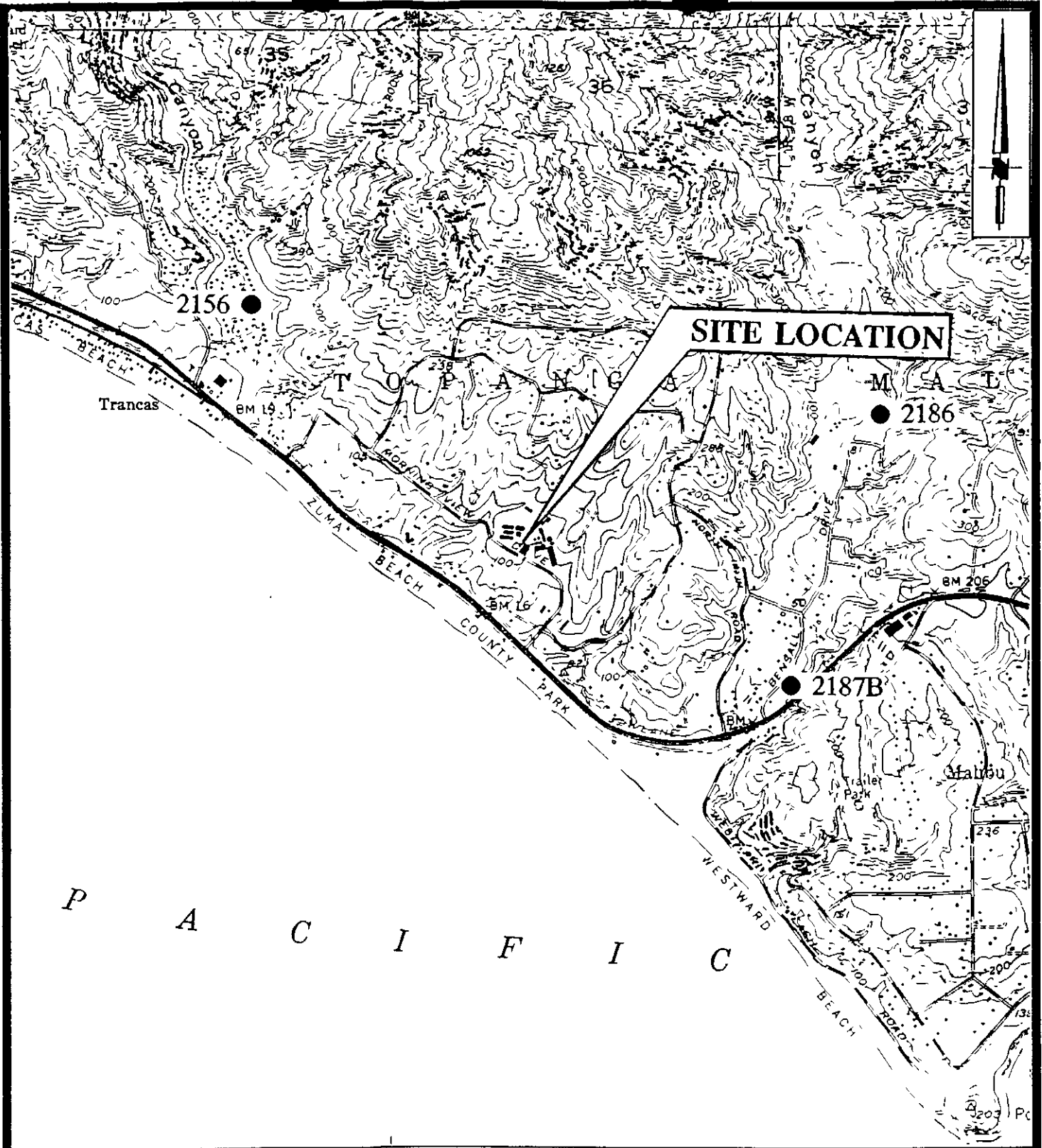
Sincerely  
OCEAN BLUE ENGINEERS, INC.



Jahan Nazarian - Ph.D., R.E.A.  
Project Manager

**APPENDIX A**

**Figures**



Source: USGS Map, Point Dume Quadrangle, 7.5 Minute Series (Topographic), 1950, Photorevised 1981.

Scale: 1" = 2,000'

● Water Well



Ocean Blue Engineers, Inc.

VICINITY MAP

Malibu Park School  
Morning View Dr., Malibu, CA 90265

Job No.  
1131.93.02-02A

Drawing No.  
1

**APPENDIX B**  
**Well Data Sheets**

LOS ANGELES COUNTY  
FLOOD CONTROL DISTRICT  
HYDRAULIC DIVISION  
WELL DATA

Owner: Malibu Water Co.

Location and Description: 0.28 mi. N. of Hwy 101,  
200' W. of Francis Creek

Use: \_\_\_\_\_

Elev. of average grd. at well: 25.1' U.S.C.S. Datum

Elev. of grd. adjacent to well: \_\_\_\_\_ U.S.C.S. Datum

Water surface reference points:

(a) From \_\_\_\_\_ To \_\_\_\_\_ Elev. 26.3' How det. \_\_\_\_\_  
Description: Top of 1 1/2" mason pipe, 1.3' above ground

(b) From \_\_\_\_\_ To \_\_\_\_\_ Elev. \_\_\_\_\_ How det. \_\_\_\_\_  
Description: \_\_\_\_\_

(c) From \_\_\_\_\_ To \_\_\_\_\_ Elev. \_\_\_\_\_ How det. \_\_\_\_\_  
Description: \_\_\_\_\_

(d) From \_\_\_\_\_ To \_\_\_\_\_ Elev. \_\_\_\_\_ How det. \_\_\_\_\_  
Description: \_\_\_\_\_

Type of well: \_\_\_\_\_ Size 14"

Original depth: 93' Soundings: \_\_\_\_\_

Pumping equipment: Size of pump = 10"

Power used: 20 HP Motor

Capacity: 350 G.P.M. Drawdown \_\_\_\_\_

Date drilled: \_\_\_\_\_ By \_\_\_\_\_

Artesian characteristics: \_\_\_\_\_

Quality of water: \_\_\_\_\_

Remarks: Production 7-21-43 - 11,200 gal. 4.5' drawdown  
10-12-43 - 11,200 gal. 4.5' drawdown  
1-10-44 - 17,143 gal. 4.5' drawdown  
2-13-44 - 15,000 gal. 4.5' drawdown

See "Lee" of Morblehead Land & Water Co. Glady  
22821 W. Pacific (882) + Malibu

Well Number: \_\_\_\_\_  
Owner: Malibu Water Co.  
D.W.R. No. 15194W-55901  
F.C. No. 2156

LOS ANGELES COUNTY  
FLOOD CONTROL DISTRICT  
HYDRAULIC DIVISION  
WELL DATA

Owner: Malibu Water Co.

Location and Description: Malibu Canyon;  
0.7 mi. N.W. of Inter. Rainford Pl.  
& Bensall Dr. (area along Bensall Dr.);  
150' E. of Bensall Dr.

Use: Public Supply

Elev. of average grd. at well: 90' U. S. G. S. Datum

Elev. of grd. adjacent to well: \_\_\_\_\_ U. S. G. S. Datum

Water surface reference points

(a) From \_\_\_\_\_ To \_\_\_\_\_ Elev. 91.7' How det. Top  
Description: Top of casing on top of capped  
casing 0.7' above floor & 1.7' above avg. grd.

(b) From \_\_\_\_\_ To \_\_\_\_\_ Elev. \_\_\_\_\_ How det. \_\_\_\_\_  
Description: \_\_\_\_\_

(c) From \_\_\_\_\_ To \_\_\_\_\_ Elev. \_\_\_\_\_ How det. \_\_\_\_\_  
Description: \_\_\_\_\_

(d) From \_\_\_\_\_ To \_\_\_\_\_ Elev. \_\_\_\_\_ How det. \_\_\_\_\_  
Description: \_\_\_\_\_

Type of well: \_\_\_\_\_ Size 24"

Original depth: \_\_\_\_\_ Soundings: \_\_\_\_\_

Pumping equipment: Submersible

Power used: \_\_\_\_\_

Capacity: \_\_\_\_\_ Drawdown: \_\_\_\_\_

Date drilled: \_\_\_\_\_ By \_\_\_\_\_

Artesian characteristics: \_\_\_\_\_

Quality of water \_\_\_\_\_

Remarks: Data from field 12-7-59 & 5-4-60 M.L.S.

(over)

Well Number

Owner  
Malibu #5

D. W. R.  
No. 1518W-31M

D. W. R.  
Loc. \_\_\_\_\_

F. C.  
2196

LOS ANGELES COUNTY  
FLOOD CONTROL DISTRICT  
HYDRAULIC DIVISION  
WELL DATA

Owner: Malibu Water Co.

Location and Description: Zuma Canyon  
150' N. of Rainford Pl.  
200' E. of Benson Drive  
(in green pump house); 0.33 mi. N.E. inter

Use: Public Supply; U.S. #1014 Benson Dr. (meas. along Benson Dr.)

Elev. of average grd. at well: \_\_\_\_\_ U. S. G. S. Datum

Elev. of grd. adjacent to well: \_\_\_\_\_ U. S. G. S. Datum

Water surface reference points:

Description: Top of 2" meas. pipe 1.5' above normal ground (west side of pump) 55.45 Malibu

(b) From \_\_\_\_\_ To \_\_\_\_\_ Elev. \_\_\_\_\_ How det. \_\_\_\_\_  
Description: \_\_\_\_\_

(c) From \_\_\_\_\_ To \_\_\_\_\_ Elev. \_\_\_\_\_ How det. \_\_\_\_\_  
Description: \_\_\_\_\_

(d) From \_\_\_\_\_ To \_\_\_\_\_ Elev. \_\_\_\_\_ How det. \_\_\_\_\_  
Description: \_\_\_\_\_

Type of well: \_\_\_\_\_ Size: 10"

Original depth: \_\_\_\_\_ Soundings: \_\_\_\_\_

Pumping equipment: U.S. Motor Serial # 15A271

Power used: \_\_\_\_\_

Capacity: 70 G.P.M. Drawn by: \_\_\_\_\_

Date drilled \_\_\_\_\_ By \_\_\_\_\_

Artesian characteristics: \_\_\_\_\_

Quality of water: \_\_\_\_\_

Remarks: \_\_\_\_\_

(over)

Well Number: Malibu 23

D. W. R. No. 250W 6M1

D. W. R.

F. C. No. 2187B





**APPENDIX C**  
**Water Level Data**

| LALFCO<br>LOC<br>NUMBER | MO-CA-TR<br>M | WATER<br>SURF<br>ELEV. | REF<br>S | REF<br>POINT<br>ELEV. | PAGE<br>GRND.<br>SURF.<br>ELEV. | 9929<br>GRND.<br>SURF.<br>ELEV. | 0 |
|-------------------------|---------------|------------------------|----------|-----------------------|---------------------------------|---------------------------------|---|
|                         |               |                        |          |                       |                                 |                                 |   |
| 2105                    | 11 25 70      | 262.7                  | 14.5     | 276.5                 | 12.5                            | 275.0                           | 1 |
|                         | 4 13 71       | 260.9                  | 9.6      |                       | 8.1                             |                                 | 1 |
|                         | 11 14 71      | 262.1                  | 10.0     |                       | 9.4                             |                                 | 1 |
|                         | 5 1 72        | 265.2                  |          |                       | 9.4                             |                                 | 1 |
|                         | 12 27 72      | 265.4                  | 11.1     |                       | 9.6                             |                                 | 1 |
|                         | 4 16 73       | 268.2                  | 7.8      |                       | 9.1                             |                                 | 1 |
|                         | 11 11 75      | 268.3                  | 9.3      |                       | 8.1                             |                                 | 1 |
|                         | 11 19 74      | 265.1                  | 11.4     |                       | 9.9                             |                                 | 1 |
|                         | 4 8 75        | 266.0                  | 10.2     |                       | 9.0                             |                                 | 1 |
|                         | 10 28 75      | 267.0                  | 10.2     |                       | 6.0                             |                                 | 1 |
|                         | 4 20 76       | 265.5                  | 11.0     |                       | 9.5                             |                                 | 1 |
|                         | 11 8 75       | 266.5                  | 10.0     |                       | 8.5                             |                                 | 1 |
|                         | 4 5 77        | 265.4                  | 11.0     |                       | 9.4                             |                                 | 1 |
|                         | 11 21 77      | 265.5                  | 11.0     |                       | 9.4                             |                                 | 1 |
|                         | 4 24 78       | 262.6                  | 6.9      |                       | 5.4                             |                                 | 1 |
| 2115                    | 11 24 84      | 433.5                  | 257.4    | 691.0                 | 256.4                           | 690.0                           | 1 |
|                         | 11 24 84      | 433.5                  |          |                       | 256.4                           |                                 | 1 |
|                         | 4 28 85       | 433.3                  | 257.5    |                       | 256.5                           |                                 | 1 |
|                         | 4 28 85       | 433.5                  |          |                       | 256.5                           |                                 | 1 |
|                         | 11 1 83       | 432.8                  | 252.2    |                       | 256.2                           |                                 | 1 |
|                         | 11 16 86      | 434.9                  | 254.1    |                       | 255.1                           |                                 | 1 |
|                         | 5 1 87        | 435.0                  | 255.1    |                       | 254.8                           |                                 | 1 |
|                         | 11 15 87      | 435.8                  | 255.2    |                       | 254.2                           |                                 | 1 |
|                         | 4 17 88       | 436.1                  | 254.9    |                       | 253.0                           |                                 | 1 |
|                         | 11 18 88      | 435.7                  | 251.1    |                       | 254.3                           |                                 | 1 |
|                         | 4 29 89       | 437.4                  | 251.4    |                       | 252.6                           |                                 | 1 |
|                         | 11 19 89      | 436.6                  | 254.4    |                       | 253.4                           |                                 | 1 |
|                         | 4 8 90        | 437.0                  | 254.6    |                       | 254.0                           |                                 | 1 |
|                         | 11 23 90      | 435.1                  | 255.7    |                       | 254.7                           |                                 | 1 |
|                         | 4 13 91       | 435.5                  | 255.5    |                       | 254.5                           |                                 | 1 |
|                         | 11 3 91       | 434.9                  | 254.1    |                       | 253.1                           |                                 | 1 |
|                         | 12 27 92      | 434.7                  | 250.8    |                       | 255.8                           |                                 | 1 |
|                         | 4 31 93       |                        |          |                       |                                 |                                 | 1 |
| 2150                    | 12 3 56       | 1.2                    | 25.1     | 26.3                  | 23.4                            | 25.0                            | 1 |
|                         | 5 7 57        | 3.4                    | 22.9     |                       | 21.6                            |                                 | 1 |
|                         | 12 3 57       | 1.0                    | 025.3    |                       | 24.0                            |                                 | 1 |
|                         | 5 7 58        | 16.9                   | 009.4    |                       | 21.1                            |                                 | 1 |
|                         | 12 9 58       | 3.7                    | 024.4    |                       | 21.1                            |                                 | 1 |
|                         | 4 20 59       | 2.7                    | 023.6    |                       | 22.3                            |                                 | 1 |
|                         | 12 7 59       | 0.4                    | 025.9    |                       | 21.5                            |                                 | 1 |
|                         | 5 8 60        | 2.4                    | 023.9    |                       | 22.6                            |                                 | 1 |
|                         | 12 3 60       | -1.0                   | 027.3    |                       | 24.0                            |                                 | 1 |
|                         | 5 2 61        | 1.7                    | 025.2    |                       | 21.9                            |                                 | 1 |
|                         | 12 4 61       | 1.9                    | 024.4    |                       | 21.1                            |                                 | 1 |
|                         | 5 1 62        | 14.4                   | 011.9    |                       | 10.4                            |                                 | 1 |
|                         | 12 4 62       | 1.9                    | 024.4    |                       | 21.1                            |                                 | 1 |
|                         | 4 5 63        | 1.7                    | 022.0    |                       | 21.1                            |                                 | 1 |
|                         | 12 4 63       | 2.4                    | 023.9    |                       | 22.6                            |                                 | 1 |

| LALFCO<br>LOC<br>NUMBER | MO-CA-TR<br>M | WATER<br>SURF<br>ELEV. | REF<br>S | REF<br>POINT<br>ELEV. | PAGE<br>GRND.<br>SURF.<br>ELEV. | 9930<br>GRND.<br>SURF.<br>ELEV. | 0 |
|-------------------------|---------------|------------------------|----------|-----------------------|---------------------------------|---------------------------------|---|
|                         |               |                        |          |                       |                                 |                                 |   |
| 2154                    | 4 15 84       | 2.1                    | 024.7    | 26.3                  | 22.9                            | 25.0                            | 1 |
|                         | 11 24 84      | 2.5                    | 023.8    |                       | 22.5                            |                                 | 1 |
|                         | 11 24 84      | 2.5                    |          |                       | 22.5                            |                                 | 1 |
|                         | 4 28 85       | 8.1                    | 018.2    |                       | 16.0                            |                                 | 1 |
|                         | 4 28 85       | 8.1                    |          |                       | 16.9                            |                                 | 1 |
|                         | 11 8 87       | 1.0                    | 22.7     |                       | 22.4                            |                                 | 1 |
|                         | 4 12 86       | 11.4                   | 14.2     |                       | 15.4                            |                                 | 1 |
|                         | 11 16 86      | 3.7                    | 22.6     |                       | 21.3                            |                                 | 1 |
|                         | 5 1 87        | 15.0                   | 19.7     |                       | 9.4                             |                                 | 1 |
|                         | 11 15 87      | 3.2                    | 23.1     |                       | 21.8                            |                                 | 1 |
|                         | 4 17 88       | 11.7                   | 14.6     |                       | 13.3                            |                                 | 1 |
|                         | 11 19 88      | 3.2                    | 23.1     |                       | 21.8                            |                                 | 1 |
|                         | 4 29 89       | 15.8                   | 16.5     |                       | 9.2                             |                                 | 1 |
|                         | 11 19 89      | 3.9                    | 22.4     |                       | 21.1                            |                                 | 1 |
|                         | 5 5 90        | 1.2                    | 26.1     |                       | 18.9                            |                                 | 1 |
|                         | 11 23 90      | 1.3                    | 25.0     |                       | 18.9                            |                                 | 1 |
|                         | 4 13 91       | 8.6                    | 17.7     |                       | 16.4                            |                                 | 1 |
|                         | 11 16 91      | 3.3                    | 21.0     |                       | 21.7                            |                                 | 1 |
|                         | 5 1 92        | 4.1                    | 22.0     |                       | 20.7                            |                                 | 1 |
|                         | 12 27 92      | 5                      |          |                       |                                 |                                 | 1 |
|                         | 4 16 93       | 14.1                   | 12.2     |                       | 10.9                            |                                 | 1 |
|                         | 11 13 93      | 3.1                    | 23.2     |                       | 21.9                            |                                 | 1 |
|                         | 11 19 94      | 3.1                    |          |                       | 21.9                            |                                 | 1 |
|                         | 4 14 95       | 11.4                   | 14.9     |                       | 11.4                            |                                 | 1 |
|                         | 10 29 95      | 3.3                    | 23.0     |                       | 21.1                            |                                 | 1 |
|                         | 4 20 96       | 5.0                    | 21.3     |                       | 20.0                            |                                 | 1 |
|                         | 11 8 96       | 3.7                    | 22.4     |                       | 21.1                            |                                 | 1 |
|                         | 4 25 97       | 5.0                    | 21.3     |                       | 21.1                            |                                 | 1 |
|                         | 11 21 97      | 3.2                    | 24.1     |                       | 21.8                            |                                 | 1 |
|                         | 4 24 98       | 14.1                   | 12.2     |                       | 10.9                            |                                 | 1 |
| 2154 A                  | 12 3 56       | 22.2                   | C-7.9    | 70.0                  | 47.8                            | 70.0                            | 1 |
|                         | 5 7 57        | 32.3                   | C-17.7   |                       | 37.7                            |                                 | 1 |
|                         | 12 3 57       | 13.1                   | C-44.8   | 42.0                  | 41.4                            | 42.0                            | 1 |
|                         | 5 7 58        | 49.0                   | C-13.0   |                       | 47.3                            |                                 | 1 |
|                         | 12 9 58       | 14.8                   | C-1.7    |                       | 47.7                            |                                 | 1 |
|                         | 4 20 59       | 23.3                   | C-34.7   |                       | 34.7                            |                                 | 1 |
|                         | 12 7 59       | 8.7                    | C-13.3   |                       | 53.1                            |                                 | 1 |
|                         | 5 8 60        | 23.0                   | C-2.7    |                       | 32.0                            |                                 | 1 |
|                         | 12 3 60       | 3                      |          |                       |                                 |                                 | 1 |
|                         | 5 2 61        | 14.6                   | C-1.4    |                       | 47.4                            | 42.0                            | 1 |
|                         | 12 4 61       | 10.7                   | C-12.4   |                       | 32.0                            |                                 | 1 |
|                         | 5 1 62        | 28.4                   | C-33.8   |                       | 33.8                            |                                 | 1 |
|                         | 12 4 62       | 13.7                   | C-48.3   |                       | 48.3                            |                                 | 1 |
|                         | 4 9 63        | 2                      |          |                       |                                 |                                 | 1 |
|                         | 4 15 84       | 17.5                   | C-44.5   |                       | 44.5                            |                                 | 1 |

| LACFCO<br>LOC<br>NUMBER | MO-DA-YR<br>M | WATER<br>SURF<br>ELEV. | REF.<br>POINT<br>H TO WS | REF.<br>POINT<br>ELEV. | PAGE<br>GRND.<br>SURF.<br>TO WS | 9912                    |                         | O |
|-------------------------|---------------|------------------------|--------------------------|------------------------|---------------------------------|-------------------------|-------------------------|---|
|                         |               |                        |                          |                        |                                 | GRND.<br>SURF.<br>ELEV. | GRND.<br>SURF.<br>ELEV. |   |
| 2166 0                  | 11 19 68      | 7.0                    | 17.0                     | 24.0                   | 16.0                            | 23.0                    | 1                       |   |
|                         | 4 29 69       | 17.2                   | 6.8                      |                        | 5.8                             |                         | 1                       |   |
|                         | 1 2 69        | 7.7                    | 16.3                     |                        | 15.3                            |                         | 1                       |   |
|                         | 5 5 70        | 9.7                    | 14.3                     |                        | 13.3                            |                         | 1                       |   |
|                         | 11 25 70      | 7.1                    | 16.9                     |                        | 15.9                            |                         | 1                       |   |
|                         | 4 13 71       | 11.6                   | 12.4                     |                        | 11.4                            |                         | 1                       |   |
|                         | 11 16 71      | 7.2                    | 16.8                     |                        | 15.8                            |                         | 1                       |   |
|                         | 5 1 72        | 8.0                    | 16.0                     |                        | 15.0                            |                         | 1                       |   |
|                         | 12 27 72      | 8.2                    | 15.8                     |                        | 14.8                            |                         | 1                       |   |
|                         | 4 16 73       | 16.1                   | 7.9                      |                        | 6.9                             |                         | 1                       |   |
|                         | 11 13 73      | 7.0                    | 17.0                     |                        | 16.0                            |                         | 1                       |   |
|                         | 11 19 74      | 7.2                    | 16.8                     |                        | 15.8                            |                         | 1                       |   |
|                         | 4 14 75       | 13.8                   | 10.2                     |                        | 9.2                             |                         | 1                       |   |
|                         | 10 29 75      | 7.1                    | 16.9                     |                        | 15.9                            |                         | 1                       |   |
|                         | 4 20 76       | 8.6                    | 15.4                     |                        | 14.4                            |                         | 1                       |   |
|                         | 11 8 76       | 7.7                    | 16.3                     |                        | 15.3                            |                         | 1                       |   |
|                         | 4 25 77 9     |                        |                          |                        |                                 |                         | 1                       |   |
|                         | 11 21 77 9    |                        |                          |                        |                                 |                         | 1                       |   |

| LACFCO<br>LOC<br>NUMBER | MO-DA-YR<br>M | WATER<br>SURF<br>ELEV. | REF.<br>POINT<br>H TO WS | REF.<br>POINT<br>ELEV. | PAGE<br>GRND.<br>SURF.<br>TO WS | 9912                    |                         | O |
|-------------------------|---------------|------------------------|--------------------------|------------------------|---------------------------------|-------------------------|-------------------------|---|
|                         |               |                        |                          |                        |                                 | GRND.<br>SURF.<br>ELEV. | GRND.<br>SURF.<br>ELEV. |   |
| 2180                    | 3 19 57       | 1672.9                 | 003.6                    | 1676.5                 | 3.6                             | 1676.5                  | 2                       |   |
| 2186                    | 12 7 56       | -2.2                   | 093.9                    | 91.7                   | 92.2                            | 90.0                    | 1                       |   |
|                         | 5 4 60        | 10.2                   | 081.5                    |                        | 79.8                            |                         | 1                       |   |
|                         | 5 2 61        | 3.5                    | 088.2                    |                        | 84.5                            |                         | 1                       |   |
|                         | 12 4 61       | 3.1                    | 088.6                    |                        | 86.9                            |                         | 1                       |   |
|                         | 5 2 62        | 63.7                   | 029.0                    |                        | 26.3                            |                         | 1                       |   |
|                         | 12 1 62       | 17.2                   | 074.5                    |                        | 51.7                            |                         | 1                       |   |
|                         | 4 9 63        | 17.2                   | 074.5                    |                        | 72.8                            |                         | 1                       |   |
|                         | 12 4 63       | 8.9                    | 082.9                    |                        | 81.1                            |                         | 1                       |   |
|                         | 4 15 64       | 8.3                    | 082.9                    |                        | 81.2                            |                         | 1                       |   |
|                         | 11 24 64      | 5.0                    | 086.7                    |                        | 85.0                            |                         | 1                       |   |
|                         | 11 24 64      | 5.0                    |                          |                        | 85.0                            |                         | 1                       |   |
|                         | 4 28 65       | 27.6                   | 064.1                    |                        | 62.4                            |                         | 1                       |   |
|                         | 11 8 65       | 12.6                   | 79.1                     |                        | 77.4                            |                         | 1                       |   |
|                         | 4 12 66       | 32.4                   | 34.3                     |                        | 32.6                            |                         | 1                       |   |
|                         | 11 16 66      | 25.2                   | 66.5                     |                        | 64.8                            |                         | 1                       |   |
|                         | 5 1 67        | 72.6                   | 19.1                     |                        | 17.4                            |                         | 1                       |   |
|                         | 11 15 67      | 35.7                   | 36.0                     |                        | 34.3                            |                         | 1                       |   |
|                         | 4 17 68       | 45.8                   | 45.9                     |                        | 44.2                            |                         | 1                       |   |
|                         | 11 19 68      | 17.0                   | 74.7                     |                        | 73.0                            |                         | 1                       |   |
|                         | 4 29 69       | 74.0                   | 17.7                     |                        | 16.0                            |                         | 1                       |   |
|                         | 11 19 69      | 35.3                   | 56.4                     |                        | 54.7                            |                         | 1                       |   |
|                         | 5 5 70        | 27.8                   | 43.9                     |                        | 42.2                            |                         | 1                       |   |
|                         | 11 25 70      | 10.4                   | 81.1                     |                        | 79.4                            |                         | 1                       |   |
|                         | 4 13 71       | 49.7                   | 42.0                     |                        | 40.3                            |                         | 1                       |   |
|                         | 11 16 71      | 22.8                   | 68.9                     |                        | 67.2                            |                         | 1                       |   |
|                         | 5 1 72        | 26.1                   | 65.6                     |                        | 63.9                            |                         | 1                       |   |
|                         | 12 27 72      | 10.2                   | 81.5                     |                        | 79.8                            |                         | 1                       |   |
|                         | 4 16 73       | 74.9                   | 16.8                     |                        | 15.1                            |                         | 1                       |   |
|                         | 11 13 73      | 35.2                   | 54.5                     |                        | 52.8                            |                         | 1                       |   |
|                         | 11 19 74      | 25.0                   | 66.7                     |                        | 65.0                            |                         | 1                       |   |

| LACFCO<br>LOC<br>NUMBER | MO-DA-YR<br>M | WATER<br>SURF<br>ELEV. | REF.<br>POINT<br>H TO WS | REF.<br>POINT<br>ELEV. | PAGE<br>GRND.<br>SURF.<br>TO WS | 9933                    |                         | O |
|-------------------------|---------------|------------------------|--------------------------|------------------------|---------------------------------|-------------------------|-------------------------|---|
|                         |               |                        |                          |                        |                                 | GRND.<br>SURF.<br>ELEV. | GRND.<br>SURF.<br>ELEV. |   |
| 2185                    | 4 14 75       | 47.6                   | 44.1                     | 91.7                   | 62.4                            | 90.0                    | 1                       |   |
|                         | 10 29 75      | 28.1                   | 43.6                     |                        | 61.9                            |                         | 1                       |   |
|                         | 4 20 76       | 13.7                   | 78.0                     |                        | 76.3                            |                         | 1                       |   |
|                         | 11 8 76       | 9.7                    | 82.0                     |                        | 80.3                            |                         | 1                       |   |
|                         | 4 25 77       | 12.7                   | 79.0                     |                        | 77.3                            |                         | 1                       |   |
|                         | 11 21 77      | 8.2                    | 81.2                     |                        | 81.8                            |                         | 1                       |   |
|                         | 4 24 78       | 79.8                   | 11.9                     |                        | 10.2                            |                         | 1                       |   |
| 2187                    | 12 3 56       | 6.6                    | 043.0                    | 68.6                   | 60.0                            | 66.6                    | 1                       |   |
|                         | 5 7 57        | 1.9                    | 062.7                    |                        | 64.7                            |                         | 1                       |   |
|                         | 12 3 57       | -0.7                   | 067.3                    |                        | 67.3                            |                         | 1                       |   |
|                         | 5 7 58        | 57.7                   | 019.9                    |                        | 8.9                             |                         | 1                       |   |
|                         | 12 9 58       | 26.7                   | 047.9                    |                        | 38.9                            |                         | 1                       |   |
|                         | 4 20 59       | 13.5                   | 055.1                    |                        | 53.1                            |                         | 1                       |   |
|                         | 12 7 59       | -1.8                   | 070.4                    |                        | 68.4                            |                         | 1                       |   |
|                         | 5 4 60        | -1.1                   | 067.5                    |                        | 65.5                            |                         | 1                       |   |
|                         | 12 5 60       | -3.2                   | 071.8                    |                        | 69.8                            |                         | 1                       |   |
|                         | 5 1 61        | -14.7                  | 043.3                    |                        | 81.3                            |                         | 1                       |   |
|                         | 12 4 61       | -1.0                   | 066.6                    |                        | 67.6                            |                         | 1                       |   |
|                         | 5 2 62        | 49.0                   | 019.6                    |                        | 17.6                            |                         | 1                       |   |
|                         | 12 4 62       | 23.9                   | 044.7                    |                        | 62.7                            |                         | 1                       |   |
|                         | 4 8 63        | 15.4                   | 053.2                    |                        | 51.2                            |                         | 1                       |   |
|                         | 12 4 63       | 4.5                    | 064.7                    |                        | 62.1                            |                         | 1                       |   |
|                         | 11 19 74      | 4.1                    | 041.9                    |                        | 51.9                            |                         | 1                       |   |

| LACFD<br>LOC.<br>NUMBER | NO-DA-TR | M<br>H | WATER<br>SURF<br>ELEV. | REF.<br>E<br>TO WS | REF.<br>POINT<br>ELEV. | PAGE<br>GRND<br>SURF<br>TO WS | 9915<br>GRND<br>SURF<br>ELEV. | 0 |
|-------------------------|----------|--------|------------------------|--------------------|------------------------|-------------------------------|-------------------------------|---|
|                         |          |        |                        |                    |                        |                               |                               |   |
| 2187 A                  | 12 3 56  |        | -1.0                   |                    | 065.0                  | 47.0                          | 61.0                          | 1 |
|                         | 5 7 57   |        | -7.5                   |                    | 069.5                  |                               | 69.5                          | 1 |
|                         | 12 3 58  |        | -10.1                  |                    | 072.1                  |                               | 72.1                          | 1 |
|                         | 12 9 58  |        | 23.2                   |                    | 043.8                  | 47.0                          | 61.0                          | 1 |
|                         | 4 20 59  |        | 0.0                    |                    | 038.0                  |                               | 38.0                          | 1 |
|                         | 12 7 59  |        | -7.4                   |                    | 076.4                  |                               | 76.4                          | 1 |
|                         | 5 8 60   |        | -7.4                   |                    | 074.4                  |                               | 74.4                          | 1 |
|                         | 5 2 61   |        | -5.5                   |                    | 072.5                  |                               | 72.5                          | 1 |
|                         | 5 2 62   |        | 39.1                   |                    | 027.9                  |                               | 27.9                          | 1 |
|                         | 12 12 62 |        | 13.5                   |                    | 035.5                  |                               | 35.5                          | 1 |
|                         | 4 9 63   |        | 10.9                   |                    | 035.1                  |                               | 35.1                          | 1 |
|                         | 4 15 64  |        | -0.4                   |                    | 067.4                  |                               | 67.4                          | 1 |
| 11 21 65                |          | -0.9   |                        | 067.9              |                        | 66.0                          | 1                             |   |
| 5 24 64                 |          | -0.9   |                        | 067.9              |                        | 66.9                          | 1                             |   |
| 4 28 65                 |          | 10.7   |                        | 056.3              |                        | 56.3                          | 1                             |   |
| 4 23 65                 |          | 10.7   |                        | 056.3              |                        | 56.3                          | 1                             |   |
| 11 8 65                 |          | 8.0    |                        | 61.0               |                        | 60.0                          | 1                             |   |
| 4 12 66                 |          | 40.3   |                        | 26.8               |                        | 25.8                          | 1                             |   |
| 11 16 66                |          | 19.5   |                        | 47.5               |                        | 46.5                          | 1                             |   |
| 5 1 67                  |          | 32.3   |                        | 14.7               |                        | 13.7                          | 1                             |   |
| 11 15 67                |          | 28.0   |                        | 39.0               |                        | 38.0                          | 1                             |   |
| 4 17 68                 |          | 30.0   |                        | 32.0               |                        | 31.0                          | 1                             |   |
| 11 19 68                |          | 31.0   |                        | 34.0               |                        | 33.0                          | 1                             |   |
| 4 29 69                 |          | 32.7   |                        | 14.3               |                        | 13.3                          | 1                             |   |
| 11 19 69                |          | 25.9   |                        | 31.1               |                        | 30.1                          | 1                             |   |
| 11 5 70                 |          | 13.8   |                        | 41.0               |                        | 40.0                          | 1                             |   |
| 11 25 70                |          | 5.0    |                        | 42.0               |                        | 41.0                          | 1                             |   |
| 4 13 71                 |          | 33.1   |                        | 33.9               |                        | 32.9                          | 1                             |   |
| 11 16 71                |          | 17.0   |                        | 30.0               |                        | 29.0                          | 1                             |   |
| 5 1 72                  |          | 15.4   |                        | 51.6               |                        | 50.6                          | 1                             |   |
| 12 2 72                 |          | 21.0   | OR                     | 41.0               |                        | 40.0                          | 1                             |   |
| 4 10 73                 |          | 25.1   |                        | 15.9               |                        | 14.9                          | 1                             |   |
| 11 13 73                |          | 27.9   |                        | 39.1               |                        | 38.1                          | 1                             |   |
| 11 17 74                |          | 19.3   |                        | 37.7               |                        | 36.7                          | 1                             |   |
| 4 14 75                 |          | 30.4   |                        | 36.4               |                        | 35.4                          | 1                             |   |
| 10 29 75                |          | 21.3   |                        | 45.7               |                        | 44.7                          | 1                             |   |
| 4 20 76                 |          | 2.9    |                        | 39.1               |                        | 38.1                          | 1                             |   |
| 11 8 76                 |          | 4.9    |                        | 42.1               |                        | 41.1                          | 1                             |   |
| 4 25 77                 |          | 3.0    |                        | 64.0               |                        | 63.0                          | 1                             |   |
| 11 21 77                |          | 3.0    |                        | 64.0               |                        | 63.0                          | 1                             |   |
| 2187 B                  | 12 3 56  |        | 3.7                    |                    | 51.8                   | 55.5                          | 50.3                          | 1 |
|                         | 5 7 57   |        | -5.7                   |                    | 41.7                   |                               | 39.7                          | 1 |
|                         | 12 3 57  |        | 1.1                    |                    | 054.4                  |                               | 52.9                          | 1 |
|                         | 5 7 58   |        | 36.0                   |                    | 019.5                  |                               | 18.0                          | 1 |
|                         | 12 9 58  |        | 34.0                   |                    | 031.4                  |                               | 30.0                          | 1 |
|                         | 4 20 59  |        | 14.5                   |                    | 041.0                  |                               | 39.5                          | 1 |
|                         | 12 7 59  |        | 3.7                    |                    | 031.8                  |                               | 30.3                          | 1 |
| 5 8 60                  |          | 1.4    |                        | 031.9              |                        | 29.4                          | 1                             |   |
| 12 5 60                 |          | 0.4    |                        | 055.1              |                        | 53.6                          | 1                             |   |

| LACFD<br>LOC.<br>NUMBER | NO-DA-TR | M<br>H | WATER<br>SURF<br>ELEV. | REF.<br>E<br>TO WS | REF.<br>POINT<br>ELEV. | PAGE<br>GRND<br>SURF<br>TO WS | 9915<br>GRND<br>SURF<br>ELEV. | 0 |
|-------------------------|----------|--------|------------------------|--------------------|------------------------|-------------------------------|-------------------------------|---|
|                         |          |        |                        |                    |                        |                               |                               |   |
| 2187 C                  | 5 2 61   |        | -15.6                  |                    | 071.1                  | 55.5                          | 69.9                          | 1 |
|                         | 12 4 61  |        | 1.6                    |                    | 053.9                  |                               | 52.4                          | 1 |
|                         | 5 2 62   |        | 30.1                   |                    | 011.2                  |                               | 21.7                          | 1 |
|                         | 12 4 62  |        | 22.1                   |                    | 37.4                   |                               | 31.9                          | 1 |
|                         | 4 9 63   |        | 15.5                   |                    | 34.0                   |                               | 33.5                          | 1 |
|                         | 12 4 63  |        | 10.2                   |                    | 30.1                   |                               | 29.6                          | 1 |
|                         | 4 12 64  |        | 8.0                    |                    | 047.1                  |                               | 46.0                          | 1 |
|                         | 11 24 64 |        | 4.5                    |                    | 049.0                  |                               | 47.5                          | 1 |
|                         | 11 28 64 |        | 16.5                   |                    | 045.0                  |                               | 43.5                          | 1 |
|                         | 4 28 65  |        | 10.5                   |                    |                        |                               | 43.5                          | 1 |
|                         | 11 8 65  |        | 10.4                   |                    | 44.9                   |                               | 43.4                          | 1 |
|                         | 4 18 66  |        | 27.2                   |                    | 27.2                   |                               | 26.2                          | 1 |
|                         | 11 18 66 |        | 21.5                   |                    | 24.0                   |                               | 23.0                          | 1 |
|                         | 5 1 67   |        | 37.1                   |                    | 18.4                   |                               | 16.9                          | 1 |
|                         | 11 15 67 |        | 26.1                   |                    | 20.4                   |                               | 19.9                          | 1 |
|                         | 4 17 68  |        | 23.0                   |                    | 32.5                   |                               | 31.0                          | 1 |
|                         | 11 19 68 |        | 15.2                   |                    | 40.3                   |                               | 38.8                          | 1 |
|                         | 4 29 69  |        | 18.4                   |                    | 10.9                   |                               | 9.4                           | 1 |
|                         | 11 19 69 |        | 25.7                   |                    | 29.8                   |                               | 28.3                          | 1 |
|                         | 5 1 70   |        | 16.4                   |                    | 39.1                   |                               | 37.6                          | 1 |
|                         | 11 25 70 |        | 10.4                   |                    | 32.8                   |                               | 31.3                          | 1 |
| 4 23 71                 |          | 22.7   |                        | 32.8               |                        | 31.3                          | 1                             |   |
| 11 16 71                |          | 19.1   |                        | 36.2               |                        | 34.7                          | 1                             |   |
| 5 27 72                 |          | 10.9   |                        | 39.2               |                        | 37.7                          | 1                             |   |
| 4 10 73                 |          | 30.8   |                        | 24.7               |                        | 23.2                          | 1                             |   |
| 11 13 73                |          | 26.6   |                        | 28.9               |                        | 27.4                          | 1                             |   |
| 11 19 74                |          | 27.2   |                        | 34.3               |                        | 32.8                          | 1                             |   |
| 4 14 75                 |          | 27.2   |                        | 31.1               |                        | 29.6                          | 1                             |   |
| 10 29 75                |          | 11.9   |                        | 33.4               |                        | 31.9                          | 1                             |   |
| 4 20 76                 |          | 13.2   |                        | 42.3               |                        | 40.8                          | 1                             |   |
| 11 25 76                |          | 10.1   |                        | 46.1               |                        | 44.6                          | 1                             |   |
| 4 25 77                 |          | 0.4    |                        | 46.9               |                        | 45.4                          | 1                             |   |
| 11 21 77                |          | 0.4    |                        | 46.9               |                        | 45.4                          | 1                             |   |
| 4 24 78                 |          | 38.3   |                        | 17.2               |                        | 15.7                          | 1                             |   |
| 2187 D                  | 12 3 56  |        | 2.8                    |                    | 042.2                  | 45.0                          | 41.2                          | 1 |
|                         | 5 7 57   |        | -0.7                   |                    | 041.7                  |                               | 38.7                          | 1 |
|                         | 12 3 57  |        | -3.0                   |                    | 048.0                  |                               | 47.0                          | 1 |
|                         | 5 7 58   |        | 32.5                   |                    | 012.5                  |                               | 11.5                          | 1 |
|                         | 12 9 58  |        | 32.5                   |                    | 012.5                  |                               | 11.5                          | 1 |
| 4 20 59                 |          | 7.1    |                        | 017.9              |                        | 15.9                          | 1                             |   |
| 12 7 59                 |          | -3.5   |                        | 042.5              |                        | 47.5                          | 1                             |   |