



11122 - Expanding PNe: Distances and Hydro Models

Cycle: 16, 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) BD+30D3639	WFPC2	1	28-May-2008 21:01:28.0	yes
02	(2) IC418	WFPC2	1	28-May-2008 21:01:34.0	yes
03	(3) IC2448	WFPC2	1	28-May-2008 21:01:37.0	yes
04	(4) NGC7027	WFPC2	1	28-May-2008 21:01:41.0	yes
05	(5) NGC2392	WFPC2	1	28-May-2008 21:01:44.0	yes
06	(6) NGC3132	WFPC2	1	28-May-2008 21:01:47.0	yes
56	(6) NGC3132	WFPC2	1	28-May-2008 21:01:50.0	yes
07	(7) NGC3242	WFPC2	1	28-May-2008 21:01:54.0	yes
08	(8) NGC3918	WFPC2	1	28-May-2008 21:01:57.0	yes

<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>
09	(9) NGC5882	WFPC2	1	28-May-2008 21:02:00.0	yes
10	(10) NGC6210	WFPC2	1	28-May-2008 21:02:03.0	yes
11	(11) NGC6543	WFPC2	1	28-May-2008 21:02:06.0	yes
12	(12) NGC6565	WFPC2	1	28-May-2008 21:02:09.0	yes
13	(13) NGC6578	WFPC2	1	28-May-2008 21:02:12.0	yes
14	(14) NGC6826	WFPC2	1	28-May-2008 21:02:15.0	yes
15	(15) NGC6886	WFPC2	1	28-May-2008 21:02:18.0	yes
16	(16) NGC6891	WFPC2	1	28-May-2008 21:02:21.0	yes
17	(17) NGC7009	WFPC2	1	28-May-2008 21:02:23.0	yes
18	(18) NGC7662	WFPC2	1	28-May-2008 21:02:26.0	yes

19 Total Orbits Used

ABSTRACT

We propose to obtain repeat narrowband images of a sample of eighteen planetary nebulae (PNe) which have HST/WFPC2 archival data spanning time baselines of a decade. All of these targets have previous high signal-to-noise WFPC2/PC observations and are sufficiently nearby to have readily detectable expansion signatures after a few years.

Our main scientific objectives are (a) to determine precise distances to these PNe based on their angular expansions, (b) to test detailed and highly successful hydrodynamic models that predict nebular morphologies and expansions for subsamples of round/elliptical and axisymmetric PNe, and (c) to monitor the proper motions of nebular microstructures in an effort to learn more about their physical nature and formation mechanisms.

The proposed observations will result in high-precision distances to a healthy subsample of PNe, and from this their expansion ages, luminosities, CSPN properties, and masses of their ionized cores. With good distances and our hydro models, we will be able to determine fundamental

parameters (such as nebular and central star masses, luminosity, age). The same images allow us to monitor the changing overall ionization state and to search for the surprisingly non-homologous growth patterns to bright elliptical PNe of the same sort seen by Balick & Hajian (2004) in NGC 6543. Non-uniform growth is a sure sign of active pressure imbalances within the nebula that require careful hydro models to understand.

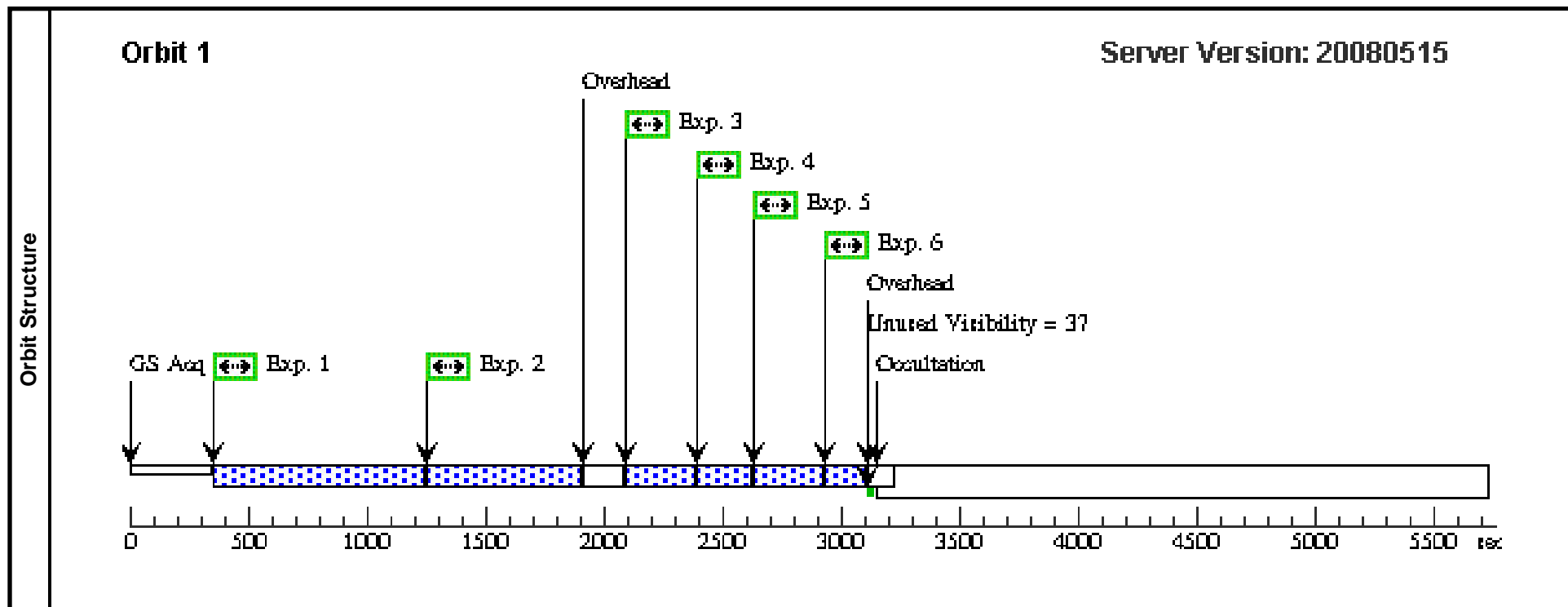
OBSERVING DESCRIPTION

All of our proposed new observations complement extant WFPC2/PC images in [OIII] and [NII] obtained in the 1990s. We expect that expansions at nebular edges will have amounted to about 0.5?1 PSF for the nearby PNe we have selected, making it easy to detect the proper radial motions of the sharp edges of large-scale features. Our second-epoch observations will largely repeat the filters, pointing, and exposure times of the earlier observations with slight adjustments that optimize the S/N of the two-epoch image differences. In order to save telescope time we do not plan to dither the images since the loci of sharp edges of large-scale features do not significantly benefit.

Proposal 11122 - Visit 01 - Expanding PNe: Distances and Hydro Models

Thu May 29 01:02:29 GMT 2008

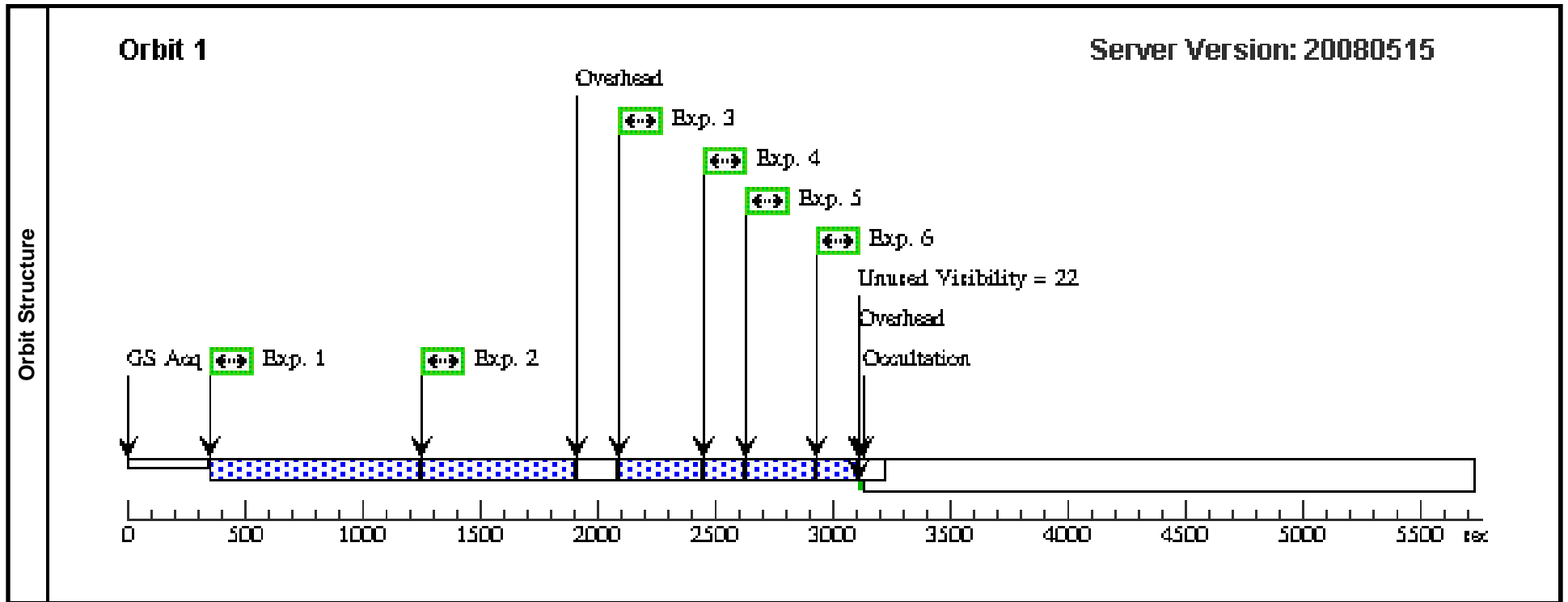
Visit	Proposal 11122, Visit 01, completed Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	BD+30D3639 Alt Name1: PNG064.7+05.0	RA: 19 34 45.2300 (293.6884583d) Dec: +30 30 58.90 (30.51636d) Equinox: J2000		V=10.35	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(1) BD+30D3639	WFPC2, IMAGE, PC1-FIX	F502N				600.0 Secs [==>]	[1]
	2		(1) BD+30D3639	WFPC2, IMAGE, PC1-FIX	F502N				600.0 Secs [==>]	[1]
	3		(1) BD+30D3639	WFPC2, IMAGE, PC1-FIX	F656N				100.0 Secs [==>]	[1]
	4		(1) BD+30D3639	WFPC2, IMAGE, PC1-FIX	F656N				160.0 Secs [==>]	[1]
	5		(1) BD+30D3639	WFPC2, IMAGE, PC1-FIX	F658N				160.0 Secs [==>]	[1]
	6		(1) BD+30D3639	WFPC2, IMAGE, PC1-FIX	F658N				160.0 Secs [==>]	[1]



Proposal 11122 - Visit 02 - Expanding PNe: Distances and Hydro Models

Thu May 29 01:02:30 GMT 2008

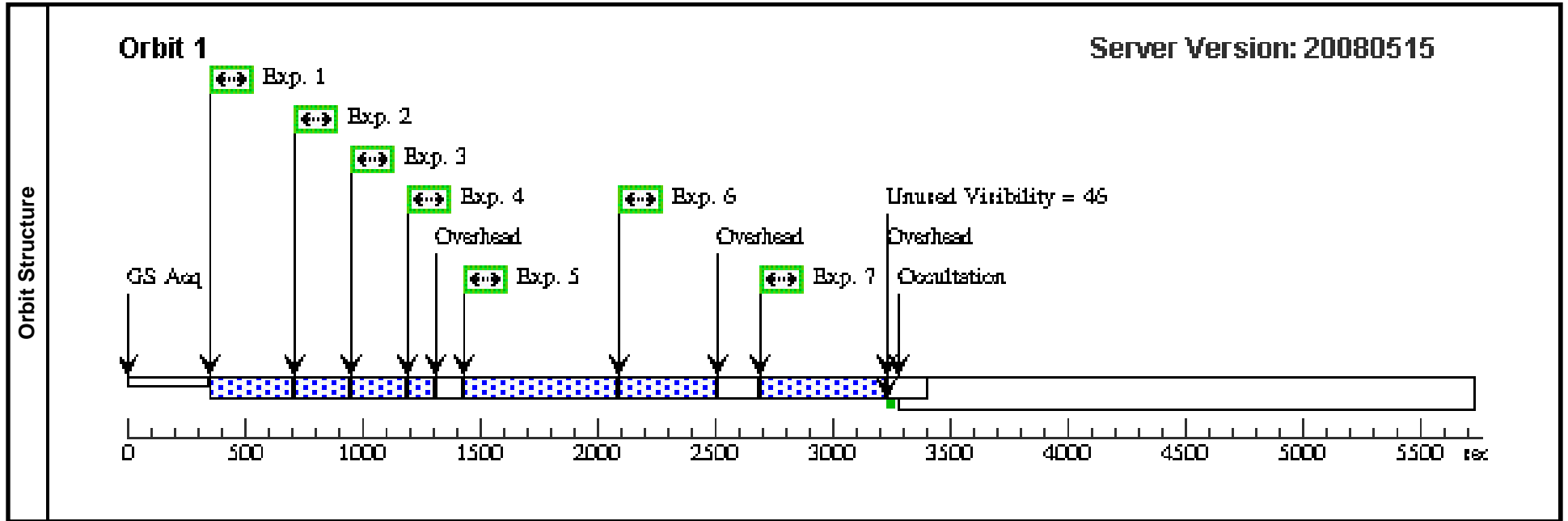
Visit	Proposal 11122, Visit 02, completed Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(2)	IC418	RA: 05 27 28.2000 (81.8675000d) Alt Name1: PNG215.2-24.2 Equinox: J2000	Dec: -12 41 50.30 (-12.69731d)		V=9.56	Reference Frame: ICRS			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(2) IC418	WFPC2, IMAGE, PC1-FIX	F502N				600.0 Secs [==>]	[1]
	2		(2) IC418	WFPC2, IMAGE, PC1-FIX	F502N				600.0 Secs [==>]	[1]
	3		(2) IC418	WFPC2, IMAGE, PC1-FIX	F656N				160.0 Secs [==>]	[1]
	4		(2) IC418	WFPC2, IMAGE, PC1-FIX	F656N				100.0 Secs [==>]	[1]
	5		(2) IC418	WFPC2, IMAGE, PC1-FIX	F658N				160.0 Secs [==>]	[1]
	6		(2) IC418	WFPC2, IMAGE, PC1-FIX	F658N				160.0 Secs [==>]	[1]



Proposal 11122 - Visit 03 - Expanding PNe: Distances and Hydro Models

Thu May 29 01:02:31 GMT 2008

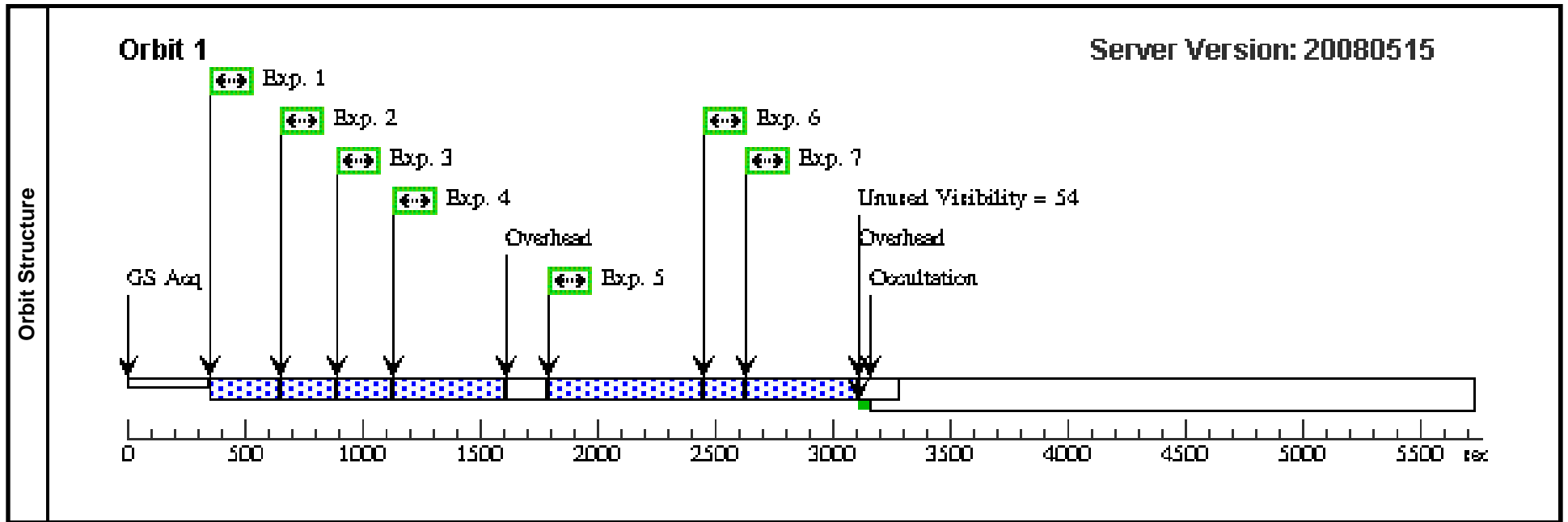
Visit	Proposal 11122, Visit 03, completed Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(3)	IC2448	RA: 09 07 6.2600 (136.7760833d) Alt Name1: PNG285.7-14.9 Equinox: J2000	Dec: -69 56 30.70 (-69.94186d)		V=11.1	Reference Frame: ICRS			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(3) IC2448	WFPC2, IMAGE, PC1-FIX	F502N				160.0 Secs [==>]	[1]
	2		(3) IC2448	WFPC2, IMAGE, PC1-FIX	F502N				160.0 Secs [==>]	[1]
	3		(3) IC2448	WFPC2, IMAGE, PC1-FIX	F656N				100.0 Secs [==>]	[1]
	4		(3) IC2448	WFPC2, IMAGE, PC1-FIX	F656N				100.0 Secs [==>]	[1]
	5		(3) IC2448	WFPC2, IMAGE, PC1-FIX	F658N				400.0 Secs [==>]	[1]
	6		(3) IC2448	WFPC2, IMAGE, PC1-FIX	F658N				400.0 Secs [==>]	[1]
	7		(3) IC2448	WFPC2, IMAGE, PC1-FIX	F658N				400.0 Secs [==>]	[1]



Proposal 11122 - Visit 04 - Expanding PNe: Distances and Hydro Models

Thu May 29 01:02:31 GMT 2008

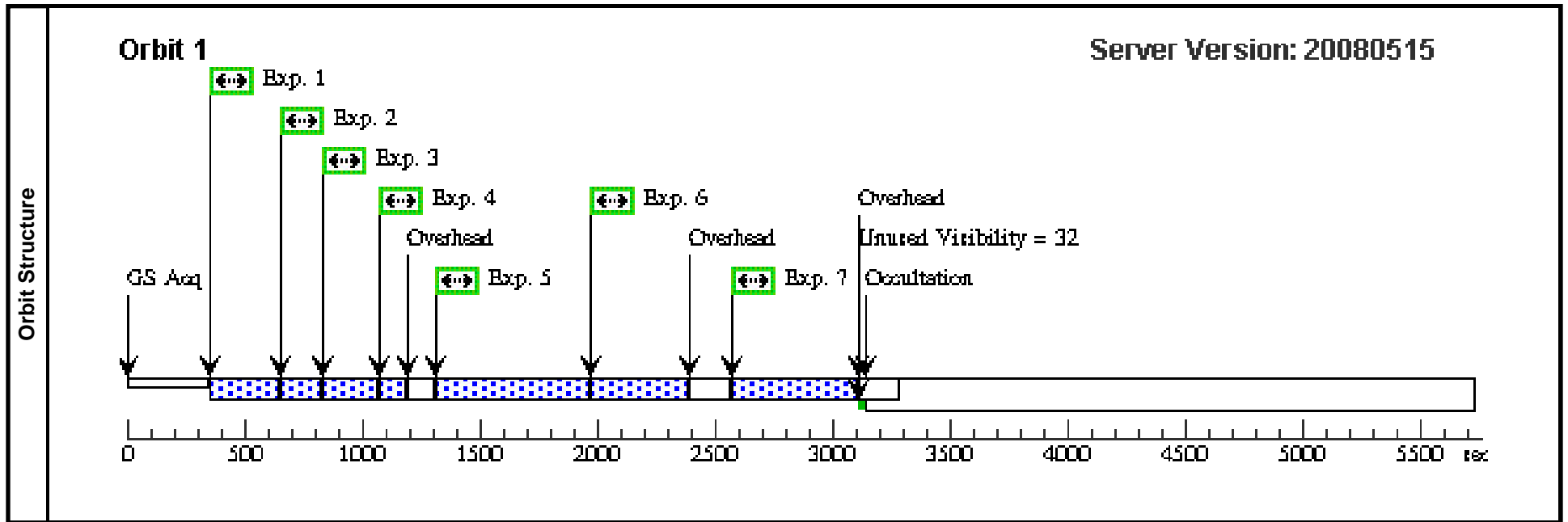
Visit	Proposal 11122, Visit 04, scheduling Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 150.0D TO 178.0 D									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(4)	NGC7027 Alt Name1: PNG084.9-03.5	RA: 21 07 1.8700 (316.7577917d) Dec: +42 14 19.20 (42.23867d) Equinox: J2000		V=8.8	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(4) NGC7027	WFPC2, IMAGE, PC1-FIX	F502N				100.0 Secs [==>]	[1]
	2		(4) NGC7027	WFPC2, IMAGE, PC1-FIX	F555W				100.0 Secs [==>]	[1]
	3		(4) NGC7027	WFPC2, IMAGE, PC1-FIX	F555W				160.0 Secs [==>]	[1]
	4		(4) NGC7027	WFPC2, IMAGE, PC1-FIX	F631N				400.0 Secs [==>]	[1]
	5		(4) NGC7027	WFPC2, IMAGE, PC1-FIX	F656N				400.0 Secs [==>]	[1]
	6		(4) NGC7027	WFPC2, IMAGE, PC1-FIX	F656N				100.0 Secs [==>]	[1]
	7		(4) NGC7027	WFPC2, IMAGE, PC1-FIX	F658N				400.0 Secs [==>]	[1]



Proposal 11122 - Visit 05 - Expanding PNe: Distances and Hydro Models

Thu May 29 01:02:31 GMT 2008

Visit	Proposal 11122, Visit 05, completed Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(5)	NGC2392 Alt Name1: PNG197.8+17.2	RA: 07 29 10.7700 (112.2948750d) Dec: +20 54 42.50 (20.91181d) Equinox: J2000		V=10.11	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(5) NGC2392	WFPC2, IMAGE, WF3-FIX	F502N				100.0 Secs [==>]	[1]
	2		(5) NGC2392	WFPC2, IMAGE, WF3-FIX	F502N				100.0 Secs [==>]	[1]
	3		(5) NGC2392	WFPC2, IMAGE, WF3-FIX	F656N				100.0 Secs [==>]	[1]
	4		(5) NGC2392	WFPC2, IMAGE, WF3-FIX	F656N				100.0 Secs [==>]	[1]
	5		(5) NGC2392	WFPC2, IMAGE, WF3-FIX	F658N				400.0 Secs [==>]	[1]
	6		(5) NGC2392	WFPC2, IMAGE, WF3-FIX	F658N				400.0 Secs [==>]	[1]
	7		(5) NGC2392	WFPC2, IMAGE, WF3-FIX	F658N				400.0 Secs [==>]	[1]



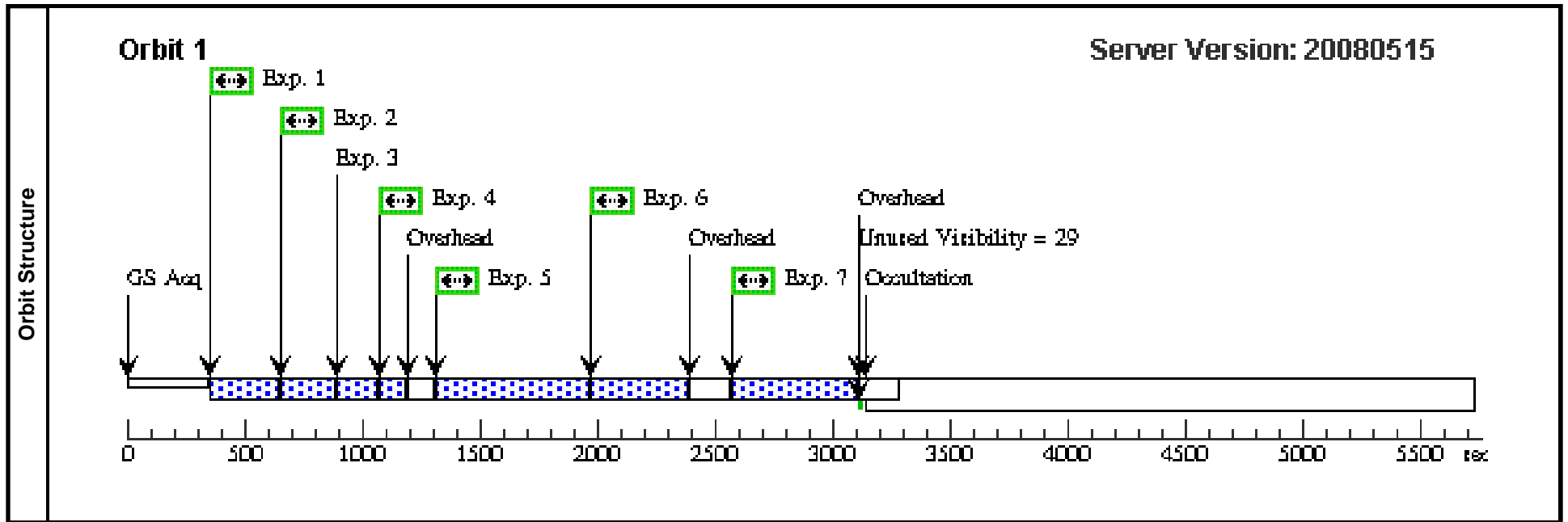
Visit	Proposal 11122, Visit 06, failed Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 105.0D TO 130.0 D									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(6)	NGC3132 Alt Name1: PNG272.1+12.3	RA: 10 07 1.3855 (151.7557729d) Dec: -40 25 59.03 (-40.43306d) Equinox: J2000		V=9.87	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(6) NGC3132	WFPC2, IMAGE, WF3-FIX	F502N				500.0 Secs [==>]	[1]
	2		(6) NGC3132	WFPC2, IMAGE, WF3-FIX	F502N				400.0 Secs [==>]	[1]
	3		(6) NGC3132	WFPC2, IMAGE, WF3-FIX	F656N				100.0 Secs [==>]	[1]
	4		(6) NGC3132	WFPC2, IMAGE, WF3-FIX	F658N				400.0 Secs [==>]	[1]
	5		(6) NGC3132	WFPC2, IMAGE, WF3-FIX	F658N				400.0 Secs [==>]	[1]
Orbit Structure	<p>Orbit 1 Server Version: 20080515</p> <p>Timeline labels: GS Acq, Exp. 1, Exp. 2, Overhead, Exp. 3, Exp. 4, Exp. 5, Overhead, Unused Visibility = 114, Occultation.</p> <p>X-axis: 0, 500, 1000, 1500, 2000, 2500, 3000, 3500, 4000, 4500, 5000, 5500 sec</p>									

Visit	Proposal 11122, Visit 56 Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 145D TO 145 D										
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
(6)		NGC3132 Alt Name1: PNG272.1+12.3	RA: 10 07 1.3855 (151.7557729d) Dec: -40 25 59.03 (-40.43306d) Equinox: J2000		V=9.87	Reference Frame: ICRS					
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Req.	Groups	Exp. Time/[Actual Dur.]	Orbit	
	1		(6) NGC3132	WFPC2, IMAGE, WF3-FIX	F502N				500.0 Secs [==>]	[1]	
	2		(6) NGC3132	WFPC2, IMAGE, WF3-FIX	F502N				400.0 Secs [==>]	[1]	
	3		(6) NGC3132	WFPC2, IMAGE, WF3-FIX	F656N				100.0 Secs [==>]	[1]	
	4		(6) NGC3132	WFPC2, IMAGE, WF3-FIX	F658N				400.0 Secs [==>]	[1]	
	5		(6) NGC3132	WFPC2, IMAGE, WF3-FIX	F658N				400.0 Secs [==>]	[1]	
Orbit Structure	<p>Orbit 1 Server Version: 20080515</p> <p>The diagram shows a horizontal timeline from 0 to 5500 seconds. Key events are marked with arrows and labels: GS Acq at ~100s, Exp. 1 (500s) at ~400s, Exp. 2 (400s) at ~1100s, Exp. 3 (100s) at ~1800s, Exp. 4 (400s) at ~2100s, and Exp. 5 (400s) at ~2700s. Overhead periods are shown between exposures. An occultation period is indicated between ~3100s and ~3200s. The text 'Unred Visibility = 114' is present. The exposure times are indicated by the duration of the exposure bars.</p>										

Proposal 11122 - Visit 07 - Expanding PNe: Distances and Hydro Models

Thu May 29 01:02:32 GMT 2008

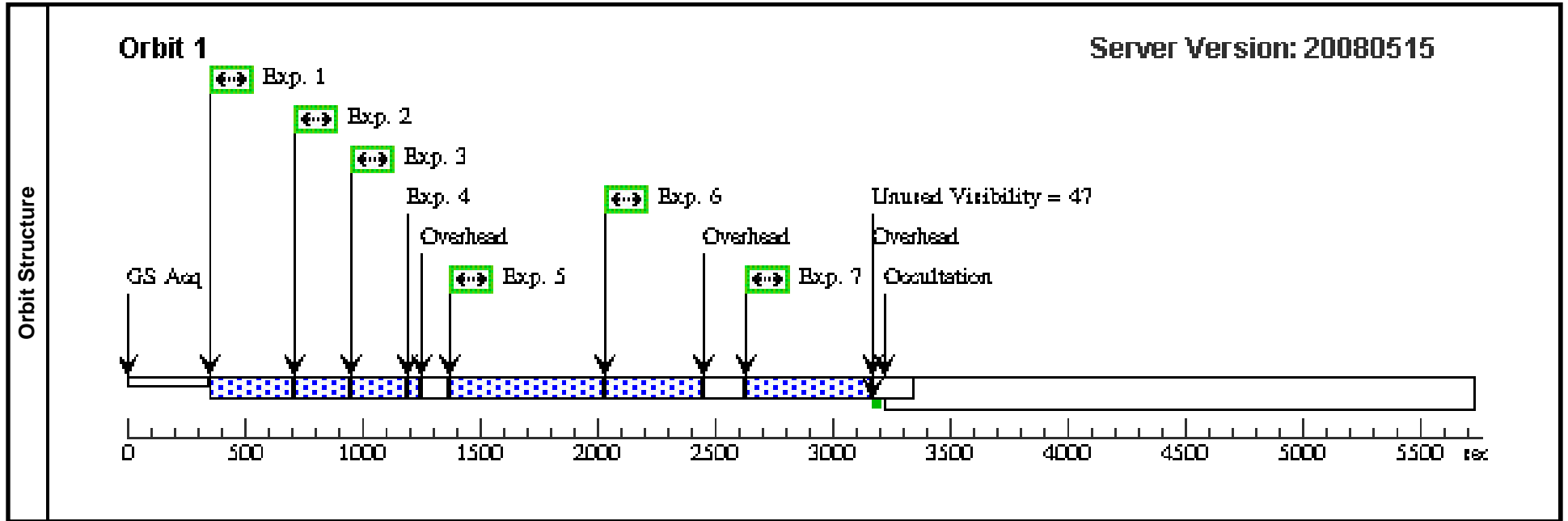
Visit	Proposal 11122, Visit 07, completed Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 330.0D TO 120.0 D									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(7)	NGC3242 Alt Name1: PNG261.0+32.0	RA: 10 24 46.0542 (156.1918925d) Dec: -18 38 35.54 (-18.64321d) Equinox: J2000		V=7	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(7) NGC3242	WFPC2, IMAGE, PC1-FIX	F502N				100.0 Secs [==>]	[1]
	2		(7) NGC3242	WFPC2, IMAGE, PC1-FIX	F502N				160.0 Secs [==>]	[1]
	3		(7) NGC3242	WFPC2, IMAGE, PC1-FIX	F656N				40.0 Secs [==>]	[1]
	4		(7) NGC3242	WFPC2, IMAGE, PC1-FIX	F656N				100.0 Secs [==>]	[1]
	5		(7) NGC3242	WFPC2, IMAGE, PC1-FIX	F658N				400.0 Secs [==>]	[1]
	6		(7) NGC3242	WFPC2, IMAGE, PC1-FIX	F658N				400.0 Secs [==>]	[1]
	7		(7) NGC3242	WFPC2, IMAGE, PC1-FIX	F658N				400.0 Secs [==>]	[1]



Proposal 11122 - Visit 08 - Expanding PNe: Distances and Hydro Models

Thu May 29 01:02:32 GMT 2008

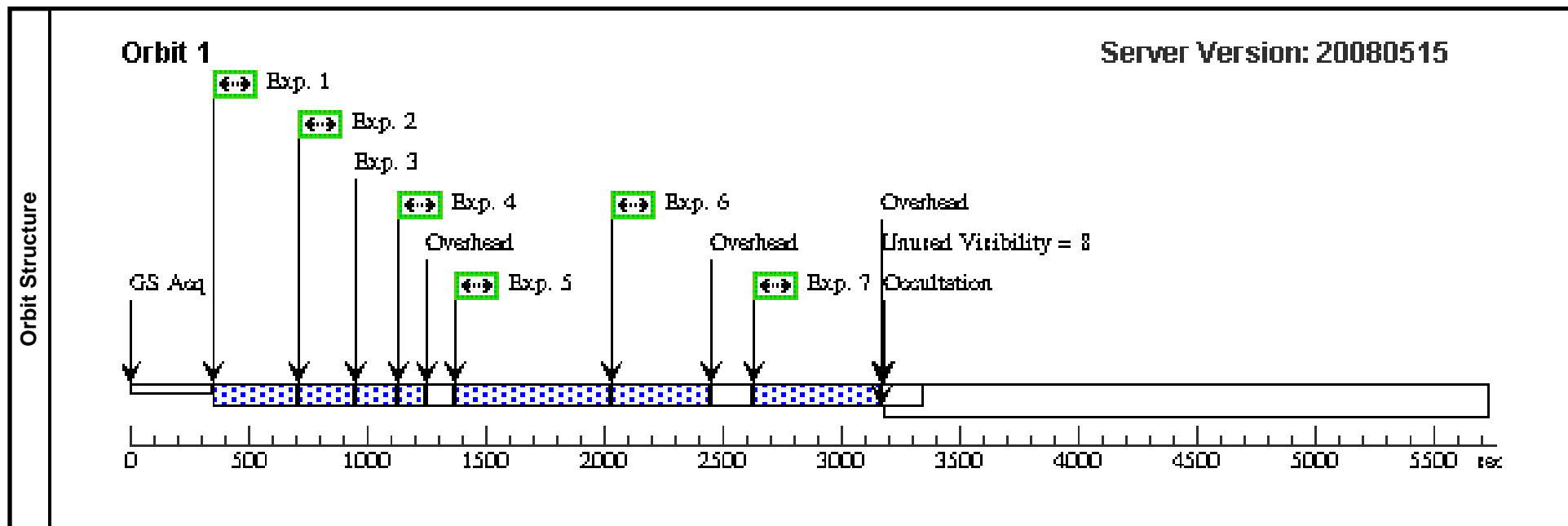
Visit	Proposal 11122, Visit 08, completed Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 345.0D TO 20.0 D; ORIENT 90.0D TO 115.0 D; ORIENT 180.0D TO 310.0 D									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(8)	NGC3918	RA: 11 50 17.7300 (177.5738750d)		V=8.5	Reference Frame: ICRS				
		Alt Name1: PNG294.6+04.7	Dec: -57 10 56.90 (-57.18247d)							
			Equinox: J2000							
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(8) NGC3918	WFPC2, IMAGE, PC1-FIX	F502N				160.0 Secs	
									[==>]	[1]
	2		(8) NGC3918	WFPC2, IMAGE, PC1-FIX	F502N				160.0 Secs	
									[==>]	[1]
	3		(8) NGC3918	WFPC2, IMAGE, PC1-FIX	F656N				100.0 Secs	
									[==>]	[1]
	4		(8) NGC3918	WFPC2, IMAGE, PC1-FIX	F656N				40.0 Secs	
									[==>]	[1]
	5		(8) NGC3918	WFPC2, IMAGE, PC1-FIX	F658N				400.0 Secs	
									[==>]	[1]
	6		(8) NGC3918	WFPC2, IMAGE, PC1-FIX	F658N				400.0 Secs	
									[==>]	[1]
	7		(8) NGC3918	WFPC2, IMAGE, PC1-FIX	F658N				400.0 Secs	
								[==>]	[1]	



Proposal 11122 - Visit 09 - Expanding PNe: Distances and Hydro Models

Thu May 29 01:02:32 GMT 2008

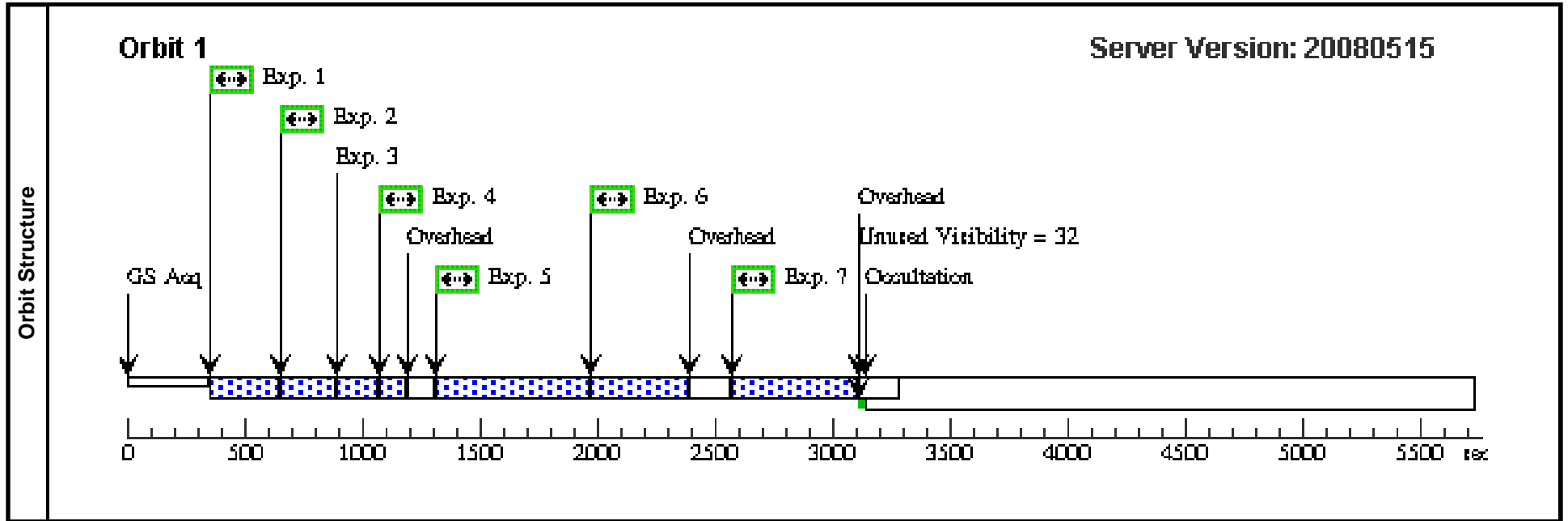
Visit	Proposal 11122, Visit 09, completed Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(9)	NGC5882	RA: 15 16 49.9400 (229.2080833d)		V=10.9	Reference Frame: ICRS				
		Alt Name1: PNG327.8+10.0	Dec: -45 38 58.40 (-45.64956d)							
			Equinox: J2000							
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(9) NGC5882	WFPC2, IMAGE, PC1-FIX	F502N				160.0 Secs	
									[==>]	[1]
	2		(9) NGC5882	WFPC2, IMAGE, PC1-FIX	F502N				160.0 Secs	
									[==>]	[1]
	3		(9) NGC5882	WFPC2, IMAGE, PC1-FIX	F656N				40.0 Secs	
									[==>]	[1]
	4		(9) NGC5882	WFPC2, IMAGE, PC1-FIX	F656N				100.0 Secs	
									[==>]	[1]
	5		(9) NGC5882	WFPC2, IMAGE, PC1-FIX	F658N				400.0 Secs	
									[==>]	[1]
	6		(9) NGC5882	WFPC2, IMAGE, PC1-FIX	F658N				400.0 Secs	
									[==>]	[1]
	7		(9) NGC5882	WFPC2, IMAGE, PC1-FIX	F658N				400.0 Secs	
								[==>]	[1]	



Proposal 11122 - Visit 10 - Expanding PNe: Distances and Hydro Models

Thu May 29 01:02:33 GMT 2008

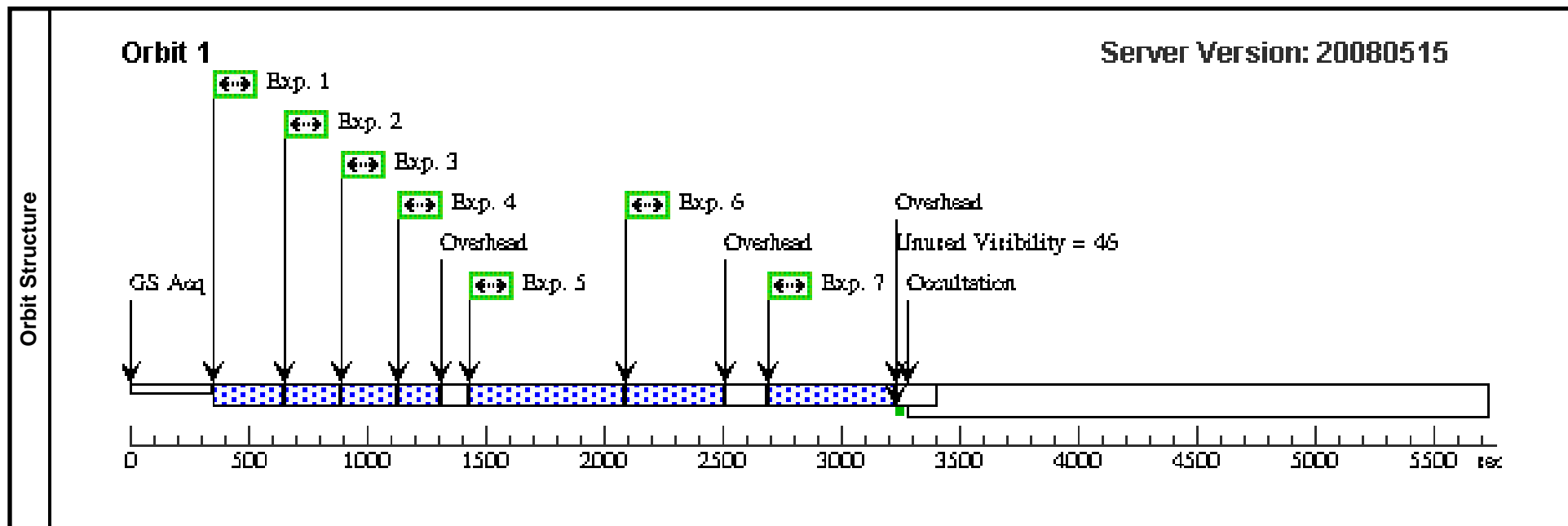
Visit	Proposal 11122, Visit 10, completed Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(10)	NGC6210 Alt Name1: PNG043.1+37.7	RA: 16 44 29.3668 (251.1223617d) Dec: +23 48 0.37 (23.80010d) Equinox: J2000		V=10.2	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(10) NGC6210	WFPC2, IMAGE, PC1-FIX	F502N				100.0 Secs [==>]	[1]
	2		(10) NGC6210	WFPC2, IMAGE, PC1-FIX	F502N				160.0 Secs [==>]	[1]
	3		(10) NGC6210	WFPC2, IMAGE, PC1-FIX	F656N				40.0 Secs [==>]	[1]
	4		(10) NGC6210	WFPC2, IMAGE, PC1-FIX	F656N				100.0 Secs [==>]	[1]
	5		(10) NGC6210	WFPC2, IMAGE, PC1-FIX	F658N				400.0 Secs [==>]	[1]
	6		(10) NGC6210	WFPC2, IMAGE, PC1-FIX	F658N				400.0 Secs [==>]	[1]
	7		(10) NGC6210	WFPC2, IMAGE, PC1-FIX	F658N				400.0 Secs [==>]	[1]



Proposal 11122 - Visit 11 - Expanding PNe: Distances and Hydro Models

Thu May 29 01:02:33 GMT 2008

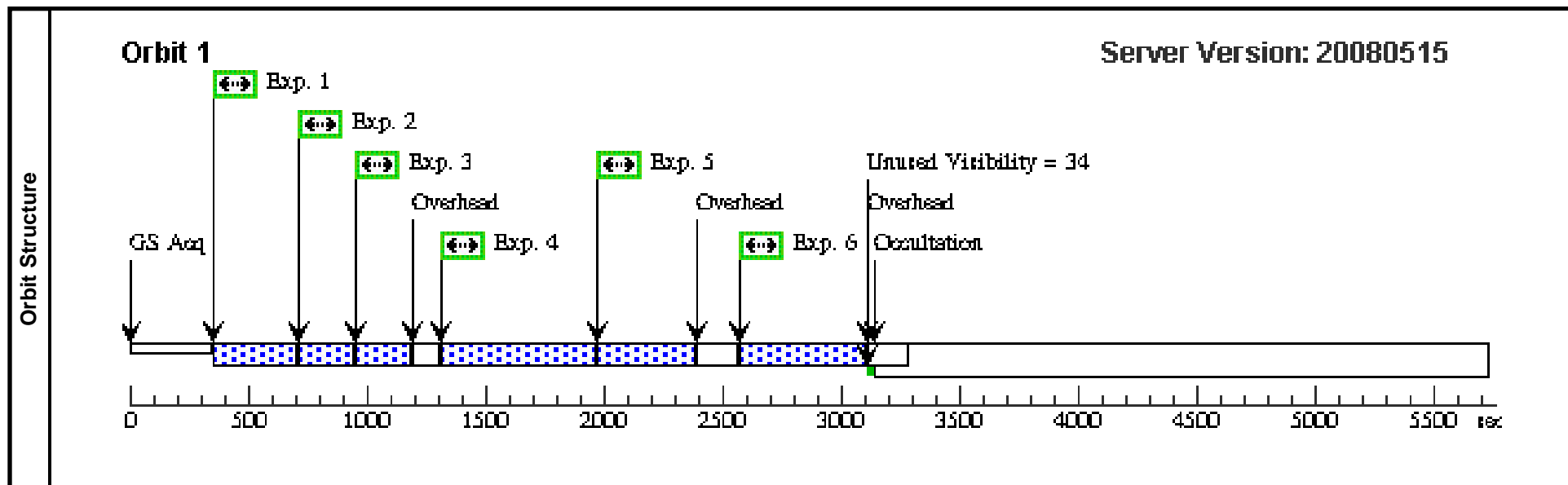
Visit	Proposal 11122, Visit 11, completed Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 0.0D TO 10.0 D; ORIENT 85.0D TO 90.0 D; ORIENT 180.0D TO 188.0 D; ORIENT 270.0D TO 280.0 D									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(11)	NGC6543	RA: 17 58 33.2999 (269.6387496d) Alt Name1: PNG096.4+29.9	Dec: +66 37 58.07 (66.63280d) Equinox: J2000		V=9.8	Reference Frame: ICRS			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(11) NGC6543	WFPC2, IMAGE, PC1-FIX	F502N				100.0 Secs [==>]	[1]
	2		(11) NGC6543	WFPC2, IMAGE, PC1-FIX	F502N				160.0 Secs [==>]	[1]
	3		(11) NGC6543	WFPC2, IMAGE, PC1-FIX	F656N				100.0 Secs [==>]	[1]
	4		(11) NGC6543	WFPC2, IMAGE, PC1-FIX	F656N				160.0 Secs [==>]	[1]
	5		(11) NGC6543	WFPC2, IMAGE, PC1-FIX	F658N				400.0 Secs [==>]	[1]
	6		(11) NGC6543	WFPC2, IMAGE, PC1-FIX	F658N				400.0 Secs [==>]	[1]
	7		(11) NGC6543	WFPC2, IMAGE, PC1-FIX	F658N				400.0 Secs [==>]	[1]



Proposal 11122 - Visit 12 - Expanding PNe: Distances and Hydro Models

Thu May 29 01:02:33 GMT 2008

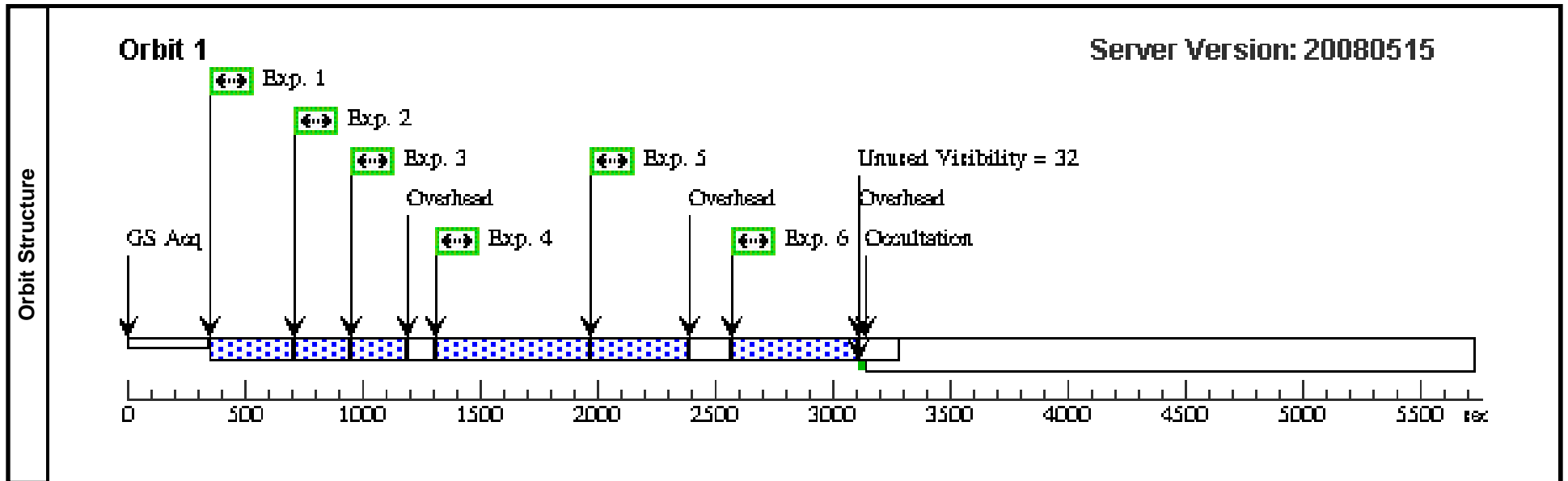
Visit	Proposal 11122, Visit 12, completed Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(12)	NGC6565	RA: 18 11 52.4700 (272.9686250d) Dec: -28 10 42.30 (-28.17842d) Equinox: J2000		V=10	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(12) NGC6565	WFPC2, IMAGE, PC1-FIX	F502N					160.0 Secs [==>]	[1]
	2	(12) NGC6565	WFPC2, IMAGE, PC1-FIX	F502N					160.0 Secs [==>]	[1]
	3	(12) NGC6565	WFPC2, IMAGE, PC1-FIX	F656N					160.0 Secs [==>]	[1]
	4	(12) NGC6565	WFPC2, IMAGE, PC1-FIX	F658N					400.0 Secs [==>]	[1]
	5	(12) NGC6565	WFPC2, IMAGE, PC1-FIX	F658N					400.0 Secs [==>]	[1]
	6	(12) NGC6565	WFPC2, IMAGE, PC1-FIX	F658N					400.0 Secs [==>]	[1]



Proposal 11122 - Visit 13 - Expanding PNe: Distances and Hydro Models

Thu May 29 01:02:34 GMT 2008

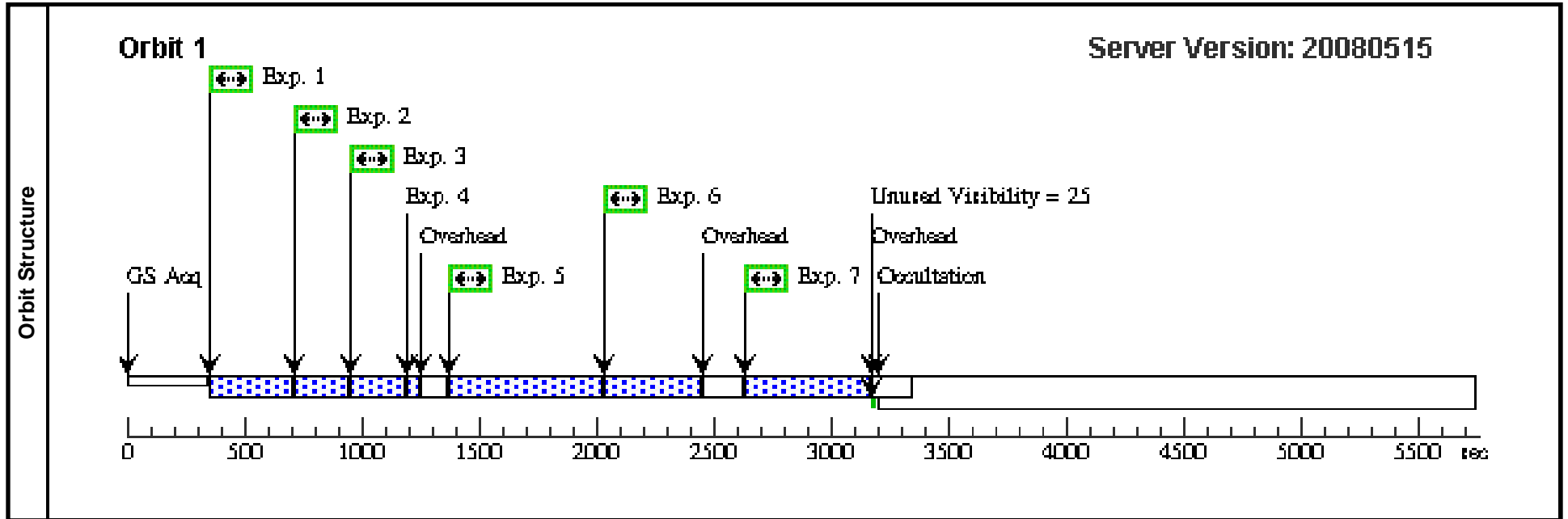
Visit	Proposal 11122, Visit 13, completed Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(13)	NGC6578	RA: 18 16 16.5200 (274.0688333d) Dec: -20 27 2.70 (-20.45075d) Equinox: J2000		V=20	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(13) NGC6578	WFPC2, IMAGE, PC1-FIX	F502N					160.0 Secs [==>]	[1]
	2	(13) NGC6578	WFPC2, IMAGE, PC1-FIX	F502N					160.0 Secs [==>]	[1]
	3	(13) NGC6578	WFPC2, IMAGE, PC1-FIX	F656N					160.0 Secs [==>]	[1]
	4	(13) NGC6578	WFPC2, IMAGE, PC1-FIX	F658N					400.0 Secs [==>]	[1]
	5	(13) NGC6578	WFPC2, IMAGE, PC1-FIX	F658N					400.0 Secs [==>]	[1]
	6	(13) NGC6578	WFPC2, IMAGE, PC1-FIX	F658N					400.0 Secs [==>]	[1]



Proposal 11122 - Visit 14 - Expanding PNe: Distances and Hydro Models

Thu May 29 01:02:34 GMT 2008

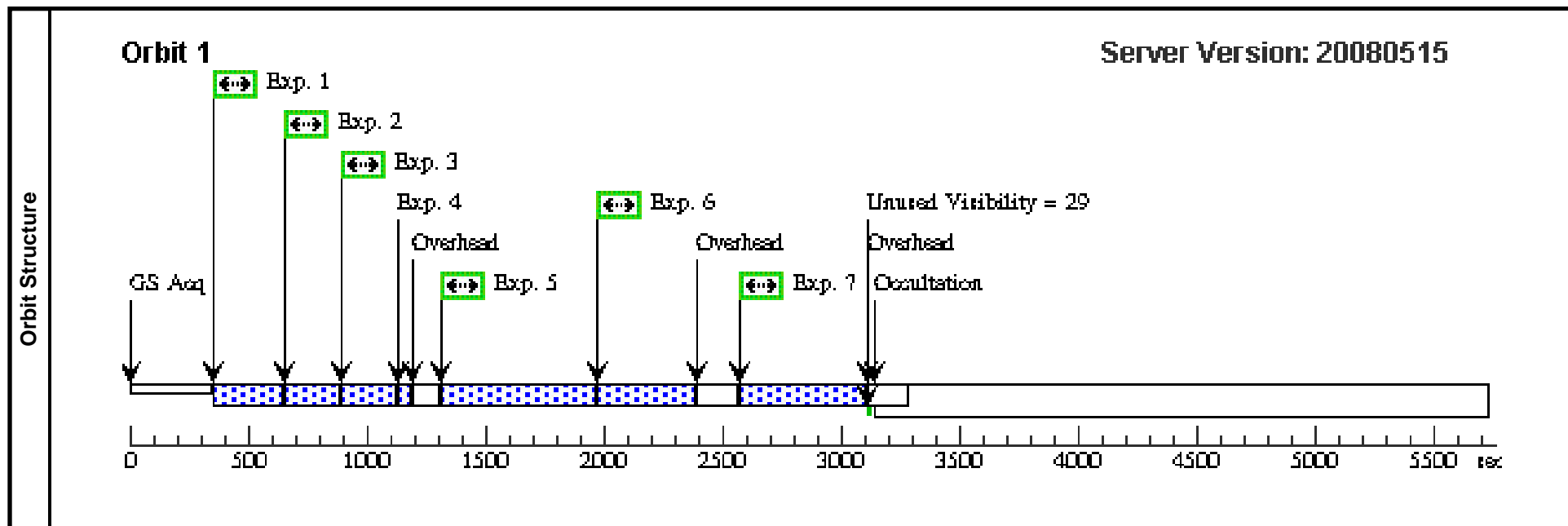
Visit	Proposal 11122, Visit 14, completed Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(14)	NGC6826	RA: 19 44 48.1500 (296.2006250d) Dec: +50 31 30.30 (50.52508d) Equinox: J2000		V=10.07	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(14) NGC6826	WFPC2, IMAGE, PC1-FIX	F502N				160.0 Secs [==>]	[1]
	2		(14) NGC6826	WFPC2, IMAGE, PC1-FIX	F502N				160.0 Secs [==>]	[1]
	3		(14) NGC6826	WFPC2, IMAGE, PC1-FIX	F656N				100.0 Secs [==>]	[1]
	4		(14) NGC6826	WFPC2, IMAGE, PC1-FIX	F656N				40.0 Secs [==>]	[1]
	5		(14) NGC6826	WFPC2, IMAGE, PC1-FIX	F658N				400.0 Secs [==>]	[1]
	6		(14) NGC6826	WFPC2, IMAGE, PC1-FIX	F658N				400.0 Secs [==>]	[1]
	7		(14) NGC6826	WFPC2, IMAGE, PC1-FIX	F658N				400.0 Secs [==>]	[1]



Proposal 11122 - Visit 15 - Expanding PNe: Distances and Hydro Models

Thu May 29 01:02:34 GMT 2008

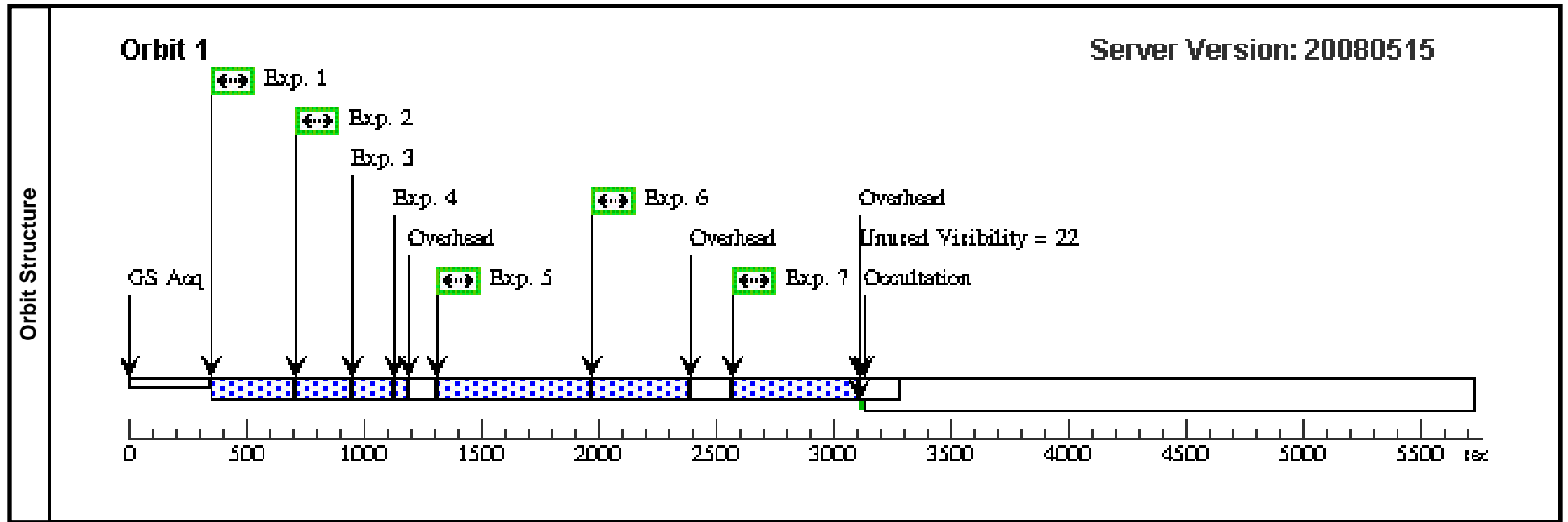
Visit	Proposal 11122, Visit 15, completed Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(15)	NGC6886	RA: 20 12 42.8100 (303.1783750d) Dec: +19 59 22.70 (19.98964d) Equinox: J2000		V=20	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(15) NGC6886	WFPC2, IMAGE, PC1-FIX	F502N				100.0 Secs [==>]	[1]
	2		(15) NGC6886	WFPC2, IMAGE, PC1-FIX	F502N				160.0 Secs [==>]	[1]
	3		(15) NGC6886	WFPC2, IMAGE, PC1-FIX	F656N				100.0 Secs [==>]	[1]
	4		(15) NGC6886	WFPC2, IMAGE, PC1-FIX	F656N				40.0 Secs [==>]	[1]
	5		(15) NGC6886	WFPC2, IMAGE, PC1-FIX	F658N				400.0 Secs [==>]	[1]
	6		(15) NGC6886	WFPC2, IMAGE, PC1-FIX	F658N				400.0 Secs [==>]	[1]
	7		(15) NGC6886	WFPC2, IMAGE, PC1-FIX	F658N				400.0 Secs [==>]	[1]



Proposal 11122 - Visit 16 - Expanding PNe: Distances and Hydro Models

Thu May 29 01:02:34 GMT 2008

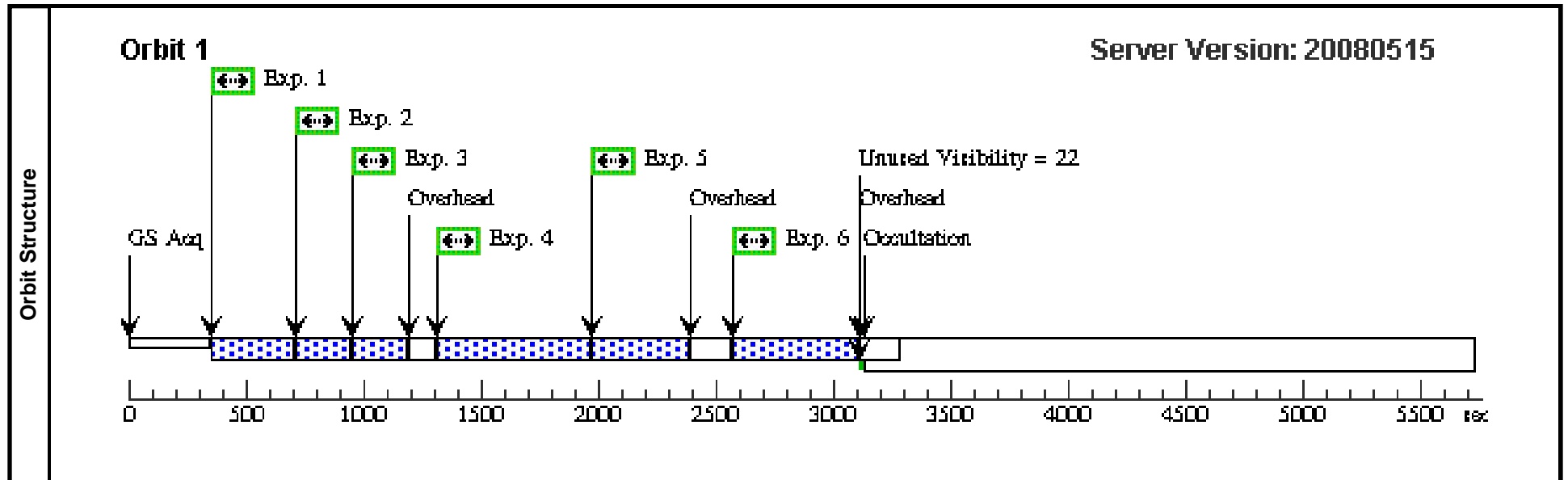
Visit	Proposal 11122, Visit 16, completed Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(16)	NGC6891	RA: 20 15 8.8400 (303.7868333d) Alt Name1: PNG054.1-12.1 Equinox: J2000			V=12.4	Reference Frame: ICRS			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(16) NGC6891	WFPC2, IMAGE, PC1-FIX	F502N				160.0 Secs [==>]	[1]
	2		(16) NGC6891	WFPC2, IMAGE, PC1-FIX	F502N				160.0 Secs [==>]	[1]
	3		(16) NGC6891	WFPC2, IMAGE, PC1-FIX	F656N				40.0 Secs [==>]	[1]
	4		(16) NGC6891	WFPC2, IMAGE, PC1-FIX	F656N				40.0 Secs [==>]	[1]
	5		(16) NGC6891	WFPC2, IMAGE, PC1-FIX	F656N				400.0 Secs [==>]	[1]
	6		(16) NGC6891	WFPC2, IMAGE, PC1-FIX	F656N				400.0 Secs [==>]	[1]
	7		(16) NGC6891	WFPC2, IMAGE, PC1-FIX	F656N				400.0 Secs [==>]	[1]



Proposal 11122 - Visit 17 - Expanding PNe: Distances and Hydro Models

Thu May 29 01:02:34 GMT 2008

Visit	Proposal 11122, Visit 17, completed Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 248.0D TO 260.0 D									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(17)	NGC7009	RA: 21 04 10.2434 (316.0426808d) Alt Name1: PNG037.7-34.5 Equinox: J2000	Dec: -11 21 48.60 (-11.36350d)		V=12.78	Reference Frame: ICRS			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(17) NGC7009	WFPC2, IMAGE, PC1-FIX	F502N				160.0 Secs [==>]	[1]
	2		(17) NGC7009	WFPC2, IMAGE, PC1-FIX	F502N				160.0 Secs [==>]	[1]
	3		(17) NGC7009	WFPC2, IMAGE, PC1-FIX	F656N				160.0 Secs [==>]	[1]
	4		(17) NGC7009	WFPC2, IMAGE, PC1-FIX	F658N				400.0 Secs [==>]	[1]
	5		(17) NGC7009	WFPC2, IMAGE, PC1-FIX	F658N				400.0 Secs [==>]	[1]
	6		(17) NGC7009	WFPC2, IMAGE, PC1-FIX	F658N				400.0 Secs [==>]	[1]



Proposal 11122 - Visit 18 - Expanding PNe: Distances and Hydro Models

Thu May 29 01:02:35 GMT 2008

Visit	Proposal 11122, Visit 18, scheduling Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 0.0D TO 25.0 D; ORIENT 95.0D TO 115.0 D; ORIENT 190.0D TO 205.0 D; ORIENT 280.0D TO 300.0 D									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(18)	NGC7662	RA: 23 25 54.0010 (351.4750042d) Dec: +42 32 6.03 (42.53501d) Equinox: J2000		V=12	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(18) NGC7662	WFPC2, IMAGE, PC1-FIX	F502N					160.0 Secs [==>]	[1]
	2	(18) NGC7662	WFPC2, IMAGE, PC1-FIX	F502N					160.0 Secs [==>]	[1]
	3	(18) NGC7662	WFPC2, IMAGE, PC1-FIX	F656N					160.0 Secs [==>]	[1]
	4	(18) NGC7662	WFPC2, IMAGE, PC1-FIX	F658N					400.0 Secs [==>]	[1]
	5	(18) NGC7662	WFPC2, IMAGE, PC1-FIX	F658N					400.0 Secs [==>]	[1]
	6	(18) NGC7662	WFPC2, IMAGE, PC1-FIX	F658N					400.0 Secs [==>]	[1]

