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REAL-TIME AUXILIARY COMPUTING FACILITY A-2/CSM-020 MISSION REPORT

By S.D. Holzaepfel
Flight Analysis Branch
and
P.A. DiValerio
D.C. McDougall
Mission Operations Section
TRW Systems Group

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MISSION PLANNING AND ANALYSIS DIVISION
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

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PROJECT APOLLO

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MISSION PLANNING AND ANALYSIS DIVISION
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

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SYMBOLS

ACR	Auxiliary Computing Room
AGC	Apollo guidance computer
AGCU	Attitude gyro coupling unit
AOS	Acquisition of signal
ARIA	Apollo Range Instrumentation Aircraft
ASCC	Ascension Island C-band
ASCS	Ascension Island S-band
ASPO	Apollo Spacecraft Program Office
AZ	Onboard AGC variable
B	Magnetic flux density (Gauss)
BDAC	Bermuda C-band (FPS-16 radar)
BDQC	Bermuda C-band (FPQ-6 radar)
BSE	Booster Systems Engineer
CAD	Computation and Analysis Division
CM	Command module
CROC	Carnarvon C-band
CROS	Carnarvon S-band
CSM	Command service module
CST	Central standard time
CYIC	Canary Island C-band
DD alt	Drogue deploy altitude
ECI	Earth centered inertial
EECOM	Electrical, Environmental, and Communications Flight Controller
EI	Entry interface

E/N	East of north
EOM	End of mission
FAB	Flight Analysis Branch
FDO	Flight Dynamics Officer
FSB	Flight Software Branch
g. e. t.	Ground elapsed time
GMT	Greenwich mean time
GRR	Guidance reference release
GWM	Guam
IBECO	Inner booster engine cutoff
IMU	Inertial measurement unit
INSE	Insertion
ITT	International Telephone and Telegraph
IU	Instrument unit
KSC	Kennedy Space Center
L/D	Lift-to-drag ratio
L/O	Lift-off
LAT-D	Geodetic latitude
LEC	Lockheed Electronics Corporation
LES	Launch escape system
LM	Lunar module
LOS	Loss of signal
MAB	Mission Analysis Branch
MD alt	Main deploy altitude
MPAD	Mission Planning and Analysis Division
MPSO	Mission Planning Support Office
MSC	Manned Spacecraft Center

MSL	Mean sea level
NORAD	North American Air Defense Command
OBECO	Outer booster engine cutoff
RAB	Rendezvous Analysis Branch
RAN E	Range east
RAN N	Range north
RCS	Reaction control system
REM	Roentgen equivalent man
RETRO	Retrofire Officer
RTACF	Real-Time Auxiliary Computing Facility
RTC	Real-time command
RTCC	Real-Time Computing Complex
SCS	Stabilization and control system
S-IC	First booster stage (Saturn V)
S-II	Second booster stage (Saturn V)
S-IVB	Third booster stage (Saturn V)
SM	Service module
SPS	Service propulsion system
SSR	Staff support room
TA	Time of abort (g. e. t.)
TFF	Time of free fall
TRW	TRW Systems Group
TWX	Teletype message
W/N	West of north
ZS	Onboard AGC variable

Btu	British thermal unit
deg	Degree
er	Earth radii
ft	Foot
hr	Hour
in.	Inch
km	Kilometer
lb	Pound
n mi	Nautical mile
sec	Second

REAL-TIME AUXILIARY COMPUTING FACILITY

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1. SUMMARY AND INTRODUCTION

The purpose of the A-2/CSM-020 (Apollo 6) Mission Report is to document the activities performed and the data provided by the Real-Time Auxiliary Computing Facility (RTACF) from prelaunch (T minus 6 hours) through landing for Apollo Mission A-2/CSM-020. The A-2/CSM-020 (formerly LV-502/CSM-020) Flight Annex (Reference 1) provides a description of the processors used in the RTACF to fulfill real-time computing requirements.

The A-2/CSM-020 Mission Report is divided into five sections, the first of which is the Summary and Introduction. Section 2 lists the personnel assigned to the RTACF Operational Support Team. Section 3 contains a chronological description of the RTACF mission activities. Also included in Section 3 are the premission predicted work schedule and the actual mission work schedule. Section 4 presents the mission data generated by the RTACF Operational Support Team. Section 5 presents the RTACF simulations and mission manpower summary.

The Mission Report was prepared through a joint effort between MSC/MPAD and TRW Systems Group. TRW participation was performed under MSC/TRW Task A-130 (Reference 2).

2. APOLLO MISSION A-2/CSM-020 RTACF OPERATIONAL SUPPORT TEAM

The following individuals manned positions in the Flight Dynamics Staff Support Room and the Auxiliary Computing Room during Apollo Mission A-2/CSM-020.

Flight Dynamics Staff Support Room

Trajectory Support Chief	S. D. Holzaepfel (FAB)
Assistant Trajectory Support Chief	M. A. Collins (FAB)
Maneuver Specialists	W. J. Bennett (RAB)
	R. H. Moore (RAB)
Entry Specialists	J. C. Harpold (MAB)
	R. H. Manders (TRW)
AGC Specialists	J. R. Garman (FSB)
	J. W. Jurgensen (FSB)
Postflight Observers	B. F. McCreary (MPSO)
	W. R. Lacy (MPSO)
Engineering Aid	P. A. Moore (ITT)

Auxiliary Computing Room (Building 30)

ACR Chief	P. A. DiValerio (TRW)
Trajectory Analysts	B. G. Schneider (FAB)
	D. C. McDougall (TRW)
	V. R. Dragotta (TRW)
	J. F. Martin (TRW)
	D. S. Szelc (TRW)
	J. W. Tolin (MAB)
Program Consultants	O. R. Coon (LEC)
	J. D. Borkowski (LEC)
	D. C. Moorehead (CAD)
Run Coordinators	J. M. Friebele (LEC)
	D. E. Tucker (LEC)
	D. Womac (LEC)
Engineering Aid	S. L. Smith (ITT)

Auxiliary Computing Room (Building 12)

Wind Data Analysts	E. R. Hischke (FAB)
	V. R. Dragotta (TRW)

3. RTACF MISSION ACTIVITIES

This section presents, in chronological order, the activities of the RTACF during prelaunch and mission support of Apollo Mission A-2/CSM-020, April 4, 1968.

Time (g. e. t.) hr:min	Event
T-5:59 (12:01 a.m.)	RTACF Operational Support Team on duty.
T-5:48	Advised NORAD of countdown status.
T-5:39	Received predicted lift-off water quantities from EECOM. The predicted water quantities are listed below.

Potable water	11.3 lbs
Waste water	55.0 lbs

T-5:33 Received CSM weights and balance data from Russ Morton, ASPO. The CSM weights received from ASPO are listed below.

	Nominal Mission	Alternate Mission
CSM with total propellants	55,266 lbs	55,266 lbs
CSM without propellants	22,607 lbs	22,045 lbs
Usable SPS propellant	31,853 lbs	32,415 lbs
Usable SM RCS propellant	806 lbs	806 lbs

The RTACF also received CM weight and center of gravity locations and computed reference CM aerodynamic data. The resulting data are presented in Table Ia.

Received predicted lift-off water quantities from ASPO. The lift-off water quantities are as follows:

Potable water	8.2 lbs
Waste water	56.0 lbs

Time (g. e. t.) hr:min	Event
T-4:35	ASPO concurred with EECOM on the following predicted lift-off water quantities:

Potable water	11.0 lbs
Waste water	55.0 lbs

T-4:34	Received T minus 8-hour balloon release prelaunch Mode I abort data in the SSR and transmitted them to the Recovery Operations Control Room. The T minus 8-hour balloon release abort data are presented in Table XXII. A plot of predicted Mode I abort landing points based on these data are presented in Figure 1.
T-4:20	Confirmed the following abort and end of mission target points.

Mode II/III	Latitude*	28:17°N
	Longitude	19:30°W
End of mission	Latitude	27:19°N
	Longitude	157:11°W

T-4:15	Computed beginning of mission aerodynamics for the RTCC and the RTACF using the predicted lift-off water quantities. The resulting beginning of mission aerodynamics are presented in Table Ib.
T-4:00	Received T minus 6-hour balloon release prelaunch Mode I abort data in the SSR and transmitted them to the Recovery Operations Control Room. The T minus 6-hour balloon release abort data are presented in Table XXIII. A plot of predicted Mode I abort landing points based on these data is presented in Figure 2.

*Latitude refers to geodetic latitude unless otherwise specified.

Time (g. e. t.) hr:min	Event
T-3:35	Computed predicted end of mission aerodynamics based on the following water quantities:

Potable water	30.0 lbs
Waste water	11.0 lbs

The resulting predicted end of mission aerodynamics data are presented in Table Ic.

T-3:30 Confirmed the following SPS burn target parameters with the RTCC.

	SPS-1	SPS-2
Semilatus rectum	34,340,227 ft	42,418,422 ft
Eccentricity	0.63429326	1.0164386
Pitch trim angle	0.1 deg	1.5 deg
Yaw trim angle	2.4 deg	5.8 deg

T-3:25 Confirmed AGC onboard value of AZ for April 4, 1968, day 271. This AZ value is identical to the one listed in Table VIIa.

T-3:20 Generated table tapes in RTACF using previously computed beginning of mission and end of mission aerodynamics of L/D = 0.3557 and L/D = 0.3438, respectively, for both the IBM 7094 and the UNIVAC 1108 computers. Computer runs were made to confirm compatibility between the IBM 7094 and the UNIVAC 1108 computers.

T-3:00 Confirmed the RTCC computed and loaded the proper beginning of mission aerodynamics.

T-2:37 Generated a Pacific target point update check case. The results of the Pacific target update are presented in Table Xa.

Time (g. e. t.) hr:min	Event
T-2:30	Computed area 2-1 SPS deorbit for aerodynamics compatibility check with RTCC. The resulting data are presented in Table VI.
T-2:16	Confirmed the RTCC computed and loaded the proper end of mission aerodynamics.
T-2:06	Established predicted lift-off IU/IMU alignment matrix based on gimbal angles received from the Guidance Officer. The IU/IMU gimbal angles received are presented in Table IVa.
T-2:00	Received T minus 4-hour balloon release prelaunch Mode I abort data in the SSR and transmitted them to the Recovery Operations Control Room. The T minus 4-hour balloon release abort data are presented in Table XXIV. A plot of predicted Mode I abort landing points based on these data are presented in Figure 3.
T-1:00	Advised NORAD of countdown status.
T-0:50	EECOM confirmed predicted potable water quantity as 30.0 pounds and waste water quantity of 11.0 pounds as the actual loads.
T-0:36	Received T minus 2.5-hour balloon release prelaunch Mode I abort data in the SSR and transmitted them to the Recovery Operations Control Room. The T minus 2.5-hour balloon release abort data are presented in Table XXV. A plot of predicted Mode I abort landing points based on these data is presented in Figure 4.

Time (g. e. t.) hr:min	Event
T-0:22	Received T minus 1.5-hour balloon release prelaunch Mode I abort data in the SSR and transmitted them to the Recovery Operations Control Room. The T minus 1.5-hour balloon release abort data are presented in Table XXVI. A plot of predicted Mode I abort landing points based on these data is presented in Figure 5.
T+0:00	Lift-off. The RTACF received the following values:

Launch vehicle GRR (GMT)	11:59:44.0
Spacecraft GRR (GMT)	12:00:02.2
ZS (GMT)	12:00:02.1
Lift-off (GMT)	12:00:01.8

T+0:17	Computed time to send first RTC-71. The time to send the first RTC-71 and associated data are presented in Table IIa.
T+0:30	Computed area 2-1 SPS deorbit data. These data are presented in Table IIIa.
T+0:35	Computed time to send second RTC-71. The time to send the second RTC-71 and associated data are presented in Table IIb.
T+0:39	Insertion vector passed by voice to NORAD.
T+0:47	Computed and output for the Recovery Operations Control Room groundtrack data in the earth parking orbit. These data are presented in Table XXVIII.
T+0:55	Computed predicted 2-1 SPS deorbit S-band blackout data for the Recovery Operations Control Room. These data are presented in Table XVIIIa.

Time (g. e. t.) hr:min	Event
T+1:05	Computed attitude check between the IU and the IMU. These data are presented in Table IVb.
T+1:09	Computed time to send third RTC-71. The time to send the third RTC-71 and associated data are presented in Table IIc.
T+1:20	Computed area 3-1 SPS deorbit data. These data are presented in Table IIIb.
T+1:38	Compiled insertion parameters for Public Affairs Officer. These data are presented in Table XX.
T+1:40	Computed mission TWX data for the Postflight Observer. These data are presented in Tables XXIa through XXIc.
T+1:43	Computed attitude check between the IU and IMU. These data are presented in Table IVc.
T+2:00	Computed an earth parking orbit navigation update. The resulting navigation update is presented in Table VIIa.
T+2:05	Computed predicted 3-1 SPS deorbit S-band blackout data for the Recovery Operations Control Room. These data are presented in Table XVIIIb.
T+2:08	Computed attitude check between IU and IMU. These data are presented in Table IVd.
T+2:45	Computed area 4-1 SPS deorbit data. These data are presented in Table IIIc.

Time (g. e. t.) hr:min	Event
T+3:30	Converted AGC vector to RTCC ECI form. The results of this conversion are presented in Table VIII.
T+3:35	Computed no second SPS burn EI conditions based on converted AGC vector. These data are presented in Table XIa.
T+3:40	Computed second SPS burn based on AGC vector. These data are presented in Tables XIb and XIc.
T+3:50	First SPS burn cutoff state vector was passed by voice to NORAD.
T+4:15	Computed actual end of mission aerodynamics to be used in the RTCC and the RTACF. These aerodynamics were based on the following projected entry water quantities received from EECOM:

Potable water	30.5 lbs
Waste water	5.5 lbs

The resulting end of mission aerodynamics data are presented in Table Id.

T+4:20	Computed radiation data for Space Environment personnel. These data are presented in Table XXVII.
T+4:35	Compiled the following alternate mission mass properties data for the RTCC and RTACF.

CSM with propellants	25,642 lbs
Usable SPS propellant	2,288 lbs
Usable SM RCS propellant	747 lbs

These mass properties data were passed to RETRO.

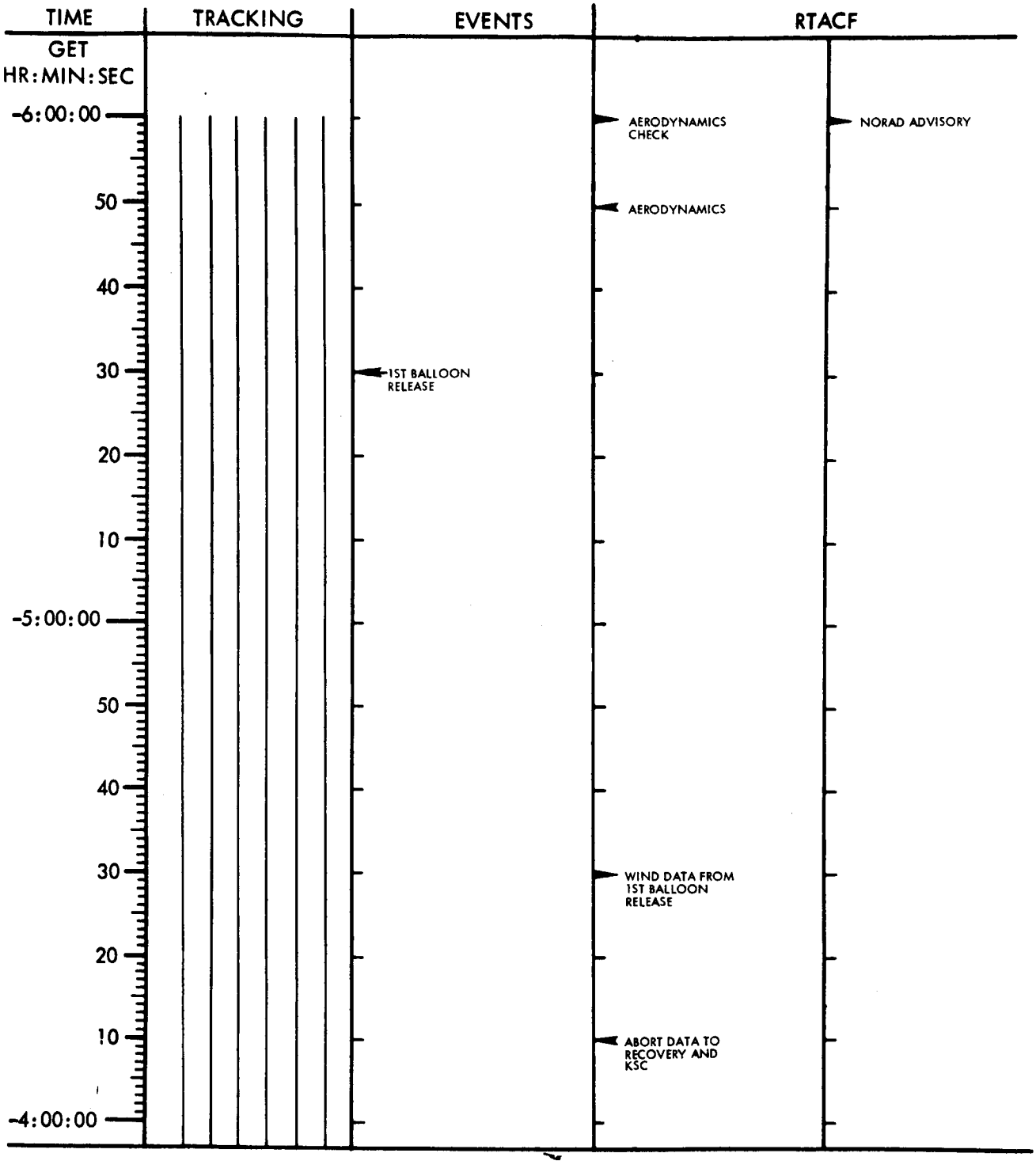
Time (g. e. t.) hr:min	Event
T+4:38	Computed attitude check between the IU and IMU. These data are presented in Table IVe.
T+4:40	Computed and output for the Recovery Operations Control Room alternate mission groundtrack data based on no second SPS burn. These data are presented in Table XXIX.
T+4:43	Computed guided entry data to nominal end of mission target using L/O end of mission aerodynamics and assuming no second SPS burn. These data are presented in Table XIIa.
T+4:52	Computed ballistic entry data based on no second SPS burn using L/O end of mission aerodynamics. These data are presented in Table XIIb.
T+5:08	Computed service module predicted impact point based on a post first SPS burn vector and assuming no second SPS burn. These data are presented in Table IX.
T+5:10	Computed mission TWX data for the Postflight Observer. These data are presented in Tables XXId through XXIf.
T+5:13	Compiled alternate mission parameters for the Public Affairs Officer. These data are presented in Table XX.
T+5:14	Generated table tapes in the RTACF using predicted end of mission aerodynamics of L/D = 0.34278.
T+5:21	Computed guided entry data based on no second SPS burn using end of mission aerodynamics of L/D = 0.34278. These data are presented in Table XIIIa.

Time (g. e. t.) hr:min	Event
T+5:22	Computed full-lift and zero-lift entries based on the AGC vector and a second SPS burn using updated mass properties data. These data are presented in Tables XId and XIe.
T+5:30	Confirmed that the RTCC had computed and loaded the proper end of mission aerodynamics of L/D = 0.34278
T+5:40	Computed ballistic entry data based on end of mission aerodynamics of L/D = 0.34278, assuming no second SPS burn. These data are presented in Table XIIIb.
T+5:45	Computed three-sigma low and three-sigma high aerodynamics and generated the corresponding table tapes. The resulting aerodynamics data are presented in Tables If and Ig, respectively.
T+6:00	Computed guided and ballistic entry S-band blackout data for the Recovery Operations Control Room. These data are presented in Tables XVIIIc and XVIIId, respectively.
T+6:27	Generated new ARIA data tape with new aircraft locations.
T+6:40	Computed guided entry data using three-sigma low and three-sigma high aerodynamics for nominal end of mission target, assuming no second SPS burn. These data are presented in Tables XVa and XVb, respectively.
T+6:48	Computed a navigation update on the target ellipse. The resulting navigation update is presented in Table VIIb.

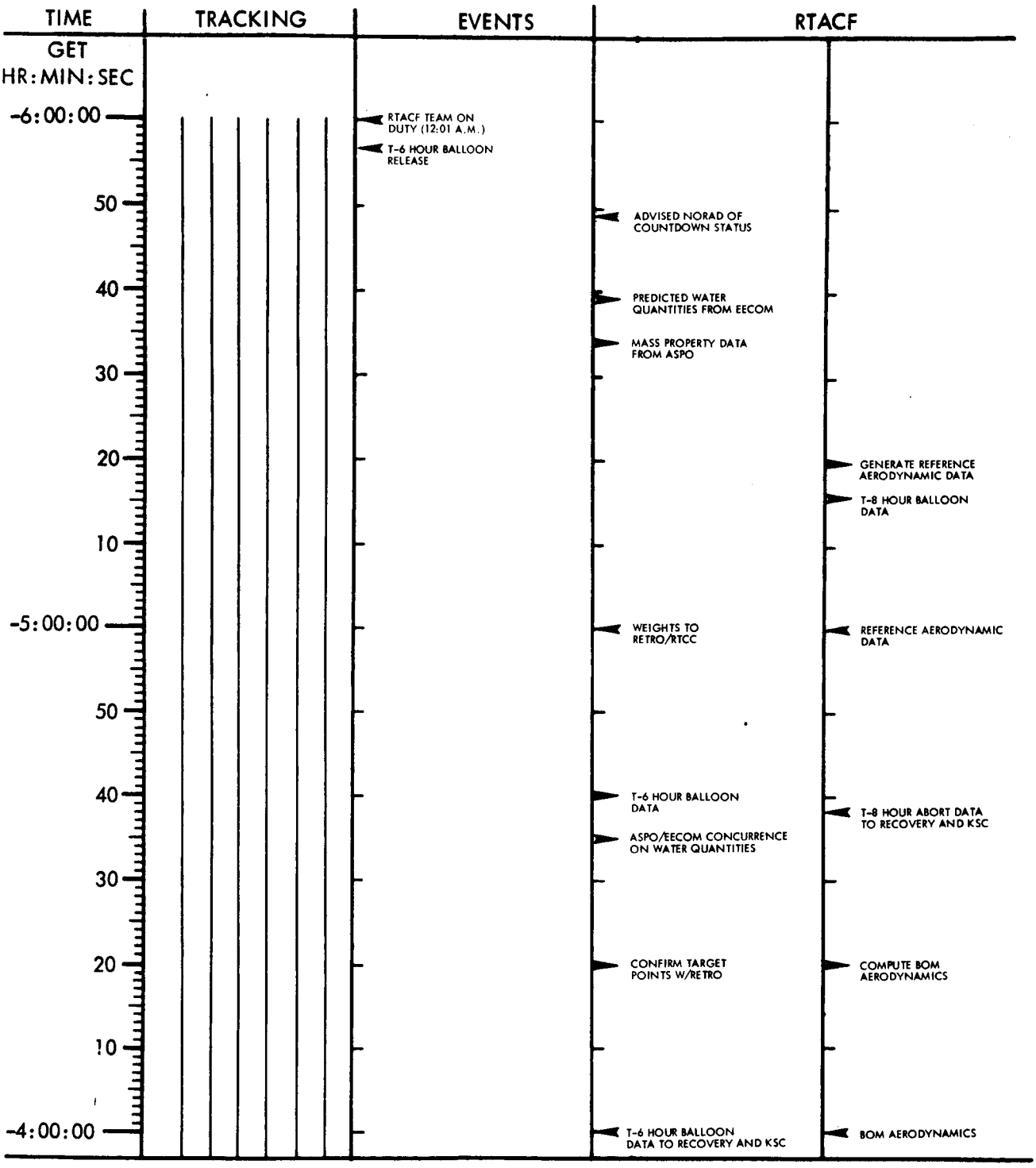
Time (g. e. t.) hr:min	Event
T+7:30	Computed radar tracking data and S-band blackout times for the ARIA aircraft based both on a guided entry and a ballistic entry. It was found that, for a ballistic entry, the ARIA aircraft had no acquisition. The ARIA data for a guided entry are presented in Table XIX.
T+7:32	Computed guided entry data based on three-sigma low and three-sigma high aerodynamics using the proposed updated end of mission target reflecting a 1,400-nautical mile entry range. These data are presented in Tables XVc and XVd, respectively.
T+7:40	Computed AGC landing point update load for a proposed end of mission target point reflecting approximately 1,400-nautical mile entry range. These data are presented in Table Xb.
T+7:55	Computed guided entry data to proposed updated target point using EOM aerodynamics. These data are presented in Table XIIIc.
T+8:15	Computed entry data and blackout data based on a full-lift entry. These data are presented in Table XIV.
T+8:30	Computed mission TWX data for the Postflight Observer. These data are presented in Tables XXIg and XXIh.

Time (g. e. t.) hr:min	Event
T+8:35	Computed end of mission aerodynamics based on the following updated water quantities received from EECOM: Potable water 30.5 lbs Waste water 7.0 lbs The resulting aerodynamics were used only for comparison with those being used. These data are presented in Table Ie.
T+8:49	Established IMU/AGCU alignment matrix based on gimbal angles received from the Guidance Officer. The IMU/AGCU gimbal angles received are presented in Table Va.
T+8:53	Computed attitude check between IMU and AGCU. These data are presented in Table Vb.
T+9:47	Computed predicted landing point data based on pre-entry vectors. These data are presented in Tables XVIa through XVIc.
T+10:08	Computed guided entry data based on 30 seconds of ullage and no second SPS burn. These data are presented in Table XVII.
T+10:15	Compiled a table of entry sequence of events for the Public Affairs Officer. These data are presented in Table XX.

PREDICTED
A-2/CSM-020 RTACF
WORK SCHEDULE



ACTUAL
A-2/CSM-020 RTACF
WORK SCHEDULE



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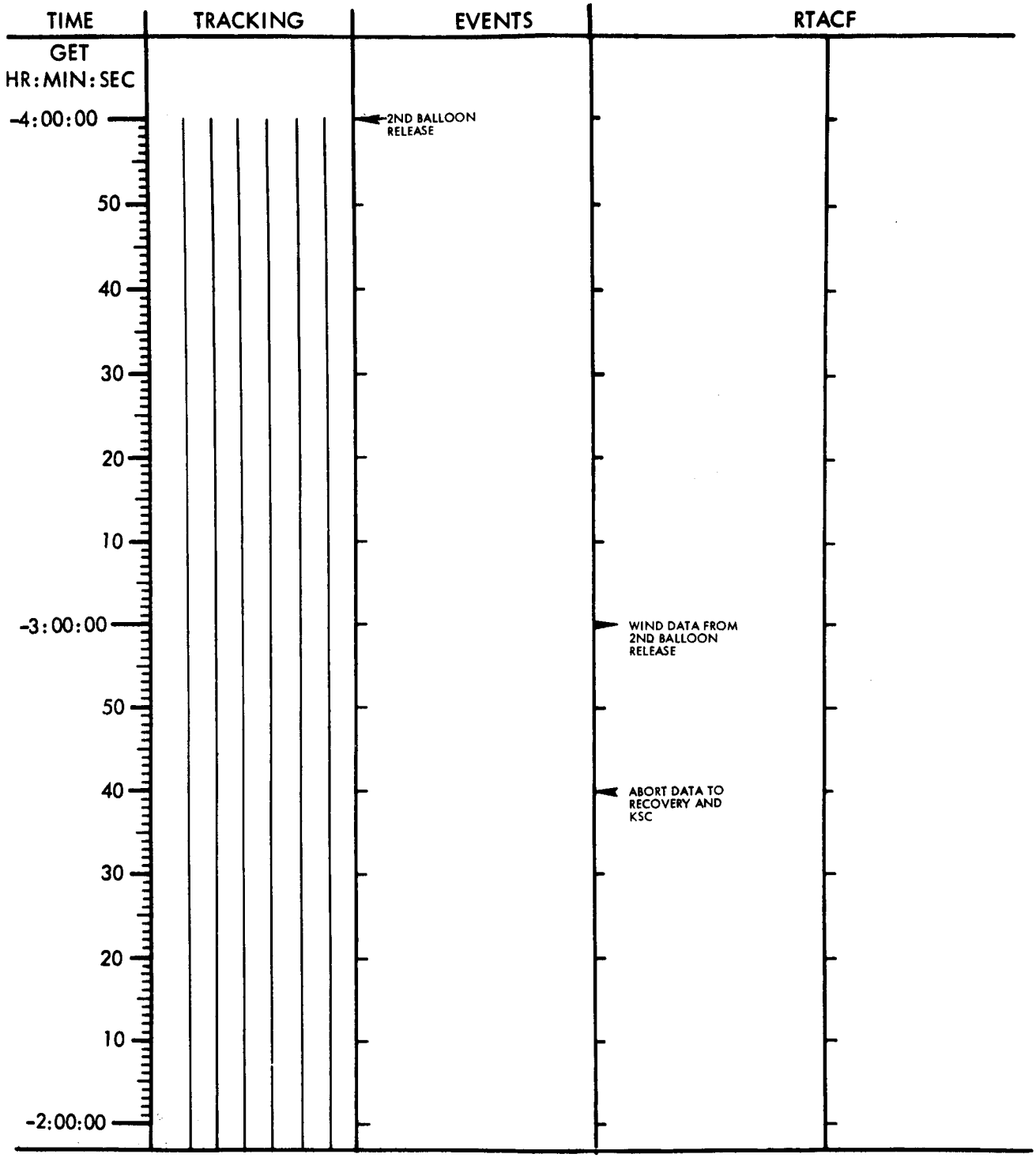

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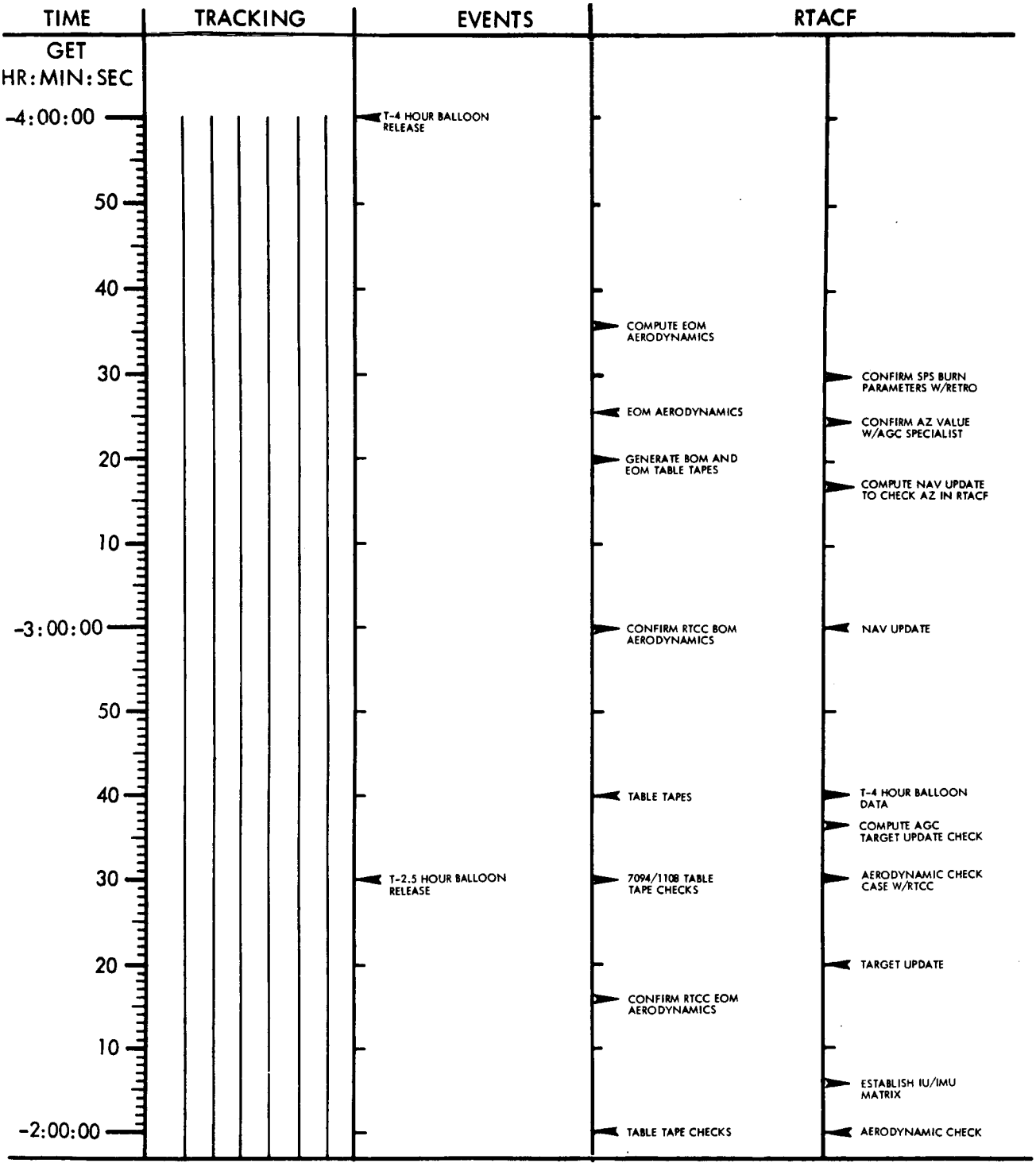

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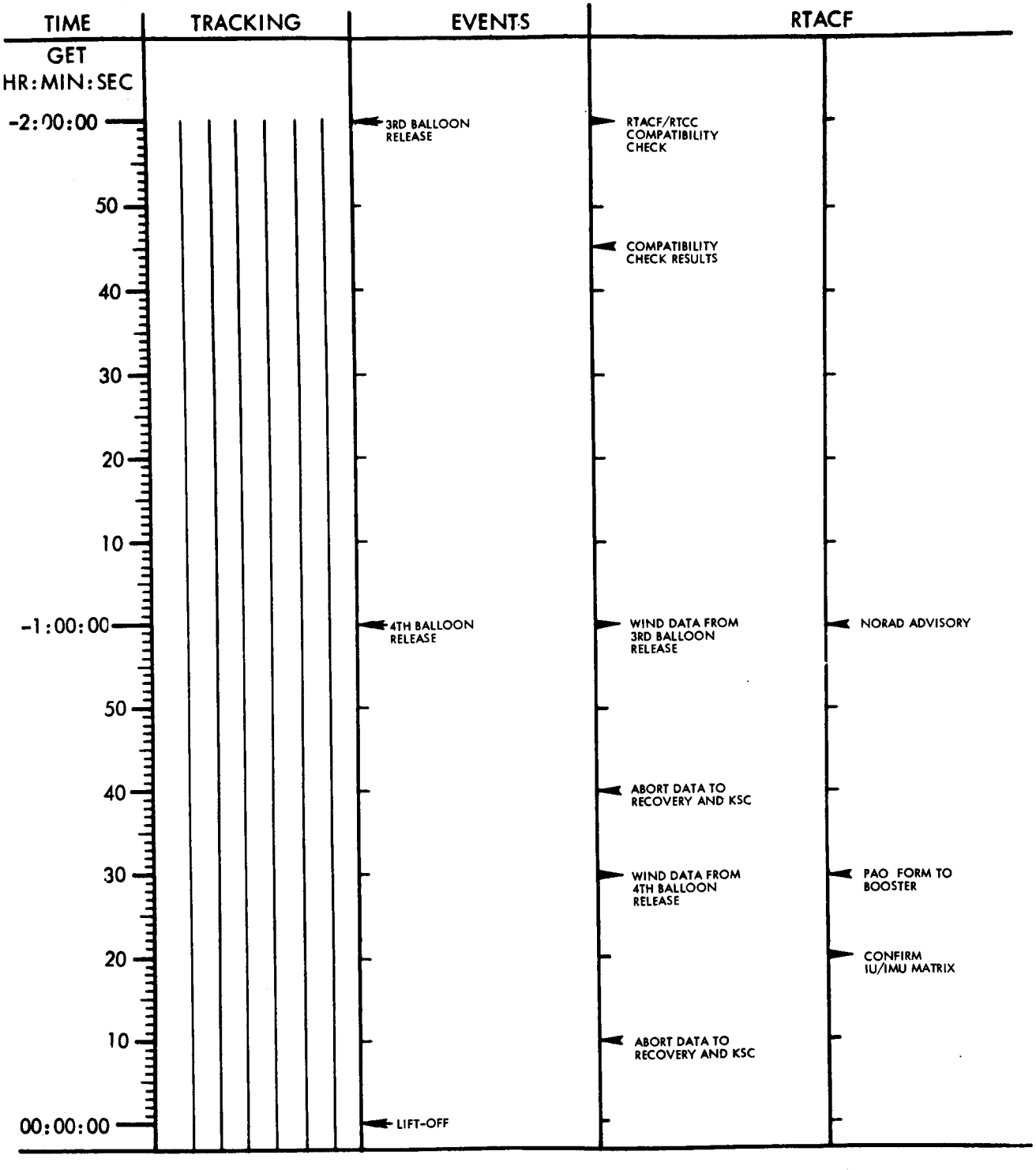

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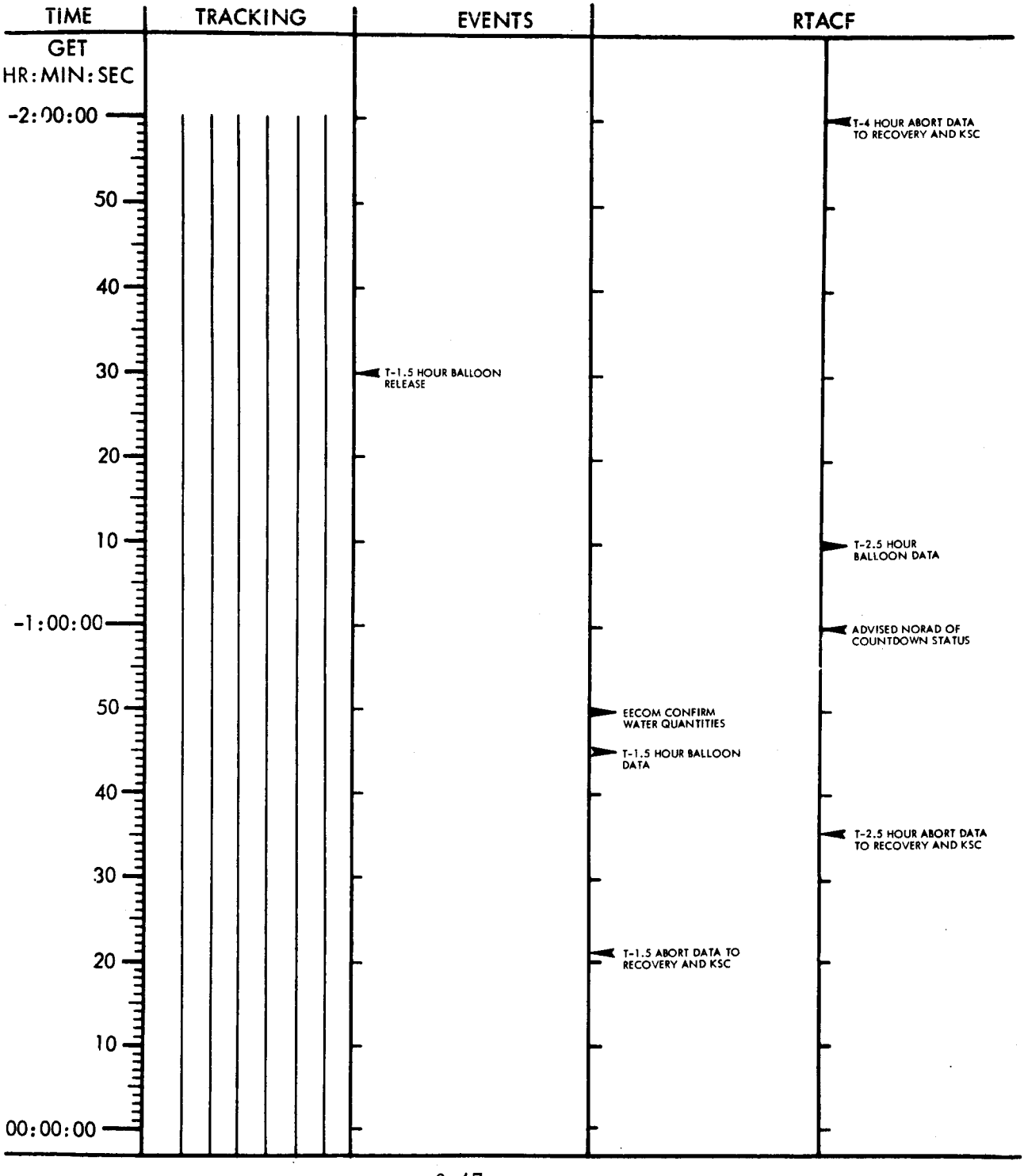

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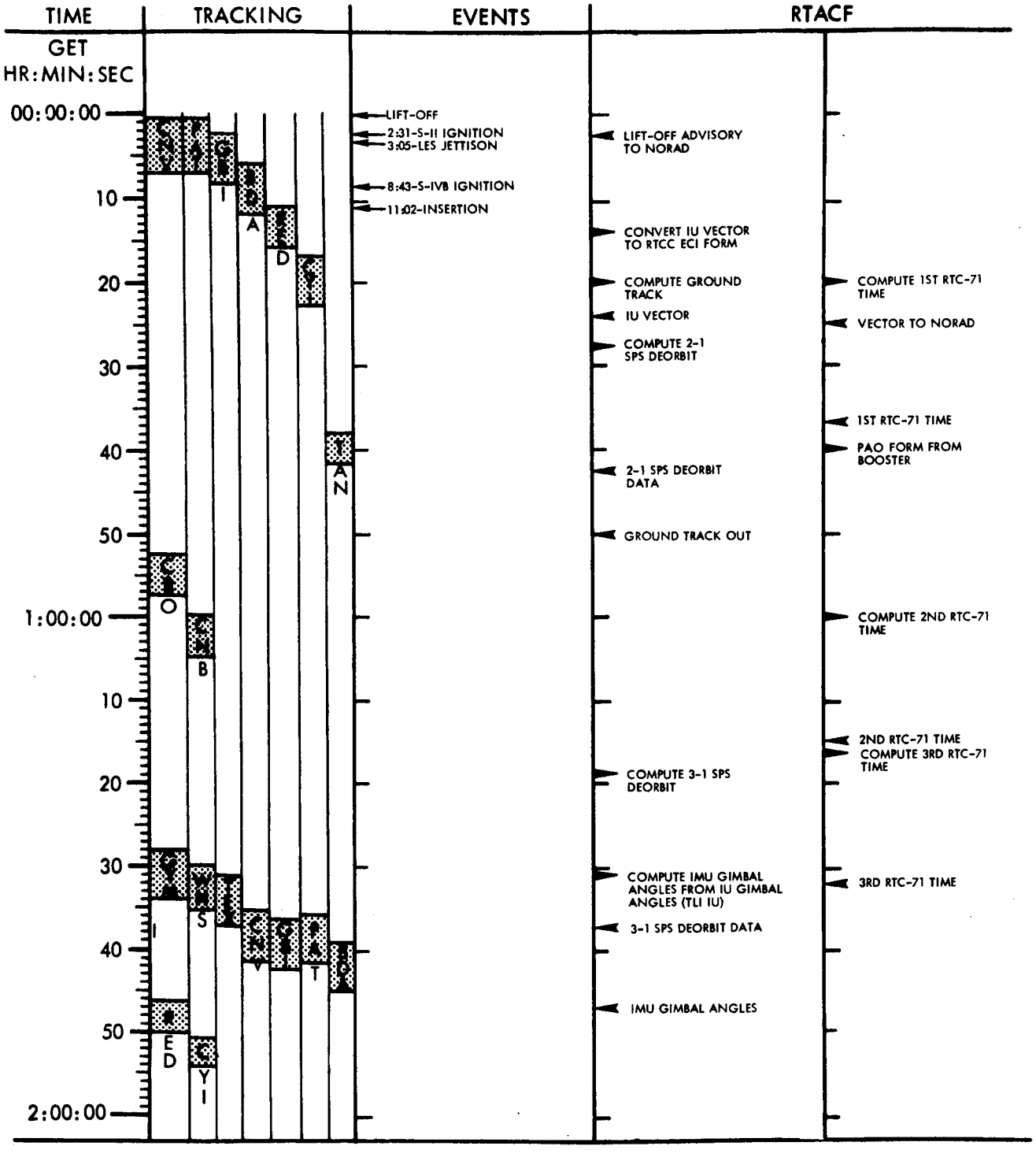

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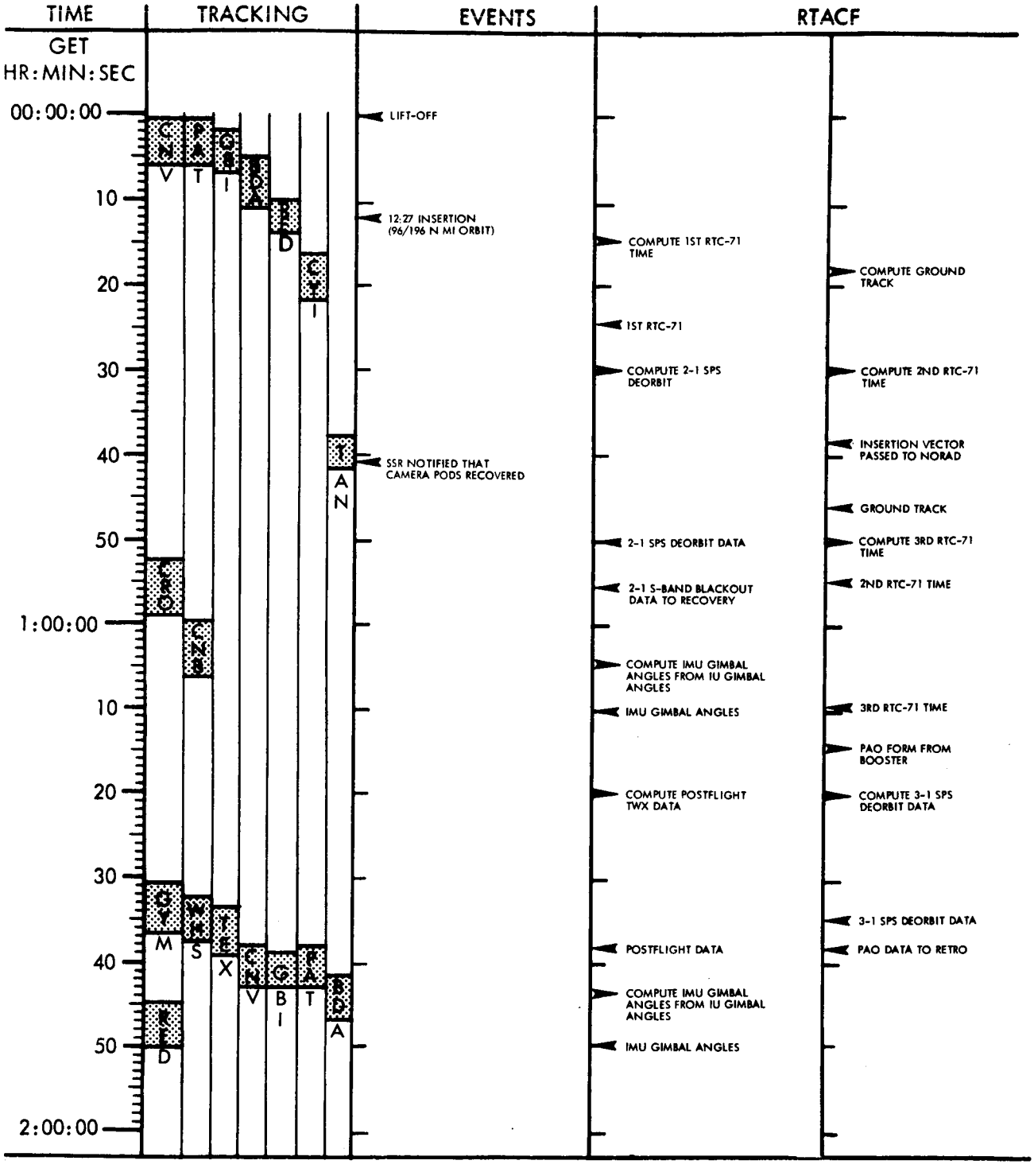

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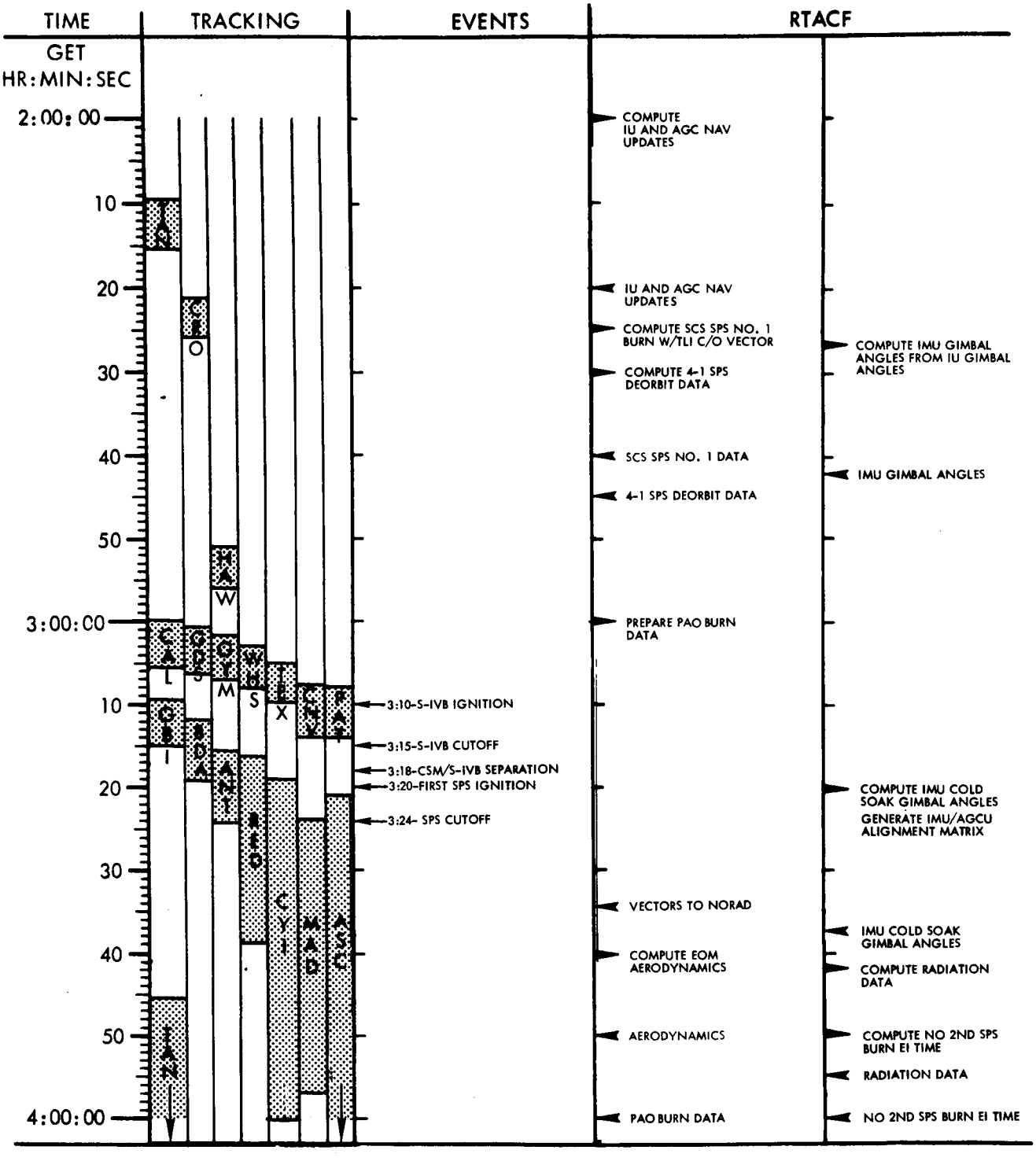
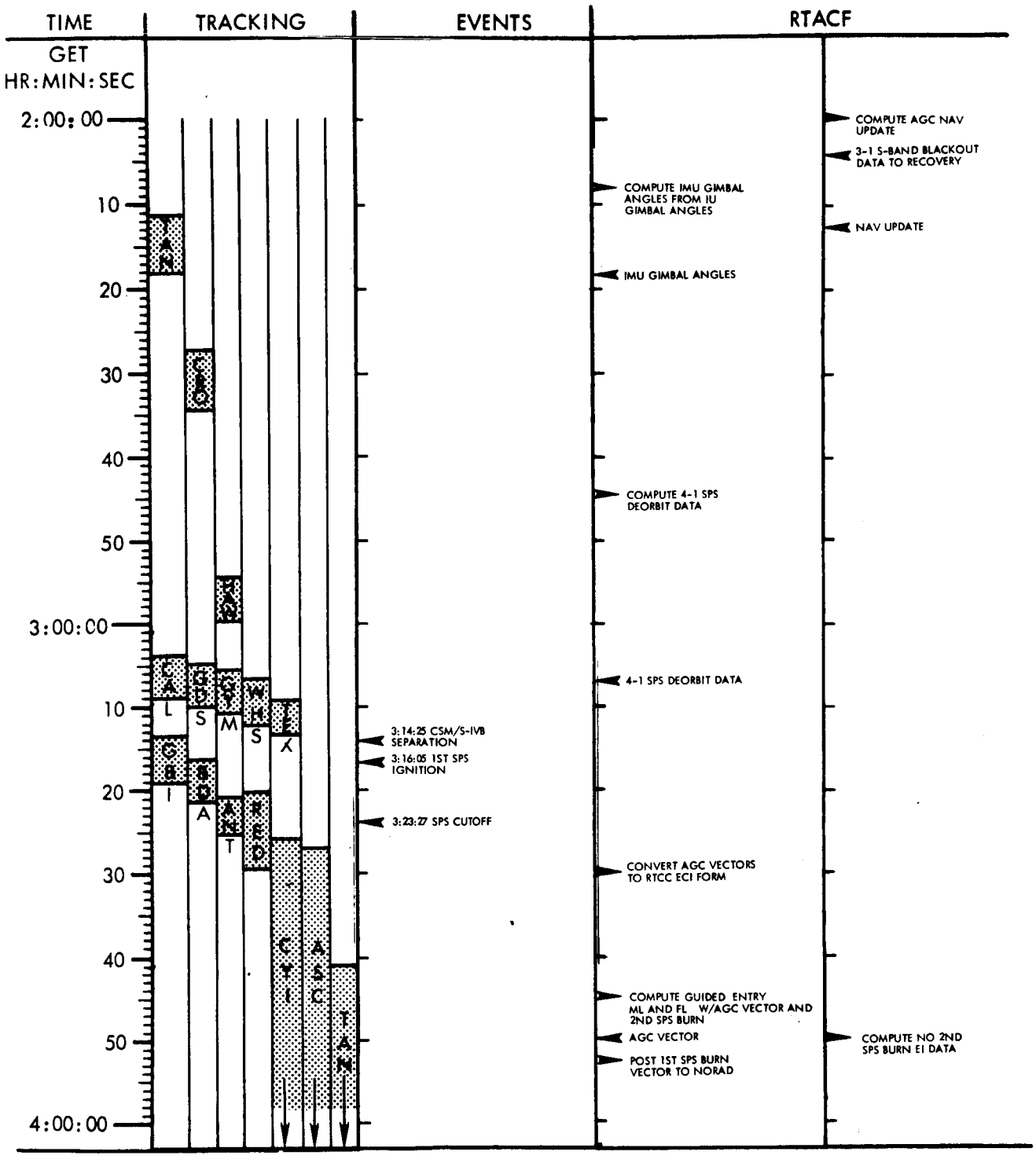
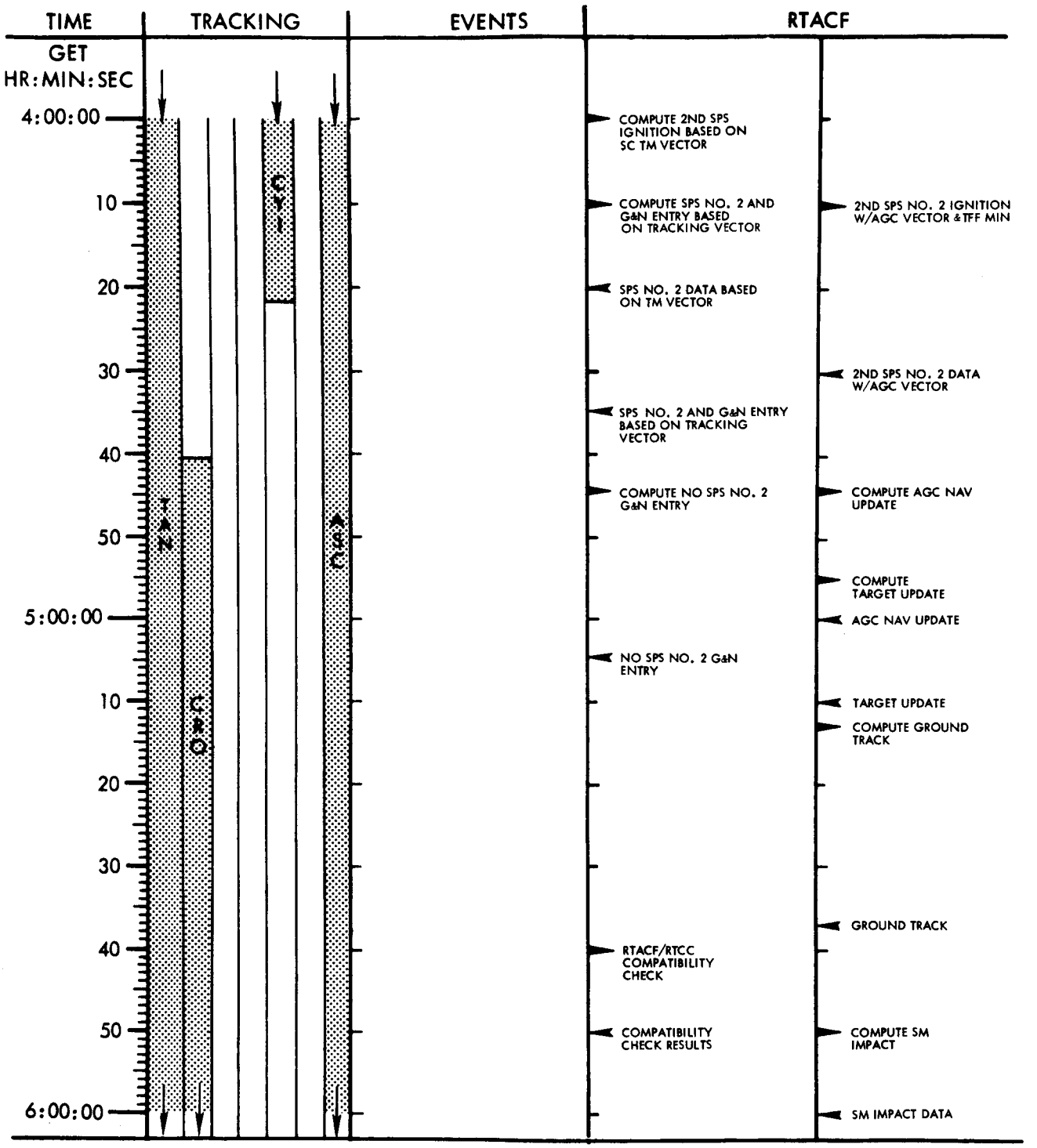


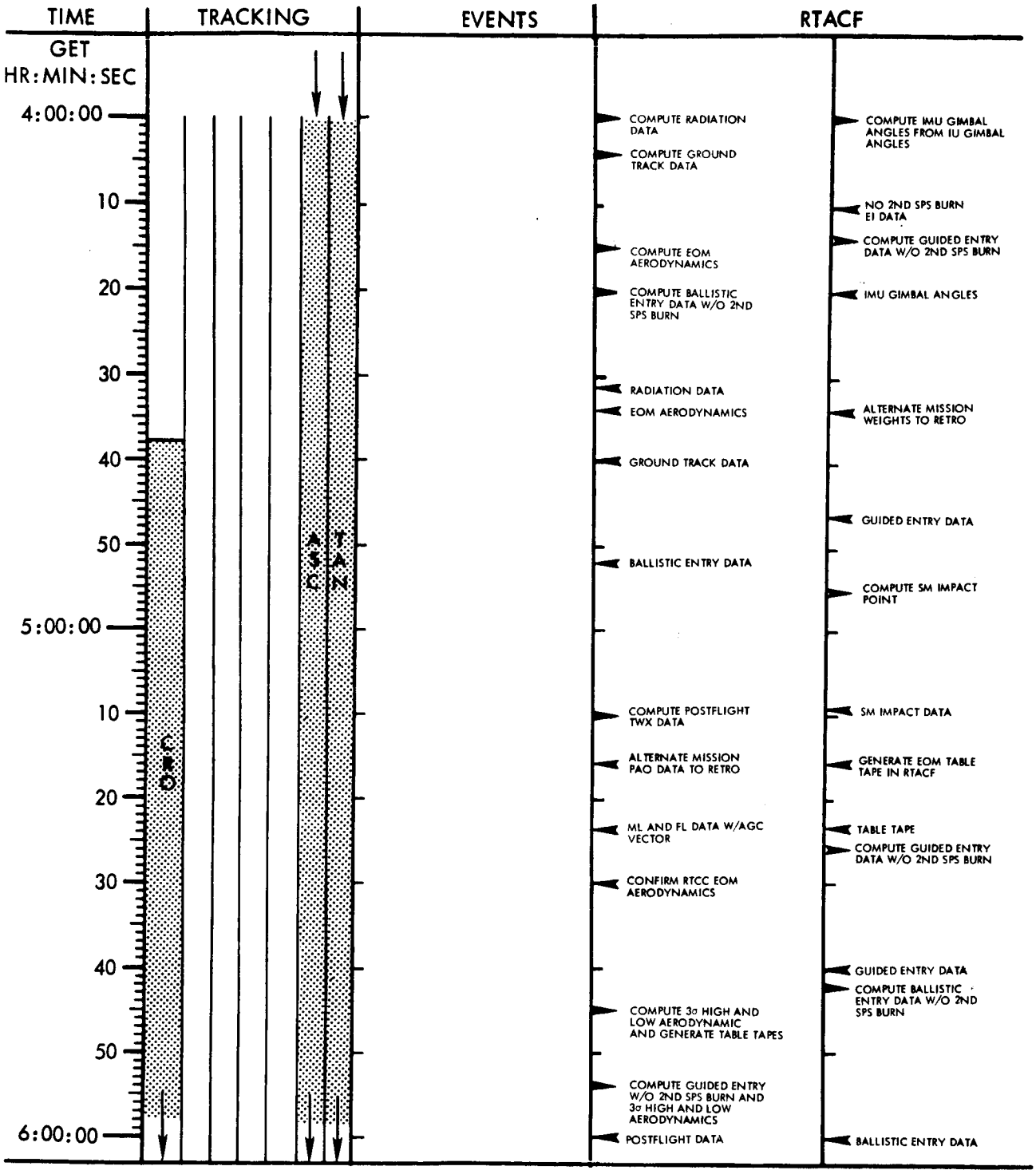
ACTUAL
A-2/CSM-020 RTACF
WORK SCHEDULE



PREDICTED
A-2/CSM-020 RTACF
WORK SCHEDULE



ACTUAL
A-2/CSM-020 RTACF
WORK SCHEDULE



PREDICTED
A-2/CSM-020 RTACF
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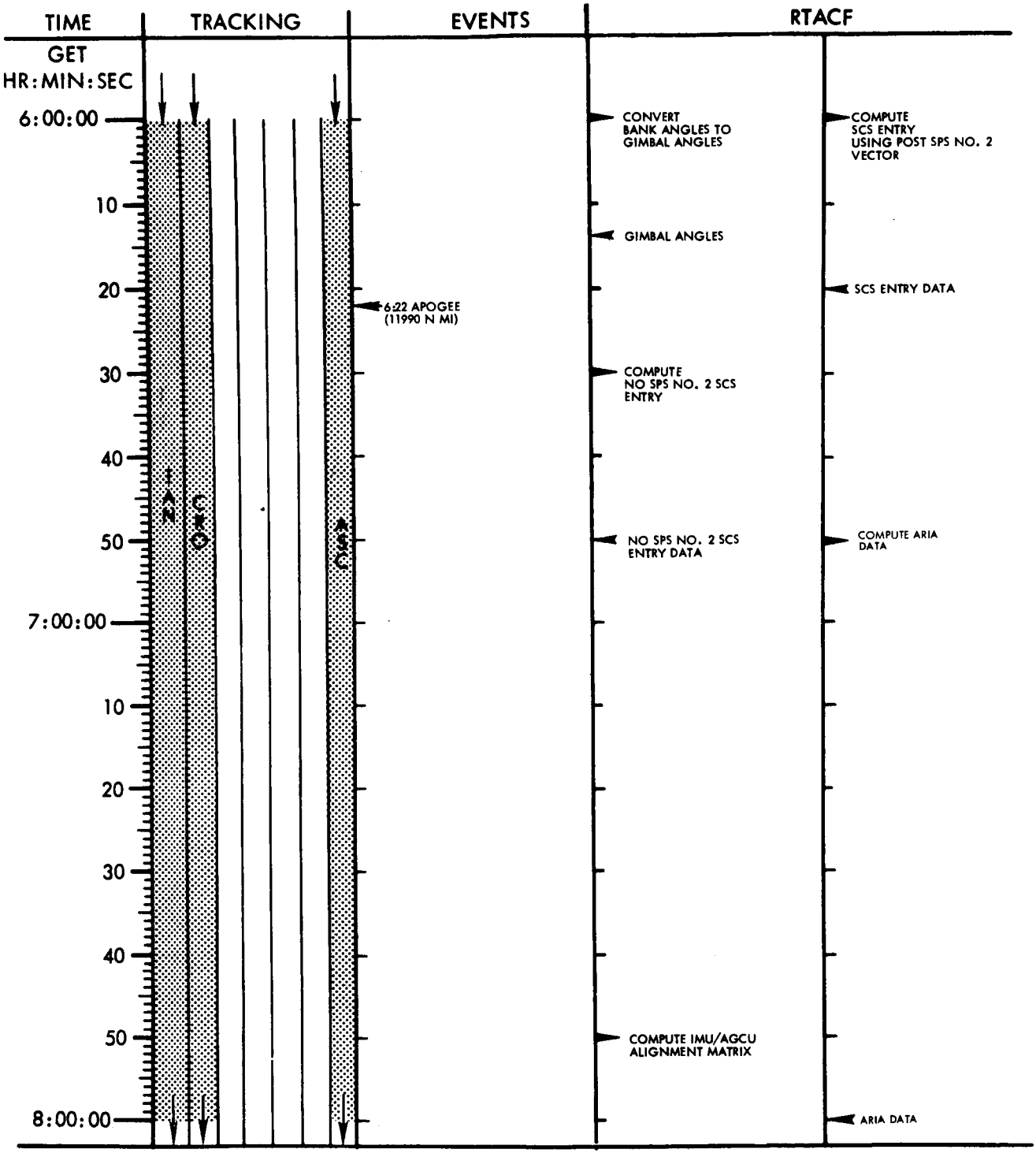

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A-2/CSM-020 RTACF
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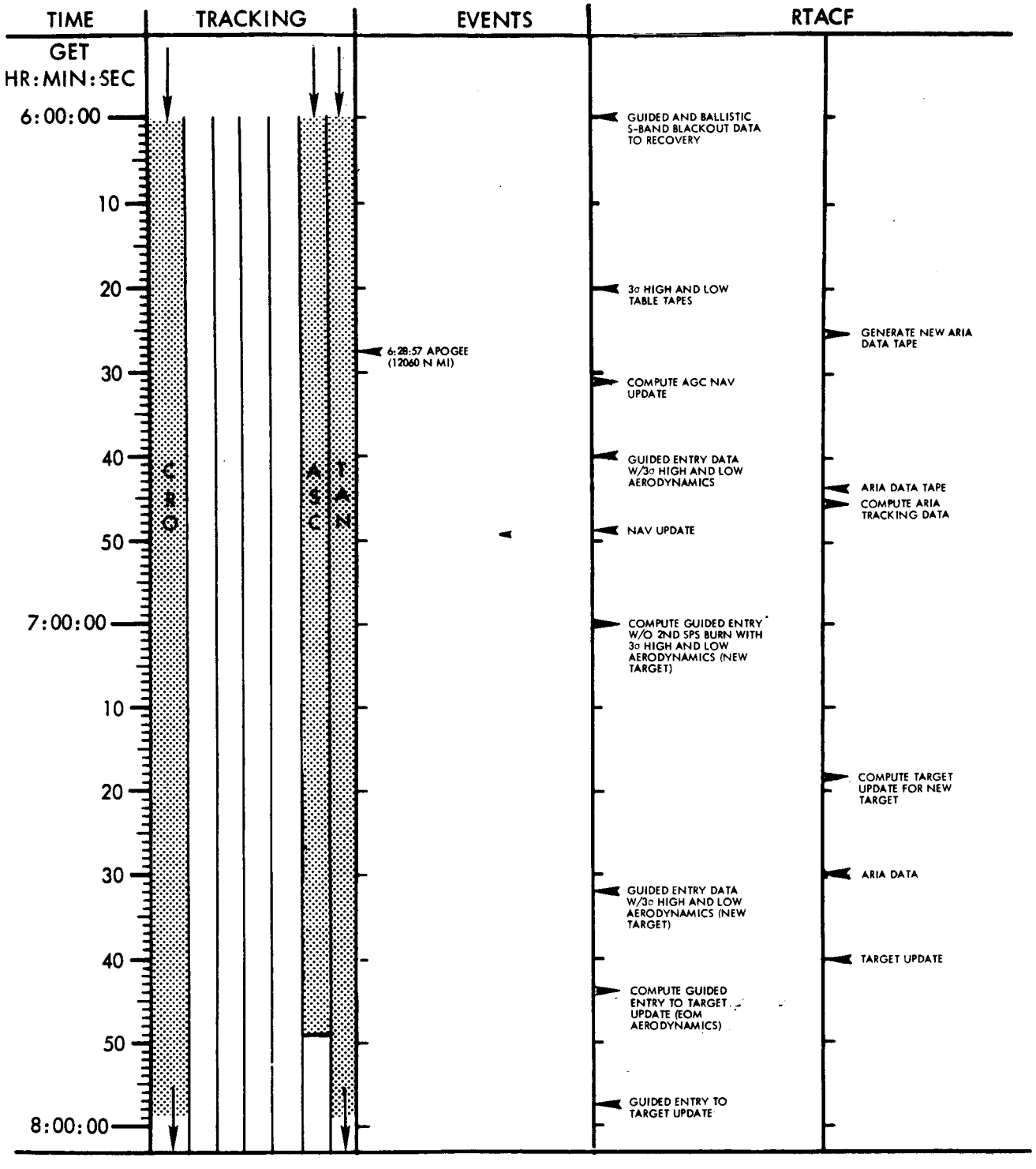
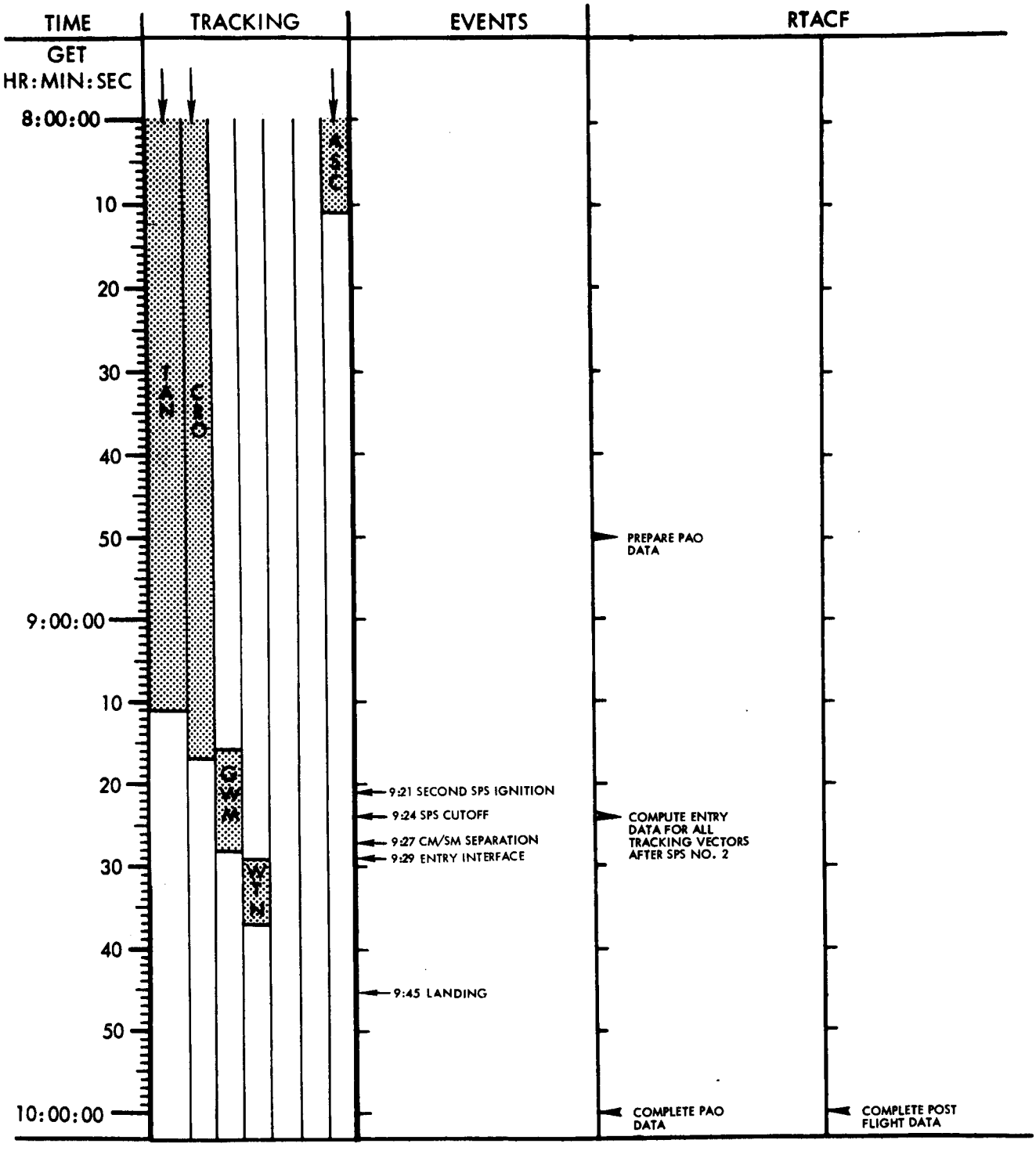
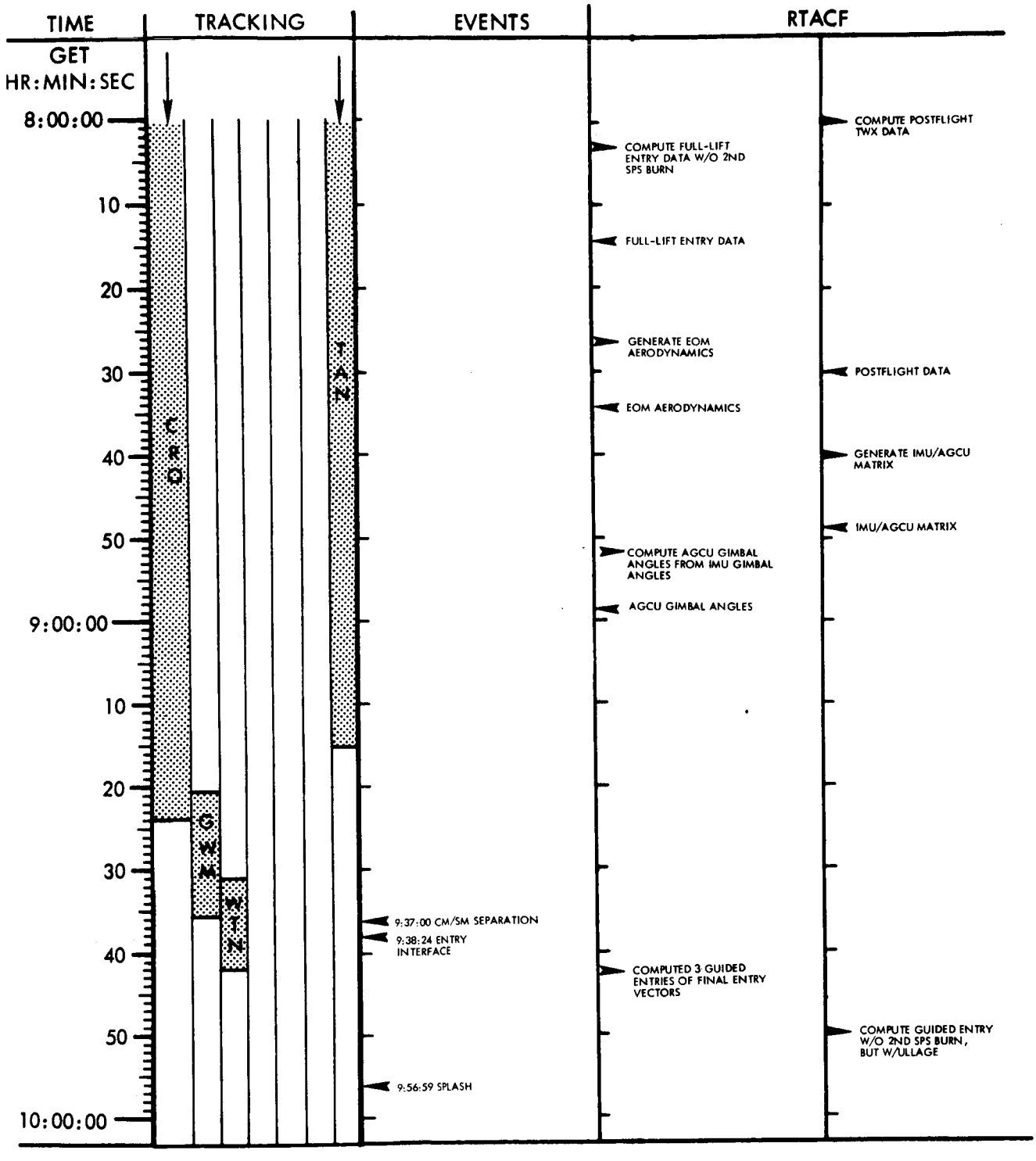


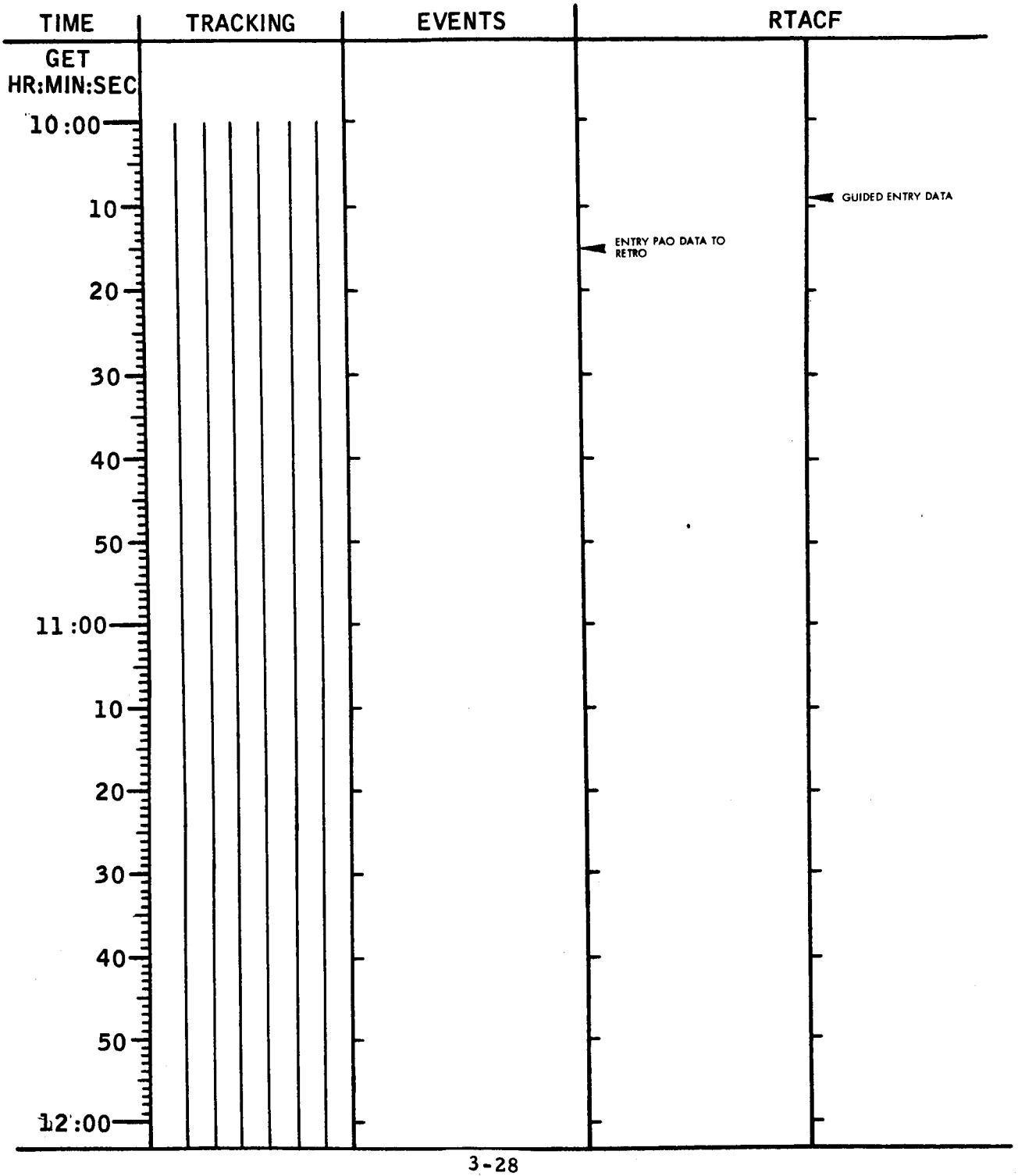
PREDICTED
A-2/CSM-020 RTACF
WORK SCHEDULE



ACTUAL
A-2/CSM-020 RTACF
WORK SCHEDULE



ACTUAL
A-2/CSM-020 RTACF
WORK SCHEDULE



4. RTACF MISSION DATA

This section of the Mission Report presents, in the form of tables and illustrations, the data generated by the Operational Support Team in support of Apollo Mission A-2/CSM-020.

Table I. Aerodynamics

Ia. CM Reference Weight and Center of Gravity Location

T Minus 6-Hour CM Weight and Center of Gravity Location

Weight	12,540.00 lbs
X c.g.	1,039.20 in.
Y c.g.	0.30 in.
Z c.g.	6.70 in.

Reference Potable Water, Waste Water, and RCS Propellant Weights and Locations

	Weight (lb)	X c.g. (in.)	Y c.g. (in.)	Z c.g. (in.)
Potable Water	-5.00	1022.60	-63.50	-16.40
Waste Water	-56.00	1022.60	-19.70	62.50
RCS Propellant	-10.00	1022.60	-5.70	57.00

Reference CM Weight and Center of Gravity Location

Weight	12,469.00 lbs
X c.g.	1,039.29 in.
Y c.g.	0.42 in.
Z c.g.	6.42 in.

Table I. Aerodynamics (Continued)

Ib. Beginning of Mission Aerodynamics

Reference CM Weight	12,469.00 lbs
Potable Water	11.00 lbs
Waste Water	55.00 lbs

Trim Aerodynamic Coefficients

X c.g.	1,039.21 in.
Y c.g.	0.28 in.
Z c.g.	6.64 in.
CM Weight	12,535.00 lbs
Delta X	-102.04 in.
Delta Z	6.6459 in.
Bank-angle Bias	2.41 deg

Mach No.	Alpha	CL	CD	CL/CD
0.40	160.86	0.38203	0.87277	0.43773
0.70	155.41	0.37627	0.93997	0.40030
0.90	149.48	0.46992	0.98152	0.47877
1.10	145.76	0.65528	1.05918	0.61867
1.20	144.51	0.67344	1.03819	0.64867
1.35	152.38	0.63075	1.26283	0.49947
1.65	151.66	0.57847	1.27058	0.45528
2.00	151.15	0.55588	1.25470	0.44303
2.40	151.35	0.53100	1.24518	0.42644
3.00	151.67	0.51119	1.19492	0.42780
4.00	152.29	0.48034	1.14722	0.41870
6.00	156.36	0.43594	1.22562	0.35569

Table I. Aerodynamics (Continued)

Ic. End of Mission Aerodynamics at Lift-off

Trim Aerodynamic Coefficients

X c. g.	1,039.24 in.
Y c. g.	0.25 in.
Z c. g.	6.41 in.
CM Weight	12,510.00 lbs
Delta X	-102.01 in.
Delta Z	6.4149 in.
Bank-angle Bias	2.23 deg

Mach No.	Alpha	CL	CD	CL/CD
0.40	161.34	0.37241	0.87659	0.42485
0.70	155.85	0.37079	0.94409	0.39275
0.90	150.07	0.46268	0.99091	0.46693
1.10	146.35	0.64900	1.06783	0.60778
1.20	145.01	0.66965	1.04412	0.64136
1.35	153.07	0.61970	1.27110	0.48753
1.65	152.32	0.57253	1.28042	0.44714
2.00	151.81	0.55206	1.26684	0.43578
2.40	152.07	0.52658	1.25908	0.41822
3.00	152.52	0.50594	1.21282	0.41716
4.00	153.15	0.47397	1.16511	0.40680
6.00	157.15	0.42694	1.24186	0.34379

Table I. Aerodynamics (Continued)

Id. Actual End of Mission Aerodynamics

Reference CM Weight	12,469.00 lbs
Potable Water	30.50 lbs
Waste Water	5.50 lbs

Trim Aerodynamic Coefficients

X c.g.	1,039.24 in.
Y c.g.	0.26 in.
Z c.g.	6.39 in.
CM Weight	12,505.00 lbs
Delta X	-102.01 in.
Delta Z	6.3953 in.
Bank-angle Bias	2.33 deg

Mach No.	Alpha	CL	CD	CL/CD
0.40	161.38	0.37163	0.87689	0.42381
0.70	155.89	0.37032	0.94444	0.39210
0.90	150.12	0.46205	0.99171	0.46591
1.10	146.41	0.64842	1.06860	0.60679
1.20	145.05	0.66931	1.04461	0.64073
1.35	153.13	0.61873	1.27180	0.48650
1.65	152.38	0.57199	1.28126	0.44643
2.00	151.87	0.55172	1.26784	0.43516
2.40	152.13	0.52617	1.26026	0.41751
3.00	152.60	0.50545	1.21431	0.41624
4.00	153.23	0.47338	1.16666	0.40575
6.00	157.22	0.42615	1.24322	0.34278

Table I. Aerodynamics (Continued)

Ie. Check of End of Mission Aerodynamics

Reference CM Weight	12,469.00 lbs
Potable Water	30.50 lbs
Waste Water	7.00 lbs

Trim Aerodynamic Coefficients

X c.g.	1,039.24 in.
Y c.g.	0.25 in.
Z c.g.	6.40 in.
CM Weight	12,506.50 lbs
Delta X	-102.01 in.
Delta Z	6.4049 in.
Bank-angle Bias	2.24 deg

Mach No.	Alpha	CL	CD	CL/CD
0.40	161.36	0.37205	0.87673	0.42436
0.70	155.87	0.37055	0.94427	0.39242
0.90	150.09	0.46237	0.99131	0.46643
1.10	146.38	0.64872	1.06822	0.60729
1.20	145.03	0.66949	1.04437	0.64104
1.35	153.10	0.61921	1.27146	0.48701
1.65	152.35	0.57225	1.28085	0.44678
2.00	151.84	0.55188	1.26736	0.43546
2.40	152.10	0.52637	1.25969	0.41786
3.00	152.56	0.50569	1.21358	0.41670
4.00	153.19	0.47367	1.16590	0.40627
6.00	157.19	0.42653	1.24258	0.34326

Table I. Aerodynamics (Continued)

If. Three-Sigma Low Aerodynamics

Trim Aerodynamic Coefficients

X c.g.	1,039.50 in.
Y c.g.	0.00 in.
Z c.g.	5.62 in.
CM Weight	12,505.00 lbs
Delta X	-101.75 in.
Delta Z	5.6200 in.

Mach No.	Alpha	CL	CD	CL/CD
0.40	162.99	0.33850	0.88833	0.38105
0.70	157.40	0.35231	0.95733	0.36801
0.90	152.12	0.43619	1.02265	0.42653
1.10	148.45	0.62295	1.10048	0.56607
1.20	146.98	0.64918	1.06614	0.60891
1.35	155.37	0.57934	1.29715	0.44663
1.65	154.46	0.55033	1.31041	0.41997
2.00	153.96	0.53594	1.30375	0.41108
2.40	154.45	0.50710	1.30067	0.38988
3.00	155.46	0.48005	1.27007	0.37797
4.00	156.10	0.44730	1.22363	0.36555
6.00	159.86	0.39242	1.29534	0.30294

Table I. Aerodynamics (Continued)

Ig. Three-Sigma High Aerodynamics

Trim Aerodynamic Coefficients

X c. g.	1,039.50 in.
Y c. g.	00.00 in.
Z c. g.	7.71 in.
CM Weight	12,505.00 lbs
Delta X	-101.75 in.
Delta Z	7.7100 in.

Mach No.	Alpha	CL	CD	CL/CD
0.40	158.82	0.42107	0.85489	0.49255
0.70	153.47	0.40101	0.92021	0.43578
0.90	146.79	0.49976	0.93737	0.53315
1.10	143.10	0.67551	1.02748	0.65744
1.20	142.08	0.68411	1.00688	0.67944
1.35	149.17	0.67578	1.21974	0.55404
1.65	148.09	0.60262	1.21298	0.49681
2.00	147.76	0.56675	1.18698	0.47748
2.40	147.81	0.54255	1.16732	0.46478
3.00	147.73	0.52362	1.10734	0.47286
4.00	148.45	0.50093	1.06295	0.47127
6.00	152.62	0.46927	1.14507	0.40982

Table II. Time to Send Real-Time Command 71 (RTC-71)

IIa.	First RTC-71	
	Vector used	INSE 000 No. 1
	Computed time to send command	1:40:29 g. e. t.
	Latitude of guided landing point	29:31 N
	Longitude of guided landing point	158:54 W
	Entry range	1543 n mi
	Percent burn to achieve Pacific landing	92. 0%
IIb.	Second RTC-71	
	Vector used	CYIC 004 No. 12
	Computed time to send command	3:15:38 g. e. t.
	Latitude of guided landing point	27:30 N
	Longitude of guided landing point	157:51 W
	Entry range	1582 n mi
	Percent burn to achieve Pacific landing	91. 8%
IIc.	Third RTC-71	
	Vector used	CYIC 004 No. 12
	Computed time to send command	4:54:18 g. e. t.
	Latitude of guided landing point	17:12 N
	Longitude of guided landing point	155:48 W
	Entry range	1181 n mi
	Percent burn to achieve Pacific landing	91. 8%

Table III. SPS Deorbits

	IIIa	IIIb	IIIc
Recovery area	2-1	3-1	4-1
Vector used	INSE 000 No. 10	CROS 014 No. 15	BDQC 025 No. 22
CSM/S-IVB separation (g. e. t.)	00:55:00	02:31:00	03:13:00
SPS ignition (g. e. t.)	01:35:00	03:13:00	04:45:00
Longitude of SPS ignition	104:48 W	91:31 W	105:11 W
Burn duration (sec)	56.1	70.0	47.7
Total delta velocity (ft/sec)	709.7	893.6	600.3
SPS cutoff (g. e. t.)	01:35:56	03:14:10	04:45:48
Entry interface, EI, (g. e. t.)	01:41:23	03:17:55	04:51:26
Latitude of EI	32:43 N	29:31 N	24:50 N
Longitude of EI	76:49 W	69:45 W	77:56 W
Velocity of EI (ft/sec)	25,535	25,416	25,613
Flight-path angle at EI (deg)	-2.397	-2.344	-1.559
Begin C-band blackout (g. e. t.)	01:44:07	03:20:40	04:55:31
Exit C-band blackout (g. e. t.)	01:45:27	03:21:55	04:57:01
Landing (g. e. t.)	01:53:38	03:30:06	05:05:19
Latitude of landing	31:41 N	24:05 N	14:30 N
Longitude of landing	57:50 W	53:05 W	57:00 W
IMU attitudes (deg)			
SPS burn			
Pitch (inner)	102.8	69.0	62.0
Yaw (middle)	358.9	1.0	358.7
Roll (outer)	180.1	181.0	179.4
CM/SM separation			
Pitch (inner)	290.0	263.2	249.5
Yaw (middle)	1.0	1.2	1.3
Roll (outer)	179.8	180.2	180.5
Entry interface			
Pitch (inner)	52.0	25.9	12.3
Yaw (middle)	359.1	358.2	358.2
Roll (outer)	181.5	182.0	180.6

Table IV. Launch Vehicle/Spacecraft Gimbal Angle Conversions

		Launch Vehicle (IU) Gimbal Angles (deg)	Spacecraft (IMU) Gimbal Angles (deg)
IVa.	IU/IMU Matrix Alignment at Lift-off		
	Pitch	359.9	328.6
	Yaw	359.9	9.6
	Roll	341.7	164.5
IVb.	IU to IMU Conversion No. 1		
	Pitch	44.3	76.9
	Yaw	359.4	359.2
	Roll	179.4	359.9
IVc.	IU to IMU Conversion No. 2		
	Pitch	275.1	307.7
	Yaw	1.1	1.0
	Roll	180.0	359.5
IVd.	IU to IMU Conversion No. 3		
	Pitch	201.4	168.8
	Yaw	359.1	359.4
	Roll	359.6	179.3
IVe.	IU to IMU Conversion No. 4		
	Pitch	230.8	198.2
	Yaw	2.1	1.9
	Roll	359.6	180.9

Table V. Spacecraft/Attitude Gyro Coupling Unit Gimbal Angle Conversions

		IMU Gimbal Angles (deg)	AGCU Gimbal Angles (deg)
Va.	IMU/AGCU Matrix at FDAI Alignment		
	Pitch	160.9	176.0
	Yaw	359.2	356.0
	Roll	58.0	355.0
Vb.	IMU to AGCU Conversion		
	Pitch	67.0	72.6
	Yaw	0.	345.6
	Roll	1.0	298.1

Table VI. SPS Deorbit for Aerodynamics Check

Recovery area	2-1
Vector used	INSE 000 No. 8
CSM/S-IVB separation (g. e. t.)	00:55:00
SPS ignition (g. e. t.)	01:32:30
Longitude of SPS ignition	106:49 W
Burn duration (sec)	58.1
Total delta velocity (ft/sec)	735.5
SPS cutoff (g. e. t.)	01:33:28
Entry interface, EI, (g. e. t.)	01:38:38
Latitude of EI	32:29 N
Longitude of EI	80:17 W
Velocity at EI (ft/sec)	25,359
Flight-path angle at EI (deg)	-2.016
Begin C-band blackout (g. e. t.)	01:41:48
Exit C-band blackout (g. e. t.)	01:43:07
Landing (g. e. t.)	01:51:19
Latitude of landing	31:52 N
Longitude of landing	59:25 W
IMU attitudes (deg)	
SPS burn	
Pitch (inner)	105.0
Yaw (middle)	3.0
Roll (outer)	182.0
CM/SM separation	
Pitch (inner)	294.0
Yaw (middle)	1.1
Roll (outer)	179.7
Entry interface	
Pitch (inner)	56.7
Yaw (middle)	359.0
Roll (outer)	181.5

Table VII. Navigation Updates

VIIa. Nav-update in Earth Parking Orbit

Vector used	BDQC 025 No. 22	
Weight	261,655 lbs	

	Engineering Units	AGC Octal	
X (ft)	7.1082542E 06	01020	36441
Y (ft)	-1.7719969E 07	75331	54172
Z (ft)	1.0266524E 07	01373	37153
XDOT (ft/sec)	2.1299131E 04	20165	27644
YDOT (ft/sec)	1.2631975E 04	11500	11437
ZDOT (ft/sec)	6.4055028E 03	04703	02262
Time (g. e. t.)	3:05:0.0	00103	27760
AZ (deg)	1.9236877E 02		

VIIb. Nav-update on Target Ellipse

Vector	ASCS 076 No. 41	
Weight	25,642 lbs	

	Engineering Units	AGC Octal	
X (ft)	-1.5386793E 07	75606	40077
Y (ft)	-3.1904630E 07	73271	72746
Z (ft)	3.8731900E 06	00440	07033
XDOT (ft/sec)	2.0927901E 04	17744	35115
YDOT (ft/sec)	5.307622E 03	04026	27553
ZDOT (ft/sec)	8.8994001E 03	06620	01573
Time (g. e. t.)	9:15:31.46	00313	16032
AZ (deg)	1.9236877E 02		
TFF (sec)	1.3695808E 03		

Table VIII. Conversion of AGC Vector to RTCC ECI Form

	Time of GRR (GMT)		12:00:2.2	
	Time of Vector (GMT)		21:15:33.56	
	Input (ft-ft/sec)	Input (km-m/sec)	Output (ft-ft/sec)	Output (er-er/hr)
X	0.22959056E 08	0.69979340E 04	0.20936703E 08	0.10005240E 01
Y	-0.56548600E 06	-0.17236047E 03	0.27837821E 08	0.13303149E 01
Z	-0.26534112E 08	-0.80876132E 04	0.42669885E 07	0.20391101E 00
XDOT	0.65920000E 04	0.20092456E 04	-0.21865074E 05	-0.37616005E 01
YDOT	0.56800000E 03	0.17312674E 03	-0.10813866E 04	-0.18603844E 00
ZDOT	0.22659000E 05	0.69064767E 04	0.88292961E 04	0.15189651E 01

Table IX. Service Module Impact Data

Vector used	ASCS 052 No. 35
Time of entry interface (g. e. t.)	9:38:25
Latitude of entry interface	32:33 N
Longitude of entry interface	166:02 E
Time of 25,000 feet altitude (g. e. t.)	9:43:01
Latitude of 25,000 feet altitude	32:10 N
Longitude of 25,000 feet altitude	177:46 E

Table X. AGC Landing Point Updates

Xa. Pacific Target Point Update Check

Geodetic latitude of target	27.3250 N
Longitude of target	157.1790 W
Geocentric latitude of target	27.1684 N

	Engineering Data	AGC Octal	
T	9:43:34 (g. e. t.)	00325	26530
X	0.48939992 E 00	07651	05202
Y	0.17083116 E-01	00213	36171
Z	0.87189207 E 00	15746	21215

Xb. Proposed Pacific Target Point Update

Geodetic latitude of target	29.8000 N
Longitude of target	167.8000 W
Geocentric latitude of target	29.6343 N

	Engineering Data	AGC Octal	
T	10:03:0.0 (g. e. t.)	00334	32320
X	0.57166816 E 00	11113	03301
Y	0.22184364 E-02	00022	05432
Z	0.82048187 E 00	15101	14314

Table XI. Entry Data Based on AGC Vector

XIa. No Second SPS Burn EI Conditions

XIb. Second SPS Burn Guided Entry; L/O End of Mission Aerodynamics

XIc. Second SPS Burn Guided Entry; Updated Mass Properties

Event	XIa.	XIb.	XIc.
Time of ignition (g. e. t.)	-	9:29:12	9:29:12
Time of cutoff (g. e. t.)	-	9:29:36	9:29:44
Burn duration (sec)	-	24.0	37.7
SPS burn delta velocity (ft/sec)	-	691	921
Resulting semilatus rectum (n mi)	-	5,854	5,921
Resulting eccentricity	-	0.6914	0.7104
IMU ignition attitude (deg)			
Pitch (inner)	-	273.3	273.3
Yaw (middle)	-	2.8	2.8
Roll (outer)	-	358.3	358.3
Time of entry interface (g. e. t.)	9:37:43	9:37:24	9:37:18
Latitude of entry interface	32:43 N	32:42 N	32:42 N
Longitude of entry interface	166:16 E	165:29 E	165:10 E
Velocity at entry interface (ft/sec)	32,807	33,387	33,578
Flight-path angle at entry interface (deg)	-5.956	-5.916	-5.941
Weight at entry interface (lb)	-	12,510	12,505
IMU attitude at entry interface(deg)			
Pitch (inner)	-	67.3	67.5
Yaw (middle)	-	358.8	358.8
Roll (outer)	-	359.3	359.2
Latitude of target	-	27:20 N	27:20 N
Longitude of target	-	157:11 W	157:11 W
Latitude of landing	-	27:22 N	27:19 N
Longitude of landing	-	157:17 W	157:11 W
Drogue chute deploy (g. e. t.)	-	9:50:29	9:49:12
Main chute deploy (g. e. t.)	-	9:51:18	9:50:01
Landing (g. e. t.)	-	9:56:30	9:55:13
Entry range (n mi)	-	1,956	1,979
Max g's	-	4.7	4.7
L/D	-	0.3438	0.3438

Table XI. Entry Data Based on AGC Vector (Continued)

XId. Second SPS Burn Full-lift Entry; Updated Mass Properties

XIe. Second SPS Burn Zero-lift Entry; Updated Mass Properties

Event	XId.	XIe.
Time of ignition (g. e. t.)	09:29:12	09:29:12
Time of cutoff (g. e. t.)	09:29:44	09:29:44
Burn duration (sec)	32.7	32.7
SPS burn delta velocity (ft/sec)	920.9	920.9
Resulting semilatus rectum (n mi)	5,920.6	5,920.6
Resulting eccentricity	0.7104	0.7104
IMU ignition attitude (deg)		
Pitch (inner)	273.3	273.3
Yaw (middle)	2.8	2.8
Roll (outer)	358.3	358.3
Time of entry interface (g. e. t.)	09:37:18	09:37:18
Latitude of entry interface	32:42 N	32:42 N
Longitude of entry interface	165:10 E	165:10 E
Velocity at entry interface (ft/sec)	33,578	33,578
Flight-path angle at entry interface (deg)	-5.94	-5.94
Weight at entry interface (lb)	12,505	12,505
IMU attitude at entry interface (deg)		
Pitch (inner)	67.5	67.5
Yaw (middle)	359.2	359.2
Roll (outer)	1.5	1.5
Latitude of landing	31:40 S	32:05 N
Longitude of landing	9:53 W	178:44 E
Landing (g. e. t.)	10:37:07	09:47:47
L/D	0.3438	0.3438

Table XII. Entry Data Based on L/O End of Mission Aerodynamics

XIIa. No Second SPS Burn Guided Entry

XIIb. No Second SPS Burn Ballistic Entry

Event	XIIa.	XIIb.
Vector used	ASCS 052 No. 35	ASCS 052 No. 35
Time of entry interface (g. e. t.)	9:38:26	9:38:26
Latitude of entry interface	32:43 N	32:43 N
Longitude of entry interface	166:08 E	166:08 E
Velocity at entry interface (ft/sec)	32,811	32,811
Flight-path angle at entry interface (deg)	-5.921	-5.921
Weight at entry interface (lb)	12,510	12,510
IMU attitude at entry interface (deg)		
Pitch (inner)	66.5	66.5
Yaw (middle)	358.8	359.2
Roll (outer)	359.3	1.5
Latitude of target	27:20 N	27:20 N
Longitude of target	157:11 W	157:11 W
Latitude of landing	28:47 N	32:02 N
Longitude of landing	162:17 W	179:13 E
Drogue chute deploy (g. e. t.)	9:50:01	9:42:53
Main chute deploy (g. e. t.)	9:50:50	9:43:41
Landing (g. e. t.)	9:56:02	9:48:53
Entry range (n mi)	1,645	-
Max g's	4.9	13.8
L/D	0.3438	0.3438

Table XIII. Entry Data Based on Final End of Mission Aerodynamics

XIIIa. No Second SPS Burn Guided Entry to Nominal Target

XIIIb. No Second SPS Burn Ballistic Entry

XIIIc. No Second SPS Burn Guided Entry to Proposed Target Point Update

Event	XIIIa.	XIIIb.	XIIIc.
Vector used	ASCS 052 No. 36	ASCS 052 No. 36	ASCS 052 No. 36
Time of entry interface (g. e. t.)	9:38:25	9:38:25	9:38:25
Latitude of entry interface	32:43 N	32:43 N	32:43 N
Longitude of entry interface	166:07 E	166:07 E	166:07 E
Velocity at entry interface (ft/sec)	32,812	32,812	32,812
Flight-path angle at entry interface (deg)	-5.924	-5.924	-5.924
Weight at entry interface (lb)	12,505	12,505	12,505
IMU attitude at entry interface (deg)			
Pitch (inner)	66.5	66.6	66.5
Yaw (middle)	358.8	359.2	358.8
Roll (outer)	359.3	1.6	359.3
Target latitude	27:20 N	-	29:48 N
Target longitude	157:11 W	-	167:48 W
Latitude of landing	28:50 N	32:02 N	29:49 N
Longitude of landing	162:31 W	179:11 E	167:48 W
Drogue chute deploy (g. e. t.)	9:49:56	9:42:52	9:47:21
Main chute deploy (g. e. t.)	9:50:44	9:43:41	9:48:09
Time of landing (g. e. t.)	9:55:56	9:48:53	9:53:21
Max g's	5.0	13.8	4.9
Entry range (n mi)	1,633	-	1,350
L/D	0.3428	0.3428	0.3428

Table XIV. Full-lift Landing Point and C-band Blackout Data

Vector used	ASCS 052 No. 36
Time of entry interface (g.e.t.)	9:38:25
Latitude of entry interface	32:43 N
Longitude of entry interface	166:07 E
Velocity at entry interface (ft/sec)	32,811
Flight-path angle at entry interface (deg)	-5.924
Weight at entry interface (lb)	12,505
IMU attitude at entry interface (deg)	
Pitch (inner)	66.6
Yaw (middle)	359.2
Roll (outer)	1.5
Latitude of landing	8:58 N
Longitude of landing	122:15 W
Drogue chute deploy (g.e.t.)	10:01:30
Main chute deploy (g.e.t.)	10:02:18
Time of landing (g.e.t.)	10:07:30
Max g's	4.8
L/D	0.3428
Begin first C-band blackout (g.e.t.)	9:39:10
End first C-band blackout (g.e.t.)	9:40:50
Begin second C-band blackout (g.e.t.)	9:53:35
End second C-band blackout (g.e.t.)	9:54:30

Table XV. No Second SPS Burn Planning Based on Three-Sigma Aerodynamics

XVa. Guided Entry to Nominal Target; Three-Sigma Low Aerodynamics

XVb. Guided Entry to Nominal Target; Three-Sigma High Aerodynamics

XVc. Guided Entry to Proposed Updated Target Point; Three-Sigma Low Aerodynamics

XVd. Guided Entry to Proposed Updated Target Point; Three-Sigma High Aerodynamics

Event	XVa.	XVb.	XVc.	XVd.
Vector used	ASCS 052 No. 36	ASCS 052 No.36	ASCS 052 No.36	ASCS 052 No.36
Time of entry interface (g. e. t.)	9:38:25	9:38:25	9:38:25	9:38:25
Latitude of entry interface	32:43 N	32:43 N	32:43 N	32:43 N
Longitude of entry interface	166:07 W	166:07 W	166:07 W	166:07 W
Velocity at entry interface (ft/sec)	32, 812	32, 812	32, 812	32, 812
Flight-path angle at entry interface (deg)	-5. 924	-5. 924	-5. 924	-5. 924
Weight at entry interface (lb)	12, 505	12, 505	12, 505	12, 505
IMU attitude at entry interface (deg)				
Pitch (inner)	61. 9	61. 9	69. 2	61. 9
Yaw (middle)	358. 9	358. 9	358. 8	358. 9
Roll (outer)	359. 2	359. 2	359. 3	359. 2
Target latitude	27:20 N	27:20 N	29:48 N	29:48 N
Target longitude	157:11 W	157:11 W	167:48 W	167:48 W
Latitude of landing	28:34 N	27:20 N	29:48 N	29:48 N
Longitude of landing	161:15 W	157:11 W	167:48 W	167:48 W
Drogue chute deploy (g. e. t.)	9:50:03	9:50:06	9:47:29	9:47:06

Table XV. No Second SPS Burn Planning Based on Three-Sigma Aerodynamics (Continued)

XVa. Guided Entry to Nominal Target; Three-Sigma Low Aerodynamics
XVb. Guided Entry to Nominal Target; Three-Sigma High Aerodynamics
XVc. Guided Entry to Proposed Updated Target Point; Three-Sigma High Aerodynamics
XVd. Guided Entry to Proposed Updated Target Point; Three-Sigma Low Aerodynamics

Event	XVa.	XVb.	XVc.	XVd.
Main chute deploy (g. e. t.)	9:50:52	9:50:55	9:48:18	9:47:55
Time of landing (g. e. t.)	9:56:04	9:56:07	9:53:30	9:53:07
Max g's	5.3	4.5	5.2	5.2
Entry range (n mi)	1,701	1,931	1,350	1,350
L/D	0.3029	0.4098	0.3029	0.4098

Table XVI. End of Mission Landing Points

XVIa. Guided Entry Based on GWMS 097 Vector No. 46

XVIb. Guided Entry Based on GWMS 098 Vector No. 47

XVIc. Guided Entry Based on GWMS 096 Vector No. 48

Event	XVIa.	XVIb.	XVIc.
Time of entry interface (g. e. t.)	09:38:28	09:38:27	09:38:28
Latitude of entry interface	32:45 N	32:45 N	32:45 N
Longitude of entry interface	166:21 E	166:14 E	166:23 E
Velocity at entry interface (ft/sec)	32,828	32,829	32,832
Flight-path angle at entry interface (deg)	-5.804	-5.865	-5.802
Weight at entry interface (lb)	12,505	12,505	12,505
IMU attitude at entry interface (deg)			
Pitch (inner)	66.5	66.5	66.4
Yaw (middle)	358.8	358.8	358.8
Roll (outer)	359.3	359.3	359.3
Target latitude	27:20 N	27:20 N	27:20 N
Target longitude	157:11 W	157:11 W	157:11 W
Latitude of landing	27:54 N	28:06 N	27:45 N
Longitude of landing	159:01 W	159:37 W	158:33 W
Drogue chute deploy (g. e. t.)	09:50:51	09:50:42	09:50:59
Main chute deploy (g. e. t.)	09:51:40	09:51:31	09:51:48
Time of landing (g. e. t.)	09:56:52	09:56:43	09:57:00
First max g's	4.5	4.73	4.5
Entry range (n mi)	1,816	1,787	1,840
L/D	0.3428	0.3428	0.3428
Total heat load (Btu/ft^2)	26,427	26,061	26,562
Maximum heat rate (Btu/ft^2/sec)	193.2	196.9	193.1
Begin first S-band blackout (g. e. t.)	09:39:06	09:39:04	09:39:06
End of first S-band blackout (g. e. t.)	09:42:14	09:42:06	09:42:14
Begin C-band blackout (g. e. t.)	09:39:12	09:39:11	09:39:12
End C-band blackout (g. e. t.)	09:41:26	09:41:19	09:41:26

Table XVII. End of Mission Guided Landing Based on 30-Second Ullage Simulation

Vector used	ASCC 076 No. 48
Time of ullage ignition (g. e. t)	09:29:23
Time of ullage cutoff (g. e. t.)	09:29:53
Ullage duration (sec)	30
Time of entry interface (g. e. t.)	09:38:24
Latitude of entry interface	32:44 N
Longitude of entry interface	166:04 E
Velocity at entry interface (ft/sec)	32824
Flight-path angle at entry interface (deg)	-5.928
Weight at entry interface (lb)	12505
IMU attitude at entry interface (deg)	
Pitch (inner)	66.6
Yaw (outer)	358.8
Roll (middle)	359.3
Target latitude	27:20 N
Target longitude	157:11 W
Latitude of landing	28:51 N
Longitude of landing	162:32 W
Drogue chute deploy (g. e. t.)	09:49:55
Main chute deploy (g. e. t.)	09:50:44
Time of landing (g. e. t.)	09:55:56
Max g's	5.0
Entry range (n mi)	1634
L/D	0.3428
Total heat load (Btu/ft^2)	25051
Maximum heat rate (Btu/ft^2/sec)	200.0
Begin first S-band blackout (g. e. t.)	09:39:02
End first S-band blackout (g. e. t.)	09:43:52
Begin C-band blackout (g. e. t.)	09:39:08
End C-band blackout (g. e. t.)	09:41:12

Table XVIII. S-band Blackout Data

XVIIIa. Area 2-1 S-band Blackout

XVIIIb. Area 3-1 S-band Blackout

XVIIIc. Guided Entry S-band Blackout Based on No Second SPS Burn

XVIIId. Ballistic Entry S-band Blackout Based on No Second SPS Burn

Event	XVIIIa.	XVIIIb.	XVIIIc.	XVIIId.
Vector used	INSE 000 No. 10	CROS 014 No. 15	ASCS 052 No.36	ASCS 052 No.36
Begin first S-band blackout (g. e. t.)	1:43:47	3:20:15	9:39:03	9:39:05
Exit first S-band blackout (g. e. t.)	1:45:32	3:22:05	9:43:55	9:40:50
Begin second S-band blackout (g. e. t.)	-	-	-	-
Exit second S-band blackout (g. e. t.)	-	-	-	-

Table XIX. ARIA Aircraft Pointing Data

Event	Aircraft	Ground Elapsed Time (hr:min:sec)	Range (n mi)	Azimuth (deg)	Elevation (deg)
Begin S-band blackout	No AOS	9:39:02.46			
AOS	TSP1.1.3	9:42:07.0	662.92	-86.62	-2.95
AOS	TSP2.1.3	9:42:08.0	666.11	-60.51	-2.99
End S-band blackout	TSP1.1.3	9:43:50.46	372.8	-98.38	0.568
End S-band blackout	TSP2.1.3	9:43:50.46	373.4	-49.71	0.551
Point of closest approach	TSP1.1.3	9:47:30.5	160.29	-164.34	2.575
Point of closest approach	TSP2.1.3	9:47:36.5	152.53	17.09	2.65
LOS	TSP1.1.3	9:49:52.0	160.20	-172.42	-1.916
LOS	TSP2.1.3	9:49:52.0	155.02	24.43	-1.89

Table XX. Public Affairs Officer Data

Lift-off (GMT)		12:00:01.8
Event		**g.e.t.**
Lift-off		T = 0
S-IC IBECO	Not available during mission	-
S-IC OBECO		-
S-II ignition		-
S-IC/S-II interstage		-
LES jettison		-
S-II engine cutoff		-
S-IVB ignition		-
S-IVB cutoff		0:12:27.0
Insertion		0:12:37.0
Insertion Parameters		
Latitude		32.72 N
Longitude		49.30 W
Altitude (n mi)		102.6
Apogee altitude (n mi)		195.0
Perigee altitude (n mi)		96.0
Period (min)		89.92
Event		**g.e.t.**
Second S-IVB ignition		None
CSM/S-IVB separation		3:14:25
First SPS ignition		3:16:05
First SPS cutoff		3:23:27
Apogee (altitude; 12,060 n mi)		6:28:57
Second SPS ignition		None
CM/SM separation		9:37:00
Entry interface (400,000 feet altitude)		9:38:25
Begin first S-band blackout		9:39:06
Exit first S-band blackout		9:42:19
Drogue chute deploy		9:50:59
Main chute deploy		9:51:48
Landing		9:56:59

Table XXI. Postflight Data

XXIa. Insertion

XXIb. Perigee in Earth Parking Orbit

XXIc. Apogee in Earth Parking Orbit

XXId. CSM/S-IVB Separation

XXIe. First SPS Ignition

Event	XXIa.	XXIb.	XXIc.	XXId	XXIe.
Vector used	CYIC 004 No. 11	CYIC 004 No. 11	CYIC 004 No. 11	BDQC 025 No. 22	BDQC 025 No. 22
Time (g. e. t.)	00:12:37	00:18:31	1:03:55	3:14:25	3:16:05
Latitude	32:45 N	29:14 N	28:39 S	32:10 N	31:09 N
Longitude	49:20 W	22:41 W	148:04 E	85:12 W	77:41 W
Altitude (ft)	613, 271	582, 951	1, 194, 207	641, 931	629, 770
Altitude (n mi)	100. 9	95. 9	196. 5	105. 6	103. 6
Velocity (ft/sec)	25, 743	25, 777	25, 068	25, 729	25, 742
Flight-path angle (deg)	-0. 3282	0. 0000	0. 0000	-0. 2910	-0. 2007
Azimuth (deg)	90. 7	105. 4	73. 4	96. 4	100. 5
Altitude of apogee (n mi)	197. 6	199. 8	196. 5	203. 5	204. 1
Altitude of perigee (n mi)	95. 2	95. 8	101. 5	100. 8	101. 0
Orbital period (min)	89. 9	89. 9	89. 9	90. 1	90. 1
Inclination (deg)	32. 6	32. 6	32. 6	32. 6	32. 6
Semilatus rectum (ft)	21, 799, 086	21, 803, 547	21, 811, 369	21, 835, 039	21, 836, 071
Eccentricity	0. 01427	0. 01449	0. 01324	0. 01429	0. 01434

Table XXI. Postflight Data (Continued)

XXIf. First SPS Cutoff

XXIg. Apogee in High Ellipse

XXIh. SM/CM Separation

XXIi. Entry Interface

Event	XXIf.	XXIg.	XXIh.	XXIi.
Vector used	ASCS 052 No. 35	ASCS 052 No. 35	ASCC 076 No. 41	ASCC 076 No. 41
Time (g. e. t.)	3:23:27	6:28:57	9:37:00	9:38:24
Latitude	20:23 N	31:23 N	32:24 N	32:44 N
Longitude	44:45 W	51:32 E	157:47 E	166:04 E
Altitude (ft)	1,695,542	73,032,549	752,308	400,000
Altitude (n mi)	279.1	12,019.6	123.8	65.8
Velocity (ft/sec)	31,630	7,403	32,482	32,775
Flight-path angle (deg)	13.5156	0.0000	-8.7510	-5.9367
Azimuth (deg)	116.1	80.7	85.1	89.8
Altitude of apogee (n mi)	12,050.6	12,019.1	12,027.8	11,847.6
Altitude of perigee (n mi)	19.0	18.6	16.5	16.3
Orbital period (min)	385.5	384.7	384.9	379.4
Inclination (deg)	32.6	32.6	32.6	32.6
Semilatus rectum (ft)	34,358,117	34,357,025	34,344,807	34,270,316
Eccentricity	0.63496	0.63426	0.63460	0.63110

Table XXII. Apollo Prelaunch Mode I Abort Landing Points Based on T Minus 8-Hour Balloon Release Data

TA SEC	RANGE FT	RANGE NM	BEAR* E/N	RAN E FT	RAN N FT	GET IP SEC	LAT-D DEG	LONG DEG	MAX ALT FT-MSL	DD ALT FT	MD ALT FT	LAND IP
0.	1778.	.293	93.8	1774.	-117.	103.	28.608098	-80.598603	4789.	4652.	3384.	YES
10.	687.	.113	67.5	634.	263.	155.	28.609142	-80.602154	5925.	5719.	4631.	YES
15.	1108.	.182	-19.9	-377.	1041.	199.	28.611286	-80.605306	7011.	6733.	5804.	YES
20.	2412.	.397	-34.1	-1353.	1997.	250.	28.613912	-80.608348	8350.	8004.	7220.	YES
25.	3379.	.556	-30.1	-1696.	2923.	308.	28.616458	-80.609415	9983.	9587.	8907.	YES
30.	3782.	.622	-13.5	-882.	3678.	375.	28.618535	-80.606882	11942.	11501.	10905.	YES
37.	4422.	.728	9.3	718.	4363.	494.	28.620422	-80.601894	15612.	15028.	14706.	NO
38.	4700.	.773	16.4	1324.	4509.	387.	28.620821	-80.600007	16156.	15561.	10500.	NO
41.	5404.	.889	26.1	2377.	4853.	406.	28.621769	-80.596725	17935.	17301.	10856.	NO
42.	5077.	.836	22.3	1930.	4696.	404.	28.621336	-80.598118	19125.	18357.	10499.	NO
50.	9676.	1.593	50.2	7429.	6201.	433.	28.625474	-80.580979	24735.	23830.	10500.	NO
64.	24500.	4.032	67.4	22617.	9426.	490.	28.634343	-80.533648	38364.	37010.	10498.	NO
65.	31058.	5.111	67.9	28783.	11678.	474.	28.640537	-80.514432	39904.	23300.	10501.	NO
90.	181849.	29.929	72.8	173849.	53739.	588.	28.756210	-80.062347	102406.	23300.	10502.	NO

*Minus sign indicates west of North (W/N).

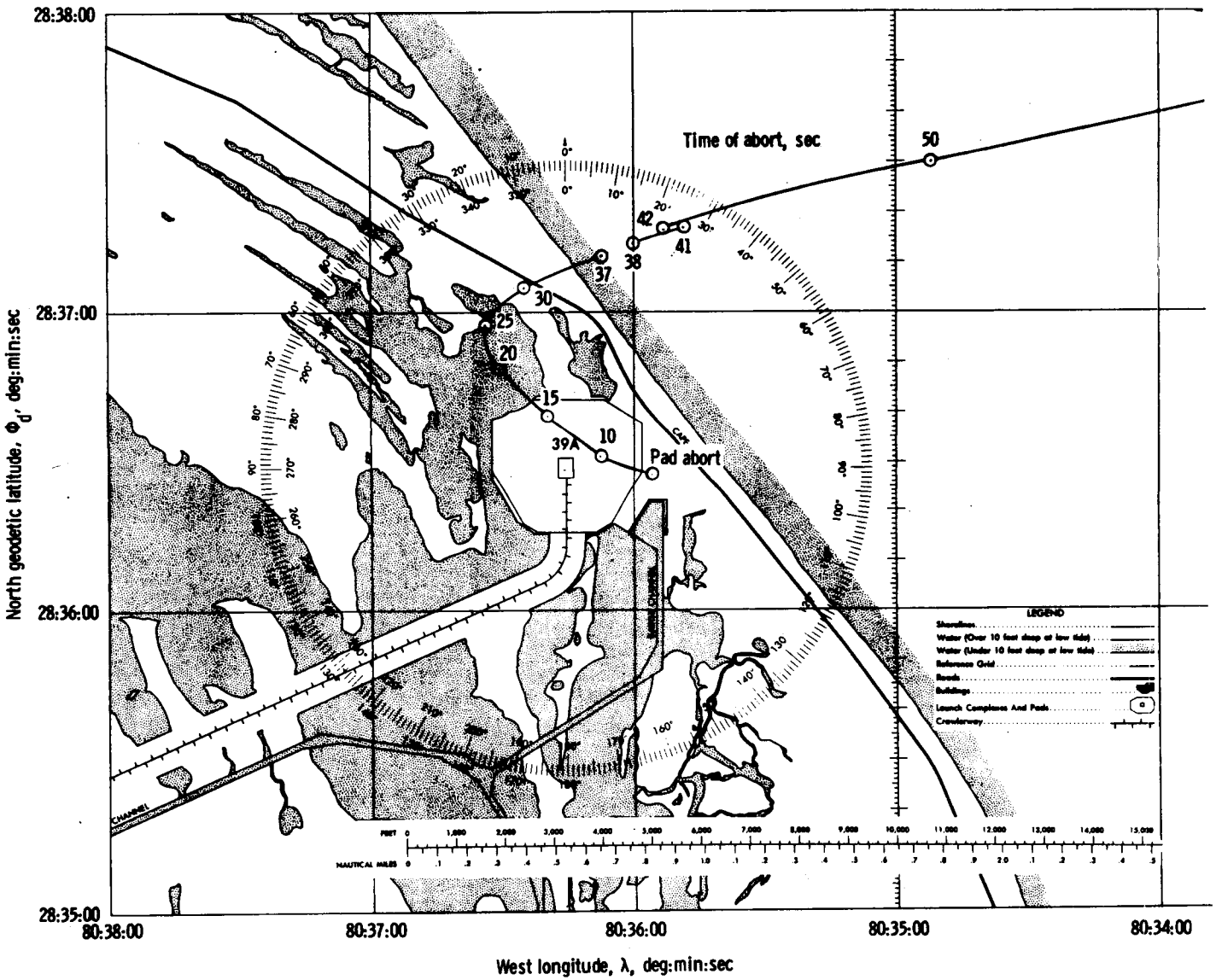


Figure 1. Apollo Prelaunch Mode I Abort Landing Points Based on T Minus 8-Hour Balloon Release Data

Table XXIII. Apollo Prelaunch Mode I Abort Landing Points Based on T Minus 6-Hour Balloon Release Data

TA SEC	RANGE FT	RANGE NM	BEAR* E/N	RAN E FT	RAN N FT	GET IP SEC	LAT-D DEG	LONG DEG	MAX ALT FT-MSL	DD ALT FT	MD ALT FT	LAND IP
0.	2091.	.344	76.0	2028.	506.	103.	28.609814	-80.597810	4782.	4646.	3375.	YES
10.	1568.	.258	42.0	1048.	1166.	155.	28.611628	-80.600865	5919.	5713.	4624.	YES
15.	2188.	.360	4.3	162.	2182.	199.	28.614421	-80.603626	7008.	6733.	5798.	YES
20.	3466.	.570	-10.3	-620.	3410.	251.	28.617798	-80.606063	8389.	8039.	7264.	YES
25.	4732.	.779	-11.4	-937.	4638.	310.	28.621177	-80.607052	10039.	9633.	8974.	YES
30.	5441.	.895	-.7	-65.	5440.	376.	28.623381	-80.604334	11986.	11534.	10958.	NO
37.	6451.	1.062	15.3	1700.	6223.	494.	28.625535	-80.598833	15608.	15022.	14701.	NO
38.	6735.	1.109	19.0	2196.	6367.	387.	28.625932	-80.597288	16146.	15557.	10499.	NO
41.	7543.	1.241	25.6	3255.	6804.	397.	28.627133	-80.593987	17948.	17308.	10499.	NO
42.	7360.	1.211	22.5	2812.	6802.	404.	28.627126	-80.595368	19134.	18362.	10500.	NO
50.	11600.	1.909	45.4	8264.	8141.	433.	28.630810	-80.578379	24724.	23827.	10507.	NO
64.	26314.	4.331	63.5	23552.	11742.	490.	28.640715	-80.530734	38351.	37002.	10504.	NO
65.	32744.	5.389	64.9	29649.	13907.	474.	28.646665	-80.511732	39903.	23300.	10500.	NO
90.	182671.	30.064	72.3	174153.	55529.	589.	28.761131	-80.061400	102341.	23300.	10503.	NO

*Minus sign indicates west of North (W/N).

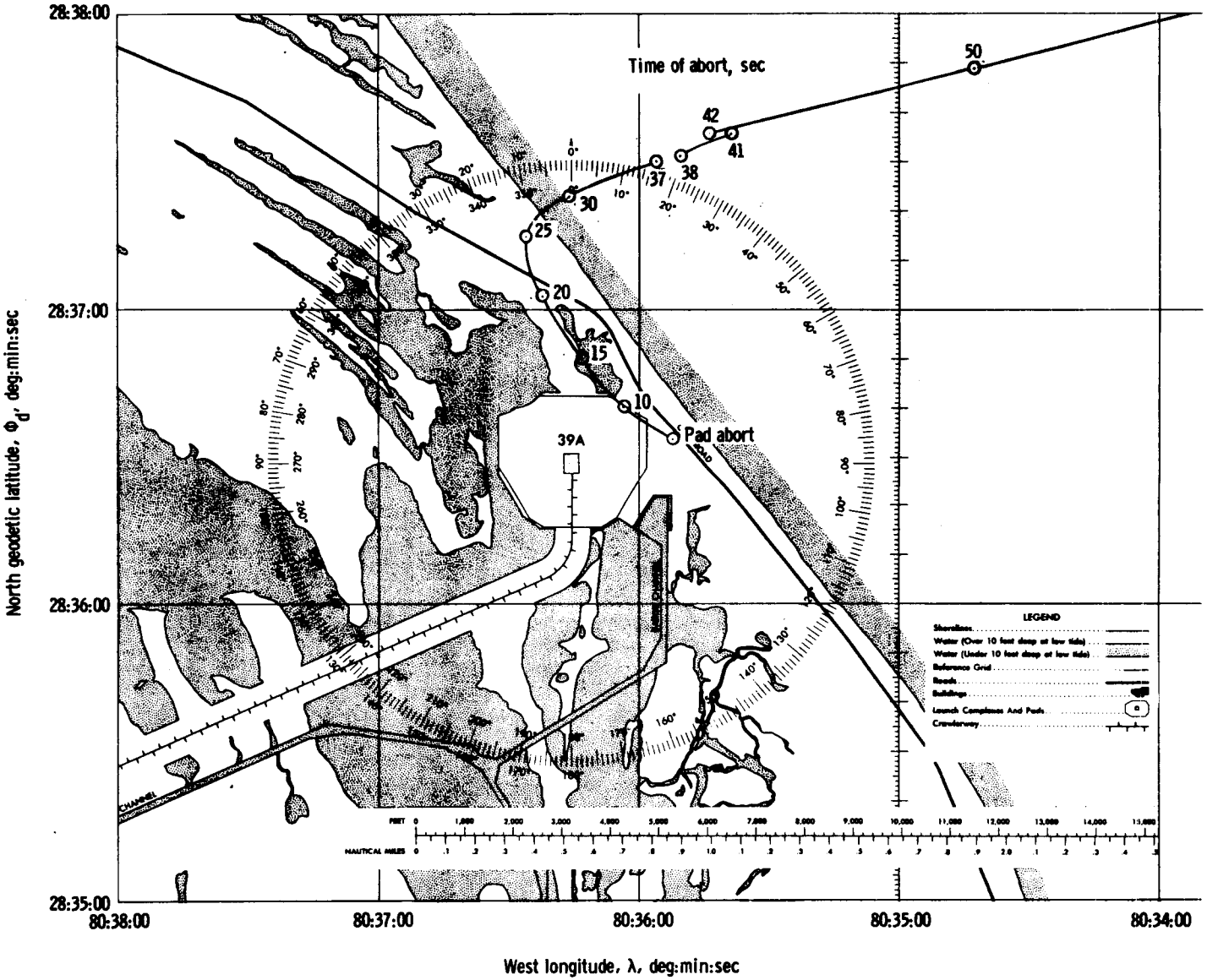


Figure 2. Apollo Prelaunch Mode I Abort Landing Points Based on T Minus 6-Hour Balloon Release Data

Table XXIV. Apollo Prelaunch Mode I Abort Landing Points Based on T Minus 4-Hour Balloon Release Data

TA SEC	RANGE FT	RANGE NM	BEAR* E/N	RAN E FT	RAN N FT	GET IP SEC	LAT-D DEG	LONG DEG	MAX ALT FT-MSL	OD ALT FT	MD ALT FT	LAND IP
0.	2106.	.347	70.5	1985.	705.	102.	28.610359	-80.597946	4768.	4634.	3357.	YES
10.	1932.	.318	34.5	1093.	1593.	154.	28.612801	-80.600725	5899.	5697.	4601.	YES
15.	2611.	.430	6.8	307.	2593.	198.	28.615551	-80.603175	6996.	6723.	5782.	YES
20.	3894.	.641	-7.0	-477.	3865.	251.	28.619051	-80.605618	8393.	8043.	7269.	YES
25.	4970.	.818	-5.7	-494.	4946.	312.	28.622022	-80.605672	10081.	9660.	9028.	YES
30.	6016.	.990	2.3	238.	6011.	378.	28.624953	-80.603390	12026.	11560.	11013.	NO
37.	7193.	1.184	17.5	2168.	6858.	492.	28.627283	-80.597375	15560.	14996.	14634.	NO
38.	7179.	1.182	19.4	2387.	6771.	387.	28.627042	-80.596693	16130.	15552.	10499.	NO
41.	8181.	1.346	25.6	3530.	7380.	397.	28.628717	-80.593131	17960.	17317.	10499.	NO
42.	7995.	1.316	23.6	3199.	7327.	404.	28.628570	-80.594163	19140.	18362.	10500.	NO
50.	12179.	2.004	44.8	8575.	8649.	433.	28.632207	-80.577409	24766.	23852.	10499.	NO
64.	26760.	4.404	62.5	23749.	12339.	489.	28.642355	-80.530120	38339.	36988.	10495.	NO
65.	33318.	5.483	64.2	30008.	14490.	474.	28.648270	-80.510615	39881.	23300.	10500.	NO
90.	183104.	30.135	72.1	174379.	56243.	588.	28.763097	-80.060694	102324.	23300.	10501.	NO

*Minus sign indicates west of North (W/N).

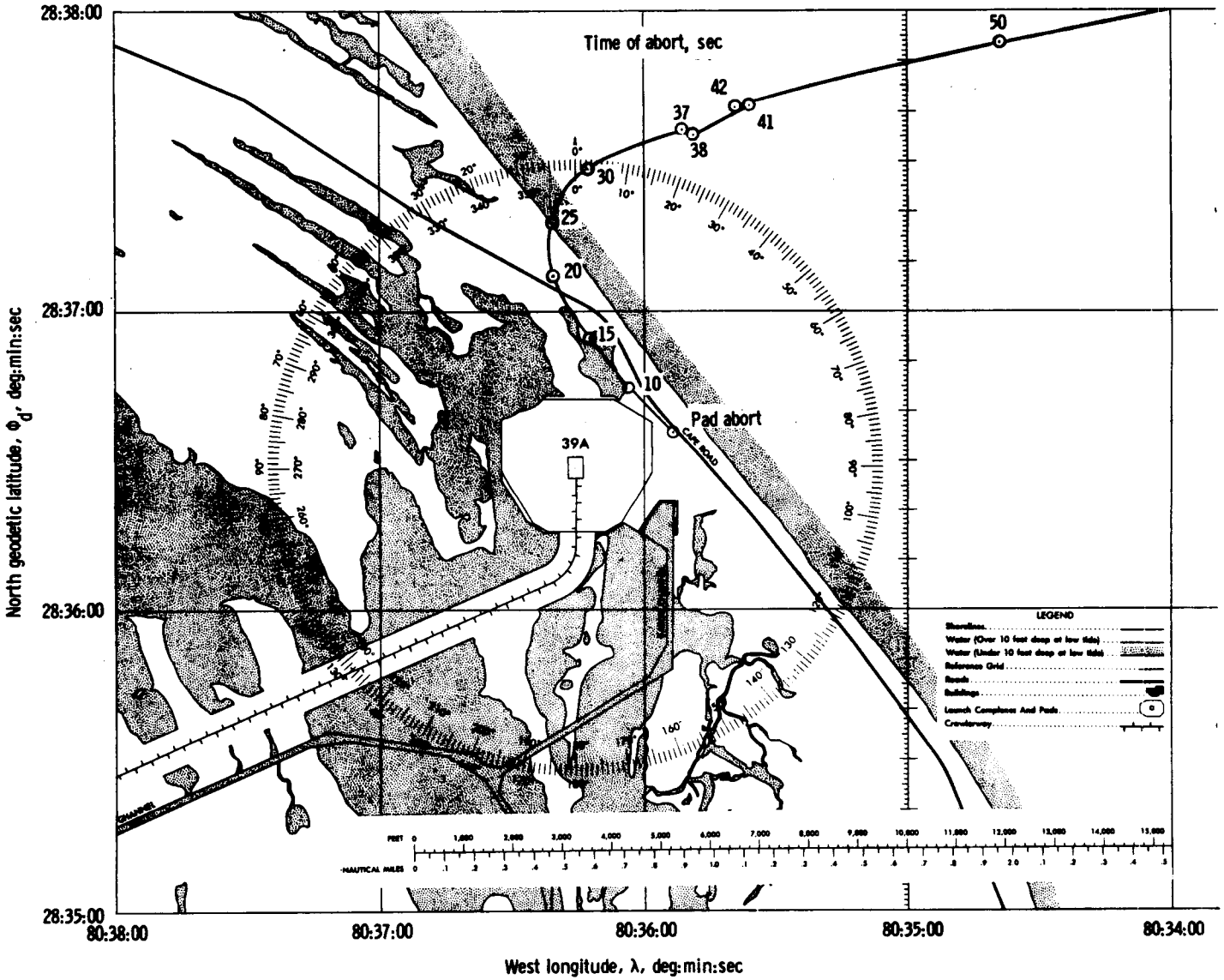


Figure 3. Apollo Prelaunch Mode I Abort Landing Points Based on T Minus 4-Hour Balloon Release Data

Table XXV. Apollo Prelaunch Mode I Abort Landing Points Based on T Minus 2.5-Hour Balloon Release Data

TA SEC	RANGE FT	RANGE NM	BEAR* E/N	RAN E FT	RAN N FT	GET IP SEC	LAT-D DEG	LONG DEG	MAX ALT FT-MSL	DD ALT FT	MD ALT FT	LAND IP
0.	2282.	.376	70.9	2156.	748.	102.	28.610479	-80.597414	4777.	4644.	3362.	YES
10.	2224.	.366	36.1	1310.	1797.	156.	28.613363	-80.600051	5936.	5725.	4648.	YES
15.	3013.	.496	11.4	595.	2953.	199.	28.616543	-80.602276	7011.	6736.	5799.	YES
20.	4194.	.690	-.1	-10.	4193.	252.	28.619954	-80.604164	8412.	8058.	7294.	YES
25.	5262.	.866	.1	8.	5262.	312.	28.622890	-80.604108	10070.	9654.	9013.	NO
30.	6663.	1.097	6.9	797.	6615.	379.	28.626613	-80.601646	12059.	11586.	11052.	NO
37.	8089.	1.331	19.7	2724.	7617.	492.	28.629366	-80.595642	15578.	15008.	14654.	NO
38.	7919.	1.303	22.1	2983.	7336.	387.	28.628597	-80.594835	16162.	15574.	10500.	NO
41.	8982.	1.478	27.7	4177.	7952.	397.	28.630289	-80.591115	17962.	17319.	10498.	NO
42.	8698.	1.432	26.1	3832.	7809.	404.	28.629895	-80.592188	19150.	18368.	10499.	NO
50.	12741.	2.097	44.4	8917.	9101.	433.	28.633451	-80.576342	24760.	23851.	10500.	NO
64.	27385.	4.507	61.8	24135.	12948.	489.	28.644028	-80.528918	38316.	36968.	10500.	NO
65.	34093.	5.611	63.6	30549.	15147.	474.	28.650075	-80.508928	39845.	23300.	10500.	NO
90.	183647.	30.224	72.0	174801.	56706.	588.	28.764369	-80.059379	102317.	23300.	10503.	NO

*Minus sign indicates west of North (W/N).

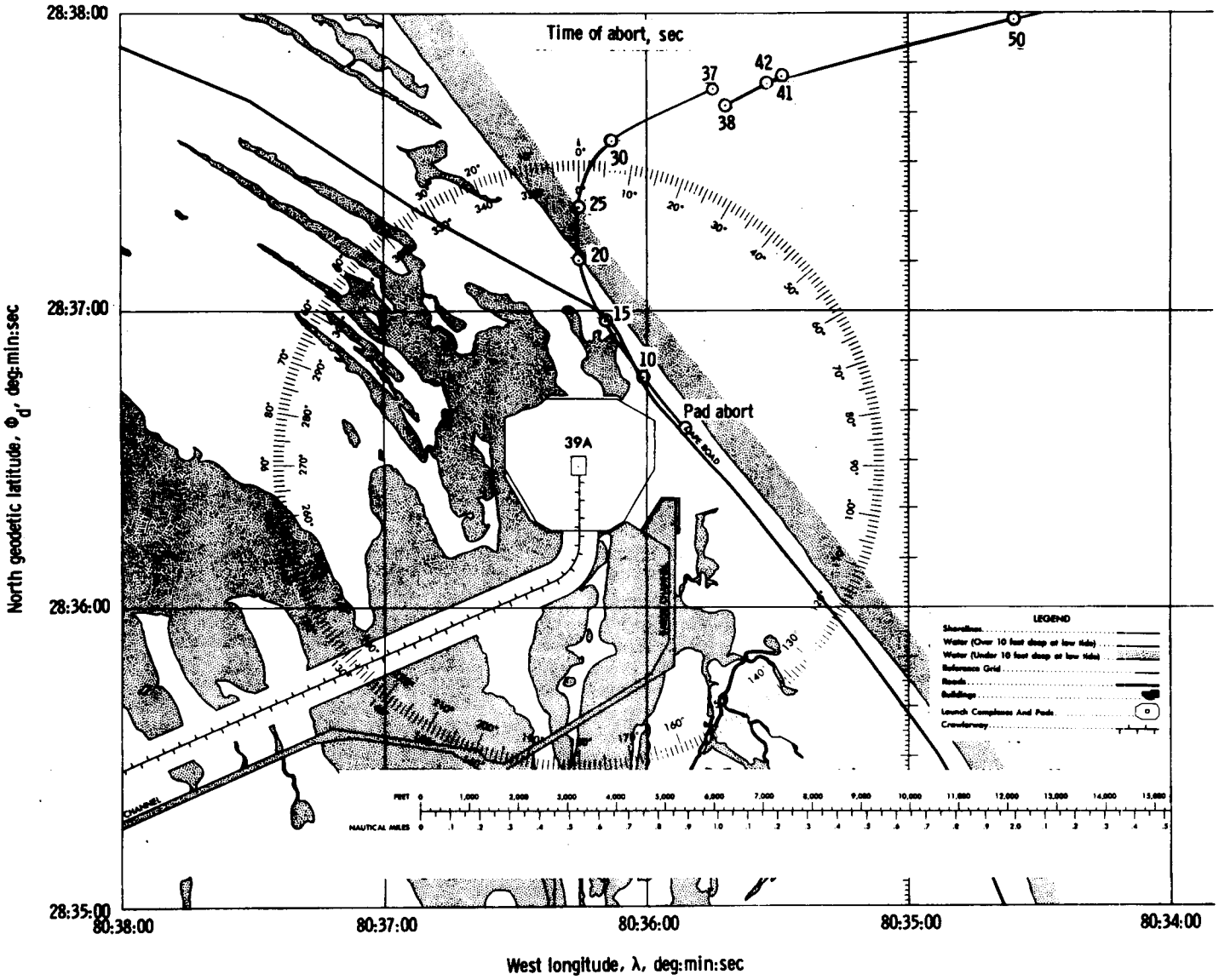


Figure 4. Apollo Prelaunch Mode I Abort Landing Points Based on T Minus 2.5-Hour Balloon Release Data

Table XXVI. Apollo Prelaunch Mode I Abort Landing Points Based on T Minus 1.5-Hour Balloon Release Data

TA SEC	RANGE FT	RANGE NM	BEAR* E/N	RAN E FT	RAN N FT	GET IP SEC	LAT-D DEG	LONG DEG	MAX ALT FT-MSL	DD ALT FT	MD ALT FT	LAND IP
0.	2388.	.393	68.7	2225.	868.	103.	28.610807	-80.597198	4786.	4650.	3376.	YES
10.	2383.	.392	38.5	1483.	1865.	155.	28.613550	-80.599510	5925.	5718.	4626.	YES
15.	3087.	.508	13.9	740.	2997.	199.	28.616662	-80.601826	7018.	6740.	5812.	YES
20.	4144.	.682	3.1	226.	4138.	251.	28.619801	-80.603427	8394.	8048.	7266.	YES
25.	5367.	.883	3.3	311.	5358.	312.	28.623156	-80.603161	10085.	9663.	9033.	NO
30.	6741.	1.110	9.5	1114.	6649.	380.	28.626706	-80.600659	12088.	11609.	11084.	NO
37.	8296.	1.365	21.6	3054.	7714.	493.	28.629636	-80.594615	15587.	15016.	14667.	NO
38.	8023.	1.320	24.6	3337.	7297.	387.	28.628488	-80.593731	16161.	15574.	10500.	NO
41.	9109.	1.499	29.8	4524.	7907.	397.	28.630166	-80.590034	17972.	17324.	10500.	NO
42.	8835.	1.454	28.3	4183.	7782.	404.	28.629821	-80.591094	19151.	18367.	10499.	NO
50.	12973.	2.135	45.6	9268.	9078.	433.	28.633387	-80.575247	24760.	23851.	10500.	NO
64.	27684.	4.556	62.2	24486.	12924.	489.	28.643965	-80.527824	38316.	36968.	10500.	NO
65.	34396.	5.661	63.9	30899.	15124.	474.	28.650014	-80.507837	39845.	23300.	10500.	NO
90.	183974.	30.278	72.1	175153.	56684.	588.	28.764307	-80.058283	102317.	23300.	10503.	NO

*Minus sign indicates west of North (W/N).

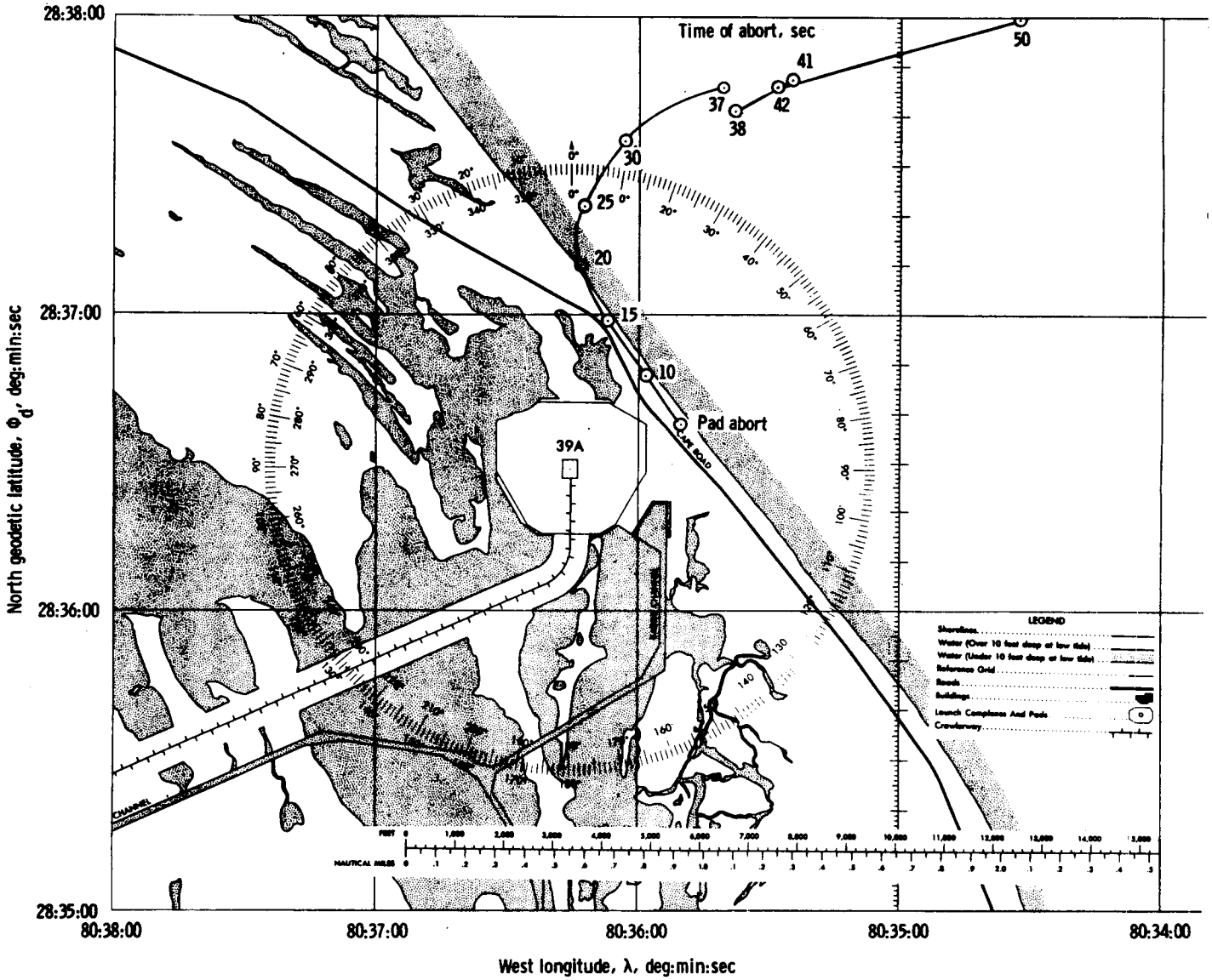


Figure 5. Apollo Prelaunch Mode I Abort Landing Points Based on T Minus 1.5-Hour Balloon Release Data

Table XXVII. Radiation Dosage Evaluation

LONG DEG	LAT DEG	ALT NM	B GAUSS	L ER	DAY	HR	MIN	SEC	DOSE RATE (REM/HR) LM SKIN	CM SKIN	CM DEPTH	CUMULATIVE DOSE (REM) LM SKIN	CM SKIN	CM DEPTH
-13.2	.7	1388.1	.109	1.493	0	3	33	55.30	3.647+02	1.693+00	7.051-01	3.039+00	1.369-02	5.876-03
-12.1	-.0	1391.1	.100	1.461	0	3	34	25.30	3.564+02	1.664+00	7.200-01	6.089+00	2.766-02	1.188-02
-11.1	-.8	1480.6	.096	1.480	0	3	34	55.30	3.562+02	1.679+00	7.242-01	8.970+00	4.155-02	1.791-02
-10.1	-1.5	1584.9	.092	1.500	0	3	35	25.30	3.564+02	1.612+00	6.845-01	1.194+01	5.499-02	2.361-02
-9.2	-2.2	1682.5	.089	1.521	0	3	35	55.30	3.325+02	1.416+00	6.667-01	1.471+01	6.845-02	2.913-02
-8.2	-2.8	1782.9	.086	1.541	0	3	36	25.30	3.107+02	1.621+00	6.059-01	1.730+01	8.112-02	3.422-02
-7.3	-3.5	1729.6	.083	1.564	0	3	36	55.30	2.898+02	1.413+00	5.464-01	1.971+01	9.290-02	3.877-02
-6.4	-4.2	1792.3	.080	1.586	0	3	37	25.30	2.691+02	1.295+00	4.890-01	2.196+01	1.037-01	4.286-02
-5.6	-4.8	1856.3	.077	1.609	0	3	37	55.30	2.504+02	1.152+00	4.164-01	2.404+01	1.133-01	4.632-02
-4.7	-5.4	1918.5	.075	1.632	0	3	38	25.30	2.301+02	1.009+00	3.389-01	2.603+01	1.217-01	4.914-02
-3.9	-6.0	1981.7	.072	1.655	0	3	38	55.30	2.249+02	8.758-01	2.751-01	2.790+01	1.290-01	5.143-02
-3.1	-6.6	2045.0	.070	1.679	0	3	39	25.30	2.089+02	7.530-01	2.233-01	2.964+01	1.353-01	5.329-02
-2.3	-7.1	2108.4	.068	1.703	0	3	39	55.30	1.960+02	6.407-01	1.749-01	3.127+01	1.406-01	5.476-02
-1.6	-7.7	2171.8	.066	1.728	0	3	40	25.30	1.791+02	5.292-01	1.131-01	3.277+01	1.450-01	5.569-02
-.8	-8.2	2235.2	.064	1.753	0	3	40	55.30	1.605+02	4.357-01	7.307-02	3.410+01	1.487-01	5.630-02
-.1	-8.7	2298.6	.062	1.778	0	3	41	25.30	1.410+02	3.568-01	4.670-02	3.528+01	1.516-01	5.669-02
.6	-9.2	2362.0	.060	1.803	0	3	41	55.30	1.223+02	2.934-01	3.009-02	3.630+01	1.541-01	5.694-02
1.3	-9.7	2425.4	.059	1.829	0	3	42	25.30	1.120+02	2.668-01	2.013-02	3.723+01	1.562-01	5.711-02
2.0	-10.2	2488.7	.057	1.856	0	3	42	55.30	1.018+02	2.294-01	1.343-02	3.808+01	1.581-01	5.722-02
2.7	-10.7	2551.9	.056	1.881	0	3	43	25.30	9.124+01	1.953-01	8.880-03	3.884+01	1.597-01	5.730-02
3.3	-11.1	2615.0	.054	1.907	0	3	43	55.30	8.205+01	1.703-01	5.678-03	3.952+01	1.611-01	5.734-02
4.0	-11.6	2678.0	.053	1.934	0	3	44	25.30	7.537+01	1.502-01	3.298-03	4.015+01	1.624-01	5.737-02
4.6	-12.0	2740.9	.051	1.961	0	3	44	55.30	6.830+01	1.330-01	1.886-03	4.072+01	1.635-01	5.739-02
5.2	-12.5	2803.7	.050	1.988	0	3	45	25.30	6.190+01	1.188-01	1.081-03	4.123+01	1.645-01	5.740-02
5.8	-12.9	2866.4	.049	2.015	0	3	45	55.30	5.641+01	1.051-01	6.434-04	4.170+01	1.654-01	5.740-02
6.4	-13.3	2928.9	.048	2.042	0	3	46	25.30	5.214+01	9.158-02	3.945-04	4.214+01	1.661-01	5.741-02
7.0	-13.7	2991.2	.047	2.069	0	3	46	55.30	4.790+01	8.079-02	2.451-04	4.254+01	1.668-01	5.741-02
7.5	-14.1	3053.4	.045	2.097	0	3	47	25.30	4.371+01	7.204-02	1.539-04	4.290+01	1.674-01	5.741-02
8.1	-14.4	3115.4	.044	2.124	0	3	47	55.30	3.941+01	6.484-02	9.641-05	4.323+01	1.679-01	5.741-02
8.6	-14.8	3177.2	.043	2.152	0	3	48	25.30	3.526+01	5.846-02	6.041-05	4.352+01	1.684-01	5.741-02
9.2	-15.2	3238.8	.042	2.179	0	3	48	55.30	3.139+01	5.286-02	3.809-05	4.378+01	1.689-01	5.741-02
9.7	-15.5	3300.3	.041	2.207	0	3	49	25.30	2.779+01	4.762-02	2.319-05	4.402+01	1.693-01	5.741-02
10.2	-15.9	3361.5	.041	2.235	0	3	49	55.30	2.448+01	4.227-02	1.269-05	4.422+01	1.696-01	5.741-02
10.7	-16.2	3422.6	.040	2.264	0	3	50	25.30	2.192+01	3.781-02	6.996-06	4.440+01	1.699-01	5.741-02
11.2	-16.5	3483.4	.039	2.292	0	3	50	55.30	1.954+01	3.438-02	3.926-06	4.457+01	1.702-01	5.741-02
11.7	-16.8	3544.0	.038	2.321	0	3	51	25.30	1.722+01	3.077-02	2.246-06	4.471+01	1.705-01	5.741-02
12.2	-17.1	3604.4	.037	2.349	0	3	51	55.30	1.505+01	2.722-02	1.284-06	4.484+01	1.707-01	5.741-02
12.7	-17.5	3664.6	.036	2.377	0	3	52	25.30	1.307+01	2.384-02	7.258-07	4.495+01	1.709-01	5.741-02
13.1	-17.7	3724.5	.036	2.406	0	3	52	55.30	1.129+01	2.075-02	4.458-07	4.504+01	1.711-01	5.741-02
13.6	-18.0	3784.2	.035	2.434	0	3	53	25.30	9.760+00	1.819-02	3.950-07	4.512+01	1.712-01	5.741-02
14.0	-18.3	3843.7	.034	2.462	0	3	53	55.30	8.435+00	1.575-02	3.450-07	4.519+01	1.714-01	5.741-02
14.5	-18.6	3902.9	.034	2.491	0	3	54	25.30	7.261+00	1.352-02	2.980-07	4.526+01	1.715-01	5.741-02
14.9	-18.9	3961.9	.033	2.520	0	3	54	55.30	6.071+00	1.097-02	2.416-07	4.530+01	1.716-01	5.741-02
15.3	-19.1	4020.6	.032	2.549	0	3	55	25.30	4.983+00	8.654-03	1.899-07	4.534+01	1.716-01	5.741-02
15.8	-19.4	4079.1	.032	2.578	0	3	55	55.30	4.061+00	6.789-03	1.483-07	4.536+01	1.717-01	5.741-02
16.2	-19.7	4137.4	.031	2.608	0	3	56	25.30	3.291+00	5.168-03	1.119-07	4.541+01	1.717-01	5.741-02
16.6	-19.9	4195.4	.031	2.637	0	3	56	55.30	2.666+00	3.652-03	7.783-08	4.543+01	1.718-01	5.741-02
17.0	-20.2	4253.1	.030	2.666	0	3	57	25.30	2.162+00	2.660-03	5.360-08	4.545+01	1.718-01	5.741-02
17.4	-20.4	4310.6	.030	2.694	0	3	57	55.30	1.740+00	1.797-03	3.696-08	4.546+01	1.718-01	5.741-02
17.8	-20.6	4367.8	.029	2.723	0	3	58	25.30	1.327+00	1.218-03	2.481-08	4.547+01	1.718-01	5.741-02
18.1	-20.9	4424.8	.029	2.752	0	3	58	55.30	9.944-01	8.122-04	1.640-08	4.548+01	1.718-01	5.741-02
18.5	-21.1	4481.6	.028	2.781	0	3	59	25.30	7.420-01	5.366-04	1.073-08	4.549+01	1.718-01	5.741-02
18.9	-21.3	4538.0	.028	2.810	0	3	59	55.30	5.571-01	3.781-04	7.871-09	4.549+01	1.718-01	5.741-02
19.2	-21.5	4594.2	.027	2.839	0	4	0	25.30	4.193-01	2.963-04	7.069-09	4.549+01	1.718-01	5.741-02
19.6	-21.7	4650.2	.027	2.868	0	4	0	55.30	3.149-01	2.299-04	6.235-09	4.550+01	1.718-01	5.741-02
20.0	-21.9	4705.9	.026	2.897	0	4	1	25.30	2.369-01	1.756-04	5.416-09	4.550+01	1.718-01	5.741-02
20.3	-22.1	4761.3	.026	2.928	0	4	1	55.30	1.650-01	1.637-04	4.868-09	4.550+01	1.718-01	5.741-02
20.7	-22.3	4816.5	.025	2.957	0	4	2	25.30	1.173-01	1.565-04	4.426-09	4.550+01	1.718-01	5.741-02
21.0	-22.5	4871.4	.025	2.986	0	4	2	55.30	8.322-02	1.493-04	4.024-09	4.550+01	1.718-01	5.741-02
21.3	-22.7	4926.0	.025	3.015	0	4	3	25.30	9.203-02	1.505-04	3.657-09	4.550+01	1.718-01	5.741-02
21.7	-22.9	4980.4	.024	3.044	0	4	3	55.30	1.524-01	1.697-04	3.321-09	4.550+01	1.718-01	5.741-02
22.0	-23.1	5034.6	.024	3.074	0	4	4	25.30	2.521-01	1.694-04	3.016-09	4.551+01	1.718-01	5.741-02
22.3	-23.3	5088.4	.023	3.103	0	4	4	55.30	4.167-01	1.798-04	2.738-09	4.551+01	1.718-01	5.741-02
22.6	-23.4	5142.0	.023	3.132	0	4	5	25.30	6.883-01	1.909-04	2.487-09	4.551+01	1.718-01	5.741-02
22.9	-23.6	5195.3	.023	3.161	0	4	5	55.30	1.136+00	2.027-04	2.258-09	4.552+01	1.718-01	5.741-02
23.2	-23.8	5248.4	.022	3.190	0	4	6	25.30	1.873+00	2.153-04	2.051-09	4.554+01	1.718-01	5.741-02
23.5	-23.9	5301.2	.022	3.219	0	4	6	55.30	2.395+00	2.358-04	1.859-09	4.556+01	1.718-01	5.741-02
23.8	-24.1	5353.8	.022	3.248	0	4	7	25.30	2.690+00	2.622-04	1.684-09	4.558+01	1.718-01	5.741-02
24.1	-24.3	5406.1	.021	3.277	0	4	7	55.30	3.018+00	2.916-04	1.526-09	4.561+01	1.718-01	5.741-02
24.4	-24.4	5458.1	.021	3.306	0	4	8	25.30	3.362+00	3.240-04	1.383-09	4.564+01	1.718-01	5.741-02
24.7	-24.6	5509.9	.021	3.335	0	4	8	55.30	3.705+00	3.600-04	1.254-09	4.567+01	1.719-01	5.741-02
25.0	-24.7	5561.4	.021	3.364	0	4	9	25.30	4.233+00	4.001-04	1.138-09	4.570+01	1.719-01	5.741-02
25.3	-24.9	5612.7	.020	3.392	0	4	9	55.30	4.717+00	4.433-04	1.034-09	4.574+01	1.719-01	5.741-02
25.6	-25.0	5663.7	.020	3.421	0	4	10	25.30	5.258+00	4.943-04	1.042-09	4.577+01	1.719-01	5.741-02
25.8	-25.2	5714.4	.020	3.449	0	4	10	55.30	5.647+00	5.519-04	4.281-09	4.583+01	1.719-01	5.741-02
26.1	-25.3	5764.9	.019	3.478	0	4	11	25.30	6.503+00	6.162-04	9.969-09	4.587+01	1.719-01	5.741-02
26.4	-25.4	5815.1	.019	3.507	0	4	11	55.30	7.229+00	6.878-04	2.326-08	4.595+01	1.719-01	5.741-02
26.6	-25.6	5865.1	.019	3.536	0	4	12	25.30	8.031+00	7.676-04	5.428-08	4.602+01	1.719-01	5.741-02
26.9	-25.7	5914.8	.019	3.565	0	4	12	55.30	8.919+00	8.564-04	1.268-07	4.609+01	1.719-01	5.741-02
27.2	-25.8	5964.2	.018	3.593	0	4	13	25.30	9.900+00	9.552-04	2.967-07	4.617+01	1.719-01	5.741-02
27.4	-26.0	6013.4	.018	3.622	0	4	13	55.30	1.089+01	1.059-03	3.600-07	4.626+01	1.719-01	5.741-02
27.7	-26.1	6062.4	.018	3.651	0	4	14	25.30	1.195+01	1.171-03	3.600-07	4.636+01	1.719-01	5.741-02
27.9	-26.2	6111.0	.018	3.680	0	4	14	55.30	1.311+01	1.294-03	3.600-07	4.647+01	1.719-01	5.741-02
28.2	-26.3	6159.5	.018	3.709	0	4	15	25.30	1.435+01	1.428-03	3.600-07	4.659+01	1.719-01	5.741-02
28.4	-26.5	6207.7	.017	3.737	0	4	15	55.30	1.569+01	1.574-03	3.600-07	4.672+01	1.720-01	5.741-02
28.6	-26.6	6256.0	.017	3.766	0	4	16	25.30	1.715+01	1.733-03	3.600-07	4.686+01	1.720-01	5.741-02
28.9	-26.7	6303.3	.017	3.793	0	4	16	55.30	1.874+01	1.908-03	3.600-07	4.702+01	1.720-01	5.741-02
29.1	-26.8	6350.7	.017	3.821	0	4	17	25.30	2.033+01	2.089-03	3.600-07	4.719+01	1.720-01	5.741-02
29.3	-26.9	6397.9	.016	3.849	0	4	17	55.30	2.201+01	2.288-03	3.600-07	4.737+01	1.720-01	5.741-02

Table XXVII. Radiation Dosage Evaluation (Continued)

LONG DEG	LAT DEG	ALT NM	B GAUSS	L ER	DAY	HR	MIN	SEC	DOSE RATE (REM/HR) LM SKIN	CM SKIN	CM DEPTH	CUMULATIVE DOSE (REM) LM SKIN	CM SKIN	CM DEPTH
29.6	-27.0	6494.8	.016	3.876	0	4	18	55.30	2.382+01	2.368-03	3.600-07	4.757+01	1.720-01	5.741-02
29.8	-27.1	6491.5	.016	3.904	0	4	18	55.30	2.578+01	2.538-03	3.600-07	4.779+01	1.721-01	5.741-02
30.0	-27.2	6538.0	.016	3.932	0	4	19	25.30	2.790+01	2.721-03	3.600-07	4.802+01	1.721-01	5.741-02
30.2	-27.3	6584.2	.016	3.959	0	4	19	55.30	3.019+01	2.917-03	3.600-07	4.827+01	1.721-01	5.741-02
30.4	-27.4	6630.1	.016	3.987	0	4	20	25.30	3.266+01	3.126-03	3.600-07	4.854+01	1.721-01	5.741-02
30.7	-27.5	6675.8	.015	4.014	0	4	20	55.30	3.438+01	3.136-03	3.600-07	4.883+01	1.722-01	5.741-02
30.9	-27.6	6721.3	.015	4.042	0	4	21	25.30	3.528+01	2.962-03	3.600-07	4.912+01	1.722-01	5.741-02
31.1	-27.7	6766.5	.015	4.069	0	4	21	55.30	3.620+01	2.798-03	3.600-07	4.943+01	1.722-01	5.741-02
31.3	-27.8	6811.5	.015	4.096	0	4	22	25.30	3.712+01	2.646-03	3.600-07	4.974+01	1.722-01	5.741-02
31.5	-27.9	6856.2	.015	4.123	0	4	22	55.30	3.808+01	2.500-03	3.600-07	5.005+01	1.723-01	5.741-02
31.7	-28.0	6900.7	.015	4.150	0	4	23	25.30	3.905+01	2.362-03	3.600-07	5.038+01	1.723-01	5.741-02
31.9	-28.1	6945.0	.014	4.177	0	4	23	55.30	4.004+01	2.232-03	3.600-07	5.071+01	1.723-01	5.741-02
32.1	-28.2	6989.0	.014	4.204	0	4	24	25.30	4.113+01	2.098-03	3.600-07	5.105+01	1.723-01	5.741-02
32.3	-28.3	7032.8	.014	4.231	0	4	24	55.30	4.267+01	1.912-03	3.600-07	5.141+01	1.723-01	5.741-02
32.5	-28.4	7076.3	.014	4.257	0	4	25	25.30	4.426+01	1.743-03	3.600-07	5.178+01	1.723-01	5.741-02
32.7	-28.4	7119.6	.014	4.284	0	4	25	55.30	4.592+01	1.589-03	3.600-07	5.214+01	1.724-01	5.741-02
32.9	-28.5	7162.7	.014	4.311	0	4	26	25.30	4.763+01	1.450-03	3.600-07	5.254+01	1.724-01	5.741-02
33.1	-28.6	7205.6	.013	4.337	0	4	26	55.30	4.941+01	1.323-03	3.600-07	5.297+01	1.724-01	5.741-02
33.2	-28.7	7248.2	.013	4.365	0	4	27	25.30	5.136+01	1.201-03	3.600-07	5.340+01	1.724-01	5.741-02
33.4	-28.8	7290.5	.013	4.391	0	4	27	55.30	5.328+01	1.097-03	3.600-07	5.384+01	1.724-01	5.741-02
33.6	-28.8	7332.7	.013	4.418	0	4	28	25.30	5.338+01	9.781-04	3.600-07	5.429+01	1.724-01	5.741-02
33.8	-28.9	7374.6	.013	4.444	0	4	28	55.30	5.261+01	8.625-04	3.600-07	5.473+01	1.724-01	5.741-02
34.0	-29.0	7416.3	.013	4.470	0	4	29	25.30	5.184+01	7.608-04	3.600-07	5.516+01	1.724-01	5.741-02
34.1	-29.1	7457.7	.013	4.496	0	4	29	55.30	5.108+01	6.714-04	3.600-07	5.558+01	1.724-01	5.741-02
34.3	-29.1	7498.9	.013	4.522	0	4	30	25.30	5.033+01	5.927-04	3.600-07	5.600+01	1.724-01	5.741-02
34.5	-29.2	7539.9	.012	4.548	0	4	30	55.30	4.959+01	5.234-04	3.600-07	5.642+01	1.724-01	5.741-02
34.7	-29.3	7580.7	.012	4.573	0	4	31	25.30	4.886+01	4.625-04	3.600-07	5.682+01	1.724-01	5.741-02
34.8	-29.3	7621.2	.012	4.599	0	4	31	55.30	4.813+01	4.088-04	3.600-07	5.722+01	1.724-01	5.741-02
35.0	-29.4	7661.5	.012	4.624	0	4	32	25.30	4.753+01	3.712-04	3.600-07	5.762+01	1.724-01	5.741-02
35.2	-29.5	7701.6	.012	4.649	0	4	32	55.30	4.695+01	3.377-04	3.600-07	5.801+01	1.724-01	5.741-02
35.3	-29.5	7741.5	.012	4.675	0	4	33	25.30	4.637+01	3.074-04	3.600-07	5.840+01	1.724-01	5.741-02
35.5	-29.6	7781.1	.012	4.700	0	4	33	55.30	4.581+01	2.799-04	3.600-07	5.878+01	1.724-01	5.741-02
35.6	-29.7	7820.5	.012	4.725	0	4	34	25.30	4.525+01	2.549-04	3.600-07	5.916+01	1.725-01	5.741-02
35.8	-29.7	7859.7	.012	4.749	0	4	34	55.30	4.471+01	2.323-04	3.600-07	5.953+01	1.725-01	5.741-02
36.0	-29.8	7898.7	.011	4.774	0	4	35	25.30	4.417+01	2.118-04	3.600-07	5.990+01	1.725-01	5.741-02
36.1	-29.9	7937.5	.011	4.799	0	4	35	55.30	4.365+01	1.933-04	3.600-07	6.026+01	1.725-01	5.741-02
36.3	-29.9	7976.0	.011	4.823	0	4	36	25.30	4.339+01	1.793-04	3.600-07	6.062+01	1.725-01	5.741-02
36.4	-30.0	8014.3	.011	4.847	0	4	36	55.30	4.316+01	1.666-04	3.600-07	6.098+01	1.725-01	5.741-02
36.6	-30.0	8052.4	.011	4.872	0	4	37	25.30	4.292+01	1.548-04	3.600-07	6.134+01	1.725-01	5.741-02
36.7	-30.1	8090.3	.011	4.896	0	4	37	55.30	4.269+01	1.440-04	3.600-07	6.170+01	1.725-01	5.741-02
36.9	-30.1	8128.0	.011	4.920	0	4	38	25.30	4.246+01	1.339-04	3.600-07	6.205+01	1.725-01	5.741-02
37.0	-30.2	8165.4	.011	4.943	0	4	38	55.30	4.223+01	1.246-04	3.600-07	6.240+01	1.725-01	5.741-02
37.2	-30.2	8202.6	.011	4.967	0	4	39	25.30	4.201+01	1.160-04	3.600-07	6.275+01	1.725-01	5.741-02
37.3	-30.3	8239.7	.011	4.991	0	4	39	55.30	4.179+01	1.080-04	3.600-07	6.310+01	1.725-01	5.741-02
37.4	-30.4	8276.5	.011	5.014	0	4	40	25.30	4.068+01	9.808-05	3.600-07	6.344+01	1.725-01	5.741-02
37.6	-30.4	8313.1	.010	5.038	0	4	40	55.30	3.906+01	8.775-05	3.600-07	6.376+01	1.725-01	5.741-02
37.7	-30.5	8349.4	.010	5.061	0	4	41	25.30	3.751+01	7.855-05	3.600-07	6.408+01	1.725-01	5.741-02
37.9	-30.5	8385.6	.010	5.084	0	4	41	55.30	3.604+01	7.035-05	3.600-07	6.438+01	1.725-01	5.741-02
38.0	-30.6	8421.6	.010	5.107	0	4	42	25.30	3.463+01	6.305-05	3.600-07	6.467+01	1.725-01	5.741-02
38.1	-30.6	8457.3	.010	5.130	0	4	42	55.30	3.328+01	5.653-05	3.600-07	6.494+01	1.725-01	5.741-02
38.3	-30.6	8492.9	.010	5.153	0	4	43	25.30	3.199+01	5.072-05	3.600-07	6.521+01	1.725-01	5.741-02
38.4	-30.7	8528.2	.010	5.176	0	4	43	55.30	3.076+01	4.554-05	3.600-07	6.547+01	1.725-01	5.741-02
38.5	-30.7	8563.3	.010	5.198	0	4	44	25.30	2.958+01	4.090-05	3.600-07	6.571+01	1.725-01	5.741-02
38.7	-30.8	8598.2	.010	5.221	0	4	44	55.30	2.872+01	3.783-05	3.600-07	6.595+01	1.725-01	5.741-02
38.8	-30.8	8632.9	.010	5.243	0	4	45	25.30	2.791+01	3.508-05	3.600-07	6.618+01	1.725-01	5.741-02
38.9	-30.9	8667.4	.010	5.265	0	4	45	55.30	2.712+01	3.255-05	3.600-07	6.641+01	1.725-01	5.741-02
39.0	-30.9	8701.7	.010	5.287	0	4	46	25.30	2.638+01	3.027-05	3.600-07	6.663+01	1.725-01	5.741-02
39.2	-31.0	8735.8	.009	5.309	0	4	46	55.30	2.565+01	2.812-05	3.600-07	6.684+01	1.725-01	5.741-02
39.3	-31.0	8769.7	.009	5.330	0	4	47	25.30	2.494+01	2.613-05	3.600-07	6.705+01	1.725-01	5.741-02
39.4	-31.0	8803.4	.009	5.352	0	4	47	55.30	2.426+01	2.430-05	3.600-07	6.725+01	1.725-01	5.741-02
39.5	-31.1	8836.9	.009	5.374	0	4	48	25.30	2.360+01	2.259-05	3.600-07	6.745+01	1.725-01	5.741-02
39.7	-31.1	8870.1	.009	5.395	0	4	48	55.30	2.296+01	2.102-05	3.600-07	6.764+01	1.725-01	5.741-02
39.8	-31.1	8903.2	.009	5.416	0	4	49	25.30	2.220+01	2.064-05	3.600-07	6.783+01	1.725-01	5.741-02
39.9	-31.2	8936.1	.009	5.438	0	4	49	55.30	2.143+01	1.964-05	3.600-07	6.801+01	1.725-01	5.741-02
40.0	-31.2	8968.8	.009	5.459	0	4	50	25.30	2.069+01	1.634-05	3.600-07	6.818+01	1.725-01	5.741-02
40.1	-31.3	9001.3	.009	5.480	0	4	50	55.30	1.999+01	1.006-04	3.600-07	6.834+01	1.725-01	5.741-02
40.2	-31.3	9033.5	.009	5.501	0	4	51	25.30	1.931+01	1.623-04	3.600-07	6.851+01	1.725-01	5.741-02
40.4	-31.3	9065.6	.009	5.522	0	4	51	55.30	1.865+01	2.301-04	3.600-07	6.866+01	1.725-01	5.741-02
40.5	-31.4	9097.5	.009	5.542	0	4	52	25.30	1.803+01	3.468-04	3.600-07	6.881+01	1.725-01	5.741-02
40.6	-31.4	9129.2	.009	5.563	0	4	52	55.30	1.742+01	5.214-04	3.600-07	6.896+01	1.725-01	5.741-02
40.7	-31.4	9160.7	.009	5.583	0	4	53	25.30	1.684+01	7.822-04	3.600-07	6.910+01	1.725-01	5.741-02
40.8	-31.5	9192.0	.009	5.604	0	4	53	55.30	1.628+01	9.918-04	3.600-07	6.923+01	1.725-01	5.741-02
40.9	-31.5	9223.0	.009	5.624	0	4	54	25.30	1.569+01	5.805-04	3.600-07	6.936+01	1.725-01	5.741-02
41.0	-31.5	9253.9	.008	5.644	0	4	54	55.30	1.514+01	3.410-04	3.600-07	6.949+01	1.725-01	5.741-02
41.1	-31.6	9284.7	.008	5.664	0	4	55	25.30	1.460+01	2.015-04	3.600-07	6.961+01	1.725-01	5.741-02
41.2	-31.6	9315.2	.008	5.683	0	4	55	55.30	1.409+01	1.196-04	3.600-07	6.973+01	1.725-01	5.741-02
41.3	-31.6	9345.5	.008	5.703	0	4	56	25.30	1.361+01	7.124-05	3.600-07	6.984+01	1.725-01	5.741-02
41.4	-31.6	9375.6	.008	5.722	0	4	56	55.30	1.314+01	4.262-05	3.600-07	6.995+01	1.725-01	5.741-02
41.5	-31.7	9405.5	.008	5.742	0	4	57	25.30	1.269+01	2.559-05	3.600-07	7.006+01	1.725-01	5.741-02
41.6	-31.7	9435.3	.008	5.761	0	4	57	55.30	1.226+01	1.593-05	3.600-07	7.016+01	1.725-01	5.741-02
41.7	-31.7	9464.8	.008	5.780	0	4	58	25.30	1.185+01	9.332-06	3.600-07	7.026+01	1.725-01	5.741-02
41.8	-31.8	9494.2	.008	5.799	0	4	58	55.30	1.145+01	5.666-06	3.600-07	7.035+01	1.725-01	5.741-02
41.9	-31.8	9523.4	.008	5.817	0	4	59	25.30	1.114+01	4.199-06	3.600-07	7.045+01	1.725-01	5.741-02
42.0	-31.8	9552.4	.008	5.836	0	4	59	55.30	1.085+01	3.167-06	3.600-07	7.054+01	1.725-01	5.741-02
42.1	-31.8	9581.1	.008	5.854	0	5	0	25.30	1.057+01	2.394-06	3.600-07	7.062+01	1.725-01	5.741-02
42.2	-31.9	9609.7	.008	5.873	0	5	0	55.30	1.029+01	1.813-06	3.600-07	7.071+01	1.725-01	5.741-02
42.3	-31.9	9638.2	.008	5.891	0	5	1	25.30	1.003+01	1.376-06	3.600-07	7.079+01	1.725-01	5.741-02
42.4	-31.9	9666.4	.008	5.909	0	5	1	55.30	9.770+00	1.047-06	3.600-07	7.088+01	1.725-01	5.741-02
42.5	-31.9	9694.4	.008	5.927	0	5	2	25.30	9.522+00	7.976-07	3.600-07	7.095+01	1.725-01	5.741-02
42.6	-31.9	9722.3	.008	5.945	0	5	2	55.30	9.282+00	6.090-07	3.600-07	7.103+01	1.725-01	5.741-02
42.7	-32.0	9750.0	.008	5.962	0	5	3	25.30	9.050+00	4.660-07	3.600-07	7.111+01	1.725-01	5.741-02
42.8	-32.0	9777.4	.008	5.980	0	5	3	55.30	8.825+00	3.573-07	3.600-07	7.118+01	1.725-01	5.741-02

Table XXVII. Radiation Dosage Evaluation (Continued)

LONG DEG	LAT DEG	ALT NM	B GAUSS	L ER	DAY	HR	MIN	SEC	DOSE RATE (REM/HR) LM SKIN	CM SKIN	CM DEPTH	CUMULATIVE DOSE (REM) LM SKIN	CM SKIN	CM DEPTH
42.9	-32.0	9804.7	.008	6.997	0	5	4	25.30	8.607+00	2.744-07	3.600-07	7.125+01	1.725-01	5.741-02
43.0	-32.0	9831.9	.008	6.014	0	5	4	55.30	8.397+00	2.112-07	3.600-07	7.132+01	1.725-01	5.741-02
43.1	-32.1	9858.8	.007	6.031	0	5	5	25.30	8.193+00	1.629-07	3.600-07	7.139+01	1.725-01	5.741-02
43.2	-32.1	9885.5	.007	6.048	0	5	5	55.30	7.996+00	1.259-07	3.600-07	7.146+01	1.725-01	5.741-02
43.3	-32.1	9912.1	.007	6.065	0	5	6	25.30	7.805+00	9.750-08	3.600-07	7.152+01	1.725-01	5.741-02
43.3	-32.1	9938.5	.007	6.082	0	5	6	55.30	7.620+00	7.565-08	3.600-07	7.159+01	1.725-01	5.741-02
43.4	-32.1	9964.7	.007	6.099	0	5	7	25.30	7.441+00	5.882-08	3.600-07	7.165+01	1.725-01	5.741-02
43.5	-32.1	9990.7	.007	6.115	0	5	7	55.30	7.268+00	4.682-08	3.600-07	7.171+01	1.725-01	5.741-02
43.6	-32.2	10016.5	.007	6.131	0	5	8	25.30	7.100+00	3.677-08	3.600-07	7.177+01	1.725-01	5.741-02
43.7	-32.2	10042.2	.007	6.147	0	5	8	55.30	6.937+00	2.798-08	3.600-07	7.183+01	1.725-01	5.741-02
43.8	-32.2	10067.7	.007	6.164	0	5	9	25.30	6.779+00	2.193-08	3.600-07	7.188+01	1.725-01	5.741-02
43.9	-32.2	10092.9	.007	6.179	0	5	9	55.30	6.626+00	1.722-08	3.600-07	7.194+01	1.725-01	5.741-02
43.9	-32.2	10118.1	.007	6.195	0	5	10	25.30	6.478+00	1.356-08	3.600-07	7.199+01	1.725-01	5.741-02
44.0	-32.2	10143.0	.007	6.211	0	5	10	55.30	6.334+00	1.069-08	3.600-07	7.204+01	1.725-01	5.741-02
44.1	-32.3	10167.8	.007	6.226	0	5	11	25.30	6.195+00	8.443-09	3.600-07	7.210+01	1.725-01	5.741-02
44.2	-32.3	10192.3	.007	6.242	0	5	11	55.30	6.060+00	6.684-09	3.600-07	7.215+01	1.725-01	5.741-02
44.3	-32.3	10216.7	.007	6.257	0	5	12	25.30	5.929+00	5.302-09	3.600-07	7.220+01	1.725-01	5.741-02
44.3	-32.3	10241.0	.007	6.272	0	5	12	55.30	5.802+00	4.216-09	3.600-07	7.224+01	1.725-01	5.741-02
44.4	-32.3	10265.0	.007	6.287	0	5	13	25.30	5.678+00	3.357-09	3.600-07	7.229+01	1.725-01	5.741-02
44.5	-32.3	10288.9	.007	6.302	0	5	13	55.30	5.559+00	2.679-09	3.600-07	7.234+01	1.725-01	5.741-02
44.6	-32.4	10312.6	.007	6.317	0	5	14	25.30	5.443+00	2.142-09	3.600-07	7.238+01	1.725-01	5.741-02
44.6	-32.4	10336.1	.007	6.331	0	5	14	55.30	5.330+00	1.716-09	3.600-07	7.243+01	1.725-01	5.741-02
44.7	-32.4	10359.4	.007	6.346	0	5	15	25.30	5.221+00	1.378-09	3.600-07	7.247+01	1.725-01	5.741-02
44.8	-32.4	10382.6	.007	6.360	0	5	15	55.30	5.115+00	1.109-09	3.600-07	7.251+01	1.725-01	5.741-02
44.9	-32.4	10405.6	.007	6.374	0	5	16	25.30	5.012+00	8.937-10	3.600-07	7.256+01	1.725-01	5.741-02
44.9	-32.4	10428.4	.007	6.389	0	5	16	55.30	4.912+00	7.219-10	3.600-07	7.260+01	1.725-01	5.741-02
45.0	-32.4	10451.1	.007	6.402	0	5	17	25.30	4.815+00	5.842-10	3.600-07	7.264+01	1.725-01	5.741-02
45.1	-32.4	10473.5	.007	6.416	0	5	17	55.30	4.721+00	4.734-10	3.600-07	7.268+01	1.725-01	5.741-02
45.2	-32.4	10495.8	.007	6.430	0	5	18	25.30	4.630+00	3.851-10	3.600-07	7.271+01	1.725-01	5.741-02
45.2	-32.5	10517.9	.007	6.443	0	5	18	55.30	4.543+00	3.148-10	3.600-07	7.275+01	1.725-01	5.741-02
45.3	-32.5	10539.9	.007	6.457	0	5	19	25.30	4.457+00	2.569-10	3.600-07	7.279+01	1.725-01	5.741-02
45.4	-32.5	10561.7	.007	6.470	0	5	19	55.30	4.373+00	2.101-10	3.600-07	7.283+01	1.725-01	5.741-02
45.4	-32.5	10583.3	.006	6.483	0	5	20	25.30	4.292+00	1.721-10	3.600-07	7.286+01	1.725-01	5.741-02
45.5	-32.5	10604.7	.006	6.496	0	5	20	55.30	4.213+00	1.414-10	3.600-07	7.290+01	1.725-01	5.741-02
45.6	-32.5	10626.0	.006	6.509	0	5	21	25.30	4.136+00	1.163-10	3.600-07	7.293+01	1.725-01	5.741-02
45.6	-32.5	10647.1	.006	6.522	0	5	21	55.30	4.060+00	9.496-11	3.600-07	7.296+01	1.725-01	5.741-02
45.7	-32.5	10668.0	.006	6.535	0	5	22	25.30	3.986+00	7.847-11	3.600-07	7.300+01	1.725-01	5.741-02
45.8	-32.5	10688.8	.006	6.547	0	5	22	55.30	3.916+00	6.496-11	3.600-07	7.303+01	1.725-01	5.741-02
45.8	-32.5	10709.3	.006	6.560	0	5	23	25.30	3.847+00	5.389-11	3.600-07	7.306+01	1.725-01	5.741-02
45.9	-32.5	10729.8	.006	6.572	0	5	23	55.30	3.781+00	4.479-11	3.600-07	7.309+01	1.725-01	5.741-02
46.0	-32.5	10750.0	.006	6.584	0	5	24	25.30	3.716+00	3.730-11	3.600-07	7.313+01	1.725-01	5.741-02
46.0	-32.5	10770.1	.006	6.596	0	5	24	55.30	3.654+00	3.112-11	3.600-07	7.316+01	1.725-01	5.741-02
46.1	-32.6	10790.0	.006	6.608	0	5	25	25.30	3.592+00	2.599-11	3.600-07	7.319+01	1.725-01	5.741-02
46.2	-32.6	10809.7	.006	6.619	0	5	25	55.30	3.532+00	2.174-11	3.600-07	7.321+01	1.725-01	5.741-02
46.2	-32.6	10829.3	.006	6.631	0	5	26	25.30	3.474+00	1.822-11	3.600-07	7.324+01	1.725-01	5.741-02
46.3	-32.6	10848.7	.006	6.643	0	5	26	55.30	3.418+00	1.530-11	3.600-07	7.327+01	1.725-01	5.741-02
46.4	-32.6	10868.0	.006	6.654	0	5	27	25.30	3.363+00	1.284-11	3.600-07	7.330+01	1.725-01	5.741-02
46.4	-32.6	10887.0	.006	6.665	0	5	27	55.30	3.309+00	1.086-11	3.600-07	7.333+01	1.725-01	5.741-02
46.5	-32.6	10906.9	.006	6.676	0	5	28	25.30	3.257+00	9.175-12	3.600-07	7.336+01	1.725-01	5.741-02
46.5	-32.6	10924.7	.006	6.687	0	5	28	55.30	3.207+00	7.768-12	3.600-07	7.338+01	1.725-01	5.741-02
46.6	-32.6	10943.3	.006	6.698	0	5	29	25.30	3.157+00	6.592-12	3.600-07	7.341+01	1.725-01	5.741-02
46.7	-32.6	10961.7	.006	6.709	0	5	29	55.30	3.110+00	5.609-12	3.600-07	7.343+01	1.725-01	5.741-02
46.7	-32.6	10979.9	.006	6.719	0	5	30	25.30	3.063+00	4.775-12	3.600-07	7.346+01	1.725-01	5.741-02
46.8	-32.6	10998.0	.006	6.730	0	5	30	55.30	3.018+00	4.076-12	3.600-07	7.348+01	1.725-01	5.741-02
46.8	-32.6	11015.9	.006	6.740	0	5	31	25.30	2.974+00	3.487-12	3.600-07	7.351+01	1.725-01	5.741-02
46.9	-32.6	11033.6	.006	6.750	0	5	31	55.30	2.931+00	2.988-12	3.600-07	7.353+01	1.725-01	5.741-02
47.0	-32.6	11051.2	.006	6.760	0	5	32	25.30	2.890+00	2.566-12	3.600-07	7.356+01	1.725-01	5.741-02
47.0	-32.6	11068.6	.006	6.770	0	5	32	55.30	2.849+00	2.208-12	3.600-07	7.358+01	1.725-01	5.741-02
47.1	-32.6	11086.9	.006	6.780	0	5	33	25.30	2.810+00	1.904-12	3.600-07	7.361+01	1.725-01	5.741-02
47.1	-32.6	11103.0	.006	6.790	0	5	33	55.30	2.771+00	1.645-12	3.600-07	7.363+01	1.725-01	5.741-02
47.2	-32.6	11119.9	.006	6.799	0	5	34	25.30	2.734+00	1.424-12	3.600-07	7.365+01	1.725-01	5.741-02
47.2	-32.6	11136.7	.006	6.809	0	5	34	55.30	2.698+00	1.235-12	3.600-07	7.367+01	1.725-01	5.741-02
47.3	-32.6	11153.3	.006	6.818	0	5	35	25.30	2.662+00	1.073-12	3.600-07	7.370+01	1.725-01	5.741-02
47.4	-32.6	11169.7	.006	6.827	0	5	35	55.30	2.628+00	9.343-13	3.600-07	7.372+01	1.725-01	5.741-02
47.4	-32.6	11186.0	.006	6.836	0	5	36	25.30	2.595+00	8.150-13	3.600-07	7.374+01	1.725-01	5.741-02
47.5	-32.6	11202.1	.006	6.845	0	5	36	55.30	2.562+00	7.124-13	3.600-07	7.376+01	1.725-01	5.741-02
47.5	-32.6	11218.1	.006	6.854	0	5	37	25.30	2.530+00	6.239-13	3.600-07	7.378+01	1.725-01	5.741-02
47.6	-32.6	11233.9	.006	6.862	0	5	37	55.30	2.499+00	5.474-13	3.600-07	7.380+01	1.725-01	5.741-02
47.6	-32.6	11249.5	.006	6.871	0	5	38	25.30	2.469+00	4.812-13	3.600-07	7.382+01	1.725-01	5.741-02
47.7	-32.6	11265.0	.006	6.879	0	5	38	55.30	2.440+00	4.239-13	3.600-07	7.384+01	1.725-01	5.741-02
47.7	-32.6	11280.3	.006	6.887	0	5	39	25.30	2.412+00	3.741-13	3.600-07	7.386+01	1.725-01	5.741-02
47.8	-32.6	11295.4	.006	6.895	0	5	39	55.30	2.384+00	3.307-13	3.600-07	7.388+01	1.725-01	5.741-02
47.8	-32.6	11310.4	.006	6.903	0	5	40	25.30	2.357+00	2.930-13	3.600-07	7.390+01	1.725-01	5.741-02
47.9	-32.6	11325.3	.006	6.911	0	5	40	55.30	2.331+00	2.600-13	3.600-07	7.392+01	1.725-01	5.741-02
47.9	-32.6	11339.9	.006	6.919	0	5	41	25.30	2.305+00	2.313-13	3.600-07	7.394+01	1.725-01	5.741-02
48.0	-32.6	11354.5	.006	6.927	0	5	41	55.30	2.281+00	2.060-13	3.600-07	7.396+01	1.725-01	5.741-02
48.0	-32.6	11368.8	.006	6.934	0	5	42	25.30	2.256+00	1.839-13	3.600-07	7.398+01	1.725-01	5.741-02
48.1	-32.6	11383.0	.006	6.941	0	5	42	55.30	2.233+00	1.645-13	3.600-07	7.400+01	1.725-01	5.741-02
48.1	-32.6	11397.0	.006	6.949	0	5	43	25.30	2.210+00	1.474-13	3.600-07	7.402+01	1.725-01	5.741-02
48.2	-32.6	11410.9	.006	6.956	0	5	43	55.30	2.188+00	1.323-13	3.600-07	7.403+01	1.725-01	5.741-02
48.2	-32.6	11424.6	.005	6.963	0	5	44	25.30	2.166+00	1.190-13	3.600-07	7.405+01	1.725-01	5.741-02
48.3	-32.6	11438.2	.005	6.970	0	5	44	55.30	2.145+00	1.072-13	3.600-07	7.407+01	1.725-01	5.741-02
48.3	-32.6	11451.6	.005	6.976	0	5	45	25.30	2.125+00	9.679-14	3.600-07	7.409+01	1.725-01	5.741-02
48.4	-32.6	11464.8	.005	6.983	0	5	45	55.30	2.105+00	8.754-14	3.600-07	7.411+01	1.725-01	5.741-02
48.4	-32.6	11477.9	.005	6.990	0	5	46	25.30	2.086+00	7.932-14	3.600-07	7.412+01	1.725-01	5.741-02
48.5	-32.6	11490.8	.005	6.996	0	5	46	55.30	2.067+00	7.201-14	3.600-07	7.414+01	1.725-01	5.741-02
48.5	-32.5	11503.6	.005	7.002	0	5	47	25.30	2.048+00	6.550-14	3.600-07	7.416+01	1.725-01	5.741-02
48.6	-32.5	11516.2	.005	7.008	0	5	47	55.30	2.031+00	5.968-14	3.600-07	7.417+01	1.725-01	5.741-02
48.6	-32.5	11528.7	.005	7.014	0	5	48	25.30	2.013+00	5.448-14	3.600-07	7.419+01	1.725-01	5.741-02
48.7	-32.5	11541.0	.005	7.020	0	5	48	55.30	1.997+00	4.983-14	3.600-07	7.421+01	1.725-01	5.741-02
48.7	-32.5	11553.1	.005	7.026	0	5	49	25.30	1.980+00	4.564-14	3.600-07	7.422+01	1.725-01	5.741-02
48.7	-32.5	11565.1	.005	7.032	0	5	49	55.30	1.965+00	4.191-14	3.600-07	7.424+01	1.725-01	5.741-02

Table XXVII. Radiation Dosage Evaluation (Continued)

LONG DEG	LAT DEG	ALT NM	B GAUSS	L ER	DAY	HR	MIN	SEC	DOSE RATE (REM/HR) LM SKIN	CM SKIN	CM DEPTH	CUMULATIVE DOSE (REM) LM SKIN	CM SKIN	CM DEPTH
48.8	-32.5	11576.9	.005	7.037	0	5	50	25.30	1.949+00	3.854-14	3.600-07	7.426+01	1.725-01	5.741-02
48.8	-32.5	11588.6	.005	7.043	0	5	50	55.30	1.934+00	3.551-14	3.600-07	7.427+01	1.725-01	5.741-02
48.9	-32.5	11600.1	.005	7.048	0	5	51	25.30	1.919+00	3.260-14	3.600-07	7.429+01	1.725-01	5.741-02
48.9	-32.5	11611.5	.005	7.053	0	5	51	55.30	1.906+00	3.030-14	3.600-07	7.430+01	1.725-01	5.741-02
49.0	-32.5	11622.7	.005	7.058	0	5	52	25.30	1.892+00	2.807-14	3.600-07	7.432+01	1.725-01	5.741-02
49.0	-32.5	11633.7	.005	7.063	0	5	52	55.30	1.879+00	2.605-14	3.600-07	7.434+01	1.725-01	5.741-02
49.0	-32.5	11644.6	.005	7.068	0	5	53	25.30	1.866+00	2.422-14	3.600-07	7.436+01	1.725-01	5.741-02
49.1	-32.5	11655.4	.005	7.073	0	5	53	55.30	1.854+00	2.256-14	3.600-07	7.437+01	1.725-01	5.741-02
49.1	-32.4	11665.9	.005	7.077	0	5	54	25.30	1.842+00	2.105-14	3.600-07	7.438+01	1.725-01	5.741-02
49.2	-32.4	11676.4	.005	7.082	0	5	54	55.30	1.831+00	1.968-14	3.600-07	7.440+01	1.725-01	5.741-02
49.2	-32.4	11686.6	.005	7.086	0	5	55	25.30	1.819+00	1.843-14	3.600-07	7.441+01	1.725-01	5.741-02
49.3	-32.4	11696.8	.005	7.090	0	5	55	55.30	1.809+00	1.729-14	3.600-07	7.443+01	1.725-01	5.741-02
49.3	-32.4	11706.7	.005	7.094	0	5	56	25.30	1.798+00	1.625-14	3.600-07	7.444+01	1.725-01	5.741-02
49.3	-32.4	11716.5	.005	7.098	0	5	56	55.30	1.788+00	1.530-14	3.600-07	7.446+01	1.725-01	5.741-02
49.4	-32.4	11726.2	.005	7.102	0	5	57	25.30	1.778+00	1.443-14	3.600-07	7.447+01	1.725-01	5.741-02
49.4	-32.4	11735.7	.005	7.106	0	5	57	55.30	1.769+00	1.363-14	3.600-07	7.449+01	1.725-01	5.741-02
49.5	-32.4	11745.0	.005	7.109	0	5	58	25.30	1.760+00	1.290-14	3.600-07	7.450+01	1.725-01	5.741-02
49.5	-32.4	11754.2	.005	7.113	0	5	58	55.30	1.751+00	1.223-14	3.600-07	7.452+01	1.725-01	5.741-02
49.5	-32.3	11763.3	.005	7.116	0	5	59	25.30	1.743+00	1.162-14	3.600-07	7.453+01	1.725-01	5.741-02
49.6	-32.3	11772.2	.005	7.120	0	5	59	55.30	1.735+00	1.106-14	3.600-07	7.455+01	1.725-01	5.741-02
49.6	-32.3	11780.9	.005	7.123	0	6	0	25.30	1.727+00	1.054-14	3.600-07	7.456+01	1.725-01	5.741-02
49.7	-32.3	11789.5	.005	7.126	0	6	0	55.30	1.720+00	1.007-14	3.600-07	7.457+01	1.725-01	5.741-02
49.7	-32.3	11797.9	.005	7.129	0	6	1	25.30	1.713+00	9.630-15	3.600-07	7.459+01	1.725-01	5.741-02
49.7	-32.3	11806.2	.005	7.132	0	6	1	55.30	1.706+00	9.228-15	3.600-07	7.460+01	1.725-01	5.741-02
49.8	-32.3	11814.3	.005	7.134	0	6	2	25.30	1.699+00	8.858-15	3.600-07	7.462+01	1.725-01	5.741-02
49.8	-32.3	11822.3	.005	7.137	0	6	2	55.30	1.693+00	8.518-15	3.600-07	7.463+01	1.725-01	5.741-02
49.9	-32.3	11830.1	.005	7.139	0	6	3	25.30	1.687+00	8.206-15	3.600-07	7.465+01	1.725-01	5.741-02
49.9	-32.2	11837.8	.005	7.142	0	6	3	55.30	1.682+00	7.918-15	3.600-07	7.466+01	1.725-01	5.741-02
49.9	-32.2	11845.3	.005	7.144	0	6	4	25.30	1.676+00	7.654-15	3.600-07	7.467+01	1.725-01	5.741-02
50.0	-32.2	11852.6	.005	7.146	0	6	4	55.30	1.671+00	7.412-15	3.600-07	7.469+01	1.725-01	5.741-02
50.0	-32.2	11859.8	.005	7.148	0	6	5	25.30	1.667+00	7.189-15	3.600-07	7.470+01	1.725-01	5.741-02
50.0	-32.2	11866.9	.005	7.150	0	6	5	55.30	1.662+00	6.985-15	3.600-07	7.472+01	1.725-01	5.741-02
50.1	-32.2	11873.8	.005	7.152	0	6	6	25.30	1.658+00	6.799-15	3.600-07	7.473+01	1.725-01	5.741-02
50.1	-32.2	11880.6	.005	7.153	0	6	6	55.30	1.654+00	6.629-15	3.600-07	7.474+01	1.725-01	5.741-02
50.2	-32.2	11887.2	.005	7.155	0	6	7	25.30	1.651+00	6.474-15	3.600-07	7.476+01	1.725-01	5.741-02
50.2	-32.1	11893.6	.005	7.156	0	6	7	55.30	1.647+00	6.334-15	3.600-07	7.477+01	1.725-01	5.741-02
50.2	-32.1	11899.9	.005	7.158	0	6	8	25.30	1.644+00	6.207-15	3.600-07	7.478+01	1.725-01	5.741-02
50.3	-32.1	11906.1	.005	7.159	0	6	8	55.30	1.641+00	6.093-15	3.600-07	7.480+01	1.725-01	5.741-02
50.3	-32.1	11912.0	.005	7.160	0	6	9	25.30	1.639+00	5.992-15	3.600-07	7.481+01	1.725-01	5.741-02
50.3	-32.1	11917.9	.005	7.161	0	6	9	55.30	1.637+00	5.902-15	3.600-07	7.482+01	1.725-01	5.741-02
50.4	-32.1	11923.4	.005	7.162	0	6	10	25.30	1.635+00	5.823-15	3.600-07	7.484+01	1.725-01	5.741-02
50.4	-32.1	11929.1	.005	7.163	0	6	10	55.30	1.633+00	5.755-15	3.600-07	7.485+01	1.725-01	5.741-02
50.4	-32.0	11934.5	.005	7.163	0	6	11	25.30	1.631+00	5.697-15	3.600-07	7.487+01	1.725-01	5.741-02
50.5	-32.0	11939.8	.005	7.164	0	6	11	55.30	1.630+00	5.650-15	3.600-07	7.488+01	1.725-01	5.741-02
50.5	-32.0	11944.8	.005	7.164	0	6	12	25.30	1.629+00	5.612-15	3.600-07	7.489+01	1.725-01	5.741-02
50.5	-32.0	11949.8	.005	7.165	0	6	12	55.30	1.629+00	5.583-15	3.600-07	7.491+01	1.725-01	5.741-02
50.6	-32.0	11954.6	.005	7.165	0	6	13	25.30	1.628+00	5.564-15	3.600-07	7.492+01	1.725-01	5.741-02
50.6	-32.0	11959.2	.005	7.165	0	6	13	55.30	1.628+00	5.555-15	3.600-07	7.493+01	1.725-01	5.741-02
50.7	-31.9	11963.7	.005	7.165	0	6	14	25.30	1.628+00	5.554-15	3.600-07	7.495+01	1.725-01	5.741-02
50.7	-31.9	11968.0	.005	7.165	0	6	14	55.30	1.628+00	5.563-15	3.600-07	7.496+01	1.725-01	5.741-02
50.7	-31.9	11972.2	.005	7.165	0	6	15	25.30	1.629+00	5.581-15	3.600-07	7.497+01	1.725-01	5.741-02
50.8	-31.9	11976.2	.005	7.164	0	6	15	55.30	1.630+00	5.608-15	3.600-07	7.499+01	1.725-01	5.741-02
50.8	-31.9	11980.1	.005	7.164	0	6	16	25.30	1.631+00	5.646-15	3.600-07	7.500+01	1.725-01	5.741-02
50.8	-31.9	11983.8	.005	7.163	0	6	16	55.30	1.632+00	5.691-15	3.600-07	7.501+01	1.725-01	5.741-02
50.9	-31.8	11987.4	.005	7.163	0	6	17	25.30	1.634+00	5.747-15	3.600-07	7.503+01	1.725-01	5.741-02
50.9	-31.8	11990.9	.005	7.162	0	6	17	55.30	1.636+00	5.813-15	3.600-07	7.504+01	1.725-01	5.741-02
50.9	-31.8	11994.1	.005	7.161	0	6	18	25.30	1.637+00	5.890-15	3.600-07	7.506+01	1.725-01	5.741-02
51.0	-31.8	11997.3	.005	7.160	0	6	18	55.30	1.640+00	5.977-15	3.600-07	7.507+01	1.725-01	5.741-02
51.0	-31.8	12000.2	.005	7.159	0	6	19	25.30	1.642+00	6.075-15	3.600-07	7.508+01	1.725-01	5.741-02
51.0	-31.7	12003.1	.005	7.158	0	6	19	55.30	1.645+00	6.185-15	3.600-07	7.510+01	1.725-01	5.741-02
51.1	-31.7	12005.8	.005	7.157	0	6	20	25.30	1.648+00	6.307-15	3.600-07	7.511+01	1.725-01	5.741-02
51.1	-31.7	12008.3	.005	7.155	0	6	20	55.30	1.652+00	6.442-15	3.600-07	7.512+01	1.725-01	5.741-02
51.1	-31.7	12010.7	.005	7.154	0	6	21	25.30	1.656+00	6.591-15	3.600-07	7.514+01	1.725-01	5.741-02
51.2	-31.7	12012.9	.005	7.152	0	6	21	55.30	1.659+00	6.753-15	3.600-07	7.515+01	1.725-01	5.741-02
51.2	-31.7	12015.0	.005	7.150	0	6	22	25.30	1.663+00	6.931-15	3.600-07	7.517+01	1.725-01	5.741-02
51.2	-31.6	12016.9	.005	7.149	0	6	22	55.30	1.668+00	7.126-15	3.600-07	7.518+01	1.725-01	5.741-02
51.2	-31.6	12018.7	.005	7.147	0	6	23	25.30	1.672+00	7.336-15	3.600-07	7.519+01	1.725-01	5.741-02
51.3	-31.6	12020.3	.005	7.145	0	6	23	55.30	1.677+00	7.564-15	3.600-07	7.521+01	1.725-01	5.741-02
51.3	-31.6	12021.8	.005	7.143	0	6	24	25.30	1.682+00	7.815-15	3.600-07	7.522+01	1.725-01	5.741-02
51.3	-31.6	12023.1	.005	7.140	0	6	24	55.30	1.688+00	8.085-15	3.600-07	7.524+01	1.725-01	5.741-02
51.4	-31.5	12024.3	.005	7.138	0	6	25	25.30	1.694+00	8.381-15	3.600-07	7.525+01	1.725-01	5.741-02
51.4	-31.5	12025.3	.005	7.136	0	6	25	55.30	1.699+00	8.694-15	3.600-07	7.526+01	1.725-01	5.741-02
51.4	-31.5	12026.2	.005	7.132	0	6	26	25.30	1.708+00	9.165-15	3.600-07	7.528+01	1.725-01	5.741-02
51.5	-31.5	12027.0	.005	7.129	0	6	26	55.30	1.714+00	9.638-15	3.600-07	7.529+01	1.725-01	5.741-02
51.5	-31.4	12027.5	.005	7.127	0	6	27	25.30	1.721+00	9.941-15	3.600-07	7.531+01	1.725-01	5.741-02
51.5	-31.4	12028.0	.005	7.124	0	6	27	55.30	1.728+00	1.038-14	3.600-07	7.532+01	1.725-01	5.741-02
51.4	-31.4	12028.2	.005	7.121	0	6	28	25.30	1.736+00	1.085-14	3.600-07	7.534+01	1.725-01	5.741-02
51.4	-31.4	12028.4	.005	7.118	0	6	28	55.30	1.743+00	1.136-14	3.600-07	7.535+01	1.725-01	5.741-02
51.4	-31.4	12028.4	.005	7.115	0	6	29	25.30	1.75[illegible]+00	1.19[illegible]-14	3.600-07	7.53[illegible]+01	1.725-01	5.741-02
51.7	-31.3	12028.2	.005	7.112	0	6	29	55.30	1.759+00	1.252-14	3.600-07	7.538+01	1.725-01	5.741-02
51.7	-31.3	12027.9	.005	7.108	0	6	30	25.30	1.768+00	1.317-14	3.600-07	7.539+01	1.725-01	5.741-02
51.7	-31.3	12027.4	.005	7.105	0	6	30	55.30	1.776+00	1.388-14	3.600-07	7.541+01	1.725-01	5.741-02
51.7	-31.3	12026.8	.005	7.101	0	6	31	25.30	1.785+00	1.464-14	3.600-07	7.542+01	1.725-01	5.741-02
51.8	-31.2	12026.0	.005	7.098	0	6	31	55.30	1.795+00	1.548-14	3.600-07	7.544+01	1.725-01	5.741-02
51.8	-31.2	12025.1	.005	7.094	0	6	32	25.30	1.804+00	1.636-14	3.600-07	7.545+01	1.725-01	5.741-02
51.8	-31.2	12024.0	.005	7.090	0	6	32	55.30	1.814+00	1.736-14	3.600-07	7.547+01	1.725-01	5.741-02
51.9	-31.2	12022.8	.005	7.086	0	6	33	25.30	1.825+00	1.842-14	3.600-07	7.548+01	1.725-01	5.741-02
51.9	-31.2	12021.5	.005	7.082	0	6	33	55.30	1.834+00	1.950-14	3.600-07	7.550+01	1.725-01	5.741-02
51.9	-31.1	12020.0	.005	7.078	0	6	34	25.30	1.844+00	2.088-14	3.600-07	7.551+01	1.725-01	5.741-02
52.0	-31.1	12018.3	.005	7.074	0	6	34	55.30	1.858+00	2.226-14	3.600-07	7.553+01	1.725-01	5.741-02
52.0	-31.1	12016.5	.005	7.069	0	6	35	25.30	1.869+00	2.377-14	3.600-07	7.555+01	1.725-01	5.741-02

Table XXVII. Radiation Dosage Evaluation (Continued)

LONG DEG	LAT DEG	ALT NM	B GAUSS	L ER	DAY	HR	MIN	SEC	DOSE RATE (REM/HR) LM SKIN	CM SKIN	CM DEPTH	CUMULATIVE DOSE (REM) LM SKIN	CM SKIN	CM DEPTH
52.0	-31.1	12014.5	.005	7.065	0	6	35	55.30	1.881+00	2.543-14	3.600-07	7.556+01	1.725-01	5.741-02
52.1	-31.0	12012.4	.005	7.060	0	6	36	25.30	1.893+00	2.723-14	3.600-07	7.558+01	1.725-01	5.741-02
52.1	-31.0	12010.1	.005	7.056	0	6	36	55.30	1.906+00	2.921-14	3.600-07	7.559+01	1.725-01	5.741-02
52.1	-31.0	12007.7	.005	7.051	0	6	37	25.30	1.919+00	3.138-14	3.600-07	7.561+01	1.725-01	5.741-02
52.1	-31.0	12005.2	.005	7.046	0	6	37	55.30	1.932+00	3.376-14	3.600-07	7.563+01	1.725-01	5.741-02
52.2	-30.9	12002.4	.005	7.041	0	6	38	25.30	1.946+00	3.637-14	3.600-07	7.564+01	1.725-01	5.741-02
52.2	-30.9	11999.6	.005	7.036	0	6	38	55.30	1.960+00	3.925-14	3.600-07	7.566+01	1.725-01	5.741-02
52.2	-30.9	11996.6	.005	7.031	0	6	39	25.30	1.974+00	4.242-14	3.600-07	7.567+01	1.725-01	5.741-02
52.3	-30.9	11993.4	.005	7.026	0	6	39	55.30	1.989+00	4.592-14	3.600-07	7.569+01	1.725-01	5.741-02
52.3	-30.8	11990.1	.005	7.020	0	6	40	25.30	2.007+00	5.061-14	3.600-07	7.571+01	1.725-01	5.741-02
52.3	-30.8	11986.6	.005	7.014	0	6	40	55.30	2.023+00	5.498-14	3.600-07	7.572+01	1.725-01	5.741-02
52.4	-30.8	11983.0	.005	7.009	0	6	41	25.30	2.039+00	5.977-14	3.600-07	7.574+01	1.725-01	5.741-02
52.4	-30.7	11979.2	.005	7.003	0	6	41	55.30	2.056+00	6.511-14	3.600-07	7.576+01	1.725-01	5.741-02
52.4	-30.7	11975.3	.005	6.997	0	6	42	25.30	2.073+00	7.102-14	3.600-07	7.578+01	1.725-01	5.741-02
52.4	-30.7	11971.2	.005	6.991	0	6	42	55.30	2.090+00	7.758-14	3.600-07	7.579+01	1.725-01	5.741-02
52.5	-30.7	11967.0	.005	6.985	0	6	43	25.30	2.108+00	8.486-14	3.600-07	7.581+01	1.725-01	5.741-02
52.5	-30.6	11962.7	.005	6.979	0	6	43	55.30	2.126+00	9.296-14	3.600-07	7.583+01	1.725-01	5.741-02
52.5	-30.6	11958.1	.005	6.973	0	6	44	25.30	2.145+00	1.020-13	3.600-07	7.585+01	1.725-01	5.741-02
52.6	-30.6	11953.5	.005	6.967	0	6	44	55.30	2.164+00	1.121-13	3.600-07	7.586+01	1.725-01	5.741-02
52.6	-30.6	11948.7	.005	6.961	0	6	45	25.30	2.183+00	1.233-13	3.600-07	7.588+01	1.725-01	5.741-02
52.6	-30.5	11943.7	.005	6.954	0	6	45	55.30	2.203+00	1.358-13	3.600-07	7.590+01	1.725-01	5.741-02
52.7	-30.5	11938.6	.005	6.948	0	6	46	25.30	2.224+00	1.499-13	3.600-07	7.592+01	1.725-01	5.741-02
52.7	-30.5	11933.3	.005	6.941	0	6	46	55.30	2.245+00	1.656-13	3.600-07	7.594+01	1.725-01	5.741-02
52.7	-30.4	11927.9	.005	6.935	0	6	47	25.30	2.266+00	1.833-13	3.600-07	7.596+01	1.725-01	5.741-02
52.7	-30.4	11922.3	.005	6.928	0	6	47	55.30	2.287+00	2.020-13	3.600-07	7.598+01	1.725-01	5.741-02
52.8	-30.4	11916.6	.005	6.921	0	6	48	25.30	2.310+00	2.242-13	3.600-07	7.600+01	1.725-01	5.741-02
52.8	-30.3	11910.7	.005	6.914	0	6	48	55.30	2.333+00	2.492-13	3.600-07	7.602+01	1.725-01	5.741-02
52.8	-30.3	11904.7	.005	6.907	0	6	49	25.30	2.357+00	2.774-13	3.600-07	7.603+01	1.725-01	5.741-02
52.9	-30.3	11898.5	.005	6.900	0	6	49	55.30	2.381+00	3.092-13	3.600-07	7.605+01	1.725-01	5.741-02
52.9	-30.3	11892.1	.005	6.893	0	6	50	25.30	2.406+00	3.451-13	3.600-07	7.607+01	1.725-01	5.741-02
52.9	-30.2	11885.7	.005	6.886	0	6	50	55.30	2.431+00	3.857-13	3.600-07	7.609+01	1.725-01	5.741-02
53.0	-30.2	11879.0	.005	6.878	0	6	51	25.30	2.457+00	4.317-13	3.600-07	7.612+01	1.725-01	5.741-02
53.0	-30.2	11872.2	.005	6.871	0	6	51	55.30	2.484+00	4.839-13	3.600-07	7.614+01	1.725-01	5.741-02
53.0	-30.1	11866.3	.005	6.863	0	6	52	25.30	2.511+00	5.431-13	3.600-07	7.616+01	1.725-01	5.741-02
53.0	-30.1	11858.2	.005	6.855	0	6	52	55.30	2.539+00	6.104-13	3.600-07	7.618+01	1.725-01	5.741-02
53.1	-30.1	11851.0	.005	6.848	0	6	53	25.30	2.567+00	6.870-13	3.600-07	7.620+01	1.725-01	5.741-02
53.1	-30.0	11843.6	.005	6.840	0	6	53	55.30	2.596+00	7.744-13	3.600-07	7.622+01	1.725-01	5.741-02
53.1	-30.0	11836.0	.005	6.832	0	6	54	25.30	2.626+00	8.739-13	3.600-07	7.624+01	1.725-01	5.741-02
53.2	-30.0	11828.3	.005	6.824	0	6	54	55.30	2.656+00	9.877-13	3.600-07	7.627+01	1.725-01	5.741-02
53.2	-29.9	11820.5	.005	6.816	0	6	55	25.30	2.688+00	1.118-12	3.600-07	7.629+01	1.725-01	5.741-02
53.2	-29.9	11812.5	.005	6.807	0	6	55	55.30	2.720+00	1.267-12	3.600-07	7.631+01	1.725-01	5.741-02
53.3	-29.9	11804.3	.005	6.799	0	6	56	25.30	2.752+00	1.438-12	3.600-07	7.633+01	1.725-01	5.741-02
53.3	-29.8	11796.0	.005	6.791	0	6	56	55.30	2.786+00	1.634-12	3.600-07	7.636+01	1.725-01	5.741-02
53.3	-29.8	11787.5	.005	6.782	0	6	57	25.30	2.820+00	1.859-12	3.600-07	7.638+01	1.725-01	5.741-02
53.3	-29.8	11778.9	.005	6.773	0	6	57	55.30	2.855+00	2.118-12	3.600-07	7.640+01	1.725-01	5.741-02
53.4	-29.7	11770.1	.005	6.765	0	6	58	25.30	2.890+00	2.417-12	3.600-07	7.643+01	1.725-01	5.741-02
53.4	-29.7	11761.2	.005	6.756	0	6	58	55.30	2.927+00	2.762-12	3.600-07	7.645+01	1.725-01	5.741-02
53.4	-29.7	11752.1	.005	6.747	0	6	59	25.30	2.964+00	3.160-12	3.600-07	7.648+01	1.725-01	5.741-02
53.5	-29.6	11742.9	.005	6.738	0	6	59	55.30	3.002+00	3.620-12	3.600-07	7.650+01	1.725-01	5.741-02
53.5	-29.6	11733.5	.005	6.729	0	7	0	25.30	3.042+00	4.153-12	3.600-07	7.653+01	1.725-01	5.741-02
53.5	-29.6	11724.0	.005	6.720	0	7	0	55.30	3.082+00	4.770-12	3.600-07	7.655+01	1.725-01	5.741-02
53.6	-29.5	11714.3	.005	6.711	0	7	1	25.30	3.122+00	5.487-12	3.600-07	7.658+01	1.725-01	5.741-02
53.6	-29.5	11704.5	.005	6.701	0	7	1	55.30	3.164+00	6.320-12	3.600-07	7.661+01	1.725-01	5.741-02
53.6	-29.5	11694.5	.005	6.692	0	7	2	25.30	3.207+00	7.289-12	3.600-07	7.663+01	1.725-01	5.741-02
53.7	-29.4	11684.3	.005	6.682	0	7	2	55.30	3.251+00	8.418-12	3.600-07	7.666+01	1.725-01	5.741-02
53.7	-29.4	11674.0	.005	6.673	0	7	3	25.30	3.296+00	9.735-12	3.600-07	7.669+01	1.725-01	5.741-02
53.7	-29.4	11663.5	.005	6.663	0	7	3	55.30	3.342+00	1.127-11	3.600-07	7.671+01	1.725-01	5.741-02
53.8	-29.3	11652.9	.005	6.653	0	7	4	25.30	3.389+00	1.307-11	3.600-07	7.674+01	1.725-01	5.741-02
53.8	-29.3	11642.1	.005	6.644	0	7	4	55.30	3.437+00	1.517-11	3.600-07	7.677+01	1.725-01	5.741-02
53.8	-29.2	11631.2	.005	6.634	0	7	5	25.30	3.486+00	1.764-11	3.600-07	7.680+01	1.725-01	5.741-02
53.9	-29.2	11620.1	.005	6.624	0	7	5	55.30	3.536+00	2.053-11	3.600-07	7.683+01	1.725-01	5.741-02
53.9	-29.2	11608.9	.005	6.614	0	7	6	25.30	3.587+00	2.393-11	3.600-07	7.686+01	1.725-01	5.741-02
53.9	-29.1	11597.5	.005	6.603	0	7	6	55.30	3.640+00	2.793-11	3.600-07	7.689+01	1.725-01	5.741-02
54.0	-29.1	11585.9	.005	6.593	0	7	7	25.30	3.694+00	3.264-11	3.600-07	7.692+01	1.725-01	5.741-02
54.0	-29.1	11574.2	.005	6.583	0	7	7	55.30	3.749+00	3.819-11	3.600-07	7.695+01	1.725-01	5.741-02
54.0	-29.0	11562.4	.005	6.572	0	7	8	25.30	3.805+00	4.474-11	3.600-07	7.698+01	1.725-01	5.741-02
54.1	-29.0	11550.3	.005	6.562	0	7	8	55.30	3.863+00	5.249-11	3.600-07	7.702+01	1.725-01	5.741-02
54.1	-28.9	11538.2	.005	6.551	0	7	9	25.30	3.922+00	6.167-11	3.600-07	7.705+01	1.725-01	5.741-02
54.1	-28.9	11525.8	.005	6.540	0	7	9	55.30	3.983+00	7.263-11	3.600-07	7.708+01	1.725-01	5.741-02
54.2	-28.9	11513.3	.005	6.530	0	7	10	25.30	4.044+00	8.542-11	3.600-07	7.712+01	1.725-01	5.741-02
54.2	-28.8	11500.7	.005	6.519	0	7	10	55.30	4.108+00	1.007-10	3.600-07	7.715+01	1.725-01	5.741-02
54.2	-28.8	11487.9	.005	6.508	0	7	11	25.30	4.173+00	1.190-10	3.600-07	7.718+01	1.725-01	5.741-02
54.3	-28.7	11474.9	.005	6.497	0	7	11	55.30	4.239+00	1.406-10	3.600-07	7.722+01	1.725-01	5.741-02
54.3	-28.7	11461.8	.005	6.486	0	7	12	25.30	4.307+00	1.665-10	3.600-07	7.726+01	1.725-01	5.741-02
54.3	-28.7	11448.5	.005	6.475	0	7	12	55.30	4.377+00	1.979-10	3.600-07	7.729+01	1.725-01	5.741-02
54.4	-28.6	11435.1	.005	6.463	0	7	13	25.30	4.448+00	2.343-10	3.600-07	7.733+01	1.725-01	5.741-02
54.4	-28.6	11421.5	.005	6.452	0	7	13	55.30	4.521+00	2.784-10	3.600-07	7.737+01	1.725-01	5.741-02
54.4	-28.5	11407.7	.005	6.440	0	7	14	25.30	4.596+00	3.313-10	3.600-07	7.741+01	1.725-01	5.741-04
54.5	-28.5	11393.8	.005	6.429	0	7	14	55.30	4.672+00	3.947-10	3.600-07	7.744+01	1.725-01	5.741-04
54.5	-28.5	11379.8	.005	6.417	0	7	15	25.30	4.751+00	4.709-10	3.600-07	7.748+01	1.725-01	5.741-02
54.5	-28.4	11365.5	.005	6.405	0	7	15	55.30	4.831+00	5.626-10	3.600-07	7.752+01	1.725-01	5.741-02
54.6	-28.4	11351.1	.005	6.394	0	7	16	25.30	4.913+00	6.729-10	3.600-07	7.756+01	1.725-01	5.741-02
54.6	-28.3	11336.6	.005	6.382	0	7	16	55.30	4.998+00	8.059-10	3.600-07	7.761+01	1.725-01	5.741-04
54.6	-28.3	11321.9	.005	6.370	0	7	17	25.30	5.084+00	9.664-10	3.600-07	7.765+01	1.725-01	5.741-04
54.7	-28.2	11307.0	.005	6.358	0	7	17	55.30	5.172+00	1.160-09	3.600-07	7.769+01	1.725-01	5.741-04
54.7	-28.2	11292.0	.005	6.346	0	7	18	25.30	5.263+00	1.395-09	3.600-07	7.774+01	1.725-01	5.741-02
54.7	-28.2	11276.8	.005	6.333	0	7	18	55.30	5.356+00	1.680-09	3.600-07	7.778+01	1.725-01	5.741-02
54.8	-28.1	11261.5	.005	6.321	0	7	19	25.30	5.451+00	2.026-09	3.600-07	7.783+01	1.725-01	5.741-02
54.8	-28.1	11246.0	.004	6.309	0	7	19	55.30	5.549+00	2.444-09	3.600-07	7.787+01	1.725-01	5.741-02
54.9	-28.0	11230.3	.004	6.296	0	7	20	25.30	5.649+00	2.954-09	3.600-07	7.792+01	1.725-01	5.741-02
54.9	-28.0	11214.5	.004	6.284	0	7	20	55.30	5.751+00	3.574-09	3.600-07	7.797+01	1.725-01	5.741-02

Table XXVII. Radiation Dosage Evaluation (Continued)

LONG DEG	LAT DEG	ALT NM	B GAUSS	L ER	DAY	HR	MIN	SEC	DOSE RATE (REM/HR) LM SKIN	CM SKIN	CM DEPTH	CUMULATIVE DOSE (REM) LM SKIN	CM SKIN	CM DEPTH
54.9	-27.9	11198.5	.006	6.271	0	7	21	25.30	5.857+00	9.332-09	3.600-07	7.802+01	1.725-01	5.741-02
55.0	-27.9	11182.3	.006	6.268	0	7	21	55.30	5.968+00	8.257-09	3.600-07	7.807+01	1.725-01	5.741-02
55.0	-27.8	11166.0	.006	6.245	0	7	22	25.30	6.075+00	6.388-09	3.600-07	7.812+01	1.725-01	5.741-02
55.0	-27.8	11149.5	.006	6.232	0	7	22	55.30	6.189+00	7.773-09	3.600-07	7.817+01	1.725-01	5.741-02
55.1	-27.7	11132.9	.006	6.219	0	7	23	25.30	6.305+00	9.473-09	3.600-07	7.822+01	1.725-01	5.741-02
55.1	-27.7	11116.1	.006	6.206	0	7	23	55.30	6.425+00	1.157-08	3.600-07	7.827+01	1.725-01	5.741-02
55.2	-27.6	11099.1	.006	6.193	0	7	24	25.30	6.548+00	1.414-08	3.600-07	7.833+01	1.725-01	5.741-02
55.2	-27.6	11082.0	.006	6.180	0	7	24	55.30	6.675+00	1.732-08	3.600-07	7.838+01	1.725-01	5.741-02
55.2	-27.6	11064.7	.006	6.166	0	7	25	25.30	6.804+00	2.122-08	3.600-07	7.844+01	1.725-01	5.741-02
55.3	-27.5	11047.2	.006	6.153	0	7	25	55.30	6.937+00	2.604-08	3.600-07	7.850+01	1.725-01	5.741-02
55.3	-27.5	11029.6	.006	6.139	0	7	26	25.30	7.073+00	3.199-08	3.600-07	7.856+01	1.725-01	5.741-02
55.4	-27.4	11011.8	.006	6.126	0	7	26	55.30	7.212+00	3.934-08	3.600-07	7.862+01	1.725-01	5.741-02
55.4	-27.4	10993.9	.006	6.112	0	7	27	25.30	7.355+00	4.844-08	3.600-07	7.868+01	1.725-01	5.741-02
55.4	-27.3	10975.8	.006	6.098	0	7	27	55.30	7.502+00	5.971-08	3.600-07	7.874+01	1.725-01	5.741-02
55.5	-27.3	10957.5	.006	6.084	0	7	28	25.30	7.652+00	7.367-08	3.600-07	7.881+01	1.725-01	5.741-02
55.5	-27.2	10939.0	.006	6.070	0	7	28	55.30	7.806+00	9.099-08	3.600-07	7.887+01	1.725-01	5.741-02
55.6	-27.2	10920.4	.006	6.056	0	7	29	25.30	7.964+00	1.125-07	3.600-07	7.894+01	1.725-01	5.741-02
55.6	-27.1	10901.6	.006	6.042	0	7	29	55.30	8.127+00	1.393-07	3.600-07	7.900+01	1.725-01	5.741-02
55.6	-27.1	10882.7	.006	6.028	0	7	30	25.30	8.293+00	1.726-07	3.600-07	7.907+01	1.725-01	5.741-02
55.7	-27.0	10863.6	.006	6.014	0	7	30	55.30	8.464+00	2.142-07	3.600-07	7.914+01	1.725-01	5.741-02
55.7	-27.0	10844.3	.006	6.000	0	7	31	25.30	8.639+00	2.661-07	3.600-07	7.922+01	1.725-01	5.741-02
55.8	-26.9	10824.9	.006	5.986	0	7	31	55.30	8.819+00	3.309-07	3.600-07	7.929+01	1.725-01	5.741-02
55.8	-26.8	10805.3	.006	5.971	0	7	32	25.30	9.003+00	4.120-07	3.600-07	7.936+01	1.725-01	5.741-02
55.9	-26.8	10785.5	.006	5.956	0	7	32	55.30	9.192+00	5.136-07	3.600-07	7.944+01	1.725-01	5.741-02
55.9	-26.7	10765.5	.006	5.942	0	7	33	25.30	9.387+00	6.409-07	3.600-07	7.952+01	1.725-01	5.741-02
56.0	-26.7	10745.4	.006	5.927	0	7	33	55.30	9.586+00	8.007-07	3.600-07	7.960+01	1.725-01	5.741-02
56.0	-26.6	10725.1	.006	5.912	0	7	34	25.30	9.791+00	1.001-06	3.600-07	7.968+01	1.725-01	5.741-02
56.0	-26.6	10704.7	.006	5.897	0	7	34	55.30	1.000+01	1.254-06	3.600-07	7.976+01	1.725-01	5.741-02
56.1	-26.5	10684.1	.006	5.883	0	7	35	25.30	1.022+01	1.572-06	3.600-07	7.985+01	1.725-01	5.741-02
56.1	-26.5	10663.3	.006	5.868	0	7	35	55.30	1.044+01	1.972-06	3.600-07	7.994+01	1.725-01	5.741-02
56.2	-26.4	10642.3	.006	5.853	0	7	36	25.30	1.067+01	2.476-06	3.600-07	8.003+01	1.725-01	5.741-02
56.2	-26.4	10621.2	.006	5.837	0	7	36	55.30	1.090+01	3.117-06	3.600-07	8.012+01	1.725-01	5.741-02
56.3	-26.3	10599.9	.006	5.822	0	7	37	25.30	1.114+01	3.924-06	3.600-07	8.021+01	1.725-01	5.741-02
56.3	-26.3	10578.4	.006	5.807	0	7	37	55.30	1.139+01	4.947-06	3.600-07	8.030+01	1.725-01	5.741-02
56.4	-26.2	10556.7	.006	5.792	0	7	38	25.30	1.168+01	6.860-06	3.600-07	8.040+01	1.725-01	5.741-02
56.4	-26.1	10534.9	.006	5.776	0	7	38	55.30	1.200+01	1.031-05	3.600-07	8.050+01	1.725-01	5.741-02
56.5	-26.1	10512.9	.006	5.761	0	7	39	25.30	1.234+01	1.554-05	3.600-07	8.060+01	1.725-01	5.741-02
56.5	-26.0	10490.8	.006	5.745	0	7	39	55.30	1.269+01	2.345-05	3.600-07	8.071+01	1.725-01	5.741-02
56.6	-26.0	10468.4	.006	5.730	0	7	40	25.30	1.306+01	3.546-05	3.600-07	8.082+01	1.725-01	5.741-02
56.6	-25.9	10445.9	.006	5.714	0	7	40	55.30	1.343+01	5.373-05	3.600-07	8.093+01	1.725-01	5.741-02
56.7	-25.8	10423.2	.006	5.699	0	7	41	25.30	1.380+01	8.031-05	3.600-07	8.105+01	1.725-01	5.741-02
56.7	-25.8	10400.4	.006	5.683	0	7	41	55.30	1.420+01	1.223-04	3.600-07	8.116+01	1.725-01	5.741-02
56.8	-25.7	10377.4	.006	5.667	0	7	42	25.30	1.462+01	1.866-04	3.600-07	8.129+01	1.725-01	5.741-02
56.8	-25.7	10354.2	.006	5.651	0	7	42	55.30	1.505+01	2.854-04	3.600-07	8.141+01	1.725-01	5.741-02
56.9	-25.6	10330.8	.007	5.635	0	7	43	25.30	1.549+01	4.370-04	3.600-07	8.154+01	1.725-01	5.741-02
56.9	-25.5	10307.2	.007	5.619	0	7	43	55.30	1.595+01	6.707-04	3.600-07	8.167+01	1.725-01	5.741-02
57.0	-25.5	10283.5	.007	5.602	0	7	44	25.30	1.642+01	1.031-03	3.600-07	8.181+01	1.725-01	5.741-02
57.0	-25.4	10259.6	.007	5.586	0	7	44	55.30	1.687+01	8.324-04	3.600-07	8.195+01	1.725-01	5.741-02
57.1	-25.4	10235.5	.007	5.570	0	7	45	25.30	1.734+01	6.014-04	3.600-07	8.209+01	1.725-01	5.741-02
57.1	-25.3	10211.2	.007	5.553	0	7	45	55.30	1.781+01	4.340-04	3.600-07	8.224+01	1.724-01	5.741-02
57.2	-25.2	10186.8	.007	5.537	0	7	46	25.30	1.831+01	3.127-04	3.600-07	8.240+01	1.724-01	5.741-02
57.2	-25.2	10162.2	.007	5.520	0	7	46	55.30	1.882+01	2.249-04	3.600-07	8.255+01	1.724-01	5.741-02
57.3	-25.1	10137.4	.007	5.503	0	7	47	25.30	1.934+01	1.616-04	3.600-07	8.271+01	1.724-01	5.741-02
57.3	-25.0	10112.4	.007	5.487	0	7	47	55.30	1.989+01	1.159-04	3.600-07	8.288+01	1.724-01	5.741-02
57.4	-25.0	10087.2	.007	5.470	0	7	48	25.30	2.045+01	8.301-05	3.600-07	8.305+01	1.724-01	5.741-02
57.5	-24.9	10061.9	.007	5.453	0	7	48	55.30	2.102+01	5.992-05	3.600-07	8.323+01	1.724-01	5.741-02
57.5	-24.8	10036.4	.007	5.436	0	7	49	25.30	2.163+01	4.236-05	3.600-07	8.341+01	1.724-01	5.741-02
57.6	-24.8	10010.7	.007	5.419	0	7	49	55.30	2.224+01	3.020-05	3.600-07	8.359+01	1.724-01	5.741-02
57.6	-24.7	9984.8	.007	5.402	0	7	50	25.30	2.288+01	2.150-05	3.600-07	8.378+01	1.724-01	5.741-02
57.7	-24.6	9958.8	.007	5.384	0	7	50	55.30	2.341+01	2.191-05	3.600-07	8.396+01	1.724-01	5.741-02
57.7	-24.6	9932.6	.007	5.367	0	7	51	25.30	2.393+01	2.323-05	3.600-07	8.418+01	1.724-01	5.741-02
57.8	-24.5	9906.1	.007	5.350	0	7	51	55.30	2.447+01	2.462-05	3.600-07	8.436+01	1.724-01	5.741-02
57.9	-24.4	9879.5	.007	5.332	0	7	52	25.30	2.502+01	2.611-05	3.600-07	8.459+01	1.724-01	5.741-02
57.9	-24.4	9852.7	.007	5.315	0	7	52	55.30	2.559+01	2.770-05	3.600-07	8.480+01	1.724-01	5.741-02
58.0	-24.3	9825.8	.007	5.297	0	7	53	25.30	2.617+01	2.939-05	3.600-07	8.502+01	1.724-01	5.741-02
58.0	-24.2	9798.6	.007	5.280	0	7	53	55.30	2.677+01	3.119-05	3.600-07	8.524+01	1.724-01	5.741-02
58.1	-24.2	9771.3	.007	5.262	0	7	54	25.30	2.738+01	3.311-05	3.600-07	8.547+01	1.724-01	5.741-02
58.2	-24.1	9743.7	.007	5.244	0	7	54	55.30	2.802+01	3.515-05	3.600-07	8.570+01	1.724-01	5.741-02
58.2	-24.0	9716.0	.007	5.226	0	7	55	25.30	2.866+01	3.734-05	3.600-07	8.594+01	1.724-01	5.741-02
58.3	-23.9	9688.1	.007	5.208	0	7	55	55.30	2.933+01	3.967-05	3.600-07	8.619+01	1.724-01	5.741-02
58.4	-23.9	9660.1	.007	5.190	0	7	56	25.30	3.015+01	4.274-05	3.600-07	8.644+01	1.724-01	5.741-02
58.4	-23.8	9631.8	.007	5.172	0	7	56	55.30	3.110+01	4.658-05	3.600-07	8.670+01	1.724-01	5.741-02
58.5	-23.7	9603.3	.008	5.154	0	7	57	25.30	3.209+01	5.076-05	3.600-07	8.697+01	1.724-01	5.741-02
58.6	-23.6	9574.7	.008	5.135	0	7	57	55.30	3.311+01	5.538-05	3.600-07	8.724+01	1.724-01	5.741-02
58.6	-23.6	9545.9	.008	5.117	0	7	58	25.30	3.417+01	6.042-05	3.600-07	8.753+01	1.724-01	5.741-02
58.7	-23.5	9516.8	.008	5.098	0	7	58	55.30	3.527+01	6.594-05	3.600-07	8.782+01	1.724-01	5.741-02
58.8	-23.4	9487.6	.008	5.080	0	7	59	25.30	3.641+01	7.200-05	3.600-07	8.812+01	1.724-01	5.741-02
58.8	-23.3	9458.2	.008	5.061	0	7	59	55.30	3.760+01	7.865-05	3.600-07	8.844+01	1.724-01	5.741-02
58.9	-23.3	9428.6	.008	5.043	0	8	0	25.30	3.882+01	8.593-05	3.600-07	8.876+01	1.724-01	5.741-02
59.0	-23.2	9398.8	.008	5.024	0	8	0	55.30	4.010+01	9.393-05	3.600-07	8.909+01	1.724-01	5.741-02
59.0	-23.1	9368.9	.008	5.005	0	8	1	25.30	4.142+01	1.027-04	3.600-07	8.944+01	1.724-01	5.741-02
59.1	-23.0	9338.7	.008	4.986	0	8	1	55.30	4.191+01	1.097-04	3.600-07	8.979+01	1.724-01	5.741-02
59.2	-22.9	9308.3	.008	4.967	0	8	2	25.30	4.209+01	1.162-04	3.600-07	9.014+01	1.724-01	5.741-02
59.3	-22.9	9277.8	.008	4.948	0	8	2	55.30	4.227+01	1.231-04	3.600-07	9.049+01	1.724-01	5.741-02
59.3	-22.8	9247.0	.008	4.929	0	8	3	25.30	4.245+01	1.304-04	3.600-07	9.085+01	1.724-01	5.741-02
59.4	-22.7	9216.1	.008	4.910	0	8	3	55.30	4.264+01	1.382-04	3.600-07	9.120+01	1.724-01	5.741-02
59.5	-22.6	9185.0	.008	4.890	0	8	4	25.30	4.282+01	1.466-04	3.600-07	9.156+01	1.724-01	5.741-02
59.6	-22.5	9153.6	.008	4.871	0	8	4	55.30	4.301+01	1.554-04	3.600-07	9.192+01	1.724-01	5.741-02
59.6	-22.4	9122.1	.008	4.852	0	8	5	25.30	4.320+01	1.648-04	3.600-07	9.228+01	1.724-01	5.741-02
59.7	-22.4	9090.4	.008	4.832	0	8	5	55.30	4.339+01	1.746-04	3.600-07	9.264+01	1.724-01	5.741-02
59.8	-22.3	9058.5	.008	4.813	0	8	6	25.30	4.358+01	1.856-04	3.600-07	9.300+01	1.724-01	5.741-02

Table XXVII. Radiation Dosage Evaluation (Continued)

LONG DEG	LAT DEG	ALT NM	B GAUSS	L ER	DAY	HR	MIN	SEC	DOSE RATE (REM/HR) LM SKIN	CM SKIN	CM DEPTH	CUMULATIVE DOSE (REM) LM SKIN	CM SKIN	CM DEPTH
59.9	-22.2	9026.3	.009	4.793	0	8	6	55.30	4.386+01	1.979-04	3.600-07	9.337+01	1.726-01	5.741-02
59.9	-22.1	8994.0	.009	4.773	0	8	7	25.30	4.429+01	2.130-04	3.600-07	9.374+01	1.726-01	5.741-02
60.0	-22.0	8961.5	.009	4.753	0	8	7	55.30	4.472+01	2.294-04	3.600-07	9.411+01	1.726-01	5.741-02
60.1	-21.9	8928.8	.009	4.734	0	8	8	25.30	4.515+01	2.471-04	3.600-07	9.448+01	1.726-01	5.741-02
60.2	-21.8	8895.9	.009	4.714	0	8	8	55.30	4.560+01	2.662-04	3.600-07	9.486+01	1.726-01	5.741-02
60.3	-21.8	8862.7	.009	4.694	0	8	9	25.30	4.604+01	2.868-04	3.600-07	9.525+01	1.726-01	5.741-02
60.4	-21.7	8829.4	.009	4.674	0	8	9	55.30	4.650+01	3.091-04	3.600-07	9.564+01	1.726-01	5.741-02
60.4	-21.6	8795.9	.009	4.654	0	8	10	25.30	4.696+01	3.333-04	3.600-07	9.603+01	1.726-01	5.741-02
60.5	-21.5	8762.2	.009	4.633	0	8	10	55.30	4.742+01	3.594-04	3.600-07	9.642+01	1.726-01	5.741-02
60.6	-21.4	8728.3	.009	4.613	0	8	11	25.30	4.790+01	3.876-04	3.600-07	9.682+01	1.726-01	5.741-02
60.7	-21.3	8694.1	.009	4.593	0	8	11	55.30	4.843+01	4.216-04	3.600-07	9.723+01	1.726-01	5.741-02
60.8	-21.2	8659.8	.009	4.573	0	8	12	25.30	4.906+01	4.657-04	3.600-07	9.763+01	1.726-01	5.741-02
60.9	-21.1	8625.2	.009	4.552	0	8	12	55.30	4.971+01	5.145-04	3.600-07	9.805+01	1.726-01	5.741-02
61.0	-21.0	8590.5	.009	4.532	0	8	13	25.30	5.036+01	5.686-04	3.600-07	9.847+01	1.726-01	5.741-02
61.1	-20.9	8555.5	.009	4.511	0	8	13	55.30	5.102+01	6.284-04	3.600-07	9.889+01	1.726-01	5.741-02
61.2	-20.8	8520.4	.010	4.491	0	8	14	25.30	5.168+01	6.946-04	3.600-07	9.932+01	1.726-01	5.741-02
61.2	-20.7	8485.0	.010	4.470	0	8	14	55.30	5.236+01	7.682-04	3.600-07	9.976+01	1.726-01	5.741-02
61.3	-20.6	8449.4	.010	4.449	0	8	15	25.30	5.304+01	8.497-04	3.600-07	1.002+02	1.726-01	5.741-02
61.4	-20.5	8413.6	.010	4.429	0	8	15	55.30	5.373+01	9.399-04	3.600-07	1.006+02	1.727-01	5.741-02
61.5	-20.4	8377.6	.010	4.409	0	8	16	25.30	5.440+01	1.036-03	3.600-07	1.011+02	1.727-01	5.741-02
61.6	-20.3	8341.4	.010	4.388	0	8	16	55.30	5.374+01	1.127-03	3.600-07	1.016+02	1.727-01	5.741-02
61.7	-20.2	8305.0	.010	4.367	0	8	17	25.30	5.216+01	1.210-03	3.600-07	1.020+02	1.727-01	5.741-02
61.8	-20.1	8268.4	.010	4.346	0	8	17	55.30	5.063+01	1.300-03	3.600-07	1.024+02	1.727-01	5.741-02
61.9	-20.0	8231.5	.010	4.325	0	8	18	25.30	4.914+01	1.397-03	3.600-07	1.028+02	1.727-01	5.741-02
62.0	-19.9	8194.4	.010	4.304	0	8	18	55.30	4.769+01	1.502-03	3.600-07	1.032+02	1.727-01	5.741-02
62.1	-19.8	8157.2	.010	4.282	0	8	19	25.30	4.628+01	1.615-03	3.600-07	1.036+02	1.727-01	5.741-02
62.2	-19.7	8119.7	.010	4.261	0	8	19	55.30	4.492+01	1.737-03	3.600-07	1.040+02	1.727-01	5.741-02
62.3	-19.6	8082.0	.011	4.240	0	8	20	25.30	4.359+01	1.868-03	3.600-07	1.043+02	1.728-01	5.741-02
62.4	-19.5	8044.0	.011	4.219	0	8	20	55.30	4.229+01	2.010-03	3.600-07	1.047+02	1.728-01	5.741-02
62.6	-19.4	8005.9	.011	4.197	0	8	21	25.30	4.110+01	2.166-03	3.600-07	1.050+02	1.728-01	5.741-02
62.7	-19.2	7967.5	.011	4.176	0	8	21	55.30	4.031+01	2.256-03	3.600-07	1.054+02	1.728-01	5.741-02
62.8	-19.1	7929.0	.011	4.154	0	8	22	25.30	3.954+01	2.362-03	3.600-07	1.057+02	1.728-01	5.741-02
62.9	-19.0	7890.2	.011	4.132	0	8	22	55.30	3.878+01	2.473-03	3.600-07	1.060+02	1.729-01	5.741-02
63.0	-18.9	7851.2	.011	4.111	0	8	23	25.30	3.802+01	2.590-03	3.600-07	1.063+02	1.729-01	5.741-02
63.1	-18.8	7811.9	.011	4.089	0	8	23	55.30	3.728+01	2.713-03	3.600-07	1.066+02	1.729-01	5.741-02
63.2	-18.7	7772.5	.011	4.067	0	8	24	25.30	3.655+01	2.842-03	3.600-07	1.070+02	1.729-01	5.741-02
63.3	-18.6	7732.8	.011	4.045	0	8	24	55.30	3.583+01	2.977-03	3.600-07	1.073+02	1.729-01	5.741-02
63.5	-18.4	7692.9	.012	4.023	0	8	25	25.30	3.512+01	3.120-03	3.600-07	1.075+02	1.730-01	5.741-02
63.6	-18.3	7652.7	.012	4.001	0	8	25	55.30	3.441+01	3.270-03	3.600-07	1.078+02	1.730-01	5.741-02
63.7	-18.2	7612.4	.012	3.979	0	8	26	25.30	3.234+01	3.104-03	3.600-07	1.081+02	1.730-01	5.741-02
63.8	-18.1	7571.6	.012	3.956	0	8	26	55.30	3.032+01	2.932-03	3.600-07	1.084+02	1.731-01	5.741-02
64.0	-17.9	7531.0	.012	3.934	0	8	27	25.30	2.842+01	2.770-03	3.600-07	1.086+02	1.731-01	5.741-02
64.1	-17.8	7489.9	.012	3.911	0	8	27	55.30	2.663+01	2.616-03	3.600-07	1.088+02	1.731-01	5.741-02
64.2	-17.7	7448.7	.012	3.889	0	8	28	25.30	2.496+01	2.470-03	3.600-07	1.090+02	1.731-01	5.741-02
64.3	-17.6	7407.2	.012	3.866	0	8	28	55.30	2.339+01	2.333-03	3.600-07	1.092+02	1.731-01	5.741-02
64.5	-17.4	7365.5	.013	3.843	0	8	29	25.30	2.191+01	2.203-03	3.600-07	1.094+02	1.732-01	5.741-02
64.6	-17.3	7323.5	.013	3.821	0	8	29	55.30	2.054+01	2.081-03	3.600-07	1.096+02	1.732-01	5.741-02
64.7	-17.2	7281.3	.013	3.798	0	8	30	25.30	1.926+01	1.964-03	3.600-07	1.097+02	1.732-01	5.741-02
64.9	-17.0	7238.9	.013	3.776	0	8	30	55.30	1.798+01	1.823-03	3.600-07	1.099+02	1.732-01	5.741-02
65.0	-16.9	7196.3	.013	3.753	0	8	31	25.30	1.679+01	1.691-03	3.600-07	1.100+02	1.732-01	5.741-02
65.1	-16.8	7153.4	.013	3.731	0	8	31	55.30	1.567+01	1.569-03	3.600-07	1.101+02	1.732-01	5.741-02
65.3	-16.6	7110.3	.013	3.708	0	8	32	25.30	1.462+01	1.454-03	3.600-07	1.103+02	1.732-01	5.741-02
65.4	-16.5	7066.9	.013	3.685	0	8	32	55.30	1.363+01	1.348-03	3.600-07	1.104+02	1.733-01	5.741-02
65.6	-16.3	7023.3	.014	3.663	0	8	33	25.30	1.270+01	1.248-03	3.600-07	1.105+02	1.733-01	5.741-02
65.7	-16.2	6979.5	.014	3.640	0	8	33	55.30	1.183+01	1.156-03	3.600-07	1.106+02	1.733-01	5.741-02
65.9	-16.1	6935.4	.014	3.616	0	8	34	25.30	1.102+01	1.069-03	3.600-07	1.107+02	1.733-01	5.741-02
66.0	-15.9	6891.1	.014	3.593	0	8	34	55.30	1.023+01	9.867-04	2.966-07	1.108+02	1.733-01	5.741-02
66.2	-15.8	6846.6	.014	3.569	0	8	35	25.30	9.500+00	9.011-04	1.929-07	1.108+02	1.733-01	5.741-02
66.3	-15.6	6801.8	.014	3.546	0	8	35	55.30	8.677+00	8.272-04	7.213-08	1.109+02	1.733-01	5.741-02
66.5	-15.5	6756.8	.015	3.522	0	8	36	25.30	8.006+00	7.590-04	3.636-08	1.110+02	1.733-01	5.741-02
66.6	-15.3	6711.5	.015	3.499	0	8	36	55.30	7.383+00	6.962-04	1.831-08	1.110+02	1.733-01	5.741-02
66.8	-15.2	6666.0	.015	3.475	0	8	37	25.30	6.804+00	6.384-04	9.207-09	1.111+02	1.733-01	5.741-02
67.0	-15.0	6620.3	.015	3.452	0	8	37	55.30	6.268+00	5.851-04	4.629-09	1.112+02	1.733-01	5.741-02
67.1	-14.8	6574.3	.015	3.428	0	8	38	25.30	5.771+00	5.361-04	2.319-09	1.112+02	1.733-01	5.741-02
67.3	-14.7	6528.0	.016	3.405	0	8	38	55.30	5.310+00	4.910-04	1.162-09	1.112+02	1.733-01	5.741-02
67.5	-14.5	6481.5	.016	3.381	0	8	39	25.30	4.878+00	4.504-04	1.072-09	1.113+02	1.733-01	5.741-02
67.6	-14.4	6434.8	.016	3.358	0	8	39	55.30	4.477+00	4.132-04	1.162-09	1.113+02	1.733-01	5.741-02
67.8	-14.2	6387.8	.016	3.334	0	8	40	25.30	4.106+00	3.791-04	1.259-09	1.114+02	1.733-01	5.741-02
68.0	-14.0	6340.6	.016	3.310	0	8	40	55.30	3.763+00	3.476-04	1.365-09	1.114+02	1.733-01	5.741-02
68.2	-13.9	6293.1	.017	3.287	0	8	41	25.30	3.446+00	3.187-04	1.479-09	1.114+02	1.734-01	5.741-02
68.3	-13.7	6245.4	.017	3.263	0	8	41	55.30	3.153+00	2.921-04	1.604-09	1.114+02	1.734-01	5.741-02
68.5	-13.5	6197.4	.017	3.239	0	8	42	25.30	2.883+00	2.676-04	1.739-09	1.115+02	1.734-01	5.741-02
68.7	-13.3	6149.2	.017	3.215	0	8	42	55.30	2.633+00	2.451-04	1.887-09	1.115+02	1.734-01	5.741-02
68.9	-13.2	6100.7	.018	3.191	0	8	43	25.30	2.142+00	2.274-04	2.046-09	1.115+02	1.734-01	5.741-02
69.1	-13.0	6052.0	.018	3.167	0	8	43	55.30	1.929+00	2.158-04	2.216-09	1.115+02	1.734-01	5.741-02
69.3	-12.8	6003.0	.018	3.143	0	8	44	25.30	9.946-01	2.048-04	2.401-09	1.115+02	1.734-01	5.741-02
69.5	-12.6	5953.7	.018	3.118	0	8	44	55.30	6.264-01	1.943-04	2.602-09	1.115+02	1.734-01	5.741-02
69.7	-12.4	5904.3	.019	3.094	0	8	45	25.30	4.134-01	1.844-04	2.819-09	1.115+02	1.734-01	5.741-02
69.9	-12.2	5854.5	.019	3.070	0	8	45	55.30	2.728-01	1.750-04	3.055-09	1.115+02	1.734-01	5.741-02
70.1	-12.0	5804.5	.019	3.045	0	8	46	25.30	1.798-01	1.661-04	3.310-09	1.115+02	1.734-01	5.741-02
70.3	-11.9	5754.2	.019	3.021	0	8	46	55.30	1.182-01	1.577-04	3.587-09	1.115+02	1.734-01	5.741-02
70.5	-11.7	5703.7	.020	2.997	0	8	47	25.30	8.515-02	1.517-04	3.886-09	1.115+02	1.734-01	5.741-02
70.7	-11.5	5652.9	.020	2.973	0	8	47	55.30	1.133-01	1.591-04	4.207-09	1.115+02	1.734-01	5.741-02
70.9	-11.3	5601.9	.020	2.948	0	8	48	25.30	1.515-01	1.668-04	4.555-09	1.115+02	1.734-01	5.741-02
71.2	-11.1	5550.4	.021	2.924	0	8	48	55.30	2.025-01	1.747-04	4.931-09	1.115+02	1.734-01	5.741-02
71.4	-10.8	5499.1	.021	2.900	0	8	49	25.30	2.691-01	1.826-04	5.332-09	1.115+02	1.734-01	5.741-02
71.6	-10.6	5447.2	.021	2.876	0	8	49	55.30	3.452-01	2.414-04	6.491-09	1.116+02	1.734-01	5.741-02
71.9	-10.4	5395.2	.022	2.851	0	8	50	25.30	4.424-01	3.172-04	7.829-09	1.116+02	1.734-01	5.741-02
72.1	-10.2	5342.8	.022	2.827	0	8	50	55.30	5.663-01	4.136-04	9.345-09	1.116+02	1.734-01	5.741-02
72.3	-10.0	5290.2	.022	2.803	0	8	51	25.30	7.242-01	5.354-04	1.103-08	1.116+02	1.734-01	5.741-02
72.6	-9.8	5237.4	.023	2.778	0	8	51	55.30	9.408-01	7.772-04	1.605-08	1.116+02	1.734-01	5.741-02
72.8	-9.5	5184.3	.023	2.754	0	8	52	25.30	1.223+00	1.141-03	2.388-08	1.116+02	1.734-01	5.741-02

Table XXVII. Radiation Dosage Evaluation (Continued)

LONG DEG	LAT DEG	ALT NM	B GAUSS	L ER	DAY	HR	MIN	SEC	DOSE RATE (REM/HR) LM SKIN	CM SKIN	CM DEPTH	CUMULATIVE DOSE (REM) LM SKIN	CM SKIN	CM DEPTH
73.1	-9.3	5130.9	.023	2.729	0	8	52	55.30	1.806+00	1.667-03	3.535-08	1.116+02	1.734-01	5.741-02
73.3	-9.1	5077.3	.024	2.705	0	8	53	25.30	2.057+00	2.430-03	5.216-08	1.116+02	1.734-01	5.741-02
73.6	-8.8	5023.4	.024	2.680	0	8	53	55.30	2.545+00	3.415-03	7.462-08	1.116+02	1.735-01	5.741-02
73.9	-8.6	4969.2	.025	2.655	0	8	54	25.30	3.104+00	4.735-03	1.054-07	1.117+02	1.735-01	5.741-02
74.1	-8.4	4914.8	.025	2.631	0	8	54	55.30	3.770+00	6.526-03	1.479-07	1.117+02	1.736-01	5.741-02
74.4	-8.1	4860.1	.026	2.606	0	8	55	25.30	4.559+00	8.939-03	2.061-07	1.117+02	1.736-01	5.741-02
74.7	-7.9	4805.1	.026	2.581	0	8	55	55.30	5.468+00	1.139-02	2.651-07	1.118+02	1.737-01	5.741-02
75.0	-7.6	4749.9	.027	2.557	0	8	56	25.30	6.533+00	1.413-02	3.311-07	1.118+02	1.738-01	5.741-02
75.3	-7.4	4694.5	.027	2.533	0	8	56	55.30	7.766+00	1.736-02	4.090-07	1.119+02	1.740-01	5.741-02
75.6	-7.1	4638.8	.028	2.508	0	8	57	25.30	9.233+00	2.126-02	5.034-07	1.120+02	1.742-01	5.741-02
75.9	-6.8	4582.8	.028	2.484	0	8	57	55.30	1.064+01	2.505-02	6.943-07	1.121+02	1.744-01	5.741-02
76.2	-6.6	4526.5	.029	2.459	0	8	58	25.30	1.204+01	2.876-02	6.825-07	1.122+02	1.746-01	5.741-02
76.5	-6.3	4470.0	.029	2.435	0	8	58	55.30	1.358+01	3.266-02	7.747-07	1.123+02	1.749-01	5.741-02
76.8	-6.0	4413.3	.030	2.410	0	8	59	25.30	1.526+01	3.668-02	8.688-07	1.124+02	1.752-01	5.741-02
77.1	-5.7	4356.3	.031	2.386	0	8	59	55.30	1.745+01	4.214-02	1.248-06	1.125+02	1.755-01	5.741-02
77.5	-5.5	4299.0	.031	2.361	0	9	0	25.30	2.007+01	4.852-02	2.113-06	1.127+02	1.760-01	5.741-02
77.8	-5.2	4241.5	.032	2.337	0	9	0	55.30	2.292+01	5.535-02	3.525-06	1.129+02	1.764-01	5.741-02
78.2	-4.9	4183.7	.033	2.312	0	9	1	25.30	2.604+01	6.262-02	5.821-06	1.131+02	1.769-01	5.741-02
78.5	-4.6	4125.7	.033	2.288	0	9	1	55.30	2.931+01	7.017-02	9.702-06	1.134+02	1.775-01	5.741-02
78.9	-4.3	4067.4	.034	2.263	0	9	2	25.30	3.269+01	7.780-02	1.631-05	1.136+02	1.782-01	5.741-02
79.2	-4.0	4008.9	.035	2.239	0	9	2	55.30	3.627+01	8.540-02	2.710-05	1.139+02	1.789-01	5.741-02
79.6	-3.6	3950.1	.036	2.215	0	9	3	25.30	4.000+01	9.267-02	4.434-05	1.143+02	1.797-01	5.741-02
80.0	-3.3	3891.1	.036	2.191	0	9	3	55.30	4.396+01	9.731-02	6.706-05	1.146+02	1.805-01	5.741-02
80.4	-3.0	3831.8	.037	2.167	0	9	4	25.30	4.826+01	9.882-02	9.172-05	1.150+02	1.813-01	5.741-02
80.8	-2.7	3772.4	.038	2.142	0	9	4	55.30	5.272+01	1.009-01	1.264-04	1.155+02	1.821-01	5.742-02
81.2	-2.3	3712.6	.039	2.119	0	9	5	25.30	5.729+01	1.036-01	1.761-04	1.160+02	1.830-01	5.742-02
81.6	-2.0	3652.7	.040	2.095	0	9	5	55.30	6.181+01	1.066-01	2.428-04	1.165+02	1.839-01	5.742-02
82.0	-1.6	3592.5	.041	2.071	0	9	6	25.30	6.726+01	1.190-01	3.521-04	1.170+02	1.848-01	5.742-02
82.4	-1.3	3532.1	.042	2.047	0	9	6	55.30	7.273+01	1.229-01	5.141-04	1.176+02	1.859-01	5.743-02
82.9	-.9	3471.5	.043	2.023	0	9	7	25.30	7.815+01	1.336-01	7.559-04	1.183+02	1.870-01	5.743-02
83.3	-.5	3410.7	.044	2.000	0	9	7	55.30	8.335+01	1.461-01	1.116-03	1.190+02	1.882-01	5.744-02
83.8	-.2	3349.6	.045	1.976	0	9	8	25.30	9.102+01	1.536-01	1.755-03	1.197+02	1.895-01	5.746-02
84.3	.2	3288.4	.047	1.953	0	9	8	55.30	9.844+01	1.631-01	2.764-03	1.206+02	1.908-01	5.748-02
84.7	.6	3226.9	.048	1.930	0	9	9	25.30	1.055+02	1.754-01	4.369-03	1.214+02	1.923-01	5.752-02
85.2	1.0	3165.3	.049	1.906	0	9	9	55.30	1.119+02	1.912-01	6.944-03	1.224+02	1.939-01	5.757-02
85.7	1.4	3103.5	.051	1.883	0	9	10	25.30	1.219+02	2.133-01	1.009-02	1.234+02	1.957-01	5.766-02
86.3	1.8	3041.5	.052	1.860	0	9	10	55.30	1.334+02	2.393-01	1.427-02	1.245+02	1.977-01	5.778-02
86.8	2.2	2979.3	.054	1.838	0	9	11	25.30	1.452+02	2.690-01	2.040-02	1.257+02	1.999-01	5.795-02
87.3	2.7	2917.0	.055	1.815	0	9	11	55.30	1.562+02	3.011-01	2.878-02	1.270+02	2.024-01	5.819-02
87.9	3.1	2854.5	.057	1.793	0	9	12	25.30	1.682+02	3.430-01	4.095-02	1.284+02	2.053-01	5.853-02
88.5	3.5	2791.8	.059	1.770	0	9	12	55.30	1.860+02	4.084-01	6.011-02	1.300+02	2.087-01	5.903-02
89.0	4.0	2729.1	.061	1.748	0	9	13	25.30	2.059+02	4.862-01	8.838-02	1.317+02	2.127-01	5.977-02
89.6	4.5	2666.2	.063	1.726	0	9	13	55.30	2.247+02	5.741-01	1.295-01	1.336+02	2.175-01	6.089-02
90.3	4.9	2603.2	.065	1.704	0	9	14	25.30	2.410+02	6.759-01	1.891-01	1.356+02	2.231-01	6.242-02
90.9	5.4	2540.1	.067	1.683	0	9	14	55.30	2.546+02	7.754-01	2.343-01	1.377+02	2.296-01	6.437-02
91.6	5.9	2476.9	.069	1.661	0	9	15	25.30	2.615+02	8.858-01	2.811-01	1.399+02	2.370-01	6.671-02
92.2	6.4	2413.7	.071	1.640	0	9	15	55.30	2.678+02	1.007+00	3.360-01	1.421+02	2.454-01	6.951-02
92.9	6.9	2350.4	.074	1.620	0	9	16	25.30	2.748+02	1.129+00	3.988-01	1.444+02	2.548-01	7.284-02
93.6	7.4	2287.0	.077	1.599	0	9	16	55.30	2.768+02	1.256+00	4.724-01	1.467+02	2.652-01	7.677-02
94.4	7.9	2223.6	.079	1.579	0	9	17	25.30	2.922+02	1.370+00	5.236-01	1.491+02	2.767-01	8.114-02
95.1	8.5	2160.3	.082	1.559	0	9	17	55.30	3.066+02	1.468+00	5.725-01	1.517+02	2.889-01	8.591-02
95.9	9.0	2096.9	.085	1.540	0	9	18	25.30	3.218+02	1.556+00	6.227-01	1.544+02	3.019-01	9.110-02
96.7	9.6	2033.6	.089	1.520	0	9	18	55.30	3.374+02	1.630+00	6.734-01	1.572+02	3.155-01	9.671-02
97.5	10.2	1970.4	.092	1.502	0	9	19	25.30	3.549+02	1.614+00	6.840-01	1.602+02	3.289-01	1.024-01
98.4	10.7	1907.2	.096	1.483	0	9	19	55.30	3.614+02	1.664+00	7.166-01	1.631+02	3.428-01	1.084-01
99.2	11.3	1844.2	.100	1.465	0	9	20	25.30	3.590+02	1.649+00	7.127-01	1.660+02	3.565-01	1.143-01
100.1	11.9	1781.3	.104	1.448	0	9	20	55.30	3.543+02	1.624+00	6.955-01	1.689+02	3.700-01	1.201-01
101.1	12.5	1718.6	.108	1.430	0	9	21	25.30	3.626+02	1.584+00	6.770-01	1.720+02	3.832-01	1.258-01
102.0	13.2	1656.0	.113	1.414	0	9	21	55.30	3.588+02	1.539+00	6.589-01	1.750+02	3.961-01	1.314-01
103.0	13.8	1593.8	.118	1.398	0	9	22	25.30	3.418+02	1.473+00	6.398-01	1.778+02	4.083-01	1.366-01
104.1	14.4	1531.8	.123	1.383	0	9	22	55.30	2.639+02	1.323+00	6.091-01	1.804+02	4.194-01	1.417-01
105.1	15.1	1470.1	.129	1.368	0	9	23	25.30	2.004+02	1.186+00	5.742-01	1.817+02	4.292-01	1.464-01
106.2	15.8	1408.7	.135	1.353	0	9	23	55.30	1.803+02	1.070+00	5.453-01	1.829+02	4.382-01	1.510-01
107.4	16.4	1347.8	.141	1.339	0	9	24	25.30	1.194+02	9.551-01	5.004-01	1.839+02	4.461-01	1.552-01
108.6	17.1	1287.3	.147	1.327	0	9	24	55.30	9.517+01	8.438-01	4.495-01	1.847+02	4.531-01	1.589-01
109.8	17.8	1227.3	.154	1.314	0	9	25	25.30	7.465+01	7.274-01	3.857-01	1.853+02	4.592-01	1.621-01
111.1	18.5	1167.9	.162	1.303	0	9	25	55.30	5.549+01	6.193-01	3.218-01	1.858+02	4.644-01	1.648-01
112.4	19.2	1109.1	.169	1.292	0	9	26	25.30	3.637+01	4.918-01	2.579-01	1.861+02	4.685-01	1.669-01
113.8	19.9	1050.9	.178	1.282	0	9	26	55.30	2.216+01	3.581-01	1.869-01	1.863+02	4.715-01	1.685-01
115.2	20.6	993.5	.186	1.273	0	9	27	25.30	1.239+01	2.653-01	1.349-01	1.864+02	4.737-01	1.696-01
116.7	21.4	936.8	.195	1.265	0	9	27	55.30	5.696+00	1.887-01	9.331-02	1.864+02	4.752-01	1.704-01
118.2	22.1	881.0	.204	1.258	0	9	28	25.30	1.754+00	1.194-01	5.608-02	1.864+02	4.762-01	1.709-01
119.8	22.8	826.2	.214	1.251	0	9	28	55.30	4.388-01	6.259-02	2.861-02	1.865+02	4.768-01	1.711-01
121.5	23.6	772.3	.224	1.245	0	9	29	25.30	6.734-02	2.262-02	1.019-02	1.865+02	4.769-01	1.712-01
123.2	24.3	719.6	.234	1.240	0	9	29	55.30	5.274-03	2.496-03	1.075-03	1.865+02	4.770-01	1.712-01
125.0	25.0	668.0	.245	1.236	0	9	30	25.30	8.114-04	4.849-04	2.097-04	1.865+02	4.770-01	1.712-01
126.9	25.7	617.6	.256	1.232	0	9	30	55.30	7.989-04	4.614-04	2.331-04	1.865+02	4.770-01	1.712-01
128.9	26.4	568.7	.266	1.229	0	9	31	25.30	7.989-04	4.614-04	2.331-04	1.865+02	4.770-01	1.712-01
130.9	27.1	521.1	.277	1.227	0	9	31	55.30	7.989-04	4.614-04	2.331-04	1.865+02	4.770-01	1.712-01
133.0	27.7	475.1	.288	1.225	0	9	32	25.30	7.989-04	4.614-04	2.331-04	1.865+02	4.770-01	1.712-01
135.2	28.4	430.7	.298	1.223	0	9	32	55.30	7.989-04	4.614-04	2.331-04	1.865+02	4.770-01	1.712-01
137.4	29.0	388.1	.308	1.222	0	9	33	25.30	7.989-04	4.614-04	2.331-04	1.865+02	4.770-01	1.712-01
139.8	29.6	347.3	.317	1.221	0	9	33	55.30	7.989-04	4.614-04	2.331-04	1.865+02	4.770-01	1.712-01
142.2	30.2	308.4	.326	1.221	0	9	34	25.30	7.989-04	4.614-04	2.331-04	1.865+02	4.770-01	1.712-01
144.7	30.7	271.5	.333	1.220	0	9	34	55.30	7.989-04	4.614-04	2.331-04	1.865+02	4.770-01	1.712-01
147.3	31.1	236.8	.341	1.220	0	9	35	25.30	7.989-04	4.614-04	2.331-04	1.865+02	4.770-01	1.712-01
149.9	31.5	204.3	.347	1.221	0	9	35	55.30	7.989-04	4.614-04	2.331-04	1.865+02	4.770-01	1.712-01
152.7	31.9	174.2	.352	1.222	0	9	36	25.30	7.989-04	4.614-04	2.331-04	1.865+02	4.770-01	1.712-01
155.5	32.2	146.5	.357	1.223	0	9	36	55.30	7.989-04	4.614-04	2.331-04	1.865+02	4.770-01	1.712-01
158.3	32.4	121.3	.361	1.224	0	9	37	25.30	7.989-04	4.614-04	2.331-04	1.865+02	4.770-01	1.712-01
161.2	32.6	98.7	.364	1.228	0	9	37	55.30	7.989-04	4.614-04	2.331-04	1.865+02	4.770-01	1.712-01
164.2	32.7	78.6	.367	1.231	0	9	38	25.30	7.989-04	4.614-04	2.331-04	1.865+02	4.770-01	1.712-01

Table XXVII. Radiation Dosage Evaluation (Continued)

LONG DEG	LAT DEG	ALT NM	B GAUSS	L ER	DAY	HR	MIN	SEC	DOSE RATE (REM/HR) LM SKIN	CM SKIN	CM DEPTH	CUMULATIVE DOSE (REM) LM SKIN	CM SKIN	CM DEPTH
166.4	32.7	65.8	.368	1.234	0	9	38	47.42	7.989-04	4.614-04	2.331-04	1.865+02	4.770-01	1.712-01
166.4	32.7	65.8	.368	1.234	0	9	38	47.51	7.989-04	4.614-04	2.331-04	1.865+02	4.770-01	1.712-01

ORBIT 1 DAY 0 HRS 9 MIN 38 SEC 47.51 LEM SKIN (REM/ORB) = 1.865+02 APOLLO SKIN (REM/ORB) = 4.770-01
APOLLO DEPTH (REM/ORB) = 1.712-01

ORBIT 2 DAY 0 HRS 9 MIN 38 SEC 47.51 LEM SKIN (REM/ORB) = 0.000 APOLLO SKIN (REM/ORB) = 0.000
APOLLO DEPTH (REM/ORB) = 0.000

TOTAL DOSES FOR THIS CASE *** LEM SKIN = 1.865+02REM APOLLO SKIN = 4.770-01REM APOLLO DEPTH = 1.712-01REM

Table XXVIII. A-2/CSM-020 Earth Parking Orbit Groundtrack

LONGITUDE DEG	MIN	SEC	LATITUDE DEG	MIN	SEC	GET HOUR	MIN	SEC	REV NO.	ALT N.M.
-41	26	60	32	21	39	0	14	19.10	1.1088	100
-39	55	18	32	13	35	0	14	39.10	1.1130	99
-38	23	54	32	4	17	0	14	59.10	1.1172	99
-36	52	49	31	53	46	0	15	19.10	1.1215	98
-35	22	5	31	42	3	0	15	39.10	1.1257	98
-33	51	46	31	29	8	0	15	59.10	1.1298	98
-32	21	54	31	15	2	0	16	19.10	1.1340	97
-30	52	29	30	59	47	0	16	39.10	1.1381	97
-29	23	35	30	43	23	0	16	59.10	1.1423	97
-27	55	12	30	25	52	0	17	19.10	1.1463	96
-26	27	23	30	7	14	0	17	39.10	1.1504	96
-25	0	10	29	47	31	0	17	59.10	1.1544	96
-23	33	32	29	26	44	0	18	19.10	1.1585	96
-22	7	32	29	4	54	0	18	39.10	1.1624	96
-20	42	11	28	42	3	0	18	59.10	1.1664	96
-19	17	30	28	18	13	0	19	19.10	1.1703	95
-17	53	29	27	53	23	0	19	39.10	1.1742	95
-16	30	9	27	27	37	0	19	59.10	1.1781	95
-15	7	31	27	0	55	0	20	19.10	1.1819	95
-13	45	34	26	33	19	0	20	39.10	1.1857	95
-12	24	20	26	4	51	0	20	59.10	1.1894	95
-11	3	48	25	35	31	0	21	19.10	1.1932	95
-9	43	58	25	5	22	0	21	39.10	1.1969	95
-8	24	51	24	34	25	0	21	59.10	1.2005	96
-7	6	25	24	2	42	0	22	19.10	1.2042	96
-5	48	41	23	30	13	0	22	39.10	1.2078	96
-4	31	39	22	57	1	0	22	59.10	1.2113	96
-3	15	17	22	23	8	0	23	19.10	1.2149	96
-1	59	36	21	48	34	0	23	39.10	1.2184	96
-0	44	34	21	13	21	0	23	59.10	1.2218	97
0	29	49	20	37	31	0	24	19.10	1.2253	97
1	43	33	20	1	5	0	24	39.10	1.2287	97
2	56	41	19	24	5	0	24	59.10	1.2321	98
4	9	12	18	46	32	0	25	19.10	1.2354	98
5	21	7	18	8	27	0	25	39.10	1.2388	98
6	32	28	17	29	53	0	25	59.10	1.2421	99
7	43	16	16	50	50	0	26	19.10	1.2453	99
8	53	31	16	11	19	0	26	39.10	1.2486	100
10	3	15	15	31	23	0	26	59.10	1.2518	100
11	12	29	14	51	2	0	27	19.10	1.2550	101
12	21	15	14	10	19	0	27	39.10	1.2582	101
13	29	32	13	29	13	0	27	59.10	1.2614	102
14	37	23	12	47	47	0	28	19.10	1.2645	103
15	44	48	12	6	1	0	28	39.10	1.2676	103
16	51	50	11	23	58	0	28	59.10	1.2707	104
17	58	28	10	41	38	0	29	19.10	1.2738	104
19	4	45	9	59	3	0	29	39.10	1.2769	105
20	10	42	9	16	13	0	29	59.10	1.2800	106
21	16	20	8	33	11	0	30	19.10	1.2830	107
22	21	40	7	49	57	0	30	39.10	1.2860	107
23	26	44	7	6	32	0	30	59.10	1.2890	108
24	31	33	6	22	58	0	31	19.10	1.2920	109
25	36	9	5	39	15	0	31	39.10	1.2950	110
26	40	31	4	55	25	0	31	59.10	1.2980	111
27	44	43	4	11	30	0	32	19.10	1.3010	111
28	48	45	3	27	29	0	32	39.10	1.3039	112
29	52	39	2	43	25	0	32	59.10	1.3069	113
30	56	25	1	59	18	0	33	19.10	1.3098	114
32	0	5	1	15	10	0	33	39.10	1.3128	115
33	3	42	0	31	2	0	33	59.10	1.3157	116
34	7	14	-0	13	6	0	34	19.10	1.3187	117
35	10	45	-0	57	12	0	34	39.10	1.3216	118
36	14	16	-1	41	16	0	34	59.10	1.3246	119
37	17	47	-2	25	15	0	35	19.10	1.3275	120
38	21	20	-3	9	9	0	35	39.10	1.3304	121
39	24	57	-3	52	57	0	35	59.10	1.3334	122
40	28	38	-4	36	38	0	36	19.10	1.3363	123
41	32	25	-5	20	11	0	36	39.10	1.3393	124
42	36	19	-6	3	34	0	36	59.10	1.3422	125
43	40	22	-6	46	47	0	37	19.10	1.3452	127
44	44	34	-7	29	49	0	37	39.10	1.3482	128
45	48	57	-8	12	38	0	37	59.10	1.3512	129
46	53	33	-8	55	13	0	38	19.10	1.3542	130

Table XXVIII. A-2/CSM-020 Earth Parking Orbit Groundtrack (Continued)

LONGITUDE DEG	MIN	SEC	LATITUDE DEG	MIN	SEC	GET HOUR	MIN	SEC	REV NO.	ALT N.M.
47	58	22	-9	37	33	0	38	39.10	1.3572	131
49	3	26	-10	19	38	0	38	59.10	1.3602	132
50	8	45	-11	1	26	0	39	19.10	1.3632	133
51	14	22	-11	42	55	0	39	39.10	1.3662	135
52	20	17	-12	24	6	0	39	59.10	1.3693	136
53	26	31	-13	4	56	0	40	19.10	1.3724	137
54	33	6	-13	45	25	0	40	39.10	1.3754	138
55	40	2	-14	25	31	0	40	59.10	1.3785	139
56	47	22	-15	5	14	0	41	19.10	1.3816	141
57	55	5	-15	44	32	0	41	39.10	1.3848	142
59	3	13	-16	23	23	0	41	59.10	1.3879	143
60	11	48	-17	1	48	0	42	19.10	1.3911	144
61	20	49	-17	39	44	0	42	39.10	1.3943	145
62	30	18	-18	17	11	0	42	59.10	1.3975	147
63	40	16	-18	54	7	0	43	19.10	1.4008	148
64	50	44	-19	30	31	0	43	39.10	1.4040	149
66	1	42	-20	6	21	0	43	59.10	1.4073	150
67	13	12	-20	41	38	0	44	19.10	1.4106	151
68	25	14	-21	16	19	0	44	39.10	1.4140	153
69	37	49	-21	50	23	0	44	59.10	1.4173	154
70	50	57	-22	23	49	0	45	19.10	1.4207	155
72	4	40	-22	56	35	0	45	39.10	1.4241	156
73	18	57	-23	28	41	0	45	59.10	1.4276	157
74	33	49	-24	0	5	0	46	19.10	1.4310	158
75	49	16	-24	30	46	0	46	39.10	1.4345	160
77	5	19	-25	0	43	0	46	59.10	1.4380	161
78	21	58	-25	29	54	0	47	19.10	1.4416	162
79	39	13	-25	58	19	0	47	39.10	1.4452	163
80	57	5	-26	25	55	0	47	59.10	1.4488	164
82	15	32	-26	52	42	0	48	19.10	1.4524	165
83	34	35	-27	18	38	0	48	39.10	1.4561	166
84	54	13	-27	43	43	0	48	59.10	1.4597	167
86	14	27	-28	7	54	0	49	19.10	1.4635	168
87	35	15	-28	31	12	0	49	39.10	1.4672	169
88	56	38	-28	53	34	0	49	59.10	1.4710	170
90	18	34	-29	15	0	0	50	19.10	1.4748	171
91	41	3	-29	35	29	0	50	39.10	1.4786	172
93	4	3	-29	54	59	0	50	59.10	1.4824	173
94	27	34	-30	13	29	0	51	19.10	1.4863	174
95	51	35	-30	30	59	0	51	39.10	1.4902	175
97	16	4	-30	47	27	0	51	59.10	1.4941	176
98	41	0	-31	2	53	0	52	19.10	1.4980	177
100	6	21	-31	17	15	0	52	39.10	1.5020	178
101	32	7	-31	30	34	0	52	59.10	1.5059	179
102	58	14	-31	42	47	0	53	19.10	1.5099	180
104	24	42	-31	53	55	0	53	39.10	1.5139	181
105	51	28	-32	3	57	0	53	59.10	1.5179	181
107	18	31	-32	12	52	0	54	19.10	1.5220	182
108	45	48	-32	20	40	0	54	39.10	1.5260	183
110	13	18	-32	27	20	0	54	59.10	1.5301	184
111	40	58	-32	32	52	0	55	19.10	1.5341	184
113	8	46	-32	37	16	0	55	39.10	1.5382	185
114	36	40	-32	40	31	0	55	59.10	1.5423	186
116	4	38	-32	42	38	0	56	19.10	1.5463	186
117	32	36	-32	43	35	0	56	39.10	1.5504	187
119	0	34	-32	43	24	0	56	59.10	1.5545	188
120	28	29	-32	42	5	0	57	19.10	1.5586	188
121	56	17	-32	39	36	0	57	39.10	1.5626	189
123	23	58	-32	35	59	0	57	59.10	1.5667	189
124	51	29	-32	31	15	0	58	19.10	1.5707	190
126	18	48	-32	25	22	0	58	39.10	1.5748	190
127	45	52	-32	18	23	0	58	59.10	1.5788	191
129	12	39	-32	10	17	0	59	19.10	1.5828	191
130	39	8	-32	1	4	0	59	39.10	1.5868	191
132	5	17	-31	50	46	0	59	59.10	1.5908	192
133	31	3	-31	39	24	1	0	19.10	1.5948	192
134	56	25	-31	26	57	1	0	39.10	1.5987	192
136	21	22	-31	13	27	1	0	59.10	1.6027	193
137	45	51	-30	58	55	1	1	19.10	1.6066	193
139	9	52	-30	43	22	1	1	39.10	1.6105	193
140	33	22	-30	26	48	1	1	59.10	1.6143	193
141	56	22	-30	9	14	1	2	19.10	1.6182	193
143	18	49	-29	50	42	1	2	39.10	1.6220	194

Table XXVIII. A-2/CSM-020 Earth Parking Orbit Groundtrack (Continued)

LONGITUDE DEG	MIN	SEC	LATITUDE DEG	MIN	SEC	GET HOUR	MIN	SEC	REV NO.	ALT N.M.
144	40	42	-29	31	13	1	2	59.10	1.6258	194
146	2	2	-29	10	48	1	3	19.10	1.6295	194
147	22	46	-28	49	27	1	3	39.10	1.6333	194
148	42	55	-28	27	12	1	3	59.10	1.6370	194
150	2	27	-28	4	5	1	4	19.10	1.6407	194
151	21	23	-27	40	6	1	4	39.10	1.6443	194
152	39	41	-27	15	16	1	4	59.10	1.6480	194
153	57	23	-26	49	37	1	5	19.10	1.6516	194
155	14	27	-26	23	11	1	5	39.10	1.6551	193
156	30	53	-25	55	57	1	5	59.10	1.6587	193
157	46	42	-25	27	58	1	6	19.10	1.6622	193
159	1	54	-24	59	15	1	6	39.10	1.6657	193
160	16	29	-24	29	49	1	6	59.10	1.6691	193
161	30	27	-23	59	41	1	7	19.10	1.6725	193
162	43	48	-23	28	52	1	7	39.10	1.6759	192
163	56	34	-22	57	24	1	7	59.10	1.6793	192
165	8	44	-22	25	18	1	8	19.10	1.6826	192
166	20	19	-21	52	35	1	8	39.10	1.6860	191
167	31	20	-21	19	16	1	8	59.10	1.6892	191
168	41	48	-20	45	22	1	9	19.10	1.6925	191
169	51	43	-20	10	56	1	9	39.10	1.6957	190
171	1	6	-19	35	57	1	9	59.10	1.6990	190
172	9	57	-19	0	27	1	10	19.10	1.7021	189
173	18	19	-18	24	27	1	10	39.10	1.7053	189
174	26	11	-17	47	58	1	10	59.10	1.7084	188
175	33	34	-17	11	2	1	11	19.10	1.7116	188
176	40	30	-16	33	39	1	11	39.10	1.7147	187
177	46	60	-15	55	51	1	11	59.10	1.7177	187
178	53	4	-15	17	39	1	12	19.10	1.7208	186
179	58	44	-14	39	3	1	12	39.10	1.7238	185
-178	55	60	-14	0	5	1	12	59.10	1.7269	185
-177	51	6	-13	20	46	1	13	19.10	1.7299	184
-176	46	33	-12	41	7	1	13	39.10	1.7329	183
-175	42	20	-12	1	9	1	13	59.10	1.7358	183
-174	38	25	-11	20	52	1	14	19.10	1.7388	182
-173	34	49	-10	40	19	1	14	39.10	1.7417	181
-172	31	29	-9	59	30	1	14	59.10	1.7447	180
-171	28	24	-9	18	25	1	15	19.10	1.7476	180
-170	25	34	-8	37	7	1	15	39.10	1.7505	179
-169	22	56	-7	55	35	1	15	59.10	1.7534	178
-168	20	30	-7	13	52	1	16	19.10	1.7563	177
-167	18	15	-6	31	57	1	16	39.10	1.7592	176
-166	16	9	-5	49	52	1	16	59.10	1.7620	176
-165	14	11	-5	7	38	1	17	19.10	1.7649	175
-164	12	20	-4	25	16	1	17	39.10	1.7678	174
-163	10	35	-3	42	46	1	17	59.10	1.7706	173
-162	8	54	-3	0	10	1	18	19.10	1.7735	172
-161	7	16	-2	17	29	1	18	39.10	1.7763	171
-160	5	41	-1	34	43	1	18	59.10	1.7792	170
-159	4	5	-0	51	53	1	19	19.10	1.7820	169
-158	2	29	-0	9	2	1	19	39.10	1.7849	168
-157	0	52	0	33	52	1	19	59.10	1.7877	167
-155	59	11	1	16	46	1	20	19.10	1.7906	166
-154	57	26	1	59	40	1	20	39.10	1.7935	165
-153	55	35	2	42	32	1	20	59.10	1.7963	164
-152	53	37	3	25	22	1	21	19.10	1.7992	163
-151	51	31	4	8	9	1	21	39.10	1.8021	162
-150	49	15	4	50	52	1	21	59.10	1.8050	161
-149	46	49	5	33	29	1	22	19.10	1.8078	160
-148	44	11	6	16	0	1	22	39.10	1.8107	159
-147	41	19	6	58	24	1	22	59.10	1.8137	158
-146	38	13	7	40	40	1	23	19.10	1.8166	157
-145	34	51	8	22	46	1	23	39.10	1.8195	156
-144	31	12	9	4	41	1	23	59.10	1.8225	155
-143	27	14	9	46	25	1	24	19.10	1.8254	154
-142	22	57	10	27	57	1	24	39.10	1.8284	153
-141	18	19	11	9	15	1	24	59.10	1.8314	152
-140	13	19	11	50	18	1	25	19.10	1.8344	151
-139	7	55	12	31	5	1	25	39.10	1.8374	150
-138	2	7	13	11	35	1	25	59.10	1.8405	149
-136	55	53	13	51	46	1	26	19.10	1.8435	148
-135	49	12	14	31	39	1	26	39.10	1.8466	147
-134	42	3	15	11	10	1	26	59.10	1.8497	146

Table XXVIII. A-2/CSM-020 Earth Parking Orbit Groundtrack (Continued)

LONGITUDE DEG	MIN	SEC	LATITUDE DEG	MIN	SEC	GET HOUR	MIN	SEC	REV NO.	ALT N.M.
-133	34	24	15	50	20	1	27	19.10	1.8529	144
-132	26	15	16	29	6	1	27	39.10	1.8560	143
-131	17	33	17	7	29	1	27	59.10	1.8592	142
-130	8	20	17	45	25	1	28	19.10	1.8624	141
-128	58	32	18	22	54	1	28	39.10	1.8656	140
-127	48	9	18	59	56	1	28	59.10	1.8689	139
-126	37	10	19	36	27	1	29	19.10	1.8722	138
-125	25	35	20	12	27	1	29	39.10	1.8755	137
-124	13	21	20	47	55	1	29	59.10	1.8788	136
-123	0	29	21	22	50	1	30	19.10	1.8822	135
-121	46	58	21	57	9	1	30	39.10	1.8856	134
-120	32	46	22	30	51	1	30	59.10	1.8891	133
-119	17	53	23	3	55	1	31	19.10	1.8925	132
-118	2	19	23	36	20	1	31	39.10	1.8960	131
-116	46	2	24	8	3	1	31	59.10	1.8995	130
-115	29	3	24	39	4	1	32	19.10	1.9031	129
-114	11	21	25	9	21	1	32	39.10	1.9067	128
-112	52	55	25	38	52	1	32	59.10	1.9103	127
-111	33	46	26	7	37	1	33	19.10	1.9140	126
-110	13	54	26	35	32	1	33	39.10	1.9177	125
-108	53	18	27	2	38	1	33	59.10	1.9214	124
-107	31	59	27	28	52	1	34	19.10	1.9252	123
-106	9	56	27	54	13	1	34	39.10	1.9290	122
-104	47	11	28	18	39	1	34	59.10	1.9328	121
-103	23	44	28	42	10	1	35	19.10	1.9367	120
-101	59	35	29	4	42	1	35	39.10	1.9406	119
-100	34	45	29	26	16	1	35	59.10	1.9445	118
-99	9	15	29	46	50	1	36	19.10	1.9485	118
-97	43	6	30	6	22	1	36	39.10	1.9525	117
-96	16	20	30	24	51	1	36	59.10	1.9565	116
-94	48	57	30	42	15	1	37	19.10	1.9605	115
-93	20	60	30	58	34	1	37	39.10	1.9646	114
-91	52	29	31	13	47	1	37	59.10	1.9687	113
-90	23	27	31	27	51	1	38	19.10	1.9728	113
-88	53	55	31	40	47	1	38	39.10	1.9770	112
-87	23	56	31	52	33	1	38	59.10	1.9811	111
-85	53	32	32	3	7	1	39	19.10	1.9853	110
-84	22	44	32	12	31	1	39	39.10	1.9895	110
-82	51	36	32	20	41	1	39	59.10	1.9937	109
-81	20	9	32	27	39	1	40	19.10	1.9980	108
-79	48	26	32	33	22	1	40	39.10	2.0022	108
-78	16	31	32	37	52	1	40	59.10	2.0065	107
-76	44	24	32	41	7	1	41	19.10	2.0107	106
-75	12	11	32	43	6	1	41	39.10	2.0150	106
-73	39	52	32	43	51	1	41	59.10	2.0193	105
-72	7	31	32	43	20	1	42	19.10	2.0236	104
-70	35	10	32	41	34	1	42	39.10	2.0278	104
-69	2	53	32	38	32	1	42	59.10	2.0321	103
-67	30	43	32	34	15	1	43	19.10	2.0364	103
-65	58	41	32	28	43	1	43	39.10	2.0406	102
-64	26	51	32	21	57	1	43	59.10	2.0449	102
-62	55	15	32	13	56	1	44	19.10	2.0491	101
-61	23	55	32	4	42	1	44	39.10	2.0533	101
-59	52	55	31	54	15	1	44	59.10	2.0576	101
-58	22	17	31	42	35	1	45	19.10	2.0618	100
-56	52	3	31	29	45	1	45	39.10	2.0659	100
-55	22	14	31	15	43	1	45	59.10	2.0701	100
-53	52	54	31	0	32	1	46	19.10	2.0742	99
-52	24	4	30	44	13	1	46	39.10	2.0783	99
-50	55	45	30	26	45	1	46	59.10	2.0824	99
-49	28	0	30	8	12	1	47	19.10	2.0865	98
-48	0	50	29	48	33	1	47	39.10	2.0905	98
-46	34	16	29	27	51	1	47	59.10	2.0945	98
-45	8	19	29	6	6	1	48	19.10	2.0985	98
-43	43	1	28	43	19	1	48	39.10	2.1025	98
-42	18	23	28	19	33	1	48	59.10	2.1064	98
-40	54	25	27	54	45	1	49	19.10	2.1103	98
-39	31	7	27	29	7	1	49	39.10	2.1141	97
-38	8	31	27	2	30	1	49	59.10	2.1180	97
-36	46	37	26	34	58	1	50	19.10	2.1217	97
-35	25	25	26	6	34	1	50	39.10	2.1255	97
-34	4	55	25	37	20	1	50	59.10	2.1292	97
-32	45	7	25	7	15	1	51	19.10	2.1329	98

Table XXVIII. A-2/CSM-020 Earth Parking Orbit Groundtrack (Continued)

LONGITUDE DEG	MIN	SEC	LATITUDE DEG	MIN	SEC	GET HOUR	MIN	SEC	REV NO.	ALT N.M.
-31	26	1	24	36	23	1	51	39.10	2.1366	98
-30	7	38	24	4	44	1	51	59.10	2.1402	98
-28	49	55	23	32	20	1	52	19.10	2.1438	98
-27	32	54	22	59	13	1	52	39.10	2.1474	98
-26	16	34	22	25	24	1	52	59.10	2.1509	98
-25	0	54	21	50	54	1	53	19.10	2.1544	98
-23	45	54	21	15	46	1	53	39.10	2.1579	99
-22	31	33	20	39	60	1	53	59.10	2.1613	99
-21	17	49	20	3	38	1	54	19.10	2.1647	99
-20	4	43	19	26	42	1	54	39.10	2.1681	100
-18	52	13	18	49	13	1	54	59.10	2.1715	100
-17	40	19	18	11	13	1	55	19.10	2.1748	100
-16	28	59	17	32	42	1	55	39.10	2.1781	101
-15	18	12	16	53	43	1	55	59.10	2.1814	101
-14	7	58	16	14	16	1	56	19.10	2.1846	102
-12	58	15	15	34	24	1	56	39.10	2.1879	102
-11	49	2	14	54	7	1	56	59.10	2.1911	103
-10	40	18	14	13	26	1	57	19.10	2.1943	103
-9	32	2	13	32	24	1	57	39.10	2.1974	104
-8	24	13	12	51	1	1	57	59.10	2.2006	104
-7	16	48	12	9	19	1	58	19.10	2.2037	105
-6	9	48	11	27	19	1	58	39.10	2.2068	106
-5	3	11	10	45	3	1	58	59.10	2.2099	106
-3	56	55	10	2	30	1	59	19.10	2.2129	107
-2	50	60	9	19	44	1	59	39.10	2.2160	108
-1	45	23	8	36	44	1	59	59.10	2.2190	108
-0	40	5	7	53	33	2	0	19.10	2.2220	109
0	24	58	7	10	10	2	0	39.10	2.2251	110
1	29	45	6	26	39	2	0	59.10	2.2281	111
2	34	18	5	42	58	2	1	19.10	2.2310	111
3	38	39	4	59	11	2	1	39.10	2.2340	112
4	42	49	4	15	18	2	1	59.10	2.2370	113
5	46	49	3	31	20	2	2	19.10	2.2400	114
6	50	41	2	47	17	2	2	39.10	2.2429	115
7	54	25	2	3	13	2	2	59.10	2.2459	116
8	58	3	1	19	6	2	3	19.10	2.2488	117
10	1	37	0	34	59	2	3	39.10	2.2518	118
11	5	8	-0	9	7	2	3	59.10	2.2547	119
12	8	36	-0	53	12	2	4	19.10	2.2576	120
13	12	4	-1	37	13	2	4	39.10	2.2606	121
14	15	32	-2	21	11	2	4	59.10	2.2635	122
15	19	3	-3	5	5	2	5	19.10	2.2664	123
16	22	36	-3	48	52	2	5	39.10	2.2694	124
17	26	14	-4	32	32	2	5	59.10	2.2723	125
18	29	58	-5	16	4	2	6	19.10	2.2753	126
19	33	49	-5	59	26	2	6	39.10	2.2782	127
20	37	49	-6	42	39	2	6	59.10	2.2812	128
21	41	57	-7	25	40	2	7	19.10	2.2842	129
22	46	17	-8	8	28	2	7	39.10	2.2872	130
23	50	49	-8	51	4	2	7	59.10	2.2901	131
24	55	34	-9	33	24	2	8	19.10	2.2931	133
26	0	34	-10	15	29	2	8	39.10	2.2961	134
27	5	49	-10	57	17	2	8	59.10	2.2992	135
28	11	21	-11	38	47	2	9	19.10	2.3022	136
29	17	12	-12	19	58	2	9	39.10	2.3053	137
30	23	22	-13	0	49	2	9	59.10	2.3083	138
31	29	52	-13	41	18	2	10	19.10	2.3114	140
32	36	44	-14	21	25	2	10	39.10	2.3145	141
33	43	58	-15	1	9	2	10	59.10	2.3176	142
34	51	36	-15	40	28	2	11	19.10	2.3207	143
35	59	39	-16	19	21	2	11	39.10	2.3239	144
37	9	8	-16	57	47	2	11	59.10	2.3271	146
38	17	4	-17	35	45	2	12	19.10	2.3302	147
39	26	28	-18	13	14	2	12	39.10	2.3335	148
40	36	20	-18	50	12	2	12	59.10	2.3367	149
41	46	42	-19	26	38	2	13	19.10	2.3400	150
42	57	34	-20	2	31	2	13	39.10	2.3432	152
44	8	58	-20	37	50	2	13	59.10	2.3465	153
45	20	54	-21	12	33	2	14	19.10	2.3499	154
46	33	22	-21	46	40	2	14	39.10	2.3532	155
47	46	24	-22	20	9	2	14	59.10	2.3566	156
48	59	60	-22	52	59	2	15	19.10	2.3600	158
50	14	10	-23	25	9	2	15	39.10	2.3634	159

Table XXVIII. A-2/CSM-020 Earth Parking Orbit Groundtrack (Continued)

LONGITUDE DEG	MIN	SEC	LATITUDE DEG	MIN	SEC	GET HOUR	MIN	SEC	REV NO.	ALT N.M.
51	28	56	-23	56	36	2	15	59.10	2.3669	160
52	44	16	-24	27	21	2	16	19.10	2.3704	161
54	0	12	-24	57	22	2	16	39.10	2.3739	162
55	16	44	-25	26	37	2	16	59.10	2.3775	163
56	33	52	-25	55	6	2	17	19.10	2.3810	164
57	51	36	-26	22	47	2	17	39.10	2.3846	166
59	9	56	-26	49	38	2	17	59.10	2.3882	167
60	28	52	-27	15	40	2	18	19.10	2.3919	168
61	49	23	-27	40	50	2	18	39.10	2.3956	169
63	8	30	-28	5	7	2	18	59.10	2.3993	170
64	29	11	-28	28	30	2	19	19.10	2.4030	171
65	50	27	-28	50	58	2	19	39.10	2.4068	172
67	12	16	-29	12	30	2	19	59.10	2.4106	173
68	34	37	-29	33	4	2	20	19.10	2.4144	174
69	57	31	-29	52	41	2	20	39.10	2.4182	175
71	20	55	-30	11	18	2	20	59.10	2.4221	176
72	44	49	-30	28	54	2	21	19.10	2.4260	177
74	9	11	-30	45	29	2	21	39.10	2.4299	178
75	33	60	-31	1	2	2	21	59.10	2.4338	179
76	59	15	-31	15	32	2	22	19.10	2.4378	180
78	24	53	-31	28	58	2	22	39.10	2.4417	181
79	50	54	-31	41	19	2	22	59.10	2.4457	181
81	17	16	-31	52	35	2	23	19.10	2.4497	182
82	43	56	-32	2	45	2	23	39.10	2.4537	183
84	10	54	-32	11	48	2	23	59.10	2.4577	184
85	38	5	-32	19	44	2	24	19.10	2.4618	185
87	5	30	-32	26	33	2	24	39.10	2.4658	185
88	33	5	-32	32	13	2	24	59.10	2.4699	186
90	0	48	-32	36	46	2	25	19.10	2.4739	187
91	28	38	-32	40	10	2	25	39.10	2.4780	187
92	56	31	-32	42	25	2	25	59.10	2.4821	188
94	24	26	-32	43	32	2	26	19.10	2.4861	189
95	52	20	-32	43	30	2	26	39.10	2.4902	189
97	20	11	-32	42	19	2	26	59.10	2.4943	190
98	47	56	-32	39	60	2	27	19.10	2.4983	190
100	15	34	-32	36	32	2	27	39.10	2.5024	191
101	43	2	-32	31	57	2	27	59.10	2.5064	191
103	10	18	-32	26	14	2	28	19.10	2.5105	192
104	37	20	-32	19	24	2	28	39.10	2.5145	192
106	4	6	-32	11	27	2	28	59.10	2.5185	193
107	30	34	-32	2	25	2	29	19.10	2.5225	193
108	56	41	-31	52	16	2	29	39.10	2.5265	194
110	22	26	-31	41	3	2	29	59.10	2.5305	194
111	47	47	-31	28	46	2	30	19.10	2.5344	194
113	12	43	-31	15	26	2	30	39.10	2.5384	195
114	37	12	-31	1	3	2	30	59.10	2.5423	195
116	1	13	-30	45	39	2	31	19.10	2.5462	195
117	24	43	-30	29	15	2	31	39.10	2.5500	195
118	47	43	-30	11	51	2	31	59.10	2.5539	195
120	10	10	-29	53	28	2	32	19.10	2.5577	196
121	32	4	-29	34	8	2	32	39.10	2.5615	196
122	53	24	-29	13	52	2	32	59.10	2.5653	196
124	14	10	-28	52	40	2	33	19.10	2.5690	196
125	34	19	-28	30	35	2	33	39.10	2.5727	196
126	53	52	-28	7	36	2	33	59.10	2.5764	196
128	12	49	-27	43	46	2	34	19.10	2.5800	196
129	31	9	-27	19	6	2	34	39.10	2.5837	196
130	48	52	-26	53	36	2	34	59.10	2.5873	196
132	5	57	-26	27	18	2	35	19.10	2.5908	196
133	22	25	-26	0	13	2	35	39.10	2.5944	196
134	38	15	-25	32	23	2	35	59.10	2.5979	195
135	53	28	-25	3	48	2	36	19.10	2.6014	195
137	9	4	-24	34	30	2	36	39.10	2.6048	195
138	22	3	-24	4	30	2	36	59.10	2.6083	195
139	35	26	-23	33	49	2	37	19.10	2.6117	195
140	48	13	-23	2	29	2	37	39.10	2.6150	194
142	0	25	-22	30	31	2	37	59.10	2.6184	194
143	12	1	-21	57	56	2	38	19.10	2.6217	194
144	23	3	-21	24	44	2	38	39.10	2.6250	193
145	33	32	-20	50	59	2	38	59.10	2.6282	193
146	43	28	-20	16	39	2	39	19.10	2.6315	193
147	52	51	-19	41	48	2	39	39.10	2.6347	192

Table XXVIII. A-2/CSM-020 Earth Parking Orbit Groundtrack (Continued)

LONGITUDE DEG	MIN	SEC	LATITUDE DEG	MIN	SEC	GET HOUR	MIN	SEC	REV NO.	ALT N.M.
149	1	43	-19	6	25	2	39	59.10	2.6379	192
150	10	5	-18	30	32	2	40	19.10	2.6410	191
151	17	58	-17	54	11	2	40	39.10	2.6442	191
152	25	22	-17	17	21	2	40	59.10	2.6473	190
153	32	18	-16	40	5	2	41	19.10	2.6504	190
154	38	47	-16	2	24	2	41	39.10	2.6535	189
155	44	51	-15	24	18	2	41	59.10	2.6565	189
156	50	31	-14	45	49	2	42	19.10	2.6596	188
157	55	47	-14	6	57	2	42	39.10	2.6626	187
159	0	40	-13	27	44	2	42	59.10	2.6656	187
160	5	12	-12	48	11	2	43	19.10	2.6686	186
161	9	24	-12	8	19	2	43	39.10	2.6716	185
162	13	17	-11	28	8	2	43	59.10	2.6745	185
163	16	53	-10	47	41	2	44	19.10	2.6775	184
164	20	11	-10	6	57	2	44	39.10	2.6804	183
165	23	14	-9	25	58	2	44	59.10	2.6833	182
166	26	2	-8	44	45	2	45	19.10	2.6862	182
167	28	37	-8	3	19	2	45	39.10	2.6891	181
168	31	1	-7	21	40	2	45	59.10	2.6920	180
169	33	13	-6	39	50	2	46	19.10	2.6949	179
170	35	16	-5	57	50	2	46	39.10	2.6978	178
171	37	11	-5	15	40	2	46	59.10	2.7006	178
172	38	59	-4	33	23	2	47	19.10	2.7035	177
173	40	40	-3	50	57	2	47	39.10	2.7063	176
174	42	17	-3	8	25	2	47	59.10	2.7092	175
175	43	51	-2	25	48	2	48	19.10	2.7120	174
176	45	22	-1	43	6	2	48	39.10	2.7149	173
177	46	53	-1	0	20	2	48	59.10	2.7177	172
178	48	24	-0	17	32	2	49	19.10	2.7206	171
179	49	57	0	25	19	2	49	39.10	2.7234	170
-179	3	28	1	8	10	2	49	59.10	2.7263	169
-178	6	49	1	51	0	2	50	19.10	2.7291	168
-177	5	4	2	33	50	2	50	39.10	2.7320	167
-176	3	12	3	16	38	2	50	59.10	2.7349	166
-175	1	13	3	59	22	2	51	19.10	2.7377	165
-173	59	4	4	42	3	2	51	39.10	2.7406	164
-172	56	45	5	24	38	2	51	59.10	2.7435	163
-171	54	14	6	7	8	2	52	19.10	2.7464	162
-170	51	30	6	49	30	2	52	39.10	2.7493	161
-169	48	32	7	31	44	2	52	59.10	2.7522	160
-168	45	19	8	13	49	2	53	19.10	2.7551	159
-167	41	49	8	55	44	2	53	39.10	2.7581	158
-166	38	0	9	37	28	2	53	59.10	2.7610	157
-165	33	52	10	18	59	2	54	19.10	2.7640	156
-164	29	24	11	0	17	2	54	39.10	2.7670	155
-163	24	34	11	41	20	2	54	59.10	2.7700	154
-162	19	21	12	22	8	2	55	19.10	2.7730	153
-161	13	43	13	2	38	2	55	39.10	2.7760	152
-160	7	40	13	42	51	2	55	59.10	2.7791	151
-159	1	11	14	22	45	2	56	19.10	2.7822	150
-157	54	13	15	2	18	2	56	39.10	2.7853	149
-156	46	46	15	41	30	2	56	59.10	2.7884	147
-155	38	50	16	20	19	2	57	19.10	2.7915	146
-154	30	21	16	58	44	2	57	39.10	2.7947	145
-153	21	20	17	36	44	2	57	59.10	2.7979	144
-152	11	46	18	14	17	2	58	19.10	2.8011	143
-151	1	37	18	51	22	2	58	39.10	2.8044	142
-149	50	53	19	27	58	2	58	59.10	2.8077	141
-148	39	31	20	4	3	2	59	19.10	2.8110	140
-147	27	33	20	39	36	2	59	39.10	2.8143	139
-146	14	56	21	14	36	2	59	59.10	2.8177	138
-145	1	39	21	49	0	3	0	19.10	2.8210	137
-143	47	43	22	22	49	3	0	39.10	2.8245	136
-142	33	6	22	56	0	3	0	59.10	2.8279	135
-141	17	47	23	28	32	3	1	19.10	2.8314	134
-140	1	47	24	0	23	3	1	39.10	2.8349	133
-138	45	4	24	31	32	3	1	59.10	2.8385	132
-137	27	39	25	1	58	3	2	19.10	2.8421	131
-136	9	30	25	31	39	3	2	39.10	2.8457	130
-134	50	38	26	0	33	3	2	59.10	2.8493	129
-133	31	3	26	28	38	3	3	19.10	2.8530	128
-132	10	44	26	55	55	3	3	39.10	2.8567	127
-130	49	42	27	22	20	3	3	59.10	2.8605	126

Table XXVIII. A-2/CSM-020 Earth Parking Orbit Groundtrack (Continued)

LONGITUDE DEG	MIN	SEC	LATITUDE DEG	MIN	SEC	GET HOUR	MIN	SEC	REV NO.	ALT N.M.
-129	27	56	27	47	53	3	4	19.10	2.8643	125
-128	5	28	28	12	31	3	4	39.10	2.8681	124
-126	42	18	28	36	14	3	4	59.10	2.8719	123
-125	18	26	28	59	0	3	5	19.10	2.8758	122
-123	53	53	29	20	48	3	5	39.10	2.8797	121
-122	28	40	29	41	36	3	5	59.10	2.8837	120
-121	2	47	30	1	22	3	6	19.10	2.8877	120
-119	36	17	30	20	7	3	6	39.10	2.8917	119
-118	9	10	30	37	47	3	6	59.10	2.8957	118
-116	41	29	30	54	22	3	7	19.10	2.8998	117
-115	13	13	31	9	51	3	7	39.10	2.9038	116
-113	44	26	31	24	13	3	7	59.10	2.9080	115
-112	15	8	31	37	26	3	8	19.10	2.9121	115
-110	45	23	31	49	30	3	8	39.10	2.9162	114
-109	15	11	32	0	23	3	8	59.10	2.9204	113
-107	44	36	32	10	5	3	9	19.10	2.9246	112
-106	13	40	32	18	35	3	9	39.10	2.9288	112
-104	42	24	32	25	52	3	9	59.10	2.9330	111
-103	10	52	32	31	55	3	10	19.10	2.9373	110
-101	39	6	32	36	45	3	10	39.10	2.9415	110
-100	7	9	32	40	20	3	10	59.10	2.9458	109
-98	35	4	32	42	40	3	11	19.10	2.9501	108
-97	2	53	32	43	46	3	11	39.10	2.9543	108
-95	30	38	32	43	36	3	11	59.10	2.9586	107
-93	58	24	32	42	11	3	12	19.10	2.9629	107
-92	26	12	32	39	30	3	12	39.10	2.9671	106
-90	54	5	32	35	35	3	12	59.10	2.9714	105
-89	22	7	32	30	25	3	13	19.10	2.9757	105
-87	50	19	32	23	60	3	13	39.10	2.9799	104
-86	18	45	32	16	21	3	13	59.10	2.9841	104
-84	47	27	32	7	28	3	14	19.10	2.9884	104
-83	16	27	31	57	23	3	14	39.10	2.9926	103
-81	45	48	31	46	5	3	14	59.10	2.9968	103
-80	15	33	31	33	35	3	15	19.10	3.0010	102
-78	45	42	31	19	55	3	15	39.10	3.0051	102
-77	16	19	31	5	5	3	15	59.10	3.0093	102
-75	47	26	30	49	7	3	16	19.10	3.0134	101
-74	19	3	30	32	0	3	16	39.10	3.0175	101
-72	51	14	30	13	47	3	16	59.10	3.0215	101
-71	23	58	29	54	29	3	17	19.10	3.0256	101
-69	57	19	29	34	7	3	17	39.10	3.0296	100
-68	31	16	29	12	41	3	17	59.10	3.0336	100
-67	5	52	28	50	14	3	18	19.10	3.0375	100
-65	41	7	28	26	47	3	18	39.10	3.0414	100
-64	17	1	28	2	21	3	18	59.10	3.0453	100
-62	53	36	27	36	58	3	19	19.10	3.0492	100
-61	30	53	27	10	39	3	19	39.10	3.0530	100
-60	8	50	26	43	26	3	19	59.10	3.0568	100
-58	47	30	26	15	19	3	20	19.10	3.0606	100
-57	26	52	25	46	21	3	20	39.10	3.0643	100
-56	6	56	25	16	33	3	20	59.10	3.0680	100
-54	47	42	24	45	57	3	21	19.10	3.0717	100
-53	29	10	24	14	34	3	21	39.10	3.0753	100
-52	11	19	23	42	26	3	21	59.10	3.0789	100
-50	54	10	23	9	33	3	22	19.10	3.0825	100
-49	37	41	22	35	59	3	22	39.10	3.0860	100
-48	21	53	22	1	43	3	22	59.10	3.0896	100
-47	6	44	21	26	49	3	23	19.10	3.0930	101
-45	52	15	20	51	16	3	23	39.10	3.0965	101
-44	38	23	20	15	8	3	23	59.10	3.0999	101
-43	25	9	19	38	24	3	24	19.10	3.1033	102
-42	12	32	19	1	7	3	24	39.10	3.1067	102
-41	0	30	18	23	18	3	24	59.10	3.1100	102
-39	49	3	17	44	59	3	25	19.10	3.1133	103
-38	38	10	17	6	10	3	25	39.10	3.1166	103
-37	27	49	16	26	54	3	25	59.10	3.1198	103
-36	17	60	15	47	12	3	26	19.10	3.1231	104
-35	8	41	15	7	4	3	26	39.10	3.1263	104
-33	59	51	14	26	33	3	26	59.10	3.1295	105
-32	51	29	13	45	40	3	27	19.10	3.1326	105
-31	43	35	13	4	25	3	27	39.10	3.1358	106
-30	36	6	12	22	51	3	27	59.10	3.1389	107
-29	29	1	11	40	59	3	28	19.10	3.1420	107

Table XXVIII. A-2/CSM-020 Earth Parking Orbit Groundtrack (Continued)

LONGITUDE DEG	MIN	SEC	LATITUDE DEG	MIN	SEC	GET HOUR	MIN	SEC	REV NO.	ALT N.M.
-28	22	20	10	58	49	3	28	39.10	3.1451	108
-27	16	0	10	16	24	3	28	59.10	3.1482	108
-26	11	1	9	33	44	3	29	19.10	3.1512	109
-25	4	22	8	50	50	3	29	39.10	3.1543	110
-23	59	0	8	7	44	3	29	59.10	3.1573	111
-22	53	56	7	24	27	3	30	19.10	3.1603	111
-21	49	7	6	41	0	3	30	39.10	3.1633	112
-20	44	32	5	57	24	3	30	59.10	3.1663	113
-19	40	9	5	13	41	3	31	19.10	3.1693	114
-18	35	59	4	29	52	3	31	39.10	3.1722	115
-17	31	59	3	45	57	3	31	59.10	3.1752	115
-16	28	7	3	1	57	3	32	19.10	3.1782	116
-15	24	23	2	17	55	3	32	39.10	3.1811	117
-14	20	46	1	33	51	3	32	59.10	3.1841	118
-13	17	14	0	49	46	3	33	19.10	3.1870	119
-12	13	45	0	5	41	3	33	39.10	3.1899	120
-11	10	18	-0	38	23	3	33	59.10	3.1929	121

Table XXIX. A-2/CSM-020 High Ellipse Groundtrack

LONGITUDE DEG	MIN	SEC	LATITUDE DEG	MIN	SEC	GET HOUR	MIN	SEC	REV NO.	ALT N.M.
-19	51	46	5	25	14	3	31	8.60	2.1687	1036
-18	38	10	4	33	59	3	31	38.60	2.1721	1094
-17	26	48	3	43	54	3	32	8.60	2.1754	1152
-16	17	35	2	54	59	3	32	38.60	2.1786	1212
-15	10	25	2	7	13	3	33	8.60	2.1818	1272
-14	5	13	1	20	36	3	33	38.60	2.1848	1332
-13	1	52	0	35	8	3	34	8.60	2.1877	1393
-12	0	19	-0	9	13	3	34	38.60	2.1906	1454
-11	0	28	-0	52	27	3	35	8.60	2.1933	1516
-10	2	15	-1	34	36	3	35	38.60	2.1960	1578
-9	5	36	-2	15	41	3	36	8.60	2.1986	1640
-8	10	26	-2	55	43	3	36	38.60	2.2012	1703
-7	16	43	-3	34	44	3	37	8.60	2.2037	1765
-6	24	23	-4	12	45	3	37	38.60	2.2061	1828
-5	33	21	-4	49	47	3	38	8.60	2.2085	1891
-4	43	36	-5	25	53	3	38	38.60	2.2108	1954
-3	55	3	-6	1	2	3	39	8.60	2.2130	2018
-3	7	40	-6	35	18	3	39	38.60	2.2152	2081
-2	21	25	-7	8	41	3	40	8.60	2.2174	2144
-1	36	15	-7	41	13	3	40	38.60	2.2194	2208
-0	52	7	-8	12	55	3	41	8.60	2.2215	2271
-0	8	59	-8	43	49	3	41	38.60	2.2235	2334
0	33	11	-9	13	56	3	42	8.60	2.2254	2398
1	14	25	-9	43	17	3	42	38.60	2.2273	2461
1	54	46	-10	11	55	3	43	8.60	2.2292	2524
2	34	15	-10	39	49	3	43	38.60	2.2310	2587
3	12	54	-11	7	2	3	44	8.60	2.2328	2650
3	50	44	-11	33	34	3	44	38.60	2.2346	2713
4	27	48	-11	59	27	3	45	8.60	2.2363	2776
5	4	7	-12	24	43	3	45	38.60	2.2380	2839
5	39	42	-12	49	21	3	46	8.60	2.2396	2901
6	14	34	-13	13	24	3	46	38.60	2.2412	2963
6	48	46	-13	36	51	3	47	8.60	2.2428	3026
7	22	18	-13	59	46	3	47	38.60	2.2444	3088
7	55	12	-14	22	7	3	48	8.60	2.2459	3150
8	27	29	-14	43	57	3	48	38.60	2.2474	3211
8	59	10	-15	5	16	3	49	8.60	2.2489	3273
9	30	15	-15	26	6	3	49	38.60	2.2503	3334
10	0	47	-15	46	26	3	50	8.60	2.2517	3395
10	30	46	-16	6	18	3	50	38.60	2.2531	3456
11	0	13	-16	25	43	3	51	8.60	2.2545	3516
11	29	9	-16	44	42	3	51	38.60	2.2558	3577
11	57	34	-17	3	15	3	52	8.60	2.2571	3637
12	25	31	-17	21	23	3	52	38.60	2.2584	3697
12	52	58	-17	39	6	3	53	8.60	2.2597	3757
13	19	58	-17	56	26	3	53	38.60	2.2609	3816
13	46	31	-18	13	24	3	54	8.60	2.2622	3876
14	12	38	-18	29	58	3	54	38.60	2.2634	3935
14	38	19	-18	46	12	3	55	8.60	2.2646	3993
15	3	35	-19	2	4	3	55	38.60	2.2657	4052
15	28	27	-19	17	36	3	56	8.60	2.2669	4110
15	52	55	-19	32	48	3	56	38.60	2.2680	4168
16	16	60	-19	47	40	3	57	8.60	2.2691	4226
16	40	42	-20	2	14	3	57	38.60	2.2702	4283
17	4	2	-20	16	30	3	58	8.60	2.2713	4341
17	27	1	-20	30	27	3	58	38.60	2.2724	4398
17	49	39	-20	44	8	3	59	8.60	2.2734	4455
18	11	57	-20	57	31	3	59	38.60	2.2745	4511
18	33	54	-21	10	38	4	0	8.60	2.2755	4567
18	55	32	-21	23	29	4	0	38.60	2.2765	4623
19	16	51	-21	36	5	4	1	8.60	2.2775	4679
19	37	52	-21	48	25	4	1	38.60	2.2784	4734
19	58	34	-22	0	31	4	2	8.60	2.2794	4790
20	18	58	-22	12	22	4	2	38.60	2.2803	4845
20	39	5	-22	23	59	4	3	8.60	2.2813	4899
20	58	55	-22	35	22	4	3	38.60	2.2822	4954
21	18	29	-22	46	32	4	4	8.60	2.2831	5008
21	37	46	-22	57	29	4	4	38.60	2.2840	5062
21	56	47	-23	8	14	4	5	8.60	2.2849	5115
22	15	32	-23	18	45	4	5	38.60	2.2857	5169
22	34	2	-23	29	5	4	6	8.60	2.2866	5222
22	52	17	-23	39	13	4	6	38.60	2.2874	5275
23	10	18	-23	49	10	4	7	8.60	2.2883	5327

Table XXIX. A-2/CSM-020 High Ellipse Groundtrack (Continued)

LONGITUDE DEG	MIN	SEC	LATITUDE DEG	MIN	SEC	GET HOUR	MIN	SEC	REV NO.	ALT N.M.
23	28	4	-23	58	55	4	7	38.60	2.2891	5380
23	45	36	-24	8	29	4	8	8.60	2.2899	5432
24	2	54	-24	17	53	4	8	38.60	2.2907	5483
24	19	58	-24	27	6	4	9	8.60	2.2915	5535
24	36	50	-24	36	9	4	9	38.60	2.2923	5586
24	53	28	-24	45	2	4	10	8.60	2.2930	5637
25	9	54	-24	53	45	4	10	38.60	2.2938	5688
25	26	7	-25	2	18	4	11	8.60	2.2946	5739
25	42	7	-25	10	43	4	11	38.60	2.2953	5789
25	57	56	-25	18	58	4	12	8.60	2.2960	5839
26	13	33	-25	27	4	4	12	38.60	2.2967	5889
26	28	58	-25	35	1	4	13	8.60	2.2975	5938
26	44	12	-25	42	50	4	13	38.60	2.2982	5987
26	59	14	-25	50	31	4	14	8.60	2.2989	6036
27	14	6	-25	58	3	4	14	38.60	2.2996	6085
27	28	47	-26	5	28	4	15	8.60	2.3002	6133
27	43	17	-26	12	44	4	15	38.60	2.3009	6182
27	57	37	-26	19	53	4	16	8.60	2.3016	6230
28	11	46	-26	26	55	4	16	38.60	2.3022	6277
28	25	46	-26	33	49	4	17	8.60	2.3029	6325
28	39	35	-26	40	36	4	17	38.60	2.3035	6372
28	53	15	-26	47	15	4	18	8.60	2.3041	6419
29	6	45	-26	53	48	4	18	38.60	2.3048	6466
29	20	6	-27	0	15	4	19	8.60	2.3054	6512
29	33	17	-27	6	34	4	19	38.60	2.3060	6558
29	46	20	-27	12	47	4	20	8.60	2.3066	6604
29	59	13	-27	18	54	4	20	38.60	2.3072	6650
30	11	58	-27	24	55	4	21	8.60	2.3078	6695
30	24	34	-27	30	49	4	21	38.60	2.3084	6741
30	37	2	-27	36	37	4	22	8.60	2.3089	6786
30	49	21	-27	42	20	4	22	38.60	2.3095	6830
31	1	32	-27	47	57	4	23	8.60	2.3101	6875
31	13	34	-27	53	28	4	23	38.60	2.3106	6919
31	25	29	-27	58	53	4	24	8.60	2.3112	6963
31	37	16	-28	4	14	4	24	38.60	2.3117	7007
31	48	55	-28	9	28	4	25	8.60	2.3123	7050
32	0	27	-28	14	38	4	25	38.60	2.3128	7094
32	11	51	-28	19	42	4	26	8.60	2.3133	7137
32	23	7	-28	24	42	4	26	38.60	2.3139	7180
32	34	16	-28	29	36	4	27	8.60	2.3144	7222
32	45	19	-28	34	26	4	27	38.60	2.3149	7265
32	56	14	-28	39	11	4	28	8.60	2.3154	7307
33	7	2	-28	43	51	4	28	38.60	2.3159	7349
33	17	43	-28	48	26	4	29	8.60	2.3164	7390
33	28	17	-28	52	57	4	29	38.60	2.3169	7432
33	38	45	-28	57	24	4	30	8.60	2.3174	7473
33	49	6	-29	1	46	4	30	38.60	2.3178	7514
33	59	21	-29	6	4	4	31	8.60	2.3183	7555
34	9	29	-29	10	17	4	31	38.60	2.3188	7595
34	19	31	-29	14	27	4	32	8.60	2.3192	7636
34	29	27	-29	18	32	4	32	38.60	2.3197	7676
34	39	17	-29	22	34	4	33	8.60	2.3202	7716
34	49	0	-29	26	31	4	33	38.60	2.3206	7755
34	58	38	-29	30	25	4	34	8.60	2.3211	7795
35	8	10	-29	34	15	4	34	38.60	2.3215	7834
35	17	36	-29	38	1	4	35	8.60	2.3219	7873
35	26	56	-29	41	43	4	35	38.60	2.3224	7911
35	36	11	-29	45	22	4	36	8.60	2.3228	7950
35	45	20	-29	48	57	4	36	38.60	2.3232	7988
35	54	24	-29	52	29	4	37	8.60	2.3236	8026
36	3	22	-29	55	57	4	37	38.60	2.3241	8064
36	12	15	-29	59	22	4	38	8.60	2.3245	8102
36	21	2	-30	2	43	4	38	38.60	2.3249	8139
36	29	45	-30	6	1	4	39	8.60	2.3253	8177
36	38	22	-30	9	16	4	39	38.60	2.3257	8214
36	46	54	-30	12	28	4	40	8.60	2.3261	8250
36	55	22	-30	15	37	4	40	38.60	2.3265	8287
37	3	44	-30	18	42	4	41	8.60	2.3269	8323
37	12	1	-30	21	45	4	41	38.60	2.3272	8359
37	20	14	-30	24	44	4	42	8.60	2.3276	8395
37	28	22	-30	27	41	4	42	38.60	2.3280	8431
37	36	25	-30	30	35	4	43	8.60	2.3284	8467
37	44	24	-30	33	25	4	43	38.60	2.3287	8502

Table XXIX. A-2/CSM-020 High Ellipse Groundtrack (Continued)

LONGITUDE DEG	MIN	SEC	LATITUDE DEG	MIN	SEC	GET HOUR	MIN	SEC	REV NO.	ALT N.M.
37	52	18	-30	36	13	4	44	8.60	2.3291	8537
38	0	7	-30	38	59	4	44	38.60	2.3295	8572
38	7	52	-30	41	41	4	45	8.60	2.3298	8607
38	15	33	-30	44	21	4	45	38.60	2.3302	8641
38	23	9	-30	46	58	4	46	8.60	2.3305	8675
38	30	41	-30	49	32	4	46	38.60	2.3309	8709
38	38	9	-30	52	4	4	47	8.60	2.3312	8743
38	45	33	-30	54	33	4	47	38.60	2.3316	8777
38	52	52	-30	57	0	4	48	8.60	2.3319	8810
39	0	7	-30	59	24	4	48	38.60	2.3322	8844
39	7	19	-31	1	46	4	49	8.60	2.3326	8877
39	14	26	-31	4	6	4	49	38.60	2.3329	8910
39	21	29	-31	6	23	4	50	8.60	2.3332	8942
39	28	29	-31	8	38	4	50	38.60	2.3336	8975
39	35	25	-31	10	50	4	51	8.60	2.3339	9007
39	42	17	-31	13	0	4	51	38.60	2.3342	9039
39	49	5	-31	15	8	4	52	8.60	2.3345	9071
39	55	49	-31	17	14	4	52	38.60	2.3348	9102
40	2	30	-31	19	17	4	53	8.60	2.3351	9134
40	9	7	-31	21	18	4	53	38.60	2.3354	9165
40	15	40	-31	23	18	4	54	8.60	2.3357	9196
40	22	10	-31	25	15	4	54	38.60	2.3360	9227
40	28	37	-31	27	10	4	55	8.60	2.3363	9258
40	35	0	-31	29	2	4	55	38.60	2.3366	9288
40	41	20	-31	30	53	4	56	8.60	2.3369	9318
40	47	36	-31	32	42	4	56	38.60	2.3372	9349
40	53	49	-31	34	29	4	57	8.60	2.3375	9378
40	59	58	-31	36	14	4	57	38.60	2.3378	9408
41	6	5	-31	37	57	4	58	8.60	2.3381	9438
41	12	8	-31	39	38	4	58	38.60	2.3384	9467
41	18	8	-31	41	17	4	59	8.60	2.3386	9496
41	24	4	-31	42	55	4	59	38.60	2.3389	9525
41	29	58	-31	44	30	5	0	8.60	2.3392	9554
41	35	49	-31	46	4	5	0	38.60	2.3394	9582
41	41	36	-31	47	36	5	1	8.60	2.3397	9611
41	47	21	-31	49	6	5	1	38.60	2.3400	9639
41	53	2	-31	50	35	5	2	8.60	2.3402	9667
41	58	41	-31	52	1	5	2	38.60	2.3405	9695
42	4	16	-31	53	26	5	3	8.60	2.3408	9722
42	9	49	-31	54	49	5	3	38.60	2.3410	9750
42	15	19	-31	56	11	5	4	8.60	2.3413	9777
42	20	46	-31	57	31	5	4	38.60	2.3415	9804
42	26	10	-31	58	49	5	5	8.60	2.3418	9831
42	31	32	-32	0	6	5	5	38.60	2.3420	9858
42	36	51	-32	1	21	5	6	8.60	2.3423	9884
42	42	7	-32	2	34	5	6	38.60	2.3425	9910
42	47	20	-32	3	46	5	7	8.60	2.3428	9937
42	52	31	-32	4	57	5	7	38.60	2.3430	9963
42	57	39	-32	6	6	5	8	8.60	2.3432	9988
43	2	45	-32	7	13	5	8	38.60	2.3435	10014
43	7	48	-32	8	19	5	9	8.60	2.3437	10039
43	12	48	-32	9	23	5	9	38.60	2.3439	10065
43	17	46	-32	10	26	5	10	8.60	2.3442	10090
43	22	42	-32	11	28	5	10	38.60	2.3444	10115
43	27	35	-32	12	28	5	11	8.60	2.3446	10139
43	32	25	-32	13	26	5	11	38.60	2.3448	10164
43	37	13	-32	14	23	5	12	8.60	2.3451	10188
43	41	59	-32	15	19	5	12	38.60	2.3453	10212
43	46	43	-32	16	14	5	13	8.60	2.3455	10236
43	51	24	-32	17	7	5	13	38.60	2.3457	10260
43	56	3	-32	17	58	5	14	8.60	2.3459	10284
44	0	40	-32	18	49	5	14	38.60	2.3462	10307
44	5	14	-32	19	38	5	15	8.60	2.3464	10330
44	9	46	-32	20	26	5	15	38.60	2.3466	10354
44	14	16	-32	21	12	5	16	8.60	2.3468	10377
44	18	44	-32	21	57	5	16	38.60	2.3470	10399
44	23	9	-32	22	41	5	17	8.60	2.3472	10422
44	27	33	-32	23	24	5	17	38.60	2.3474	10444
44	31	54	-32	24	5	5	18	8.60	2.3476	10466
44	36	14	-32	24	45	5	18	38.60	2.3478	10489
44	40	31	-32	25	24	5	19	8.60	2.3480	10510
44	44	46	-32	26	2	5	19	38.60	2.3482	10532
44	48	59	-32	26	38	5	20	8.60	2.3484	10554

Table XXIX. A-2/CSM-020 High Ellipse Groundtrack (Continued)

LONGITUDE DEG	MIN	SEC	LATITUDE DEG	MIN	SEC	GFT HOUR	MIN	SEC	REV NO.	ALT N.M.
44	53	10	-32	27	13	5	20	38.60	2.3486	10575
44	57	20	-32	27	48	5	21	8.60	2.3488	10596
45	1	27	-32	28	20	5	21	38.60	2.3490	10617
45	5	32	-32	28	52	5	22	8.60	2.3492	10638
45	9	35	-32	29	23	5	22	38.60	2.3493	10659
45	13	37	-32	29	52	5	23	8.60	2.3495	10679
45	17	37	-32	30	21	5	23	38.60	2.3497	10700
45	21	34	-32	30	48	5	24	8.60	2.3499	10720
45	25	30	-32	31	14	5	24	38.60	2.3501	10740
45	29	24	-32	31	39	5	25	8.60	2.3503	10760
45	33	17	-32	32	3	5	25	38.60	2.3504	10779
45	37	7	-32	32	26	5	26	8.60	2.3506	10799
45	40	56	-32	32	47	5	26	38.60	2.3508	10818
45	44	43	-32	33	8	5	27	8.60	2.3510	10837
45	48	28	-32	33	28	5	27	38.60	2.3511	10856
45	52	12	-32	33	46	5	28	8.60	2.3513	10875
45	55	53	-32	34	4	5	28	38.60	2.3515	10894
45	59	34	-32	34	20	5	29	8.60	2.3517	10912
46	3	12	-32	34	35	5	29	38.60	2.3518	10931
46	6	49	-32	34	50	5	30	8.60	2.3520	10949
46	10	24	-32	35	3	5	30	38.60	2.3522	10967
46	13	58	-32	35	16	5	31	8.60	2.3523	10985
46	17	30	-32	35	27	5	31	38.60	2.3525	11002
46	21	1	-32	35	37	5	32	8.60	2.3527	11020
46	24	30	-32	35	47	5	32	38.60	2.3528	11037
46	27	57	-32	35	55	5	33	8.60	2.3530	11054
46	31	23	-32	36	3	5	33	38.60	2.3531	11071
46	34	48	-32	36	9	5	34	8.60	2.3533	11088
46	38	11	-32	36	15	5	34	38.60	2.3534	11105
46	41	32	-32	36	19	5	35	8.60	2.3536	11121
46	44	52	-32	36	23	5	35	38.60	2.3538	11138
46	48	11	-32	36	26	5	36	8.60	2.3539	11154
46	51	28	-32	36	28	5	36	38.60	2.3541	11170
46	54	44	-32	36	28	5	37	8.60	2.3542	11186
46	57	58	-32	36	28	5	37	38.60	2.3544	11202
47	1	11	-32	36	27	5	38	8.60	2.3545	11217
47	4	22	-32	36	26	5	38	38.60	2.3547	11232
47	7	33	-32	36	23	5	39	8.60	2.3548	11248
47	10	42	-32	36	19	5	39	38.60	2.3550	11263
47	13	49	-32	36	15	5	40	8.60	2.3551	11278
47	16	56	-32	36	9	5	40	38.60	2.3552	11292
47	20	1	-32	36	3	5	41	8.60	2.3554	11307
47	23	4	-32	35	56	5	41	38.60	2.3555	11321
47	26	7	-32	35	47	5	42	8.60	2.3557	11336
47	29	8	-32	35	39	5	42	38.60	2.3558	11350
47	32	8	-32	35	29	5	43	8.60	2.3559	11364
47	35	7	-32	35	18	5	43	38.60	2.3561	11377
47	38	4	-32	35	7	5	44	8.60	2.3562	11391
47	41	1	-32	34	54	5	44	38.60	2.3564	11405
47	43	56	-32	34	41	5	45	8.60	2.3565	11418
47	46	50	-32	34	27	5	45	38.60	2.3566	11431
47	49	43	-32	34	12	5	46	8.60	2.3568	11444
47	52	35	-32	33	57	5	46	38.60	2.3569	11457
47	55	25	-32	33	40	5	47	8.60	2.3570	11469
47	58	15	-32	33	23	5	47	38.60	2.3572	11482
48	1	3	-32	33	5	5	48	8.60	2.3573	11494
48	3	51	-32	32	46	5	48	38.60	2.3574	11507
48	6	37	-32	32	26	5	49	8.60	2.3575	11519
48	9	22	-32	32	5	5	49	38.60	2.3577	11530
48	12	6	-32	31	44	5	50	8.60	2.3578	11542
48	14	49	-32	31	22	5	50	38.60	2.3579	11554
48	17	31	-32	30	59	5	51	8.60	2.3580	11565
48	20	12	-32	30	35	5	51	38.60	2.3582	11576
48	22	52	-32	30	11	5	52	8.60	2.3583	11588
48	25	31	-32	29	45	5	52	38.60	2.3584	11598
48	28	10	-32	29	19	5	53	8.60	2.3585	11609
48	30	47	-32	28	52	5	53	38.60	2.3587	11620
48	33	23	-32	28	25	5	54	8.60	2.3588	11630
48	35	58	-32	27	56	5	54	38.60	2.3589	11641
48	38	32	-32	27	27	5	55	8.60	2.3590	11651
48	41	6	-32	26	57	5	55	38.60	2.3591	11661
48	43	38	-32	26	27	5	56	8.60	2.3593	11671
48	46	10	-32	25	55	5	56	38.60	2.3594	11680

Table XXIX. A-2/CSM-020 High Ellipse Groundtrack (Continued)

LONGITUDE DEG	MIN	SEC	LATITUDE DEG	MIN	SEC	GET HOUR	MIN	SEC	REV NO.	ALT N.M.
48	48	40	-32	25	23	5	57	8.60	2.3595	11690
48	51	10	-32	24	50	5	57	38.60	2.3596	11699
48	53	39	-32	24	16	5	58	8.60	2.3597	11709
48	56	7	-32	23	42	5	58	38.60	2.3598	11718
48	58	35	-32	23	7	5	59	8.60	2.3599	11727
49	1	1	-32	22	31	5	59	38.60	2.3601	11735
49	3	27	-32	21	54	6	0	8.60	2.3602	11744
49	5	51	-32	21	17	6	0	38.60	2.3603	11752
49	8	15	-32	20	38	6	1	8.60	2.3604	11761
49	10	39	-32	19	60	6	1	38.60	2.3605	11769
49	13	1	-32	19	20	6	2	8.60	2.3606	11777
49	15	23	-32	18	40	6	2	38.60	2.3607	11785
49	17	44	-32	17	59	6	3	8.60	2.3608	11793
49	20	4	-32	17	17	6	3	38.60	2.3609	11800
49	22	23	-32	16	34	6	4	8.60	2.3610	11807
49	24	42	-32	15	51	6	4	38.60	2.3612	11815
49	27	0	-32	15	7	6	5	8.60	2.3613	11822
49	29	17	-32	14	22	6	5	38.60	2.3614	11829
49	31	34	-32	13	37	6	6	8.60	2.3615	11836
49	33	50	-32	12	51	6	6	38.60	2.3616	11842
49	36	5	-32	12	4	6	7	8.60	2.3617	11849
49	38	20	-32	11	17	6	7	38.60	2.3618	11855
49	40	34	-32	10	28	6	8	8.60	2.3619	11861
49	42	47	-32	9	40	6	8	38.60	2.3620	11867
49	45	0	-32	8	50	6	9	8.60	2.3621	11873
49	47	12	-32	7	60	6	9	38.60	2.3622	11879
49	49	24	-32	7	8	6	10	8.60	2.3623	11884
49	51	34	-32	6	17	6	10	38.60	2.3624	11890
49	53	45	-32	5	24	6	11	8.60	2.3625	11895
49	55	54	-32	4	31	6	11	38.60	2.3626	11900
49	59	4	-32	3	37	6	12	8.60	2.3627	11905
50	0	12	-32	2	43	6	12	38.60	2.3628	11910
50	2	20	-32	1	47	6	13	8.60	2.3629	11914
50	4	28	-32	0	52	6	13	38.60	2.3630	11919
50	6	35	-31	59	55	6	14	8.60	2.3631	11923
50	8	41	-31	58	58	6	14	38.60	2.3632	11928
50	10	47	-31	57	60	6	15	8.60	2.3633	11932
50	12	53	-31	57	1	6	15	38.60	2.3634	11936
50	14	58	-31	56	1	6	16	8.60	2.3635	11939
50	17	2	-31	55	1	6	16	38.60	2.3636	11943
50	19	6	-31	54	1	6	17	8.60	2.3637	11946
50	21	9	-31	52	59	6	17	38.60	2.3638	11950
50	23	13	-31	51	57	6	18	8.60	2.3639	11953
50	25	15	-31	50	54	6	18	38.60	2.3640	11956
50	27	17	-31	49	50	6	19	8.60	2.3641	11959
50	29	19	-31	48	46	6	19	38.60	2.3641	11961
50	31	20	-31	47	41	6	20	8.60	2.3642	11964
50	33	21	-31	46	36	6	20	38.60	2.3643	11966
50	35	22	-31	45	29	6	21	8.60	2.3644	11968
50	37	22	-31	44	22	6	21	38.60	2.3645	11971
50	39	22	-31	43	15	6	22	8.60	2.3646	11972
50	41	21	-31	42	6	6	22	38.60	2.3647	11974
50	43	20	-31	40	57	6	23	8.60	2.3648	11976
50	45	19	-31	39	47	6	23	38.60	2.3649	11977
50	47	17	-31	38	37	6	24	8.60	2.3650	11979
50	49	15	-31	37	26	6	24	38.60	2.3651	11980
50	51	13	-31	36	14	6	25	8.60	2.3652	11981
50	53	10	-31	35	1	6	25	38.60	2.3653	11982
50	55	7	-31	33	48	6	26	8.60	2.3653	11983
50	57	4	-31	32	34	6	26	38.60	2.3654	11983
50	59	1	-31	31	20	6	27	8.60	2.3655	11984
51	0	57	-31	30	4	6	27	38.60	2.3656	11984
51	2	53	-31	28	48	6	28	8.60	2.3657	11984
51	4	49	-31	27	32	6	28	38.60	2.3658	11984
51	6	44	-31	26	14	6	29	8.60	2.3659	11984
51	8	39	-31	24	56	6	29	38.60	2.3660	11983
51	10	34	-31	23	38	6	30	8.60	2.3661	11983
51	12	29	-31	22	18	6	30	38.60	2.3661	11982
51	14	23	-31	20	58	6	31	8.60	2.3662	11982
51	16	18	-31	19	37	6	31	38.60	2.3663	11981
51	18	12	-31	18	16	6	32	8.60	2.3664	11980
51	20	6	-31	16	53	6	32	38.60	2.3665	11978
51	21	59	-31	15	31	6	33	8.60	2.3666	11977

Table XXIX. A-2/CSM-020 High Ellipse Groundtrack (Continued)

LONGITUDE DEG	MIN	SEC	LATITUDE DEG	MIN	SEC	GET HOUR	MIN	SEC	REV NO.	ALT N.M.
51	23	53	-31	14	7	6	33	38.60	2.3667	11975
51	25	46	-31	12	43	6	34	8.60	2.3668	11974
51	27	40	-31	11	18	6	34	38.60	2.3668	11972
51	29	33	-31	9	52	6	35	8.60	2.3669	11970
51	31	26	-31	8	25	6	35	38.60	2.3670	11968
51	33	18	-31	6	58	6	36	8.60	2.3671	11966
51	35	11	-31	5	30	6	36	38.60	2.3672	11963
51	37	4	-31	4	2	6	37	8.60	2.3673	11961
51	38	56	-31	2	32	6	37	38.60	2.3674	11958
51	40	49	-31	1	2	6	38	8.60	2.3675	11955
51	42	41	-30	59	32	6	38	38.60	2.3675	11952
51	44	33	-30	58	0	6	39	8.60	2.3676	11949
51	46	26	-30	56	28	6	39	38.60	2.3677	11945
51	48	18	-30	54	55	6	40	8.60	2.3678	11942
51	50	10	-30	53	22	6	40	38.60	2.3679	11938
51	52	2	-30	51	47	6	41	8.60	2.3680	11935
51	53	54	-30	50	12	6	41	38.60	2.3681	11931
51	55	46	-30	48	37	6	42	8.60	2.3681	11927
51	57	38	-30	47	0	6	42	38.60	2.3682	11922
51	59	30	-30	45	23	6	43	8.60	2.3683	11918
52	1	22	-30	43	45	6	43	38.60	2.3684	11913
52	3	14	-30	42	6	6	44	8.60	2.3685	11909
52	5	6	-30	40	27	6	44	38.60	2.3686	11904
52	6	58	-30	38	47	6	45	8.60	2.3687	11899
52	8	51	-30	37	6	6	45	38.60	2.3688	11894
52	10	43	-30	35	24	6	46	8.60	2.3688	11888
52	12	35	-30	33	42	6	46	38.60	2.3689	11883
52	14	28	-30	31	59	6	47	8.60	2.3690	11877
52	16	20	-30	30	15	6	47	38.60	2.3691	11872
52	18	13	-30	28	30	6	48	8.60	2.3692	11866
52	20	5	-30	26	45	6	48	38.60	2.3693	11860
52	21	58	-30	24	59	6	49	8.60	2.3694	11853
52	23	51	-30	23	12	6	49	38.60	2.3694	11847
52	25	44	-30	21	24	6	50	8.60	2.3695	11841
52	27	37	-30	19	36	6	50	38.60	2.3696	11834
52	29	30	-30	17	47	6	51	8.60	2.3697	11827
52	31	24	-30	15	57	6	51	38.60	2.3698	11820
52	33	17	-30	14	6	6	52	8.60	2.3699	11813
52	35	11	-30	12	14	6	52	38.60	2.3700	11806
52	37	5	-30	10	22	6	53	8.60	2.3701	11798
52	38	60	-30	8	29	6	53	38.60	2.3701	11791
52	40	54	-30	6	35	6	54	8.60	2.3702	11783
52	42	49	-30	4	40	6	54	38.60	2.3703	11775
52	44	43	-30	2	45	6	55	8.60	2.3704	11767
52	46	39	-30	0	49	6	55	38.60	2.3705	11759
52	48	34	-29	58	52	6	56	8.60	2.3706	11750
52	50	29	-29	56	54	6	56	38.60	2.3707	11742
52	52	25	-29	54	55	6	57	8.60	2.3708	11733
52	54	21	-29	52	56	6	57	38.60	2.3709	11724
52	56	18	-29	50	55	6	58	8.60	2.3710	11716
52	58	15	-29	48	54	6	58	38.60	2.3710	11706
53	1	12	-29	46	52	6	59	8.60	2.3711	11697
53	2	9	-29	44	50	6	59	38.60	2.3712	11688
53	4	7	-29	42	46	7	0	8.60	2.3713	11678
53	6	5	-29	40	42	7	0	38.60	2.3714	11668
53	8	3	-29	38	36	7	1	8.60	2.3715	11658
53	10	2	-29	36	30	7	1	38.60	2.3716	11648
53	12	1	-29	34	23	7	2	8.60	2.3717	11638
53	14	0	-29	32	16	7	2	38.60	2.3718	11628
53	16	0	-29	30	7	7	3	8.60	2.3719	11617
53	18	0	-29	27	57	7	3	38.60	2.3720	11607
53	20	1	-29	25	47	7	4	8.60	2.3720	11596
53	22	2	-29	23	36	7	4	38.60	2.3721	11585
53	24	4	-29	21	24	7	5	8.60	2.3722	11574
53	26	6	-29	19	11	7	5	38.60	2.3723	11562
53	28	8	-29	16	57	7	6	8.60	2.3724	11551
53	30	11	-29	14	42	7	6	38.60	2.3725	11539
53	32	14	-29	12	27	7	7	8.60	2.3726	11528
53	34	18	-29	10	10	7	7	38.60	2.3727	11516
53	36	22	-29	7	53	7	8	8.60	2.3728	11504
53	38	27	-29	5	34	7	8	38.60	2.3729	11491
53	40	33	-29	3	15	7	9	8.60	2.3730	11479
53	42	39	-29	0	55	7	9	38.60	2.3731	11466

Table XXIX. A-2/CSM-020 High Ellipse Groundtrack (Continued)

LONGITUDE DEG	MIN	SEC	LATITUDE DEG	MIN	SEC	GET HOUR	MIN	SEC	REV NO.	ALT N.M.
53	44	45	-28	58	34	7	10	8.60	2.3732	11454
53	46	52	-28	56	12	7	10	38.60	2.3733	11441
53	48	59	-28	53	49	7	11	8.60	2.3734	11428
53	51	8	-28	51	25	7	11	38.60	2.3735	11415
53	53	16	-28	48	60	7	12	8.60	2.3736	11401
53	55	26	-28	46	34	7	12	38.60	2.3737	11388
53	57	36	-28	44	7	7	13	8.60	2.3738	11374
53	59	46	-28	41	40	7	13	38.60	2.3739	11360
54	1	57	-28	39	11	7	14	8.60	2.3740	11346
54	4	9	-28	36	41	7	14	38.60	2.3741	11332
54	6	22	-28	34	11	7	15	8.60	2.3742	11318
54	8	35	-28	31	39	7	15	38.60	2.3743	11303
54	10	49	-28	29	6	7	16	8.60	2.3744	11289
54	13	3	-28	26	33	7	16	38.60	2.3745	11274
54	15	18	-28	23	58	7	17	8.60	2.3746	11259
54	17	34	-28	21	23	7	17	38.60	2.3747	11244
54	19	51	-28	18	46	7	18	8.60	2.3748	11229
54	22	8	-28	16	8	7	18	38.60	2.3749	11213
54	24	27	-28	13	29	7	19	8.60	2.3750	11198
54	26	46	-28	10	50	7	19	38.60	2.3751	11182
54	29	5	-28	8	9	7	20	8.60	2.3752	11166
54	31	26	-28	5	27	7	20	38.60	2.3754	11150
54	33	47	-28	2	44	7	21	8.60	2.3755	11134
54	36	10	-27	59	60	7	21	38.60	2.3756	11117
54	38	33	-27	57	15	7	22	8.60	2.3757	11101
54	40	57	-27	54	29	7	22	38.60	2.3758	11084
54	43	21	-27	51	41	7	23	8.60	2.3759	11067
54	45	47	-27	48	53	7	23	38.60	2.3760	11050
54	48	14	-27	46	3	7	24	8.60	2.3761	11033
54	50	41	-27	43	13	7	24	38.60	2.3762	11016
54	53	9	-27	40	21	7	25	8.60	2.3764	10998
54	55	39	-27	37	28	7	25	38.60	2.3765	10980
54	58	9	-27	34	34	7	26	8.60	2.3766	10963
55	0	40	-27	31	39	7	26	38.60	2.3767	10944
55	3	13	-27	28	43	7	27	8.60	2.3768	10926
55	5	46	-27	25	45	7	27	38.60	2.3769	10908
55	8	20	-27	22	46	7	28	8.60	2.3771	10889
55	10	55	-27	19	46	7	28	38.60	2.3772	10871
55	13	32	-27	16	45	7	29	8.60	2.3773	10852
55	16	9	-27	13	43	7	29	38.60	2.3774	10833
55	18	47	-27	10	39	7	30	8.60	2.3775	10814
55	21	27	-27	7	35	7	30	38.60	2.3777	10794
55	24	8	-27	4	29	7	31	8.60	2.3778	10775
55	26	49	-27	1	21	7	31	38.60	2.3779	10755
55	29	32	-26	58	13	7	32	8.60	2.3780	10735
55	32	16	-26	55	3	7	32	38.60	2.3782	10715
55	35	2	-26	51	52	7	33	8.60	2.3783	10695
55	37	48	-26	48	40	7	33	38.60	2.3784	10674
55	40	36	-26	45	26	7	34	8.60	2.3786	10654
55	43	25	-26	42	11	7	34	38.60	2.3787	10633
55	46	15	-26	38	55	7	35	8.60	2.3788	10612
55	49	6	-26	35	37	7	35	38.60	2.3790	10591
55	51	59	-26	32	18	7	36	8.60	2.3791	10570
55	54	53	-26	28	57	7	36	38.60	2.3792	10549
55	57	48	-26	25	36	7	37	8.60	2.3794	10527
56	0	45	-26	22	13	7	37	38.60	2.3795	10505
56	3	43	-26	18	48	7	38	8.60	2.3796	10483
56	6	42	-26	15	22	7	38	38.60	2.3798	10461
56	9	43	-26	11	55	7	39	8.60	2.3799	10439
56	12	45	-26	8	26	7	39	38.60	2.3800	10416
56	15	48	-26	4	56	7	40	8.60	2.3802	10394
56	18	53	-26	1	24	7	40	38.60	2.3803	10371
56	21	60	-25	57	51	7	41	8.60	2.3805	10348
56	25	8	-25	54	16	7	41	38.60	2.3806	10325
56	28	17	-25	50	40	7	42	8.60	2.3808	10302
56	31	28	-25	47	2	7	42	38.60	2.3809	10278
56	34	41	-25	43	23	7	43	8.60	2.3811	10254
56	37	55	-25	39	42	7	43	38.60	2.3812	10231
56	41	11	-25	35	59	7	44	8.60	2.3814	10207
56	44	28	-25	32	15	7	44	38.60	2.3815	10182
56	47	47	-25	28	30	7	45	8.60	2.3817	10158
56	51	8	-25	24	43	7	45	38.60	2.3818	10133
56	54	30	-25	20	54	7	46	8.60	2.3820	10109
56	57	54	-25	17	3	7	46	38.60	2.3821	10084

Table XXIX. A-2/CSM-020 High Ellipse Groundtrack (Continued)

LONGITUDE DEG	MIN	SEC	LATITUDE DEG	MIN	SEC	GET HOUR	MIN	SEC	REV NO.	ALT N.M.
57	1	20	-25	13	11	7	47	8.60	2.3823	10059
57	4	48	-25	9	17	7	47	38.60	2.3825	10033
57	8	17	-25	5	22	7	48	8.60	2.3826	10008
57	11	48	-25	1	25	7	48	38.60	2.3828	9982
57	15	21	-24	57	26	7	49	8.60	2.3829	9956
57	18	56	-24	53	25	7	49	38.60	2.3831	9930
57	22	32	-24	49	23	7	50	8.60	2.3833	9904
57	26	11	-24	45	18	7	50	38.60	2.3834	9878
57	29	51	-24	41	12	7	51	8.60	2.3836	9851
57	33	34	-24	37	5	7	51	38.60	2.3838	9825
57	37	18	-24	32	55	7	52	8.60	2.3840	9798
57	41	5	-24	28	43	7	52	38.60	2.3841	9771
57	44	53	-24	24	30	7	53	8.60	2.3843	9743
57	48	44	-24	20	14	7	53	38.60	2.3845	9716
57	52	37	-24	15	57	7	54	8.60	2.3847	9688
57	56	31	-24	11	38	7	54	38.60	2.3849	9660
58	0	28	-24	7	17	7	55	8.60	2.3850	9632
58	4	27	-24	2	54	7	55	38.60	2.3852	9604
58	8	29	-23	58	28	7	56	8.60	2.3854	9576
58	12	32	-23	54	1	7	56	38.60	2.3856	9547
58	16	38	-23	49	32	7	57	8.60	2.3858	9518
58	20	46	-23	45	1	7	57	38.60	2.3860	9489
58	24	57	-23	40	27	7	58	8.60	2.3862	9460
58	29	10	-23	35	52	7	58	38.60	2.3864	9431
58	33	25	-23	31	14	7	59	8.60	2.3866	9401
58	37	43	-23	26	34	7	59	38.60	2.3868	9371
58	42	3	-23	21	52	8	0	8.60	2.3870	9341
58	46	26	-23	17	7	8	0	38.60	2.3872	9311
58	50	51	-23	12	21	8	1	8.60	2.3874	9281
58	55	19	-23	7	32	8	1	38.60	2.3876	9250
58	59	49	-23	2	41	8	2	8.60	2.3878	9220
59	4	22	-22	57	47	8	2	38.60	2.3880	9189
59	8	58	-22	52	51	8	3	8.60	2.3882	9158
59	13	36	-22	47	53	8	3	38.60	2.3884	9126
59	18	17	-22	42	52	8	4	8.60	2.3886	9095
59	23	1	-22	37	49	8	4	38.60	2.3889	9063
59	27	48	-22	32	44	8	5	8.60	2.3891	9031
59	32	38	-22	27	36	8	5	38.60	2.3893	8999
59	37	31	-22	22	25	8	6	8.60	2.3895	8967
59	42	26	-22	17	12	8	6	38.60	2.3898	8934
59	47	25	-22	11	56	8	7	8.60	2.3900	8902
59	52	26	-22	6	37	8	7	38.60	2.3902	8869
59	57	31	-22	1	16	8	8	8.60	2.3905	8836
60	2	39	-21	55	52	8	8	38.60	2.3907	8803
60	7	50	-21	50	25	8	9	8.60	2.3909	8769
60	13	4	-21	44	56	8	9	38.60	2.3912	8735
60	18	22	-21	39	24	8	10	8.60	2.3914	8701
60	23	43	-21	33	49	8	10	38.60	2.3917	8667
60	29	7	-21	28	11	8	11	8.60	2.3919	8633
60	34	35	-21	22	30	8	11	38.60	2.3922	8598
60	40	6	-21	16	46	8	12	8.60	2.3924	8564
60	45	41	-21	10	59	8	12	38.60	2.3927	8529
60	51	19	-21	5	9	8	13	8.60	2.3929	8494
60	57	1	-20	59	16	8	13	38.60	2.3932	8458
61	2	47	-20	53	19	8	14	8.60	2.3935	8423
61	8	36	-20	47	20	8	14	38.60	2.3937	8387
61	14	29	-20	41	17	8	15	8.60	2.3940	8351
61	20	26	-20	35	11	8	15	38.60	2.3943	8315
61	26	27	-20	29	2	8	16	8.60	2.3946	8278
61	32	32	-20	22	50	8	16	38.60	2.3949	8242
61	38	41	-20	16	34	8	17	8.60	2.3951	8205
61	44	54	-20	10	14	8	17	38.60	2.3954	8168
61	51	11	-20	3	51	8	18	8.60	2.3957	8131
61	57	33	-19	57	24	8	18	38.60	2.3960	8093
62	3	59	-19	50	54	8	19	8.60	2.3963	8055
62	10	29	-19	44	20	8	19	38.60	2.3966	8018
62	17	3	-19	37	43	8	20	8.60	2.3969	7979
62	23	42	-19	31	1	8	20	38.60	2.3972	7941
62	30	26	-19	24	16	8	21	8.60	2.3975	7902
62	37	14	-19	17	27	8	21	38.60	2.3978	7864
62	44	7	-19	10	34	8	22	8.60	2.3982	7825
62	51	5	-19	3	37	8	22	38.60	2.3985	7785
62	58	8	-18	56	36	8	23	8.60	2.3988	7746

Table XXIX. A-2/CSM-020 High Ellipse Groundtrack (Continued)

LONGITUDE DEG	MIN	SEC	LATITUDE DEG	MIN	SEC	GET HOUR	MIN	SEC	REV NO.	ALT N.M.
63	5	16	-18	49	31	8	23	38.60	2.3991	7706
63	12	28	-18	42	21	8	24	8.60	2.3995	7666
63	19	46	-18	35	7	8	24	38.60	2.3998	7626
63	27	9	-18	27	49	8	25	8.60	2.4002	7586
63	34	38	-18	20	27	8	25	38.60	2.4005	7545
63	42	12	-18	12	60	8	26	8.60	2.4009	7505
63	49	51	-18	5	28	8	26	38.60	2.4012	7464
63	57	36	-17	57	52	8	27	8.60	2.4016	7422
64	5	26	-17	50	11	8	27	38.60	2.4019	7381
64	13	23	-17	42	26	8	28	8.60	2.4023	7339
64	21	25	-17	34	35	8	28	38.60	2.4027	7297
64	29	33	-17	26	40	8	29	8.60	2.4030	7255
64	37	47	-17	18	39	8	29	38.60	2.4034	7212
64	46	8	-17	10	34	8	30	8.60	2.4038	7170
64	54	34	-17	2	23	8	30	38.60	2.4042	7127
65	3	7	-16	54	7	8	31	8.60	2.4046	7084
65	11	47	-16	45	46	8	31	38.60	2.4050	7040
65	20	33	-16	37	19	8	32	8.60	2.4054	6997
65	29	27	-16	28	46	8	32	38.60	2.4058	6953
65	38	27	-16	20	8	8	33	8.60	2.4062	6909
65	47	34	-16	11	25	8	33	38.60	2.4067	6865
65	56	48	-16	2	35	8	34	8.60	2.4071	6820
66	6	9	-15	53	39	8	34	38.60	2.4075	6775
66	15	38	-15	44	38	8	35	8.60	2.4080	6730
66	25	14	-15	35	30	8	35	38.60	2.4084	6685
66	34	59	-15	26	16	8	36	8.60	2.4089	6639
66	44	51	-15	16	55	8	36	38.60	2.4093	6594
66	54	51	-15	7	28	8	37	8.60	2.4098	6548
67	4	59	-14	57	55	8	37	38.60	2.4102	6501
67	15	15	-14	48	14	8	38	8.60	2.4107	6455
67	25	40	-14	38	27	8	38	38.60	2.4112	6408
67	36	14	-14	28	32	8	39	8.60	2.4117	6361
67	46	57	-14	18	31	8	39	38.60	2.4122	6314
67	57	48	-14	8	22	8	40	8.60	2.4127	6266
68	8	49	-13	58	6	8	40	38.60	2.4132	6219
68	19	59	-13	47	42	8	41	8.60	2.4137	6171
68	31	19	-13	37	11	8	41	38.60	2.4142	6122
68	42	48	-13	26	31	8	42	8.60	2.4148	6074
68	54	28	-13	15	44	8	42	38.60	2.4153	6025
69	6	18	-13	4	48	8	43	8.60	2.4159	5976
69	18	18	-12	53	44	8	43	38.60	2.4164	5927
69	30	29	-12	42	32	8	44	8.60	2.4170	5877
69	42	50	-12	31	11	8	44	38.60	2.4176	5828
69	55	23	-12	19	41	8	45	8.60	2.4181	5778
70	8	8	-12	8	2	8	45	38.60	2.4187	5727
70	21	3	-11	56	13	8	46	8.60	2.4193	5677
70	34	11	-11	44	16	8	46	38.60	2.4199	5626
70	47	31	-11	32	8	8	47	8.60	2.4205	5575
71	1	4	-11	19	51	8	47	38.60	2.4212	5524
71	14	49	-11	7	24	8	48	8.60	2.4218	5472
71	28	47	-10	54	46	8	48	38.60	2.4225	5420
71	42	59	-10	41	58	8	49	8.60	2.4231	5368
71	57	24	-10	28	59	8	49	38.60	2.4238	5316
72	12	3	-10	15	50	8	50	8.60	2.4245	5263
72	26	57	-10	2	29	8	50	38.60	2.4251	5210
72	42	5	-9	48	57	8	51	8.60	2.4258	5157
72	57	29	-9	35	13	8	51	38.60	2.4266	5104
73	13	8	-9	21	17	8	52	8.60	2.4273	5050
73	29	2	-9	7	9	8	52	38.60	2.4280	4996
73	45	13	-8	52	48	8	53	8.60	2.4288	4942
74	1	41	-8	38	15	8	53	38.60	2.4295	4887
74	18	25	-8	23	28	8	54	8.60	2.4303	4833
74	35	28	-8	8	28	8	54	38.60	2.4311	4778
74	52	48	-7	53	15	8	55	8.60	2.4319	4722
75	10	26	-7	37	47	8	55	38.60	2.4327	4667
75	28	24	-7	22	5	8	56	8.60	2.4335	4611
75	46	41	-7	6	9	8	56	38.60	2.4344	4555
76	5	19	-6	49	57	8	57	8.60	2.4353	4499
76	24	17	-6	33	30	8	57	38.60	2.4361	4442
76	43	36	-6	16	48	8	58	8.60	2.4370	4385
77	3	17	-5	59	49	8	58	38.60	2.4379	4328
77	23	20	-5	42	34	8	59	8.60	2.4389	4271
77	43	47	-5	25	1	8	59	38.60	2.4398	4214

Table XXIX. A-2/CSM-020 High Ellipse Groundtrack (Continued)

LONGITUDE DEG	MIN	SEC	LATITUDE DEG	MIN	SEC	GET HOUR	MIN	SEC	REV NO.	ALT N.M
78	4	37	-5	7	12	9	0	8.60	2.4408	4156
78	25	52	-4	49	4	9	0	38.60	2.4418	4098
78	47	33	-4	30	39	9	1	8.60	2.4428	4039
79	9	39	-4	11	55	9	1	38.60	2.4438	3981
79	32	12	-3	52	51	9	2	8.60	2.4448	3922
79	55	13	-3	33	28	9	2	38.60	2.4459	3863
80	18	42	-3	13	46	9	3	8.60	2.4470	3804
80	42	41	-2	53	42	9	3	38.60	2.4481	3744
81	7	11	-2	33	17	9	4	8.60	2.4492	3684
81	32	12	-2	12	31	9	4	38.60	2.4504	3624
81	57	45	-1	51	23	9	5	8.60	2.4516	3564
82	23	53	-1	29	51	9	5	38.60	2.4528	3504
82	50	35	-1	7	57	9	6	8.60	2.4540	3443
83	17	53	-0	45	38	9	6	38.60	2.4553	3382
83	45	48	-0	22	56	9	7	8.60	2.4566	3321
84	14	22	0	0	12	9	7	38.60	2.4579	3260
84	43	36	0	23	46	9	8	8.60	2.4593	3198
85	13	31	0	47	46	9	8	38.60	2.4606	3137
85	44	9	1	12	13	9	9	8.60	2.4621	3075
86	15	33	1	37	8	9	9	38.60	2.4635	3013
86	47	42	2	2	31	9	10	8.60	2.4650	2951
87	20	39	2	28	24	9	10	38.60	2.4665	2888
87	54	27	2	54	46	9	11	8.60	2.4681	2826
88	29	6	3	21	38	9	11	38.60	2.4697	2763
89	4	40	3	49	2	9	12	8.60	2.4713	2700
89	41	9	4	16	57	9	12	38.60	2.4730	2638
90	18	37	4	45	25	9	13	8.60	2.4748	2575
90	57	7	5	14	26	9	13	38.60	2.4765	2511
91	36	39	5	44	1	9	14	8.60	2.4784	2448
92	17	18	6	14	11	9	14	38.60	2.4803	2385
92	59	6	6	44	57	9	15	8.60	2.4822	2322
93	42	6	7	16	18	9	15	38.60	2.4842	2258
94	26	22	7	48	15	9	16	8.60	2.4862	2195
95	11	56	8	20	50	9	16	38.60	2.4883	2132
95	58	53	8	54	3	9	17	8.60	2.4905	2069
96	47	15	9	27	54	9	17	38.60	2.4928	2005
97	37	8	10	2	23	9	18	8.60	2.4951	1942
98	28	35	10	37	32	9	18	38.60	2.4974	1879
99	21	41	11	13	19	9	19	8.60	2.4999	1816
100	16	30	11	49	46	9	19	38.60	2.5024	1753
101	13	8	12	26	52	9	20	8.60	2.5051	1691
102	11	39	13	4	38	9	20	38.60	2.5078	1628
103	12	10	13	43	3	9	21	8.60	2.5106	1566
104	14	46	14	22	6	9	21	38.60	2.5135	1504
105	19	34	15	1	46	9	22	8.60	2.5165	1443
106	26	40	15	42	4	9	22	38.60	2.5196	1382
107	36	10	16	22	57	9	23	8.60	2.5228	1321
108	48	13	17	4	24	9	23	38.60	2.5261	1261
110	2	56	17	46	23	9	24	8.60	2.5296	1201
111	20	26	18	28	51	9	24	38.60	2.5332	1142
112	40	52	19	11	46	9	25	8.60	2.5369	1083
114	4	24	19	55	4	9	25	38.60	2.5408	1025
115	31	8	20	38	41	9	26	8.60	2.5448	968
117	1	16	21	22	32	9	26	38.60	2.5490	912
118	34	56	22	6	33	9	27	8.60	2.5533	856
120	12	18	22	50	36	9	27	38.60	2.5578	802
121	53	31	23	34	35	9	28	8.60	2.5625	749
123	39	46	24	18	22	9	28	38.60	2.5674	696
125	28	11	25	1	48	9	29	8.60	2.5724	645
127	21	56	25	44	43	9	29	38.60	2.5777	596
129	20	8	26	26	55	9	30	8.60	2.5832	547
131	22	57	27	8	13	9	30	38.60	2.5889	500
133	30	27	27	48	23	9	31	8.60	2.5948	455
135	42	46	28	27	11	9	31	38.60	2.6009	411
137	59	55	29	4	21	9	32	8.60	2.6072	369
140	21	57	29	39	37	9	32	38.60	2.6138	329
142	48	51	30	12	41	9	33	8.60	2.6206	291
145	20	31	30	43	16	9	33	38.60	2.6276	255
147	56	52	31	11	4	9	34	8.60	2.6349	221
150	37	42	31	35	46	9	34	38.60	2.6423	190
153	22	47	31	57	4	9	35	8.60	2.6500	161
156	11	47	32	14	40	9	35	38.60	2.6578	134
159	4	20	32	28	19	9	36	8.60	2.6658	110

Table XXIX. A-2/CSM-020 High Ellipse Groundtrack (Continued)

LONGITUDE DEG	MIN	SEC	LATITUDE DEG	MIN	SEC	GET HOUR	MIN	SEC	REV NO.	ALT N.M.
162	0	0	32	37	45	9	36	38.60	2.6739	88
164	58	16	32	42	45	9	37	8.60	2.6822	69
165	40	46	32	43	16	9	37	15.70	2.6841	65
165	40	46	32	43	16	9	37	15.70	2.6841	65
168	41	28	32	42	33	9	37	45.70	2.6925	50
171	43	0	32	37	6	9	38	15.70	2.7009	38
174	37	39	32	27	22	9	38	45.70	2.7090	29
177	5	21	32	15	39	9	39	15.70	2.7158	28
179	6	14	32	3	37	9	39	45.70	2.7214	30
-179	6	13	31	51	2	9	40	15.70	2.7264	33
-177	25	14	31	37	34	9	40	45.70	2.7311	34
-175	48	34	31	23	10	9	41	15.70	2.7355	34
-174	15	53	31	7	58	9	41	45.70	2.7398	33
-172	48	28	30	52	21	9	42	15.70	2.7439	29
-171	30	11	30	37	18	9	42	45.70	2.7475	25
-170	28	13	30	24	39	9	43	15.70	2.7504	21
-169	47	10	30	15	53	9	43	45.70	2.7523	19
-169	22	53	30	10	32	9	44	15.70	2.7534	16
-169	9	36	30	7	33	9	44	45.70	2.7540	13
-169	3	13	30	6	6	9	45	15.70	2.7543	10
-169	0	15	30	5	25	9	45	45.70	2.7544	7
-168	59	1	30	5	8	9	46	15.70	2.7545	4
-168	58	50	30	5	5	9	46	22.24	2.7545	4

5. RTACF SIMULATIONS AND MISSION MANPOWER SUMMARY

This section of the Mission Report presents in the form of tables the personnel and equipment necessary to support flight control simulations and Apollo Mission A-2/CSM-020.

Table XXX. RTACF Personnel Required for a Typical Simulation

Position	Number of Personnel
SSR Staff:	
Trajectory Support Chief	1
Assistant Trajectory Support Chief	1
AGC Specialist	2
Engineering Aid	1
ACR Staff:	
ACR Chief	1
Trajectory Analyst	6
Program Consultant	1
7094 Operator Supervisor	1
7094 Operator	3
1108 Operator Supervisor	1
1108 Operator	3
Run Coordinator	2
Key Punch Operator	1
Engineering Aid	1
Total Personnel	25

Table XXXI. Apollo Mission A-2/CSM-020 RTACF Flight Control Simulation Support Summary

Type of Simulation	Date of Simulation	Hours of Simulation	Personnel Involved*	Manpower (man-hours)
Launch abort simulation	January 18, 1968	11:30 a.m.-4:00 p.m. (4.5 hours)	19	85
Launch abort simulation	January 30, 1968	8:00 a.m.-4:30 p.m. (8.5 hours)	23	195.5
Launch abort simulation	February 1, 1968	8:00 a.m.-4:00 p.m. (8 hours)	24	192
Simulated network simulation	February 5, 1968	8:00 a.m.-10:30 p.m. (2.5 hours)	25	62.5
Simulated network simulation	February 7, 1968	8:00 a.m.-4:00 p.m. (8 hours)	25	200
Simulated network simulation	February 8, 1968	8:00 a.m.-4:00 p.m. (8 hours)	25	200
Simulated network simulation	February 15, 1968	8:00 a.m.-5:00 p.m. (9 hours)	25	225
Simulated network simulation	February 19, 1968	10:30 a.m.-9:00 p.m. (10.5 hours)	24	252
Simulated network simulation	February 21, 1968	8:00 a.m.-5:00 p.m. (9 hours)	24	216
Launch abort simulation	March 1, 1968	8:00 a.m.-3:30 p.m. (7.5 hours)	24	180
Simulated network simulation	March 13, 1968	8:00 a.m.-6:00 p.m. (10 hours)	24	240
Network simulation	March 15, 1968	5:00 a.m.-1:30 p.m. (8.5 hours)	26	221
Simulated network simulation	March 19, 1968	8:00 a.m.-4:30 p.m. (8.5 hours)	24	204
Network simulation	March 21, 1968	7:00 a.m.-2:30 p.m. (7.5 hours)	25	187.5
Network simulation	March 25, 1968	7:30 a.m.-12:30 p.m. (5 hours)	28	140
Launch simulation	March 26, 1968	8:00 a.m.-12:30 p.m. (4.5 hours)	23	103.5
Total hours of simulation support		119.5		2904.5

*Including 8-1108 and 7094 computer personnel.

Table XXXII. RTACF Personnel Required for Apollo Mission A-2/CSM-020

	Number of Personnel	Time Present (hours)	Total Time (man-hours)
SSR Staff:			
Trajectory Support Chief	1	17	17
Assistant Trajectory Support Chief	1	17	17
Maneuver Specialist	2	13	26
AGC Specialist	2	17	34
Entry Specialist	2	13	26
Postflight Observer	2	10	20
Engineering Aid	1	14	14
ACR Staff:			
ACR Chief	1	17	17
Trajectory Analyst	5	17	85
Program Consultant	2	17	34
Wind Data Analyst	2	7	14
Run Coordinator	3	17	51
Engineering Aid	1	14	14
Key Punch Operator	1	17	17
7094 Operator Supervisor	1	17	17
7094 Operator	3	17	51
1108 Operator Supervisor	1	17	17
1108 Operator	3	17	51
Total	34		522

Table XXXIII. Summary of Total Manpower Requirements for Simulations and Mission Support

Simulation Support:*	
Number of flight control simulations	16
Number of hours of support	119.5
Maximum personnel per simulation	28
Average personnel per simulation	24.3
Average non-technical personnel per simulation	13
Average length of simulation in hours	7.5
Average man-hours per simulation	181.5
Total manpower in man-hours	2904.5
Mission Support:	
Hours of support (T minus 6 hours through landing)	17
Total manpower in man-hours	522
Totals:	
Hours of support	136.5
Manpower in man-hours	3426.5

*Data pertaining to 16 inhouse simulations entailing approximately 513 man-hours are not included in this table.

Table XXXIV. RTACF Computer Facility Usage During Apollo Mission A-2/CSM-020

Computer Facility	Number of Runs
Prelift-off:	
UNIVAC 1108 Computer	15
IBM 7094 Computer	25
Mission:	
UNIVAC 1108 Computer	49
IBM 7094 Computer	58
Total number of runs	147

Computer Facility	Average Density
Prelift-off:	
UNIVAC 1108 Computer	One cycle every 24.0 minutes*
IBM 7094 Computer	One cycle every 14.4 minutes
Mission:	
UNIVAC 1108 Computer	One cycle every 13.5 minutes
IBM 7094 Computer	One cycle every 11.4 minutes
Combined computer effort	One cycle every 6.2 minutes

*Cycle is used here to denote a complete circuit of data flow from requestor through the RTACF computers back to requestor and provides an indication of the work load experienced by the RTACF. The average cycle times reflect many instances where the RTACF handled several requests simultaneously.

REFERENCES

1. "Operational Support Plan for the Real-Time Auxiliary Computing Facility LV-502/CSM-020 Flight Annex," MSC Internal Note 68-FM-31, February 24, 1968.

2. "Task Agreement for Operational Support for Real-Time Auxiliary Computing Facility," Task MSC/TRW A-130, Amendment No. 6, February 6, 1968.