

# GNIRS BI-WEEKLY REPORT

August 99 to May 00

**Project Title:** Gemini Near InfraRed Spectrograph (GNIRS)

**WBS:** 5.1

**Project Description:** 1-5 um Spectrograph with multiple filters, slits, Deckers, prisms, gratings and cameras.

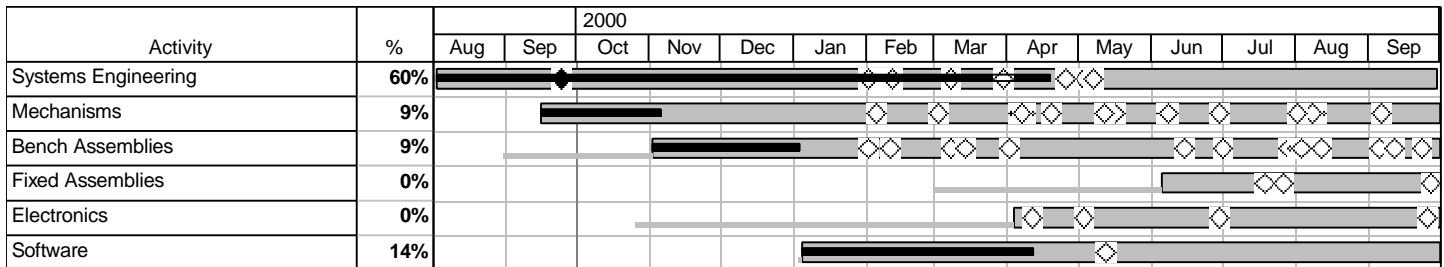
**WPM:** N. Gaughan

	Original Budget	Actual Spent Cum	Est. To Go	Est. Project Total
Labor Cost	\$3,391,232	\$739,703	\$2,651,529	\$3,391,232
Capital	\$836,462	\$161,643	\$674,819	\$836,462

Key Personnel		
Title	Name	% Dedicated
PM	Gaughan	100
PS	Elias	100
ME	Goble	100
ME	Muller	100
EE	Penegor	100
MD	Andrew	100

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
<b>Labor Costs (\$K)</b>										
Planned Labor	\$53,542	\$94,126	\$98,952	\$75,981	\$55,385	\$106,421	\$94,730	\$129,787	\$114,861	\$123,511
Actual Labor	\$34,302	\$50,463	\$51,277	\$47,901	\$48,380	\$67,504	\$53,823	\$28,702		
Cum Over/Under	\$19,240	\$62,903	\$110,578	\$138,658	\$145,663	\$184,580	\$225,487	\$326,572		
<b>FTE Loading (FTE)</b>										
Planned	12	15	14	13	13	14	16	19	20	19
Actual	5.6	8.3	8.4	7.9	8.0	11.1	8.9	4.7		
<b>Capital (\$K)</b>										
Planned Capital	\$0	\$34,100	\$6,250	\$9,810	\$8,780	\$19,450	\$1,500	\$8,851	\$81,330	\$53,940
Actual Capital	\$12,798	\$1,608	\$718	\$4,409	\$4,351	\$17,057	\$30,828	\$12,604		

Key Milestones		
Activity	Date	Status
Project Start	1/1/1999	C
Pre-Fab Review	2/15/2000	



**% Complete:** 14%  
**Total Milestones:** 192  
**Completed Milestones:** 3  
**Key Milestone:** Pre-Fabrication Review

BCWS	383,515	SPI	1.39
BCWP	533,619	CPI	2.00
ACWP	267,393		

**Scope Changes:**

- There are no new technical scope changes.

**Pending Status, Issues & Resolutions:**

- The schedules and milestones shown in this report are being revised, and will be updated at the Pre-Fabrication Review.
- The 3D solid model design of the Post-Slit and OIWFS Bench are 75% complete. The Pre-Slit Bench design is 50% complete. The Collimator cover and box designs are 75% complete
- The Rotary drive prototype has completed the first warm tests. Parts are being fabricated for two additional tests using tapered bearings. Trade studies indicate that the use of these bearings will result in better position repeatability at temperature.
- The 3D design of the Short Red and Short Blue camera barrels are 95% complete. The 2D drafting is 80% and 10% complete, respectively. Some minor 3D design remains to implement a revised axial lens support modification.
- The Environmental Cover Assembly mechanism 2D detailing is 75% complete.
- The Filter Wheel mechanism 3D design is 45% complete. The filters for this assembly are being redone by the vendor.
- The Acquisition Mirror mechanism 3D solid model design is 95% complete; 2D design is 10% complete.
- A new Motor Drive assembly 3D design is 100% complete and the 2D drafting is 85% complete.

**Project Manager's Assessment of Project Health:**

- Good. Significant progress has been made on the Optical Bench design effort.

# GNIRS BI-WEEKLY REPORT

August 99 to May 00

**Project Title:** GNIRS Systems Engineering

**WBS:** 5.2

**Project Description:** Includes analyses, prototyping, and optical design updates.

**WPM:** J. Elias

	Original Budget	Actual Spent Cum	Est. To Go	Est. Project Total
Labor Cost	\$166,174	\$124,844	\$41,330	\$166,174
Capital	\$16,910	\$32,894	-\$15,984	\$16,910

Key Personnel		
Title	Name	% Dedicated
PS	Elias	100
ME	Goble	100
ME	Muller	100
OE	Liang	10
IM	Rath	100

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
<b>Labor Costs (\$K)</b>										
Planned Labor	\$12,882	\$49,723	\$36,877	\$20,824	\$13,982	\$26,756	\$5,130	\$0	\$0	\$0
Actual Labor	\$5,352	\$22,723	\$20,913	\$17,980	\$17,224	\$25,122	\$11,865	\$3,665		
Cum Over/Under	\$7,530	\$27,000	\$50,494	\$53,338	\$50,096	\$5,1730	\$44,995	\$41,330		
<b>FTE Loading (FTE)</b>										
Planned	2	8	6	3	2	2	1	0	0	0
Actual	0.9	3.7	3.4	3.0	2.8	4.1	2.0	0.6		
<b>Capital (\$K)</b>										
Planned Capital	\$0	\$3,100	\$5,000	\$8,810	\$0	\$0	\$0	\$0	\$0	\$0
Actual Capital	\$525	\$2,178	\$197	\$2,186	\$4,544	\$18,351	\$1,654	\$3,259		

Key Milestones		
Activity	Date	Status
Analysis		
Cold Motor T&E		
Prototyping		
Optics Update		

Activity	%	2000														
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
Thermal analysis	16%															
Structural Analysis	4%															
Update Optics Design	41%															
Mechanism Test Set	56%															
Cold Motor Testing & Evaluation	84%															
Rotary Prototype Mechanism	89%															
Linear Prototype Mechanism	82%															
Prototype Optics Mounts	100%															

**% Complete:** 60%

**Total Milestones:** 10

**Completed Milestones:** 2

**Scope Changes:**

- None.

**Pending Status, Issues & Resolutions:**

- The deflection and thermal analyses are proceeding.
- The Linear Prototype is in assembly and is being readied for test.
- The Rotary Prototype is in warm Testing.
- The Optical Mount Prototype testing is complete.
- The cold motor test/evaluation work is complete and the report is yet to be written.

**Project Manager's Assessment of Work Package Health:**

- Good. All components of this work package are under control and on an acceptable schedule.

# GNIRS BI-WEEKLY REPORT

August 99 to May 00

**Project Title:** GNIRS Mechanisms

**WBS:** 5.3.1

**Project Description:** Includes the design, fabrication and test of the 9 mechanisms used in GNIRS.

**WPM:** G. Muller

	Original Budget	Actual Spent Cum	Est. To Go	Est. Project Total
Labor Cost	\$607,628	\$74,269	\$533,359	\$607,628
Capital	\$274,217	\$29,604	\$244,613	\$274,217

Key Personnel		
Title	Name	% Dedicated
ME	Muller	100
MD	Andrew	100
MD	Rosin	100
MD	Downey	100
MD	Robles	100
MT	Davis	100

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
<b>Labor Costs (\$K)</b>										
Planned Labor	\$0	\$4,123	\$18,012	\$18,411	\$17,560	\$28,447	\$33,220	\$39,303	\$45,729	\$52,896
Actual Labor	\$0	\$2,014	\$12,274	\$10,033	\$9,187	\$12,676	\$17,321	\$10,764		
Cum Over/Under	\$0	\$2,109	\$7,847	\$6,225	\$24,598	\$40,369	\$56,267	\$84,807		
<b>FTE Loading (FTE)</b>										
Planned	0	1	3	3	3	5	5	6	8	9
Actual	0.0	0.3	2.0	1.7	1.5	2.1	2.8	1.8		
<b>Capital (\$K)</b>										
Planned Capital	\$0	\$0	\$0	\$0	\$4,080	\$4,450	\$0	\$7,151	\$6,380	\$52,000
Actual Capital	\$0	\$475	\$472	\$6	\$7	\$0	\$28,644	\$0		

Key Milestones		
Activity	Date	Status

Activity	%	2000														
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
Camera Assembly	13%															
Detector Focus Assembly	0%															
Environmental Cover Assembly	48%															
Acquisition Mirror Assembly	13%															
Slit/Decker Assembly	4%															
Filter Wheel Assembly	3%															
Grating Turret	0%															
Prism Turret	1%															

**% Complete:** 9%  
**Total Milestones:** 46  
**Completed Milestones:** 1

**Scope Changes:**

- None.

**Pending Status, Issues & Resolutions:**

- The second Camera Assembly barrel 2D design is 10% complete.
- The Environmental Cover Assembly mechanism is in 2D detailing is 75% complete.
- The Prism turret 3D design is 40% complete.
- The 3D design of the acquisition Mirror is 100% complete.
- The Filter Wheel assembly 3D design is 45% complete.

**Project Manager's Assessment of work Package Health:**

- Good. Work is proceeding at a good pace with few problems. Interface details are being resolved and there is excellent engineering direction taking place.

# GNIRS BI-WEEKLY REPORT

August 99 to May 00

**Project Title:** GNIRS Bench Assemblies

**WBS:** 5.3.2

**Project Description:** Design and fabrication of the four cold bench assemblies used in GNIRS.

**WPM:** L. Goble

	Original Budget	Actual Spent Cum	Est. To Go	Est. Project Total
Labor Cost	\$194,142	\$38,351	\$155,791	\$194,142
Capital	\$101,069	\$259	\$100,810	\$101,069

Key Personnel		
Title	Name	% Dedicated
ME	Goble	100
MD	Andrew	100
MT	Davis	100

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
<b>Labor Costs (\$K)</b>										
Planned Labor	\$12.16	\$12,768	\$12,312	\$2,204	\$0	\$228	\$14,478	\$12,008	\$17,708	\$13,566
Actual Labor	\$0	\$1,666	\$7,025	\$8,270	\$6,953	\$5,890	\$4,804	\$3,743		
Cum Over/Under	\$12.16	\$11,102	\$17,605	\$11,539	\$4,586	-\$1,076	\$8,598	\$16,863		
<b>FTE Loading (FTE)</b>										
Planned	0	2	2	1	2	2	2	2	3	2
Actual	0.0	0.3	1.2	1.4	1.1	1.0	0.8	0.6		
<b>Capital (\$K)</b>										
Planned Capital	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$12,000	\$0
Actual Capital	\$0	\$282	\$283	\$0	-\$306	\$0	\$0	\$0		

Key Milestones		
Activity	Date	Status

Activity	%	2000														
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
Spectrograph Bench	7%															
OIWFS Assembly	10%															
Collimator Assembly	15%															
Fore Optics Assembly	8%															

**% Complete:** 9%  
**Total Milestones:** 23  
**Completed Milestones:** 0

**Scope Changes:**

- None.

**Pending Status, Issues & Resolutions:**

- The Post Slit Bench (formerly Spectrograph) 3D design is 75% complete.
- The OIWFS Bench 3D design is 76% complete.
- The Collimator cover and box 3D designs are 75% complete.

**Project Manager's Assessment of Work Package Health:**

- Good. The bench designs all show good progress.

# GNIRS BI-WEEKLY REPORT

August 99 to May 00

**Project Title:** GNIRS Fixed Assemblies

**WBS:** 5.3.3

**Project Description:** All assemblies with no moving parts except the optical benches.

**WPM:** G. Muller

	Original Budget	Actual Spent Cum	Est. To Go	Est. Project Total
Labor Cost	\$353,533	\$683	\$352,850	\$353,533
Capital	\$188,986	\$18	\$188,968	\$188,986

Key Personnel		
Title	Name	% Dedicated
ME	Muller/Goble	100
MD	Andrew	100
MD	Rosin	100
MD	Downey	100
MD	Robles	100
MT	Davis	100

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
<b>Labor Costs (\$K)</b>										
Planned Labor	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$9,044	\$4,636	\$6,612
Actual Labor	\$0	\$358	\$195	\$0	\$0	\$0	\$130	\$0		
Cum Over/Under	\$0	-\$358	-\$553	-\$553	-\$553	-\$553	-\$683	\$8,361		
<b>FTE Loading (FTE)</b>										
Planned	0	0	0	0	0	0	0	1	1	1
Actual	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0		
<b>Capital (\$K)</b>										
Planned Capital	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$640
Actual Capital	\$0	\$0	\$18	\$0	\$0	\$0	\$0	\$0		

Key Milestones		
Activity	Date	Status

Activity	%	2000														
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
Entrance Window Assembly	0%															
Detector Mount Assembly	0%															
Cryo Cooler Assembly	0%															
Environmental Cover Filter	0%															
Bulkhead Assembly	0%															
Front Radiation Shield Assembly	0%															
Rear Radiation Shield Assembly	0%															
Front Dewar Shell	0%															
Rear Dewar Shell	0%															
Vertical Installation Frame Assembly	0%															
Horizontal Installation Frame Assembly	0%															
Dewar Mount Truss Assembly	0%															
Thermal Enclosure Mount Assembly	0%															

**% Complete:** 0%

**Total Milestones:** 67

**Completed Milestones:** 0

**Scope Changes:**

- None.

**Pending Status, Issues & Resolutions:**

- Work on the 3D design concept of the Bulkhead Assembly has started. This is being done as part of the Optical Bench to Bulkhead Assembly interface definition.

**Project Manager's Assessment of Work Package Health:**

- Good.

# GNIRS BI-WEEKLY REPORT

August 99 to May 00

**Project Title:** GNIRS Electronics

**WBS:** 5.4

**Project Description:** Design and fabrication of the GNIRS electronics subsystems

**WPM:** J. Penegor

	Original Budget	Actual Spent Cum	Est. To Go	Est. Project Total
Labor Cost	\$132,658	-\$5,509	\$138,167	\$132,658
Capital	\$11,900	-\$3,340	\$15,240	\$11,900

Key Personnel		
Title	Name	% Dedicated
PS	Elias	20
EE	Penegor	100

Key Milestones		
Activity	Date	Status
Project Start	1/1/1999	C

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
<b>Labor Costs (\$K)</b>										
Planned Labor	\$0	\$0	\$1,216	\$6,080	\$8,512	\$16,606	\$12,312	\$22,800	\$12,768	\$11,552
Actual Labor	\$0	-\$5,509	\$0	\$0	\$0	\$0	\$0	\$0		
Cum Over/Under	\$0	\$5,509	\$6,725	\$12,805	\$21,317	\$37,923	\$50,235	\$73,035		
<b>FTE Loading (FTE)</b>										
Planned	0	0	0	1	1	3	2	4	2	2
Actual	0.0	-0.9	0.0	0.0	0.0	0.0	0.0	0.0		
<b>Capital (\$K)</b>										
Planned Capital	\$0	\$0	\$750	\$0	\$4,200	\$1,500	\$200	\$750	\$3,000	\$0
Actual Capital	\$0	-\$3,707	\$364	\$3	\$0	\$0	\$0	\$0		

Activity	%	2000														
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
Spectrograph Thermal Enclosure	0%															
Ext. Inst Wiring & Cables	0%															
Dewar Electronics	0%															
Software Test Fixture	0%															

**% Complete:** 0%  
**Total Milestones:** 14  
**Completed Milestones:** 0

**Scope Changes:**

- None.

**Pending Status, Issues & Resolutions:**

- Jerry Penegor, the new EE, is assessing the work package. He has just completed a coordination trip to Hawaii to go over the electronics design configuration approach with Andy Rudeen.

**Project Manager's Assessment of Work Package Health:**

- Good. Work needs to start this month to stay on schedule.

# GNIRS BI-WEEKLY REPORT

August 99 to May 00

**Project Title:** GNIRS Software

**WBS:** 5.5

**Project Description:** Design, code and test of the GNIRS Engineering and System software.

**WPM:** R. Wolff

	Original Budget	Actual Spent Cum	Est. To Go	Est. Project Total
Labor Cost	\$156,256	\$13,537	\$142,719	\$156,256
Capital	\$0	\$32	-\$32	\$0

Key Personnel		
Title	Name	% Dedicated
PS	Elias	10
P1	Wolff	100
P2	TBD	100

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
<b>Labor Costs (\$K)</b>										
Planned Labor	\$0	\$0	\$0	\$0	\$0	\$6,080	\$0	\$7,600	\$10,032	\$13,376
Actual Labor	\$0	\$0	\$0	\$0	\$994	\$5,238	\$4,636	\$2,669		
Cum Over/Under	\$0	\$0	\$0	\$0	-\$994	-\$52	-\$4,788	\$143		
<b>FTE Loading (FTE)</b>										
Planned	0	0	0	0	0	1	1	1	1	1
Actual	0.0	0.0	0.0	0.0	0.2	0.9	0.8	0.4		
<b>Capital (\$K)</b>										
Planned Capital	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Actual Capital	\$0	\$0	\$0	\$0	\$0	\$32	\$0	\$0		

Key Milestones		
Activity	Date	Status
SW Plan	11/1/1999	
Eng SW Req	2/1/2000	
Sys SW Req	4/1/2000	

Activity	%	2000														
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
Software Plan	54%															
Component Controller Software	30%															
Lab Support Software	0%															
Detector Interface Software	0%															

**% Complete:** 14%  
**Total Milestones:** 10  
**Completed Milestones:** 0

**Scope Changes:**

- None.

**Pending Status, Issues & Resolutions:**

- The Software Plan is 100% complete and waiting review.
- Component Controller software is 30% complete.

**Project Manager's Assessment of Project Health:**

- Good. This work package is ahead of schedule.