

Flight Plan

BRANCH CHIEF
R. NUTE
DO4
BOND 1

STS-65

(FRR Cycle Trajectory)

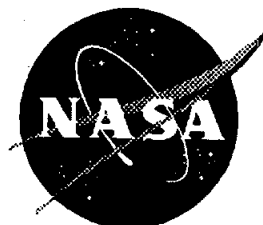
Mission Operations Directorate
Operations Division

Final
May 2, 1994

EVENT	CDT		
Launch	12:06	Fri	July 8
KSC Landing	06:02	Fri	July 22

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas

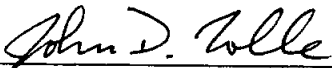


MISSION OPERATIONS DIRECTORATE

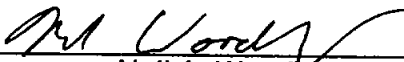
STS-65 FLIGHT PLAN

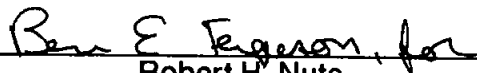
FINAL
May 2, 1994


PREPARED BY:

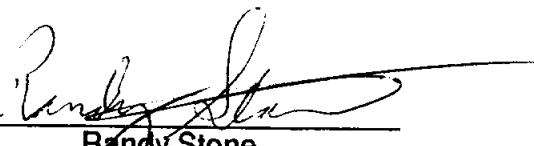
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FLIGHT PLAN
STS-65

LIST OF EFFECTIVE PAGES

FINAL 05/02/94

Sign Off	* 65/FIN	3-10	65/FIN
ii	* 65/FIN	3-11	65/FIN
iii	* 65/FIN	3-12	65/FIN
iv	* 65/FIN	3-13	65/FIN
v	* 65/FIN	3-14	65/FIN
vi	* 65/FIN	3-15	65/FIN
vii	65/FIN	3-16	65/FIN
viii	65/FIN	3-17	65/FIN
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2-28	65/FIN	3-51	65/FIN
2-29	65/FIN	3-52	65/FIN
2-30	65/FIN	3-53	65/FIN
3-1	65/FIN	3-54	65/FIN
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3-8	65/FIN	3-61	65/FIN
3-9	65/FIN	3-62	65/FIN

(*) - Omit from flight book

3-63	65/FIN
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6-8	* 65/FIN

(*) - Omit from flight book

STS-65 FLIGHT PLAN FABRICATED ITEMS

<u>Title</u>	<u>Ref. Page</u>	<u>Item No.</u>
DAP A, DAP B TOC	5-5	FLT PLN-1a/65/O/A
(Blank)	5-5	FLT PLN-1b/65/O/A
DAP A	5-6	FLT PLN-2a/65/O/A
DAP A1	5-6	FLT PLN-2b/65/O/A
A1	5-6	FLT PLN-3a/65/O/B
DAP A2	5-6	FLT PLN-3b/65/O/A
A2	5-7	FLT PLN-4a/65/O/B
DAP A3	5-7	FLT PLN-4b/65/O/A
A3	5-7	FLT PLN-5a/65/O/B
DAP A4	5-7	FLT PLN-5b/65/O/A
A4	5-8	FLT PLN-6a/65/O/B
DAP A5	5-8	FLT PLN-6b/65/O/A
A5	5-8	FLT PLN-7a/65/O/B
DAP A6	5-8	FLT PLN-7b/65/O/A
A6	5-9	FLT PLN-8a/65/O/B
DAP A7	5-9	FLT PLN-8b/65/O/A
A7	5-9	FLT PLN-9a/65/O/B
DAP A8	5-9	FLT PLN-9b/65/O/A
A8	5-10	FLT PLN-10a/65/OB
(Blank)	5-10	FLT PLN-10b/65/O/A
DAP B	5-10	FLT PLN-11a/65/O/A
DAP B1	5-10	FLT PLN-11b/65/O/A
B1	5-11	FLT PLN-12a/65/O/B
DAP B2	5-11	FLT PLN-12b/65/O/A
B2	5-11	FLT PLN-13a/65/O/B
DAP B3	5-11	FLT PLN-13b/65/O/A
B3	5-12	FLT PLN-14a/65/O/B
DAP B4	5-12	FLT PLN-14b/65/O/A
B4	5-12	FLT PLN-15a/65/O/B
DAP B5	5-12	FLT PLN-15b/65/O/A
B5	5-13	FLT PLN-16a/65/O/B
DAP B6	5-13	FLT PLN-16b/65/O/A
B6	5-13	FLT PLN-17a/65/O/B
DAP B7	5-13	FLT PLN-17b/65/O/A
B7	5-14	FLT PLN-18a/65/O/B
DAP B8	5-14	FLT PLN-18b/65/O/A
B8	5-14	FLT PLN-19a/65/O/B
DAP B9	5-14	FLT PLN-19b/65/O/A
B9	5-15	FLT PLN-20a/65/O/B
DAP B10	5-15	FLT PLN-20b/65/O/A
B10	5-15	FLT PLN-21a/65/O/B
DAP B11	5-15	FLT PLN-21b/65/O/A
B11	5-16	FLT PLN-22a/65/O/B
DAP B12	5-16	FLT PLN-22b/65/O/A
B12	5-16	FLT PLN-23a/65/O/B
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UNIV PTG	5-17	FLT PLN-24/65/O/A

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INTRODUCTION

The STS-65 Flight Plan is the Flight Data File article that contains the on-orbit timeline. It does not contain the detailed timelines that are covered in the Ascent, Post Insertion, Deorbit Prep, and Entry Checklists. For continuity, the summary level timeline includes the entire flight.

This on-orbit timeline satisfies the objectives specified in the Flight Definition and Requirements Directive and the requirements of the STS-65 Flight Requirements Document. The Flight Plan, as part of the Flight Data File, meets the specifications of the FFR Cycle version of the STS-65 Flight Initialization Data Pack.

The flight profile used for this Flight Plan is for a launch date of July 8, 1994, at 12:06 CDT. Orbiter inertial attitudes are expressed relative to a Mean of 1950 (M50) reference frame.

JSC-22359, Crew Scheduling Constraints (Appendix K, CPMP), Basic, Rev B, January 1992, has been used to build the timelines contained in this Flight Plan. The following Appendix K exemptions have been approved for STS-65:

- #61 - Allows the blue team sleep to shift 3 1/2 hours earlier between FD1 and FD2.

The timeline formats used in this Flight Plan are based on JSC-19933, Timeline Format Definitions and Standard Notes, Rev C, May 1990.

STS-65 OVERVIEW

OVERVIEW

FLIGHT: STS-65			EDITION: FINAL			PUB. DATE: 5/02/94																			
MET: 000	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0
RED FD1 & 2	LAUNCH	DOMS	POST INSERT	SL ACTIVATION	MEAL	IML-2 ACTIVITIES	PRE SLEEP	H/O	SLEEP										POST SLEEP	H/O	IML-2 ACTIVITIES				
BLU FD1 & 2	LAUNCH	DOMS	POST INSERTION	PRE SLEEP	SLEEP (6)			POST SLEEP	H/O	POST SLEEP	IML-2 ACTIVITIES			MEAL	IML-2 ACTIVITIES			PS/RE/EE/ED	H/O	PRE SLEEP					
DAY/NIGHT	[Day/Night Cycle]																								
ORBIT	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16																								
NOTES:	@ 28.45/163X160																								
MET: 001	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0
RED FD2 & 3	IML-2 ACTIVITIES	MEAL	IML-2 ACTIVITIES				PRE SLEEP	H/O	PRE SLEEP	SLEEP										POST SLEEP	H/O	IML-2 ACTIVITIES	LBNP		
BLU FD3	SLEEP				POST SLEEP	H/O	IML-2 ACTIVITIES				MEAL	IML-2 ACTIVITIES				H/O	PRE SLEEP								
DAY/NIGHT	[Day/Night Cycle]																								
ORBIT	17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32																								
NOTES:																									
MET: 002	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0
RED FD3 & 4	LBNP	MEAL	LBNP				PRE SLEEP	H/O	PRE SLEEP	SLEEP										POST SLEEP	H/O	IML-2 ACTIVITIES			
BLU FD4	SLEEP				POST SLEEP	H/O	IML-2 ACTIVITIES				MEAL	IML-2 ACTIVITIES				H/O	PRE SLEEP	SLEEP							
DAY/NIGHT	[Day/Night Cycle]																								
ORBIT	33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48																								
NOTES:																									
MET: 003	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0
RED FD4 & 5	IML-2 ACTIVITIES	MEAL	IML-2 ACTIVITIES				H/O	PRE SLEEP	SLEEP										POST SLEEP	H/O	LBNP				
BLU FD5	SLEEP				POST SLEEP	H/O	IML-2 ACTIVITIES				MEAL	IML-2 ACTIVITIES				PRE SLEEP	H/O	PRE SLEEP	SLEEP						
DAY/NIGHT	[Day/Night Cycle]																								
ORBIT	49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64																								
NOTES:																									

FLIGHT: STS-65 EDITION: FINAL PUB. DATE: 5/02/94

MET : 004	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0
RED FD5 & 6		LBNP	MEAL		LBNP			H/O	PRE SLEEP					SLEEP					POST SLEEP	H/O					
BLU FD6				SLEEP				POST SLEEP	H/O		IML-2 ACTIVITIES		MEAL		IML-2 ACTIVITIES				PRE SLEEP	H/O	PRE SLEEP		SLEEP		
DAY/NIGHT																									
ORBIT		65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80								
NOTES:																									

MET : 005	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0
RED FD6 & 7				PS1 OFF-DUTY				H/O	PRE SLEEP					SLEEP					POST SLEEP	H/O					
BLU FD7				SLEEP				POST SLEEP	H/O		MS4 OFF-DUTY IML-2 ACTIVITIES		MEAL		MS3 OFF-DUTY IML-2 ACTIVITIES				PRE SLEEP	H/O	PRE SLEEP		SLEEP		
DAY/NIGHT																									
ORBIT		81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96								
NOTES:																									

MET : 006	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0
RED FD7 & 8		MEAL						H/O	PRE SLEEP					SLEEP					POST SLEEP	H/O					
BLU FD8				SLEEP				POST SLEEP	H/O		IML-2 ACTIVITIES		MEAL		IML-2 ACTIVITIES				PRE SLEEP	H/O	PRE SLEEP		SLEEP		
DAY/NIGHT																									
ORBIT		97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112								
NOTES:																									

MET : 007	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0
RED FD8 & 9		MEAL						H/O	PRE SLEEP					SLEEP					POST SLEEP	H/O					
BLU FD9				SLEEP				POST SLEEP	H/O		IML-2 ACTIVITIES		MEAL		IML-2 ACTIVITIES				PRE SLEEP	H/O	PRE SLEEP		SLEEP		
DAY/NIGHT																									
ORBIT		113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128								
NOTES:																									

MET : 008	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0			
RED FD9 & 10	LBNP				H/O PRE SLEEP	SLEEP								POST SLEEP	H/O	MS1 OFF-DUTY IML-2 ACTIVITIES				MEAL								
BLU FD10	SLEEP		POST SLEEP		H/O	IML-2 ACTIVITIES				MEAL	IML-2 ACTIVITIES				H/O	PRE SLEEP		SLEEP										
DAY/NIGHT	[Pattern of black and white bars]																											
ORBIT	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144												
NOTES:																												o IML-2 ACTIVITIES

MET : 009	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0			
RED FD10 & 11	PS1 OFF-DUTY IML-2 ACTIVITIES				H/O PRE SLEEP	SLEEP								POST SLEEP	H/O	LBNP				MEAL	LBNP							
BLU FD11	SLEEP		POST SLEEP		H/O	MS4 OFF-DUTY IML-2 ACTIVITIES				MEAL	MS3 OFF-DUTY IML-2 ACTIVITIES				H/O	PRE SLEEP		SLEEP										
DAY/NIGHT	[Pattern of black and white bars]																											
ORBIT	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160												
NOTES:																												

MET : 010	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0			
RED FD11 & 12	LBNP				PS SLEEP H/O PRE SLEEP	SLEEP								POST SLEEP	H/O	IML-2 ACTIVITIES				MEAL	IML-2 ACTIVITIES							
BLU FD12	SLEEP		POST SLEEP		H/O	IML-2 ACTIVITIES				MEAL	IML-2 ACTIVITIES				H/O	PRE SLEEP		SLEEP										
DAY/NIGHT	[Pattern of black and white bars]																											
ORBIT	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176												
NOTES:																												

MET : 011	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0			
RED FD12 & 13	IML-2 ACTIVITIES			PRE SLEEP		PS SLEEP H/O PRE SLEEP	SLEEP								POST SLEEP	H/O	IML-2 ACTIVITIES				MEAL	IML-2 ACTIVITIES						
BLU FD13	SLEEP		POST SLEEP		H/O	IML-2 ACTIVITIES				MEAL	IML-2 ACTIVITIES				H/O	PRE SLEEP		SLEEP										
DAY/NIGHT	[Pattern of black and white bars]																											
ORBIT	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192												
NOTES:																												

FLIGHT: STS-65 EDITION: FINAL PUB. DATE: 5/02/94

MET : 012	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0								
RED FD13 & 14	IML-2 ACTIVITIES			PRE SLEEP		H/O	SLEEP										POST SLEEP	H/O	FCS C/O	LBNP			MEAL	LBNP									
BLU FD14	SLEEP			POST SLEEP		H/O	PS SLEEP	H/O	IML-2 ACTIVITIES			MEAL	IML-2 ACTIVITIES				H/O	SAMS MNVRS		PRE SLEEP		SLEEP											
DAY/NIGHT	[Day/Night Cycle]																																
ORBIT	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224
NOTES:																																	

MET : 013	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0								
RED FD14 & 15	LBNP		PRE SLEEP		H/O	SLEEP (6)							POST SLEEP		DEORBIT PREP			D E O R B I T	B U R N	K S C	L A N D I N G												
BLU FD15	SLEEP			PS SLEEP	H/O	POST SLEEP	CABIN STOW		MEAL	P D E A C T	S L D E A C T I V A T I O N		C A B I N S T O W	DEORBIT PREP				D E O R B I T	B U R N	K S C	L A N D I N G												
DAY/NIGHT	[Day/Night Cycle]																																
ORBIT	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240
NOTES:	o HOT FIRE																																

MET : 014	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0								
RED																																	
BLU																																	
DAY/NIGHT	[Day/Night Cycle]																																
ORBIT	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256
NOTES:																																	

MET : 015	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0			
RED																												
BLU																												
DAY/NIGHT	[Day/Night Cycle]																											
ORBIT																												
NOTES:																												

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SUMMARY TIMELINE

SUMMARY TIMELINE

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE											
189:17:06/ 190:05:06		000:00:00/ 000:12:00		189:12:06/ 190:00:06		/189 CDT	-5.9	●	JULY 8, 1994	STS-65	FINAL	5/02/94											
CDT	:189	13	14	15	16	17	18	19	20	21	22	23	0	CDT:190									
MET	:000	0	1	2	3	4	5	6	7	8	9	10	11	12									
REDFD 1	CDR		POST INSERT	POST INSERT	KDKA UP-L BYD	EDDO AACT	SCS RINYS COR POC T2K	OCCATUP	DSO 326	I MU MNVR	X LV MNVR	PWR DOWN GRP B	MEAL	CP RW TR 4	CPCG ACT	OMS JA/ISU CKS DDON	PADM SETUP	CPFIUP	PRE SLEEP	PRE SLEEP	H/O	SLEEP	
	PLT		POST INSERT		SL ACTIVATION				MEAL	P/TV 26 SETUP	P/TV 26 OPS	BR22MLT	BR22MLT	BR22MLT	BR22MLT	BR22MLT	BR22MLT	SSAM APILRE	PRE SLEEP		H/O	SLEEP	
	MS1	DIRECT LAUNCH	POST INSERT		SL ACTIVATION				MEAL	MOD-PREP		BRIFAC	RRJORN	TEI6POSTE	TEI6POSTE	TVSS SAM	SAMS SOPPS	QNHACT	PRE SLEEP		H/O	SLEEP	
	PS1	OMS-2	POST INSERT		APCTI1		INGRESS		PAYLOAD	TV07-BR	BRIFAC	MEAL	BRIFAC			AA3NEWT	CPFADNEO	AA3NEWT	PRE SLEEP		H/O	SLEEP	
BLUEFD 1 & 2	MS2		POST INSERT		PRE SLEEP						SLEEP (6)								POST SLEEP		H/O	POST SLEEP	DIS OVER ITG 3SUO P
	MS3		POST INSERT		PRE SLEEP						SLEEP (6)								POST SLEEP		H/O	POST SLEEP	ABR16R AND
	MS4		POST INSERT		PRE SLEEP						SLEEP (6)								POST SLEEP		H/O	POST SLEEP	ABR2ADHES
DAY/NIGHT ORBIT																							
TDRS E W																							
ATTITUDE																							
NOTES:		<p style="text-align: center;"> ◎DSO 326: WINDOW IMPACTS OBS ○ HTR CONFIG ◎BIAS -XLV,+YVV ○ APU HTR DEACT ◎DTO 623: CABIN AIR MONITOR </p> <p style="text-align: right;"> ◎H/O RED TO BLUE ◎DTO 682: INERTIAL VIBRATION ISOL SYS </p>																					

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE		FLIGHT	EDITION	PUB. DATE																	
190:05:06/ 190:17:06		000:12:00/ 001:00:00		190:00:06/ 190:12:06		/190 CDT	-5.8	●	JULY 9, 1994		STS-65	FINAL	5/02/94																	
CDT	:190																													
MET	:000	12	13	14	15	16	17	18	19	20	21	22	23	12 0 MET:001																
RED FD 2	CDR	SLEEP						POST SLEEP	I MU M NV R	COAS CAL	HUD CAL	X LV M NV R	POST SLEEP	S AR EX P	H/O	S VOI REX	DSO 326	P AW S	P AW S	PERF										
	PLT	SLEEP						POST SLEEP					EXE RIS E	H/O	FIL TER CLEANING															
	MS1	SLEEP						POST SLEEP			S CM 1 P OH M	EXE RIS E	H/O/P	NZ3SLM12		N T R I D O														
	PS1	SLEEP						POST SLEEP			S CM 1 P OH M	H/O/P	B R 1 0 D R O S		T M I V E R I T															
BLUE FD 2	MS2	ERGO SETUP	L UN N F R E N	P AW S S E T U P	P AW S P E R F	P/TV 26 S E T U P	P/TV 26 O P S	MEAL		M N D O S E T U P	EXE RIS E	EXE RIS E	EXE RIS E	D T O 6 6 3	P R E S L E E P	H/O			P R E S L E E P											
	MS3	N Z A C T	N Z 3 S L M 1 2	A A I D L T R	T M 2 7 F A C	A A I D L T R	L S L E - F /	T M 2 7 F A C	MEAL	NZ16JFAF		NZ3SLM12		EXE RIS E	P R E S L E E P	H/O			P R E S L E E P											
	MS4	BR2ADHES		N Z 1 5 M O T	B R 2 1 B O N E	BR3ANTIG		B R 1 9 F E G G S	B R 2 1 B O N E	B R 6 C Y T O	MEAL	B R 5 P H O R E	BR13AGGR	B R 5 P H O R E	B R 1 6 R A N D O	EXE RIS E	EXE RIS E	N T R I D O	N T R I D O	N Z 3 S L M 1 2	N Z 3 S L M 1 2	N Z 3 S L M 1 2	N Z 3 S L M 1 2	N Z 3 S L M 1 2	N Z 3 S L M 1 2	N Z 3 S L M 1 2	P R E S L E E P	H/O		
DAY/NIGHT		[Day/Night Cycle]																												
ORBIT		9 10 11 12 13 14 15 16																												
TDRS		[TDRS Schedule]																												
ATTITUDE		BIAS -XLV +YVV													IMU/COAS/HUD		BIAS -XLV +YVV													
NOTES:															@AFT STATION		@H/O BLUE TO RED													
															@BIAS -XLV,+YVV		@DSO 326: WINDOW IMPACTS OBS													
															@DTO 913: MICROGRAVITY MEASURING DEVICE		@DTO 663: ACOUSTICAL NOISE DOSIMETER													
															@BLEED ORF CNFG		@TEST PASS													

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE																							
191:05:06/ 191:17:06		001:12:00/ 002:00:00		191:00:06/ 191:12:06		/191 CDT	-5.1	●	JULY 10, 1994	STS-65	FINAL	5/02/94																							
CDT	:191	1	2	3	4	5	6	7	8	9	10	11	12																						
MET	:001	12	13	14	15	16	17	18	19	20	21	22	23	0																					
RED FD 3	CDR	SLEEP							POST SLEEP	H/O	DSO 326		PAWS PERF																						
	PLT	SLEEP							POST SLEEP	H/O			PAWS PERF																						
	MS1	SLEEP							POST SLEEP	H/O/D/P	SUMI FORM SUMI	TV 17 - FED DO	ED01UP																						
	PS1	SLEEP							POST SLEEP	H/O/D/P	SUMI FORM SUMI	T M 4 F L E M 1	T M 4 F L E M 1	ED01UP																					
BLUE FD 3	MS2	PAWS PERF								MEAL				PRE SLEEP																					
	MS3	NZ 4800 2	NZ 9900 3	NZ 1100 4	NZ 1300 5	NZ 1500 6	NZ 1700 7	NZ 1900 8	MEAL	DSO 604C			BR10DROS	BR16RAND	EXERCISE	H/O	PRE SLEEP																		
	MS4	BR18TRNS	BR 16 R A N D	MEAL							BR 16 R A N D	NZ 0000 5	NZ 0200 6	NZ 0400 7	NZ 0600 8	NZ 0800 9	NZ 1000 10	NZ 1200 11	NZ 1400 12	NZ 1600 13	NZ 1800 14	NZ 2000 15	NZ 2200 16	NZ 2400 17	NZ 2600 18	NZ 2800 19	NZ 3000 20	NZ 3200 21	NZ 3400 22	NZ 3600 23	NZ 3800 24	NZ 4000 25	BR16RAND	EXERCISE	H/O
DAY/NIGHT																																			
ORBIT																																			
TDRS																																			
ATTITUDE	BIAS -XLV +YVV																																		
NOTES:	@DSO 604C: VISUAL-VEST INTEGRATION, 01-3 @H/O BLUE TO RED @DSO 326: WINDOW IMPACTS OBS @DTO 663: ACOUSTICAL NOISE DOSIMETER o SPLY DUMP TERM o SPLY DUMP INIT																																		

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE					
191:17:06/ 192:05:06		002:00:00/ 002:12:00		191:12:06/ 192:00:06		/191 CDT	-4.5	●	JULY 10, 1994	STS-65	FINAL	5/02/94					
CDT	:191	13	14	15	16	17	18	19	20	21	22	23	0 CDT:192				
MET	:002	0	1	2	3	4	5	6	7	8	9	10	11	12			
RED FD 3	CDR		VOICE	MEAL		CPFDNFO	CPFMIMA	MMDD	EXERCISE	P/TV 33 SETUP		PRE SLEEP	H/O	PRE SLEEP	SLEEP		
	PLT			MEAL					EXERCISE			PRE SLEEP	H/O	PRE SLEEP	SLEEP		
	MS1	ED02RAMP			MEAL			ED02RAMP	EXERCISE			PRE SLEEP	H/O	PRE SLEEP	SLEEP		
	PS1	ED02RAMP		MEAL				ED02RAMP				PRE SLEEP	H/O	PRE SLEEP	SLEEP		
BLUE FD 4	MS2				SLEEP							POST SLEEP	H/O	EXERCISE			
	MS3				SLEEP							POST SLEEP	H/O/D/P				
	MS4				SLEEP							POST SLEEP	H/O/D/P	AA3NEWT			
DAY/NIGHT ORBIT		33		34		35		36		37		38		39		40	
TDRS E W																	
ATTITUDE		BIAS -XLV +YVV															
NOTES:		●HONOLULU, HI				●DTO 913: MICROGRAVITY MEASURING DEVICE ○ CREW CHOICE D/L				●H/O RED TO BLUE				●DTO 663: ACOUSTICAL NOISE DOSIMETER			

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE				
192:05:06/ 192:17:06		002:12:00/ 003:00:00		192:00:06/ 192:12:06		/192 CDT	-3.9		JULY 11, 1994	STS-65	FINAL	5/02/94				
CDT	:192	1	2	3	4	5	6	7	8	9	10	11	12			
MET	:002	12	13	14	15	16	17	18	19	20	21	22	23	0		
														MET:003		
RED FD 4	CDR	SLEEP							POST SLEEP		H/O	DSO 326	VOICE REC	PAWS PERF		
	PLT	SLEEP							POST SLEEP		H/O					
	MS1	SLEEP							POST SLEEP		H/O/P	SCM1 P O H M S C M 1 P O H M S	EXERCISE	BR18TRNS NZ3SLM34		
	PS1	SLEEP							POST SLEEP		H/O/P	SCM1 P O H M S	EXERCISE	ASV I D E O N Z 3 S L M 3 4		
BLUE FD 4	MS2	PAWS PERF	MEAL							P/TV 26 SETUP		P/TV 26 OPS	DTO 663	H/O	PRE SLEEP	SLEEP
	MS3	NZ16JFAF	NZ3SLM34	EXERCISE							H/O	PRE SLEEP	SLEEP			
	MS4	BR18TRNS	BR13AGGR	EXERCISE							H/O	PRE SLEEP	SLEEP			
DAY/NIGHT	[Shaded bars indicating day/night cycle]															
ORBIT	41 42 43 44 45 46 47 48															
TORS	[Graphical representation of torsion]															
ATTITUDE	BIAS -XLV +YVV															
NOTES:	V SPLY DUMP INIT V SPLY DUMP TERM @H/O BLUE TO RED @U.S. BRIDGE (INGOLSTADT, GERMANY) @DSO 326: WINDOW IMPACTS OBS @DTO 663: ACOUSTICAL NOISE DOSIMETER FLT PLN/65/FIN															

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE			
192:17:06/ 193:05:06		003:00:00/ 003:12:00		192:12:06/ 193:00:06		/192 CDT	-3.0		JULY 11, 1994	STS-65	FINAL	5/02/94			
CDT	:192	13	14	15	16	17	18	19	20	21	22	23	0 CDT:193		
MET	:003	0	1	2	3	4	5	6	7	8	9	10	11	12	
RED FD 4	CDR	SAFETY		MEAL	P/TV 33 SETUP	CCD RH/ EOL W/C			EXERCISE	H/O	CONF SLEEP MED	PRE SLEEP	SLEEP		
	PLT	PAWS PERF		MEAL					EXERCISE	H/O		PRE SLEEP	SLEEP		
	MS1			SCM3ULTR	MEAL	SCM4SEP	BR10DROS		SCM2PHOT	H/O		PRE SLEEP	SLEEP		
	PS1			SCM3ULTR	MEAL	SCM4SEP	TE160STE		SCM2PHOT	H/O		PRE SLEEP	SLEEP		
BLUE FD 5	MS2			SLEEP					POST SLEEP	H/O	DTO 663	WCS O/B FILTER C/O	BR2ZMLT	BR2ZMLT	PAWS PERF
	MS3			SLEEP					POST SLEEP	H/O/P		EXERCISE	NZ17JFGJ	NZ3SLM56	
	MS4			SLEEP					POST SLEEP	H/O/P		TMBJONI	BR14COOL	AA3NEWT	BR2ADHES
DAY/NIGHT		ORBIT													
TDRS		E W													
ATTITUDE		BIAS -XLV +YVV													
NOTES:		@U.S. BRIDGE (FORT WORTH, TX)						@H/O RED TO BLUE						@DTO 663: ACOUSTICAL NOISE DOSIMETER	

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE					
193:05:06/ 193:17:06		003:12:00/ 004:00:00		193:00:06/ 193:12:06		/193 CDT	-2.1		JULY 12, 1994	STS-65	FINAL	5/02/94					
CDT	:193	1	2	3	4	5	6	7	8	9	10	11	12				
MET	:003	12	13	14	15	16	17	18	19	20	21	22	23	0			
													MET:004				
RED FD 5	CDR	SLEEP							POST SLEEP	H/O	DSO 326	VOICE SARTEX	PAWS PERF				
	PLT	SLEEP							POST SLEEP	H/O		PAWS PERF					
	MS1	SLEEP							POST SLEEP	H/O/D/P	SCREEN PROGRAM	ED02RAMP	SCREEN PROGRAM				
	PS1	SLEEP							POST SLEEP	H/O/D/P	SCREEN PROGRAM	ED02RAMP	SCREEN PROGRAM				
BLUE FD 5	MS2	MEAL		WDI AUN SMI TPT E		EXERCISE		PRE SLEEP	H/O	PRE SLEEP	SLEEP						
	MS3	BR3ANTIG	BR2ADHES	MEAL	BR3ANTIG	NZ3S FM56	NZ15 MOT3	PRE SLEEP	H/O	PRE SLEEP	SLEEP						
	MS4	MEAL	BR2ADHES	MEAL	BR3ANTIG	NZ3S FM56	NZ15 MOT3	EXERCISE	H/O	PRE SLEEP	PRE SLEEP	SLEEP					
DAY/NIGHT		ORBIT															
ORBIT		57		58		59		60		61		62		63		64	
TDRS		E W															
ATTITUDE		BIAS -XLV +YVV															
NOTES:		VSPLY DUMP INIT		VSPLY DUMP TERM		VWASTE DUMP TERM		H/O BLUE TO RED		LAKE CHARLES, LA		DSO 326: WINDOW IMPACTS OBS					

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE		
193:17:06/ 194:05:06		004:00:00/ 004:12:00		193:12:06/ 194:00:06		/193 CDT	-1.1	☉	JULY 12, 1994	STS-65	FINAL	5/02/94		
CDT	:193	13	14	15	16	17	18	19	20	21	22	23	0 CDT:194	
MET	:004	0	1	2	3	4	5	6	7	8	9	10	11	12
RED FD 5	CDR	EXERCISE	P/TV 26 SETUP	P/TV 26 OPS	MEAL		P/TV 33 SETUP	CCD RH/ EOL W/C E			PRE SLEEP	SLEEP		
	PLT		EXERCISE		MEAL						PRE SLEEP	SLEEP		
	MS1		MEAL			EDO2RAMP			EXERCISE	H/O	PRE SLEEP	SLEEP		
	PS1	BDP1UP	MEAL			EDO2RAMP		EXERCISE		H/O	PRE SLEEP	SLEEP		
BLUE FD 6	MS2				SLEEP							PAWS PERF		
	MS3				SLEEP					H/O/P				
	MS4				SLEEP					H/O/P	EXERCISE			
DAY/NIGHT		[ORBIT PHASE INDICATORS]												
ORBIT		65 66 67 68 69 70 71 72												
TDRS		[TDRS PHASE INDICATORS]												
ATTITUDE		BIAS -XLV +YVV												
NOTES:		@H/O RED TO BLUE ∇ SPLY DUMP TERM @DTO 623: CABIN AIR MONITOR ∇ SPLY DUMP INIT												

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE					
194:05:06/ 194:17:06		004:12:00/ 005:00:00		194:00:06/ 194:12:06		/194 CDT	0.1		JULY 13, 1994	STS-65	FINAL	5/02/94					
CDT	:194	1	2	3	4	5	6	7	8	9	10	11	12				
MET	:004	12	13	14	15	16	17	18	19	20	21	22	23	0			
														MET:005			
RED FD 6	CDR	SLEEP						POST SLEEP	H/O	PS OLLI SEV TEU P	DSO 326	VOI REX E	PAWS PERF	EXERCISE			
	PLT	SLEEP						POST SLEEP	H/O	PS OLLI SEV TEU P	BR22 MLT	BR22 MLT	PAWS PERF				
	MS1	SLEEP						POST SLEEP	H/O	SCM1 PPORN	TM12 WUF2	AS5 VIDE O	BR14 COOL	EXERCISE	AS5 VIDE O	BR10 DROS	BR10 DROS
	PS1	SLEEP						POST SLEEP	H/O	SCM1 PPORN	DAY-OFF						
BLUE FD 6	MS2	P/TV 26 SETUP	P/TV 26 OPS	MEAL		EXERCISE		PRE SLEEP	H/O	PRE SLEEP	SLEEP						
	MS3	RAMI ACT		MEAL		LSLE -F/ T	ED06 MAS	EXERCISE	PRE SLEEP	H/O	PRE SLEEP	SLEEP					
	MS4	TV97 -BDDP	CPPT ZMMI MD	CPPT 5AFF EA	MEAL		TV99 -AAE	TM11 SCG	BR18 TRNS	BR13 AGGR	PRE SLEEP	H/O	PRE SLEEP	SLEEP			
DAY/NIGHT	[Bar chart showing day/night cycle]																
ORBIT	73 74 75 76 77 78 79 80																
TDRS	[Bar chart showing TDRS events]																
ATTITUDE	BIAS -XLV +YVV																
NOTES:	@H/O BLUE TO RED @CASSLEBERRY, FL @DSO 326: WINDOW IMPACTS OBS																

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE							
194:17:06/ 195:05:06		005:00:00/ 005:12:00		194:12:06/ 195:00:06		/194 CDT	1.3		JULY 13, 1994	STS-65	FINAL	5/02/94							
CDT :194		13		14		15	16	17	18	19	20	21	22	23	0 CDT:195				
MET :005		0		1		2	3	4	5	6	7	8	9	10	11	12			
RED FD 6	CDR	VOICE SARX		MEAL		P/TV 33 SETUP	CCD RH/ EOL WICE			VOICE SARX		H/O	PRE SLEEP		PRE SLEEP		SLEEP		
	PLT	SL CNDS TK DUMP		MEAL				EXERCISE				H/O	FILTER CLEANING		PRE SLEEP		SLEEP		
	MS1	FE12CHRM	TV98- FEU	MEAL				DAY-OFF				H/O	FE17CLTR		PRE SLEEP		SLEEP		
	PS1	DAY-OFF		MEAL	FE12CHRM	FE12CHRM	LSLE-F/T	FE12CHRM	NZ12PWR	FE12CHRM	FE12CHRM	FE12CHRM	FE12CHRM	FE12CHRM	FE12CHRM	FE12CHRM	FE12CHRM	FE12CHRM	
BLUE FD 7	MS2			SLEEP								H/O	POST SLEEP		EXERCISE		PAWS PERF	TV16- AAE	
	MS3			SLEEP								H/O/PS	POST SLEEP	EXERCISE	RAM2SEP1	RAM2SEP1	RAM2SEP1	RAM2SEP1	
	MS4			SLEEP								H/O/PS	POST SLEEP		DAY-OFF			AA3NEW	
DAY/NIGHT		ORBIT		81		82		83		84		85		86		87		88	
TDRS		E		W															
ATTITUDE																			
NOTES:		HAWAII BRIDGE (PHOENIX, AZ)		SPLY DUMP INIT		SPLY DUMP TERM		HAWAII BRIDGE (TATEBAYASHI, JAPAN)		H/O RED TO BLUE									

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE				
195:05:06/ 195:17:06		005:12:00/ 006:00:00		195:00:06/ 195:12:06		/195 CDT	2.7		JULY 14, 1994	STS-65	FINAL	5/02/94				
CDT	:195	1	2	3	4	5	6	7	8	9	10	11	12			
MET	:005	12	13	14	15	16	17	18	19	20	21	22	23	0		
														MET:006		
RED FD 7	CDR	SLEEP					POST SLEEP	POST SLEEP	H/O	DSO 326	EXERCISE	PAWS PERF	SARVEX	P/TV 33 SETUP	PAVENT	MEAL
	PLT	SLEEP					POST SLEEP		H/O				PAWS PERF	P/TV 33 SETUP	PAVENT	MEAL
	MS1	SLEEP					POST SLEEP		H/O/D/P	SCM1POHM	BDP3SUBR	BR10DROS	FE15SEP	FE16PREP	FE16PREP	MEAL
	PS1	SLEEP					POST SLEEP		H/O/D/P	SCM1POHM		FE16PREP		FE15SEP		
BLUE FD 7	MS2	MEAL								H/O	PRE SLEEP			SLEEP		
	MS3	RAM2SEP	MEAL	DAY-OFF					NZ17JFGJ		H/O	PRE SLEEP		SLEEP		
	MS4	AA3NEWT	RAM2SEP	MEAL	NZ11CR3	AA1DLTR	BDP3SUBR	AA1DLTR	NZ11CR3	EXERCISE	BDP3SUBR	H/O	PRE SLEEP		SLEEP	
DAY/NIGHT ORBIT																
TDRS E W																
ATTITUDE		BIAS -XLV +YVV														
NOTES:		@H/O BLUE TO RED @U.S. BRIDGE (WESTMINSTER, SC) @DSO 326: WINDOW IMPACTS OBS ■ SPLY DUMP INIT ■ SPLY DUMP TERM														

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE		
195:17:06/ 196:05:06		006:00:00/ 006:12:00		195:12:06/ 196:00:06		/195 CDT	4.1		JULY 14, 1994	STS-65	FINAL	5/02/94		
CDT	:195	13	14	15	16	17	18	19	20	21	22	23	0 CDT:196	
MET	:006	0	1	2	3	4	5	6	7	8	9	10	11	12
RED FD 7	CDR	MEAL	DTO 665		SA R E C E I V E	DTO 665		P R I V E M E D I C A L C O N F E R E N C E	H/O P R E S L E E P	P R E S L E E P		S L E E P		
	PLT	MEAL					E X E R C I S E		H/O	P R E S L E E P		S L E E P		
	MS1	MEAL	FE15SEP	FE14CFP	TM14BUZ1	N I G H T O F I E L D S L E E P S H O W E R S B D P 3 S U B R S L E E P S H O W E R S	FE14CFP	FE14CFP	FE14CFP	FE14CFP	E X E R C I S E	H/O	P R E S L E E P	
	PS1	FE15SEP	MEAL	FE14CFP	FE14CFP	FE14CFP	FE14CFP	E X E R C I S E	TEI60STE	H/O	P R E S L E E P		S L E E P	
BLUE FD 8	MS2	S L E E P						POST SLEEP	H/O	E X E R C I S E		PAWS P E R F	P/TV 33 S E T U P	
	MS3	S L E E P						POST SLEEP	H/O/D/P	E X E R C I S E	RAM3OPT1	RAM3OPT1		RAM3OPT1
	MS4	S L E E P						POST SLEEP	H/O/D/P	E X E R C I S E	BR7REACT	E X E R C I S E		AA3NEWT TM15KUCO AA3NEWT TM15KUCO AA3NEWT TM15KUCO
DAY/NIGHT														
ORBIT	97 98 99 100 101 102 103 104													
TDRS														
ATTITUDE	BIAS -XLV +YVV													
NOTES:	@DTO 665: ACOUSTICAL NOISE SLM @HAWAII BRIDGE (SANDERSVILLE, GA) @DTO 623: CABIN AIR MONITOR ∇ CREW CHOICE D/L @DTO 665: ACOUSTICAL NOISE SLM @H/O RED TO BLUE													

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE						
196:05:06/ 196:17:06		006:12:00/ 007:00:00		196:00:06/ 196:12:06		/196 CDT	5.6		JULY 15, 1994	STS-65	FINAL	5/02/94						
CDT	:196	1	2	3	4	5	6	7	8	9	10	11	12					
MET	:006	12	13	14	15	16	17	18	19	20	21	22	23	0				
MET:007																		
RED FD 8	CDR	SLEEP					POST SLEEP	POST SLEEP	H/O	DSO 326	RCRS	HERCULES	PAWS PERF	SAFEX	VOICE	P/TV 33 SETUP	EVENT	
	PLT	SLEEP					POST SLEEP		H/O				PAWS PERF			P/TV 33 SETUP	EVENT	
	MS1	SLEEP					POST SLEEP		H/O/D/P	SCM1PHOM	BR13AGGR		SCM2PHOT	SCM4SEA	SCM4SEP	NZ6EUGG03	NZ12PWR	EVENT
	PS1	SLEEP					POST SLEEP		H/O/D/P	SCM1PHOM	TM16SACN	TM16SACN	SCM2PHOT	SCM4SEP	EXERCISE		EVENT	EXERCISE
BLUE FD 8	MS2	MEAL					P/TV 03 SETUP	P/TV 03 OPS		PRE SLEEP	H/O	PRE SLEEP				SLEEP		
	MS3	RAM3OPT1			MEAL				RAM3OPT1	PRE SLEEP	H/O	PRE SLEEP				SLEEP		
	MS4	MEAL								PRE SLEEP	H/O	PRE SLEEP				SLEEP		
DAY/NIGHT																		
ORBIT																		
TORS																		
ATTITUDE	BIAS -XLV +YV																	
NOTES:	VSPPLY DUMP INIT VSPPLY DUMP TERM H/O BLUE TO RED RCRS RECONFIG CABIN TEMP CNTL RECONFIG U.S. BRIDGE (WEST MONROE, LA) DSO 326: WINDOW IMPACTS OBS																	


GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE		
196:17:06/ 197:05:06		007:00:00/ 007:12:00		196:12:06/ 197:00:06		/196 CDT	7.2		JULY 15, 1994	STS-65	FINAL	5/02/94		
CDT	:196	13	14	15	16	17	18	19	20	21	22	23	0 CDT:197	
MET	:007	0	1	2	3	4	5	6	7	8	9	10	11	12
RED FD 8	CDR	MEAL	DTO 667	VOICE	P/TV 33 SETUP	EVENT	EXERCISE	H/O	CONF	PRE SLEEP	SLEEP			
	PLT	MEAL	DTO 667	EXERCISE	P/TV 33 SETUP	EVENT	EXERCISE	H/O	CONF	PRE SLEEP	SLEEP			
	MS1	MEAL	SCM3ULTR	EVENT	SCM3ULTR	SCM3ULTR	SCM3ULTR	H/O	PRE SLEEP	SLEEP				
	PS1	MEAL	SCM3ULTR	EVENT	SCM3ULTR	SCM3ULTR	SCM3ULTR	H/O	PRE SLEEP	SLEEP				
BLUE FD 9	MS2	SLEEP	POST SLEEP	H/O	EXERCISE	PAWS PERF	MEAL							
	MS3	SLEEP	POST SLEEP	H/O/P	EXERCISE	RAM3OPT2	RAM3OPT2	RAM3OPT2	RAM3OPT2	RAM3OPT2	RAM3OPT2	RAM3OPT2	RAM3OPT2	
	MS4	SLEEP	POST SLEEP	H/O/P	EXERCISE	BR10DROS	AA3NEWT							
DAY/NIGHT	[Day/Night Cycle]													
ORBIT	113 114 115 116 117 118 119 120													
TDRS	[TDRS Schedule]													
ATTITUDE	BIAS -XLV +YVV													
NOTES:	@DTO 667: PILOT SIM @HAWAII BRIDGE (COSTA MESA, CA) @H/O RED TO BLUE @DTO 667: PILOT SIM													

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE						
197:05:06/ 197:17:06		007:12:00/ 008:00:00		197:00:06/ 197:12:06		/197 CDT	8.9		JULY 16, 1994	STS-65	FINAL	5/02/94						
CDT	:197	12	13	14	15	16	17	18	19	20	21	22	23	0	MET:008			
MET	:007																	
RED FD 9	CDR	SLEEP				POST SLEEP		H/O	CPFF1UP	CPFF6TREQ	PAWS PERF	SAVREX	DSO 326	P/TV 33 SETUP	PAVO	EVENT	MEAL	
	PLT	SLEEP				POST SLEEP		H/O			PAWS PERF	WCS O/B FILTER C/O		P/TV 33 SETUP	PAVO	EVENT	MEAL	
	MS1	SLEEP				POST SLEEP		H/O/P	SCM11POHM	EDO2RAMP			TM19KCHAO	BDP5VIVN	TM19KCHAO	MEAL	EDO2RAMP	
	PS1	SLEEP				POST SLEEP		H/O/P	SCM11POHM	TV17-EDO	EDO2RAMP			ASVVIDEO	PAVO	EVENT	MEAL	ASVVIDEO
BLUE FD 9	MS2					PRE SLEEP		H/O	PRE SLEEP		SLEEP							
	MS3	MEAL		RAM30PT2		PRE SLEEP		H/O	PRE SLEEP		SLEEP							
	MS4	MEAL		EDO6MAS	EXERCISE	PRE SLEEP		H/O	PRE SLEEP		SLEEP							
DAY/NIGHT																		
ORBIT	120	121	122	123	124	125	126	127	128									
TDRS																		
ATTITUDE	BIAS -XLV +YVV																	
NOTES:	<p>● H/O BLUE TO RED ● U.S. BRIDGE (PRESCOTT, AZ)</p> <p>■ SPLY DUMP INIT ● DSO 326: WINDOW IMPACTS OBS</p> <p>■ SPLY DUMP TERM</p>																	


GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE			
197:17:06/ 198:05:06		008:00:00/ 008:12:00		197:12:06/ 198:00:06		/197 CDT	10.6		JULY 16, 1994	STS-65	FINAL	5/02/94			
CDT	:197	13	14	15	16	17	18	19	20	21	22	23	0 CDT:198		
MET	:008	0	1	2	3	4	5	6	7	8	9	10	11	12	
RED FD 9	CDR	EXERCISE		P/TV 33 SETUP		P/TV 33 H/O		PRE SLEEP		SLEEP					
	PLT	P/TV 26 SETUP		P/TV 26 OPS		EXERCISE		H/O		PRE SLEEP		SLEEP			
	MS1	ED02RAMP		T V 30 1 JLT		EXERCISE		H/O		PRE SLEEP		SLEEP			
	PS1	ED02RAMP		T V 30 1 JLT		EXERCISE		H/O		PRE SLEEP		SLEEP			
BLUE FD 10	MS2	SLEEP		POST SLEEP		H/O		EXERCISE		PAWS PERF		P/TV 33 SETUP		EVENT	MEAL
	MS3	SLEEP		POST SLEEP		H/O/P		RAM3OPT3		RAM3OPT3		RAM3OPT3		EVENT	MEAL
	MS4	SLEEP		POST SLEEP		H/O/P		EXERCISE		TEI6OSTE		BR7REACT		MEAL	
DAY/NIGHT															
ORBIT															
TDRS															
ATTITUDE		BIAS -XLV +YVV													
NOTES:		o CREW CHOICE D/L o H/O RED TO BLUE o DTO 623: CABIN AIR MONITOR													

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE						
198:17:06/ 199:05:06		009:00:00/ 009:12:00		198:12:06/ 199:00:06		/198 CDT	14.2		JULY 17, 1994	STS-65	FINAL	5/02/94						
CDT	:198	13	14	15	16	17	18	19	20	21	22	23	0 CDT:199					
MET	:009	0	1	2	3	4	5	6	7	8	9	10	11	12				
RED FD 10	CDR	EXERCISE			P/TV 33 SETUP	EVENT	H/O	CONFIRMED	PRE SLEEP			SLEEP						
	PLT	EXERCISE			P/TV 33 SETUP	CCD RH/EOL MIC E	FILTER CLEANING	P/TV 33 SETUP	EVENT	H/O	PRE SLEEP			SLEEP				
	MS1	BRIDGROS	TM24L4	TM24L5	TM24L6	TM24L7	TM24L8	TM24L9	EVENT	H/O	PRE SLEEP			SLEEP				
	PS1	DAY-OFF				EVENT	H/O	PRE SLEEP			SLEEP							
BLUE FD 11	MS2	SLEEP			POST SLEEP		H/O	EXERCISE	PAWS PERF	MEAL								
	MS3	SLEEP			POST SLEEP		H/O/P	TV96-APC	TEI6OSTE	TEI13-LIF	TEI6OSTE	TEI6OSTE	TM24NIC	TM24NIC	TM24NIC	MEAL	EXERCISE	DAY-OFF
	MS4	SLEEP			POST SLEEP		H/O/P	DAY-OFF				MEAL	TM24NIC	A3NEW	BR7REACT	NZ11CR7		
DAY/NIGHT																		
ORBIT	144	145	146	147	148	149	150	151	152									
TDRS																		
ATTITUDE	BIAS -XLV +YVV																	
NOTES:	o SPLY DUMP TERM						oH/O RED TO BLUE											

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE			
199:05:06/ 199:17:06		009:12:00/ 010:00:00		199:00:06/ 199:12:06		/199 CDT	16.0		JULY 18, 1994	STS-65	FINAL	5/02/94			
CDT	:199	1	2	3	4	5	6	7	8	9	10	11	12	MET:010	
MET	:009	12	13	14	15	16	17	18	19	20	21	22	23	0	
RED FD 11	CDR	SLEEP			POST SLEEP		H/O	IDS0 326	PAWS PERF	SARFEX	MEAL	P/TV 33 SETUP	EVENT		
	PLT	SLEEP			POST SLEEP		H/O		PAWS PERF		MEAL	P/TV 33 SETUP	EVENT		
	MS1	SLEEP			POST SLEEP		H/O/D/P	SCM1 POHM	ED02RAMP	SCM1 POHM	TM26 BUZZ2	MEAL		ED02RAMP	
	PS1	SLEEP			POST SLEEP		H/O/D/P	SCM1 POHM	ED02RAMP	NZ11 CR8	NZ11 CR8	BR10DROS	MEAL	BR14 COOL	EVENT
BLUE FD 11	MS2		P/TV 33 SETUP	EVENT			H/O	PRE SLEEP			SLEEP				
	MS3	DAY-OFF			TM25 EGRN2	LSLE -F/T	TM25 EGRN2	BPP4 STRB	H/O	PRE SLEEP		SLEEP			
	MS4	NZ11 CR7	LIF3 MCS	EVENT	TEI8SPR2	EXERCISE	TV17 -ED0	H/O	PRE SLEEP		SLEEP				
DAY/NIGHT															
ORBIT	152	153	154	155	156	157	158	159	160						
TDRS															
ATTITUDE	BIAS -XLV +YVV														
NOTES:	@H/O BLUE TO RED @DSO 326: WINDOW IMPACTS OBS														

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON 	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE		
199:17:06/ 200:05:06		010:00:00/ 010:12:00		199:12:06/ 200:00:06		/199 CDT	17.9		JULY 18, 1994	STS-65	FINAL	5/02/94		
CDT	:199	13	14	15	16	17	18	19	20	21	22	23	0	CDT:200
MET	:010	0	1	2	3	4	5	6	7	8	9	10	11	12
RED FD 11	CDR	EXERCISE		P/TV 33 SETUP		PRE SLEEP		PRE SLEEP		SLEEP				
	PLT	SL CNDS TK DUMP		EXERCISE		PRE SLEEP		PRE SLEEP		SLEEP				
	MS1	EDO2RAMP		EXERCISE		PRE SLEEP		PRE SLEEP		SLEEP				
	PS1	EDO2RAMP		EXERCISE		PRE SLEEP		PRE SLEEP		SLEEP				
BLUE FD 12	MS2	SLEEP		POST SLEEP		H/O		P/TV 33 SETUP		PAWS PERF		MEAL		
	MS3	SLEEP		POST SLEEP		H/O/D/P		EVENT		ED06MAS		MEAL		
	MS4	SLEEP		POST SLEEP		H/O/D/P		EVENT		RAM2SEP2		MEAL		
DAY/NIGHT		ORBIT												
TDRS		E W												
ATTITUDE		BIAS -XLV +YVV												
NOTES:		o CREW CHOICE D/L @H/O RED TO BLUE@DT0 623: CABIN AIR MONITOR VSPLY DUMP INIT VSPLY DUMP TERM												

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE			
200:05:06/ 200:17:06		010:12:00/ 011:00:00		200:00:06/ 200:12:06		/200 CDT	19.9		JULY 19, 1994	STS-65	FINAL	5/02/94			
CDT	:200	1	2	3	4	5	6	7	8	9	10	11	12	MET:011	
MET	:010	12	13	14	15	16	17	18	19	20	21	22	23	0	
RED FD 12	CDR	SLEEP		POST SLEEP		POST SLEEP	H/O	FC PURGE	DSO 326	P/TV 33 SETUP	PAVENT	PAWS PERF	MEAL		
	PLT	SLEEP		POST SLEEP		H/O		LCE4DEFR			PAWS PERF	MEAL			
	MS1	SLEEP		POST SLEEP		H/O/P	SCM1POHM	SCM2PHOT	TV08-SCM	EXERCISE	SCM4SEP	BR17LNTL	SCM3ULTR		
	PS1	SLEEP		POST SLEEP		H/O/P	SCM1POHM	SCM2PHOT	PAVENT	NZ7LXOD3	SCM4SEP	BR12SSGNL	MEAL	SCM3ULTR	NZ7LXOD4 NZ7LXOD3
BLUE FD 12	MS2	EXERCISE		P/TV 26 SETUP		P/TV 26 OPS	H/O	PRE SLEEP			SLEEP				
	MS3	BR7REACT	AA3NEWT	AA3NEWT	AA3NEWT	AA3NEWT	EXERCISE	BR9REPAR	H/O	PRE SLEEP			SLEEP		
	MS4	AA3NEWT	AA3NEWT	AA3NEWT	AA3NEWT	AA3NEWT	EXERCISE	H/O	PRE SLEEP			SLEEP			
DAY/NIGHT															
ORBIT	168	169		170		171		172		173		174		175	176
TDRS	E														
ATTITUDE	BIAS -XLV +YVV														
NOTES:	@H/O BLUE TO RED @MANUAL @DSO 326: WINDOW IMPACTS OBS														


GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON 	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE		
200:17:06/ 201:05:06		011:00:00/ 011:12:00		200:12:06/ 201:00:06		/200 CDT	21.8		JULY 19, 1994	STS-65	FINAL	5/02/94		
CDT	:200	13	14	15	16	17	18	19	20	21	22	23	0	
MET	:011	0	1	2	3	4	5	6	7	8	9	10	11	12
RED FD 12	CDR	CALLS CPT SAREX	EXERCISE	SAREX	PRE SLEEP	PRE SLEEP	PRE SLEEP	SLEEP						
	PLT	P/TV 33 SETUP	CCD RH/ EOL WIC E	EXERCISE	PRE SLEEP	PRE SLEEP	PRE SLEEP	SLEEP						
	MS1	BRI 7 L N	BRI D R O S	SCHEDULES	PRE SLEEP	PRE SLEEP	PRE SLEEP	SLEEP						
	PS1	BR 7 L N O D 3	T V S - S A M	SCHEDULES	PRE SLEEP	PRE SLEEP	PRE SLEEP	SLEEP						
BLUE FD 13	MS2	SLEEP		POST SLEEP		H/O		PAWS PERF	MEAL					
	MS3	SLEEP		POST SLEEP		H/O/D/P		BR10DROS	MEAL		RAM2SEP3	BR7REACT		
	MS4	SLEEP		POST SLEEP		H/O/D/P		RAM2SEP3	RAM2SEP3		MEAL			
	DAY/NIGHT	ORBIT		ORBIT		ORBIT		ORBIT		ORBIT		ORBIT		
TDRS	E		W		E		W		E		W			
ATTITUDE	BIAS -XLV +YVV													
NOTES:	@H/O RED TO BLUE													

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE		
201:05:06/ 201:17:06		011:12:00/ 012:00:00		201:00:06/ 201:12:06		/201 CDT	23.7		JULY 20, 1994	STS-65	FINAL	5/02/94		
CDT	:201	1	2	3	4	5	6	7	8	9	10	11	12	
MET	:011	12	13	14	15	16	17	18	19	20	21	22	23	0
RED FD 13	CDR	SLEEP	POST SLEEP	H/O	P/TV 29 SETUP	CREW CONF	DSO 326	PAWS PERF	WCS O/B FILTER C/O	MEAL				
	PLT	SLEEP	POST SLEEP	H/O	P/TV 29 SETUP	CREW CONF	PAWS PERF	FILTER CLEANING		MEAL		P/TV 26 SETUP	P/TV 26 OPS	
	MS1	SLEEP	POST SLEEP	H/O/D/P	SCM 1 P/O/H/M	CREW CONF	RAM4XVS	RAM5DORB	EXERCISE	MEAL				
	PS1	SLEEP	POST SLEEP	H/O/D/P	SCM 1 P/O/H/M	CREW CONF	BR9REPAR	EXERCISE		MEAL	NZ16LW	NZ16U4	NZ16U4	NZ16U4
BLUE FD 13	MS2	EXERCISE		H/O	P/TV 29 SETUP	CREW CONF		PRE SLEEP		SLEEP				
	MS3	BR7REACT	BR9REPAR	EXERCISE	RAM4XVS	L S L E - F / L T	H/O	CREW CONF		PRE SLEEP		SLEEP		
	MS4		RAM4XVS	EXERCISE	H/O	CREW CONF		PRE SLEEP		SLEEP				
DAY/NIGHT														
ORBIT		184	185	186	187	188	189	190	191	192				
TDRS														
ATTITUDE		BIAS -XLV +YVV												
NOTES:		o H/O BLUE TO RED o SPLY DUMP INIT o SPLY DUMP TERM o DSO 326: WINDOW IMPACTS OBS												

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE							
201:17:06/ 202:05:06		012:00:00/ 012:12:00		201:12:06/ 202:00:06		/201 CDT	25.7		JULY 20, 1994	STS-65	FINAL	5/02/94							
CDT	:201	13	14	15	16	17	18	19	20	21	22	23	0 CDT:202						
MET	:012	0	1	2	3	4	5	6	7	8	9	10	11	12					
RED FD 1 3	CDR	EXERCISE	P/TV 3 3 SETUP CCD RH/ EOL MIC		PRE SLEEP			PRIV MED H/O					SLEEP						
	PLT			EXERCISE	PRE SLEEP			H/O					SLEEP						
	MS1		BR17LNTL		PRE SLEEP			H/O					SLEEP						
	PS1			LS RR I O H Z E	PRE SLEEP			H/O					SLEEP						
BLUE FD 1 4	MS2	SLEEP			POST SLEEP	H/O	POST SLEEP	EXERCISE	DEO S N S	LONG S N S		PAWS PERF	P/TV 03 SETUP	P/TV 03 OPS	MEAL	BR22 MLT	BR22 MLT	BR22 MLT	
	MS3	SLEEP			POST SLEEP	H/O	POST SLEEP	D/P	MOB N A	DE S N S	T V 2 5 - S A M	SAM3PUSH	N Z 1 2 P W R	NZ17JFGJ	MEAL	BR22 MLT	N Z 1 3 D O R B	BR22 MLT	T E I 9 P E B
	MS4	SLEEP			POST SLEEP	H/O	POST SLEEP	D/P		BR17LNTL		ED06MAS		MEAL	T V O B R	BR1FAC	AA3NEWT		
DAY/NIGHT																			
ORBIT		192	193	194	195	196	197	198	199	200									
TDRS																			
ATTITUDE		BIAS -XLV +YVV																	
NOTES:		H/O RED TO BLUE @D70 623: CABIN AIR MONITOR																	

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE					
202:05:06/ 202:17:06		012:12:00/ 013:00:00		202:00:06/ 202:12:06		/202 CDT	27.6		JULY 21,1994	STS-65	FINAL	5/02/94					
CDT	:202	12	13	14	15	16	17	18	19	20	21	22	23	12	MET:013		
MET	:012																
RED FD 14	CDR	SLEEP	POST SLEEP	POST SLEEP	H/O	FCS C/O	AC FT TT REL	DSO 326	DSO 314	DTO 667	MEAL	PAWS PERF	CABIN STOW				
	PLT	SLEEP	POST SLEEP	H/O	FCS C/O	SIM ANN MIV STR	SAMS CAL ROT	BIM ENN MIV TR 3	DSO 314	BEM 3 ROT	OARE MNVR	XLV MNV BR	PAWS PERF	MEAL	DTO 667	PAWS STOW	CABIN STOW
	MS1	SLEEP	POST SLEEP	H/O/D/P	SCM 1 D H M		ED03SOAK						MEAL	ED03SOAK			
	PS1	SLEEP	POST SLEEP	H/O/D/P	LSLE -F/T		ED03SOAK			MEAL	ED03SOAK	ED03SOAK					
BLUE FD 14	MS2		NDI AUN SMI TPT E		A F I C I L	H/O	SIM ANN MIV STR	SAMS CAL ROT	BIM ENN MIV TR 3	PRE SLEEP			SLEEP				
	MS3	TEI 1 6 E R	EXERCISE	ED03SOAK	H/O	DSO 604C	PRE SLEEP			SLEEP							
	MS4	A A 1 D L T R T V 1 7 O D E R R R 1 0 H Z E A A 1 0 L T R F E 1 7 C L T R T E 1 1 B S S S	EXERCISE	H/O	PRE SLEEP			SLEEP									
DAY/NIGHT	[Day/Night Cycle]																
ORBIT	200 201 202 203 204 205 206 207 208																
TDRS	[TDRS Schedule]																
ATTITUDE	BIAS -XLV +YVV SAMS/OARE MNVRS BIAS -XLV +YVV																
NOTES:	@H/O BLUE TO RED @DSO 314: ACCEL DATA COLLECTION VAPU HTR ACT @APU HTR RECONFIG @DTO 667: PILOT SIM VWASTE DUMP TERM @DSO 326: WINDOW IMPACTS OBS @BIAS -XLV,+YVV @DTO 667: PILOT SIM @DSO 604C: VISUAL-VEST INTEGRATION, 01-3																

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE		
202:17:06/ 203:05:06		013:00:00/ 013:12:00		202:12:06/ 203:00:06		/202 CDT	29.5		JULY 21, 1994	STS-65	FINAL	5/02/94		
CDT	:202	13	14	15	16	17	18	19	20	21	22	23	0 CDT:203	
MET	:013	0	1	2	3	4	5	6	7	8	9	10	11	12
RED FD 14	CDR	EXERCISE	P/TV 33 SETUP CCD RH/ EOL WICE X LV M NV BR	PRE SLEEP	PRE SLEEP	H/O			SLEEP (6)			POST SLEEP	POST SLEEP	
	PLT	CABIN STOW	EXERCISE		PRE SLEEP	H/O			SLEEP (6)			POST SLEEP		
	MS1	ED03SOAK			PRE SLEEP	H/O			SLEEP (6)			POST SLEEP		
	PS1	ED03SOAK			PRE SLEEP	H/O			SLEEP (6)			POST SLEEP		
BLUE FD 15	MS2		SLEEP		POST SLEEP	H/O	POST SLEEP	CABIN STOW	CPCG DEACT	MEAL	CABIN STOW	SL DEACTIVATION	O S T O W	
	MS3		SLEEP		POST SLEEP	H/O	POST SLEEP	ED04STOW	CABIN STOW	MEAL	C A B I N S T O W P A Y L O A D	SL DEACTIVATION	C A B I N S T O W	
	MS4		SLEEP		POST SLEEP	H/O	POST SLEEP	ED04STOW	CABIN STOW	MEAL	P A Y L O A D T V O G - E G R E S S	CABIN STOW		
DAY/NIGHT														
ORBIT		208	209	210	211	212	213	214	215	216				
TDRS														
ATTITUDE		BIAS -XLV +YVV												
NOTES:		@BIAS -XLV, -YVV @H/O RED TO BLUE @DTO 623: CABIN AIR MONITOR * EGRESS												

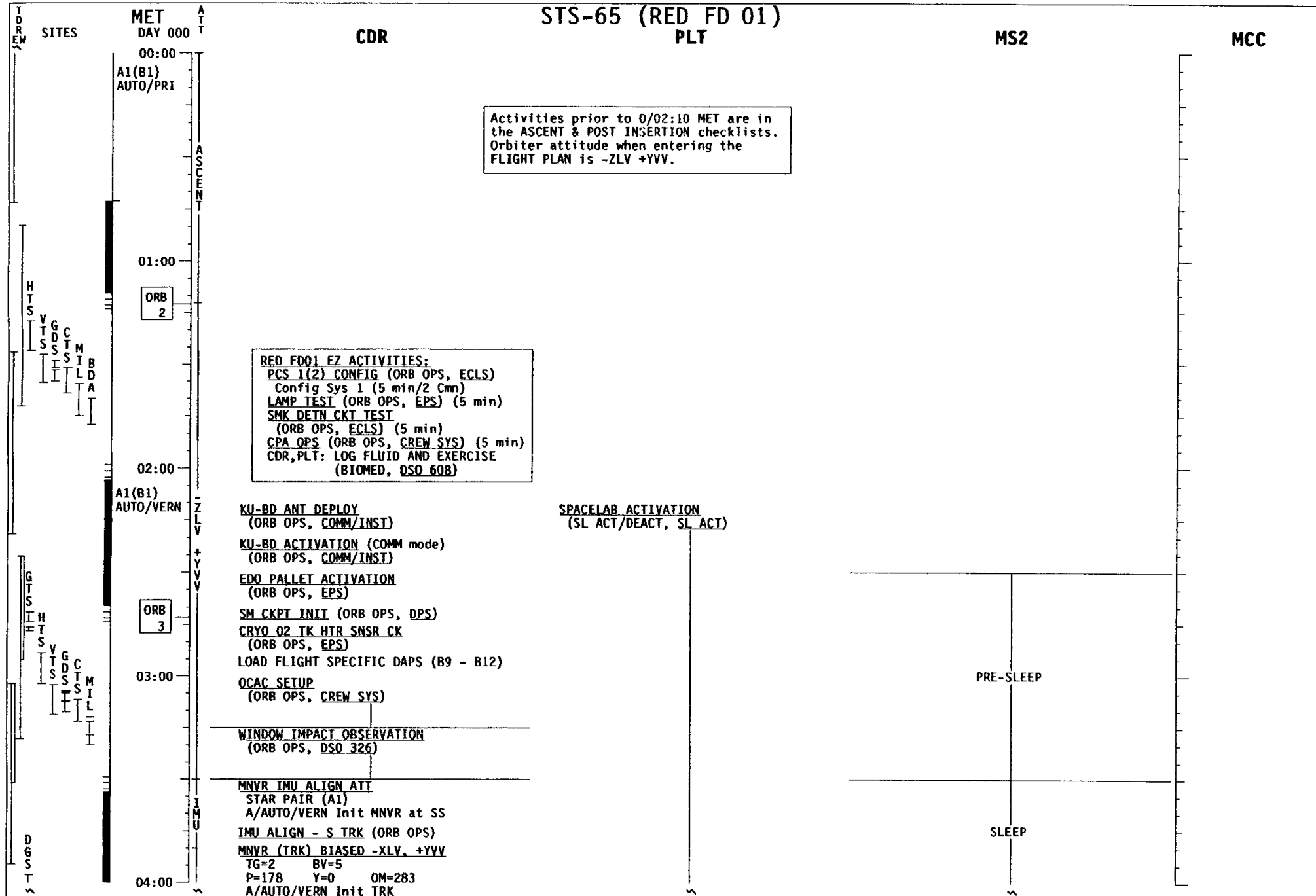
GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/ DOY	BETA	MOON 	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE						
203:05:06/ 203:17:06		013:12:00/ 014:00:00		203:00:06/ 203:12:06		/203 CDT	31.4		JULY 22, 1994	STS-65	FINAL	5/02/94						
CDT	:203	1	2	3	4	5	6	7	8	9	10	11	12	0	MET:014			
MET	:013	12	13	14	15	16	17	18	19	20	21	22	23					
RED FD 15	CDR	POST SCS SHT	SCS SHT	SCS SHT	SCS SHT	SCS SHT	SCS SHT	SCS SHT	SCS SHT	SCS SHT	SCS SHT	SCS SHT	SCS SHT	SCS SHT	SCS SHT	DEORBIT PREP		
	PLT	POST SCS SHT	SCS SHT	SCS SHT	SCS SHT	SCS SHT	SCS SHT	SCS SHT	SCS SHT	SCS SHT	SCS SHT	SCS SHT	SCS SHT	SCS SHT	SCS SHT	DEORBIT PREP		
	MS1	DSO 603C														DEORBIT PREP		
	PS1	DSO 603C														DEORBIT PREP		
BLUE FD 15	MS2	DSO 603C														DEORBIT PREP		
	MS3	DSO 603C														DEORBIT PREP		
	MS4	CABIN STOW														DEORBIT PREP		
DAY/NIGHT																		
ORBIT	216		217		218		219		220		221		222		223		224	
TORS																		
ATTITUDE																		
NOTES:	■ KU-BD ANT STOW ■ CABIN TEMP CNFG ● DSO 603C: ORTHOSTATIC FUNCT																	
	* DEORBIT BURN 13/16:56 * * KSC LANDING 13/17:56 *																	

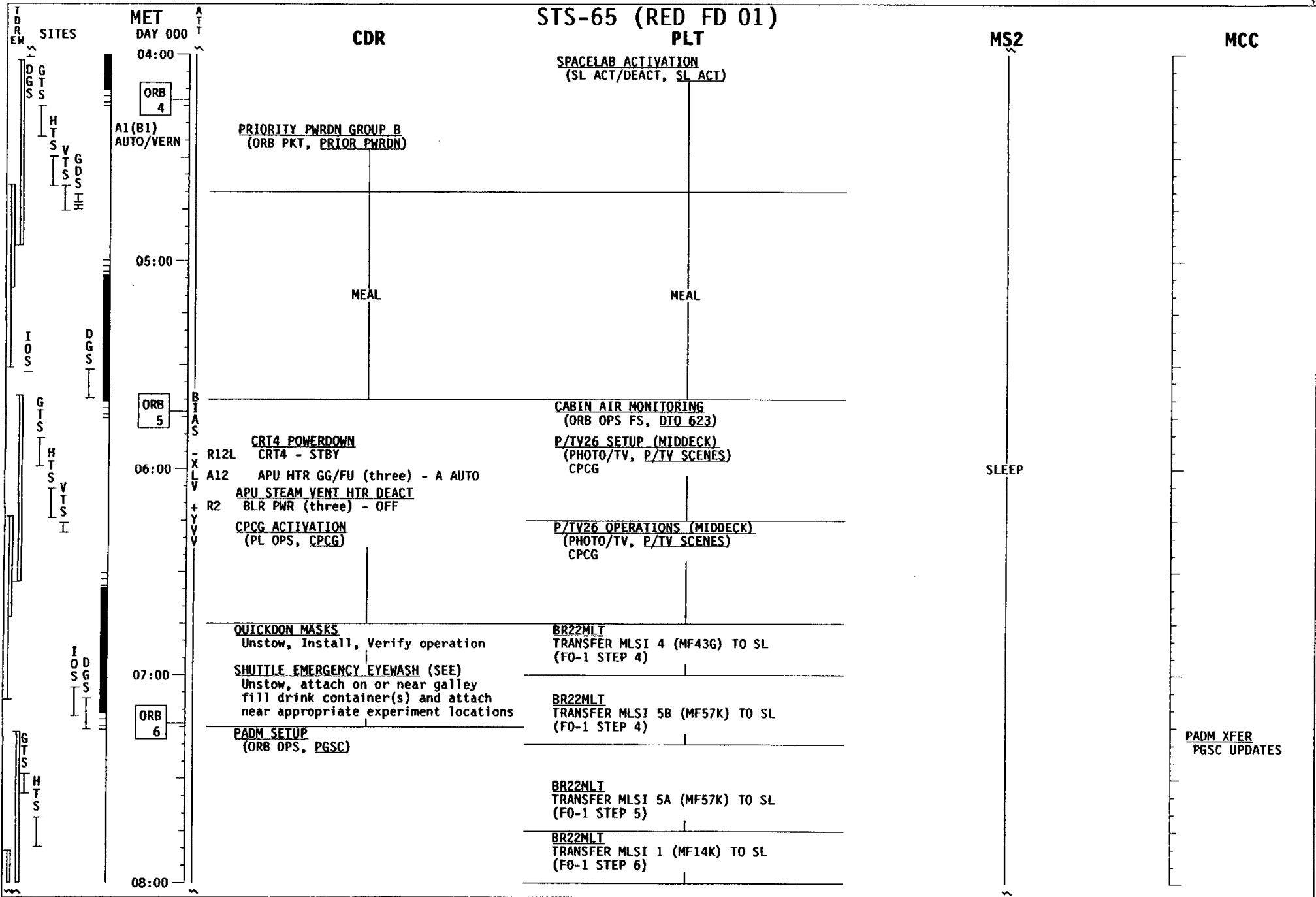
DETAILED TIMELINE

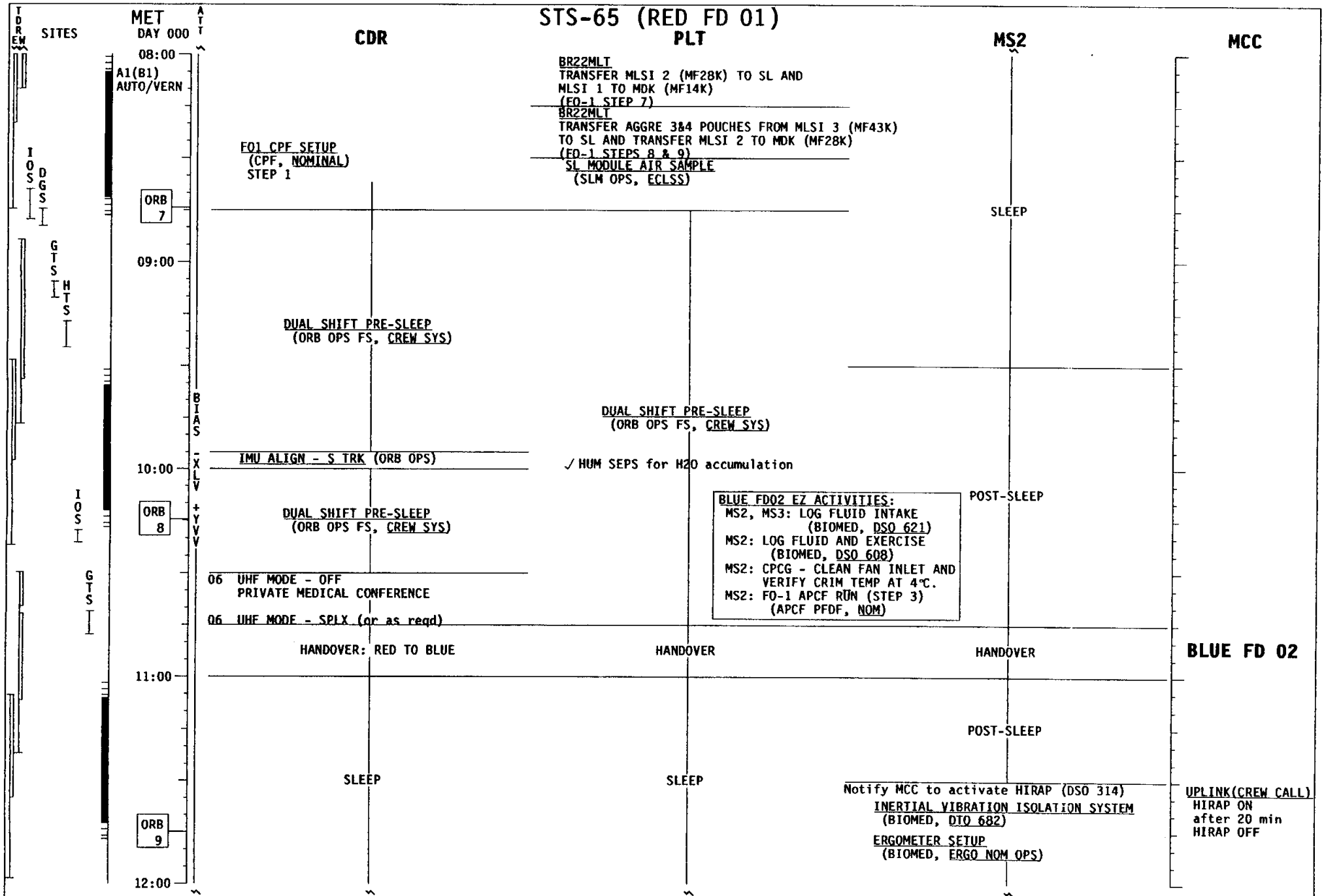
DETAILED
TIMELINE

DETAILED TIMELINE

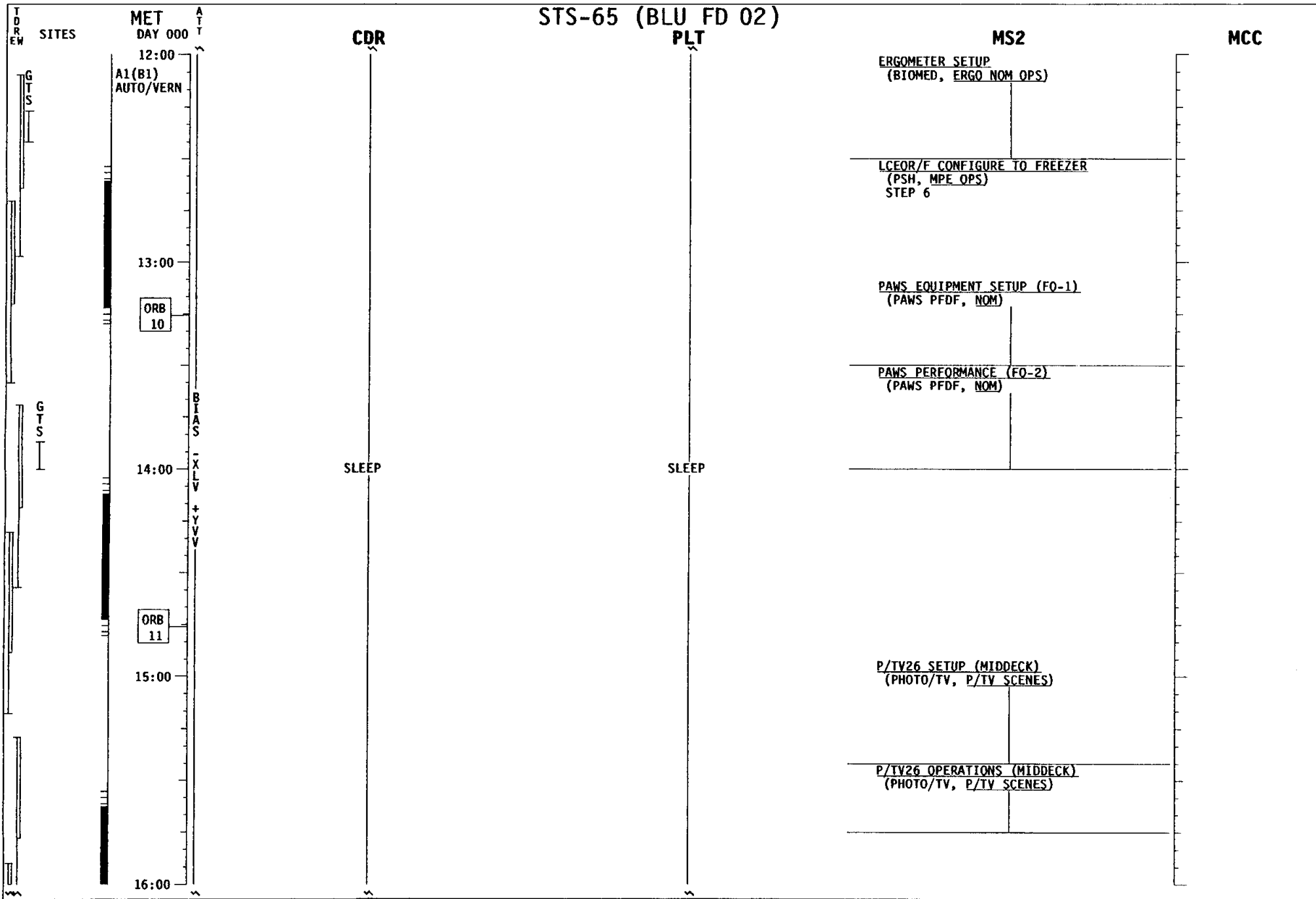
STS-65 (RED FD 01) PLT







STS-65 (BLU FD 02)



MET
DAY 000

12:00
A1(B1)
AUTO/VERN
13:00
ORB
10
14:00
ORB
11
15:00
16:00

CDR

SLEEP

PLT

SLEEP

MS2

ERGOMETER SETUP
(BIOMED, ERGO NOM OPS)

LCEOR/F CONFIGURE TO FREEZER
(PSH, MPE OPS)
STEP 6

PAWS EQUIPMENT SETUP (FO-1)
(PAWS PFD, NOM)

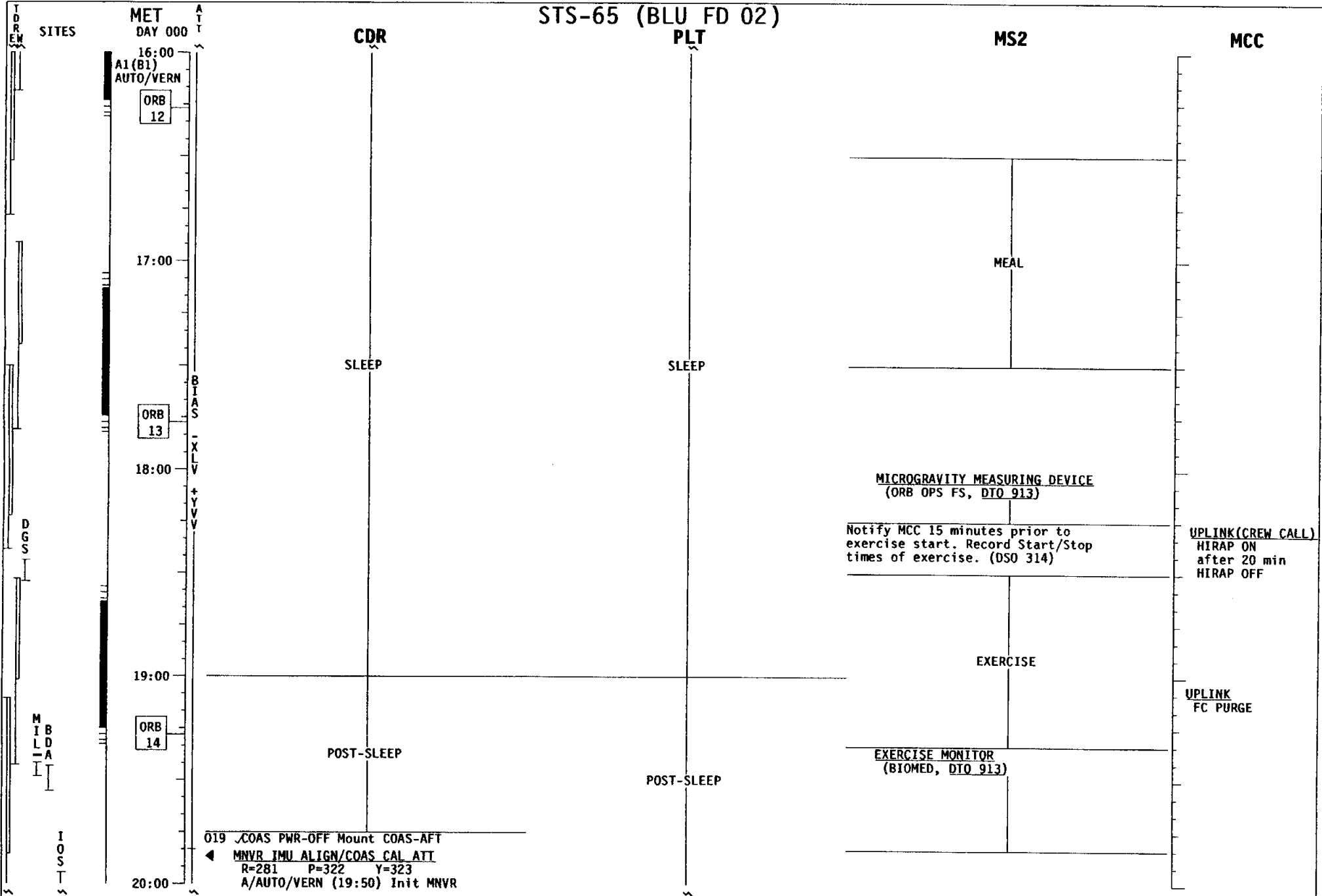
PAWS PERFORMANCE (FO-2)
(PAWS PFD, NOM)

P/TV26 SETUP (MIDDECK)
(PHOTO/TV, P/TV SCENES)

P/TV26 OPERATIONS (MIDDECK)
(PHOTO/TV, P/TV SCENES)

MCC

STS-65 (BLU FD 02)



TDR EW SITES

IODGS

MILDA

IODGS

VTSI MBDLA

IODGS

HTS

MET DAY 000

20:00

A1(B1)
AUTO/VERN
(A1)B5
INRTL/VERN
A1(B5)
AUTO/VERN
(A1)B5
INRTL/VERN
A1(B12)
AUTO/VERN
ORB
15

21:00

019

22:00

ORB
16

23:00

ORB
17

001

00:00

STS-65 (BLU FD 02)

CDR

PLT

MS2

MCC

IMU ALIGN - S TRK (ORB OPS)
COAS CALIBRATION (ORB OPS)

IMU ALIGN DATA:
STAR ID: -Y 29, ALKAID
-Z 30, ANTARES
PAIR AVAIL: 19:56-20:26

EXERCISE MONITOR
(BIOMED, DTO 913)

MNVR TO HUD CAL ATT [A]
HUD CALIBRATION (ORB OPS)
Change DAP B to B12

[A] HUD CAL ATT
R=250 P=276 Y=306
A/AUTO/VERN Init MNVR

POST-SLEEP

MNVR (TRK) BIASED -XLV +YVV
TG=2 BV=5
P=178 Y=0 OM=283
A/AUTO/VERN Init TRK
COAS PWR - OFF Stow COAS

BLEED ORIFICE CONFIG
If O2 Bleed Orifice Assembly
not installed
M069M LEH O2 8 vlv - cl
Insert O2 Bleed Orifice
Assembly into LEH O2 8 QD
LEH O2 8 vlv - op
LEH O2 SPLY 1,2 vlv - op

COAS CALIBRATION LOG
STAR ID: -Z 30, ANTARES
STAR AVAIL: 19:56 TO 20:44
-Z Δ BIAS _____
UPDATE TIME: ___/___:___:___

EXERCISE MONITOR
(BIOMED, DTO 913)

POST-SLEEP

ACOUSTIC DOSIMETER OPS steps 1,2A
(ORB OPS FS, DTO 663)
Powerup dosimeter and place in airlock

SAREX SETUP
(PL OPS, SAREX-C)

DUAL SHIFT PRE-SLEEP
(ORB OPS FS, CREW SYS)

HANDOVER: BLUE TO RED

HANDOVER

HANDOVER

RED FD 02

VOICE OPS (TEST PASS)
(PL OPS, SAREX-C) T1, W1
RISE=22:29 SET=22:37

FILTER CLEANING
(IFM, SCHEDULED MAINTENANCE)

HUD CALIBRATION LOG
STAR ID: 14, VEGA
STAR AVAIL: 20:05 TO 20:46
+X Δ BIAS _____
UPDATE TIME: ___/___:___:___

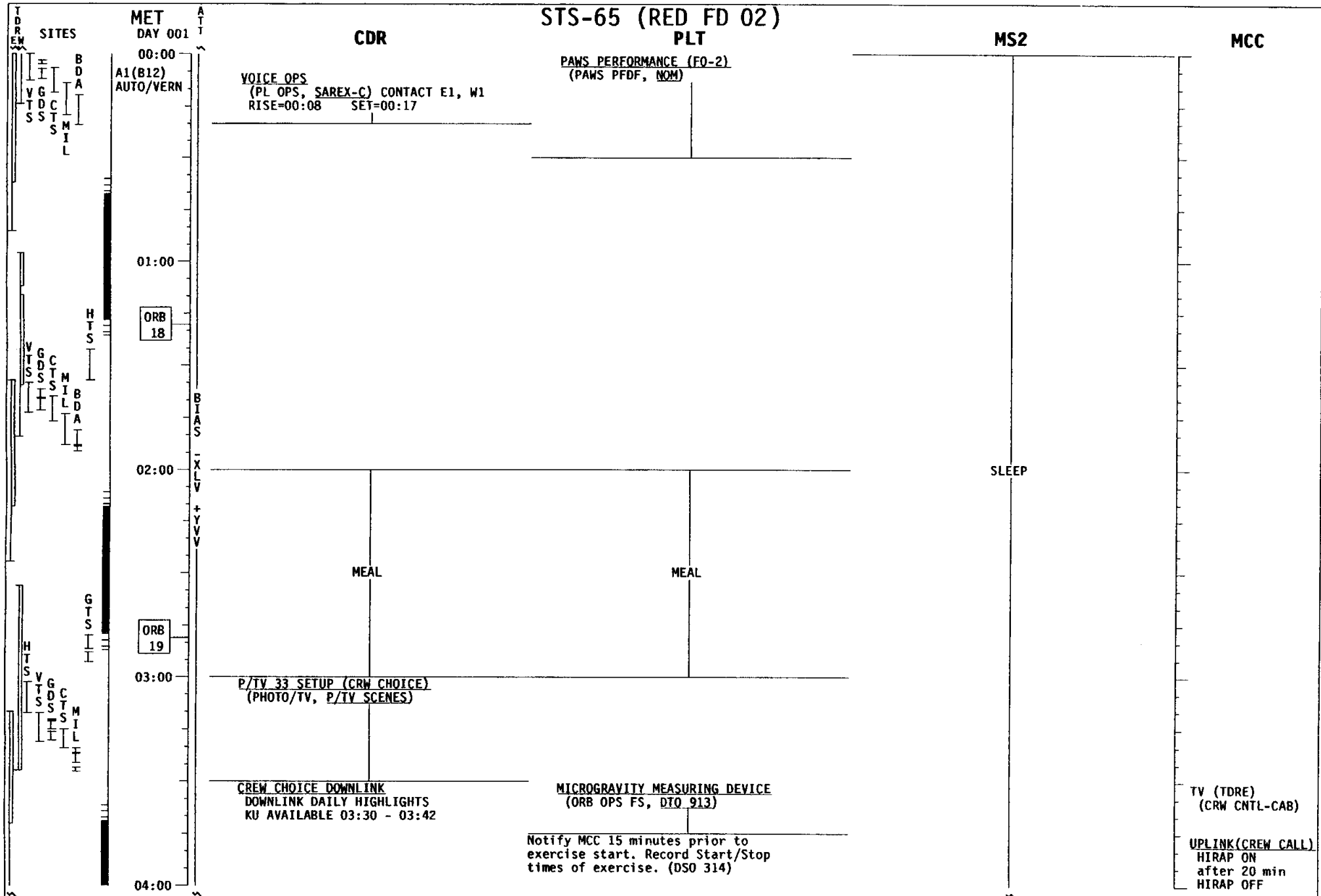
WINDOW IMPACT OBSERVATION
(ORB OPS, DSO 326)

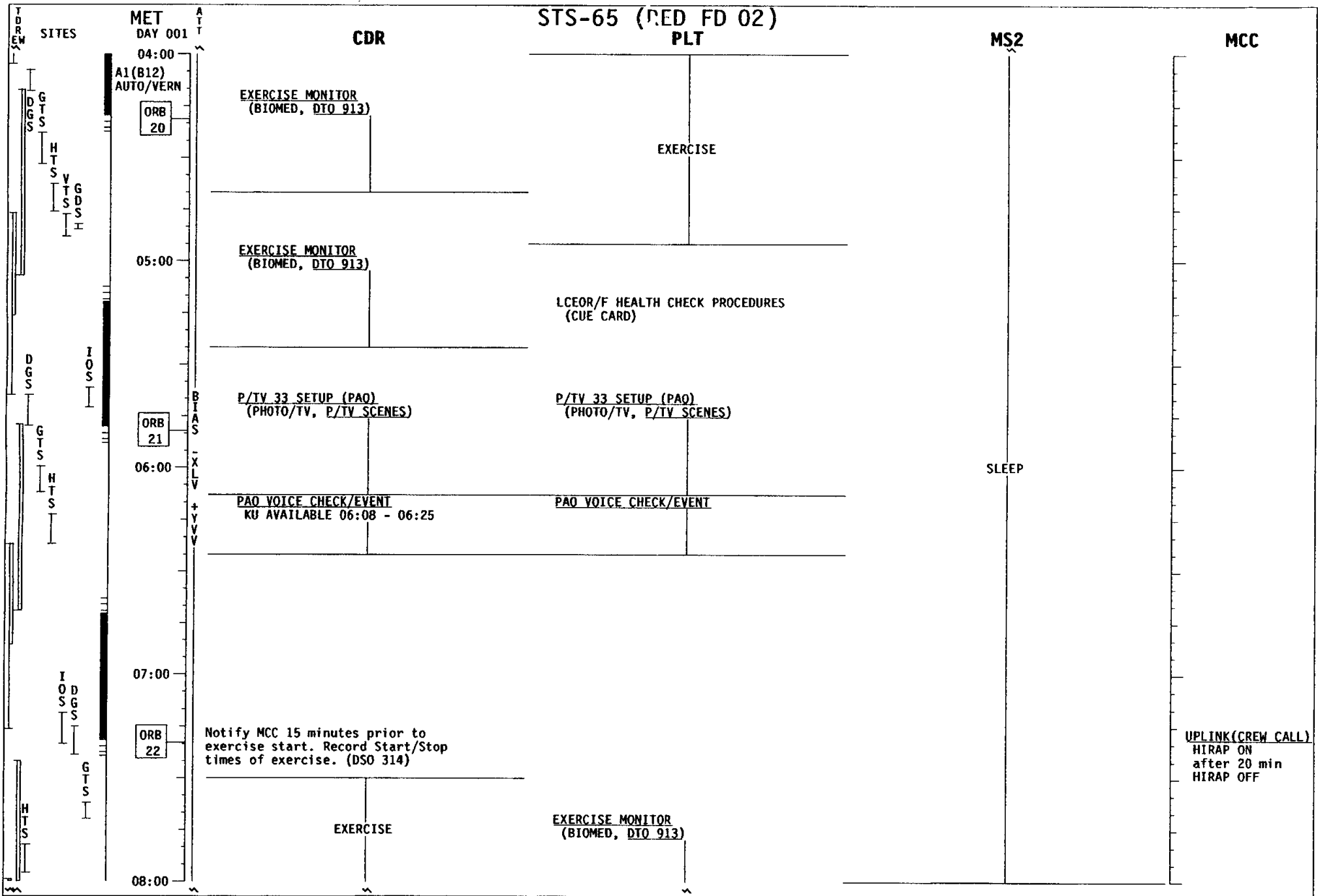
DUAL SHIFT PRE-SLEEP
(ORB OPS FS, CREW SYS)

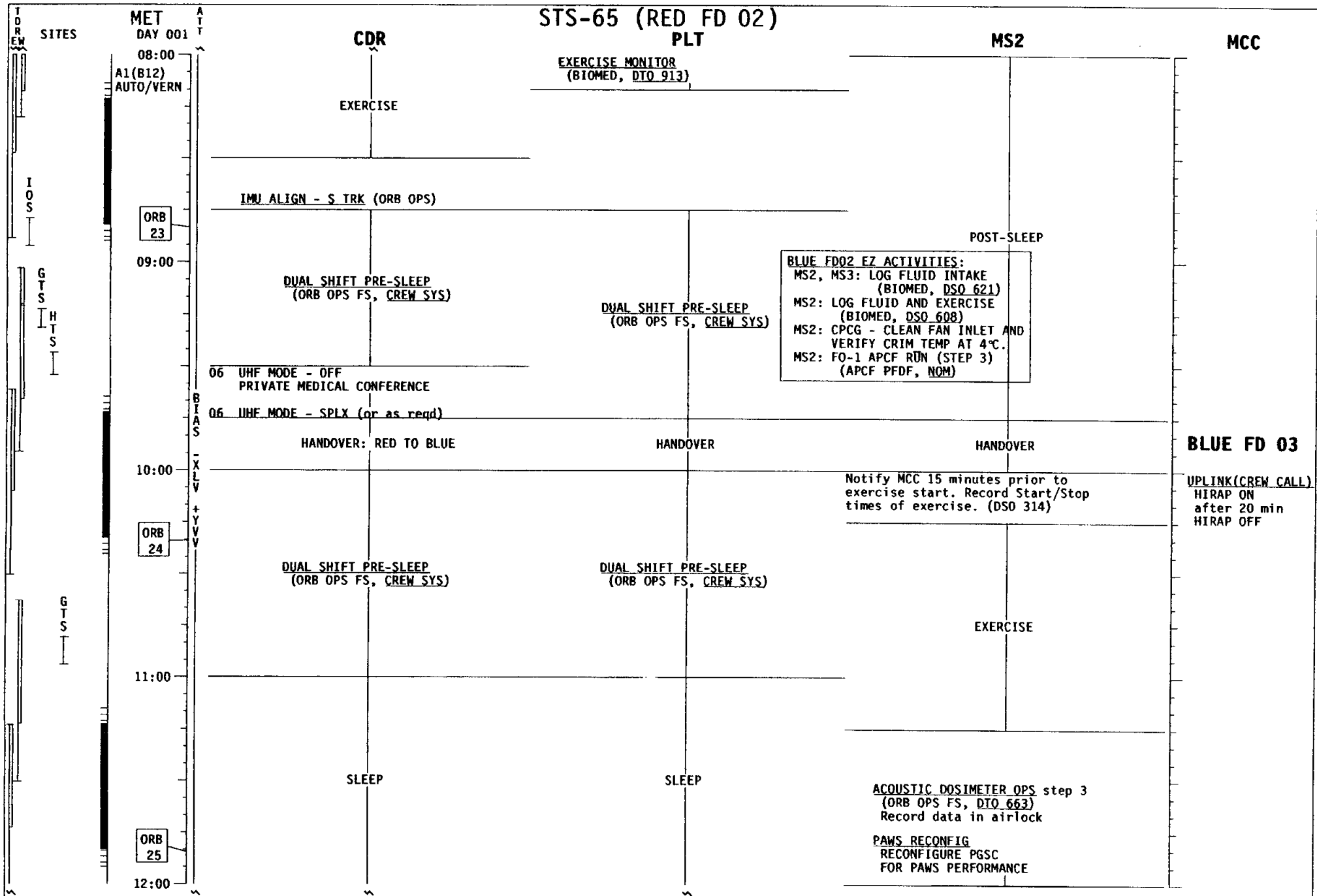
PAWS RECONFIG
RECONFIGURE PGSC
FOR PAWS PERFORMANCE

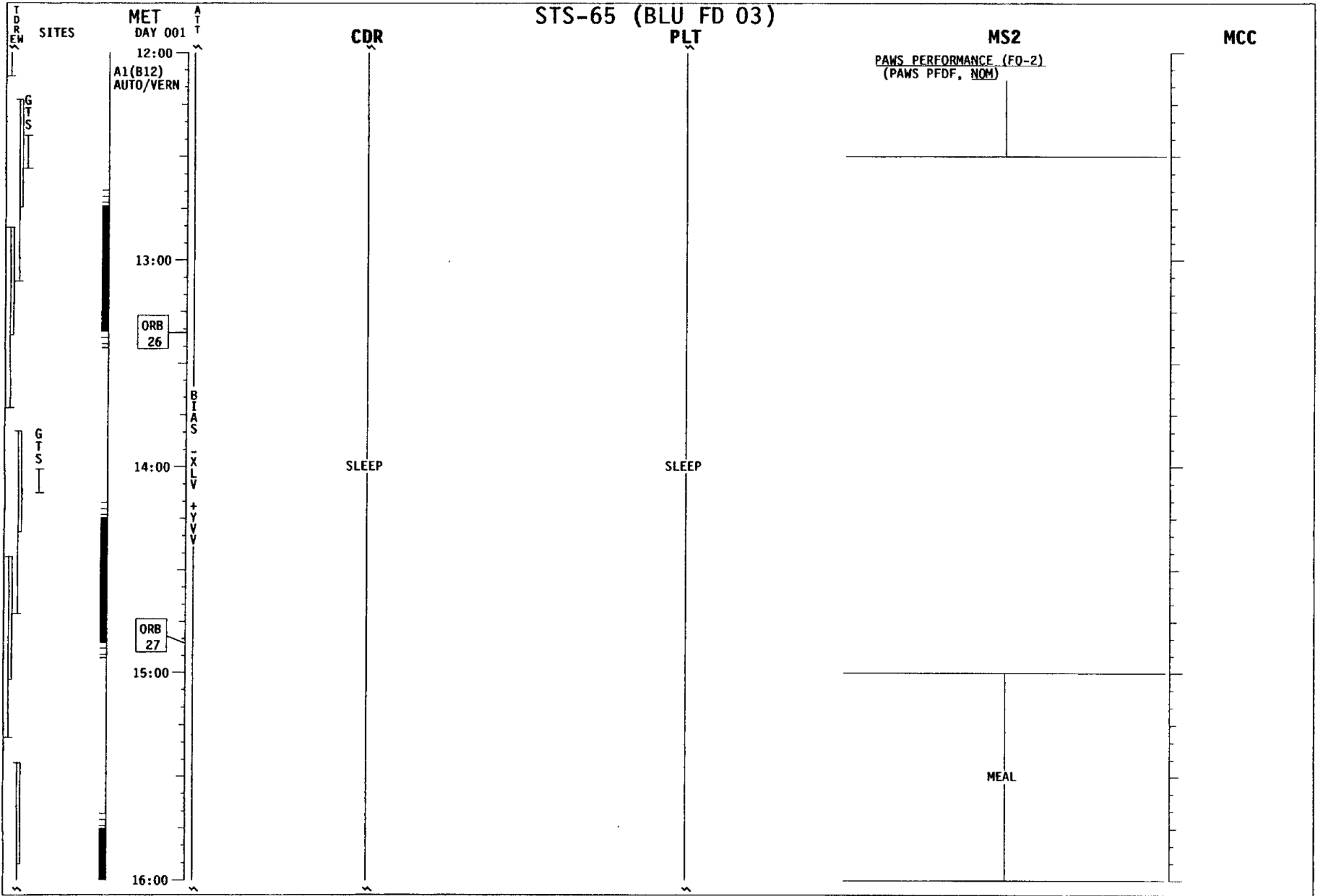
RED FD02 EZ ACTIVITIES:
CPA OPS (ORB OPS, CREW SYS)
OCAC FILTERS
CDR, PLT: LOG FLUID AND EXERCISE
(BIOMED, DSO 608)
PLT: LOG FOOD, FLUID, AND EXER
(BIOMED, DSO 610)
PLT: CPCG - CLEAN FAN INLET AND
VERIFY CRIM TEMP AT 4°C.
PLT: FO-1 APCF RON (STEP 3)
(APCF PPDF, NOM)

PAWS PERFORMANCE (FO-2)
(PAWS PPDF, NOM)

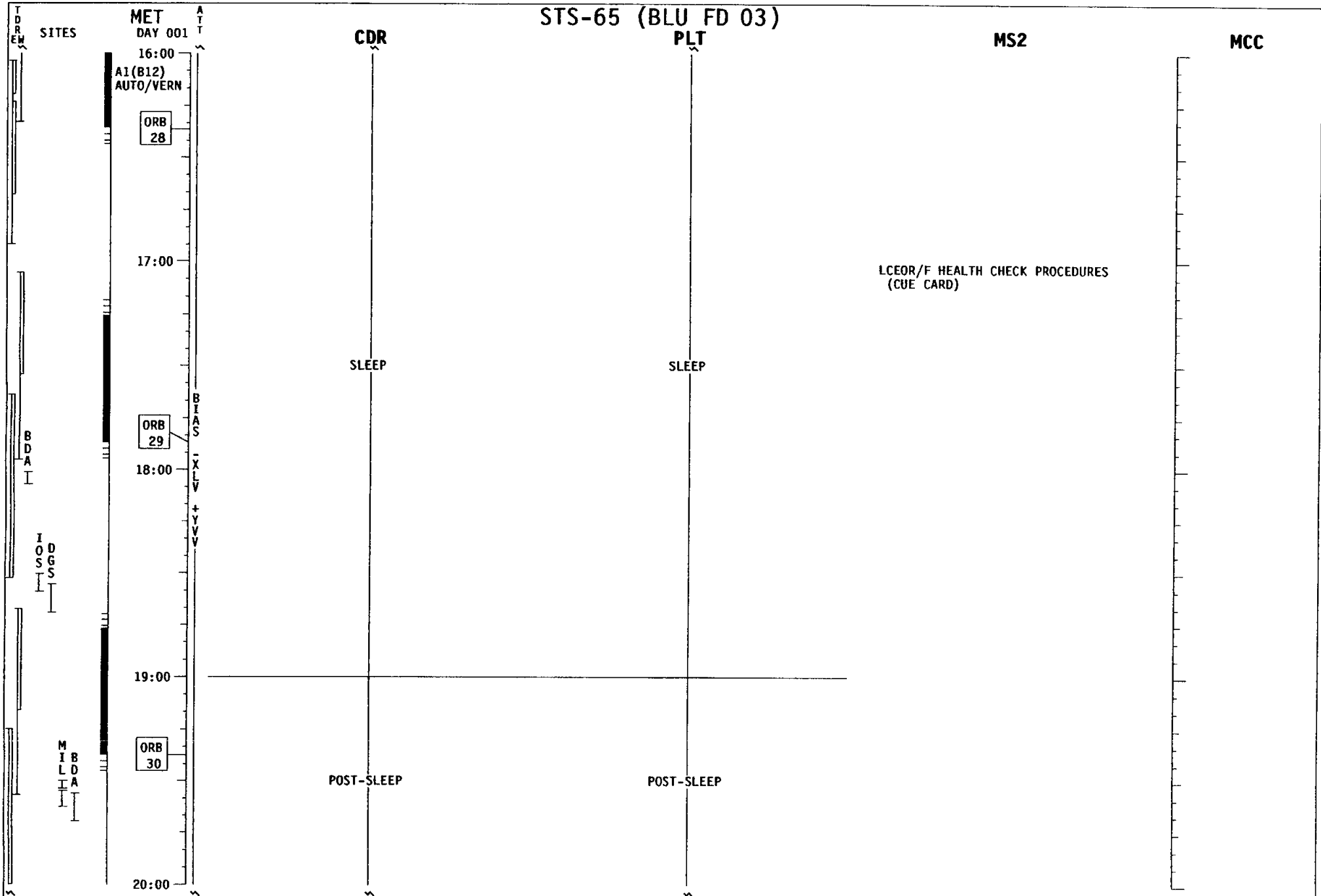


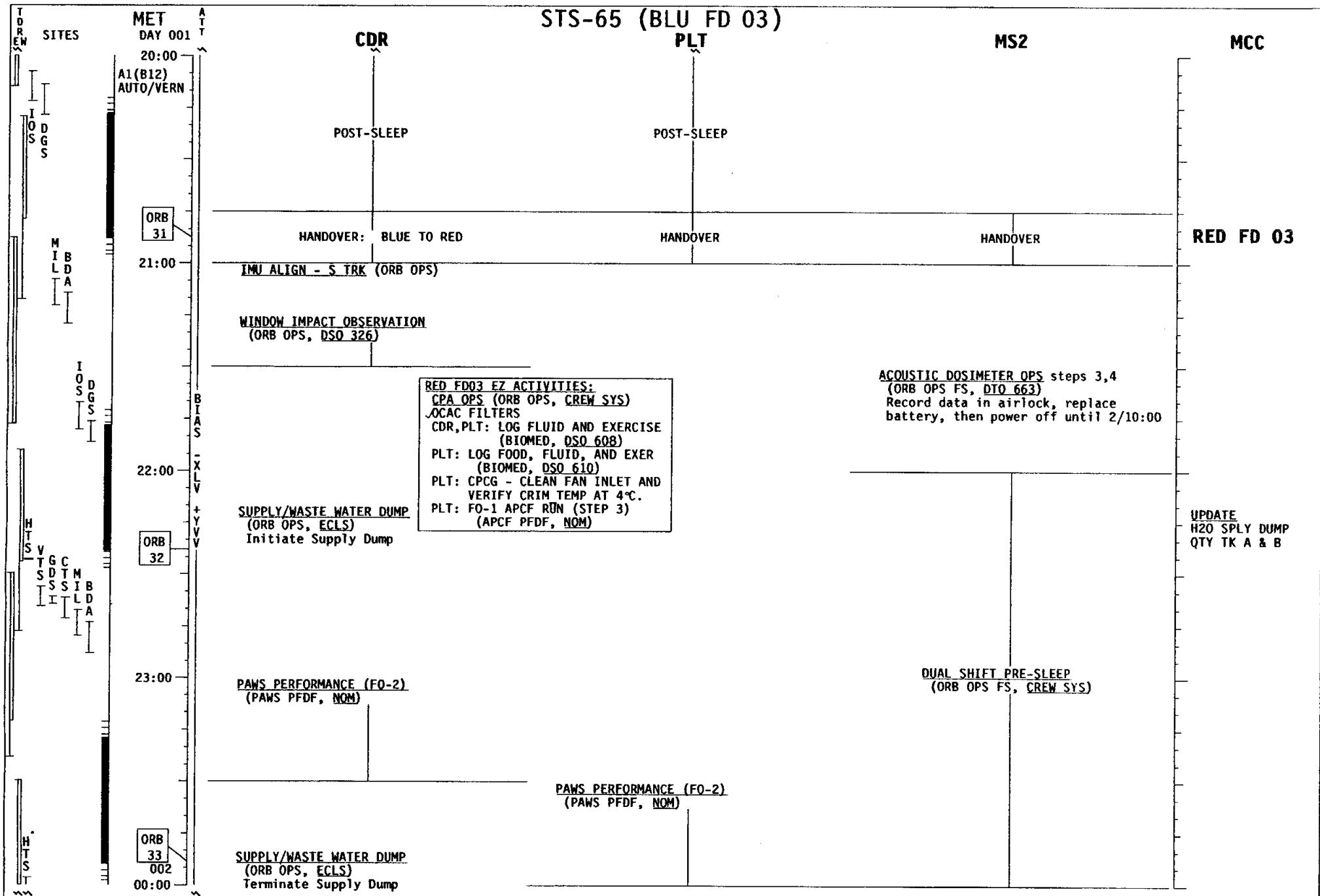


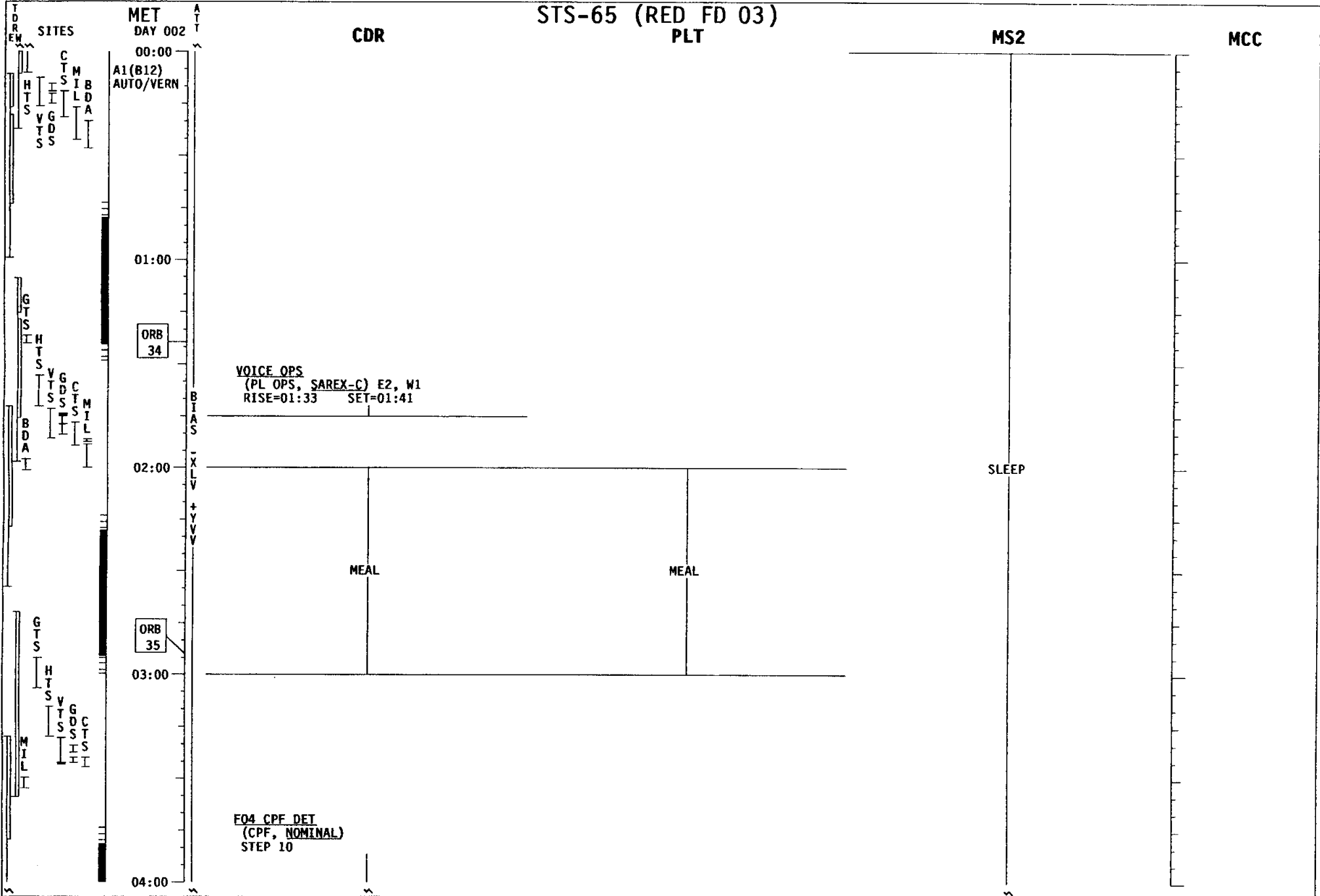


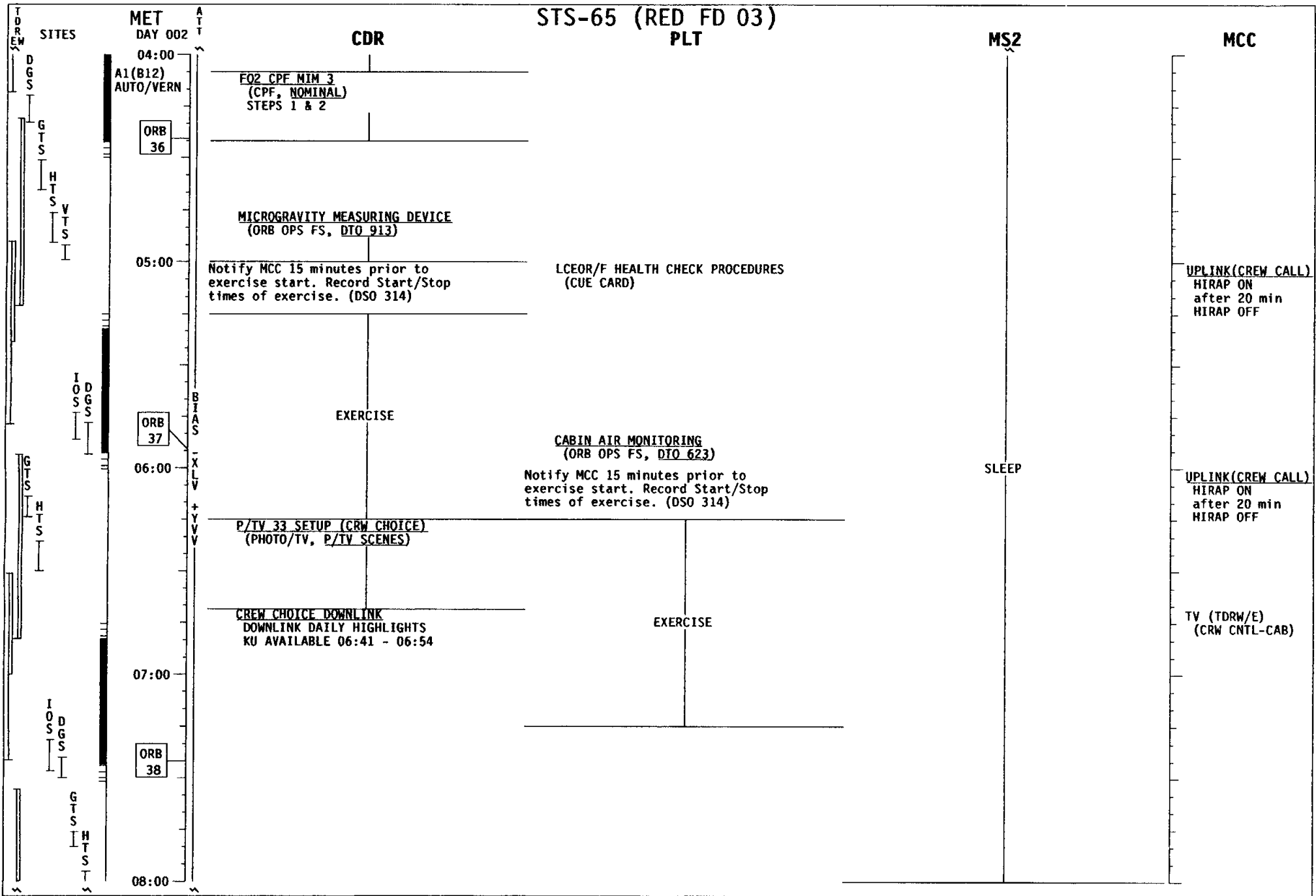


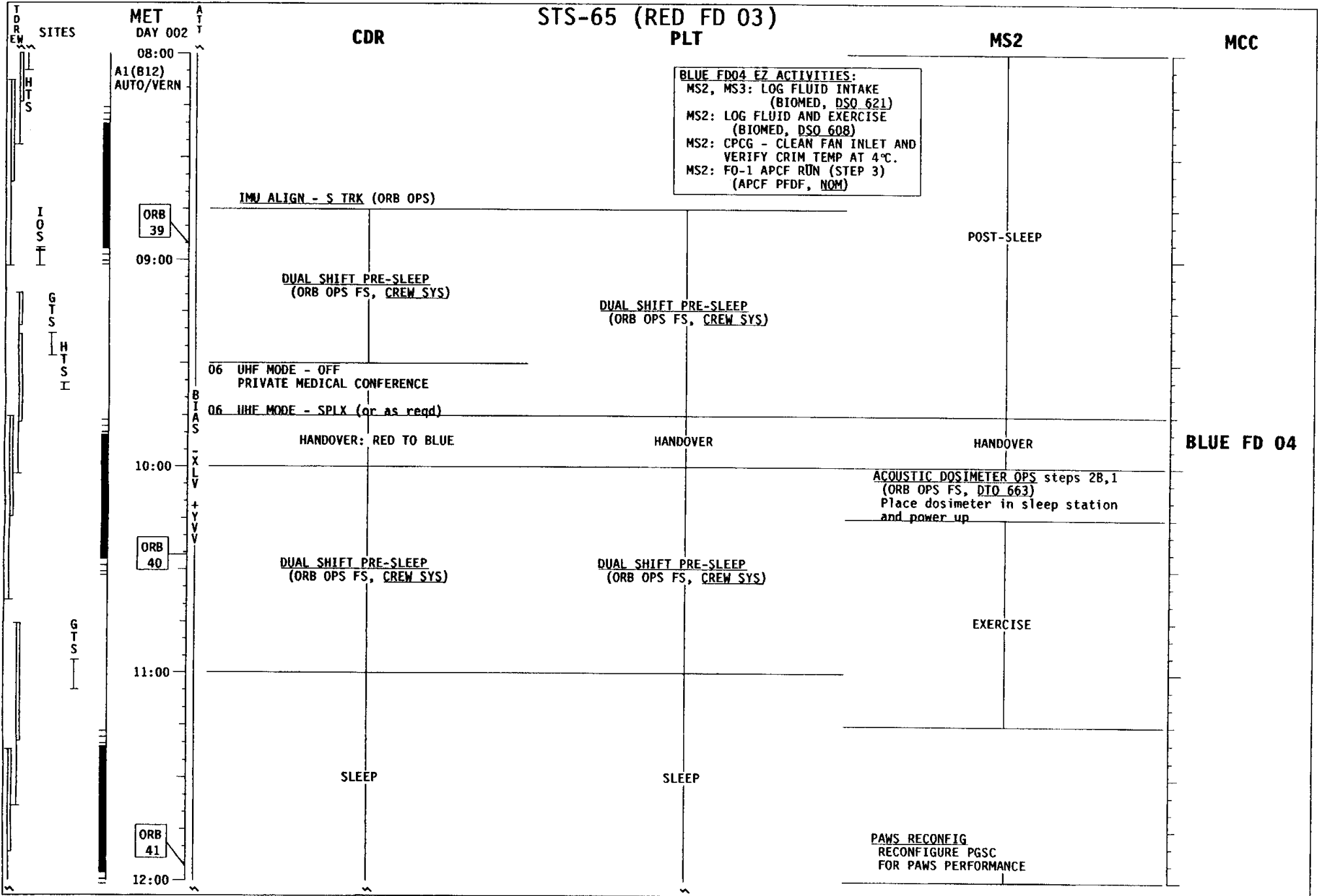
STS-65 (BLU FD 03)

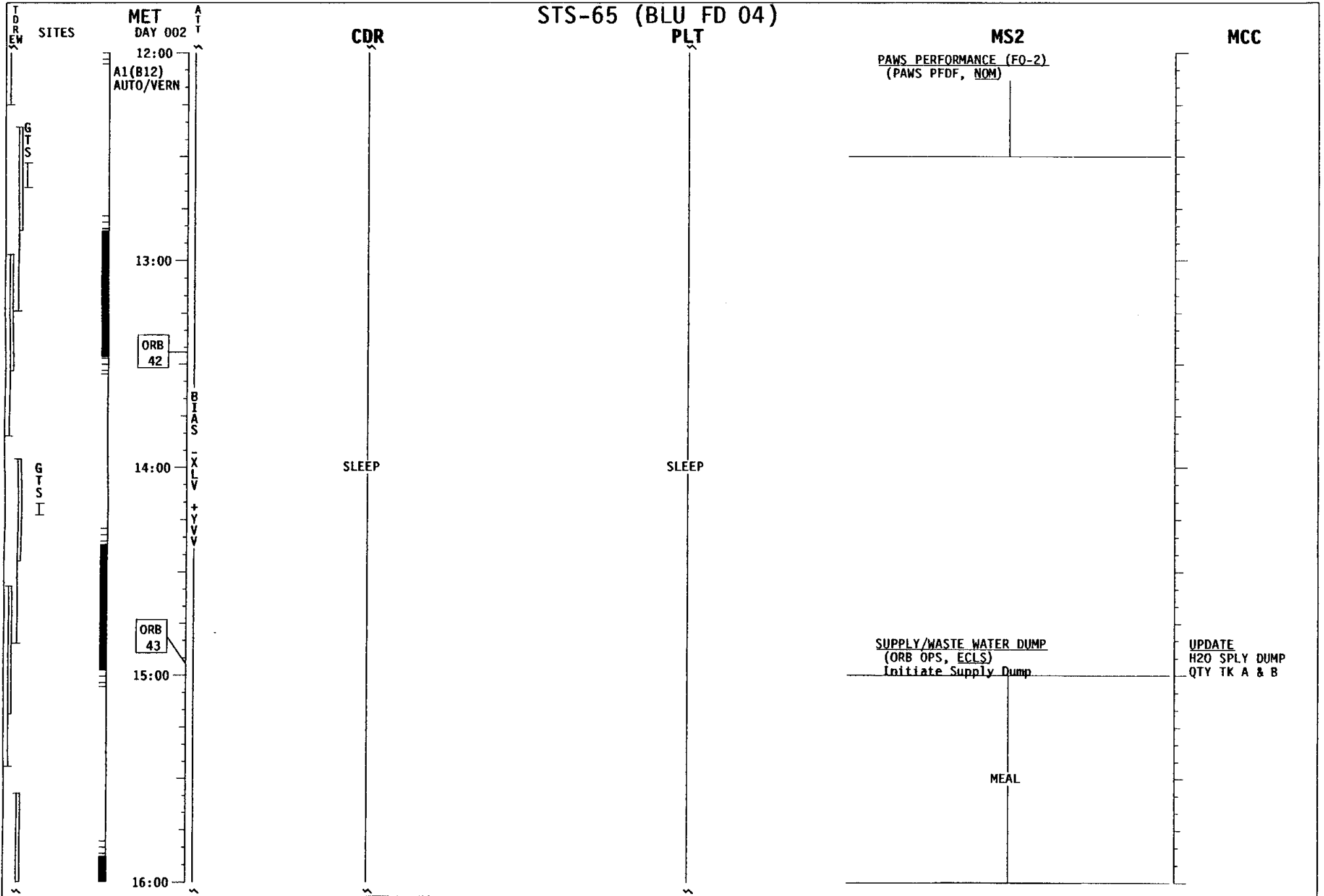




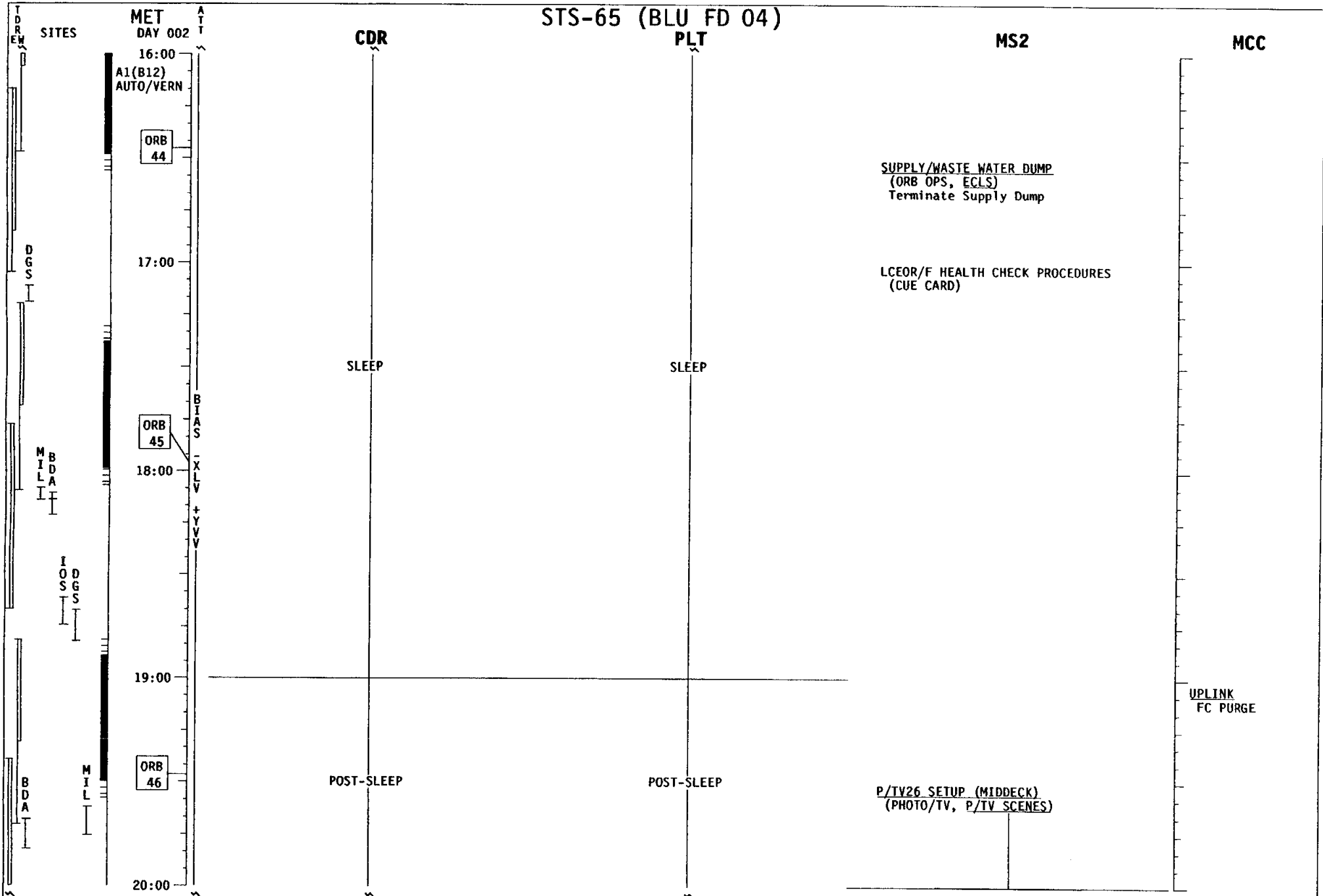


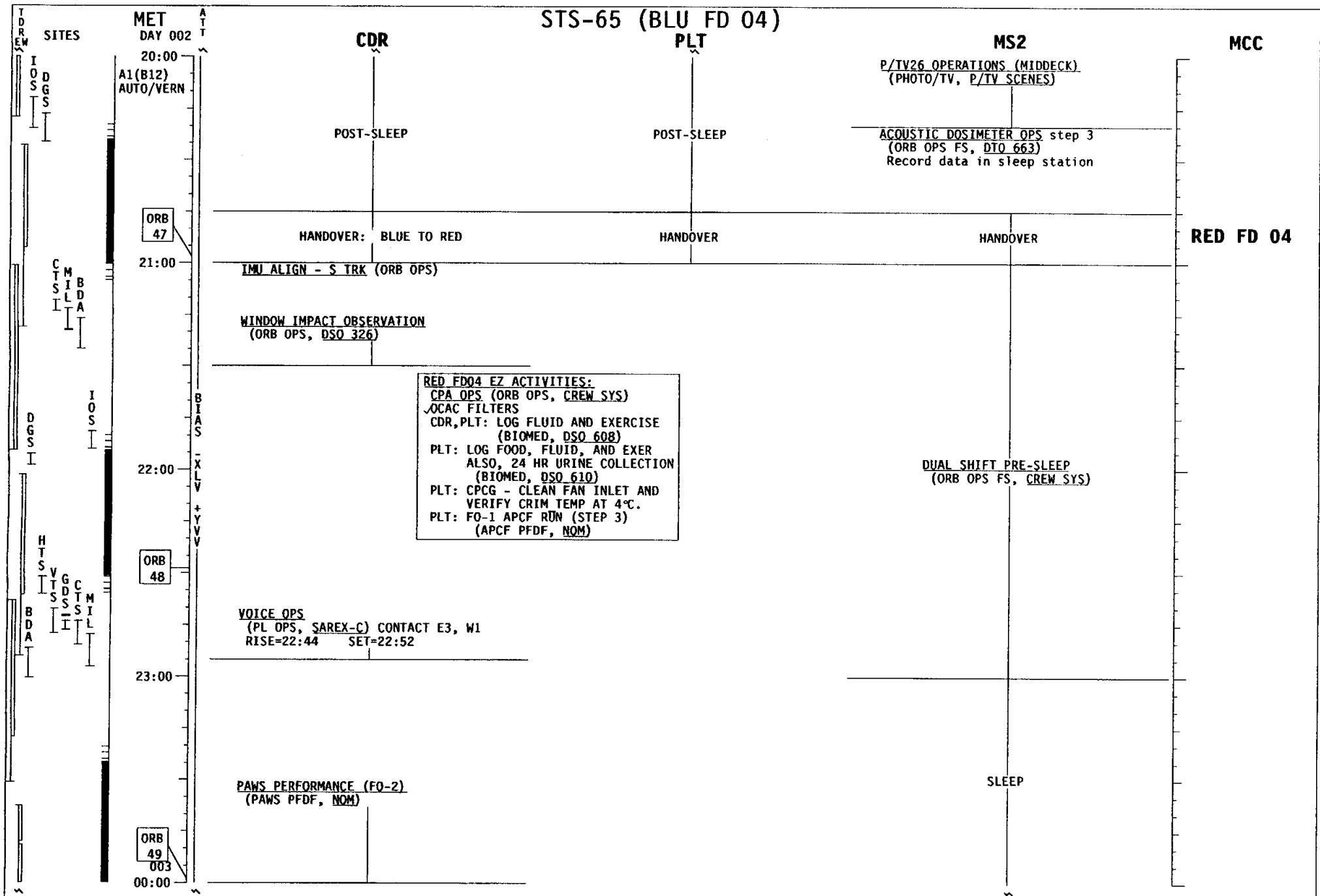


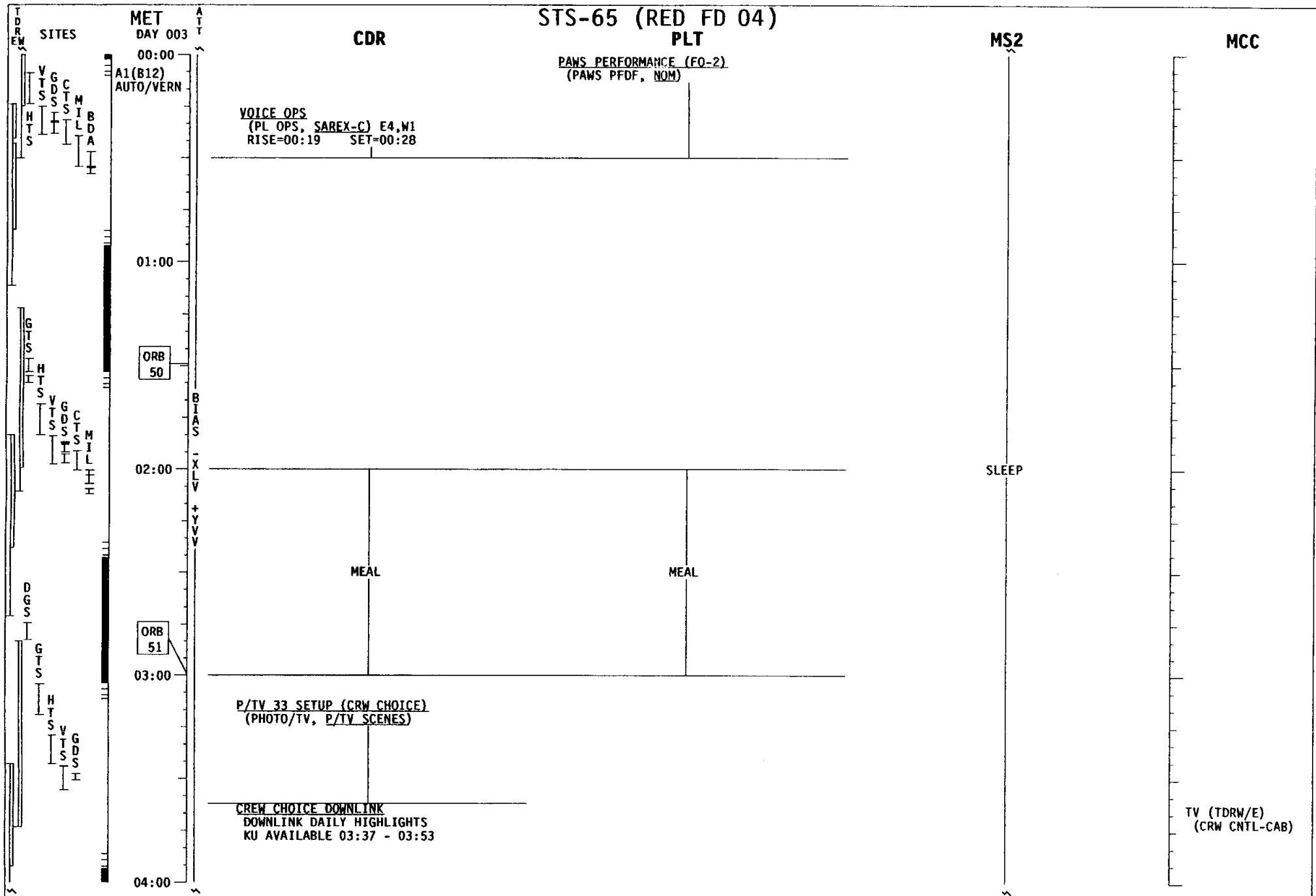


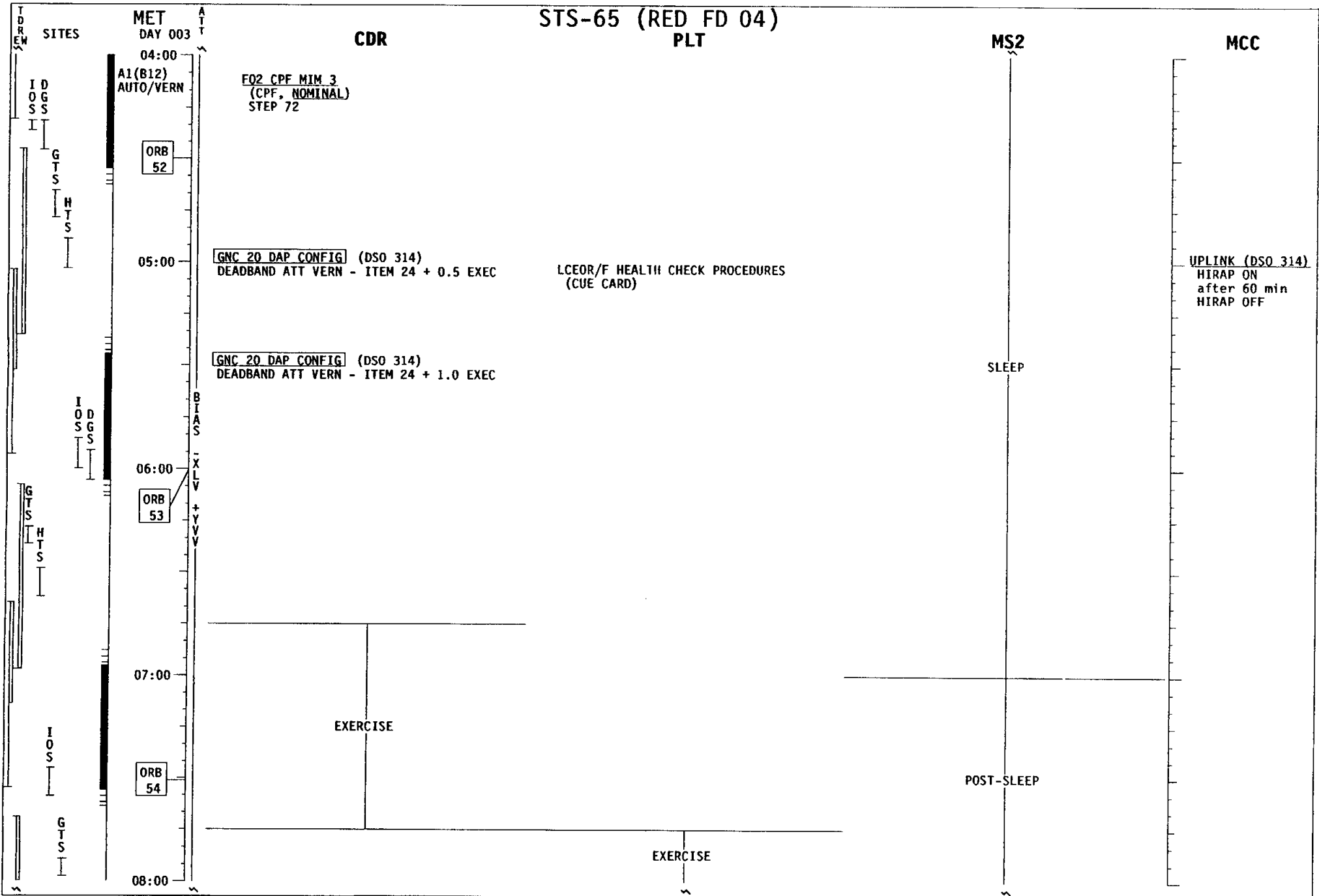


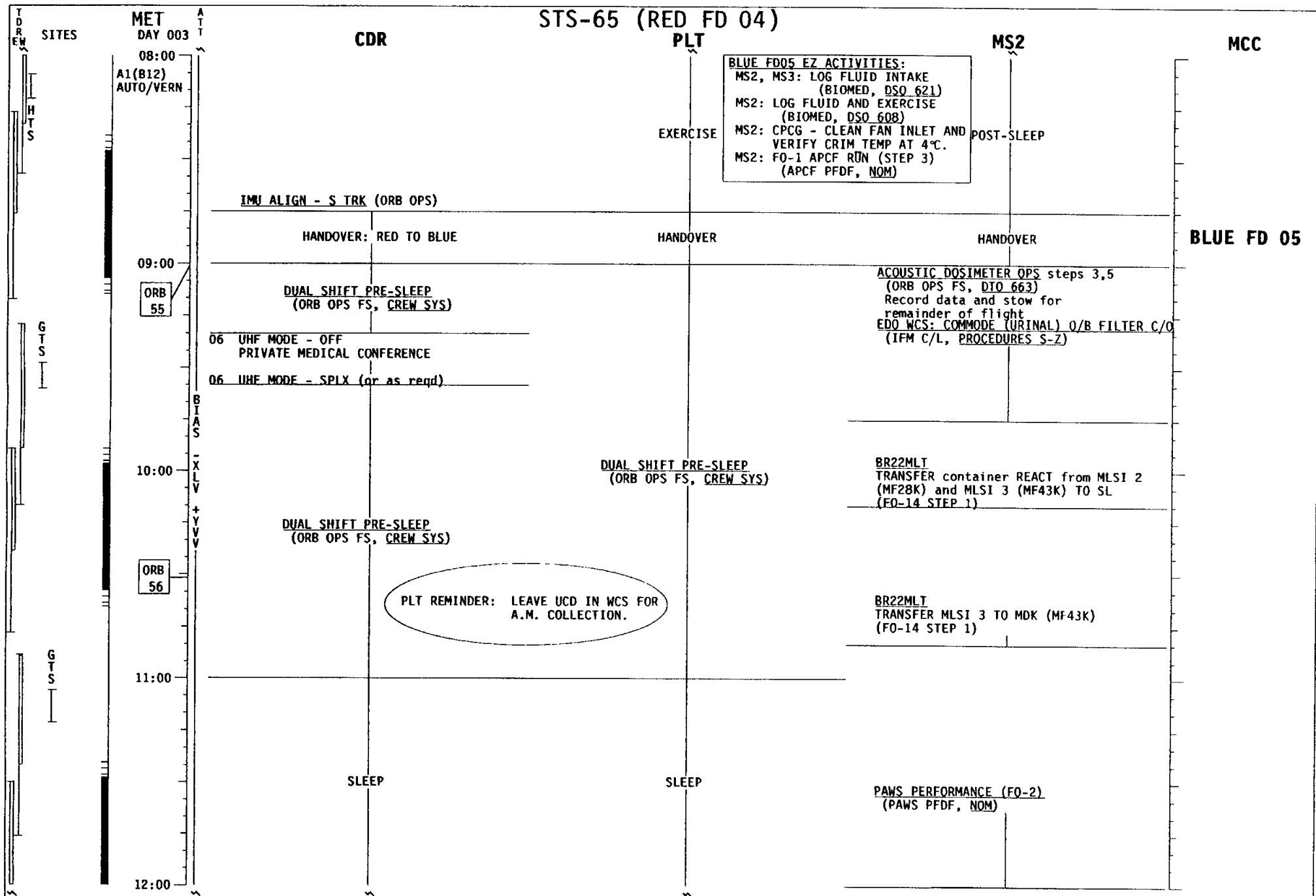
STS-65 (BLU FD 04)



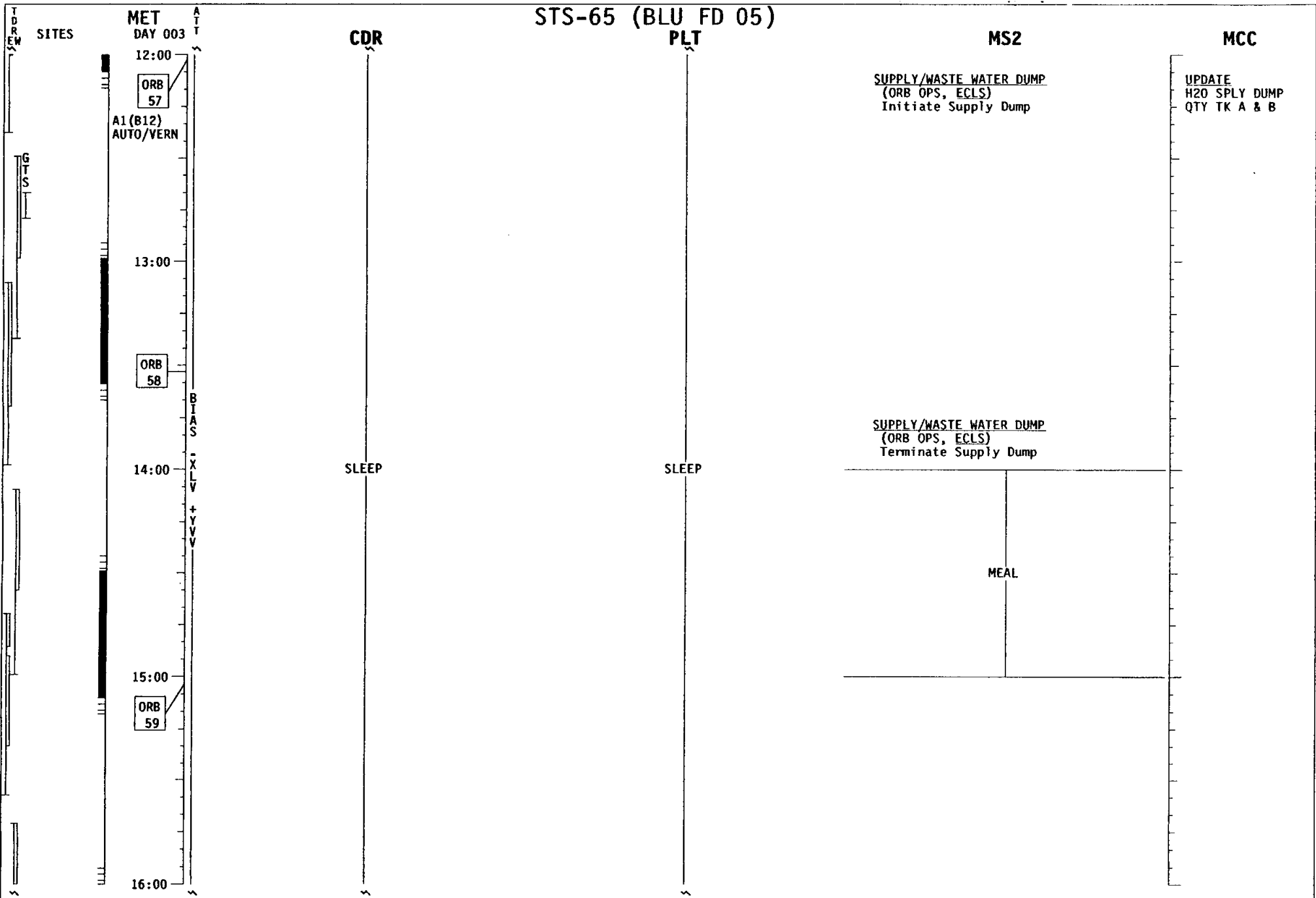




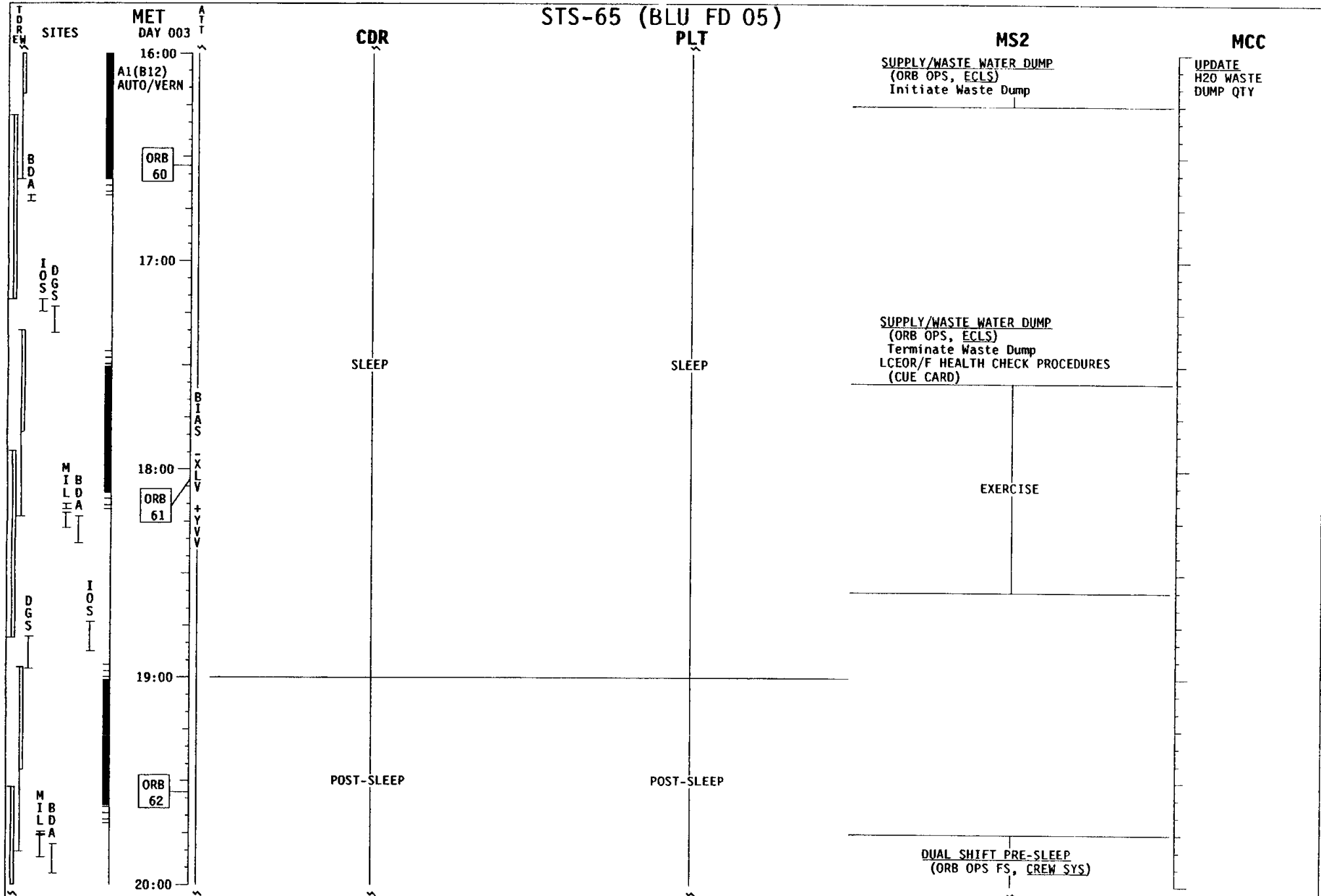


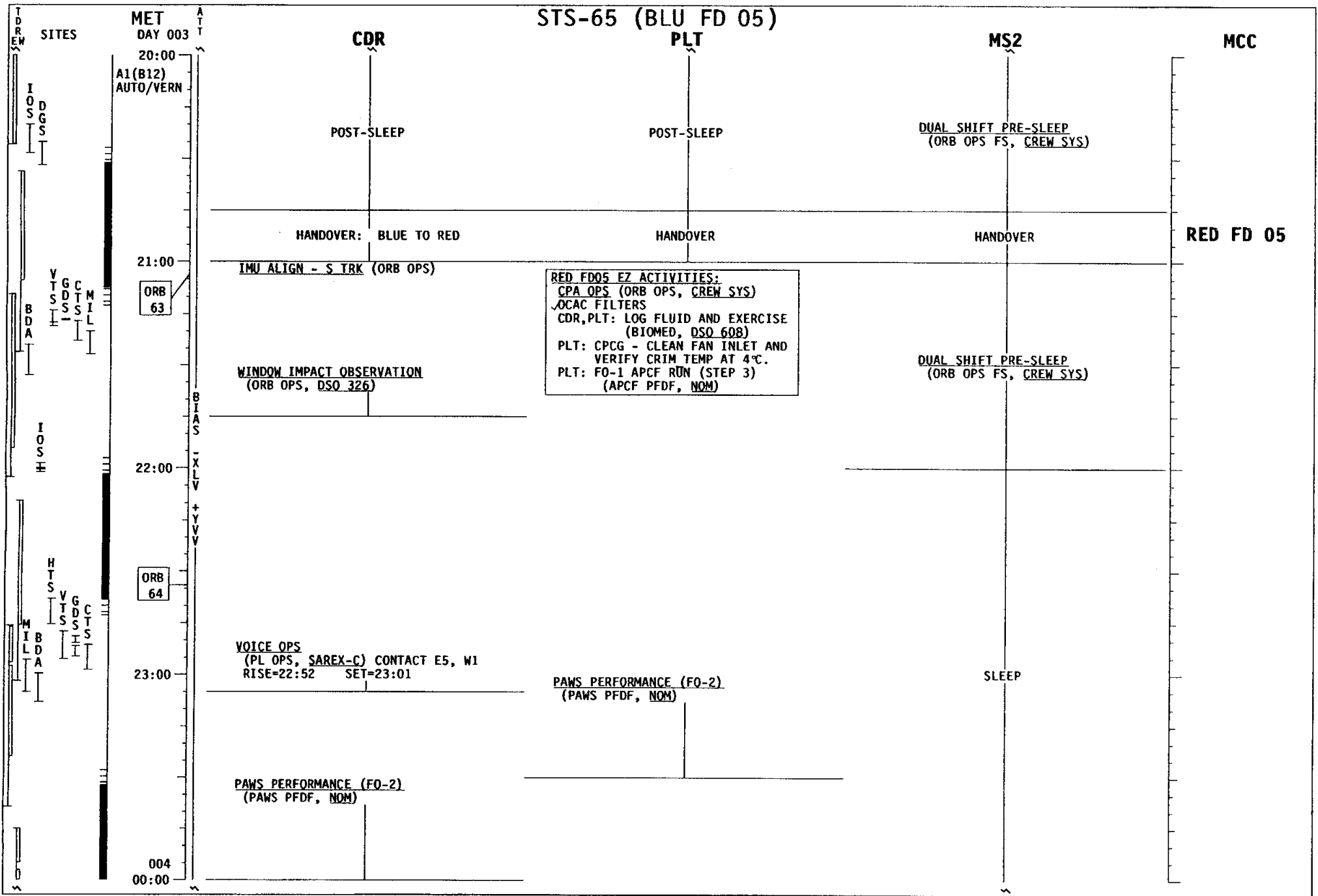


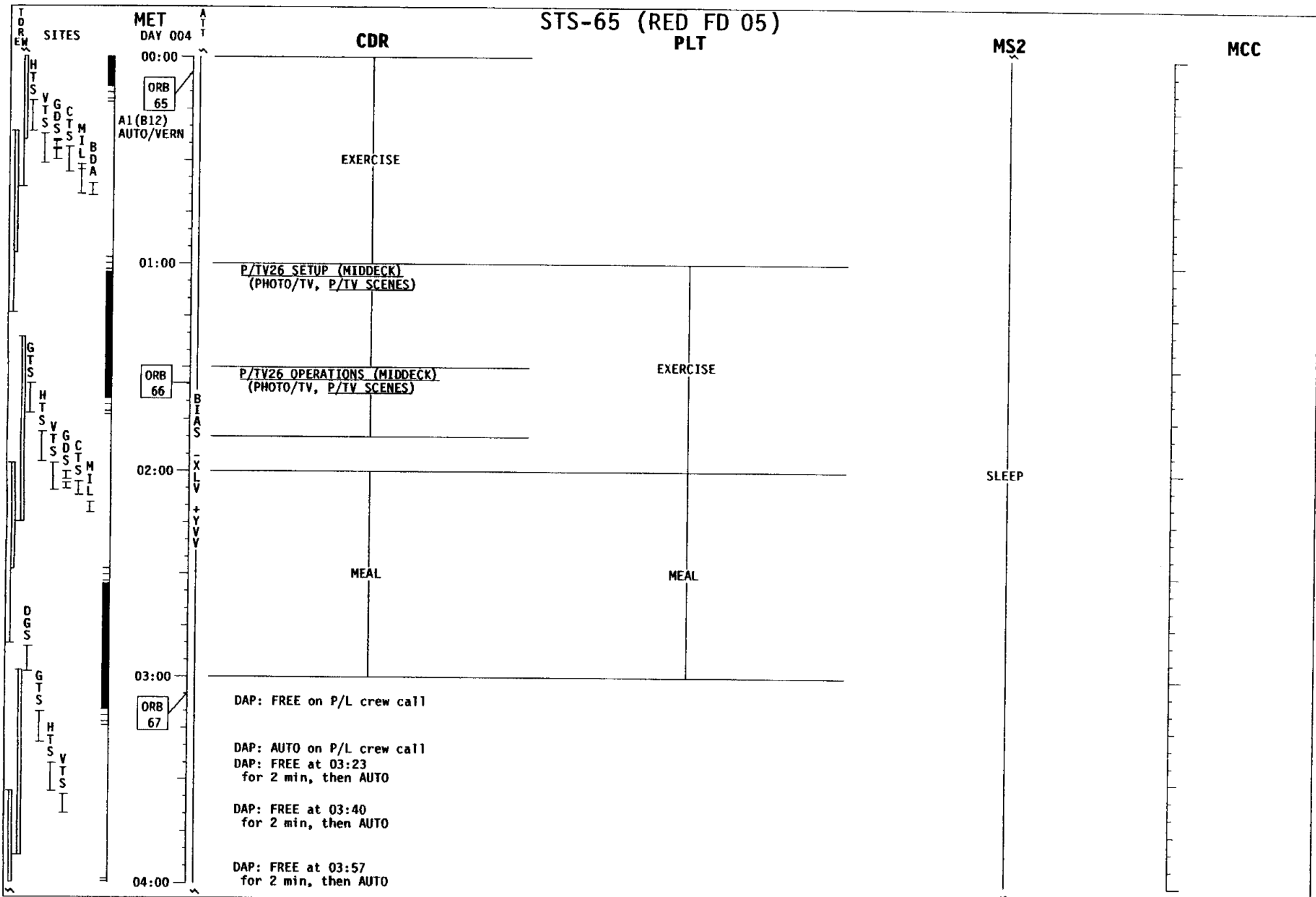
STS-65 (BLU FD 05)

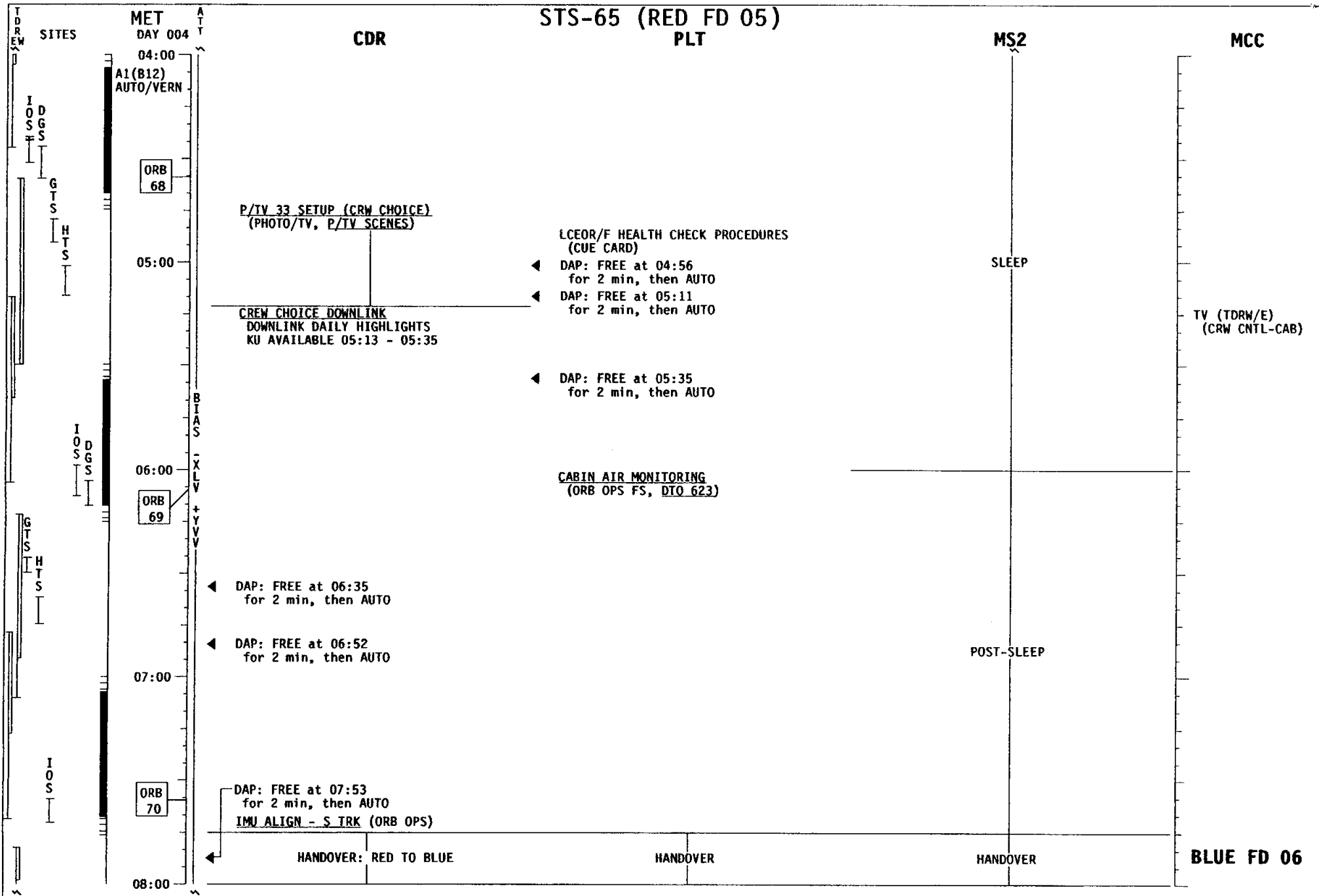


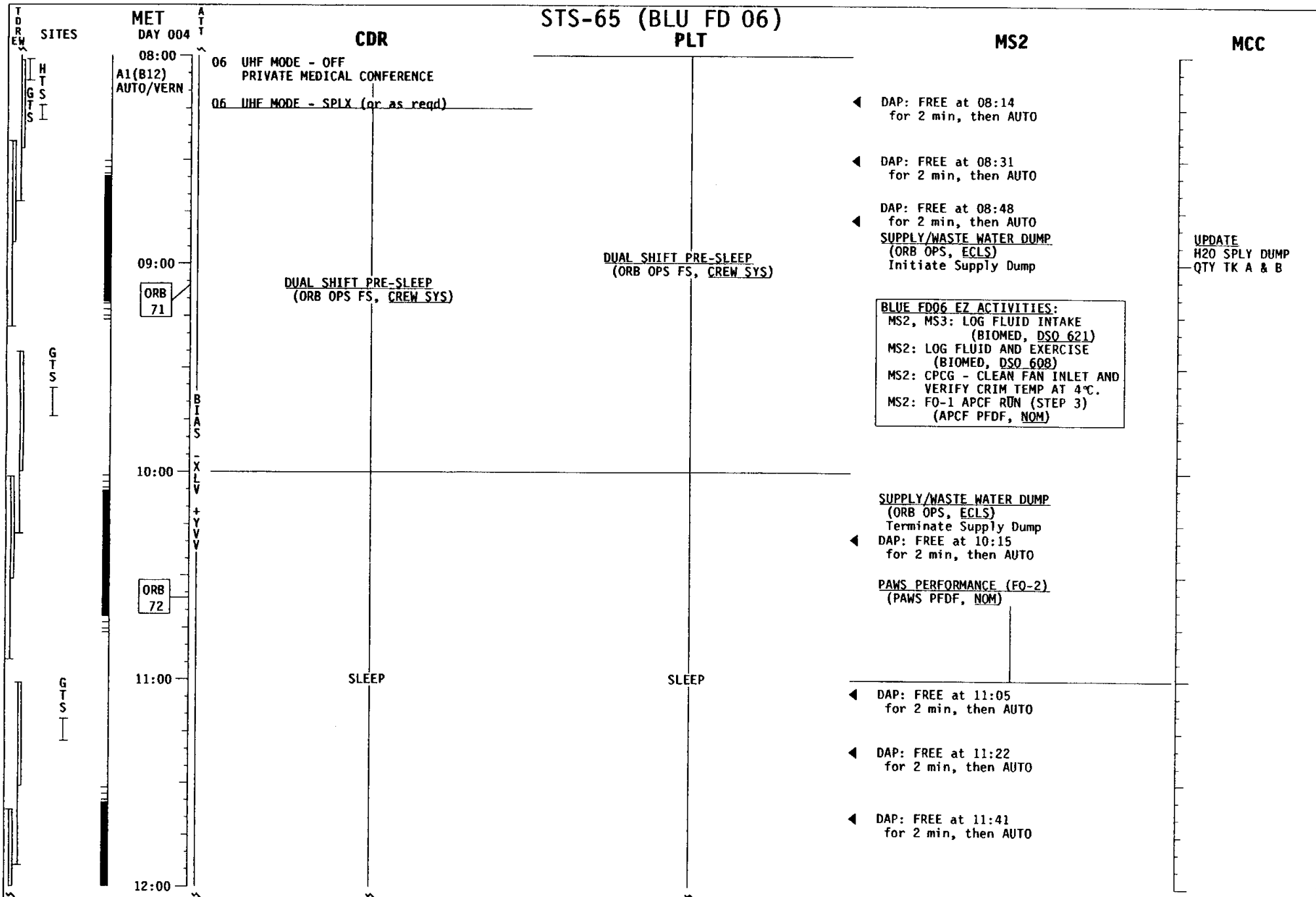
STS-65 (BLU FD 05)



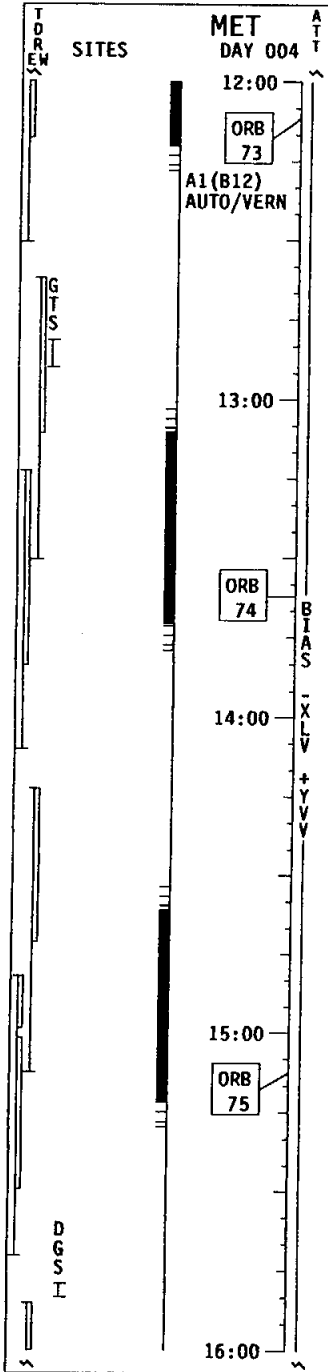








STS-65 (BLU FD 06)



CDR

SLEEP

PLT

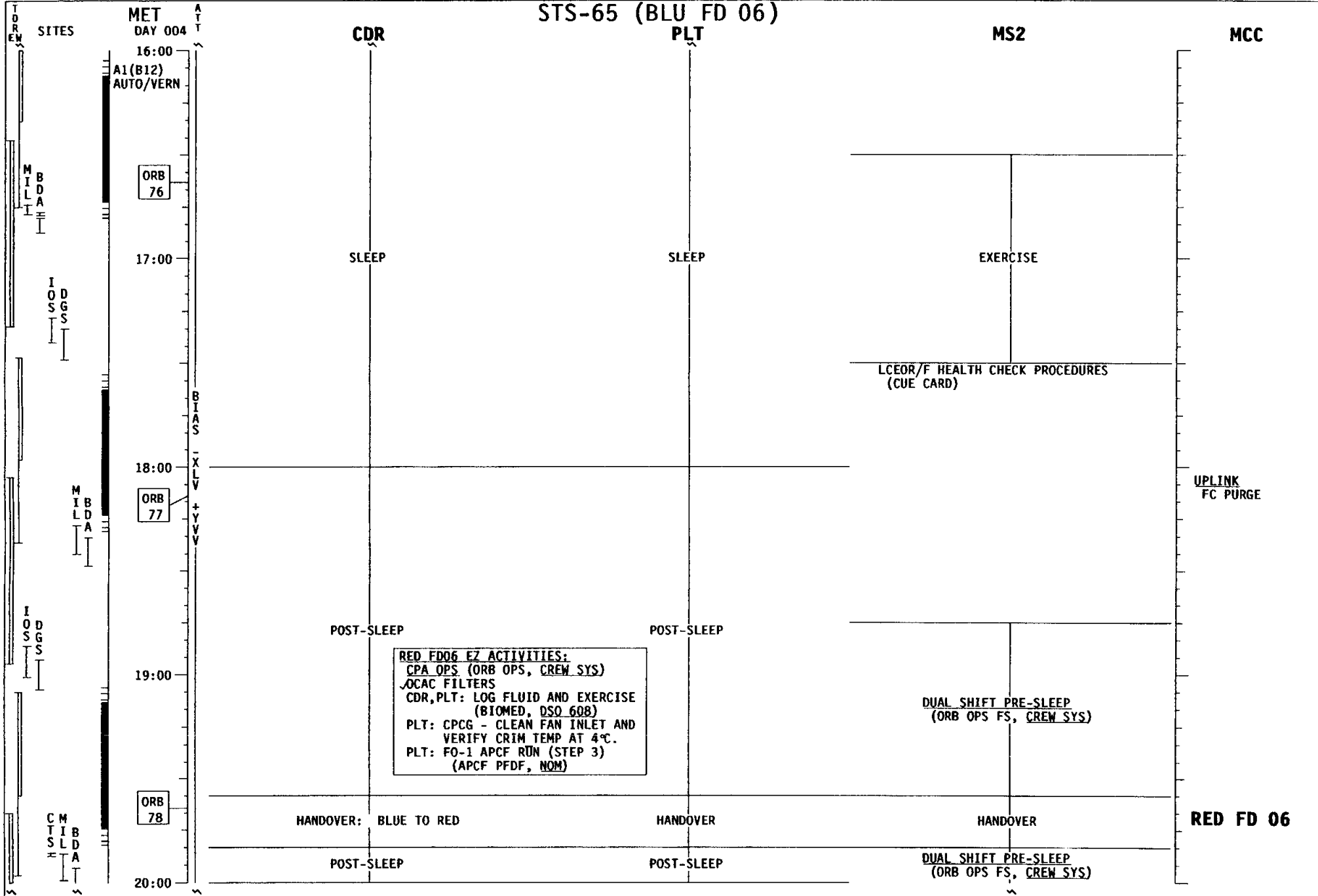
SLEEP

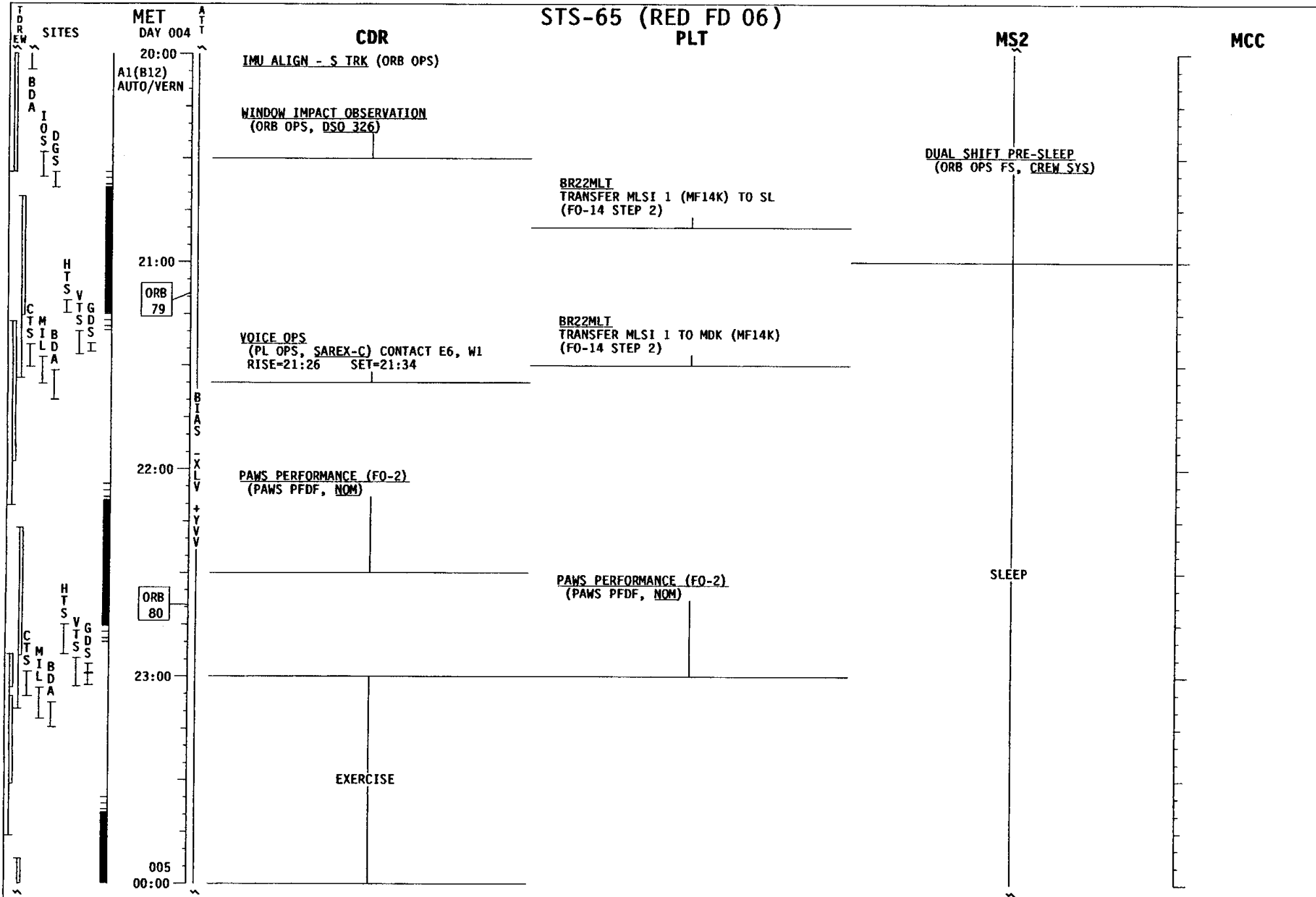
MS2

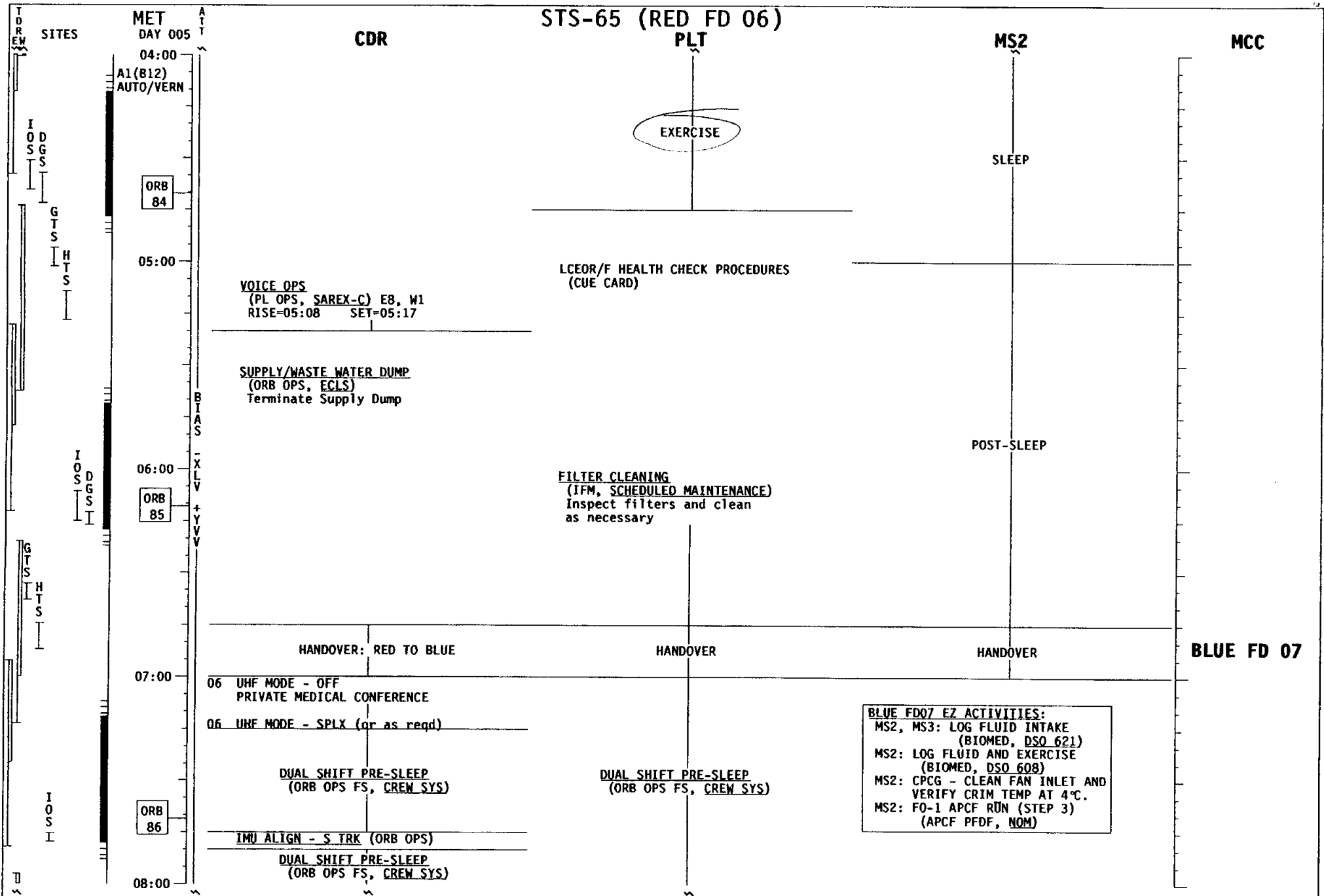
- ◀ DAP: FREE at 12:00 for 2 min, then AUTO
- P/TV26 SETUP (MIDDECK) (PHOTO/TV, P/TV SCENES)
- P/TV26 OPERATIONS (MIDDECK) (PHOTO/TV, P/TV SCENES)
- ◀ DAP: FREE at 12:59 for 2 min, then AUTO
- ◀ DAP: FREE at 13:17 for 2 min, then AUTO
- ◀ DAP: FREE at 13:32 for 2 min, then AUTO MEAL
- ◀ DAP: FREE at 13:47 for 2 min, then AUTO
- ◀ DAP: FREE at 14:17 for 2 min, then AUTO
- ◀ DAP: FREE at 14:34 for 2 min, then AUTO
- ◀ DAP: FREE at 15:03 for 2 min, then AUTO

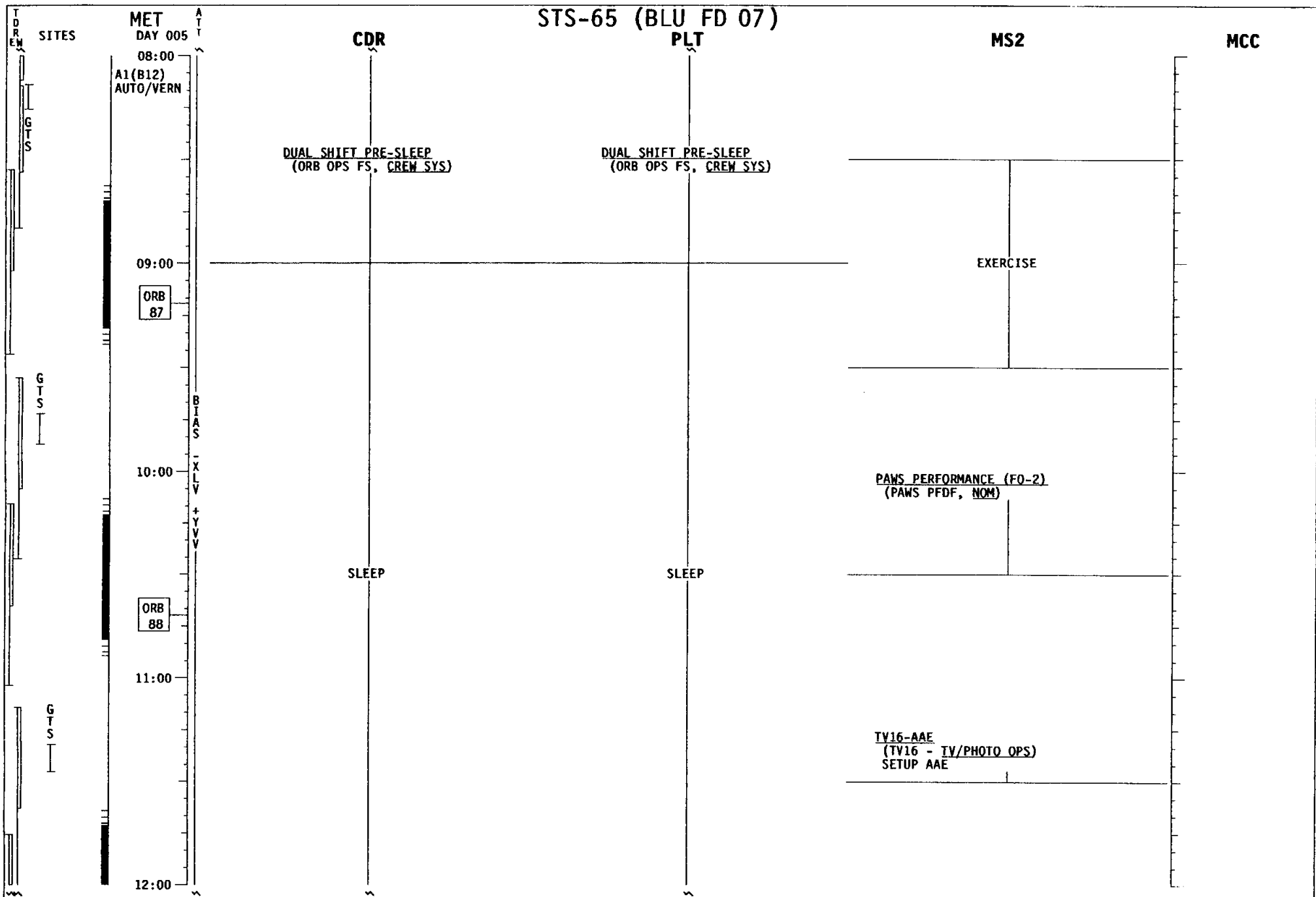
MCC

STS-65 (BLU FD 06)

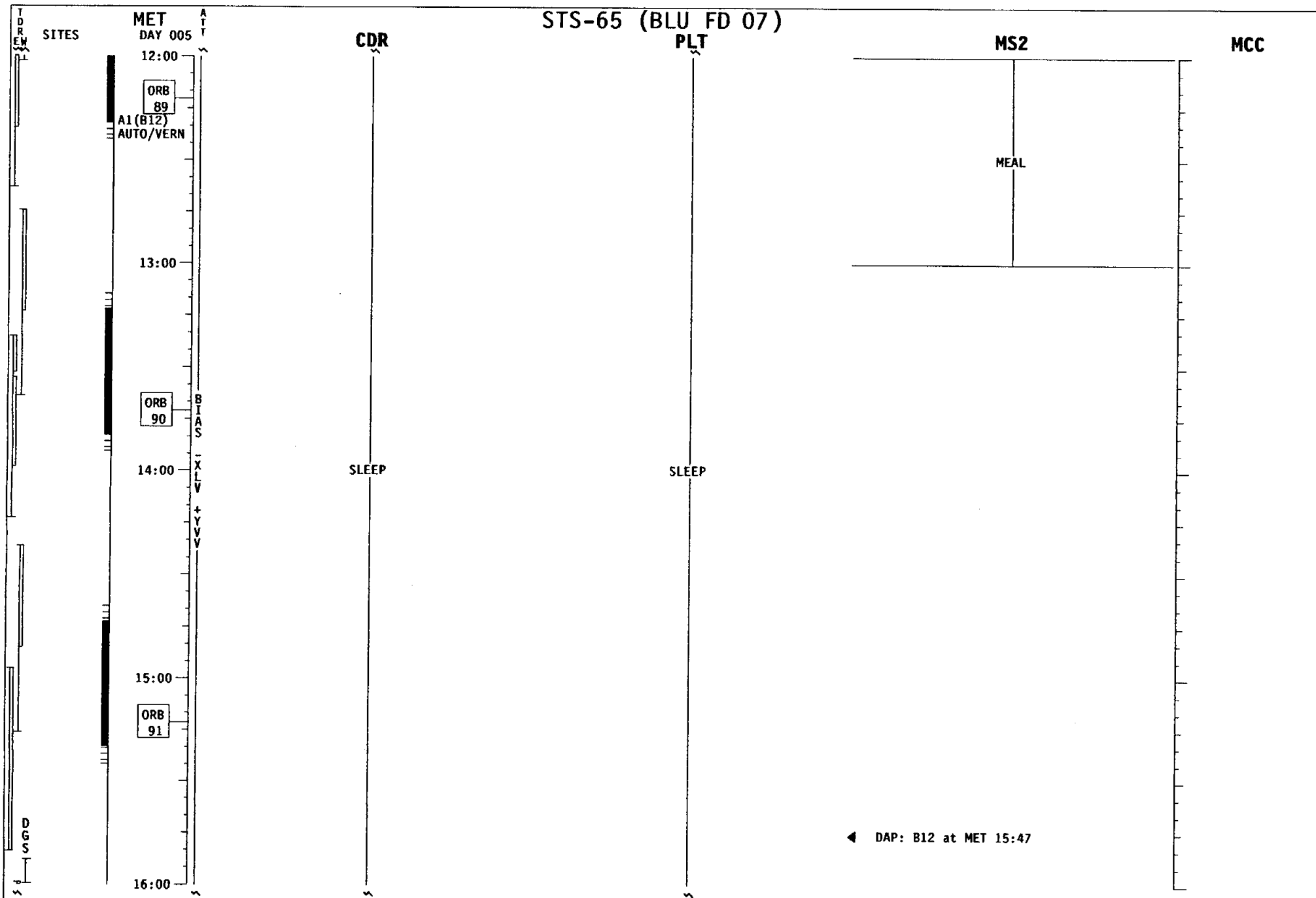




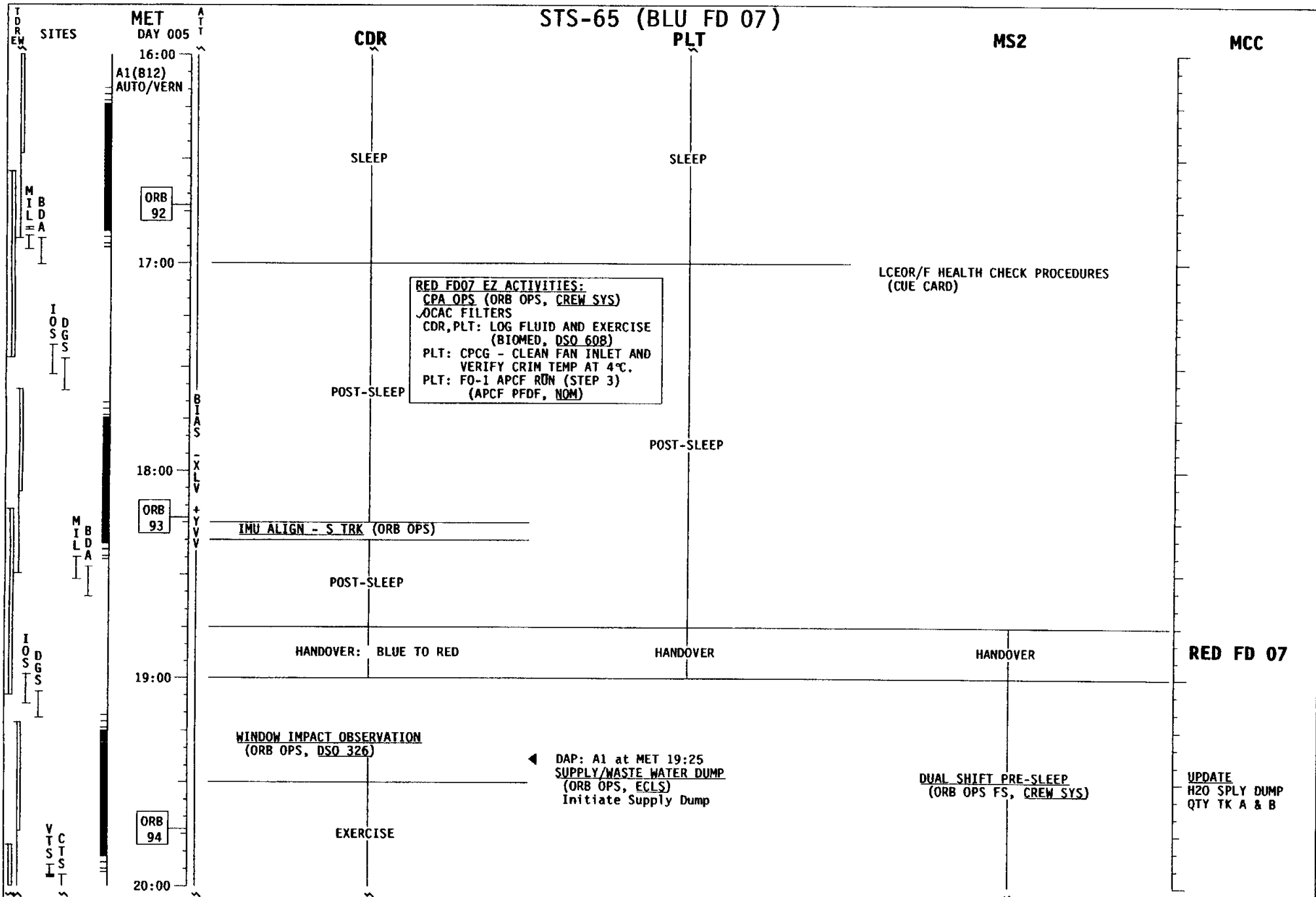


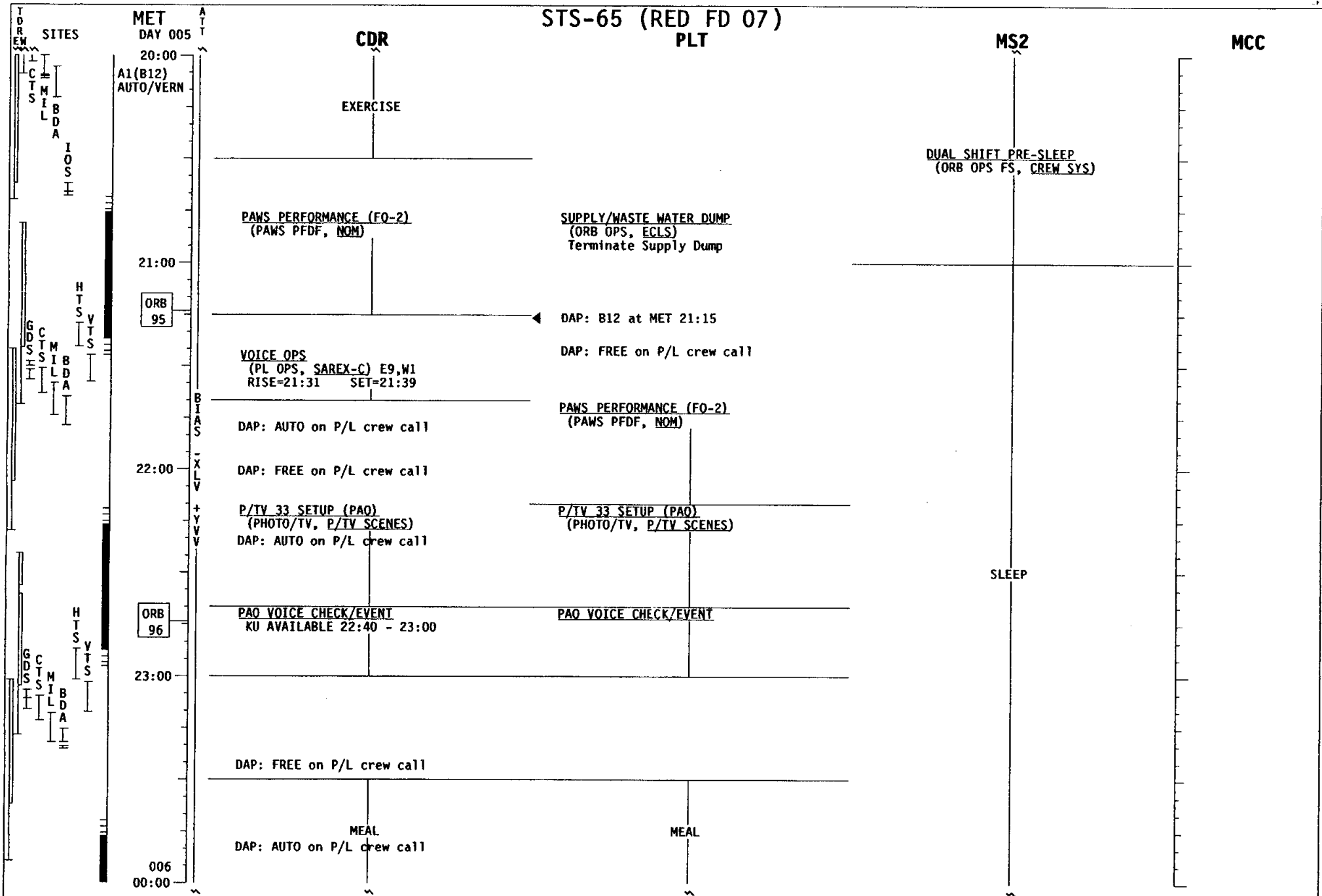


STS-65 (BLU FD 07)

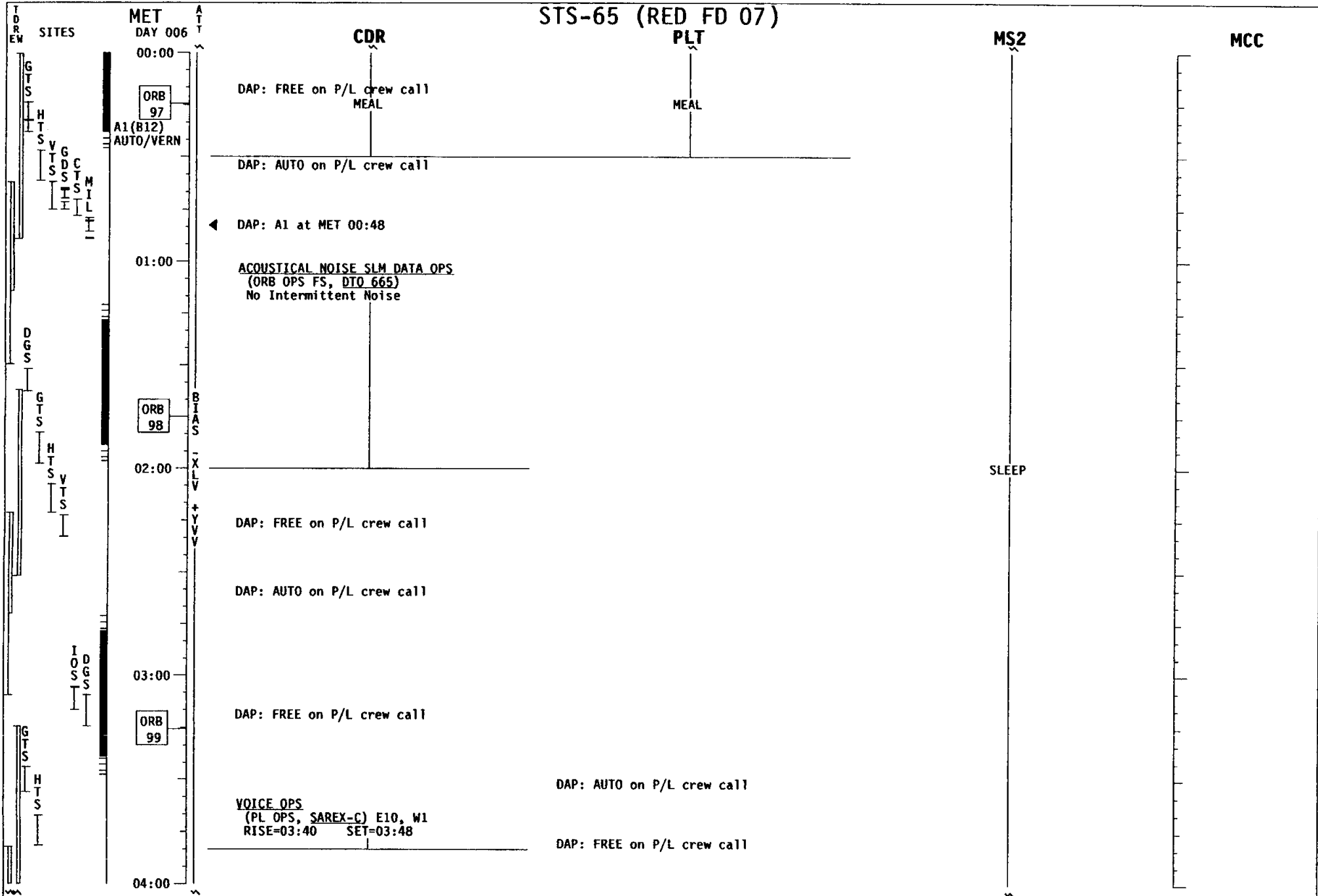


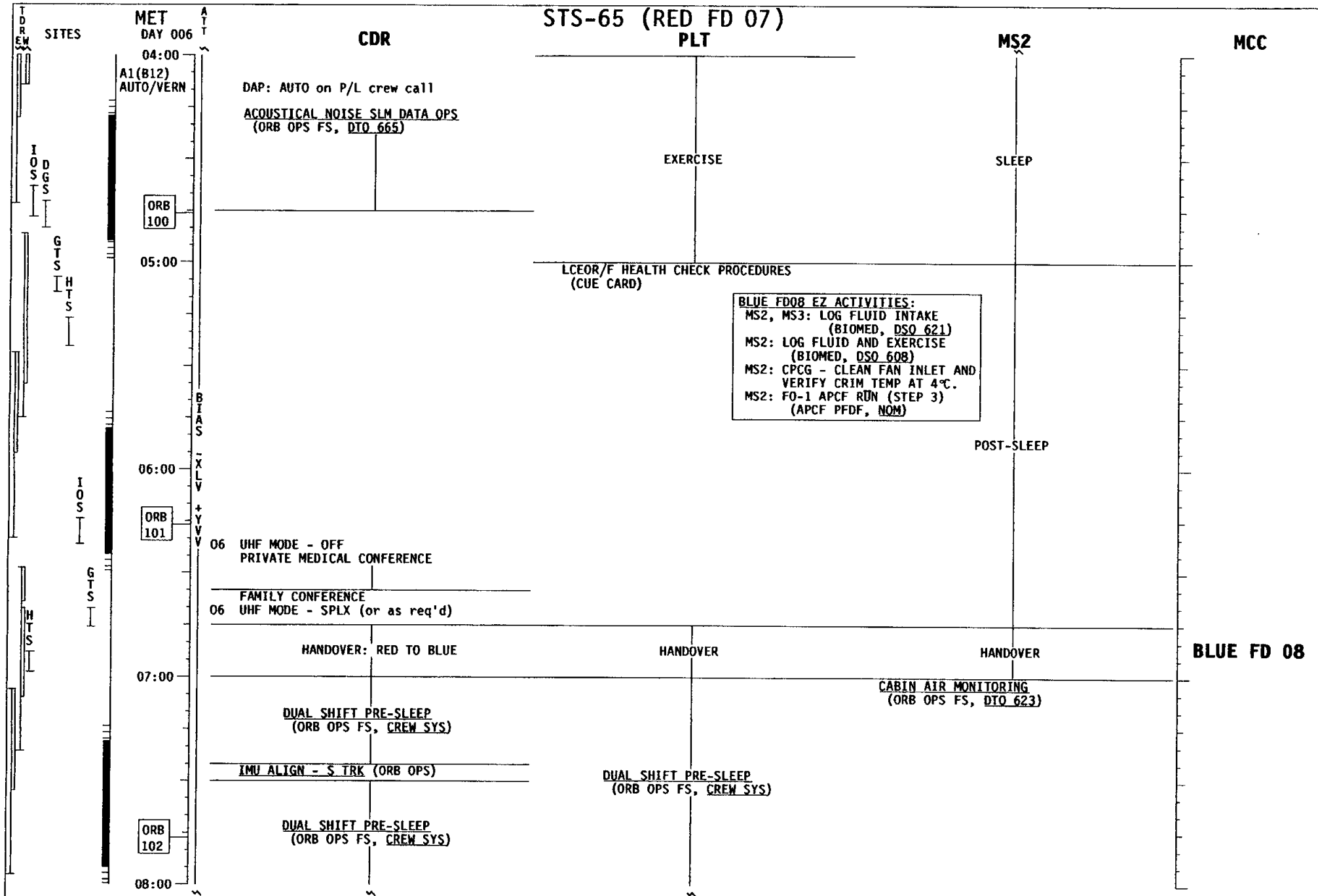
STS-65 (BLU FD 07)

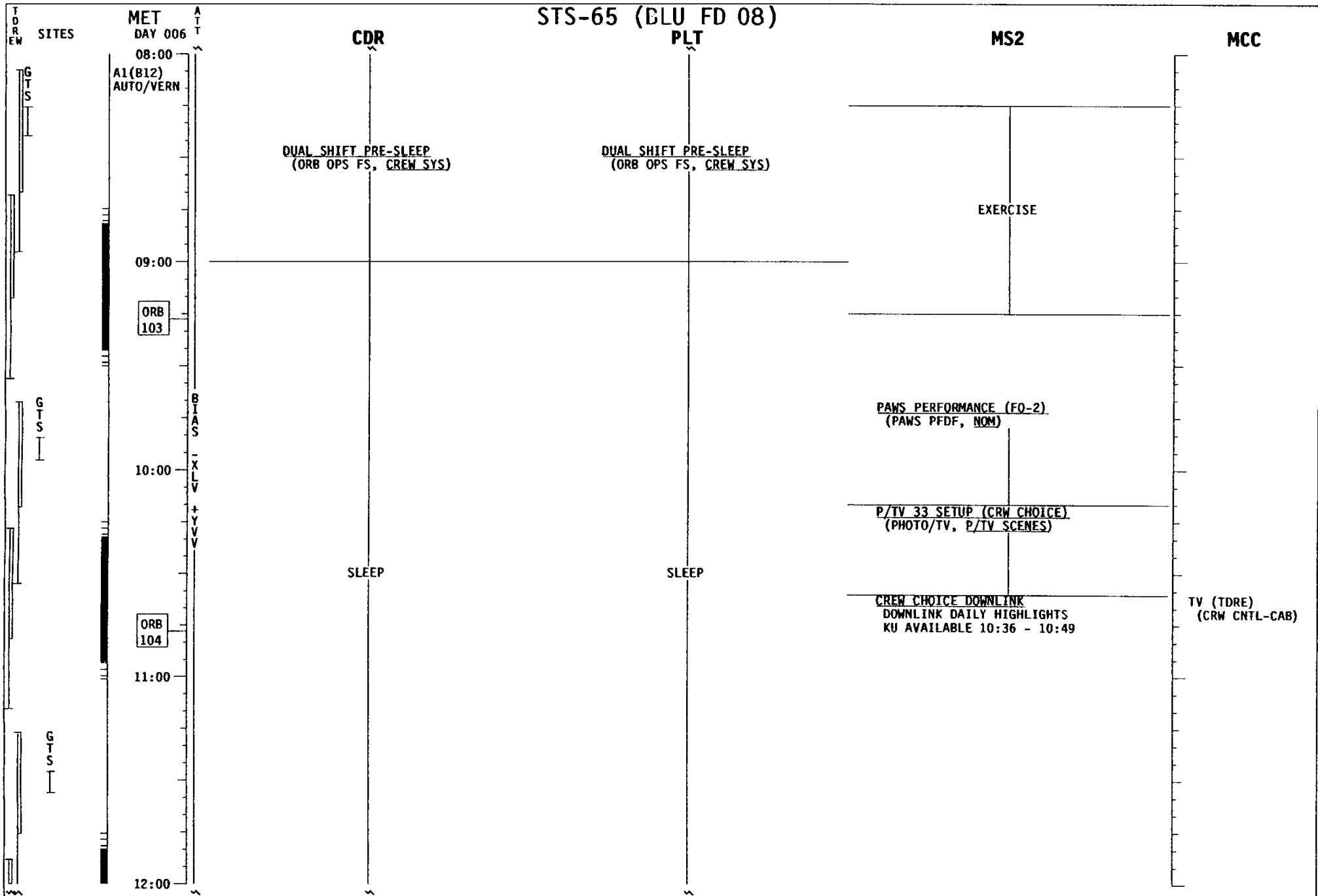




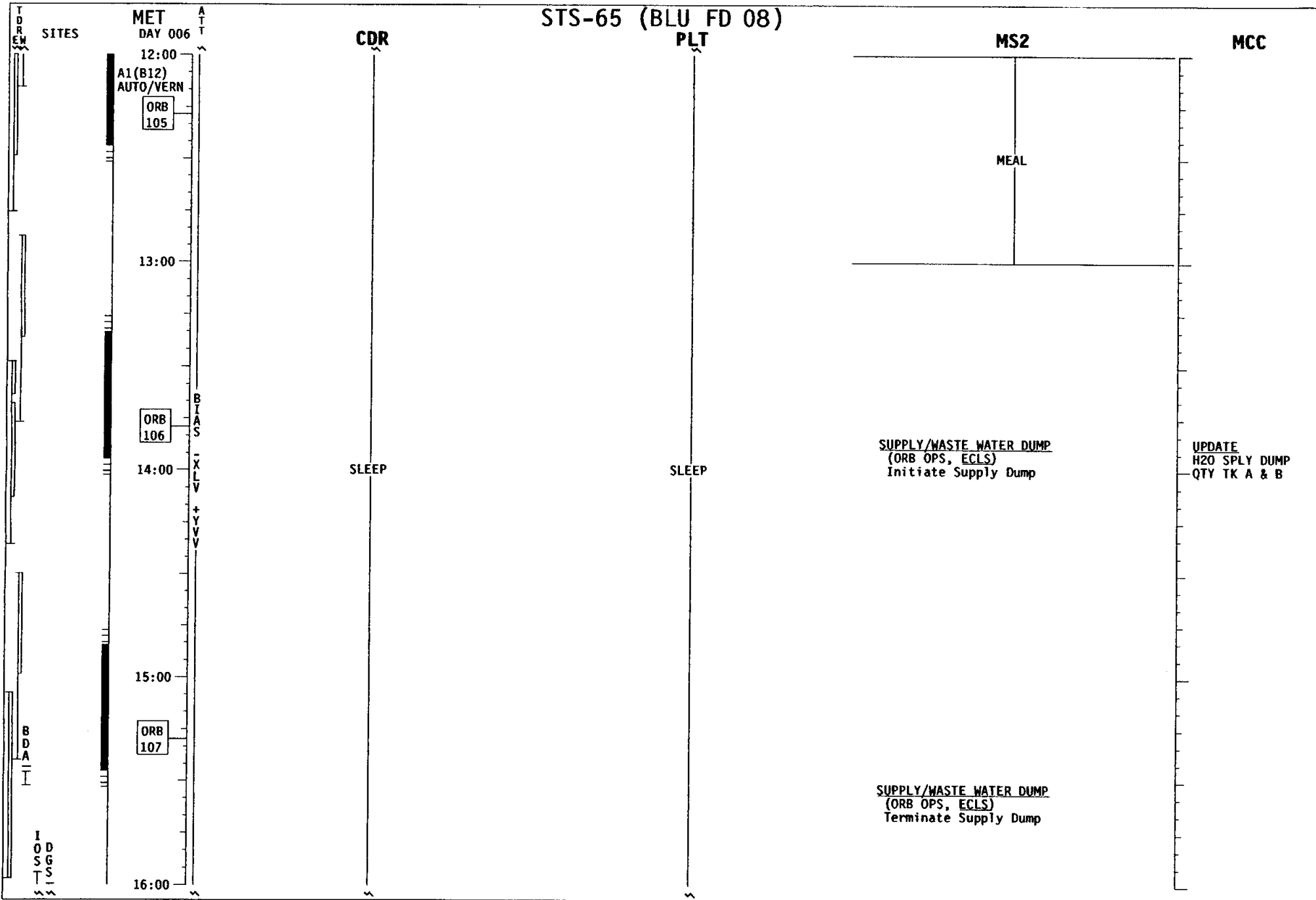
STS-65 (RED FD 07)



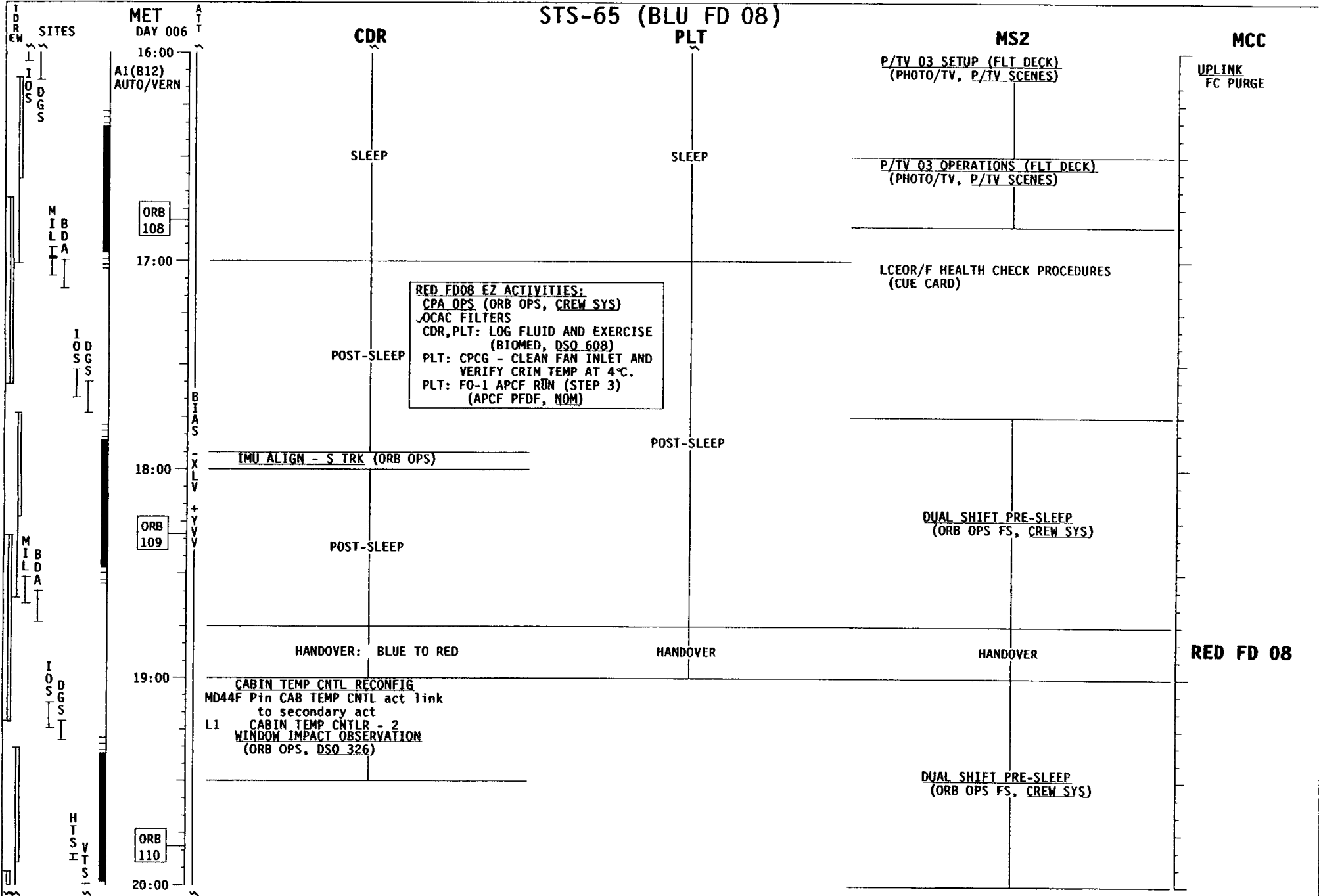




STS-65 (BLU FD 08)



STS-65 (BLU FD 08)



CDR
SITES
MET DAY 006
20:00
A1(B12)
AUTO/VERN
21:00
ORB 111
22:00
ORB 112
23:00
007
00:00

HTS
VTSS
GDTSS
MIL
BDA
HTS
VTSS
GDTSS
MIL
BDA
HTS
VTSS
GDTSS
MIL
BDA

HTS
VTSS
GDTSS
MIL
BDA

HTS
VTSS
GDTSS
MIL
BDA

STS-65 (RED FD 08)
PLT

CDR

MS2

MCC

RCS REGULATOR RECONFIGURE
07/08 He PRESS A (three) - OP (tb-OP)
B (three) - OP (tb-OP)
A (three) - CL (tb-CL)
B (three) - GPC (tb-OP)

CO2 REM SYS CNTL 1(2) CONFIG
(ORB OPS, ECLS)

HEATER RECONFIG-Config B
(ORB OPS, EPS)

PAWS PERFORMANCE (FO-2)
(PAWS PFDF, NOM)

VOICE OPS
(PL OPS, SAREX-C) CONTACT E11, W1
RISE=21:38 SET=21:47

PAWS PERFORMANCE (FO-2)
(PAWS PFDF, NOM)

P/TV 33 SETUP (PAO)
(PHOTO/TV, P/TV SCENES)

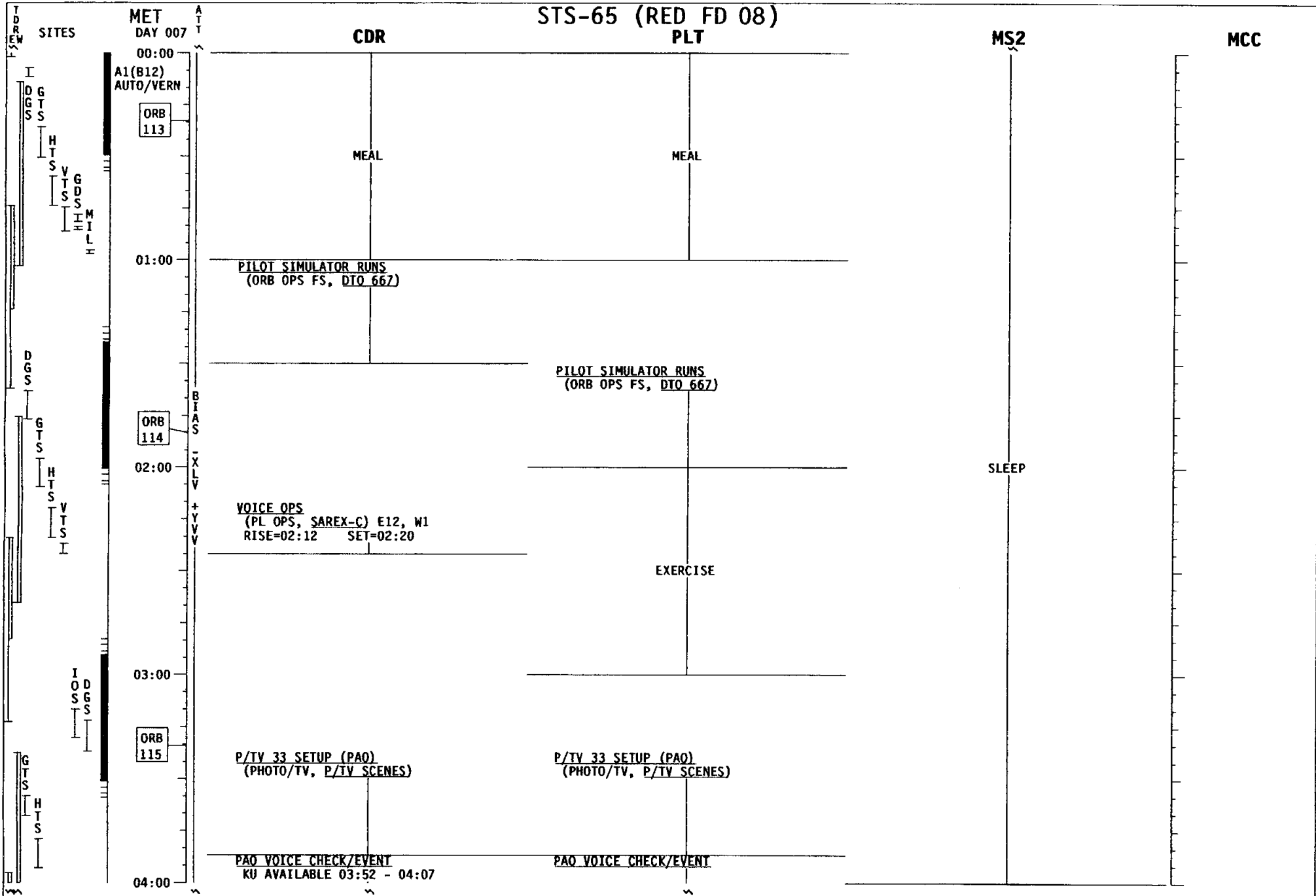
P/TV 33 SETUP (PAO)
(PHOTO/TV, P/TV SCENES)

PAO VOICE CHECK/EVENT
KU AVAILABLE 23:02 - 23:15

PAO VOICE CHECK/EVENT

SLEEP

STS-65 (RED FD 08)



TDR EM SITES
 MET DAY 007
 04:00
 A1(B12) AUTO/VERN
 I O S G S
 G T S H T S
 B I A S
 - X L V
 06:00
 + Y V V
 I O S
 G T S
 07:00
 08:00
 ORB 116
 ORB 117
 ORB 118

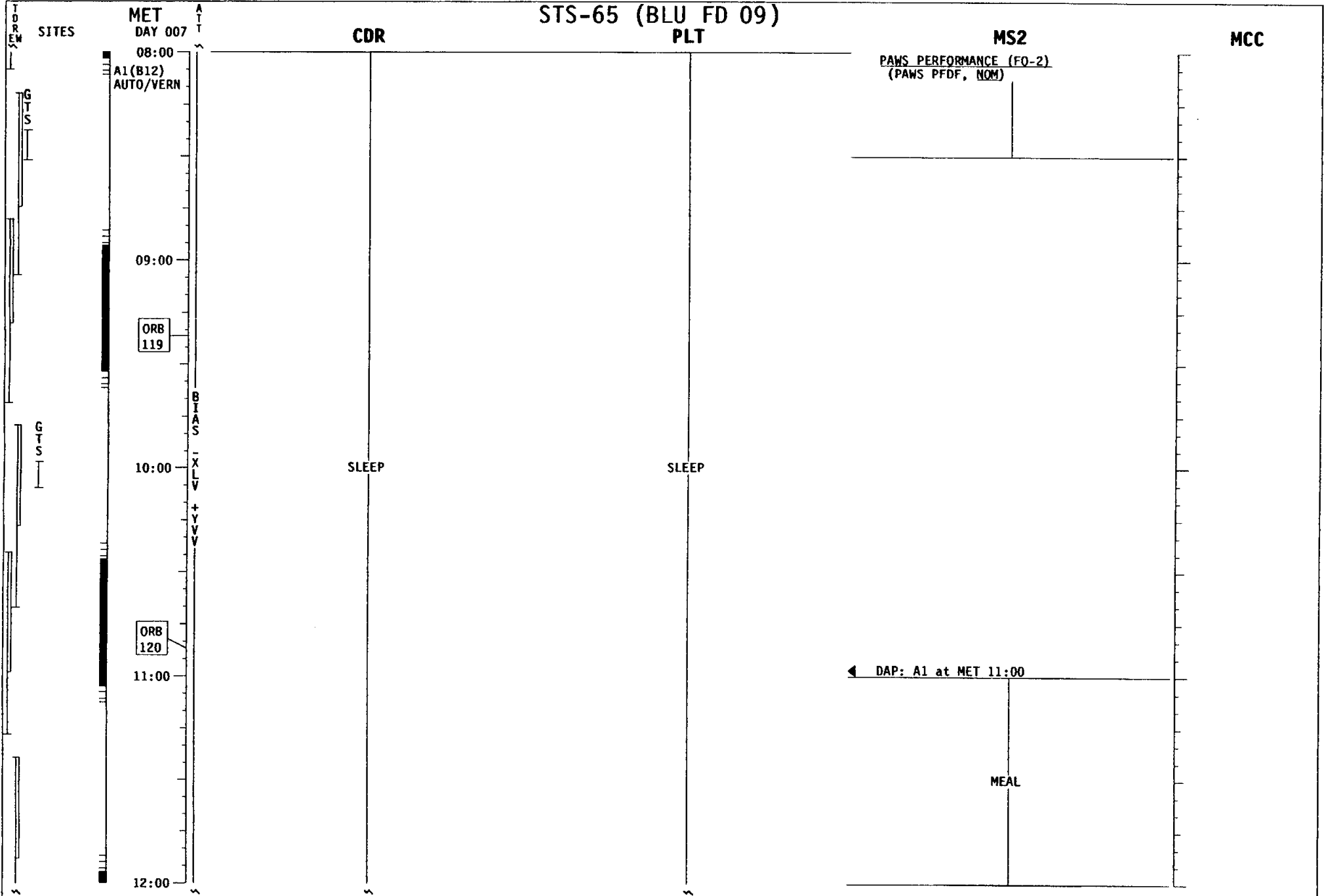
STS-65 (RED FD 08)
PLT

CDR	PLT	MS2	MCC
PAO VOICE CHECK/EVENT	PAO VOICE CHECK/EVENT		
	LCEOR/F HEALTH CHECK PROCEDURES (CUE CARD)	POST-SLEEP	
EXERCISE			
HANDOVER: RED TO BLUE	HANDOVER	HANDOVER	
06 UHF MODE - OFF PRIVATE MEDICAL CONFERENCE	IMJ ALIGN - S TRK (ORB OPS)		
FAMILY CONFERENCE 06 UHF MODE - SPLX (or as req'd)		EXERCISE	
DUAL SHIFT PRE-SLEEP (ORB OPS FS, CREW SYS)	DUAL SHIFT PRE-SLEEP (ORB OPS FS, CREW SYS)		

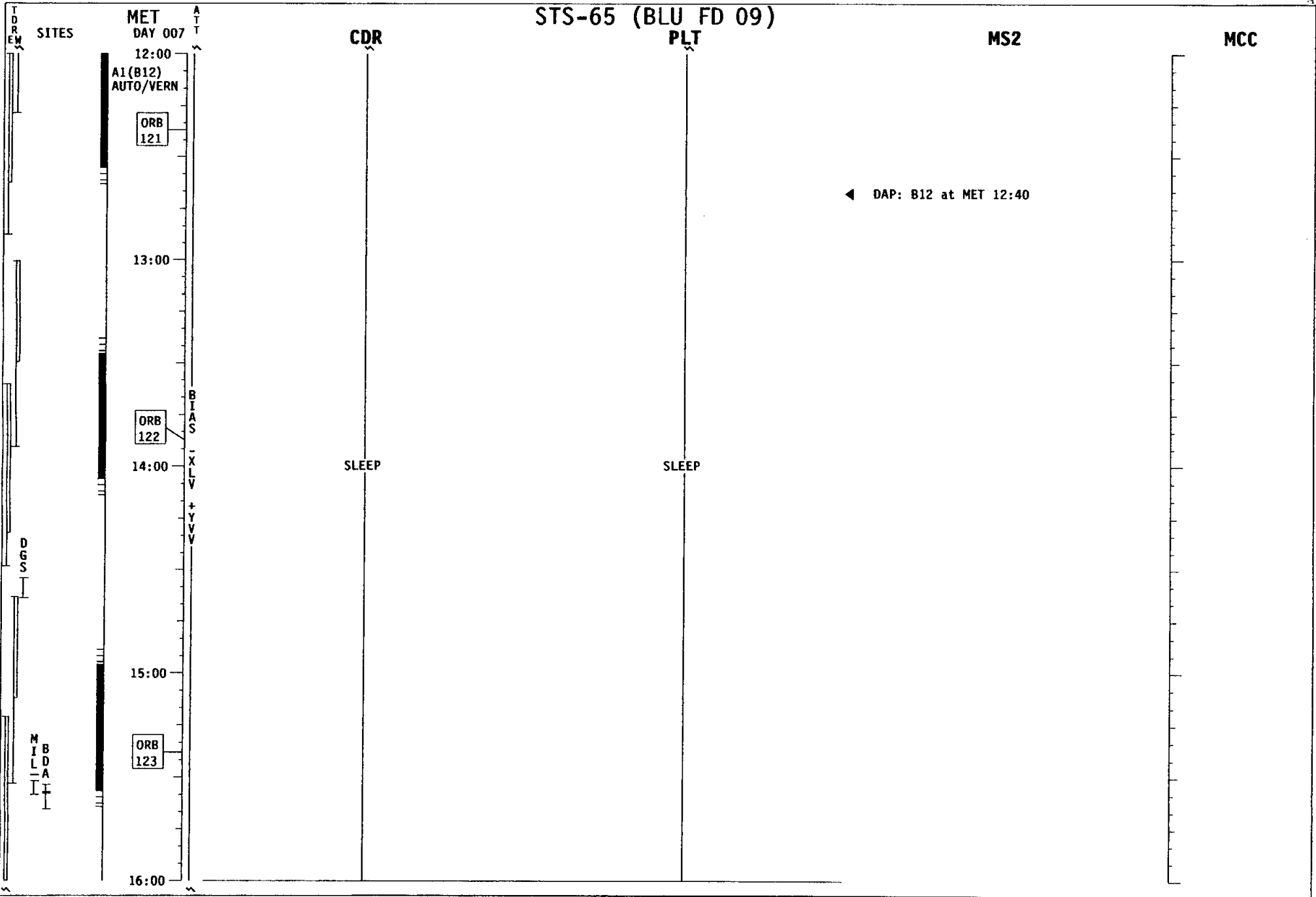
BLUE FD09 EZ ACTIVITIES:
 MS2, MS3: LOG FLUID INTAKE (BIOMED, DSO 621)
 MS2: LOG FLUID AND EXERCISE (BIOMED, DSO 608)
 MS2: CPCG - CLEAN FAN INLET AND VERIFY CRIM TEMP AT 4°C.
 MS2: FO-1 APCF RUN (STEP 3) (APCF PPDF, NOM)

BLUE FD 09

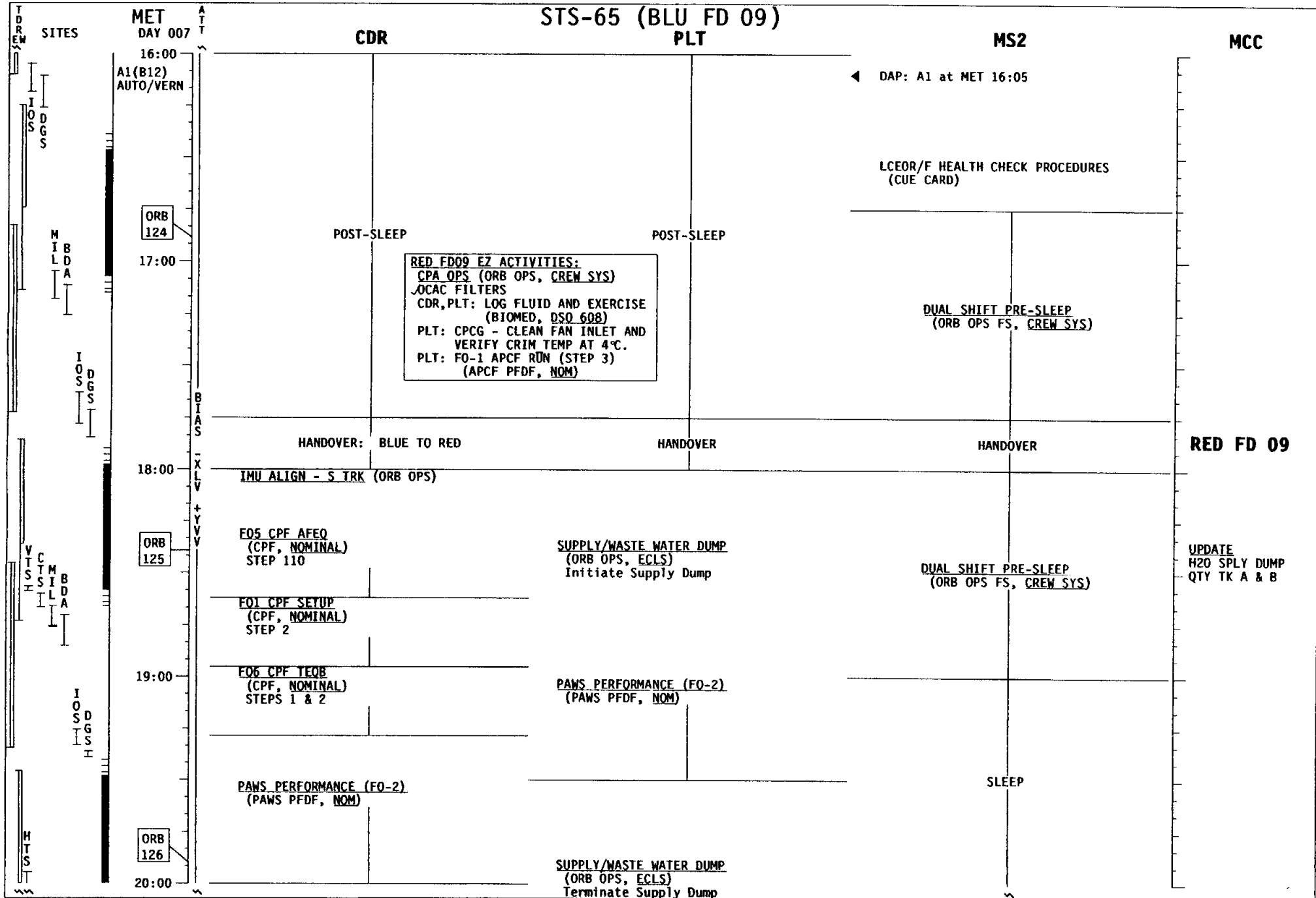
← DAP: B12 at MET 07:05



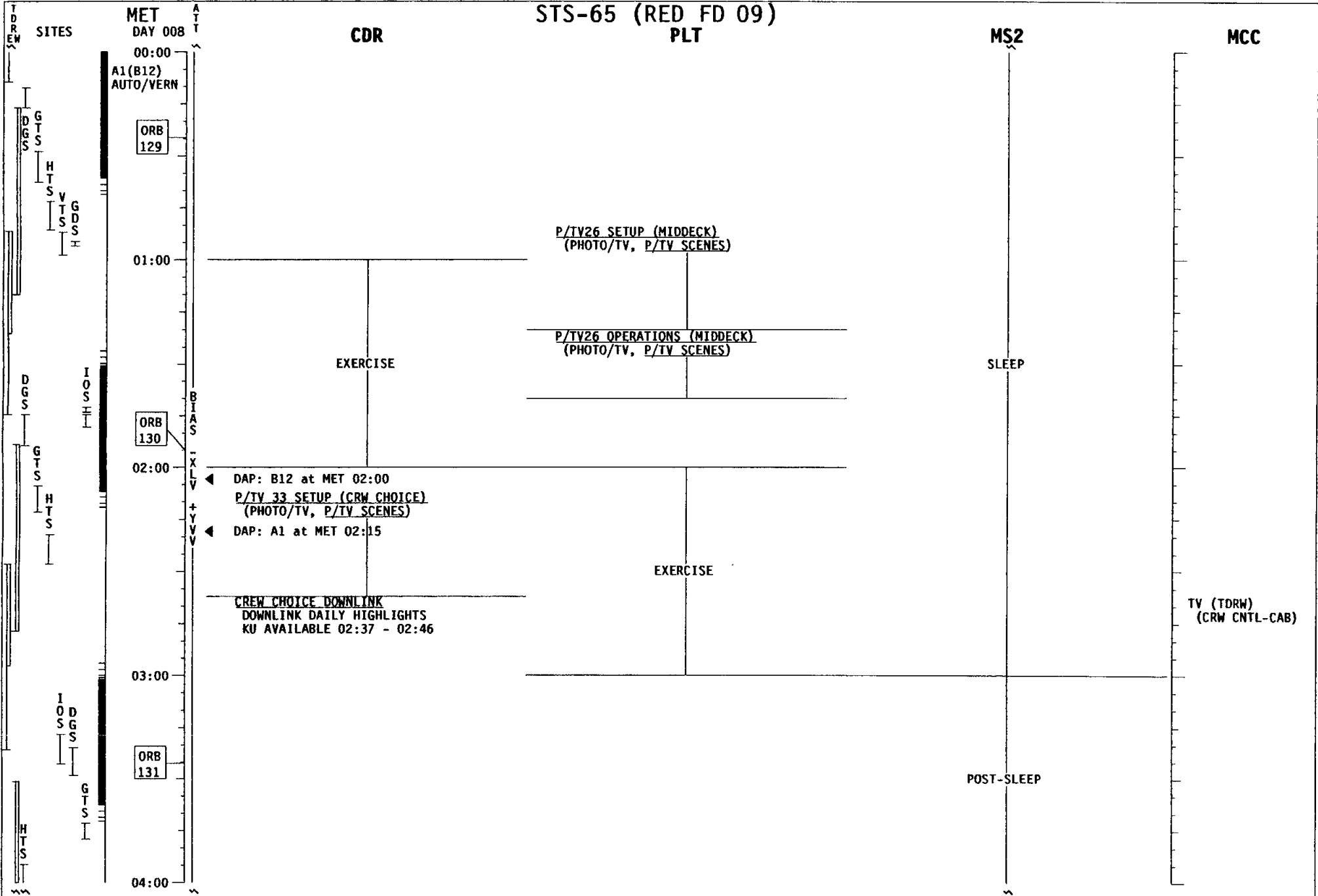
STS-65 (BLU FD 09)

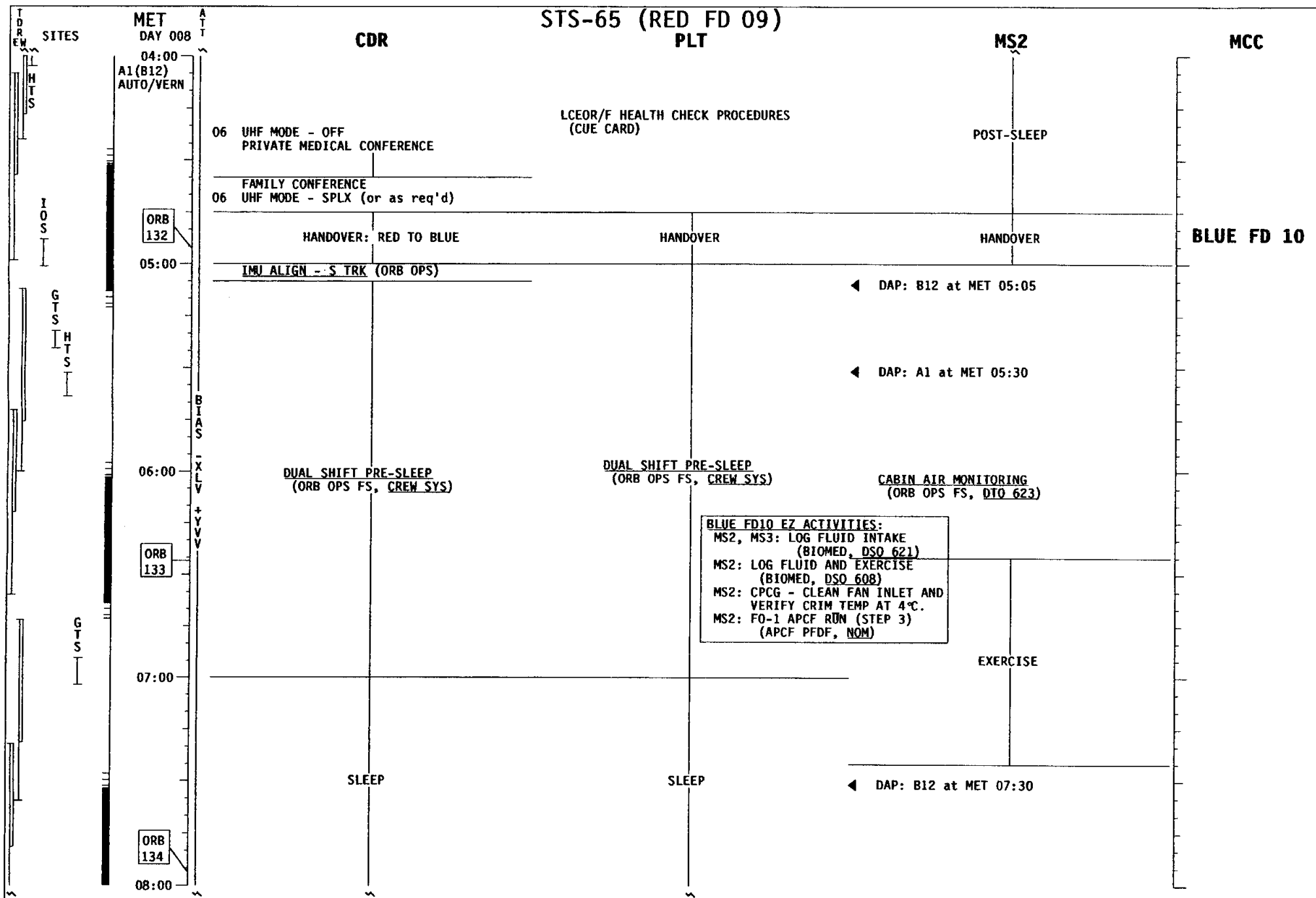


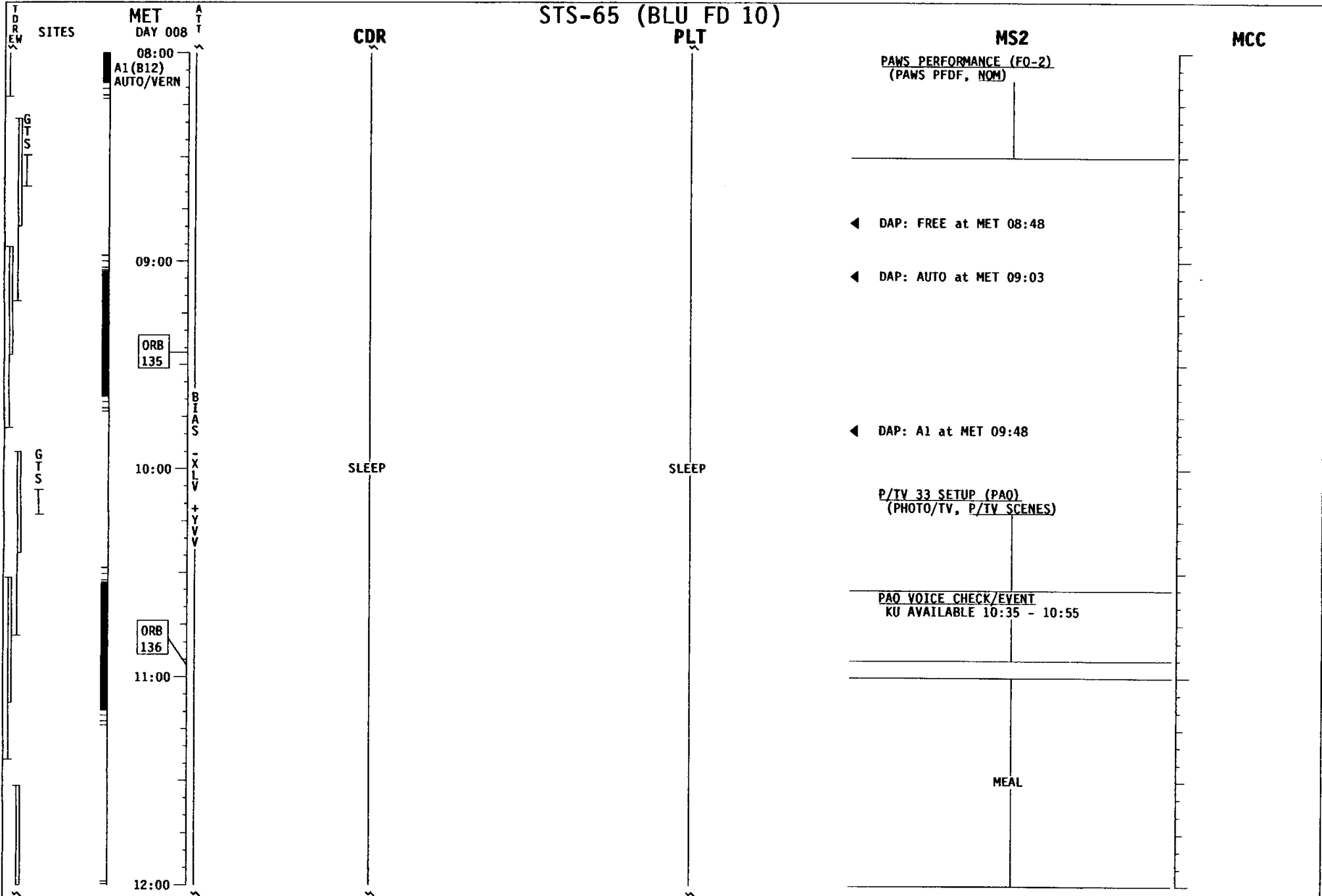
STS-65 (BLU FD 09)



STS-65 (RED FD 09)
PLT







STS-65 (BLU FD 10)

MET DAY 008

08:00
A1 (B12)
AUTO/VERN

09:00

ORB 135

10:00

ORB 136

11:00

12:00

CDR

SLEEP

PLT

SLEEP

MS2

PAWS PERFORMANCE (FQ-2)
(PAWS PFD, NOM)

◀ DAP: FREE at MET 08:48

◀ DAP: AUTO at MET 09:03

◀ DAP: A1 at MET 09:48

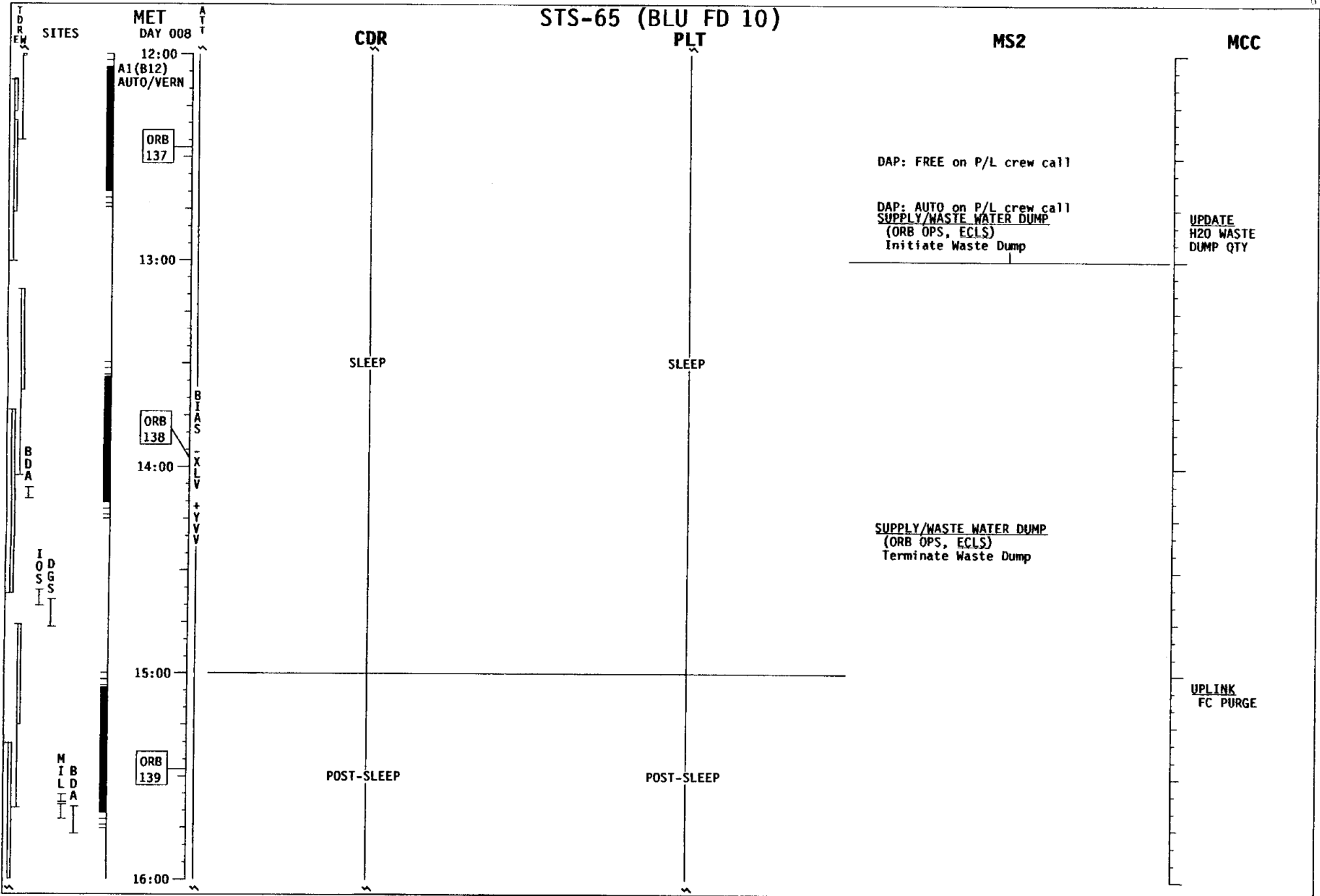
P/TV 33 SETUP (PAO)
(PHOTO/TV, P/TV SCENES)

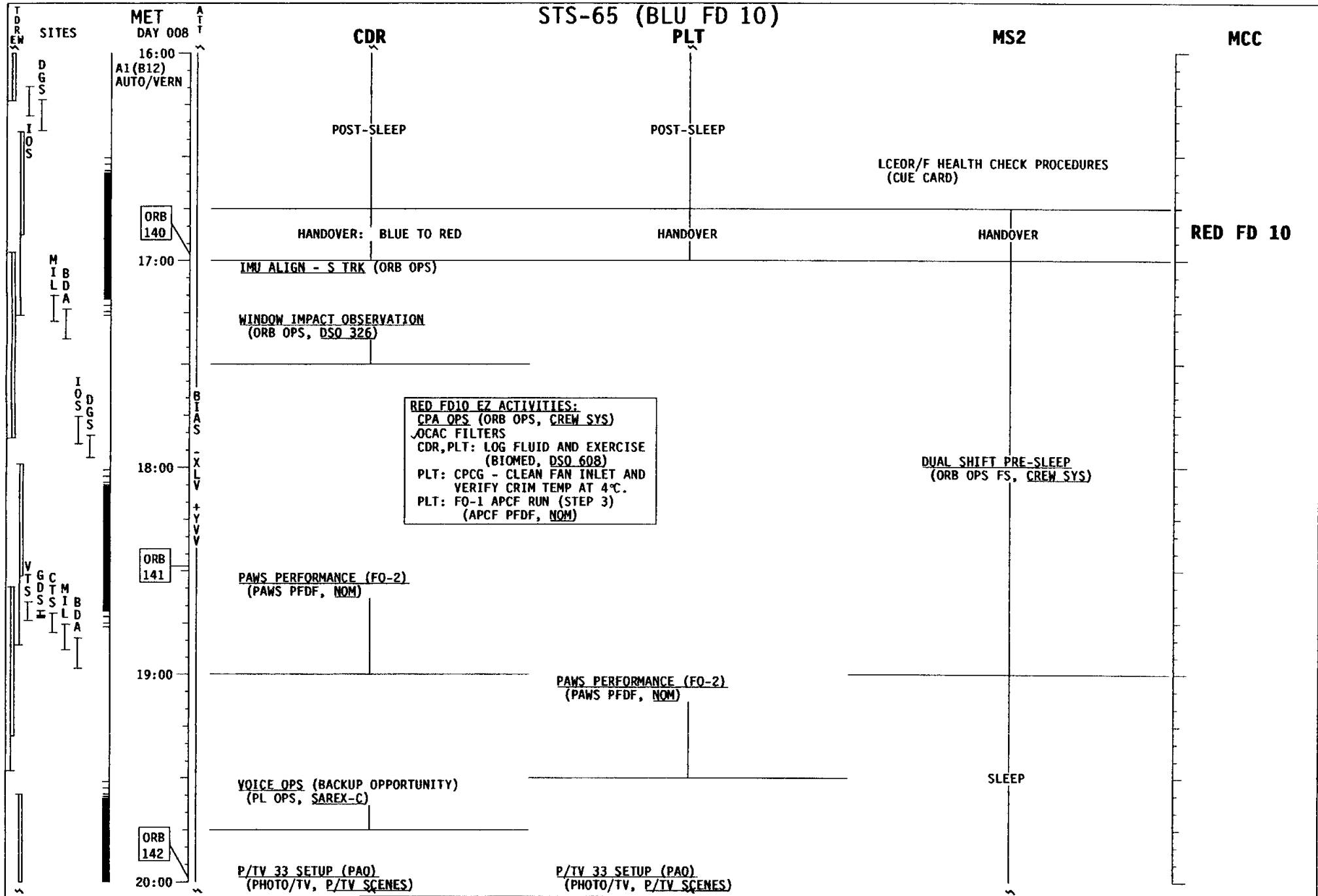
PAO VOICE CHECK/EVENT
KU AVAILABLE 10:35 - 10:55

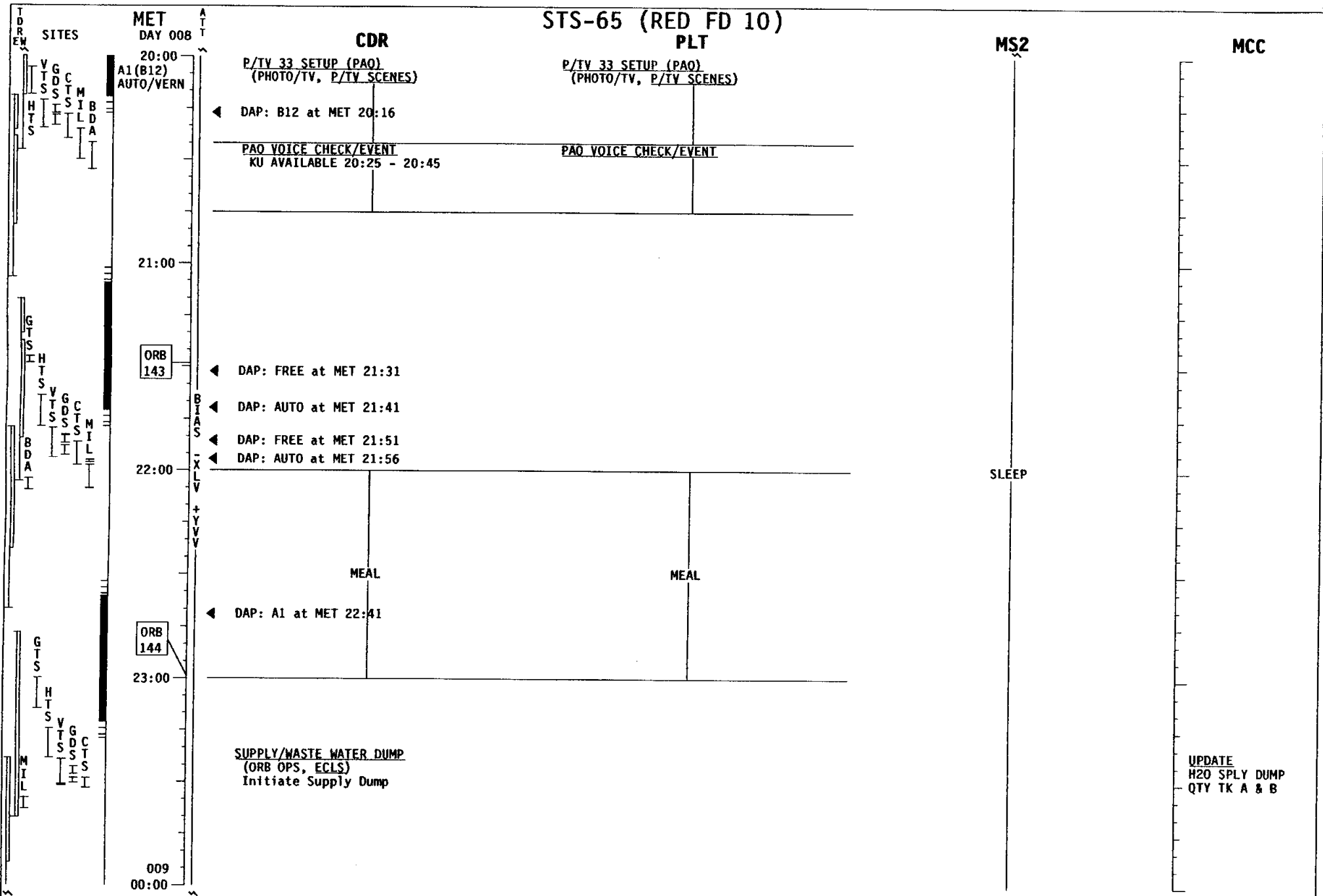
MEAL

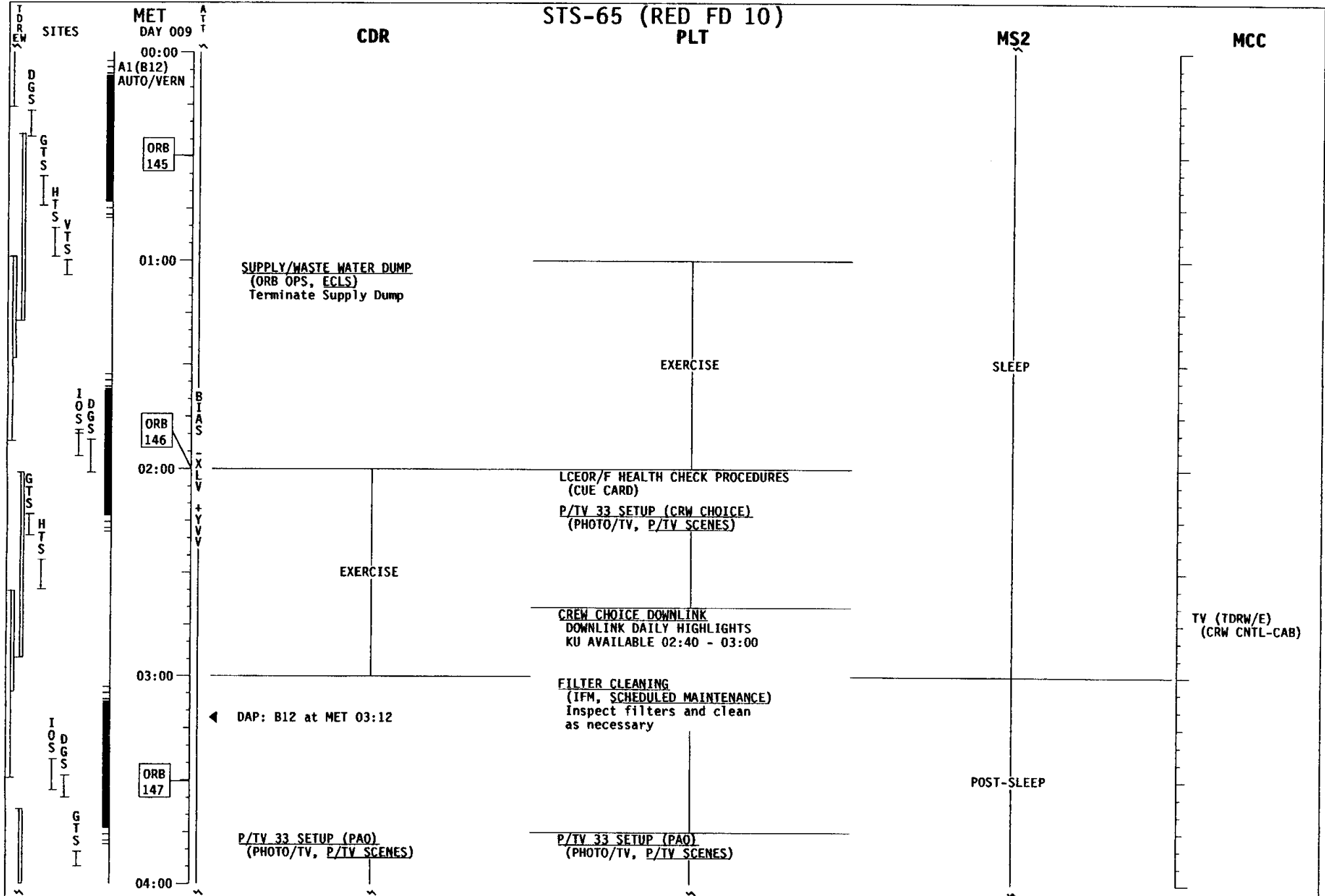
MCC

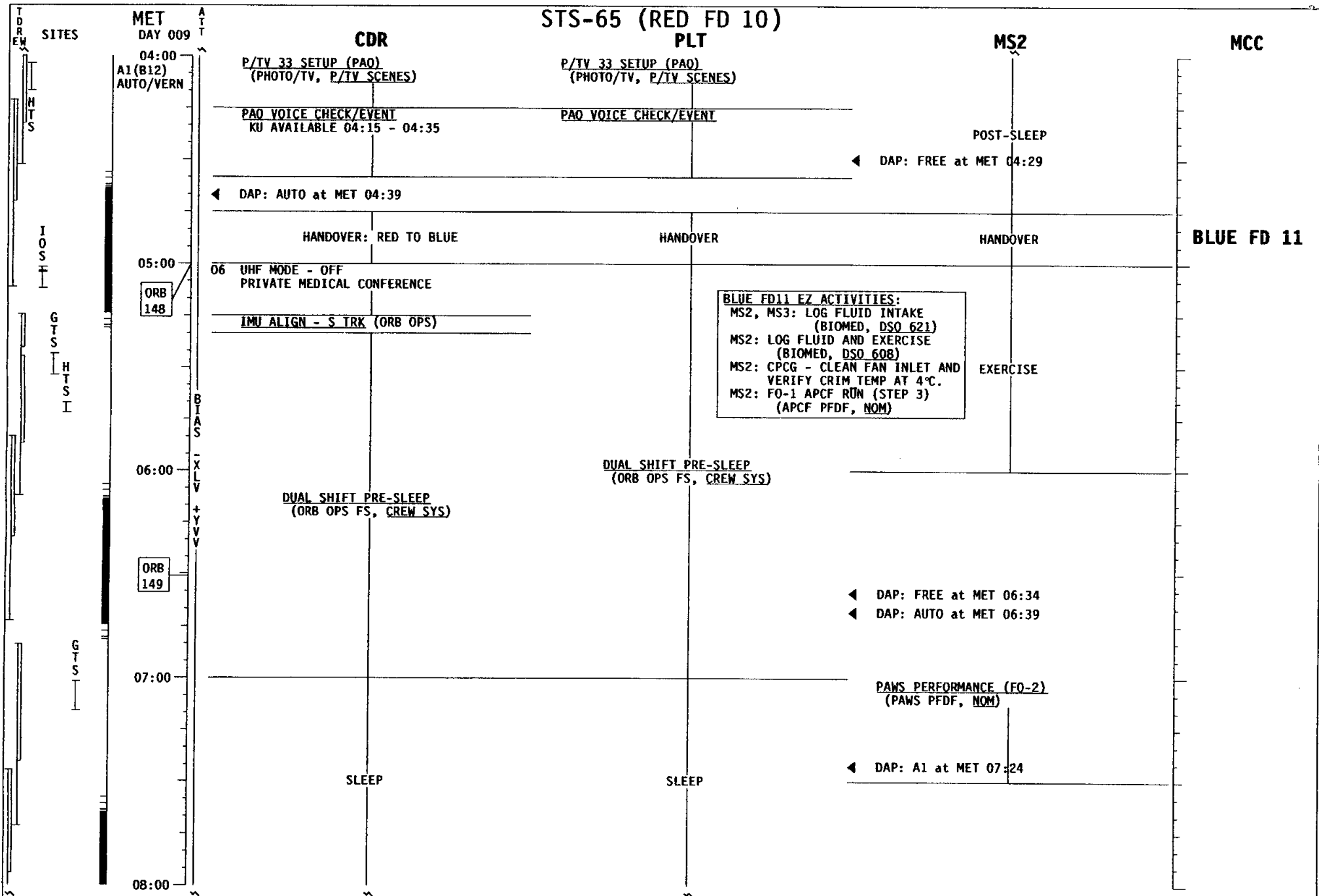
STS-65 (BLU FD 10)



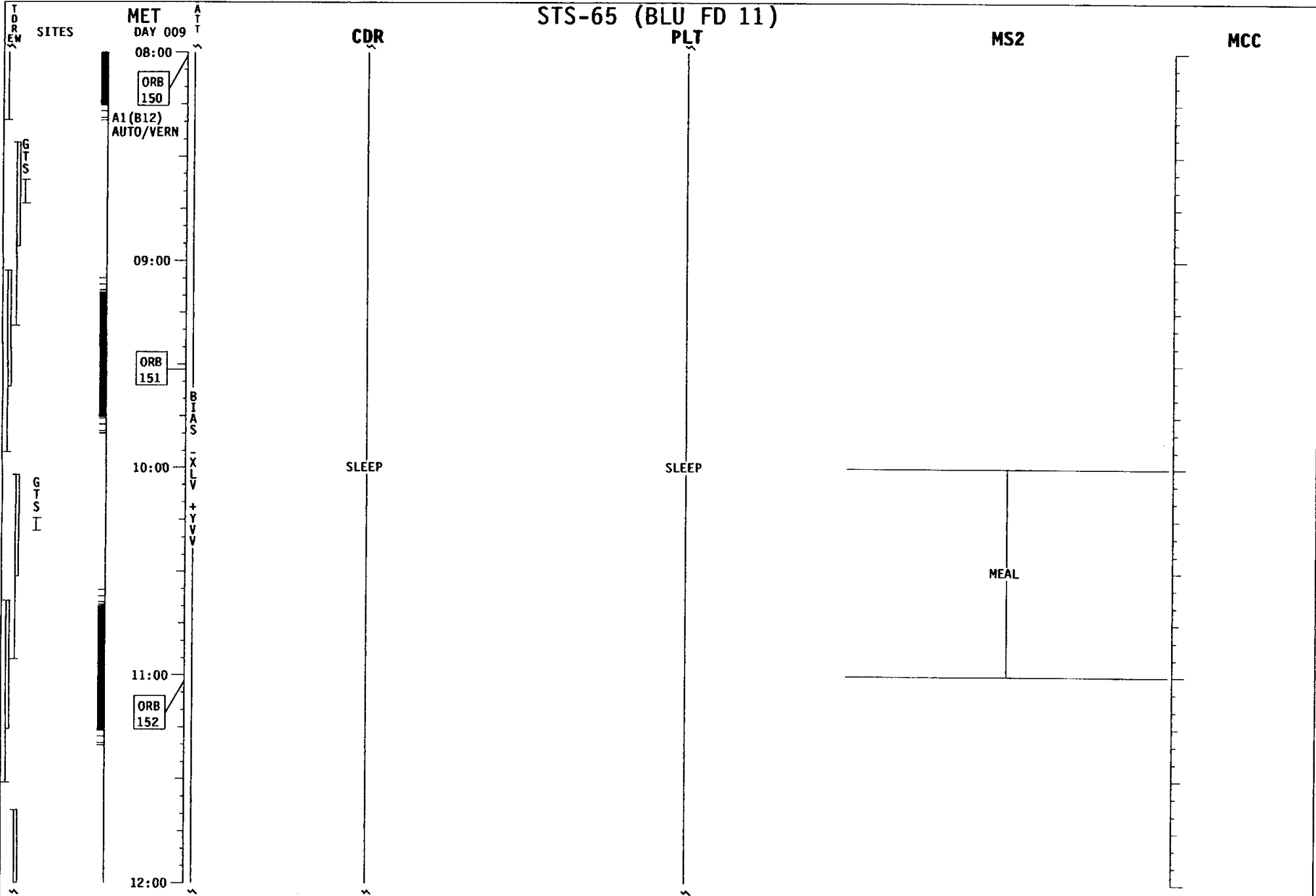




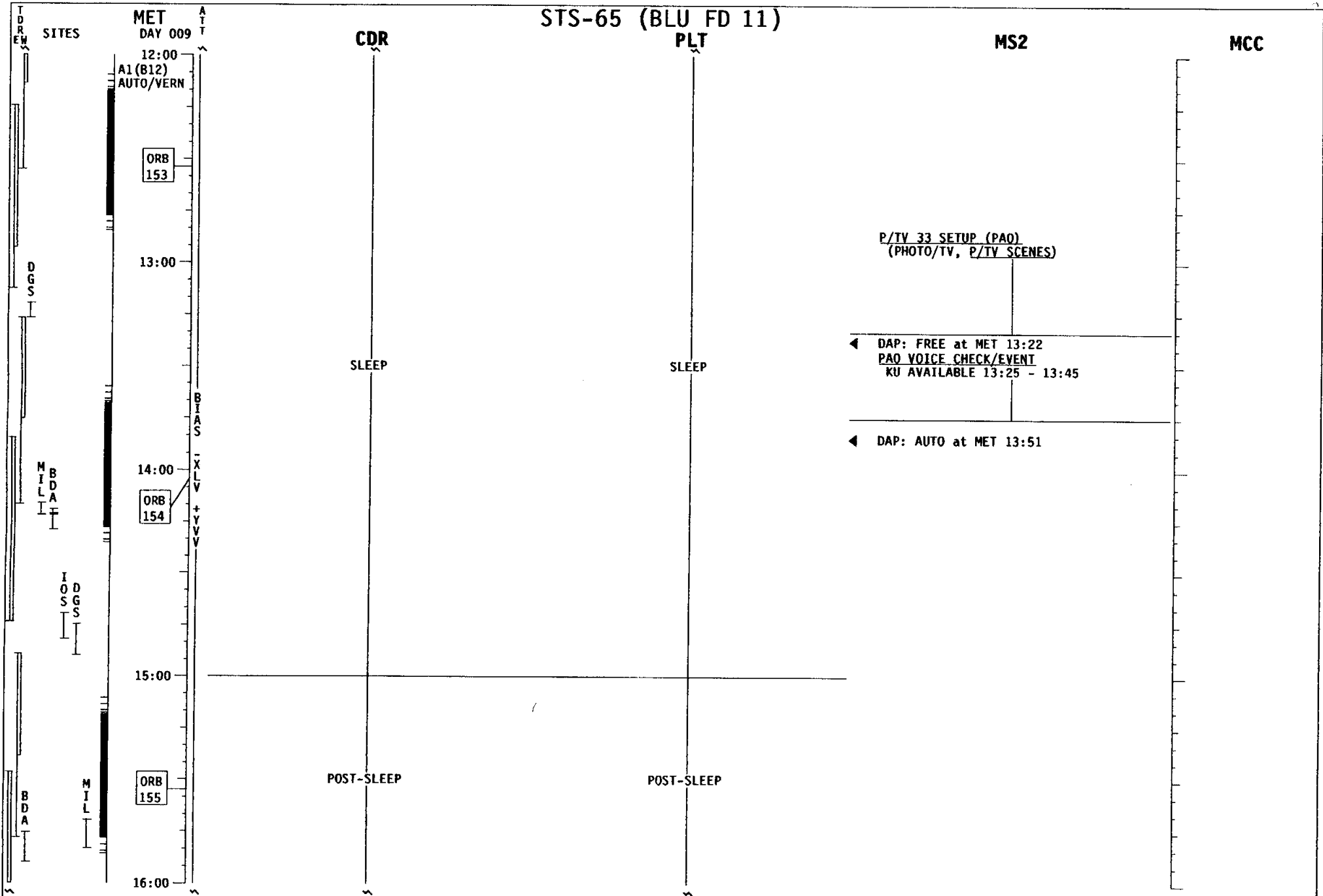


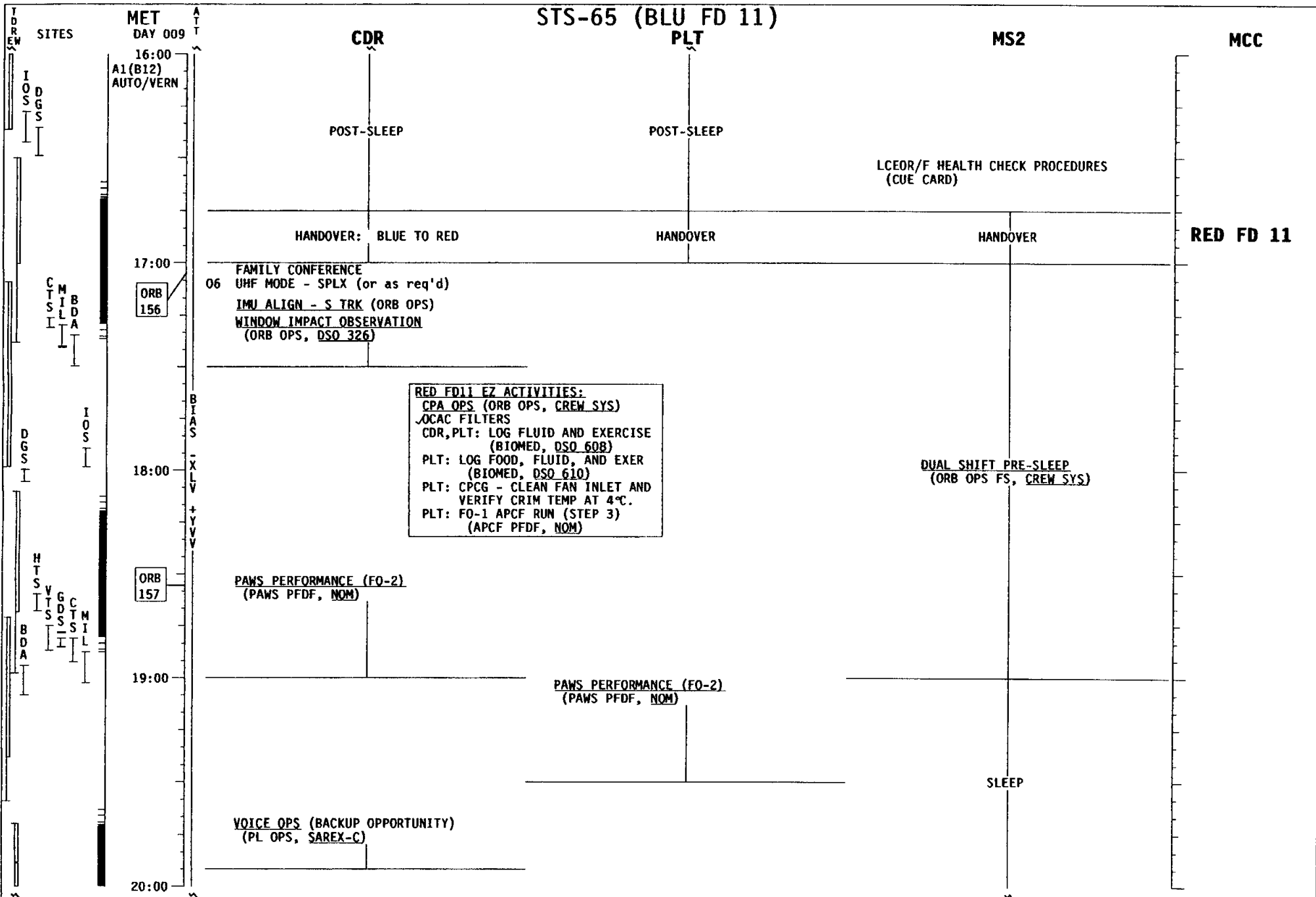


STS-65 (BLU FD 11)



STS-65 (BLU FD 11)





STS-65 (RED FD 11)
PLT

CDR

MS2

MCC

MET DAY 009

20:00

ORB 158

A1 (B12) AUTO/VERN

21:00

ORB 159

22:00

23:00

ORB 160

010

00:00

SITES

TDRM

VTS
GTS
HTS

CTSS
MILDA

BIA S

X L V
+ Y V V

D G S S

G T S

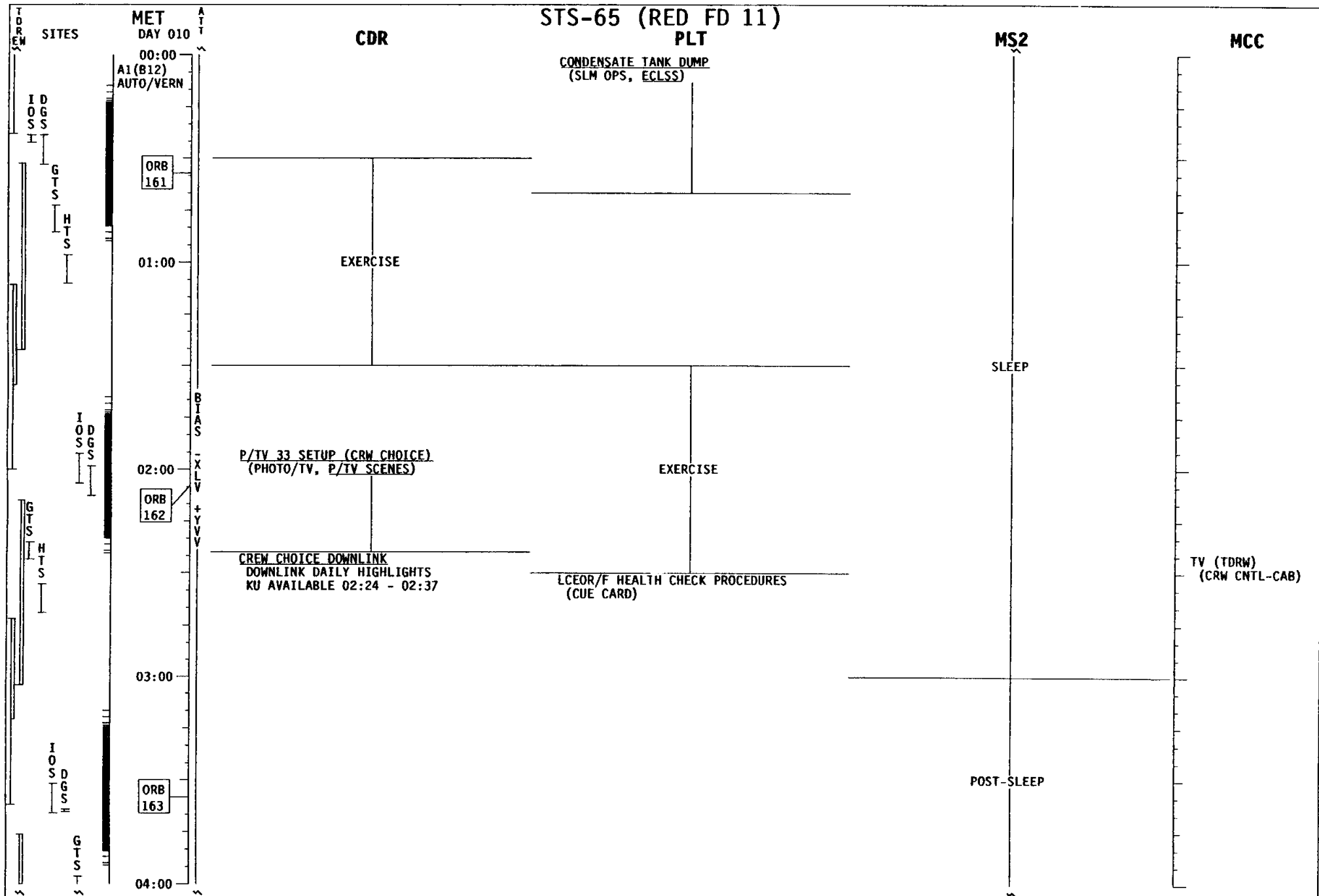
H T S

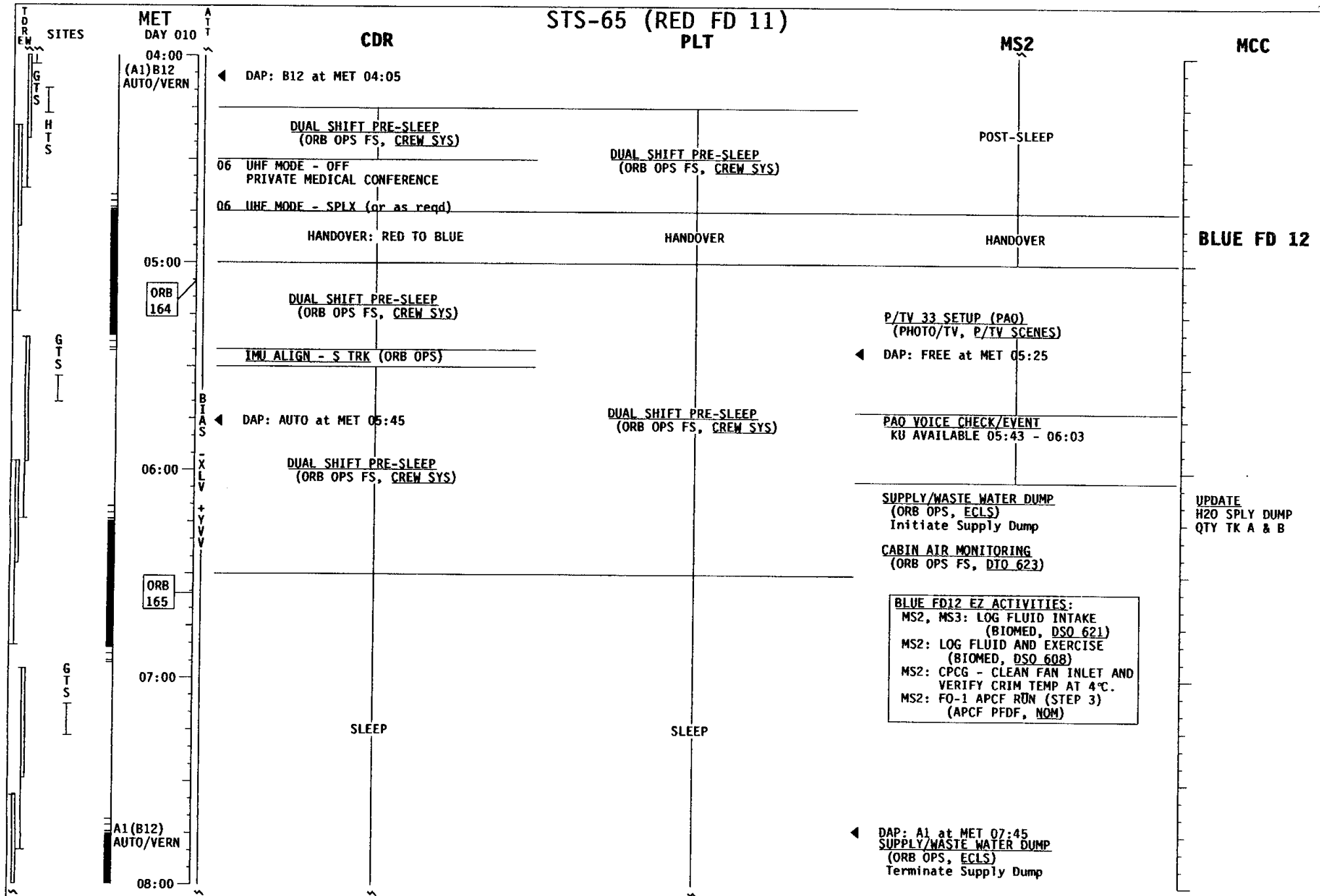
V T S

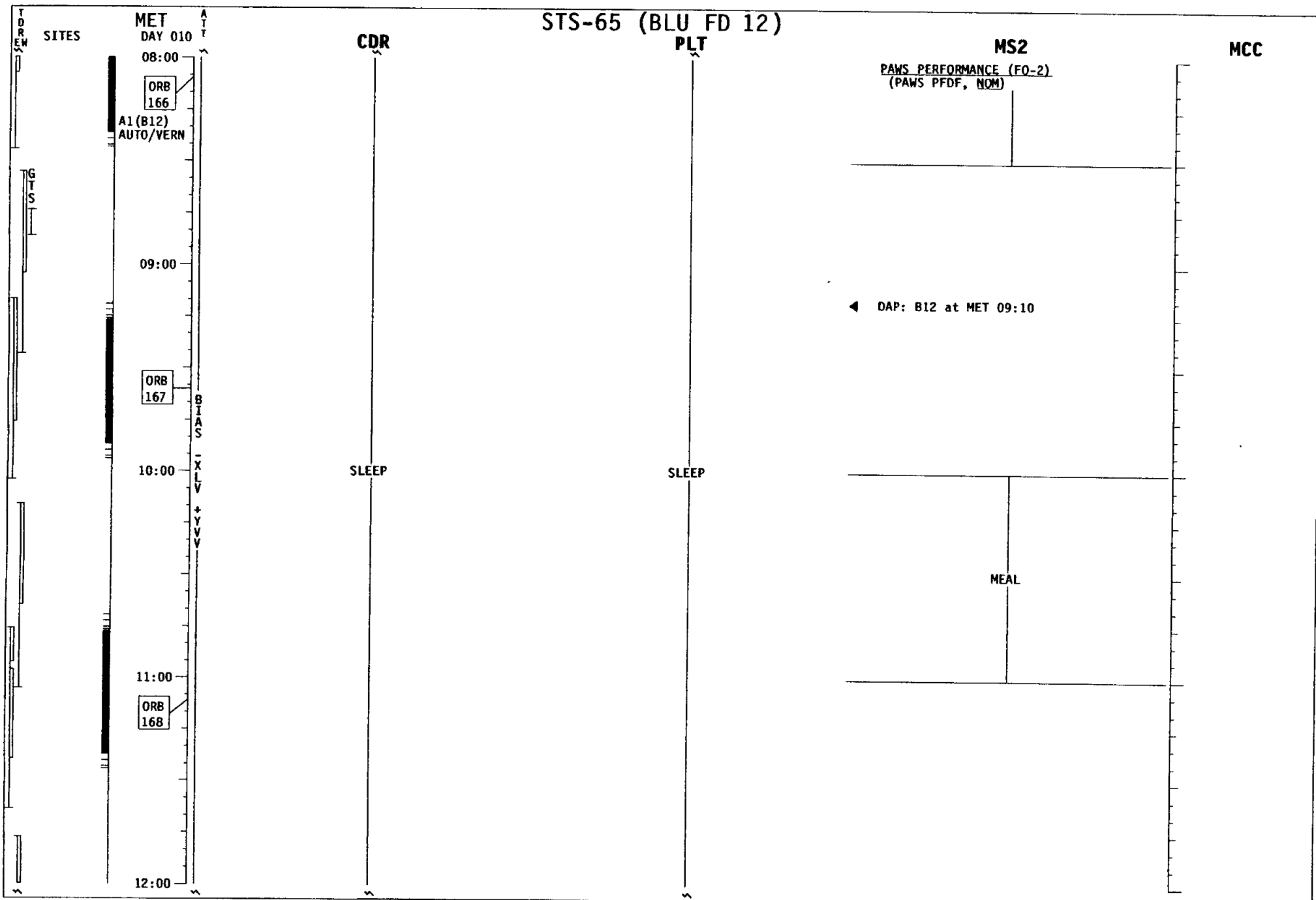
G D S S

MEAL		MEAL	
P/TV 33 SETUP (PAO) (PHOTO/TV, P/TV SCENES)		P/TV 33 SETUP (PAO) (PHOTO/TV, P/TV SCENES)	
PAO VOICE CHECK/EVENT KU AVAILABLE 23:05 - 23:25		PAO VOICE CHECK/EVENT	

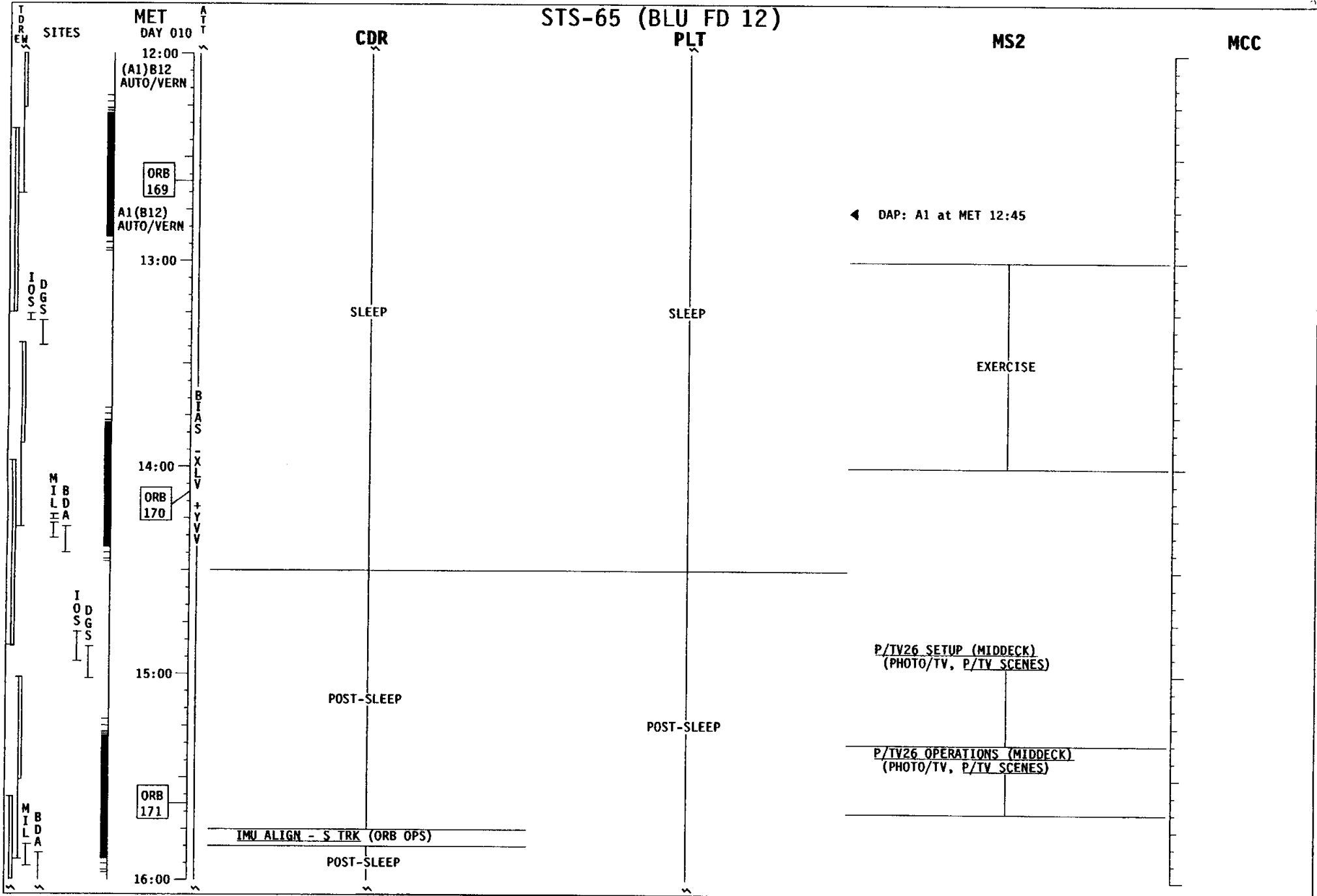
SLEEP

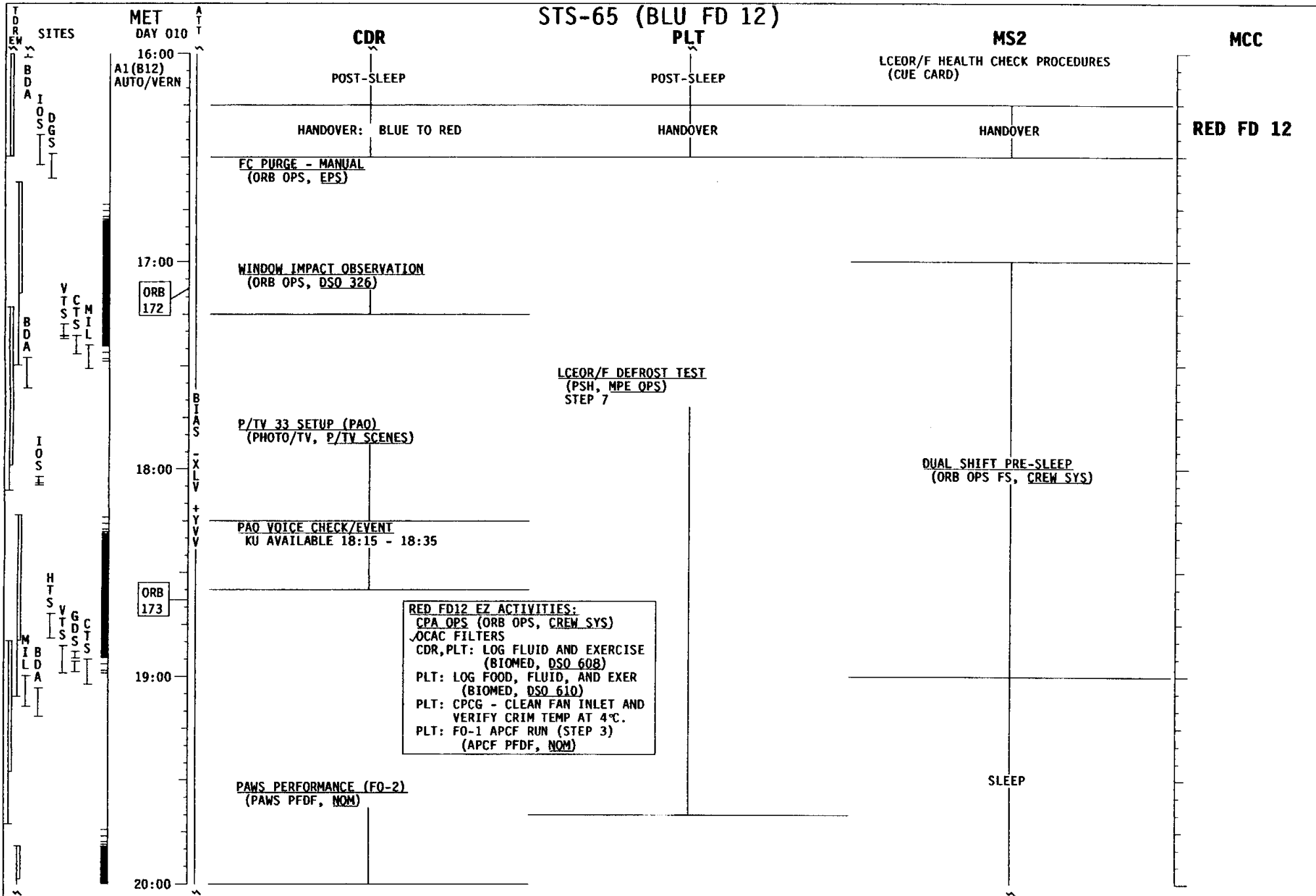


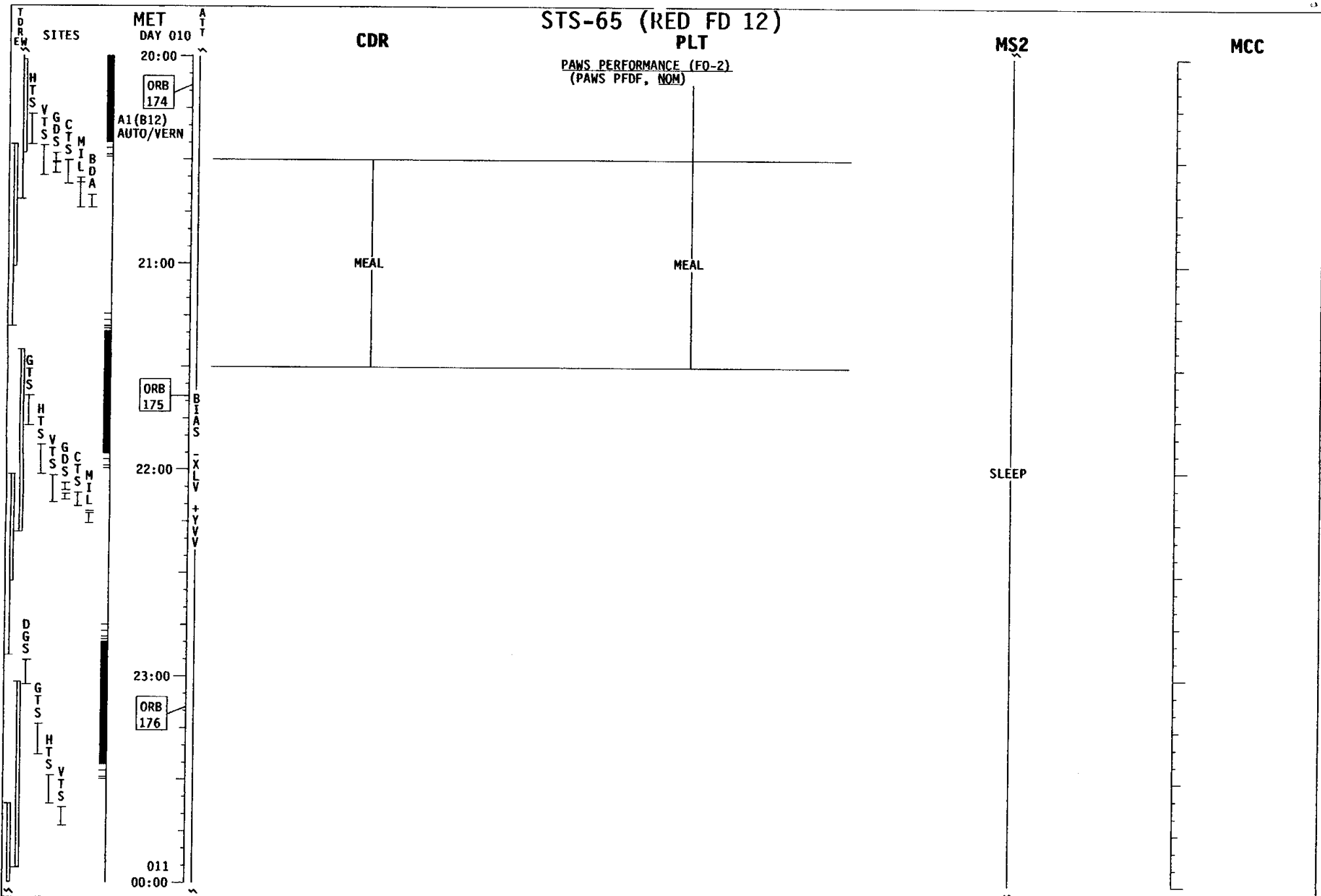


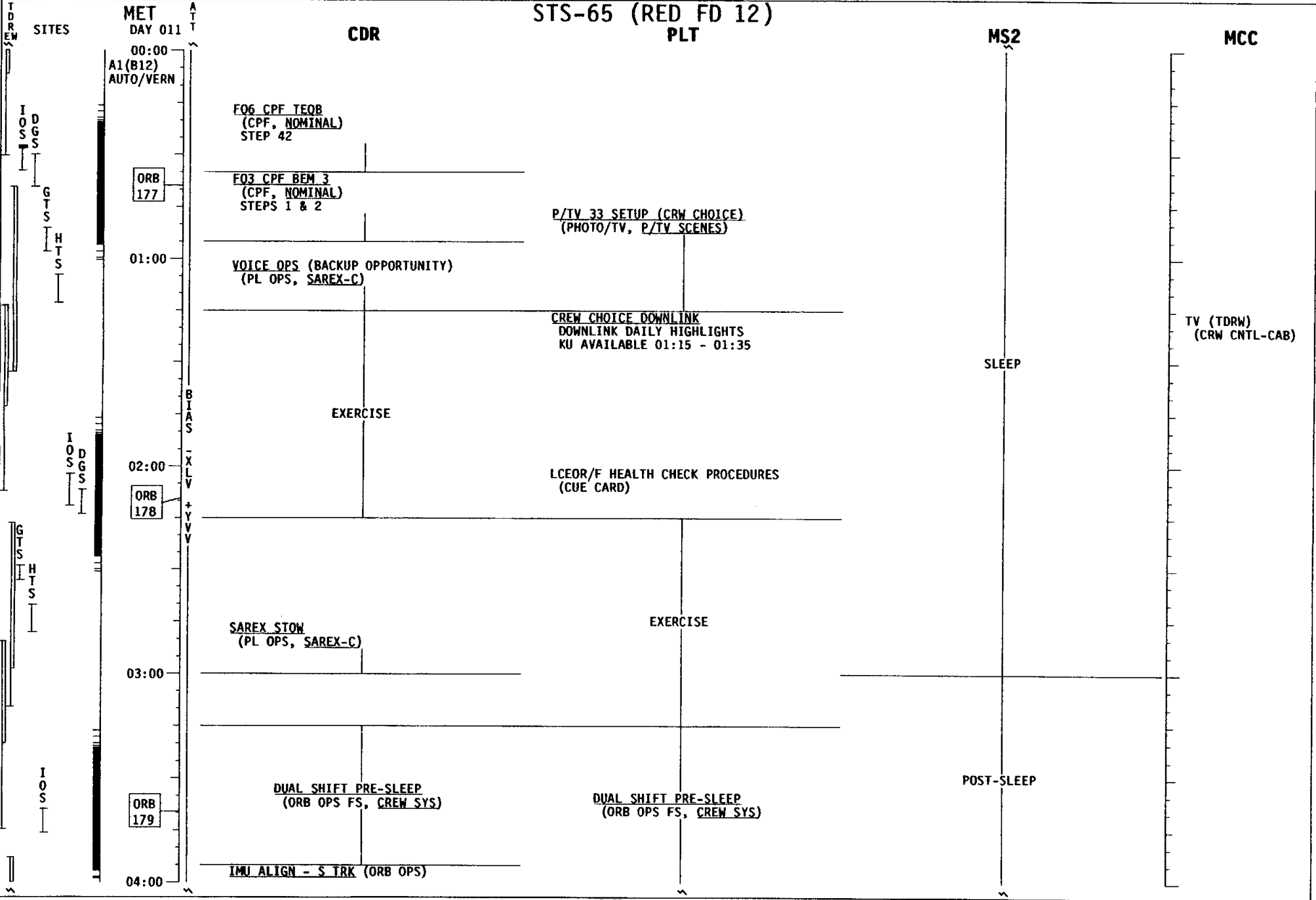


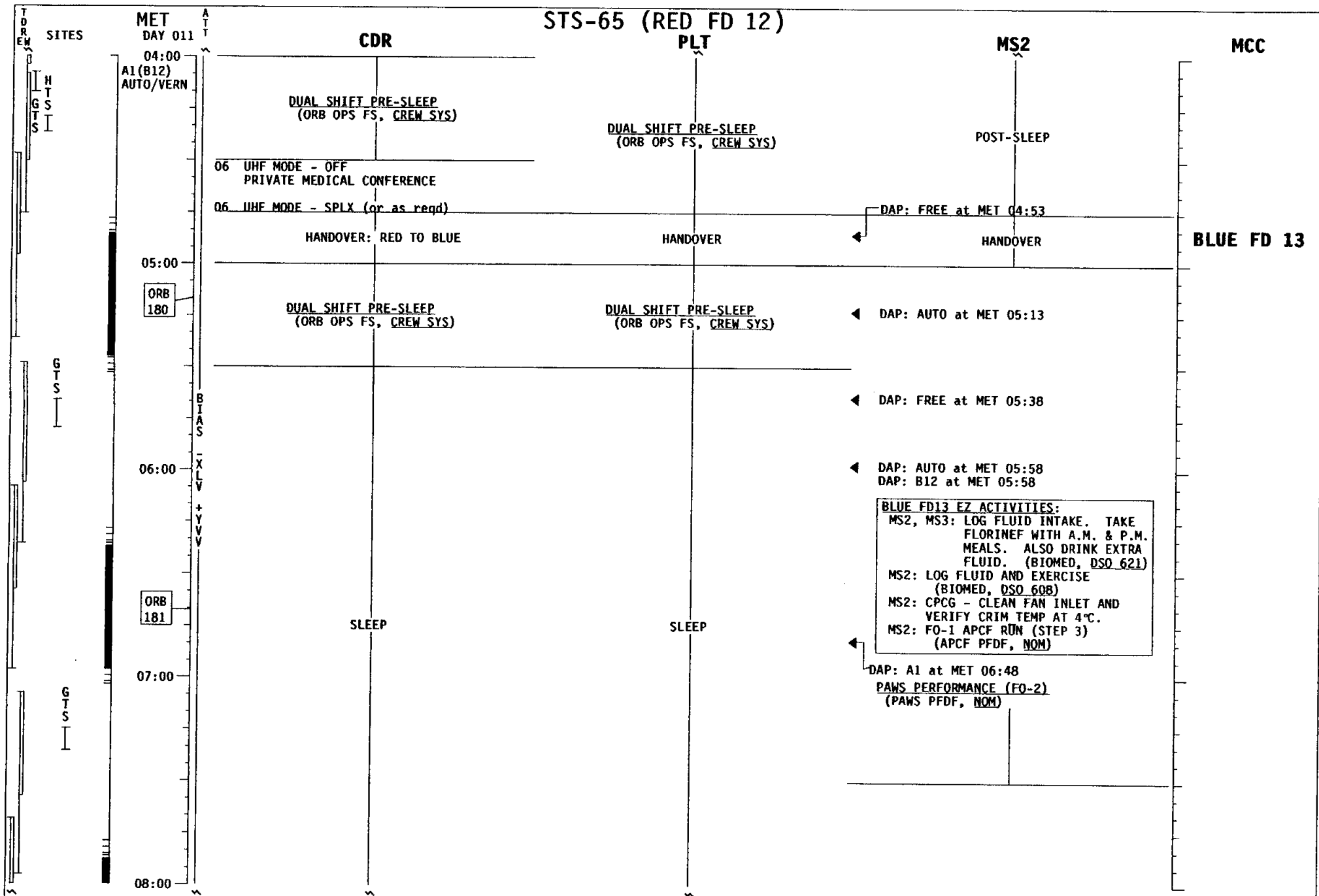
STS-65 (BLU FD 12)

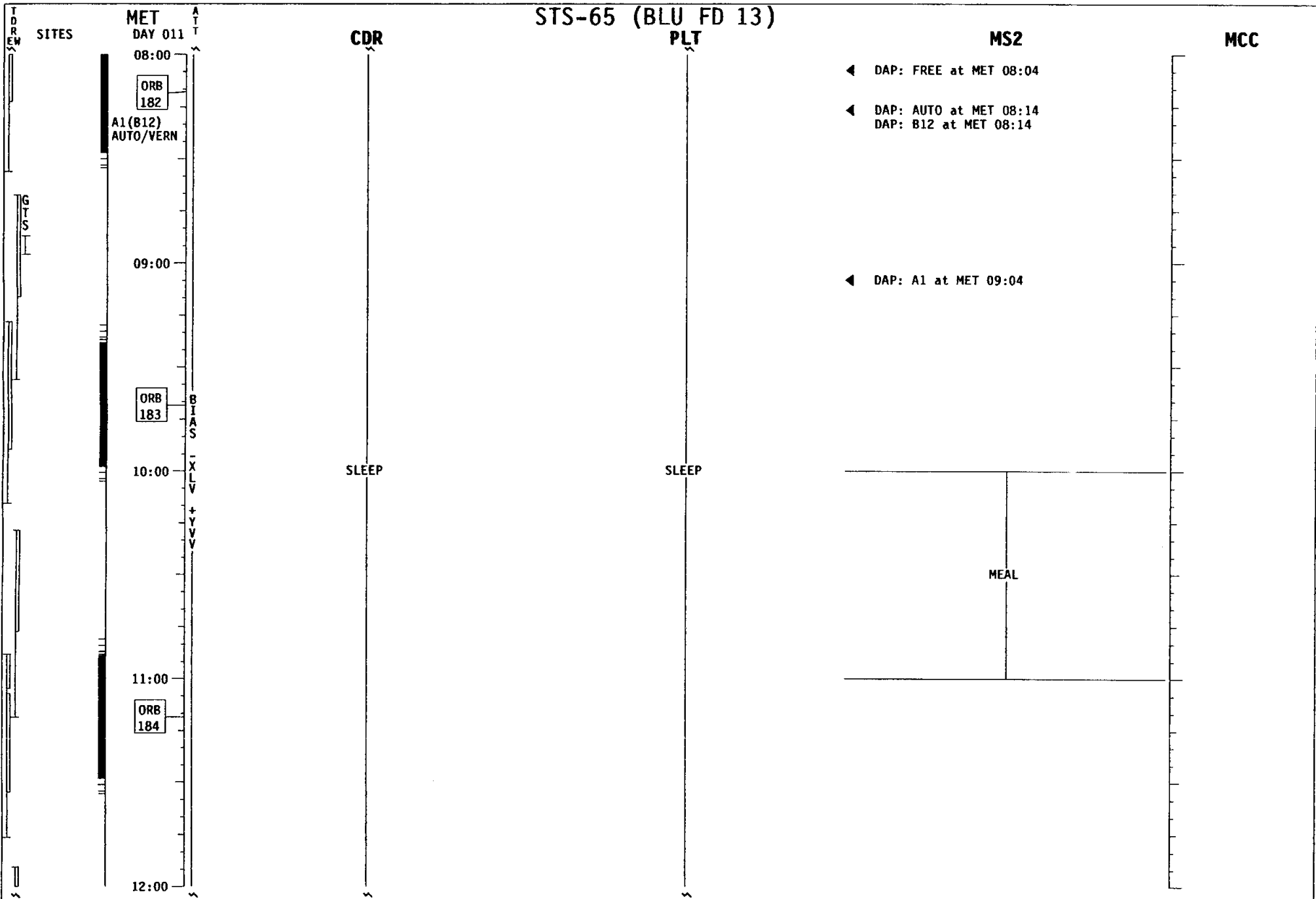




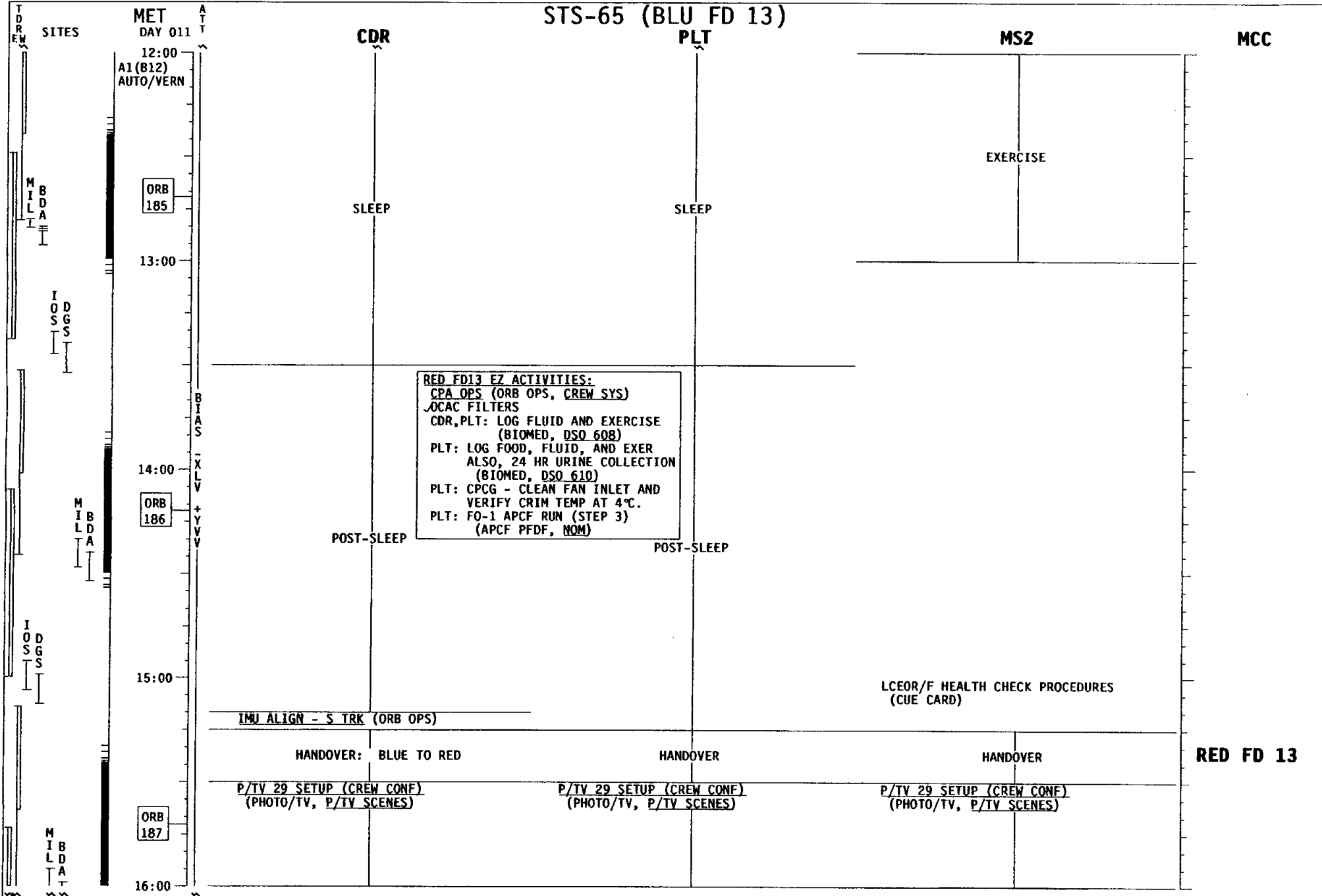


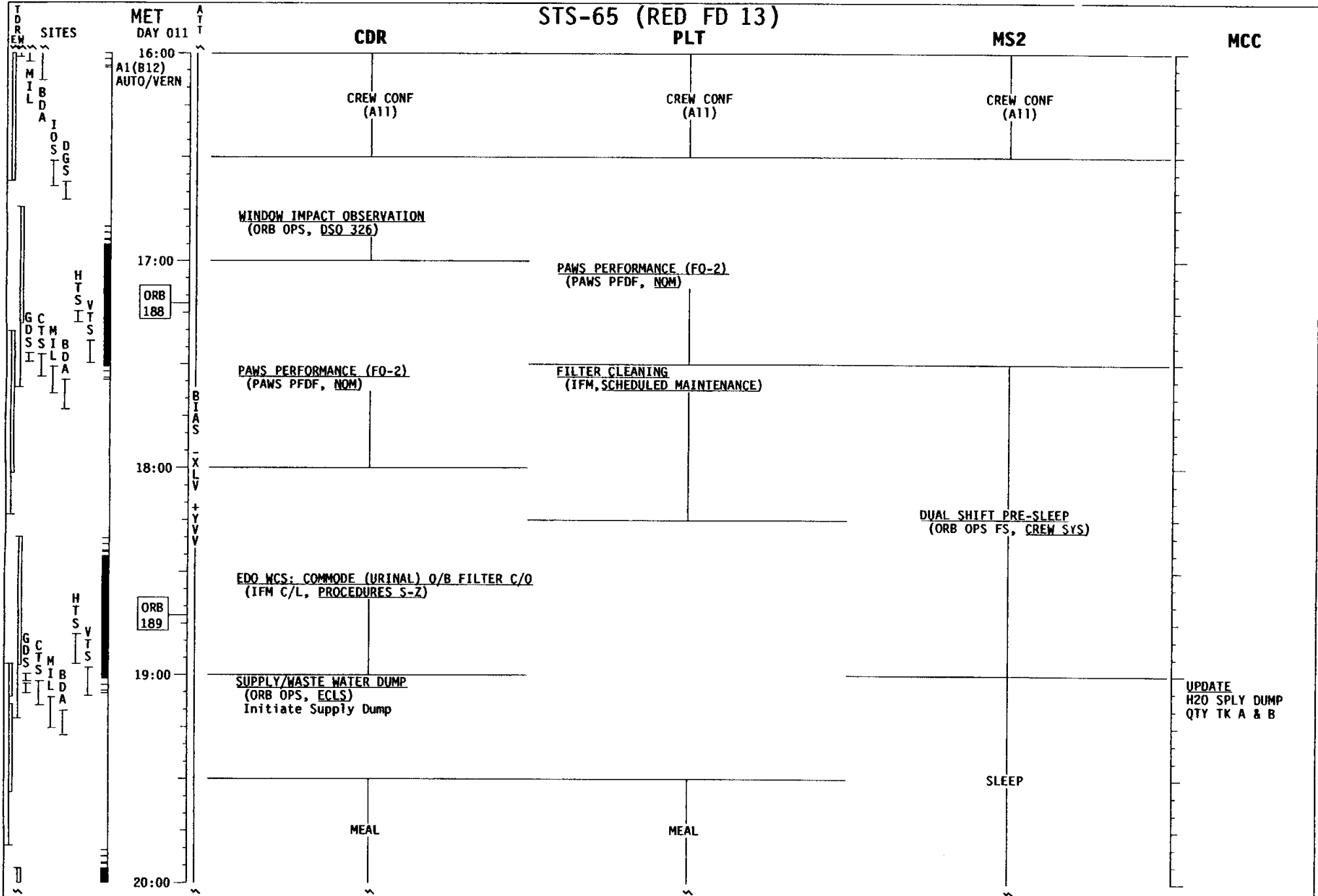




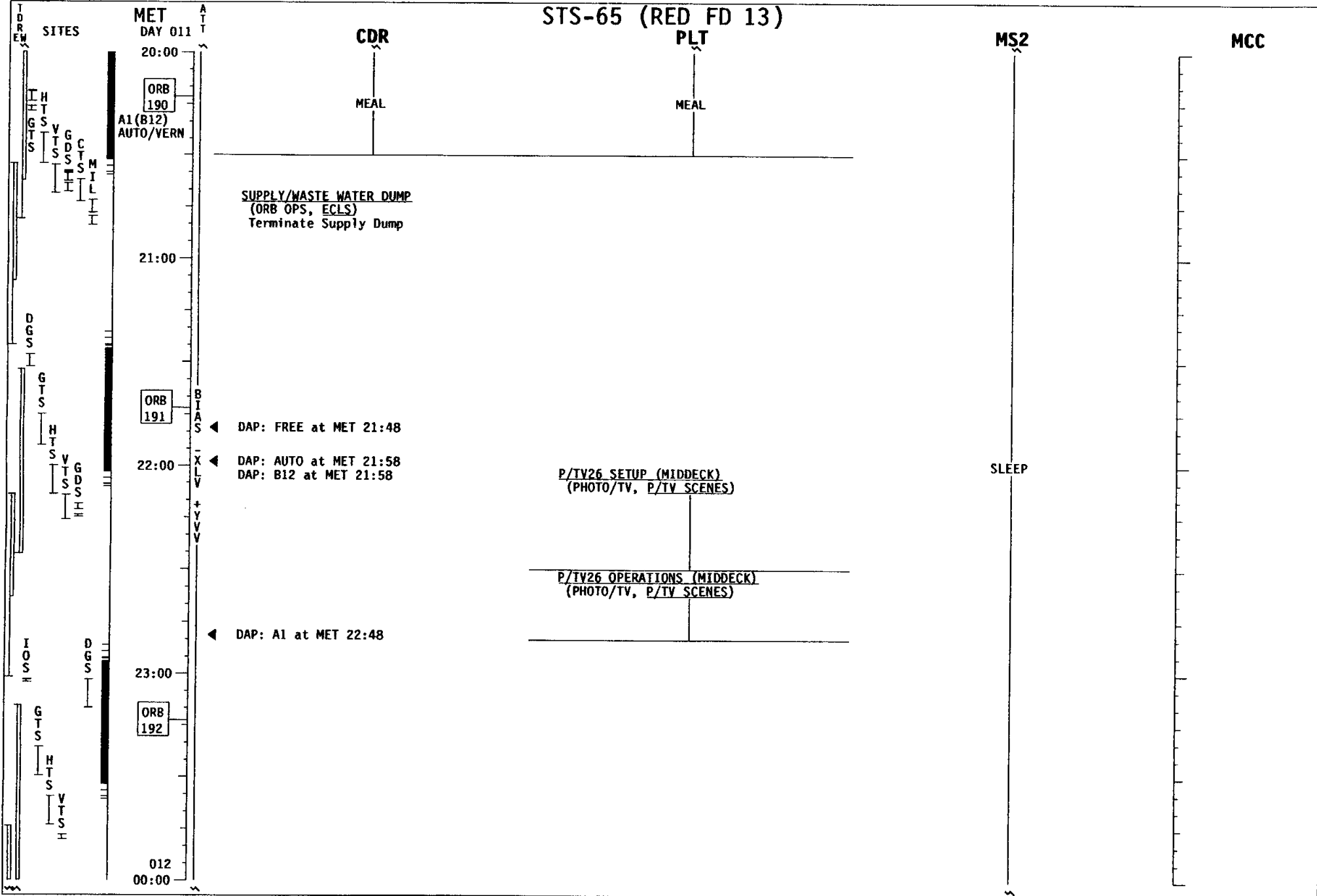


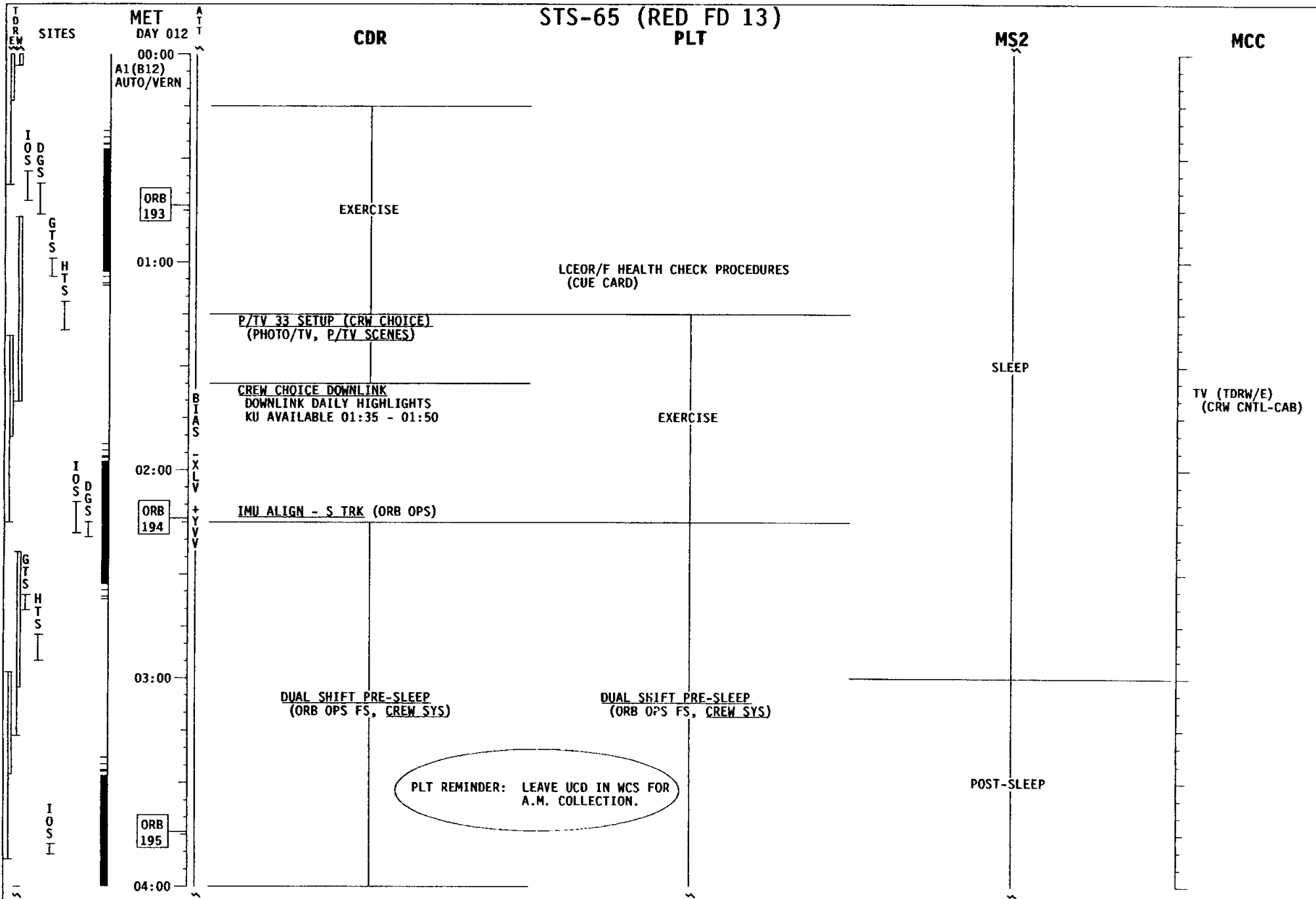
STS-65 (BLU FD 13)

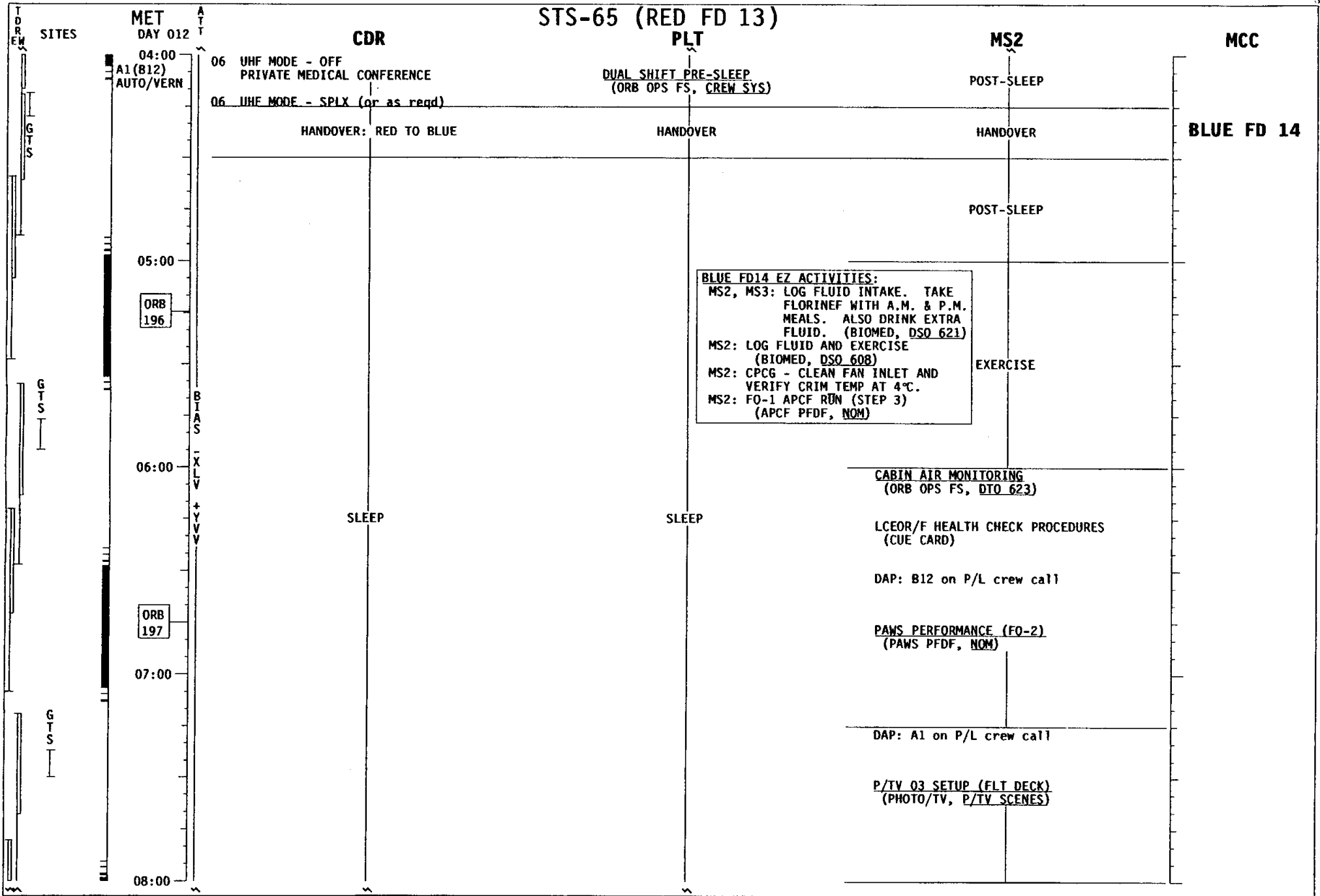


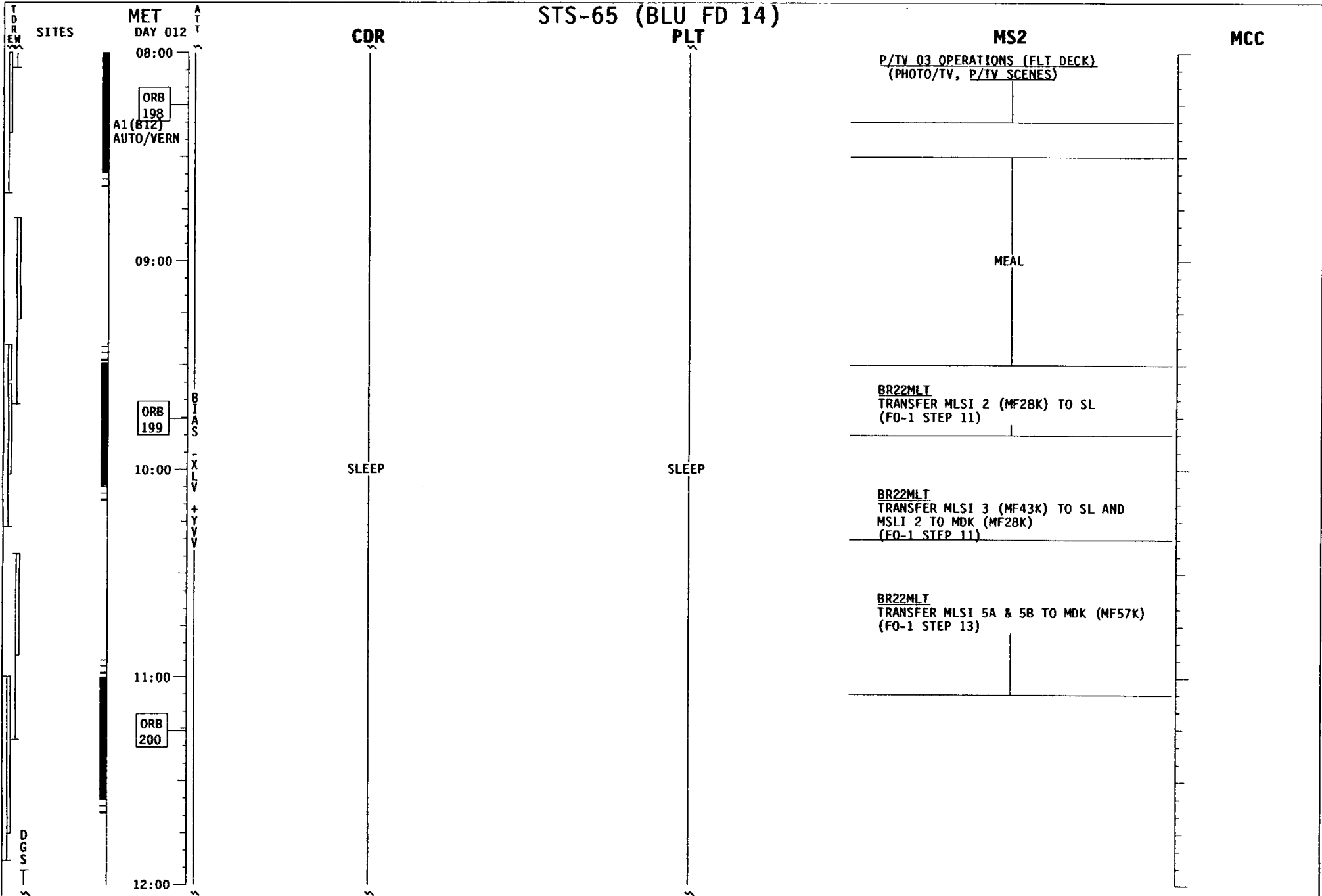


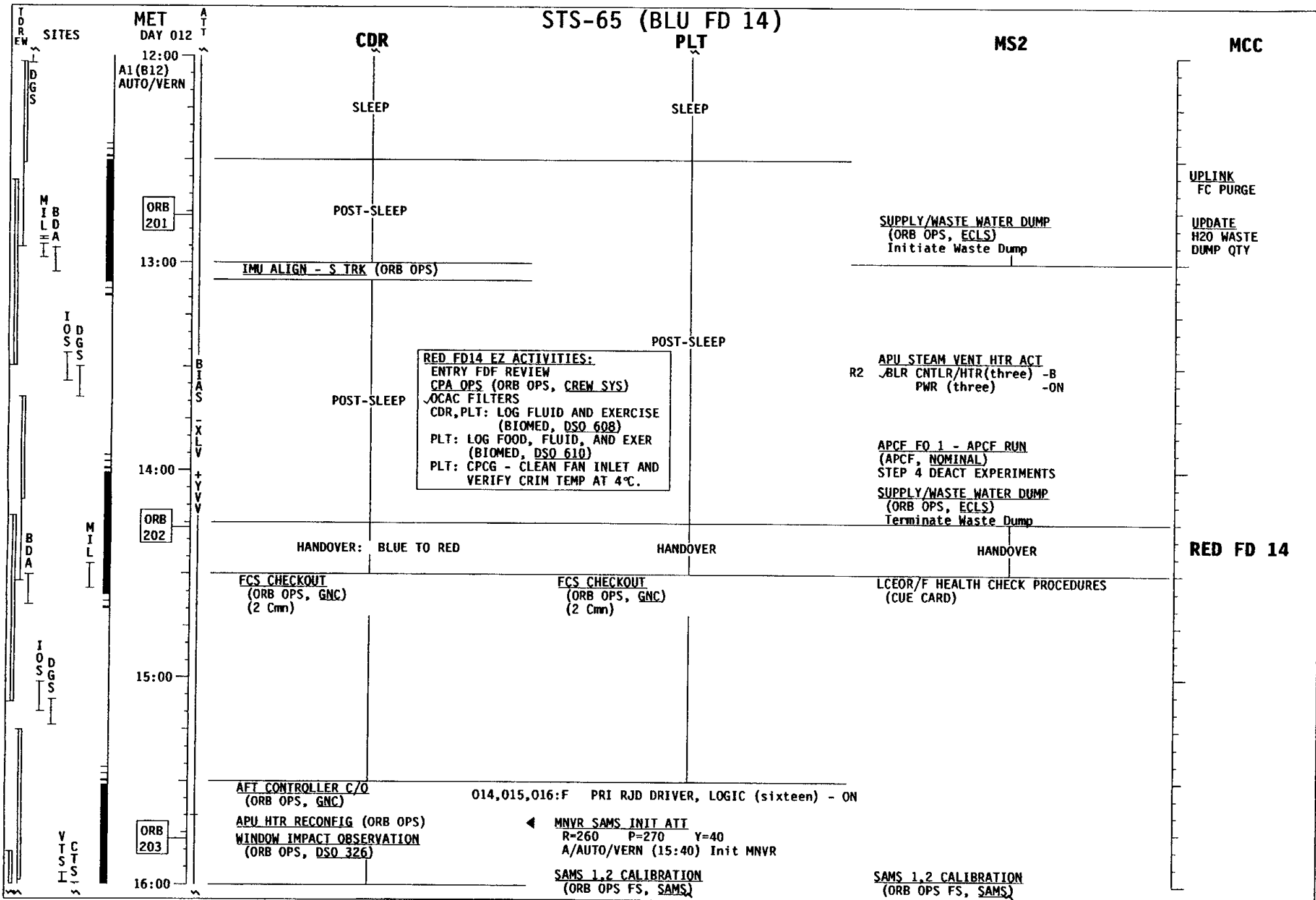
STS-65 (RED FD 13)

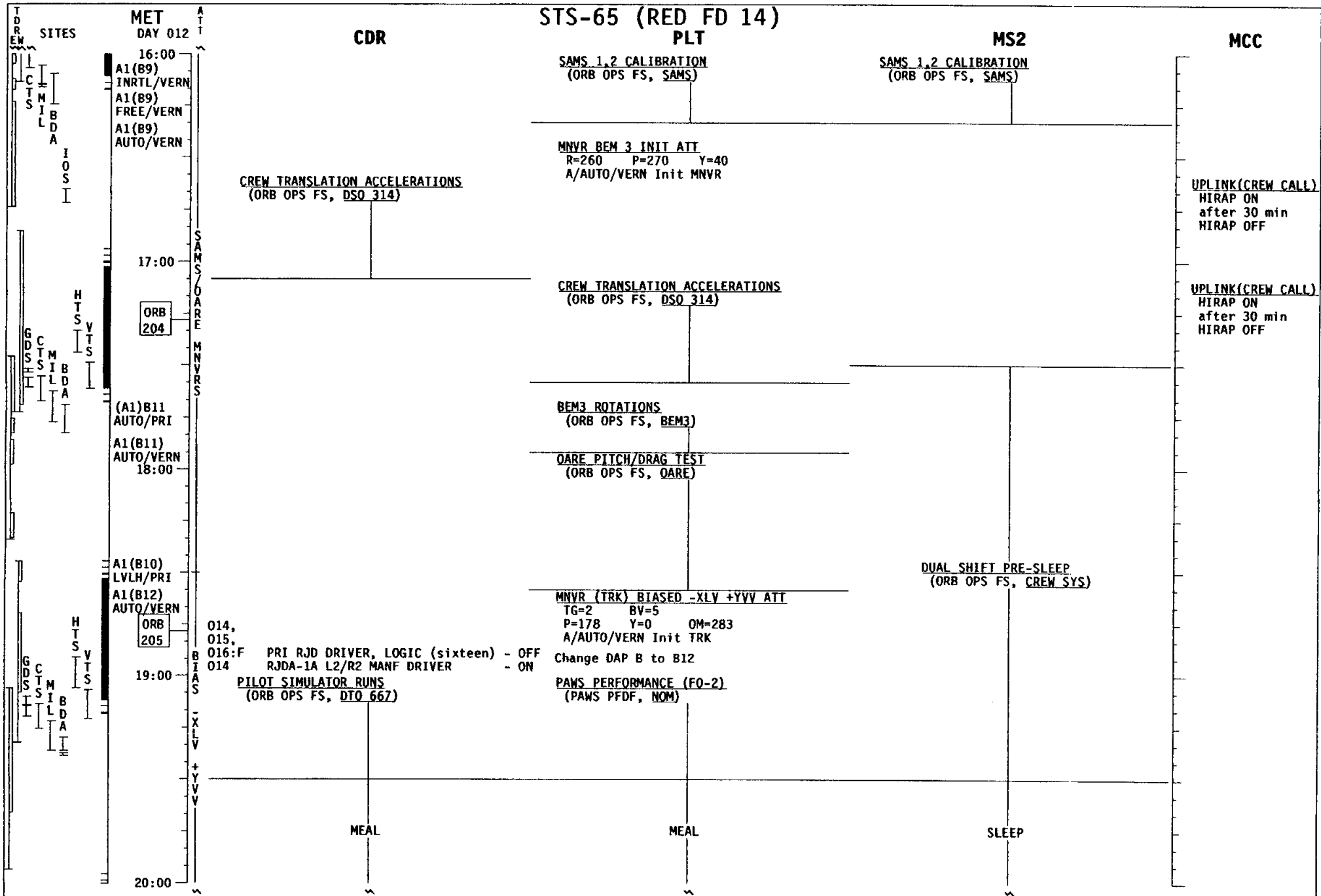




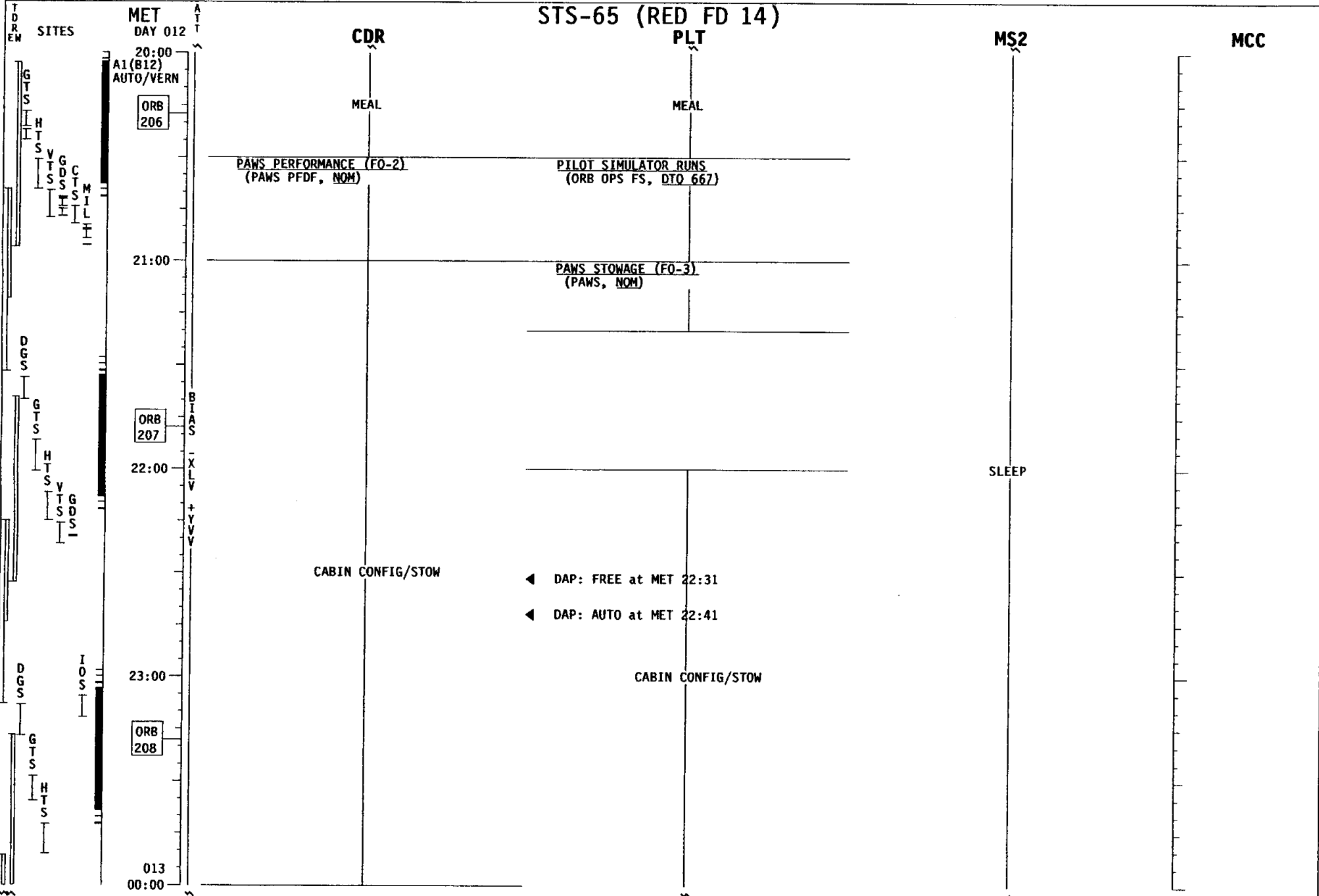


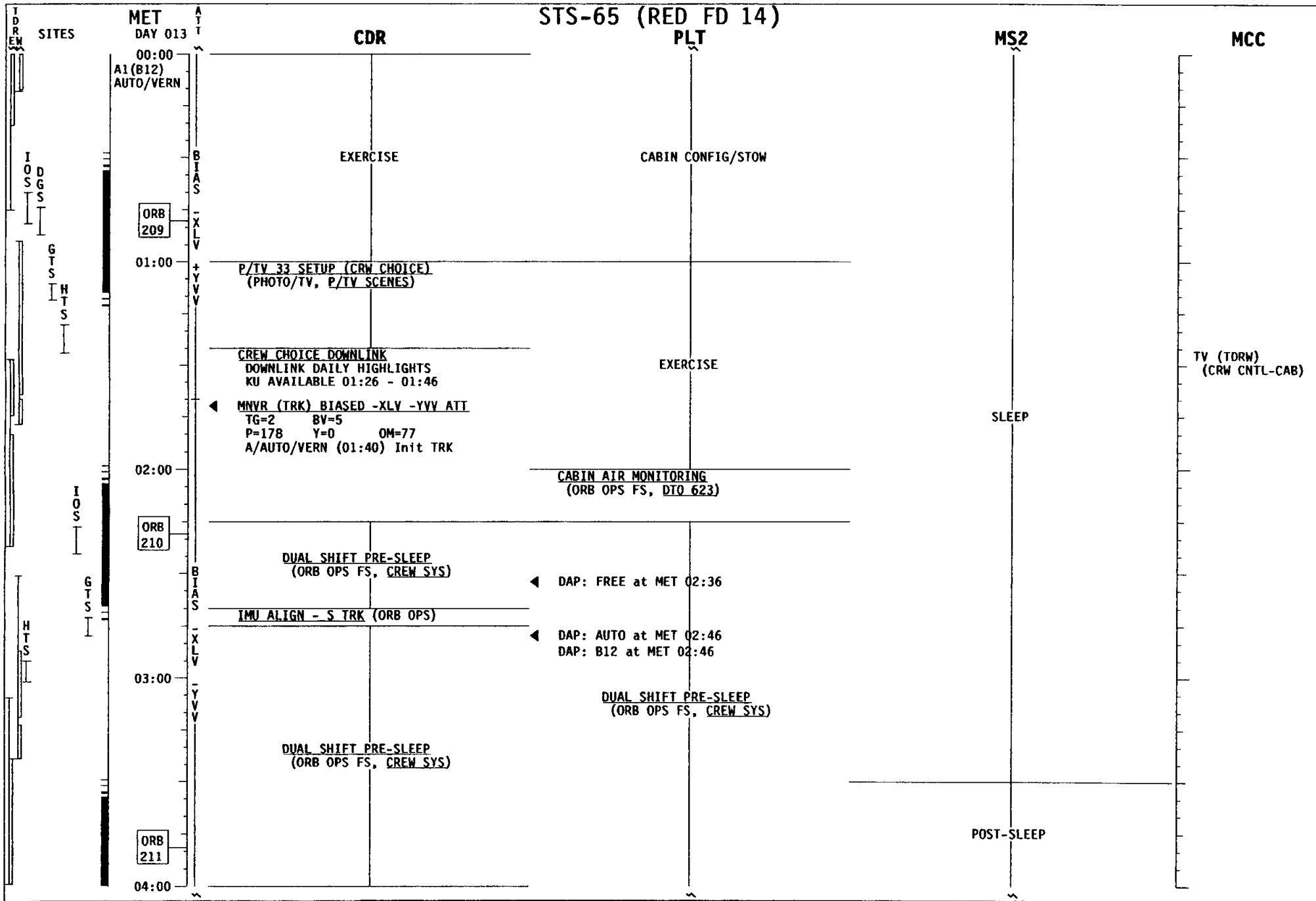


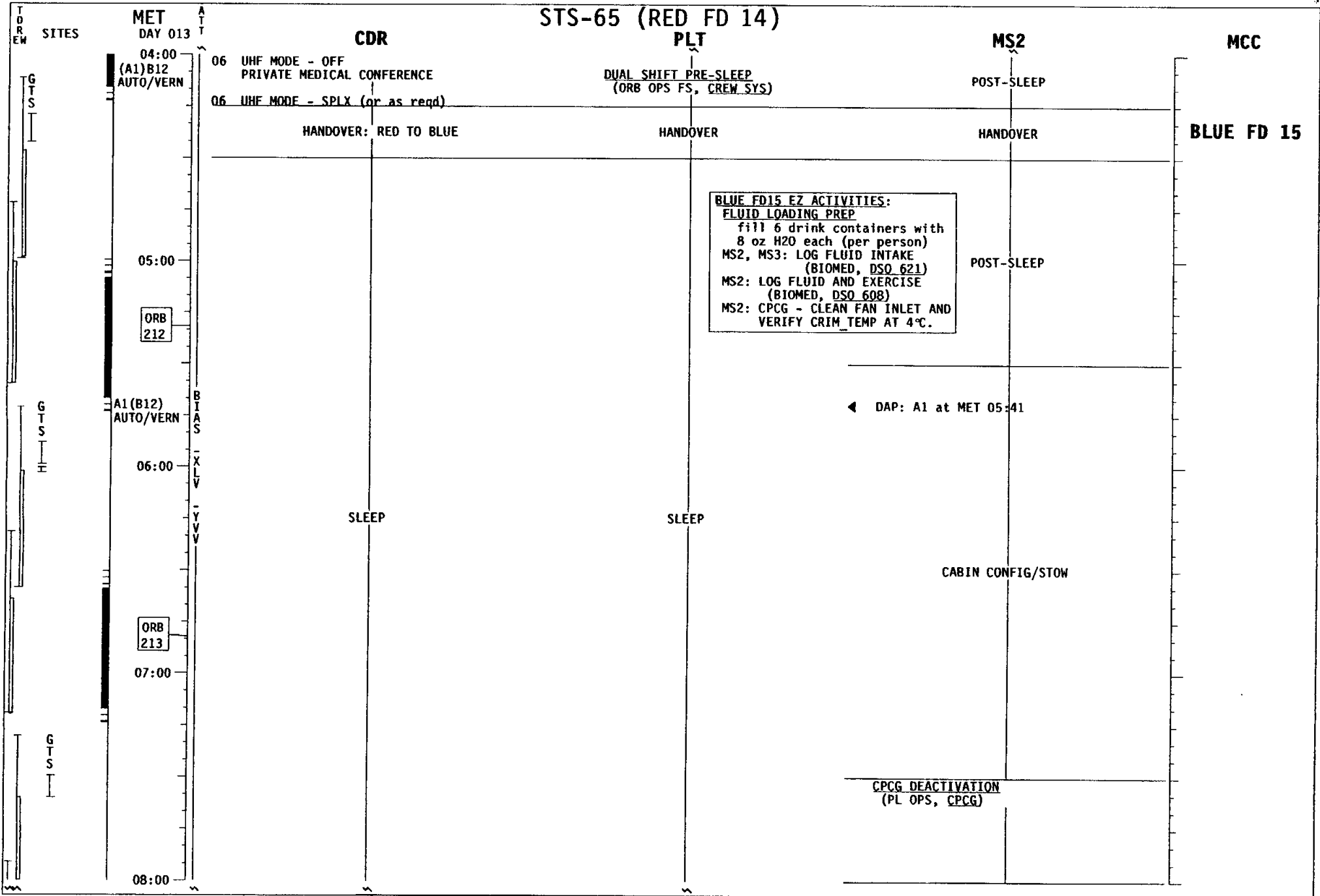




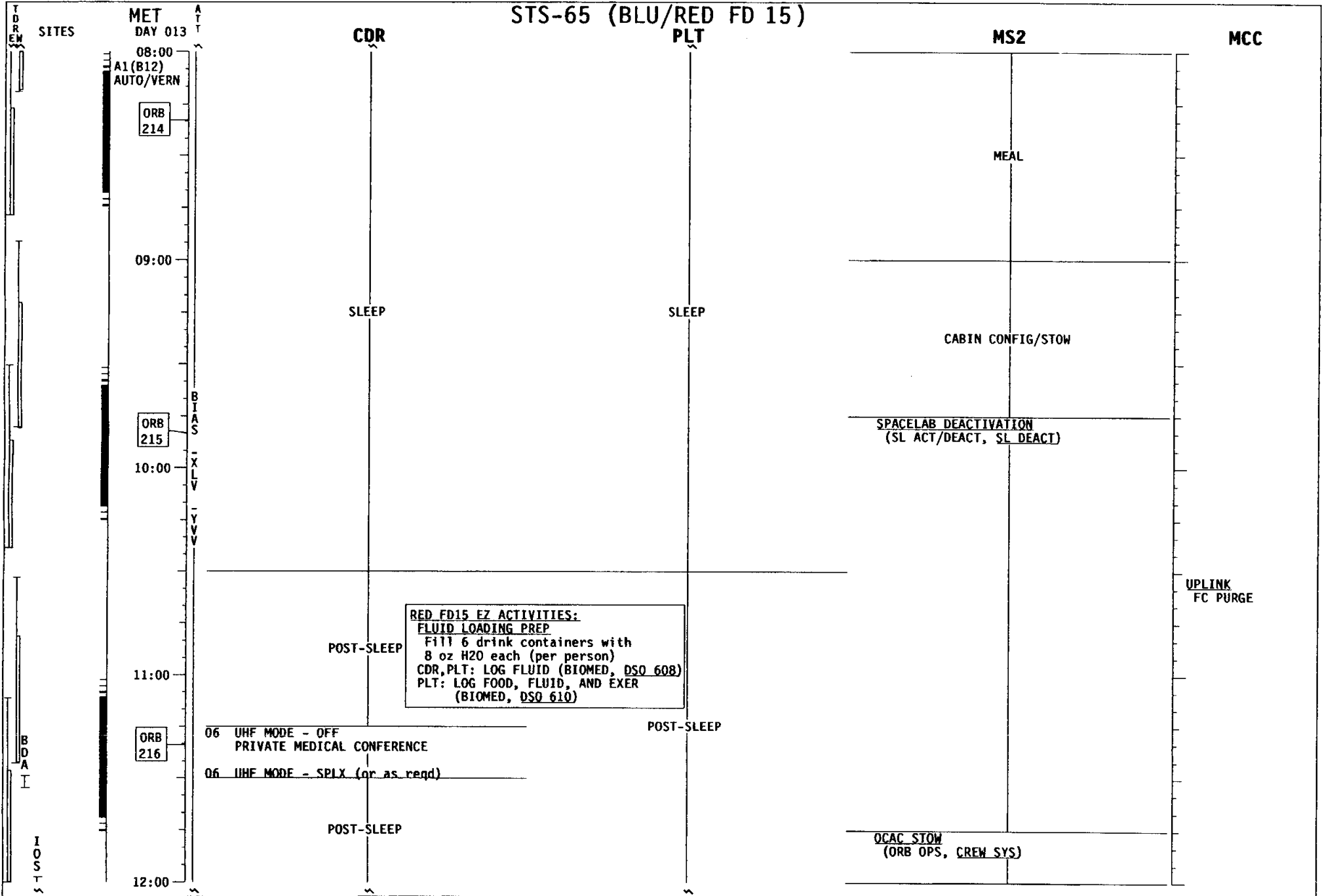
STS-65 (RED FD 14)



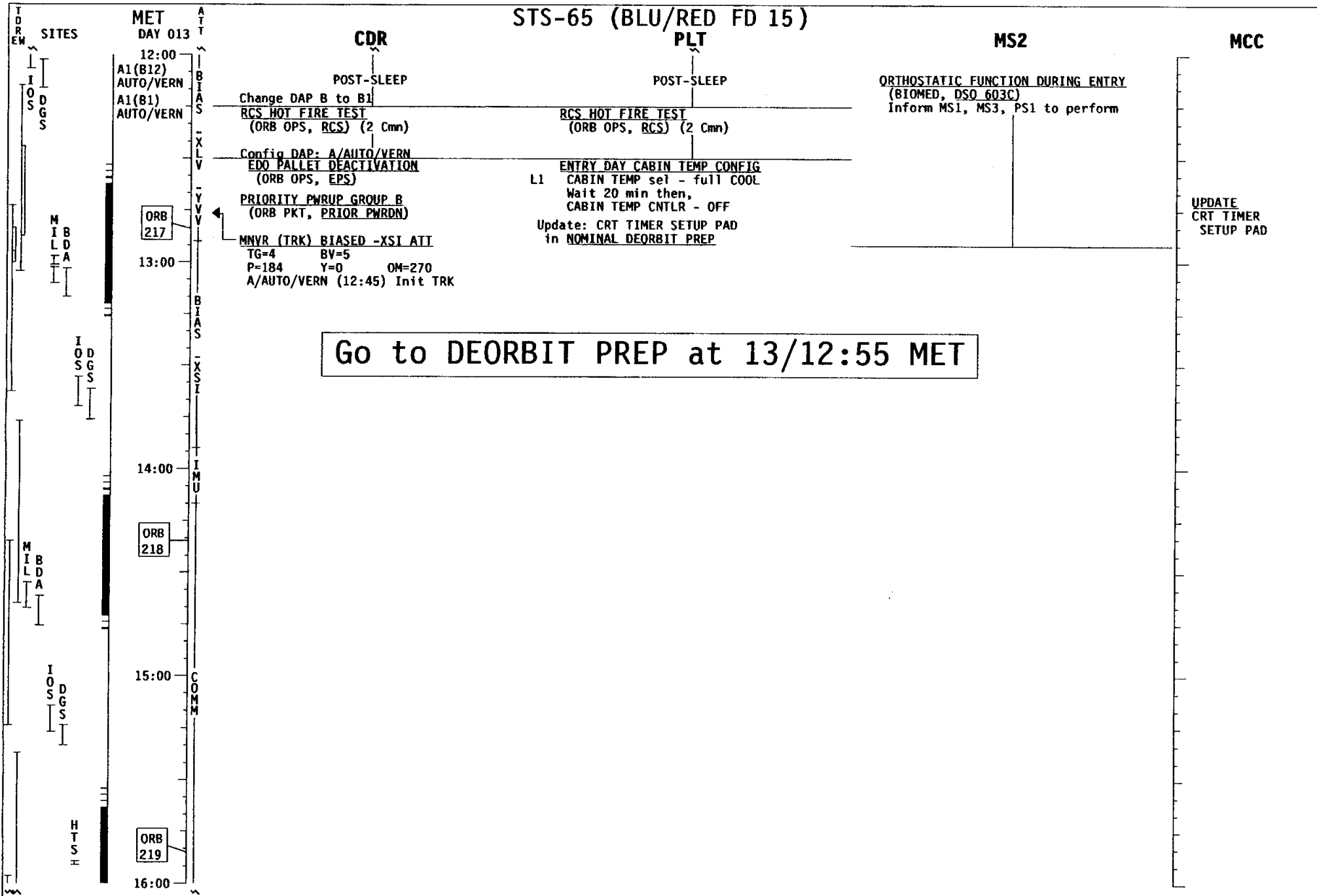




STS-65 (BLU/RED FD 15)



STS-65 (BLU/RED FD 15)



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ATTITUDE TIMELINE

ATTITUDE
TIMELINE

Attitude Timeline

MET/GMT	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT	
1 000/01:12:00 MET 20:08 189/18:18:00 GMT 26:08	TGT=2 BV=3 P= 90.00 Y= 0.00 OM=270.00	A1 AUTO PRI	DSC 0.200 DB AT 5.00 DB RT 0.20	EARTH R 360 P 90	LVLH R= 0.00 P=180.00 Y= 90.00	-ZLV +YVV POST INSERTION
2 000/03:30:00 MET 43:38 189/20:36:00 GMT 49:38	INRTL R=344.00 MNVR P=321.00 Y=352.00	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN R 134 P 95	STAR PAIR A1 -Y: 43 -Z: 28	IMU ALIGN
3 000/03:50:00 MET 58:02 189/20:56:00 GMT 21:04:02	TGT=2 BV=5 P=178.00 Y= 0.00 OM=283.00	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH R 360 P 178	LVLH R= 76.99 P= 90.45 Y= 1.95	BIAS -XLV +YVV
4 000/19:50:00 MET 20:03:50 190/12:56:00 GMT 13:09:50	INRTL R=281.00 MNVR P=322.00 Y=323.00	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN R 203 P 121	SPECIAL PAIR -Y: 29 -Z: 30	IMU / -Z COAS
5 000/20:30:00 MET 32:59 190/13:36:00 GMT 38:59	INRTL R=250.00 MNVR P=276.00 Y=306.00	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN R 222 P 120	HUD +X: 14	HUD CAL
6 000/20:55:00 MET 21:06:43 190/14:01:00 GMT 12:43	TGT=2 BV=5 P=178.00 Y= 0.00 OM=283.00	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH R 0 P 178	LVLH R= 76.99 P= 90.45 Y= 1.95	BIAS -XLV +YVV
7 012/15:40:00 MET 51:52 202/08:46:00 GMT 57:52	INRTL R=260.00 MNVR P=270.00 Y= 40.00	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN R 240 P 38		SAMS INIT ATT
8 012/15:55:00 MET 202/09:01:00 GMT	INRTL BV=5 ROTR P= 0.00 Y= 90.00	B9 AUTO PRI	DSC 1.000 DB AT 3.00 DB RT 0.20		INRTL R=260.00 P=270.00 Y= 40.00	SAMS PITCH
9 012/16:01:00 MET 202/09:07:00 GMT		B9 INRT PRI	DSC 1.000 DB AT 3.00 DB RT 0.20	SUN R 240 P 38	INRTL R=260.00 HOLD P=270.00 Y= 40.00	PITCH COMPLETE
10 012/16:02:00 MET 202/09:08:00 GMT	INRTL BV=1 ROTR P= 0.00 Y= 0.00	B9 AUTO PRI	DSC 1.000 DB AT 3.00 DB RT 0.20		INRTL R=260.00 P=270.00 Y= 40.00	SAMS ROLL
11 012/16:08:00 MET 202/09:14:00 GMT		B9 INRT PRI	DSC 1.000 DB AT 3.00 DB RT 0.20	SUN R 240 P 38	INRTL R=260.00 HOLD P=270.00 Y= 40.00	ROLL COMPLETE
12 012/16:09:00 MET 202/09:15:00 GMT	INRTL BV=5 ROTR P=270.00 Y= 0.00	B9 AUTO PRI	DSC 1.000 DB AT 3.00 DB RT 0.20		INRTL R=260.00 P=270.00 Y= 40.00	SAMS YAW

*** ALL ATTITUDES IN MEAN OF 1950 ***
*** PYR EULER SEQUENCE ***

ATTITUDE
TIMELINE

Attitude Timeline

MET/GMT	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT	
13 012/16:15:00 MET 202/09:21:00 GMT		B9 INRT PRI	DSC 1.000 DB AT 3.00 DB RT 0.20	SUN R 240 P 38	INRTL R=260.00 HOLD P=270.00 Y= 40.00	YAW COMPLETE
14 012/16:16:00 MET 202/09:22:00 GMT		A1 FREE VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN R 240 P 38	INRTL R=260.00 HOLD P=270.00 Y= 40.00	SAMS FREE DRIFT
15 012/16:25:00 MET 202/09:31:00 GMT	INRTL R=260.00 MNVR P=270.00 Y= 40.00	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN R 240 P 38		BEM3 INIT ATT
16 012/17:40:00 MET 202/10:46:00 GMT	INRTL BV=1 ROTR P= 0.00 Y= 0.00	B11 AUTO PRI	DSC 1.000 DB AT 3.00 DB RT 0.20		INRTL R=260.00 P=270.00 Y= 40.00	BEM3 ROLL
17 012/17:52:00 MET 202/10:58:00 GMT		B11 INRT PRI	DSC 1.000 DB AT 3.00 DB RT 0.20	SUN R 240 P 38	INRTL R=260.00 HOLD P=270.00 Y= 40.00	ROLL COMPLETE
18 012/17:55:00 MET 18:04:59 202/11:01:00 GMT 10:59	TGT=2 BV=5 P= 70.00 Y= 0.00 OM=180.00	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH R 0 P 70	LVLH R=180.00 P=340.00 Y= 0.00	OARE INIT ATT
19 012/18:10:00 MET 202/11:16:00 GMT	LVLH FREE ROTATION ROTR ABOUT +Y AXIS RATE=0.058	B10 LVLH VERN	DSC 0.200 DB AT 10.0 DB RT 0.50		LVLH R=180.00 P=340.00 Y= 0.00	OARE PITCH/Drag
20 012/18:30:00 MET 202/11:36:00 GMT		A1 LVLH PRI	DSC 0.200 DB AT 5.00 DB RT 0.20	EARTH R 0 P 0	LVLH R=180.00 HOLD P=270.40 Y= 0.00	TEST COMPLETE
21 012/18:35:00 MET 49:53 202/11:41:00 GMT 55:53	TGT=2 BV=5 P=178.00 Y= 0.00 OM=283.00	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH R 360 P 178	LVLH R= 76.99 P= 90.45 Y= 1.95	BIAS -XLV +YVV
22 013/01:40:00 MET 52:50 202/18:46:00 GMT 58:50	TGT=2 BV=5 P=178.00 Y= 0.00 OM= 77.00	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH R 0 P 178	LVLH R=283.01 P= 90.45 Y=358.05	BIAS -XLV -YVV
23 013/12:45:00 MET 58:19 203/05:51:00 GMT 06:04:19	TGT=4 RA= 120.713 BV=5 DEC= 20.448N P=184.00 Y= 0.00 OM=270.00	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN R 180 P 176	INRTL R= 56.41 P= 32.40 Y=302.94	BIASED -XS1 RAD COLDSOAK
24 013/13:58:00 MET 14:05:39 203/07:04:00 GMT 11:39	INRTL R=281.00 MNVR P=322.00 Y=323.00	A1 AUTO PRI	DSC 0.200 DB AT 5.00 DB RT 0.20	SUN R 215 P 128	ALIGN STAR PAIR -Y: 29 -Z: 30	D/O IMU ALIGN

*** ALL ATTITUDES IN MEAN OF 1950 ***
*** PYR EULER SEQUENCE ***

Attitude Timeline

MET/GMT	MNVR OPTION	DAP	E/S	REF ATT/REMARKS	EVENT	
25 013/14:10:00 MET 12:55 203/07:16:00 GMT 18:55	INRTL R=298.00 MNVR P=318.00 Y= 49.00	B1 AUTO PRI	DSC 0.500 DB AT 3.00 DB RT 0.20	SUN R 195 P 58	VERIF STAR PAIR -Y: 49 -Z: 60	D/O VERIF
26 013/14:25:00 MET 29:54 203/07:31:00 GMT 35:54	INRTL R= 56.00 MNVR P= 32.00 Y=303.00	B1 AUTO PRI	DSC 0.500 DB AT 3.00 DB RT 0.20	SUN R 178 P 176		D/O COMM
27 013/16:41:00 MET 45:44 203/09:47:00 GMT 51:44	INRTL R=173.00 MNVR P= 76.00 Y= 47.00 TIG: 13/16:56	TRN AUTO PRI	DSC 0.500 DB AT 3.50 DB RT 0.20	SUN R 254 P 74		D/O BURN

*** ALL ATTITUDES IN MEAN OF 1950 ***
 *** PYR EULER SEQUENCE ***

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STS-65 DAP BOOK

I-LOADED GENERIC DAP A CONFIGURATIONS

	ITEM #	A1	A2	A3	A4	A5	A6	A7	A8
PRI									
ROT RATE	10	0.2000	0.4000	0.2000	0.5000	0.2000	0.2000	0.2000	0.2000
ATT DB	11	5.00	1.00	1.00	3.00	5.00	5.00	2.00	2.00
RATE DB	12	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
ROT PLS	13	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
COMP	14	.000	.000	.000	.000	.000	.000	.000	.000
P OPTION	15	ALL	ALL	ALL	ALL	ALL	TAIL	ALL	ALL
Y OPTION	16	ALL	ALL	TAIL	ALL	ALL	TAIL	ALL	ALL
TRAN PLS	17	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.05
ALT									
RATE DB	18	0.200	0.200	0.200	0.200	0.070	0.070	0.200	0.200
JET OPT	19	ALL	ALL	ALL	ALL	ALL	TAIL	ALL	ALL
# JETS	20	2	2	2	2	1	1	2	2
ON TIME	21	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
DELAY	22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VERN									
ROT RATE	23	0.2000	0.4000	0.0080	0.2000	0.2000	0.2000	0.2000	0.2000
ATT DB	24	1.000	1.000	0.070	1.000	1.000	1.000	1.000	1.000
RATE DB	25	.020	.020	.010	.020	.020	.020	.020	.020
ROT PLS	26	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
COMP	27	.000	.000	.000	.000	.000	.000	.000	.000
CNTL ACC	28	0	0	0	0	0	0	0	0

I-LOADED GENERIC DAP B CONFIGURATIONS

	ITEM #	B1	B2	B3	B4	B5	B6	B7	B8
PRI									
ROT RATE	30	0.5000	0.2000	0.2000	0.2000	0.2000	0.5000	0.5000	0.2000
ATT DB	31	3.00	3.00	3.00	0.30	3.00	3.00	2.00	2.00
RATE DB	32	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
ROT PLS	33	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
COMP	34	.000	.000	.000	.000	.000	.000	.000	.000
P OPTION	35	ALL	TAIL	ALL	TAIL	TAIL	ALL	ALL	ALL
Y OPTION	36	ALL	TAIL	ALL	TAIL	TAIL	ALL	ALL	ALL
TRAN PLS	37	0.10	0.02	0.02	0.02	0.02	0.02	0.05	0.01
ALT									
RATE DB	38	0.200	0.070	0.070	0.200	0.200	0.200	0.200	0.200
JET OPT	39	ALL	TAIL	ALL	ALL	ALL	ALL	ALL	ALL
# JETS	40	2	1	1	2	2	2	2	2
ON TIME	41	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
DELAY	42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VERN									
ROT RATE	43	0.2000	0.2000	0.2000	0.0080	0.0160	0.2000	0.2000	0.2000
ATT DB	44	1.000	1.000	1.000	0.100	0.033	1.000	1.000	1.000
RATE DB	45	.020	.020	.020	.010	.020	.020	.020	.020
ROT PLS	46	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
COMP	47	.000	.000	.000	.000	.000	.000	.000	.000
CNTL ACC	48	0	0	0	0	0	0	0	0

STS-65 DAP B CONFIGURATIONS

	ITEM #	B9	B10	B11	B12
PRI					
ROT RATE	30	1.0000	0.5000	1.0000	0.2000
ATT DB	31	3.00	10.00	3.00	5.00
RATE DB	32	0.20	0.50	0.20	0.20
ROT PLS	33	0.04	0.04	0.04	0.10
COMP	34	.000	.000	.000	.000
P OPTION	35	ALL	ALL	NOSE	TAIL
Y OPTION	36	ALL	ALL	NOSE	TAIL
TRAN PLS	37	0.10	0.10	0.10	0.10
ALT					
RATE DB	38	0.200	0.200	0.200	0.070
JET OPT	39	ALL	ALL	ALL	TAIL
# JETS	40	2	2	2	1
ON TIME	41	0.08	0.08	0.08	0.08
DELAY	42	0.00	0.00	0.00	0.00
VERN					
ROT RATE	43	0.2000	0.2000	1.0000	0.2000
ATT DB	44	1.000	10.000	3.000	3.000
RATE DB	45	.020	.500	.020	.020
ROT PLS	46	0.002	0.002	0.002	0.010
COMP	47	.000	.000	.000	.000
CNTL ACC	48	0	0	0	0



<u>DAP</u>	<u>PURPOSE</u>	<u>DAP</u>	<u>PURPOSE</u>
A1	- NOMINAL	B1	- NOMINAL; OMS & RCS BURNS
A2	- PTC	B2	- LOSS OF VERN (TAIL ONLY)
A3	- GG	B3	- LOSS OF VERN (NOSE & TAIL)
A4	- PRE/POST DEPLOY		GG MNVR
A5	- LOSS OF VERN (NOSE AND TAIL)	B4	- SSUS DEPLOY
A6	- LOSS OF VERN (TAIL ONLY)	B5	- COAS CAL
A7	- RENDEZVOUS	B6	- (blank)
A8	- PROX OPS	B7	- RENDEZVOUS
		B8	- PROX OPS
		B9	- SAMS/CPF ROTATIONS
		B10	- OARE PITCH/Drag
		B11	- BEM3
		B12	- IML2

CNT ACC = 0 UNLOADED
1-5 NOT USED



FLT PLN-1a/65/O/A



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FLT PLN-1b/65/O/A



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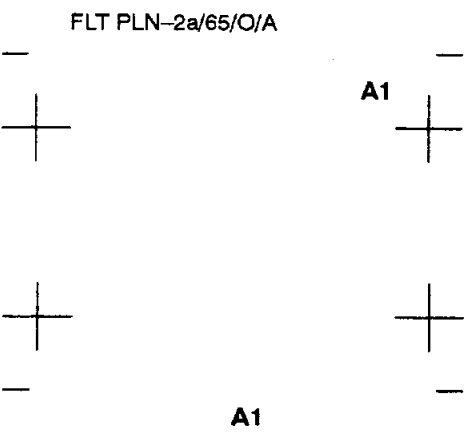


DAP A



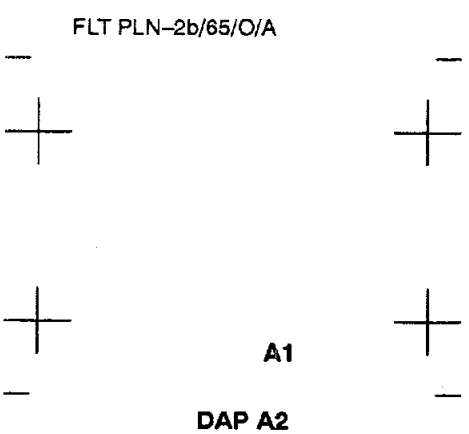
DAP A1

PURPOSE:
NOMINAL



FLT PLN-2a/65/O/A

A1



FLT PLN-2b/65/O/A

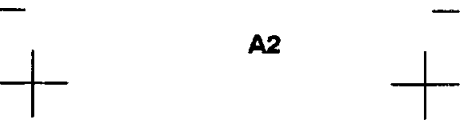
A1

DAP A2

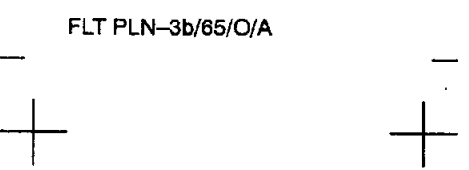
PURPOSE:
PTC

	A1	
DAP A 0 1	1	PRI
0.2 0 0 0	10	ROT RATE
- 5.0 0	11	ATT DB
0.2 0	12	RATE DB
0.1 0	13	ROT PLS
.0 0 0	14	COMP
ALL	15	P OPTION
ALL	16	Y OPTION
0.1 0	17	TRAN PLS
		ALT
0.2 0 0	18	RATE DB
ALL	19	JET OPT
2	20	#JETS
0.0 8	21	ON TIME
0 0.0 0	22	DELAY
		VERN
0.2 0 0 0	23	ROT RATE
- 1.0 0 0	24	ATT DB
.0 2 0	25	RATE DB
0.0 1 0	26	ROT PLS
.0 0 0	27	COMP
0	28	CNTL ACC

FLT PLN-3a/65/O/B

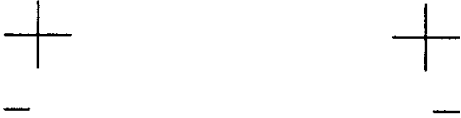


A2



FLT PLN-3b/65/O/A

(reduced copy)



A2

DAP A 02	1	PRI
<u>0.4000</u>	10	ROT RATE
<u>-1.00</u>	11	ATT DB
<u>0.20</u>	12	RATE DB
<u>0.10</u>	13	ROT PLS
<u>0.00</u>	14	COMP
ALL	15	P OPTION
ALL	16	Y OPTION
<u>0.10</u>	17	TRAN PLS
		ALT
<u>0.200</u>	18	RATE DB
ALL	19	JET OPT
2	20	#JETS
<u>0.08</u>	21	ON TIME
<u>-0.00</u>	22	DELAY
		VERN
<u>0.4000</u>	23	ROT RATE
<u>-1.000</u>	24	ATT DB
<u>0.20</u>	25	RATE DB
<u>0.010</u>	26	ROT PLS
<u>0.00</u>	27	COMP
0	28	CNTL ACC

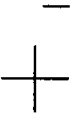
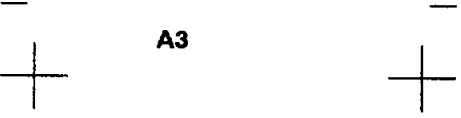
FLT PLN-4a/65/O/B

A2

DAP A3

PURPOSE:
GG

FLT PLN-4b/65/O/A



A3



A3

A3

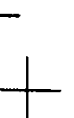
DAP A 03	1	PRI
<u>0.2000</u>	10	ROT RATE
<u>-1.00</u>	11	ATT DB
<u>0.20</u>	12	RATE DB
<u>0.10</u>	13	ROT PLS
<u>0.00</u>	14	COMP
ALL	15	P OPTION
TAIL	16	Y OPTION
<u>0.10</u>	17	TRAN PLS
		ALT
<u>0.200</u>	18	RATE DB
ALL	19	JET OPT
2	20	#JETS
<u>0.08</u>	21	ON TIME
<u>-0.00</u>	22	DELAY
		VERN
<u>0.0080</u>	23	ROT RATE
<u>-0.070</u>	24	ATT DB
<u>0.10</u>	25	RATE DB
<u>0.010</u>	26	ROT PLS
<u>0.00</u>	27	COMP
0	28	CNTL ACC

FLT PLN-5a/65/O/B

DAP A4

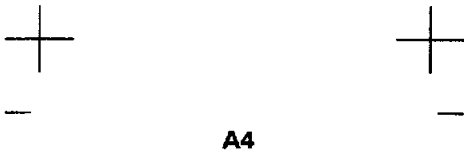
PURPOSE:
PRE/POST DEPLOY

FLT PLN-5b/65/O/A



A4

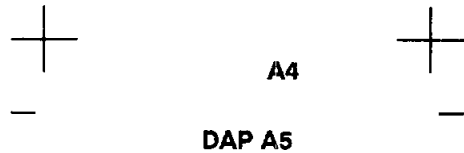
(reduced copy)



A4

DAP A 0 4	1	PRI
<u>0.5 0 0 0</u>	10	ROT RATE
<u>- 3.0 0</u>	11	ATT DB
<u>0.2 0</u>	12	RATE DB
<u>0.1 0</u>	13	ROT PLS
<u>.0 0 0</u>	14	COMP
ALL	15	P OPTION
ALL	16	Y OPTION
<u>0.1 0</u>	17	TRAN PLS
		ALT
<u>0.2 0 0</u>	18	RATE DB
ALL	19	JET OPT
<u>2</u>	20	#JETS
<u>0.0 0</u>	21	ON TIME
<u>- 0.0 0</u>	22	DELAY
		VERN
<u>0.2 0 0 0</u>	23	ROT RATE
<u>- 1.0 0 0</u>	24	ATT DB
<u>.0 2 0</u>	25	RATE DB
<u>0.0 1 0</u>	26	ROT PLS
<u>.0 0 0</u>	27	COMP
<u>0</u>	28	CNTL ACC

FLT PLN-6a/65/O/B



A4

DAP A5

PURPOSE:
LOSS OF VERN
(NOSE AND TAIL)

FLT PLN-6b/65/O/A



A5



A5

A5

DAP A 0 5	1	PRI
<u>0.2 0 0 0</u>	10	ROT RATE
<u>- 5.0 0</u>	11	ATT DB
<u>0.2 0</u>	12	RATE DB
<u>0.1 0</u>	13	ROT PLS
<u>.0 0 0</u>	14	COMP
ALL	15	P OPTION
ALL	16	Y OPTION
<u>0.1 0</u>	17	TRAN PLS
		ALT
<u>0.0 7 0</u>	18	RATE DB
ALL	19	JET OPT
<u>1</u>	20	#JETS
<u>0.0 0</u>	21	ON TIME
<u>- 0.0 0</u>	22	DELAY
		VERN
<u>0.2 0 0 0</u>	23	ROT RATE
<u>- 1.0 0 0</u>	24	ATT DB
<u>.0 2 0</u>	25	RATE DB
<u>0.0 1 0</u>	26	ROT PLS
<u>.0 0 0</u>	27	COMP
<u>0</u>	28	CNTL ACC

FLT PLN-7a/65/O/B

DAP A6

PURPOSE:
LOSS OF VERN
(TAIL ONLY)

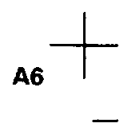
FLT PLN-7b/65/O/A



A6



(reduced copy)



A6

DAP A 0 6	1	PRI
<u>0.2 0 0 0</u>	10	ROT RATE
<u>- 5.0 0</u>	11	ATT DB
<u>0.2 0</u>	12	RATE DB
<u>0.1 0</u>	13	ROT PLS
<u>.0 0 0</u>	14	COMP
TAIL	15	P OPTION
TAIL	16	Y OPTION
<u>0.1 0</u>	17	TRAN PLS
		ALT
<u>0.0 7 0</u>	18	RATE DB
TAIL	19	JET OPT
<u>1</u>	20	#JETS
<u>0.0 8</u>	21	ON TIME
<u>- 0.0 0</u>	22	DELAY
		VERN
<u>0.2 0 0 0</u>	23	ROT RATE
<u>- 1.0 0 0</u>	24	ATT DB
<u>.0 2 0</u>	25	RATE DB
<u>0.0 1 0</u>	26	ROT PLS
<u>.0 0 0</u>	27	COMP
<u>0</u>	28	CNTL ACC

FLT PLN-8a/65/O/B

DAP A7

PURPOSE:
RENDEZVOUS

FLT PLN-8b/65/O/A



A7



A7

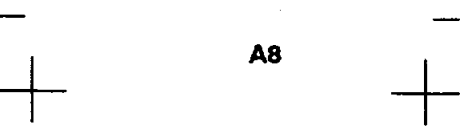
DAP A 0 7	1	PRI
<u>0.2 0 0 0</u>	10	ROT RATE
<u>- 2.0 0</u>	11	ATT DB
<u>0.2 0</u>	12	RATE DB
<u>0.1 0</u>	13	ROT PLS
<u>.0 0 0</u>	14	COMP
ALL	15	P OPTION
ALL	16	Y OPTION
<u>0.1 0</u>	17	TRAN PLS
		ALT
<u>0.2 0 0</u>	18	RATE DB
ALL	19	JET OPT
<u>2</u>	20	#JETS
<u>0.0 8</u>	21	ON TIME
<u>- 0.0 0</u>	22	DELAY
		VERN
<u>0.2 0 0 0</u>	23	ROT RATE
<u>- 1.0 0 0</u>	24	ATT DB
<u>.0 2 0</u>	25	RATE DB
<u>0.0 1 0</u>	26	ROT PLS
<u>.0 0 0</u>	27	COMP
<u>0</u>	28	CNTL ACC

FLT PLN-9a/65/O/B

DAP A8

PURPOSE:
PROX OPS

FLT PLN-9b/65/O/A



A8



(reduced copy)



A8

A8

DAP A 0 8	1	PRI
0.2 0 0 0	10	ROT RATE
- 2.0 0	11	ATT DB
0.2 0	12	RATE DB
0.1 0	13	ROT PLS
0.0 0 0	14	COMP
ALL	15	P OPTION
ALL	16	Y OPTION
0.0 5	17	TRAN PLS
		ALT
0.2 0 0	18	RATE DB
ALL	19	JET OPT
2	20	#JETS
0.0 8	21	ON TIME
- 0.0 0	22	DELAY
		VERN
0.2 0 0 0	23	ROT RATE
- 1.0 0 0	24	ATT DB
0.2 0	25	RATE DB
0.0 1 0	26	ROT PLS
0.0 0 0	27	COMP
0	28	CNTL ACC

FLT PLN-10a/65/O/B

FLT PLN-10b/65/O/A



DAP B

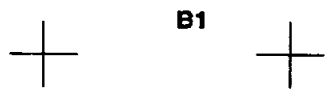
DAP B1

PURPOSE:
NOMINAL; OMS &
RCS BURNS



FLT PLN-11a/65/O/A

FLT PLN-11b/65/O/A



B1



(reduced copy)

FLT PLN/65/FIN



B1

2	DAP B 0 1
30	<u>0.5 0 0 0</u>
31	- <u>3.0 0</u>
32	<u>0.2 0</u>
33	<u>0.0 4</u>
34	<u>.0 0 0</u>
35	ALL
36	ALL
37	<u>0.1 0</u>
38	<u>0.2 0 0</u>
39	ALL
40	2
41	<u>0.0 8</u>
42	- <u>0.0 0</u>
43	<u>0.2 0 0 0</u>
44	- <u>1.0 0 0</u>
45	<u>.0 2 0</u>
46	<u>0.0 0 2</u>
47	<u>.0 0 0</u>
48	0

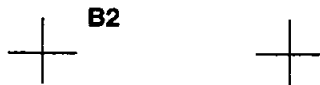
FLT PLN-12a/65/O/B



B1

DAP B2

PURPOSE:
LOSS OF VERN
(TAIL ONLY)



B2



B2

2	DAP B 0 2
30	<u>0.2 0 0 0</u>
31	- <u>3.0 0</u>
32	<u>0.2 0</u>
33	<u>0.0 4</u>
34	<u>.0 0 0</u>
35	TAIL
36	TAIL
37	<u>0.0 2</u>
38	<u>0.0 7 0</u>
39	TAIL
40	1
41	<u>0.0 8</u>
42	- <u>0.0 0</u>
43	<u>0.2 0 0 0</u>
44	- <u>1.0 0 0</u>
45	<u>.0 2 0</u>
46	<u>0.0 0 2</u>
47	<u>.0 0 0</u>
48	0

FLT PLN-13a/65/O/B



B2

DAP B3

PURPOSE:
LOSS OF VERN
(NOSE & TAIL)



B3



(reduced copy)



B3

2	DAP B 0 3
30	<u>0.2 0 0 0</u>
31	- <u>3.0 0</u>
32	<u>0.2 0</u>
33	<u>0.0 4</u>
34	<u>.0 0 0</u>
35	ALL
36	ALL
37	<u>0.0 2</u>
38	<u>0.0 7 0</u>
39	ALL
40	<u>1</u>
41	<u>0.0 8</u>
42	- <u>0.0 0</u>
43	<u>0.2 0 0 0</u>
44	- <u>1.0 0 0</u>
45	<u>.0 2 0</u>
46	<u>0.0 0 2</u>
47	<u>.0 0 0</u>
48	<u>0</u>

FLT PLN-14a/65/O/B



B3

DAP B4

PURPOSE:

SSUS DEPLOY



B4



B4

2	DAP B 0 4
30	<u>0.2 0 0 0</u>
31	- <u>0.3 0</u>
32	<u>0.2 0</u>
33	<u>0.0 4</u>
34	<u>.0 0 0</u>
35	TAIL
36	TAIL
37	<u>0.0 2</u>
38	<u>0.2 0 0</u>
39	ALL
40	<u>2</u>
41	<u>0.0 8</u>
42	- <u>0.0 0</u>
43	<u>0.0 0 8 0</u>
44	- <u>0.1 0 0</u>
45	<u>.0 1 0</u>
46	<u>0.0 0 2</u>
47	<u>.0 0 0</u>
48	<u>0</u>

FLT PLN-15a/65/O/B

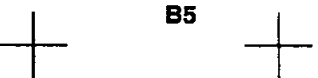


B4

DAP B5

PURPOSE:

COAS CAL



B5



(reduced copy)



B5

2	DAP B 0 5
30	0.2 0 0 0
31	- 3.0 0
32	0.2 0
33	0.0 4
34	.0 0 0
35	TAIL
36	TAIL
37	0.0 2
38	0.2 0 0
39	ALL
40	2
41	0.0 8
42	- 0.0 0
43	0.0 1 6 0
44	- 0.0 3 3
45	.0 2 0
46	0.0 0 2
47	.0 0 0
48	0

FLT PLN-16a/65/O/B

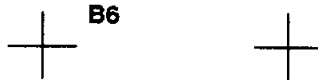


B5

DAP B6

PURPOSE:

(blank)



B6



B6

2	DAP B 0 6
30	0.5 0 0 0
31	- 3.0 0
32	0.2 0
33	0.0 4
34	.0 0 0
35	ALL
36	ALL
37	0.0 2
38	0.2 0 0
39	ALL
40	2
41	0.0 8
42	- 0.0 0
43	0.2 0 0 0
44	- 1.0 0 0
45	.0 2 0
46	0.0 0 2
47	.0 0 0
48	0

FLT PLN-17a/65/O/B



B6

DAP B7

PURPOSE:

RENDEZVOUS



B7



(reduced copy)



B7

2	DAP B 0 7
30	<u>0.5 0 0 0</u>
31	<u>- 2.0 0</u>
32	<u>0.2 0</u>
33	<u>0.0 4</u>
34	<u>.0 0 0</u>
35	ALL
36	ALL
37	<u>0.0 5</u>
38	<u>0.2 0 0</u>
39	ALL
40	<u>2</u>
41	<u>0.0 8</u>
42	<u>- 0.0 0</u>
43	<u>0.2 0 0 0</u>
44	<u>- 1.0 0 0</u>
45	<u>.0 2 0</u>
46	<u>0.0 0 2</u>
47	<u>.0 0 0</u>
48	<u>0</u>

FLT PLN-18a/65/O/B



B7

DAP B8

PURPOSE:
PROX OPS



B8



B8

2	DAP B 0 8
30	<u>0.2 0 0 0</u>
31	<u>- 2.0 0</u>
32	<u>0.2 0</u>
33	<u>0.0 4</u>
34	<u>.0 0 0</u>
35	ALL
36	ALL
37	<u>0.0 1</u>
38	<u>0.2 0 0</u>
39	ALL
40	<u>2</u>
41	<u>0.0 8</u>
42	<u>- 0.0 0</u>
43	<u>0.2 0 0 0</u>
44	<u>- 1.0 0 0</u>
45	<u>.0 2 0</u>
46	<u>0.0 0 2</u>
47	<u>.0 0 0</u>
48	<u>0</u>

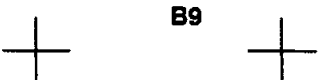
FLT PLN-19a/65/O/B



B8

DAP B9

PURPOSE:
SAMS/CPF
ROTATIONS



B9



(reduced copy)



B9

2/4	DAP B 0 9
30/50	1.0 0 0 0
31/51	- 3.0 0
32/52	0.2 0
33/53	0.0 4
34/54	.0 0 0
35/55	ALL
36/56	ALL
37/57	0.1 0
38/58	0.2 0 0
39/59	ALL
40/60	2
41/61	0.0 8
42/62	- 0.0 0
43/63	0.2 0 0 0
44/64	- 1.0 0 0
45/65	.0 2 0
46/66	0.0 0 2
47/67	.0 0 0
48/68	0

FLT PLN-20a/65/O/B



B10



B10

2/4	DAP B 1 0
30/50	0.5 0 0 0
31/51	1 0.0 0
32/52	0.5 0
33/53	0.0 4
34/54	.0 0 0
35/55	ALL
36/56	ALL
37/57	0.1 0
38/58	0.2 0 0
39/59	ALL
40/60	2
41/61	0.0 8
42/62	- 0.0 0
43/63	0.2 0 0 0
44/64	1 0.0 0 0
45/65	.5 0 0
46/66	0.0 0 2
47/67	.0 0 0
48/68	0

FLT PLN-21a/65/O/B



B11



B9

DAP B10

PURPOSE:

OARE PITCH/DRAG

FLT PLN-20b/65/O/A



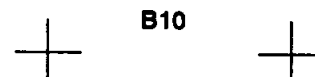
B10

DAP B11

PURPOSE:

BEM3

FLT PLN-21b/65/O/A



B10

(reduced copy)



B11

2/4	DAP B 1 1
30/51	1.0 0 0 0
31/52	- 3.0 0
32/53	0.2 0
33/54	0.0 4
34/55	.0 0 0
35/56	NOSE
36/57	NOSE
37/58	0.1 0
38/59	0.2 0 0
39/60	ALL
40/61	2
41/62	0.0 8
42/63	- 0.0 0
43/64	1.0 0 0 0
44/65	- 3.0 0
45/66	.0 2 0
46/67	0.0 0 2
47/68	.0 0 0
48/69	0

FLT PLN-22a/65/O/B



B11

DAP B12

PURPOSE:

IML2



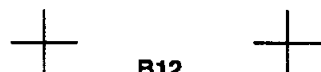
B12



B12

2/4	DAP B 1 2
30/50	0.2 0 0 0
31/51	- 5.0 0
32/52	0.2 0
33/53	0.1 0
34/54	.0 0 0
35/55	TAIL
36/56	TAIL
37/57	0.1 0
38/58	0.0 7 0
39/59	TAIL
40/60	1
41/61	0.0 8
42/62	- 0.0 0
43/63	0.2 0 0 0
44/64	- 3.0 0 0
45/65	.0 2 0
46/66	0.0 1 0
47/67	.0 0 0
48/68	0

FLT PLN-23a/65/O/B



B12

FLT PLN-23b/65/O/A



(reduced copy)



UNIV PTG	
TGT ID	= 1 Orbiting Vehicle = 2 Earth ctr = 3 Earth tgt Input LAT (± 90) LON (± 180 , + = East) ALT (-3444.0 to 20000.0 nm) = 4 Sun ctr = 5 Celestial tgt Input RA (0-359.99) DEC (± 90) = 11-110 Nav Stars
BODY VECT	= 1 +X* = 2 -X* = 3 -Z* = 4 -Y Star Tracker* = 5 Optional Input P (0-359.99) Y (270-359.99, 0-90) * input OM → OM (0-359.99)
MON AXIS	= 1 +X = 2 -X

FLT PLN-24/65/O/A

FLT PLN-24/65/O/A is mounted on the back of the DAP Book

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STS-65
FLIGHT PLAN NOTES

FLIGHT PLAN NOTES
(CONSTRAINTS AND GUIDELINES)

A. FLIGHT DESCRIPTION

Orbiter: OV102/Columbia
 Inclination: 28.45°
 Altitude: 163 x 160
 Duration: 14 + 2

B. MAJOR EVENTS

<u>EVENT</u>	<u>MET</u>	<u>DATE</u>	<u>CDT</u>	<u>GMT</u>	<u>ΔV</u>	<u>ORBIT</u>
Launch	0/00:00	7/08/94	12:06	17:06	--	--
OMS-2	0/00:42	7/08/94	12:48	17:48	220.7	163/160
D/O Burn	13:16:56	7/22/94	05:02	10:02	270.0	--
Landing	13:17:56	7/22/94	06:02	11:02	--	--

C. LANDING OPPORTUNITIES:

		<u>Landing Orbit</u>	<u>Site</u>	<u>Local Time</u>
		<u>No.</u>		
Nominal	Primary	220	KSC	07:02 EDT
	1 Rev late	221	KSC	08:38 EDT
1 Day Late	Primary	236	KSC	07:08 EDT
	1 Rev late	237	KSC	08:44 EDT
2 Days Late	Primary	252	KSC	07:14 EDT
	1 Rev late	253	EDW	05:41 PDT

D. CREW

CDR - Bob Cabana
 PLT - Jim Halsell
 MS1 - Rick Hieb
 MS2 - Carl Walz
 MS3 - Leroy Chiao
 MS4 - Don Thomas
 PS1 - Chiaki Mukai

E. COMMUNICATIONS

TDRS Support: East (41° W), West (174° W)
 Backup Real-Time TV: GDS(GDX), MIL(MLX)
 Contingency GSTDN: MIL(MLX), BDA(BDX), DKR, DFR, and GDS(GDX)
 Contingency RTS: HTS, GTS, VTS, IOS, CTS, DGS, and OTS

Lead time for site call-up: GSTDN - 2 hr, RTS - 4 hr

FLT PLN
NOTES

F. PAYLOADS

1. International Microgravity Laboratory – 2 (IML–2)

The IML–2 is the second in a series of Spacelab flights designed to conduct research, dedicated to materials and life sciences, in a microgravity environment. More than 200 scientists from 13 countries are collaborating with NASA on the IML–2 mission. Data from the IML missions contributes to the research base for the Space Station.

MATERIAL SCIENCES EXPERIMENTS:

- a. **Bubble, Drop, and Particle Unit (BDPU)** – The BDPU is a multiple–user facility mounted in a spacelab rack to study the dynamics of bubbles, drops, and particles within optically transparent fluid matrices.
- b. **Critical Point Facility (CPF)** – The CPF enables measurements of material properties at the critical point at which many physical properties assume extreme values or at which profound step changes in material properties occur.
- c. **Large Isothermal Furnace (LIF)** – The LIF provides uniform temperature in a vacuum chamber as large samples are heated to high temperatures and then rapidly cooled.
- d. **Quasi–Steady Acceleration Measurement (QSAM)** – The QSAM facility employs four rotating sensors and three static sensors to measure the residual quasi–steady acceleration components in the spacelab.
- e. **Applied Research on Separation Methods Using Space Electrophoresis (RAMSES)** – The RAMSES experiment allows the investigation of a wide variety of transport phenomena to better understand the basic mechanisms which govern electrophoresis methods. Electrophoresis methods can be used to produce very pure biological products.
- f. **Space Acceleration Measurement System (SAMS)** – The SAMS will obtain acceleration measurements in support of microgravity experiments using three remote triaxial sensors and a microprocessor–driven data acquisition system.
- g. **Electromagnetic Containerless Processing Facility (TEMPUS)** – TEMPUS is a levitation melting facility for containerless processing of metallic samples in an ultra–clean environment.
- h. **Vibration Isolation Box Experiment System (VIBES)** – The VIBES has been designed and developed to investigate the effect of microgravity jitter, (which is caused by crew operations and other experiment equipment in space laboratories) on experiments requiring a good microgravity environment.
- i. **Advanced Protein Crystallization Facility (APCF)** – The APCF serves as a multi–user facility for the on–orbit crystallization of protein under microgravity conditions, enabling undisturbed nucleation and growth of proteins to obtain large crystals.
- j. **Free Flow Electrophoresis Unit (FFEU)** – The FFEU is used to verify separation conditions of biomaterials using free–flow electrophoresis.

LIFE SCIENCES EXPERIMENTS:

- a. **Biorack (BR)** – The Biorack is a multipurpose facility that is designed to enable biological investigations of such life forms as plants, tissues, cells, bacteria and insects during space flight—especially the effects of microgravity and high-energy cosmic radiation (HZE) on organisms.
- b. **Biostack (BSK)** – The Biostack experiment is designed to determine the radio biological importance of the cosmic ray particles of high mass number and energy (HZE particles) and nuclear disintegration stars.
- c. **Thermoelectric Incubator (TEI)** – TEI is a general purpose incubator used in the Spacelab module to maintain biological specimens at constant temperature and humidity environments.
- d. **Slow Rotating Centrifuge Microscope (NIZEMI)** – The NIZEMI is a facility for observing living and non living matter exposed to G-levels between 10.3 and 1.5 G.
- e. **Aquatic Animal Experiment Unit (AAEU)** – The AAEU is used to breed and manipulate aquatic animals to study ovulation, fertilization and embryogenesis.
- f. **Real-time Radiation Monitoring Device (RRMD)** – The RRMD is used for real-time dosimetry of High Energy (HZE) and cosmic radiation and to research their effects on biological samples.
- g. **Spinal Changes in Microgravity (SCM)** – SCM will test the hypothesis that the known height increase in microgravity of up to 7.0 cm results in back pain and alteration in the configuration of the spinal column and that these changes result in traction on the spinal cord resulting in spinal cord dysfunction (motor, sensory, and/or autonomic).
- h. **Performance Assessment Workstation (PAWS)** – The purpose of this experiment is to determine the effects of microgravity upon cognitive skills that are critical to the successful performance of many on-board tasks.

EXTENDED DURATION ORBITER MEDICAL PROJECT (EDOMP) EXPERIMENTS:

- a. **Lower Body Negative Pressure Device (LBNPD)** – The LBNP experiment objective is to evaluate the effectiveness of the combination of fluid loading during the application of negative pressure to the lower body.
- b. **Microbial Air Sampler (MAS)** – The MAS experiment objective is to collect airborne microbial contaminant levels on agar strips.

2. Commercial Protein Crystal Growth (CPCG)

The CPCG payload will supply information on the scientific methods and commercial potential for growing large, high-quality protein crystals in microgravity. STS-65 is flying the Block I configuration which includes one Commercial Refrigerator/Incubator Module (CR/IM). This CR/IM contains three Vapor Diffusion Apparatuses (VDAs). The CR/IM will operate at 4 degC.

3. Orbiter Acceleration Research Experiment (OARE)

The OARE will acquire accurate measurement data of low level aerodynamic acceleration on the orbiter in the free-molecular flow regime of the upper atmosphere.

4. Shuttle Amateur Radio Experiment (SAREX II-C)

SAREX II-C is a suite of amateur radio equipment consisting of a handheld transceiver, window antenna, headset assembly, interface module, spare battery set, packet module, and personal tape recorder. SAREX will also use one of the orbiter PGSCs. The crew will use SAREX to communicate with various ground radio operators.

5. Air Force Maui Optical Site Calibration Test (AMOS)

The primary objective of the AMOS activity is to use the orbiter during cooperative overflights of Maui to obtain imagery and/or signature data to support the calibration of the AMOS groundbased sensors and to observe plume phenomenology. No unique onboard hardware is associated with the AMOS tests; crew and orbiter participation are required to establish the controlled conditions for the Maui cooperative overflight.

6. Military Applications of Ship Tracks (MAST)

The Crew will use the Linhof and Hasselblad cameras in attempts to correlate ship activity to the ship tracks formed in stratus, stratocumulus, and fog when ship-induced disturbances and emissions alter the existing cloud structure.

G. ON-ORBIT DTOs

1. Cabin Air Monitoring (DTO 623)

This DTO will use the solid sorbent sampler to continuously sample the orbiter atmosphere throughout the flight. The solid sorbent sampler is to be flown on all spacelab manned module flights.

2. Foot Restraint Evaluation (DTO 655)

The purpose of this DTO is to evaluate a new conceptual design for foot restraints.

3. Acoustical Noise Dosimeter Data (DTO 663)

The primary purpose of this DTO is to obtain baseline data of time-averaged acoustical noise levels in the middeck and airlock using an audio dosimeter.

4. Acoustical Noise Sound Level Data (DTO 665)

The purpose of this DTO is to obtain baseline data of octave-band acoustical noise levels for the middeck flight deck using a spacelab analog sound level meter.

5. Portable Inflight Landing Operations Trainer (PILOT) (DTO 667)

This DTO consists of a laptop PC with landing software and a spare RHC (essentially a landing simulator). The DTO will attempt to verify that the simulator will assist the CDR and PLT in maintaining a high level of proficiency for approach and landing on EDO missions.

6. Inertial Vibration Isolation System (DTO 682)

This DTO consists of hardware that will be mounted with the cycle ergometer to help protect the microgravity environment during crew exercise. This isolation system has been designed based on analysis of data from STS-50 and adds an inertial mass to counteract forces produced by exercise.

7. Microgravity Measurement Device (DTO 913)

This DTO is an acceleration measuring system that will be used to evaluate the effectiveness of the Inertial Vibration Isolation System. In addition the MMD will be used to supplement DSO 314 data.

H. ON-ORBIT DSOs

1. OV-102 Acceleration Data Collection (DSO 314)

The purpose of this DSO is to measure orbiter accelerations during thruster firings, crew exercise, and other disturbances using the high resolution acceleration package (HIRAP). This data will be used to define the acceleration environment of the orbiter during microgravity experiments.

2. Window Impact Observation (DSO 326)

The objective of this DSO is to link window damages found during turnaround processing to a mission time, attitude, and altitude. The crewmembers will check the windows daily for new abrasions and will record their findings in a log. This data will aid significantly in the analysis of shuttle window impacts in the effort to identify the sources of these damages.

3. InterMars Tissue Equivalent Proportional Counter (DSO 485)

This experiment is located in the payload bay and consists of a spectrometer, radiation detector, data storage board, computer clock, multi-channel analyzer, discriminators, amplifiers, and power supply.

The purposes of the experiment are to demonstrate the ability of the hardware to withstand the radiation environment and to gather data on the radiation environment for future EVAs and single event upset data.

The experiment will be activated by the crew in Post Insertion and deactivated in Deorbit Prep.

4. Orthostatic Function During Entry, Landing, and Egress (DSO 603C)

DSO 603C measures changes in orthostatic function of crewmembers during the stress of entry, landing, and egress from the orbiter. Participating crewmembers will don and calibrate equipment prior to deorbit preparation. At LES donning, they will connect cables and power the equipment. Verbal comments will be recorded during entry, landing, and egress. Results from this DSO are used to assess the effectiveness of current and/or proposed in-flight countermeasures to orthostatic intolerance.

5. Visual-Vestibular Integration as a Function of Adaptation (DSO 604)

This DSO is to investigate visual-vestibular and perceptual adaptive responses as a function of longer missions and to determine the operational impact on performance of entry, landing, and egress procedures.

6. Effects of Space Flight on Aerobic and Anaerobic Metabolism During Exercise (DSO 608)

Energy is supplied in the human body via aerobic and anaerobic metabolism. Post flight energy metabolism and pulmonary responses during exercise differ from pre-flight values in that most of the energy pool is obtained anaerobically. Therefore, the purpose of DSO 608 is to quantify changes in aerobic and anaerobic metabolism during exercise and to relate any changes to alterations in total body water, dry lean tissue, fat mass, and fluid volume intake. Participating crewmembers will log their daily fluid intake and drink one quart of fluid after each exercise session.

7. In-Flight Assessment of Renal Stone Risk (DSO 610)

DSO 610 aims to define the major metabolic factors contributing to kidney stone formation in orbit. Previous post-flight urine analysis reveals significant changes in the urinary excretion of stone-forming salts or inhibitors of stone formation. Such changes increase the risk of developing kidney stones. On this mission, one crewmember will collect urine samples on various flight days and complete a daily food, fluid, and exercise log. Post-flight analysis will contribute to the development of countermeasures against kidney stone formation.

8. In-Flight Use of Florinef to Improve Orthostatic Intolerance Post Flight (DSO 621)

DSO 621 uses Florinef, a blood plasma expander, as an improved countermeasure against orthostatic intolerance. Protocol TBD.

9. Documentary Television (DSO 901)

This DSO requires live television transmission or VTR dumps of crew activities, spacecraft functions which include: Payload Bay Views, orbiter and payload crew activities, VTR downlink of crew activities, inflight crew conference, and unscheduled TV activities.

10. Documentary Motion Picture Photography (DSO 902)

This DSO requires documentary and public affair motion picture photography of significant activities which best depict the basic capabilities of the space shuttle and key objectives. This DSO includes motion picture photography of Spacelab module activities, flight deck activities, middeck activities, and any unscheduled motion picture photography.

11. Documentary Still Photography (DSO 903)

This DSO requires still photography of crew activities in the orbiter, spacelab, and mission-related scenes of general public and historical interest. Still photography with 70mm format for exterior photography and 35mm format for interior photography is required.

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65 FLT PLN FSP FIN

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