



13404 - Mutual Orbits and Physical Properties of Binary Transneptunian Objects

Cycle: 21, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

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VISITS

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
01	(1) 80806	WFC3/UVIS	1	17-Dec-2013 21:46:28.0	yes
02	(1) 80806	WFC3/UVIS	1	17-Dec-2013 21:46:41.0	yes
03	(2) 119979	WFC3/UVIS	1	17-Dec-2013 21:46:52.0	yes
04	(2) 119979	WFC3/UVIS	1	17-Dec-2013 21:47:03.0	yes
05	(3) 182933	WFC3/UVIS	1	17-Dec-2013 21:47:13.0	yes
06	(3) 182933	WFC3/UVIS	1	17-Dec-2013 21:47:23.0	yes
07	(4) 2000CQ114	WFC3/UVIS	1	17-Dec-2013 21:47:33.0	yes
08	(5) 2003QW111	WFC3/UVIS	1	17-Dec-2013 21:47:43.0	yes
09	(6) 2003TJ58	WFC3/UVIS	1	17-Dec-2013 21:47:56.0	yes

9 Total Orbits Used

ABSTRACT

Intriguing patterns are evident in both the orbits of transneptunian objects and in their observable external characteristics (colors, spectral features, etc.). Bulk physical properties are needed to make sense of these observations and exploit them to constrain conditions in the protoplanetary disk where they formed. The key to obtaining bulk properties of transneptunian objects is that a sizeable proportion of them are binaries. Binary mutual orbits provide dynamical masses that can in turn be used to compute bulk densities, and a statistical sample of binary orbits offers powerful constraints on formation mechanisms as well as subsequent evolution. This proposal seeks to continue a multi-year campaign to obtain orbits for as large of a sample of binary transneptunian objects as possible. We seek to make efficient use of HST by targeting only the systems where we can obtain a dramatic improvement in orbital knowledge from just one or two visits, and only those where the secondary is too faint to pursue with ground-based near-IR adaptive optics techniques.

OBSERVING DESCRIPTION

The goal of this project is to image six kuiper belt binary systems at strategic times for purposes of determining their mutual orbits. All of these systems have been observed before, so only one or two more epochs are needed to secure their orbits.

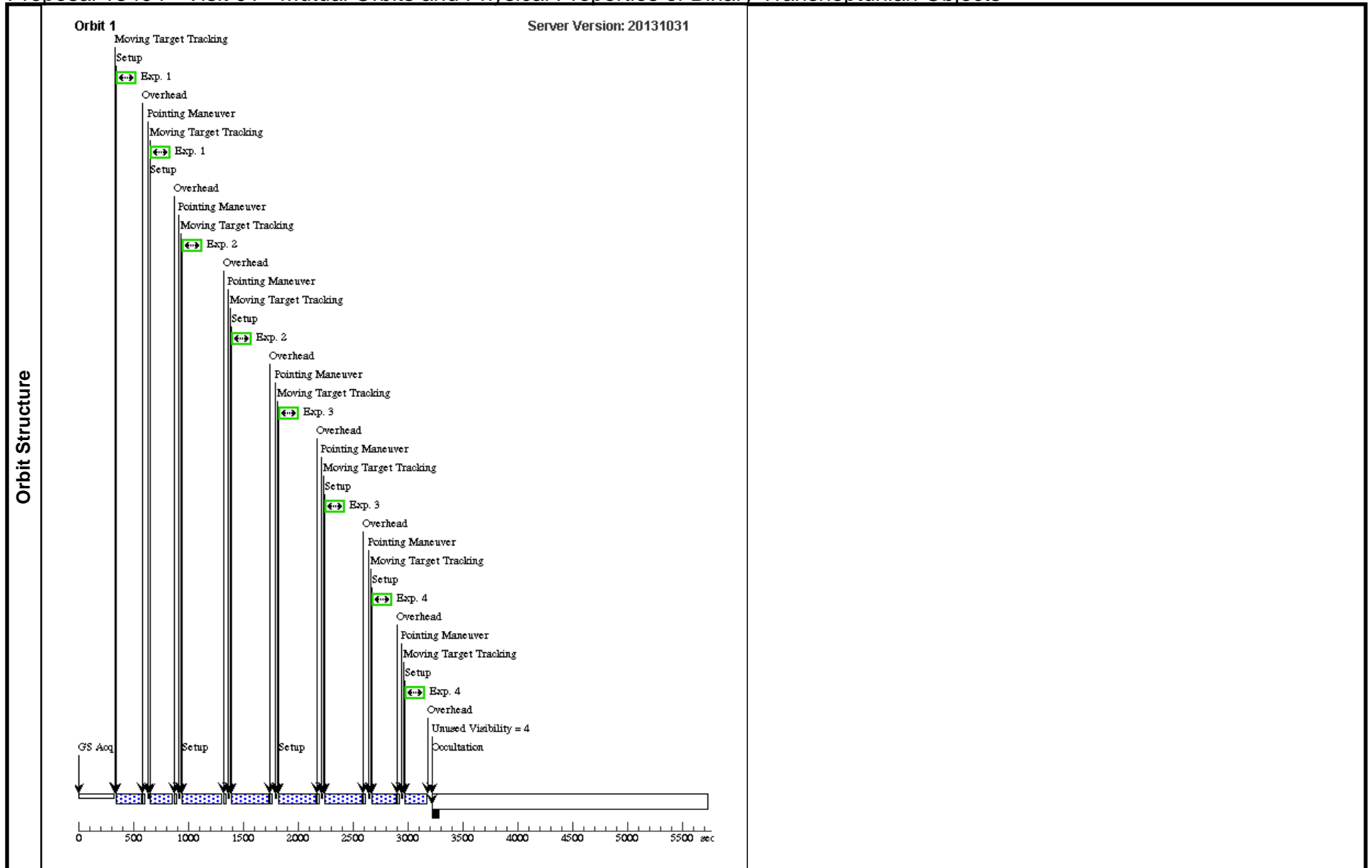
ADDITIONAL COMMENTS

In the case of systems that need two visits, the second visit is marked as being on hold. The point of this is to wait until the results of the first visit are available and processed in order to determine optimal time windows for the second visit.

Proposal 13404 - Visit 01 - Mutual Orbits and Physical Properties of Binary Transneptunian Objects

Wed Dec 18 02:48:08 GMT 2013

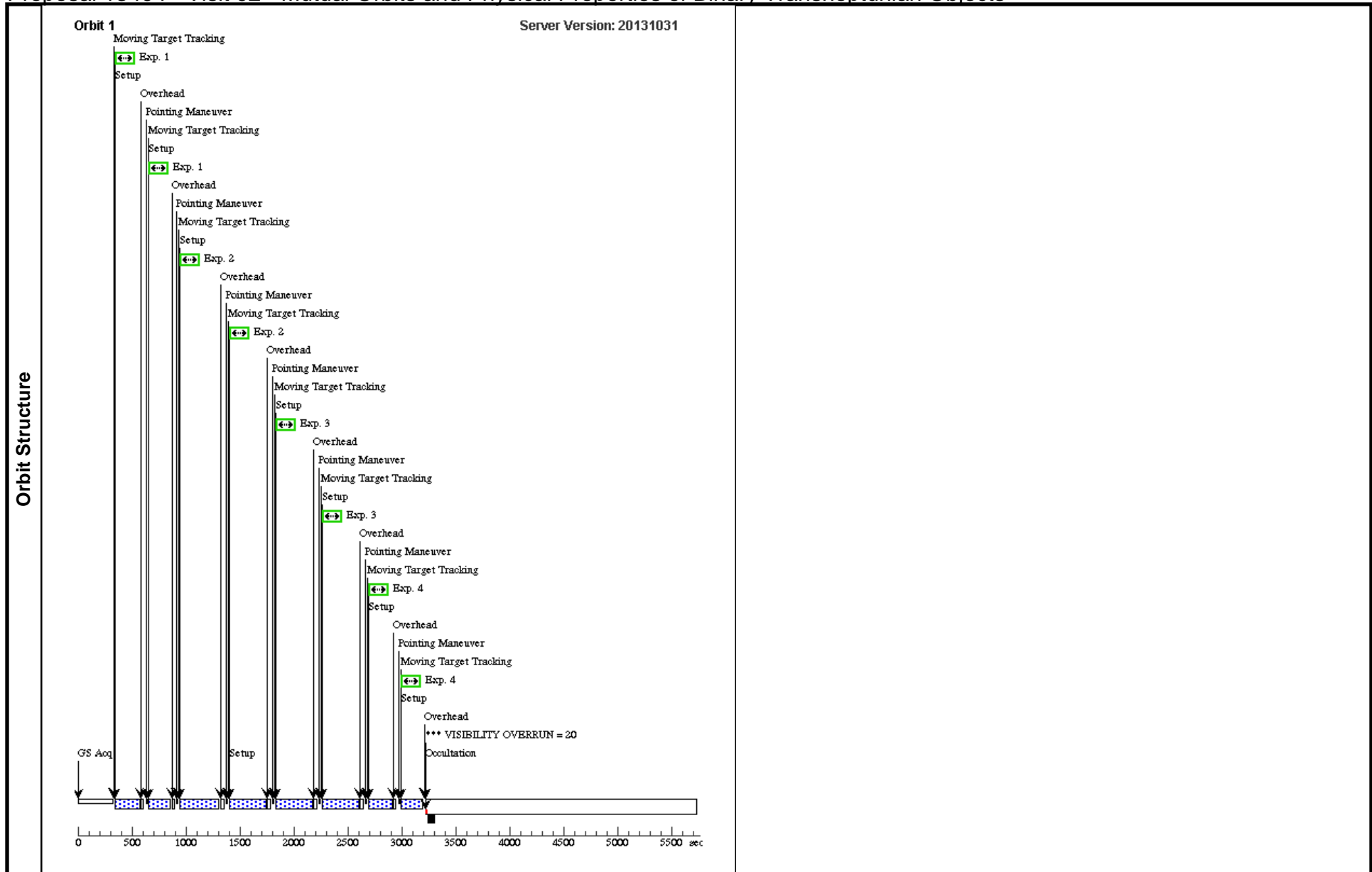
Visit	Proposal 13404, Visit 01, completed Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: BETWEEN 01-JUL-2013:00:00:00 AND 01-MAR-2014:00:00:00 <i>Comments: A loose BETWEEN constraint is imposed on this first visit to target 1 to encourage observation before the main visibility window in spring 2014. The purpose is to have as much scheduling flexibility as possible within that window, armed with the knowledge from this first visit. If this looks too tight, we could aim for the spring 2015 window instead.</i>									
Patterns	#	Primary Pattern		Secondary Pattern		Exposures				
	(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false			(1), (2), (3), (4)				
Solar System Targets	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center			
	(1)	80806	TYPE=ASTEROID,A=42.3999422800 00,E=0.066901296019,I=3.756158035 200,O=45.655036063000,W=9.961409 416400,M=90.330094774000,EQUIN OX=J2000,EPOCH=23-MAY- 2014:00:00:00,EpochTimeScale=UTC				EARTH			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(1) 80806	(1) 80806	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F606W	CR-SPLIT=NO	POS TARG -.1582,0 .0289867	Pattern 1, Exps 1-1 i n Visit 01 (1)	200 Secs (400 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2	(1) 80806	(1) 80806	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO	POS TARG -0.1532 56,-0.144537	Pattern 1, Exps 2-2 i n Visit 01 (1)	340 Secs (680 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	3	(1) 80806	(1) 80806	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO	POS TARG 0.05418 35,0.0385166	Pattern 1, Exps 3-3 i n Visit 01 (1)	340 Secs (680 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	4	(1) 80806	(1) 80806	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F606W	CR-SPLIT=NO	POS TARG 0.04943 75,-0.145331	Pattern 1, Exps 4-4 i n Visit 01 (1)	200 Secs (400 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 13404 - Visit 02 - Mutual Orbits and Physical Properties of Binary Transneptunian Objects

Wed Dec 18 02:48:11 GMT 2013

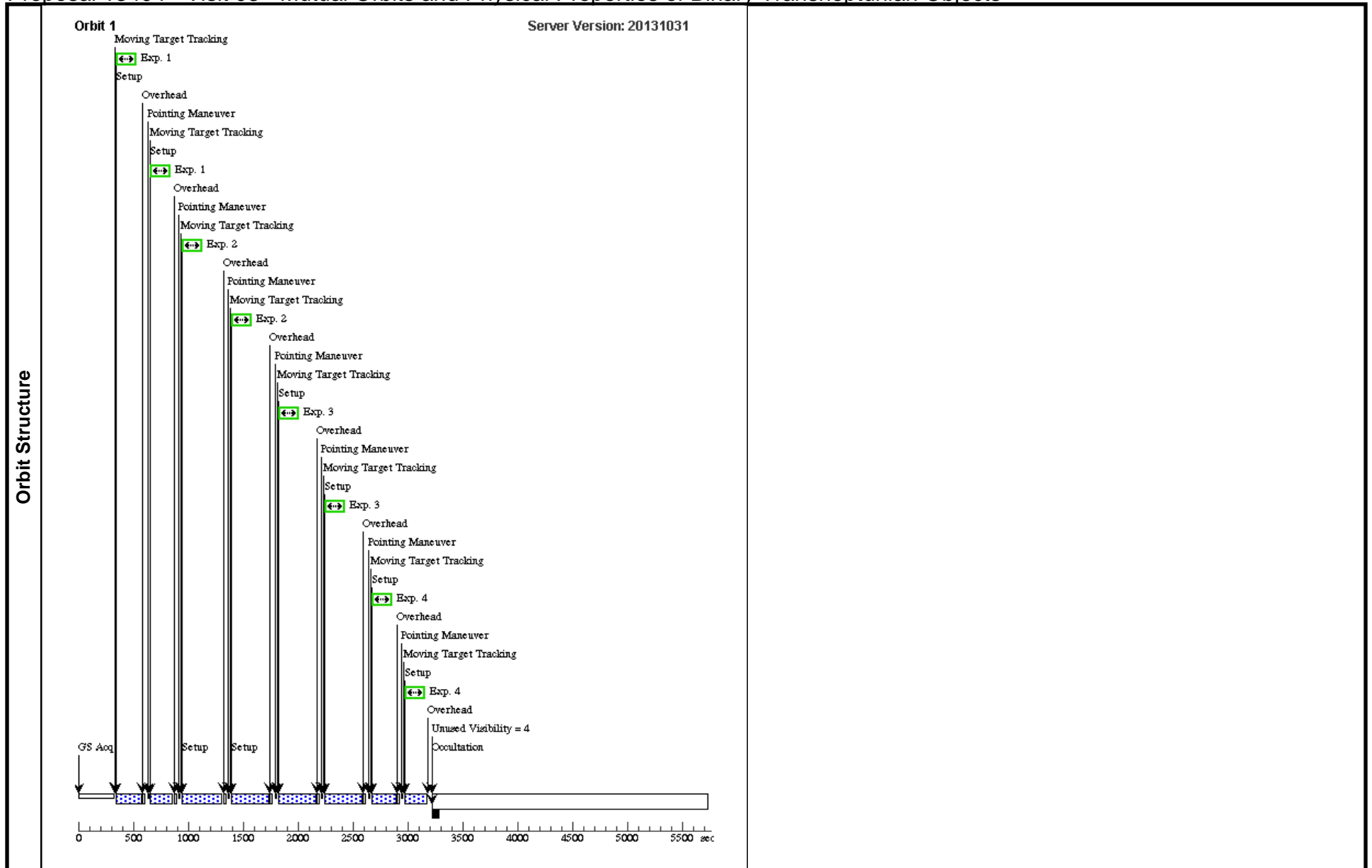
Visit	Proposal 13404, Visit 02, implementation Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: AFTER 01 BY 60.0 D TO 365.0 D; ON HOLD ; ON HOLD FOR 01 <i>On Hold Comments: Pending analysis of data from visit 1.</i>									
	(Visit 02) Warning (Orbit Planner): VISIBILITY OVERRUN									
Diagnosics										
Patterns	#	Primary Pattern		Secondary Pattern		Exposures				
	(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false			(1), (2), (3), (4)				
Solar System Targets	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center			
	(1)	80806	TYPE=ASTEROID,A=42.3999422800 00,E=0.066901296019,I=3.756158035 200,O=45.655036063000,W=9.961409 416400,M=90.330094774000,EQUIN OX=J2000,EPOCH=23-MAY- 2014:00:00:00,EpochTimeScale=UTC				EARTH			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(1) 80806	(1) 80806	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F606W	CR-SPLIT=NO	POS TARG -.1582,0 .0289867	Pattern 1, Exps 1-1 in Visit 02 (1)	200 Secs (400 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2	(1) 80806	(1) 80806	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO; FLASH=9	POS TARG -0.1532 56,-0.144537	Pattern 1, Exps 2-2 in Visit 02 (1)	340 Secs (680 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	3	(1) 80806	(1) 80806	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO; FLASH=9	POS TARG 0.05418 35,0.0385166	Pattern 1, Exps 3-3 in Visit 02 (1)	340 Secs (680 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	4	(1) 80806	(1) 80806	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F606W	CR-SPLIT=NO	POS TARG 0.04943 75,-0.145331	Pattern 1, Exps 4-4 in Visit 02 (1)	200 Secs (400 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 13404 - Visit 03 - Mutual Orbits and Physical Properties of Binary Transneptunian Objects

Wed Dec 18 02:48:12 GMT 2013

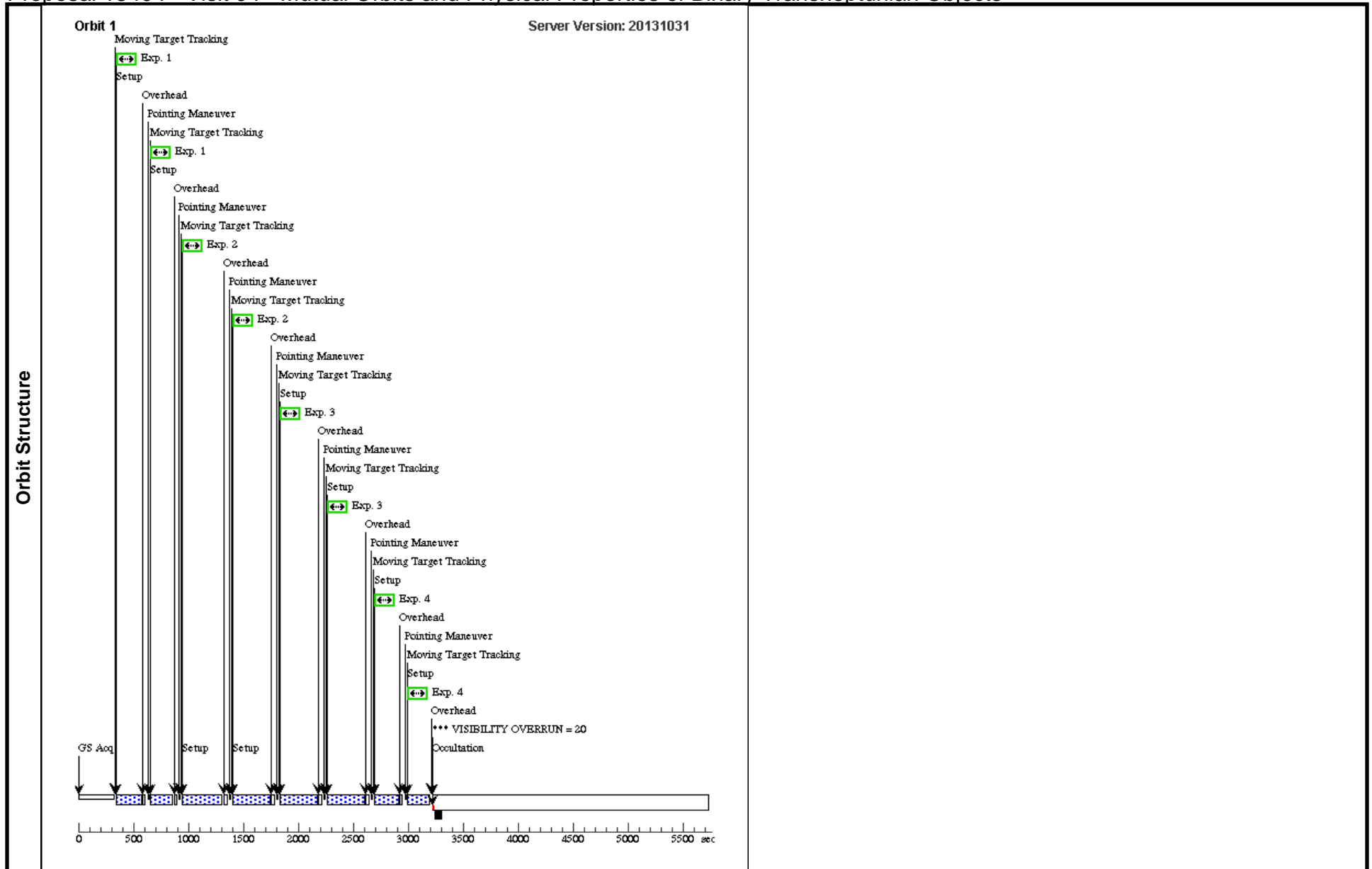
Visit	Proposal 13404, Visit 03, completed Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: BETWEEN 01-JUL-2013:00:00:00 AND 01-NOV-2013:00:00:00 <i>Comments: A loose BETWEEN constraint is imposed on this first visit to target 2 to encourage observation before the main visibility window in early 2014. The purpose is to have as much scheduling flexibility as possible within that window, armed with the knowledge from this first visit. If this looks too tight, we could aim for the early 2015 window instead.</i>									
	Patterns	#	Primary Pattern			Secondary Pattern		Exposures		
(1)		Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false				(1), (2), (3), (4)			
Solar System Targets	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center			
	(2)	119979	TYPE=ASTEROID,A=48.184480566000,E=0.265334771360,I=9.167946595000,O=109.774060140000,W=43.520284191000,M=314.897116150000,EQUINOX=J2000,EPOCH=23-MAY-2014:00:00:00,EpochTimeScale=UTC				EARTH			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(2) 119979	(2) 119979	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F606W	CR-SPLIT=NO	POS TARG -.1582,0.0289867	Pattern 1, Exps 1-1 in Visit 03 (1)	200 Secs (400 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2	(2) 119979	(2) 119979	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO	POS TARG -0.153256,-0.144537	Pattern 1, Exps 2-2 in Visit 03 (1)	340 Secs (680 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	3	(2) 119979	(2) 119979	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO	POS TARG 0.0541835,0.0385166	Pattern 1, Exps 3-3 in Visit 03 (1)	340 Secs (680 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	4	(2) 119979	(2) 119979	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F606W	CR-SPLIT=NO	POS TARG 0.0494375,-0.145331	Pattern 1, Exps 4-4 in Visit 03 (1)	200 Secs (400 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 13404 - Visit 04 - Mutual Orbits and Physical Properties of Binary Transneptunian Objects

Wed Dec 18 02:48:14 GMT 2013

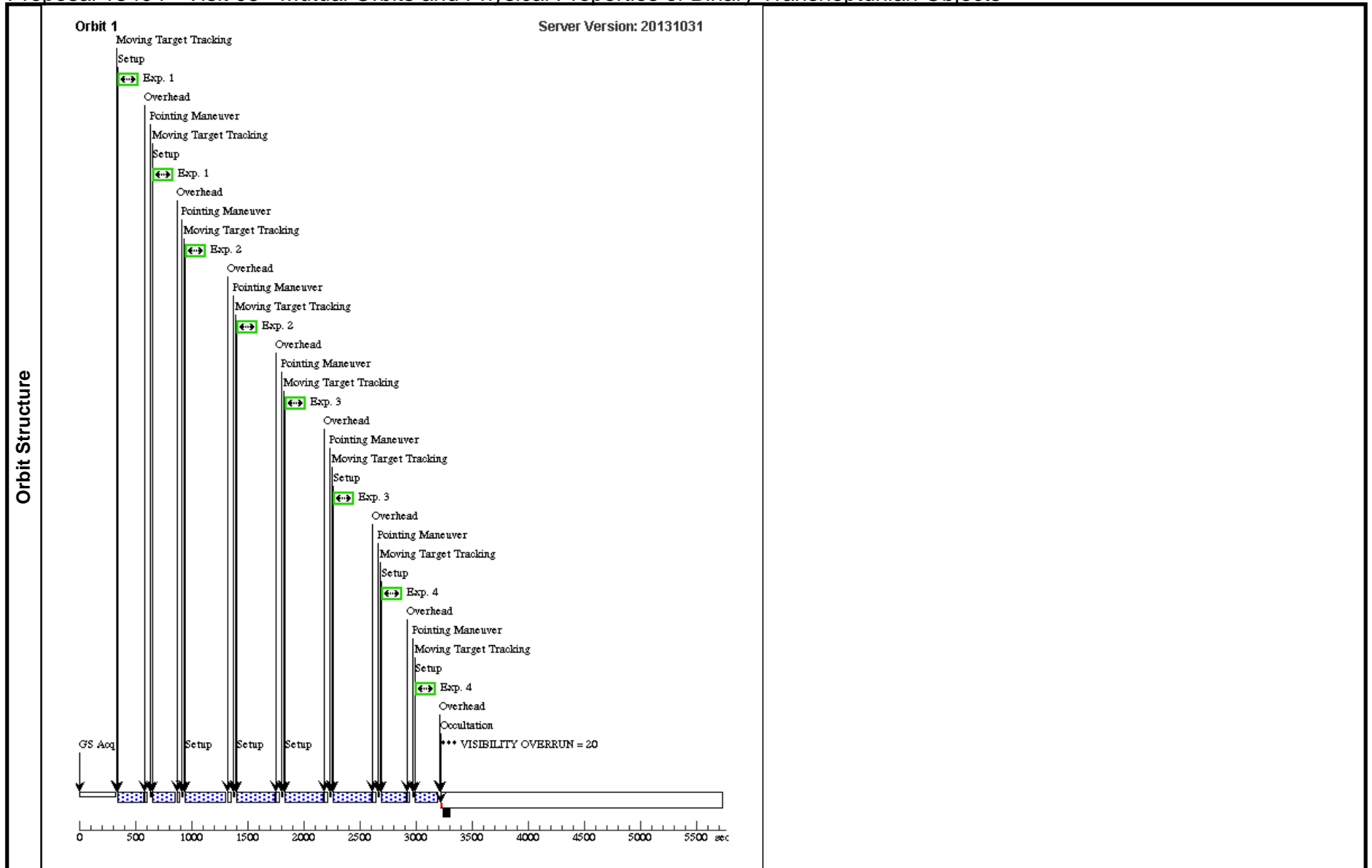
Visit	Proposal 13404, Visit 04, scheduling Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: AFTER 03 BY 30.0 D TO 365.0 D; ON HOLD ; ON HOLD FOR 03 <i>On Hold Comments: Pending analysis of data from visit 3.</i>									
	(Visit 04) Warning (Orbit Planner): VISIBILITY OVERRUN									
Diagnosics										
Patterns	#	Primary Pattern		Secondary Pattern		Exposures				
	(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false			(1), (2), (3), (4)				
Solar System Targets	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center			
	(2)	119979	TYPE=ASTEROID,A=48.1844805660 00,E=0.265334771360,I=9.167946595 000,O=109.774060140000,W=43.5202 84191000,M=314.897116150000,EQU INOX=J2000,EPOCH=23-MAY- 2014:00:00:00,EpochTimeScale=UTC				EARTH			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(2) 119979		WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F606W	CR-SPLIT=NO	POS TARG -.1582,0 .0289867	Pattern 1, Exps 1-1 in Visit 04 (1)	200 Secs (400 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2	(2) 119979		WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO; FLASH=9	POS TARG -0.1532 56,-0.144537	Pattern 1, Exps 2-2 in Visit 04 (1)	340 Secs (680 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	3	(2) 119979		WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO; FLASH=9	POS TARG 0.05418 35,0.0385166	Pattern 1, Exps 3-3 in Visit 04 (1)	340 Secs (680 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	4	(2) 119979		WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F606W	CR-SPLIT=NO	POS TARG 0.04943 75,-0.145331	Pattern 1, Exps 4-4 in Visit 04 (1)	200 Secs (400 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 13404 - Visit 05 - Mutual Orbits and Physical Properties of Binary Transneptunian Objects

Wed Dec 18 02:48:15 GMT 2013

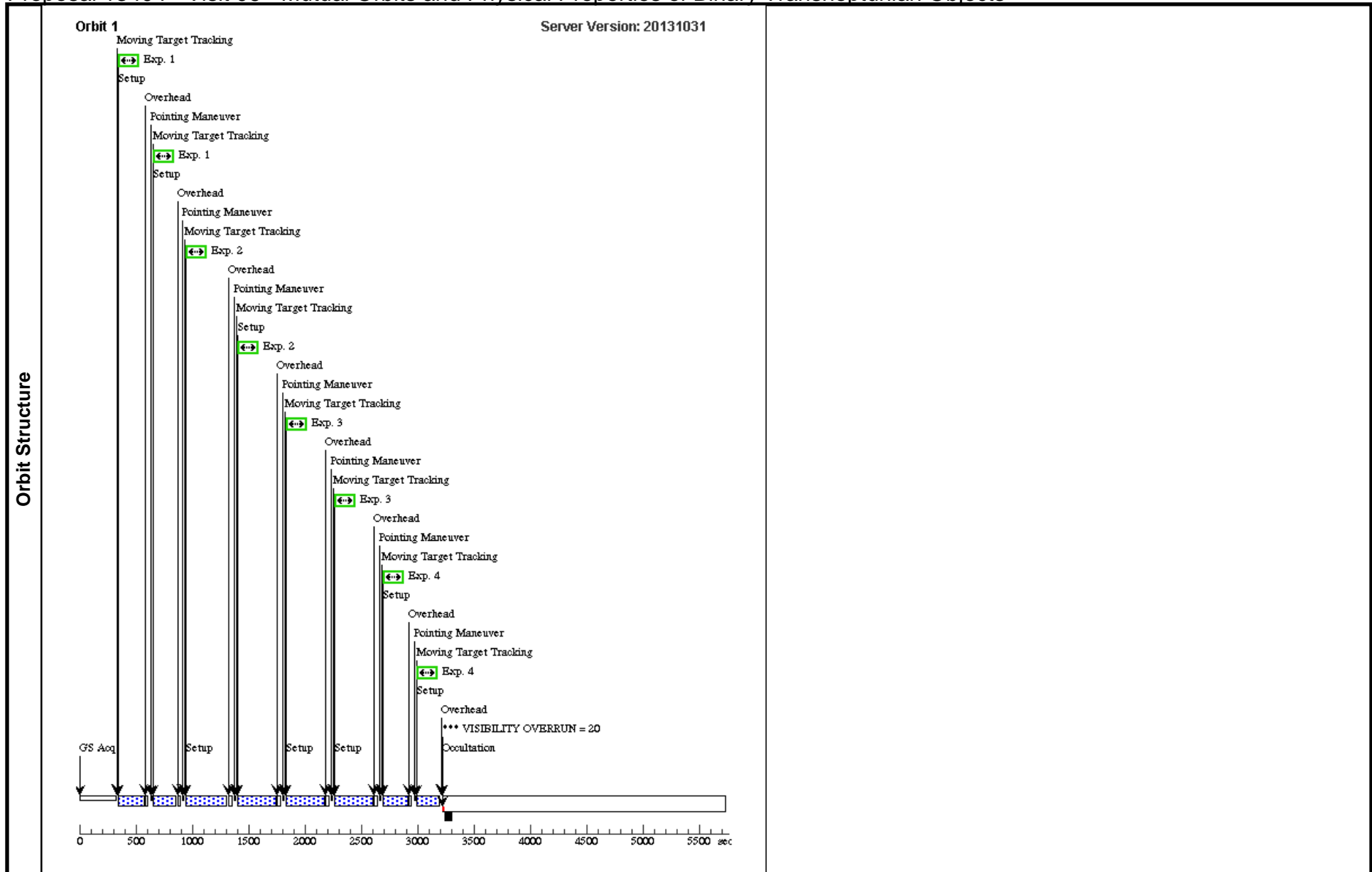
Visit	Proposal 13404, Visit 05, scheduling Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: BETWEEN 01-JUL-2013:00:00:00 AND 06-FEB-2014:13:00:00; BETWEEN 07-FEB-2014:01:00:00 AND 15-APR-2014:00:00:00 <i>Comments: A loose BETWEEN constraint is imposed on this first visit to target 3 to encourage observation before the main visibility window in summer 2014. The purpose is to have as much scheduling flexibility as possible within that window, armed with the knowledge from this first visit.</i>									
	Diagnosics (Visit 05) Warning (Orbit Planner): VISIBILITY OVERRUN									
Patterns	#	Primary Pattern		Secondary Pattern		Exposures				
	(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false			(1), (2), (3), (4)				
Solar System Targets	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center			
	(3)	182933	TYPE=ASTEROID,A=50.3732537710 00,E=0.238615296170,I=1.054435028 100,O=117.257406180000,W=164.170 988070000,M=334.376544360000,EQ UINOX=J2000,EPOCH=23-MAY- 2014:00:00:00,EpochTimeScale=UTC					EARTH		
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(3) 182933	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F606W	CR-SPLIT=NO	POS TARG -.1582,0 .0289867	Pattern 1, Exps 1-1 i n Visit 05 (1)	200 Secs (400 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2		(3) 182933	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO; FLASH=9	POS TARG -0.1532 56,-0.144537	Pattern 1, Exps 2-2 i n Visit 05 (1)	340 Secs (680 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	3		(3) 182933	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO; FLASH=9	POS TARG 0.05418 35,0.0385166	Pattern 1, Exps 3-3 i n Visit 05 (1)	340 Secs (680 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	4		(3) 182933	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F606W	CR-SPLIT=NO	POS TARG 0.04943 75,-0.145331	Pattern 1, Exps 4-4 i n Visit 05 (1)	200 Secs (400 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 13404 - Visit 06 - Mutual Orbits and Physical Properties of Binary Transneptunian Objects

Wed Dec 18 02:48:17 GMT 2013

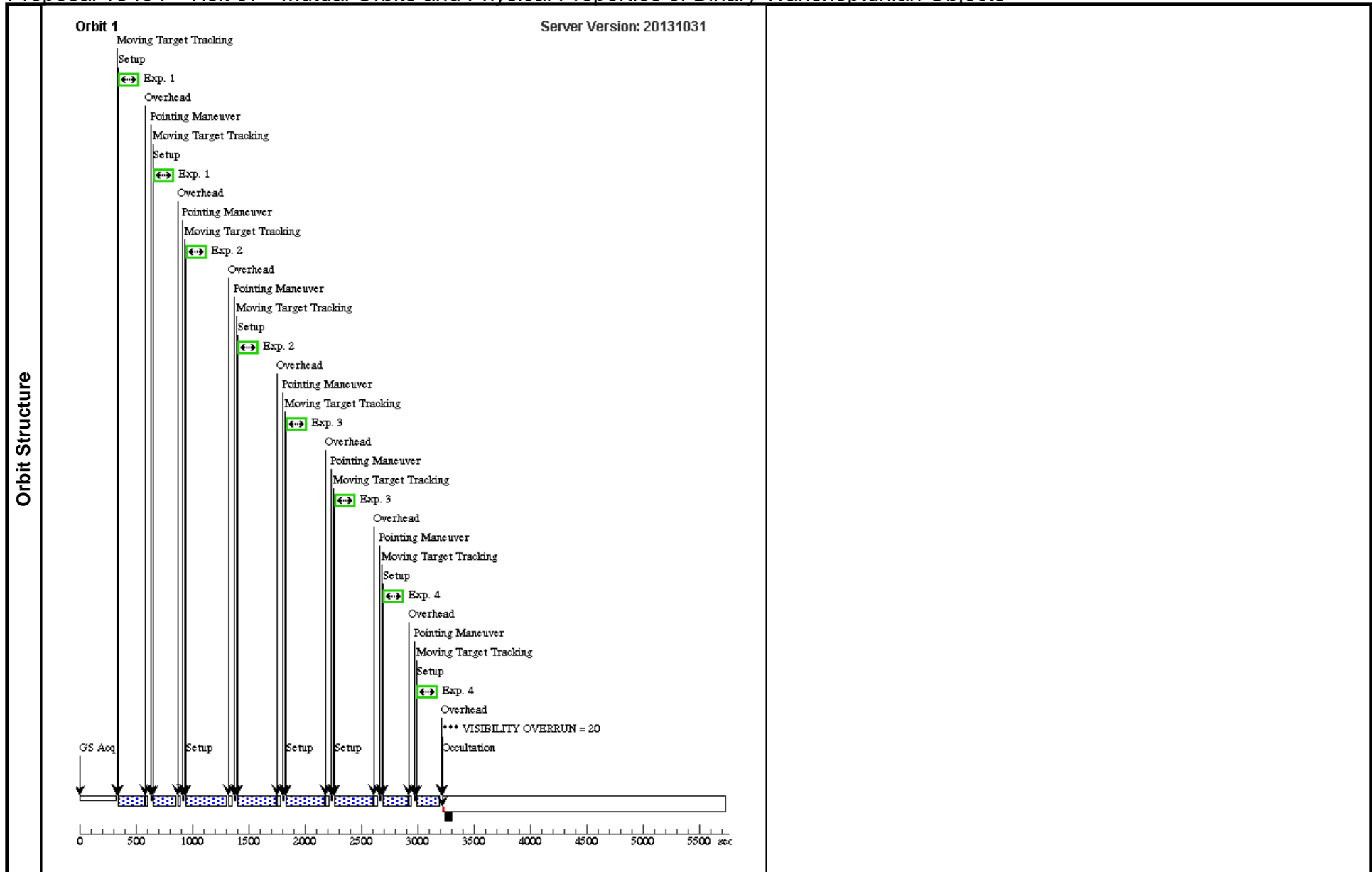
Visit	Proposal 13404, Visit 06, implementation Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: AFTER 05 BY 30.0 D TO 365.0 D; ON HOLD ; ON HOLD FOR 05 <i>On Hold Comments: Pending analysis of data from visit 5.</i>									
	(Visit 06) Warning (Orbit Planner): VISIBILITY OVERRUN									
Diagnosics										
Patterns	#	Primary Pattern		Secondary Pattern		Exposures				
	(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false			(1), (2), (3), (4)				
Solar System Targets	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center			
	(3)	182933	TYPE=ASTEROID,A=50.3732537710 00,E=0.238615296170,I=1.054435028 100,O=117.257406180000,W=164.170 988070000,M=334.376544360000,EQ UINOX=J2000,EPOCH=23-MAY- 2014:00:00:00,EpochTimeScale=UTC				EARTH			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(3) 182933		WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F606W	CR-SPLIT=NO	POS TARG -.1582,0 .0289867	Pattern 1, Exps 1-1 in Visit 06 (1)	200 Secs (400 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2	(3) 182933		WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO; FLASH=9	POS TARG -0.1532 56,-0.144537	Pattern 1, Exps 2-2 in Visit 06 (1)	340 Secs (680 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	3	(3) 182933		WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO; FLASH=9	POS TARG 0.05418 35,0.0385166	Pattern 1, Exps 3-3 in Visit 06 (1)	340 Secs (680 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	4	(3) 182933		WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F606W	CR-SPLIT=NO	POS TARG 0.04943 75,-0.145331	Pattern 1, Exps 4-4 in Visit 06 (1)	200 Secs (400 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 13404 - Visit 07 - Mutual Orbits and Physical Properties of Binary Transneptunian Objects

Wed Dec 18 02:48:18 GMT 2013

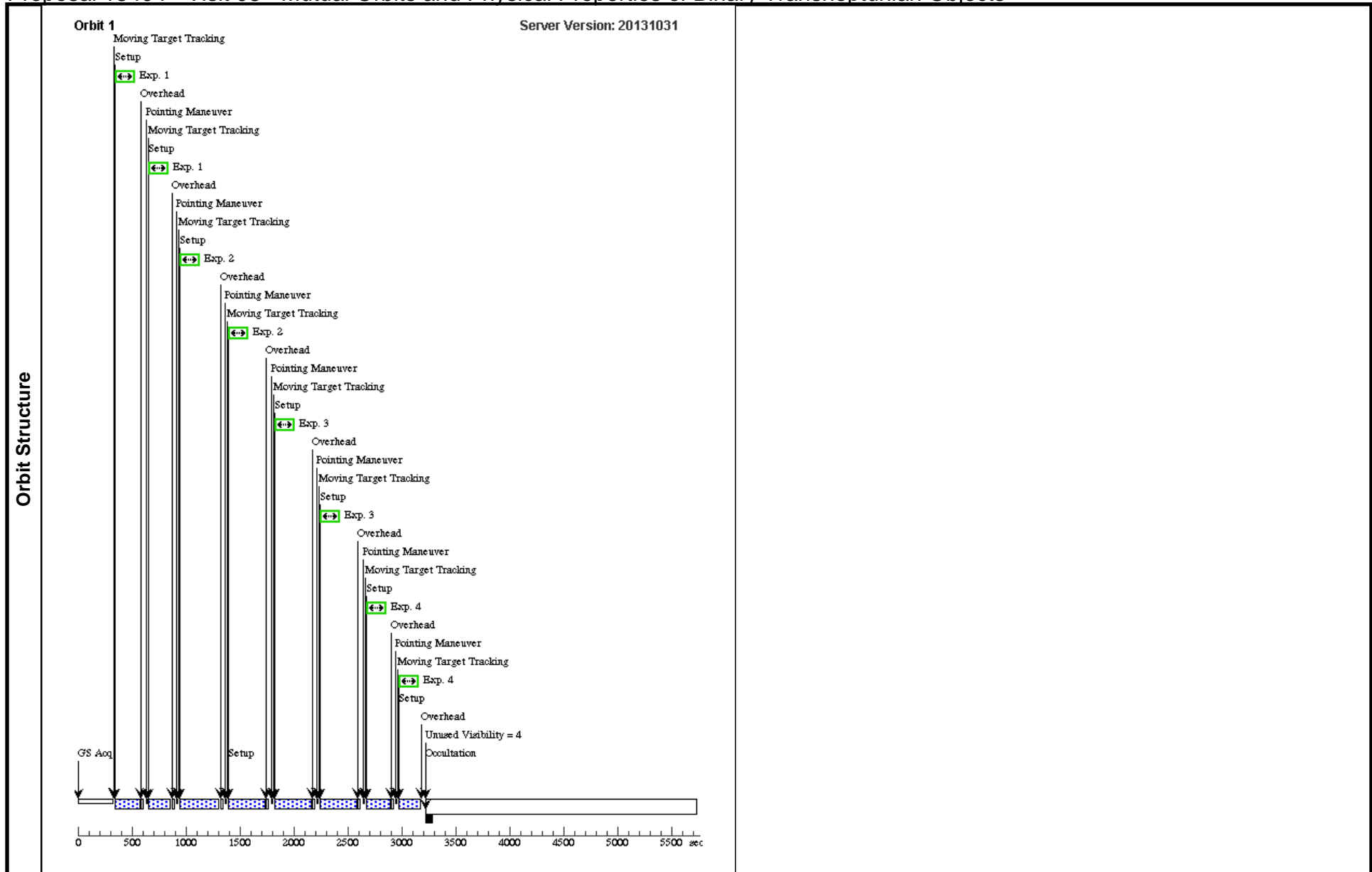
Visit	Proposal 13404, Visit 07, scheduling Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: BETWEEN 01-APR-2014:00:00:00 AND 31-JUL-2014:00:00:00 <i>Comments: This system have a very broad window that extends over the entire primary period of visibility for HST.</i>									
	Diagnosics (Visit 07) Warning (Orbit Planner): VISIBILITY OVERRUN									
Patterns	#	Primary Pattern		Secondary Pattern		Exposures				
	(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false			(1), (2), (3), (4)				
Solar System Targets	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center			
	(4)	2000CQ114	TYPE=ASTEROID,A=46.3213036960 00,E=.114606683280,I=2.6898404191 00,O=38.434195456000,W=34.250876 991000,M=86.254863760000,EQUIN OX=J2000,EPOCH=23-MAY- 2014:00:00:00,EpochTimeScale=UTC				EARTH			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(4) 2000CQ114	(4) 2000CQ114	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F606W	CR-SPLIT=NO	POS TARG -.1582,0 .0289867	Pattern 1, Exps 1-1 in Visit 07 (1)	200 Secs (400 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2	(4) 2000CQ114	(4) 2000CQ114	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO; FLASH=9	POS TARG -0.1532 56,-0.144537	Pattern 1, Exps 2-2 in Visit 07 (1)	340 Secs (680 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	3	(4) 2000CQ114	(4) 2000CQ114	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO; FLASH=9	POS TARG 0.05418 35,0.0385166	Pattern 1, Exps 3-3 in Visit 07 (1)	340 Secs (680 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	4	(4) 2000CQ114	(4) 2000CQ114	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F606W	CR-SPLIT=NO	POS TARG 0.04943 75,-0.145331	Pattern 1, Exps 4-4 in Visit 07 (1)	200 Secs (400 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 13404 - Visit 08 - Mutual Orbits and Physical Properties of Binary Transneptunian Objects

Wed Dec 18 02:48:19 GMT 2013

Visit	Proposal 13404, Visit 08, completed Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: BETWEEN 15-SEP-2013:00:00:00 AND 05-OCT-2013:00:00:00; BETWEEN 15-NOV-2013:00:00:00 AND 27-NOV-2013:00:00:00; BETWEEN 04-JAN-2014:00:00:00 AND 24-JAN-2014:00:00:00 <i>Comments: Observing windows for this system occur approximately every 55 days and last a few weeks, resulting in 3 opportunities during the main schedulable time for this target during Cycle 21. I haven't bothered to specify BETWEEN constraints for the lesser opportunities outside the main window, but could do so if these three opportunities look like an overbooked time for the telescope.</i>									
	Patterns	#	Primary Pattern			Secondary Pattern		Exposures		
(1)		Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false				(1), (2), (3), (4)			
Solar System Targets	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center			
	(5)	2003QW111	TYPE=ASTEROID,A=43.626852404000,E=0.114301015500,I=2.666342476900,O=68.53067456800,W=21.218903966000,M=273.089689410000,EQUINOX=J2000,EPOCH=23-MAY-2014:00:00:00,EpochTimeScale=UTC					EARTH		
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(5) 2003QW111	(5) 2003QW111	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F606W	CR-SPLIT=NO	POS TARG -.1582,0.0289867	Pattern 1, Exps 1-1 in Visit 08 (1)	200 Secs (400 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2	(5) 2003QW111	(5) 2003QW111	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO	POS TARG -0.153256,-0.144537	Pattern 1, Exps 2-2 in Visit 08 (1)	340 Secs (680 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	3	(5) 2003QW111	(5) 2003QW111	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO	POS TARG 0.0541835,0.0385166	Pattern 1, Exps 3-3 in Visit 08 (1)	340 Secs (680 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	4	(5) 2003QW111	(5) 2003QW111	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F606W	CR-SPLIT=NO	POS TARG 0.0494375,-0.145331	Pattern 1, Exps 4-4 in Visit 08 (1)	200 Secs (400 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 13404 - Visit 09 - Mutual Orbits and Physical Properties of Binary Transneptunian Objects

Wed Dec 18 02:48:20 GMT 2013

Visit	Proposal 13404, Visit 09, scheduling Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: BETWEEN 10-JAN-2014:00:00:00 AND 25-JAN-2014:22:00:00; BETWEEN 25-MAY-2014:00:00:00 AND 26-JUN-2014:00:00:00; BETWEEN 24-AUG-2013:00:00:00 AND 25-SEP-2013:00:00:00; BETWEEN 26-JAN-2014:11:00:00 AND 09-FEB-2014:00:00:00 <i>Comments: Observing windows for this system occur approximately every 137 days and last approximately 1 month, resulting in 3 opportunities during Cycle 21. The middle one is most observable by HST, and a little bit of the first one also looks schedulable. The 3rd one does not look viable at all (but I'm only including it anyway, for completeness).</i>									
	Diagnosics (Visit 09) Warning (Orbit Planner): VISIBILITY OVERRUN									
Patterns	#	Primary Pattern		Secondary Pattern		Exposures				
	(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false			(1), (2), (3), (4)				
Solar System Targets	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center			
	(6)	2003TJ58	TYPE=ASTEROID,A=44.6526750000 00,E=0.090279785040,I=0.956183517 210,O=37.317348484000,W=13.96188 5326000,M=29.709490703000,EQUIN OX=J2000,EPOCH=23-MAY- 2014:00:00:00,EpochTimeScale=UTC				EARTH			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(6) 2003TJ58	(6) 2003TJ58	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F606W	CR-SPLIT=NO	POS TARG -.1582,0 .0289867	Pattern 1, Exps 1-1 i n Visit 09 (1)	200 Secs (400 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2	(6) 2003TJ58	(6) 2003TJ58	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO; FLASH=9	POS TARG -0.1532 56,-0.144537	Pattern 1, Exps 2-2 i n Visit 09 (1)	340 Secs (680 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	3	(6) 2003TJ58	(6) 2003TJ58	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO; FLASH=9	POS TARG 0.05418 35,0.0385166	Pattern 1, Exps 3-3 i n Visit 09 (1)	340 Secs (680 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	4	(6) 2003TJ58	(6) 2003TJ58	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F606W	CR-SPLIT=NO	POS TARG 0.04943 75,-0.145331	Pattern 1, Exps 4-4 i n Visit 09 (1)	200 Secs (400 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]

