



## ENG10-016: F2 FIXES AND IMPROVEMENTS PROJECT MANAGEMENT REPORT # 3

GE-F2-GENE-PMREP-20100730

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### Revision History

Revision #	Author & date	Description	Version #
1	Manuel Lazo- Jul 30th, 2010	First version	1
2	Manuel Lazo – Aug 2, 2010	Aug 2 <sup>nd</sup> meeting notes and AI added	1
3	Manuel Lazo- Aug 4, 2010	Project Organization Chart Modified	2

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## 1 Project Scientist's Report

This is a Project Management report # 2 on the status of F2 as of 30 July 2010.

Work was done in collaboration with P. Gigoux about the headers and WCS. We are also planning improvements for GMMPS.

## 2 Project Manager's Report

This is a report of the status of ENG10-016 Fixes and Improvement project as of the 30 July 2010.

Gemini staff uses Project Insight (PI), a web based software tool to plan, execute and reports about project progress and status.

The project is being executed as planned and reported on GE-F2-GENE-PMREP-20100430 project management report document and the last 3 bi-weekly progress report GE-F2-GENE-BWREP-20100620(#6), GE-F2-GENE-BWREP-20100704(#&) and GE-F2-GENE-BWREP-20100720(#8) All the previous progress reports can we found in DMT link : <http://dmt.gemini.edu/docushare/dsweb/View/Collection-2205/Document-60336>

The MOS mechanisms identified that require re-design and fabrication are being executed as planned with some delay to complete them. See below for detail.

The current project's work and duration changed in comparison to the previous PM report of April 2010. This project change was reported in bi-weekly reports after re-assessing to complete MOS re-design. Place holder efforts and schedule for the Camera re-work was included as part of this change. Current project end date is end of June 2011.

NOTE: THIS WILL BE REVISED, REASSESSED and UPDATED after a PM meeting held on Aug 2<sup>nd</sup>. Several actions items were identified, the most important one is to contact UF to get information about Camera lenses mounting design for warm and cold performance. See section 4.1 project changes for details.

The current project progress is close to 28%, behind schedule, RED PI code. Red code means the project accomplished hours are less than the planned hours in  $\geq 320$  hours. The current difference is  $\sim 680$  hours, (scheduled hours Variance  $\sim 24\%$ ) significantly behind schedule. This situation is because the late delivery of commercial parts to integrate new fabricated parts and also with but less impact because of resources have reassigned to support operations and also some extra time required by Gabriel to write the Camera lenses report. However the positive is that 90% of the tasks affecting the schedule are no critical, so there is a level of confidence the schedule will be recovered during August/September.

SW engineering is working 100% assigned to the project and ramping up on objectives.

At the time of this report the Camera Inspection has finished and several flaws have being identified:

- Anodized vacuum seals like in the MOS dewar seals.
- Broken Passive radiation shield insulator
- Spilled Activated carbon (and yes, it is electrically conductive)
- Loose lens radial defining pin
- Unbalanced forces induced by GV baffle cold straps
- Out of roundness baffle end and MOS baffle groove

- Poor thermal contact on baffle cold straps
- Loose limit switches actuators for the baffle
- Backlash in Grism and Lyot wheels (Might not be an issue)
- Poor cabling routing and dressing.

[Appendix A](#) contains a DMT link to the Camera Opening report.

[Appendix B](#) contains a DMT link to Camera and Collimator lenses report

[Appendix C](#) contains a DMT link to a VERY preliminary estimation to complete Camera re-work.

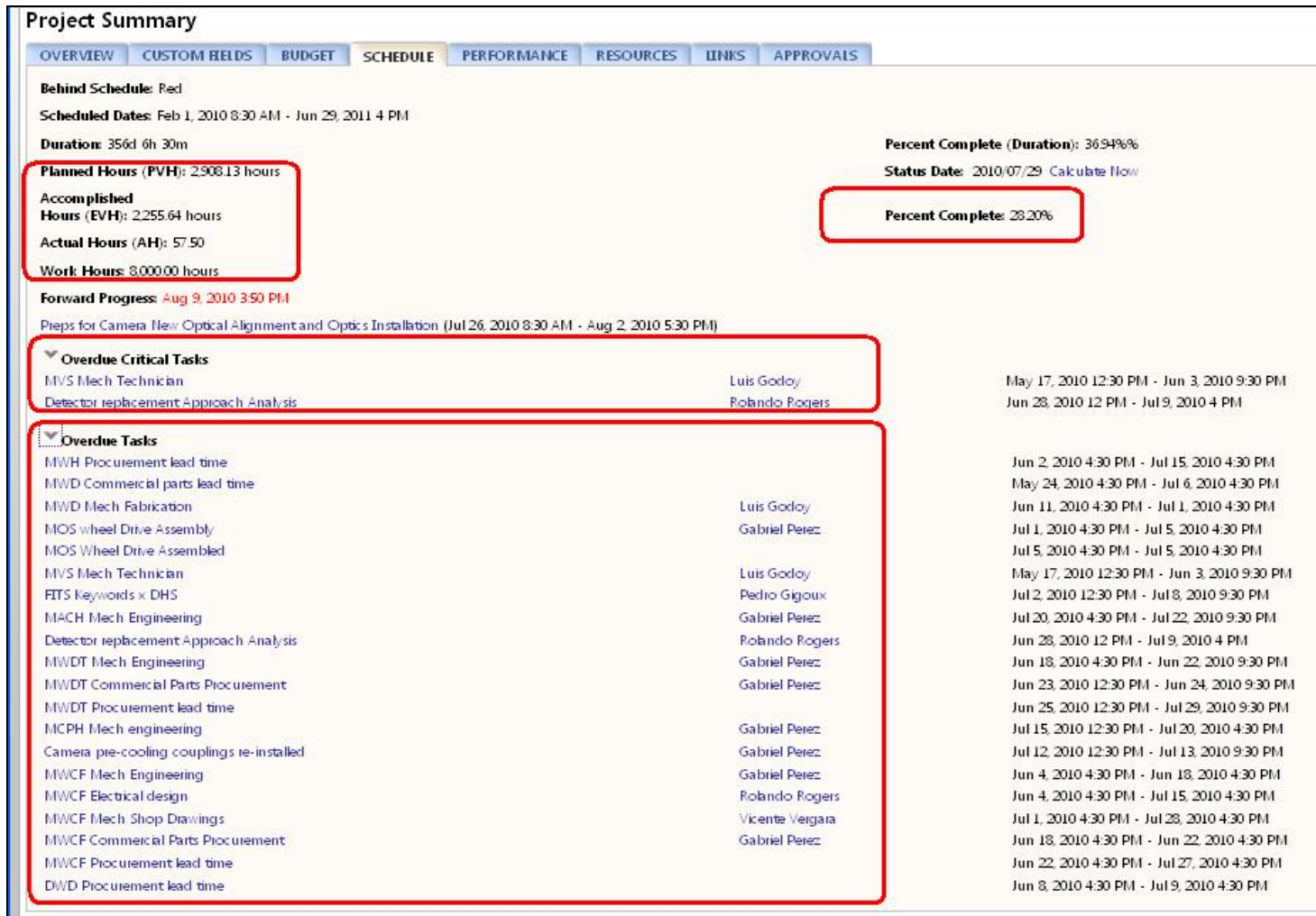
[Appendix D](#) contains a DMT link to the Camera Lenses De-centering report

[Appendix E](#) contains a DMT link to Percy's Spectral repeatability report.

All these documents were available for the discussion on the meeting held on Aug 2<sup>nd</sup>.

## **2.1 Project Schedule and Planning**

The figure below is a summary of schedule of the project. There are two critical tasks, one related to the detector replacement approach analysis and MOS vacuum seals. There are considerable MOS non critical lat tasks mainly because of the delivery of commercial parts as explained in the summary. Some of these tasks will be completed as soon as those parts are delivery to start integrating & testing new fabricated parts. The mechanical design tasks are a bit delayed mainly because Gabriel has been busy writing more detailed reports than expected after opening the Camera.



The figure below is a project summary tasks list showing updated project tasks, WBS elements, schedule, duration and efforts information. The plan has been prepared with optimistic approach, meaning that it could not be realistic. Project Insight, Gemini planning tool already consider staff's holidays and vacation. Milestones are indicated in the Milestones section below. **After the Camera inspection several re-design tasks are being planned to improve F2; consequently as mentioned in the previous project management report this plan will evolve to reflect more accurate the camera required work. There is a place holder for estimation in the current schedule, so the impact on project end could minimal or none.**

Task List

WBS	Name	Durati hh m m	Work Hou	Percent Con	c o m	a p p	Start Date	End Date
1	▼ F2 Fixes and Improvements	356d 6h 30m	8,000.00	28.20%			Feb 1, 2010 8:30 AM	Jun 29, 2011 4 PM
1.1	▶ Project Plan Manag and Support	353d	278.00	38.00%			Feb 1, 2010 4 PM	Jun 23, 2011 4 PM
1.2	▶ Preparation and Prerequisites	155d	713.00	90.46%			Feb 1, 2010 8:30 AM	Sep 9, 2010 5:30 PM
1.3	▶ MOS and OIWFS Fixes and Improvements	169d	3,178.00	37.79%			Apr 5, 2010 8:30 AM	Dec 3, 2010 5:30 PM
1.4	▶ Camera and GV Baffle Fixes and Improv	158d	1,570.00	11.59%			Jul 5, 2010 8:30 AM	Feb 17, 2011 5:30 PM
1.5	▶ Det Replacement, Cam New Optics Inst and Alignment	215d 6h 30m	824.00	0.00%			Jun 28, 2010 8 AM	May 5, 2011 4 PM
1.6	▶ Software Pending Issues	119d 7h 30m	822.00	14.84%			Jun 24, 2010 8:30 AM	Dec 16, 2010 5 PM
1.7	▶ F2 Preps and Integration at CP Lab.	38d	615.00	0.00%			May 5, 2011 4 PM	Jun 29, 2011 4 PM
					<input type="checkbox"/>	<input type="checkbox"/>		
		356d 6h 30m	8,000.00	28.20%			Feb 1, 2010 8:30 AM	Jun 29, 2011 4 PM

## 2.2 Project Status – Overview

- The Instrument, once removed from the telescope, will be moved to La Serena base facility detector lab. **Completed**
- Transportation Insurance is being procured, waiting NSF approval to purchase insurance. **Completed**
- The laboratory down in La Serena is being prepared and equipped to receive F2 on March second week. **Completed.**
- Current Critical Path is Det Replacement, Cam New Optics Inst and Alignment. **Updated**
- MOS Mechanisms reliability improvements analysis and design started on second week of April. **Ongoing.**
- MOS thermal and cooling reliability improvement and design started in May. **Ongoing**
- OIWFS misalignment analysis will be performed in August. **Planned**
- GV baffle , Optical Alignment assessment and improvement study and re-design start in Aug. **Planned**
- Software pending issues are scheduled to be finished in Dec. **Ongoing**
- Detector Mount thermal improvement and design start in Aug. **Date TBD**
- Detector replacement is scheduled to start the second week of September, after installing new Camera optics. **TBRevised after receiving new H2 and Camera alignment assessmtent.**
- The new optics includes R3000 grism. **TBD its installation**
- F2 should be back on Pachon for flexure rig in June first week. **TBR**
- F2 Ready for On-sky re-commissioning on end of June 2011. **TBR**

### 2.3 Project Progress

The project progress is indicated in the table below associated to WBS elements. Percent Complete is based on work completion (Planned Hours)  
(Note: the WBS was re-calculated in Jul 30, 2010)

**Project Progress and Plan at Jul 30<sup>th</sup> 2010**

WBS	Name	Duration	Work Hours	Previous PM Report	Percent Complete
<b>1</b>	<b>-F2 Fixes and Improvements</b>	<b>356d</b>	<b>8000</b>	13.91%	<b>26.87%</b>
1.1	+Project Plan Manag and Support	353d	278	24.00%	38.00 %
1.2	+Preparation and Prerequisites	<b>153d</b>	<b>713</b>	87.65%	90.46 %
1.3	+MOS and OIWFS Fixes and Improvements	163d	3,178	16.29%	37.00 %
1.5	+Camera and GV Baffle Fixes and Improvements	158d	1,570	0.00%	<b>10.00%</b>
1.7	+Detector Replacement, Camera New Optics Inst and Alignment	215d	824	0.00%	0.00%
1.8	+Software Pending Issues	119d	822	0.00%	<b>8.03%</b>
1.9	+F2 Preps and Integration at CP Lab.	38d	615	0.00%	0.00%

**Project Progress and Plan at April 30<sup>th</sup> 2010**

WBS	Name	Duration	Work Hours	Previous Report	Percent Complete
1	-F2 Fixes and Improvements	239d	5,585	4.48%	13.91%
1.1	+Project Plan Manag and Support	234d	164	8.00%	24.00%
1.2	+Preparation and Prerequisites	73d	551	43.02%	87.65%
1.3	+MOS and OIWFS Fixes and Improvements	109d	1,564.00	0.00%	16.29%
1.4	+GV Baffle Improvement (*)	26d	462	0.00%	0.00%
1.5	+Camera Fixes and Improvements (*)	56d	590	0.00%	0.00%
1.6	+Camera and MOS Thermal Design Analysis (Optional after Inspections) (**)	33d	320	0.00%	0.00%
1.7	+Detector Replacement, Camera New Optics Inst and Alignment (***)	120d	853	0.00%	0.00%
1.8	+Software Pending Issues	68d	506	0.00%	0.00%
1.9	+F2 Preps and Integration at CP Lab.	35d	575	0.00%	0.00%

Note: (\*) After April 30<sup>th</sup> these two tasks were merged to one and work duration re-assessed. It is currently most a place holder.

(\*\*) This task was considered not needed after MOS inspection because the cause of poor thermal behavior was found.

(\*\*\*) This task was also re-assessed, but currently it is a place holder.

## 2.4 Project Milestones

6 of 34 milestones of the project have been reached. Most Wheel Drive Assembled milestone has not been reached because of the delay on the arrival of commercial parts, and on fabrication. See table below for dates on the next milestones.

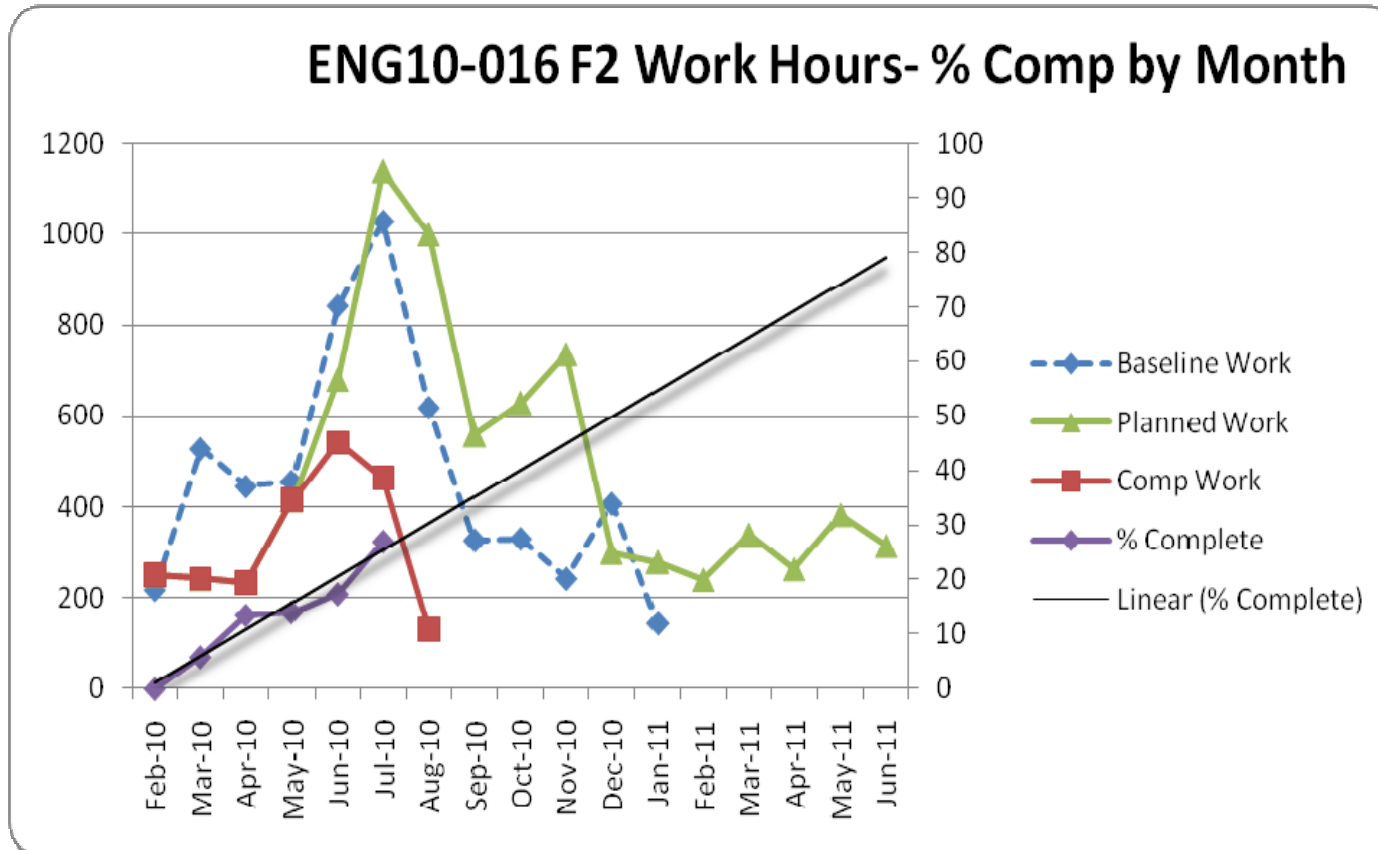
Summary Task	Milestone Name	Complete	End Date
<b>Preparation and Prerequisites</b>	<b>F2 Packed Ready for Transportation</b>	<b>100.00%</b>	<b>Mar 18 2010 08:30</b>
<b>Preparation and Prerequisites</b>	<b>Transportation Insurance Approved</b>	<b>100.00%</b>	<b>Mar 22 2010 08:30</b>
<b>Preparation and Prerequisites</b>	<b>F2 Safely in the Lab</b>	<b>100.00%</b>	<b>Mar 26 2010 08:30</b>
<b>Preparation and Prerequisites</b>	<b>F2 Ready to start disassembling</b>	<b>100.00%</b>	<b>Apr 05 2010 08:30</b>
MOS Wheel Drive (MWD) Mechanism	MOS Wheel Drive Assembled	0.00%	Jul 05 2010 12:30
<b>Open Camera Cryostat for Inspections</b>	<b>Camera and GV Baffle fully accessible</b>	<b>100.00%</b>	<b>Jul 12 2010 08:30</b>
<b>Open Camera Cryostat for Inspections</b>	<b>Cam and GV Baffle Preliminary Inspection Report Issued</b>	<b>100.00%</b>	<b>Jul 29 2010 08:30</b>
MOS wheel Hub (MWH) And Cooling Path	MOS wheel hub Assembled	0.00%	Aug 05 2010 12:30
Decker Wheel Drive (DWD)	Decker Wheel Drive Assembled	0.00%	Aug 09 2010 12:30
MOS Wheel Detent Mechanism (MWDT)	MOS Wheel Detent Fixed	0.00%	Aug 12 2010 12:30
MOS Wheel Cold Foot (MWCF)	MOS Wheel Cold Foot Assembled	0.00%	Aug 16 2010 12:30
<b>MOS Vacuum Seals (MVS)</b>	<b>MOS Vacuum Seals Fixed</b>	<b>0.00%</b>	<b>Aug 27 2010 08:30</b>
Software Pending Issues	FITS KeyWord and WCS ready	0.00%	Aug 30 2010 08:30
GV Baffle Improvement	GV Baffle Solution Available	0.00%	Sep 02 2010 08:30
MOS Analysis and Eng Re-Design	MOS Mechanisms Re-designed and Cooling Redesigned	0.00%	Sep 09 2010 12:30
Decker Wheel Hub and Cooling Path (DWH)	Decker Wheel Hub and Cooling Assembled	0.00%	Sep 10 2010 12:30
OIWFS Work	OIWFS problem found and Solved	0.00%	Sep 21 2010 08:30
Software Pending Issues	OIWFS Pixel Router working	0.00%	Sep 24 2010 08:30
MOS Cold Plate Heaters (MCPH)	MOS Cold Plate Heater Assembled	0.00%	Sep 28 2010 08:30
MOS Mechanisms Testing (Warm&Open)	MOS Decker testing and tuning	0.00%	Oct 07 2010 17:30
MOS Mechanisms Testing (Warm&Open)	MOS Mechanisms Tested and Tuned	0.00%	Oct 08 2010 08:30
Software Pending Issues	Software Pending Issues Solved	0.00%	Oct 19 2010 17:00
MOS Dewar Assembly and Testing	MOS Mechanisms Test (Warm)	0.00%	Oct 27 2010 17:30
GV Baffle Improvement	GV Baffle Improved	0.00%	Nov 04 2010 08:30
MOS Dewar Assembly and Testing	MOS Mechanisms Fixed	0.00%	Nov 10 2010 08:30
Camera Improvements	Camera ready to cool down	0.00%	Jan 21 2011 08:30
Camera Improvements	Camera warm	0.00%	Feb 11 2011 08:30
Det Replacement, Cam New Optics Inst and Alignment	New Optics in Place	0.00%	Feb 22 2011 08:30
Det Replacement, Cam New Optics Inst and Alignment	Camera Cold (cycle 1)	0.00%	Mar 23 2011 15:00
Det Replacement, Cam New Optics Inst and Alignment	New Alignment for AO achieved	0.00%	Mar 28 2011 15:00
Det Replacement, Cam New Optics Inst and Alignment	Camera and New Detector Characterized	0.00%	Apr 11 2011 16:00
Det Replacement, Cam New Optics Inst and Alignment	New Detector in place fully characterized	0.00%	May 04 2011 16:00
F2 Preps and Integration at CP Lab.	F2 ready to be mounted to Flex Rig	0.00%	Jun 06 2011 16:00
F2 Preps and Integration at CP Lab.	F2 Ready for On Sky Re-commissioning	0.00%	Jun 27 2011 16:00
	<b>Total:</b>	<b>34</b>	<b>Jun 27 2011 16:00</b>



## 2.5 Project Trends

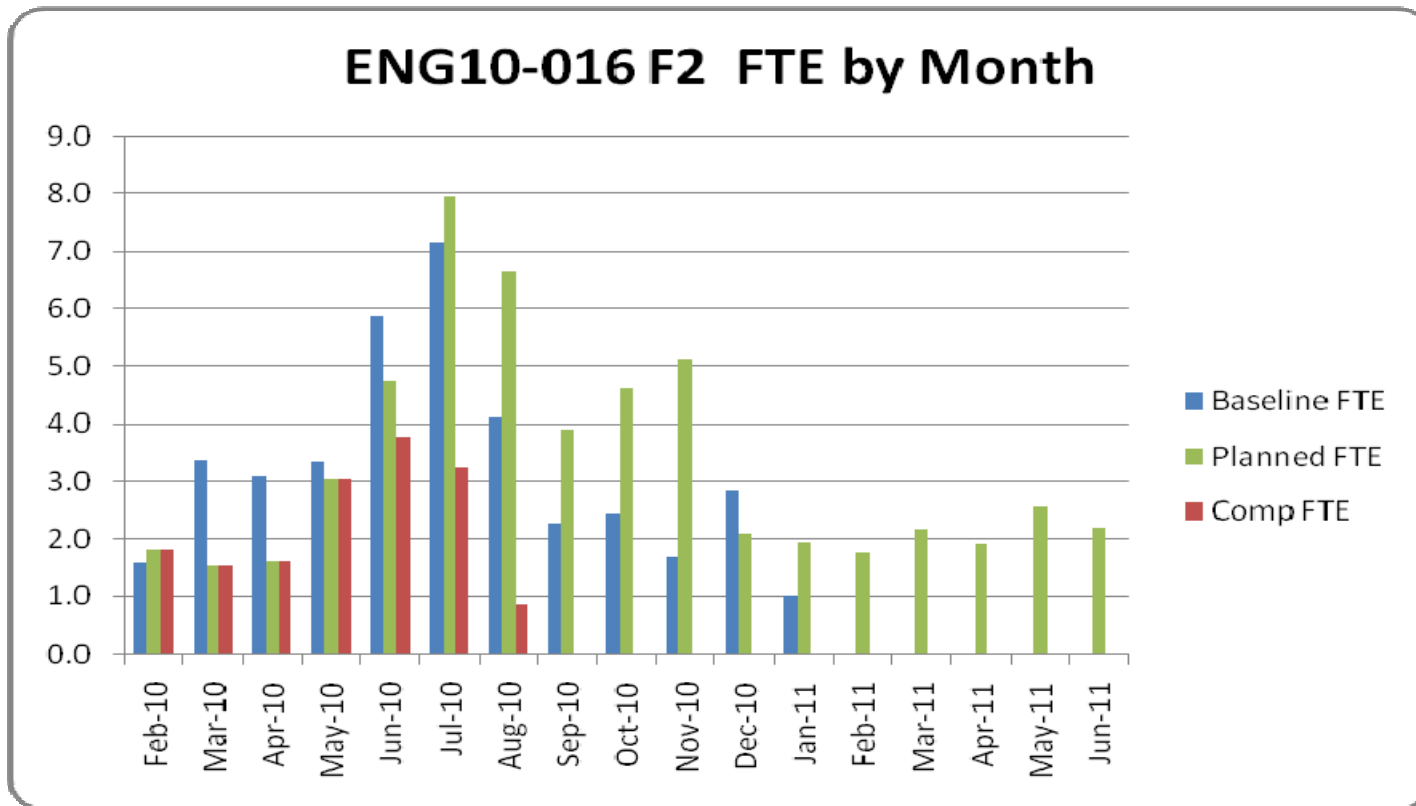
### 2.5.1 Work Hours by Month.

The graph below shows the project baseline work, planned and completed work. Also the Project % Complete has been added measured at the secondary axis of the plot. In the plot it can be seen that the % complete trend line indicates the level of confidence to complete the project is ~ 80%. From PM perspective this is not a serious concern because the delay will be recovered during Aug/Sep when the MOS commercial and fabricated parts arrive to integrate and test them.



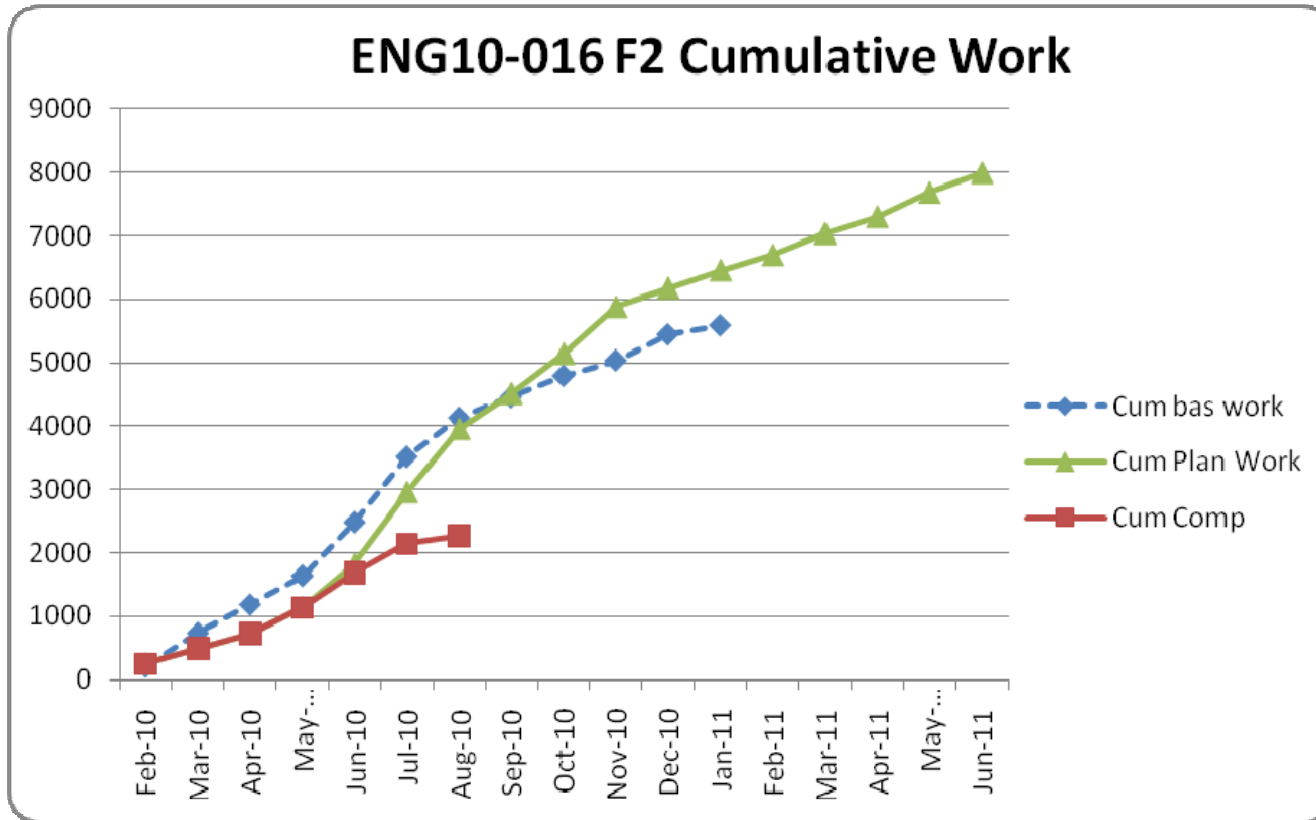
### 2.5.2 Project Resources in FTE by Month

The graph below shows the project baseline, planned and completed resources in FTE by Month



### 2.5.3 Project Cumulative Work

The graph below shows the project cumulative baseline, planned and completed work hours. July performance is affecting the schedule.



### 2.5.4 FTE projection by month (extracted from PI), including resources and roles.

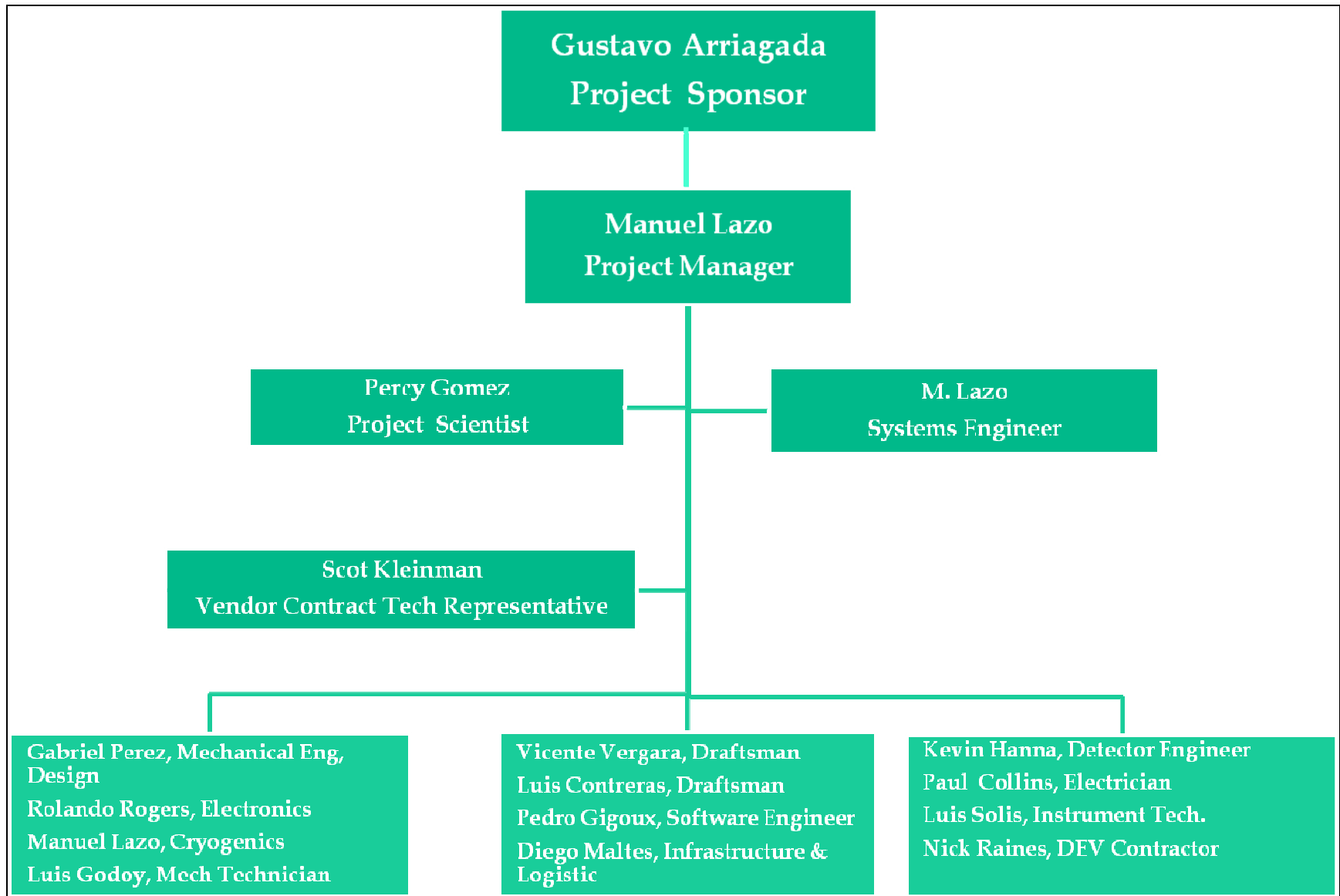
The information below is the data to obtain planned and complete FTE and work projection by months and the project total at the right hand side column. Graphically it can be seen in 2.5.1, 2.5.2 and 2.5.3 above.

Resource Name	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Total
	MT	MT	MT	MT	MT	MT	MT	MT	MT	MT	MT	MT	MT	MT	MT	MT	MT	
#ENG Contractor	0	0	0	0	0	108	46	82	76	66	24	0	16	0	0	0	0	418
#ISG Technician	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	8
Diego Maltes	40	30	1	14	18	0	0	0	0	0	0	0	0	0	0	0	0	103
Gabriel Perez	123	47	95	151	235	240	199	59	175	238	64	80	44	112	63	100	57	2079
Gelys Trancho	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16
Javier Luhrs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kevin Hanna	0	0	0	0	14	69	17	0	0	0	0	0	16	26	54	0	0	196
Luis Godoy	0	26	40	77	131	195	179	64	150	27	0	76	0	32	20	90	32	1140
Luis Hernan Solis	13	26	0	0	0	0	18	42	0	0	0	0	0	0	0	0	0	99
Manuel Lazo	14	10	9	9	8	17	27	15	19	26	9	62	48	34	29	60	35	430
Maxime Boccas	18	2	2	2	1	42	130	2	2	2	2	2	40	44	2	2	1	292
Paul Collins	0	0	3	24	21	3	0	0	0	0	0	0	0	0	0	0	0	50
Pedro Gigoux	2	0	0	0	26	166	168	105	47	78	66	0	0	0	0	0	0	658
Percy Gomez	0	0	0	0	0	0	0	0	0	64	0	0	0	43	47	0	80	234
Ramon Galvez	24	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
Rolando Rogers	0	3	46	2	70	147	54	20	44	39	3	36	37	50	32	81	54	718
Vasudeva Upadhya	0	0	0	0	0	0	0	0	40	0	0	0	0	0	0	0	0	40
Vicente Vergara	0	0	30	133	153	152	162	168	16	17	103	24	0	0	0	0	0	958
Contingency (work)	0	72	8	0	0	0	0	0	60	180	30	0	40	0	16	50	55	511
<b>Baseline(ToApril)</b>	<b>218</b>	<b>528</b>	<b>445</b>	<b>456</b>	<b>842</b>	<b>1027</b>	<b>618</b>	<b>327</b>	<b>330</b>	<b>243</b>	<b>407</b>	<b>144</b>						5585
<b>BaselineCummul</b>	<b>218</b>	<b>746</b>	<b>1191</b>	<b>1647</b>	<b>2489</b>	<b>3516</b>	<b>4134</b>	<b>4461</b>	<b>4791</b>	<b>5034</b>	<b>5441</b>	<b>5585</b>						
<b>Total PlanHours/Month</b>	250	242	233	415	680	1139	1000	558	629	736	300	279	240	340	263	382	314	8000
Completed Hours	250	242	233	415	541	463	130											2274
<b>Baseline FTE/Month</b>	<b>1.6</b>	<b>3.4</b>	<b>3.1</b>	<b>3.3</b>	<b>5.9</b>	<b>7.2</b>	<b>4.1</b>	<b>2.3</b>	<b>2.4</b>	<b>1.7</b>	<b>2.8</b>	<b>1.0</b>						
<b>Total FTE/Month</b>	1.8	1.5	1.6	3.0	4.7	7.9	6.7	3.9	4.6	5.1	2.1	1.9	1.8	2.2	1.9	2.5	2.2	4.7
Completed FTE/Month	1.8	1.5	1.6	3.0	3.8	3.2	0.9	0.0	0.0	0.0	0.0	0.0						
% Comp By Month	0.0	5.9	13.5	14.1	17.4	27.0												
Cumulative Planned	250	492	725	1140	1820	2958	3958	4516	5146	5882	6182	6461	6701	7040	7304	7686	8000	
Cumulative Comp.	250	492	725	1140	1681	2144	2274											
GeminiFTE(Hours)/Month	137	157	143	137	143	143	150	143	137	143	143	143	137	157	137	150	143	

## 2.6 Project Major Risks and Mitigation – Updated to Aug 3<sup>rd</sup>, 2010

Identified Major Risk	Risk Level (L, M, H)	Risk Mitigation Strategies	Risk Mitigation - UPDATE is at Aug 3 <sup>rd</sup> .
Parts procurement Process Overhead for purchases over > \$5K (or \$2.5)	M	Hard to mitigate if the procurement department does not have personnel to assist engineers to get quotations and or assist on the bidding process.	<b>UPDATE:</b> There an action to hire a temp to assist engineers to browse quotations and assist to support sole source justification. The decision to hire a personal is ongoing. <b>Risk Level moved to M</b>
New H2 tests decision and device availability	M	Development needs to make a decision very soon about the final approach to test new H2 devices. If F2 electronics is being used it could have an impact to the planned work. It is mandatory before pursuing this approach a full risk assessment is required. I strongly prefer to explore the LIR option at the cost of some fee.	<b>UPDATE:</b> Scot Kleinman has reported via e-mail the action plan to mitigate this risk. See Scot's e-mail in the Appendix A below. I agreed on the approach; <b>the risk level is now M</b>
Project Resources and conflicts	H	<b>A project team has been created with about 100% allocation to the project. Nick Raines, UF F2 Scientist is being invited to collaborate with the project. Also temporary hire to cover F2 full allocated resource has been approved. See mitigation update to the right hand side.</b>	<b>UPDATE:</b> Gaston Gausachs continues as the ideal candidate to support the project. After opening the Camera, Camera work in parallel with the MOS will be required to mitigate schedule impact. Also the project requires an optical engineer to support Maxime's optical analysis, OIWFS misalignment and work in Parallel while he works in MCAO. Both situations require Maxime attention to release Gaston from Canopus and decide to hire a temp optical person. <b>Risk Level raised to High</b>
MOS and Camera thermal and cooling performance	M	Perform thermal and cooling analysis and check results against CDR design cases, improve where required. This eventually will be contracted out. It is an option now and it will depend on the assessment after mechanical inspections	<b>UPDATE:</b> No changes. We continue performing the tasks in the plan to improve vacuum seals and heat transfer. Risk is kept at M level.
As built drawings availability for re-design	M	Perform Inspections after disassemble before re-design components.	<b>UPDATE:</b> Re-designs continue as planned. Risk is at M level.

### 3 Project Organization Chart



## 4 Project Concerns

### 4.1 Project Changes

The current project plan will evolve from the April 30<sup>th</sup> version to reflect changes after the inspections, re-design, review, implementation and Camera Dewars new approaches to improve reliability. The list below summarizes the actions that will reflect as changes of the project, AI F-XX are the Actions Item ID of the table in section 5.

- Overall continue to take steps consistent only with repairs needed to get F-2 operational in natural seeing mode (all)
  - Of the steps listed in the possible engineering tasks circulated before the meeting (attached), only work on –
    - L9 radial spacer rods
    - L7 axial pre-load (after consulting with UF to more fully understand issues)
    - Upgrade baffle mechanism
    - Remove anodization on vacuum seals
    - Eliminate filter wheel/grism wheel “cross talk” via new software
    - We will evaluate what additional work may be needed after UF is consulted.
- **AI F12-14** = Telecon is needed between UF (Steve) and Scot, Maxime, Gabriel, Eric
  - Discuss lens cell alignment issues and design details
    - Zero in on issues we’ve found with L7 and L9, but also probe about other design issues that we may not be aware of (e.g. was the lens cell design adjusted so that after being machined/assembled warm, all elements would be centered cold?)
- **AI F2-19** = Maxime to evaluate plausibility of lens motion (L9 radial translation) to see if that could account for measured coma
  - Needs cold optical prescription, including as-built lens data
- **AI F2-20** = Eric will look at Service & Calibration Manual to try to reconcile design used with alignment strategy described
  - Note – Eric has since done this and the design is not consistent with the written alignment procedure – need input from Steve
- **AI F2-21** = Reconcile image quality measurements pre/post AT with images pre/post AT (Manuel)
  - The images circulated today are not consistent with the accompanying text. The images are post-ship while the text refers to pre-ship tests
- **AI F2-22** = Evaluate F-2 + MCAO performance in terms of slit throughput, not strehl (Francois)
  - How much DM stroke is needed for ~80% throughput if a 0.1” slit is used in F-2?
  - What slit size would be needed if we use ~50% of the DM stroke to achieve ~80% slit throughput?
  - This will shed light on how well F-2 will work (or not) with MCAO in slit spectroscopy mode – won’t help for F2T2 since that’s an imaging application

### 4.2 Project Schedule and Progress

The progress of the project is being affected by, the delay of the arrival of commercial parts, resources have being assigned to telescope operation and write more reports as expected as consequence of the opening of the camera.

### 4.3 Project Technical Concerns

The optical alignment for MCAO observation (spectrograph mode) and the OIWFS sensor misalignment with the science detector needs attention. See Project Risk section above.

## 5 Action Items

AI-Id	Date	Item	Responsible	Status	Closed Date
F-22	Aug 2, 2010	Evaluate F-2 + MCAO performance in terms of slit throughput, not strehl (Francois) How much DM stroke is needed for ~80% throughput if a 0.1" slit is used in F-2? What slit size would be needed if we use ~50% of the DM stroke to achieve ~80% slit throughput? This will shed light on how well F-2 will work (or not) with MCAO in slit spectroscopy mode – won't help for F2T2 since that's an imaging application	Francois	Open	
F-21	Aug 2, 2010	Reconcile image quality measurements pre/post AT with images pre/post AT (Manuel) The images circulated today are not consistent with the accompanying text. The images are post-ship while the text refers to pre-ship tests	Manuel	Open	
F-20	Aug 2, 2010	Eric will look at Service & Calibration Manual to try to reconcile design used with alignment strategy described Note – Eric has since done this and the design is not consistent with the written alignment procedure – need input from Steve	Eric	Closed	Aug, 2010
F-19	Aug 2, 2010	Maxime to evaluate plausibility of lens motion (L9 radial translation) to see if that could account for measured coma Needs cold optical prescription, including as-built lens data.	Maxime	Open	
F2-18	May 17, 2010	Speed up ITAR licenses for Chilean Engineers that need to work or be close to F2, Rolando, Manuel, Ramon and Gabriel, in that order of priority. Andy Flach needs instruction on prioritize this effort from Doug, according to e-mail interchange between Mike Sheehan and Andy. Please give priority to Andy to solve this situation asap. <b>The consultant has been hired, patience is required now. MLI Aug 3<sup>rd</sup>.</b>	Mike, Doug.	On going	
F2-17	April 14, 2010	Order a set of 3 CTI1050 coldheads to replace the current ones being used with F2. F2 is currently equipped with Austin Scientific coldheads that are originally CTI but refurbished by Austin Scientific. This could be a source of less than optimal cooling performance of the cryostats. <b>Struggling with procurement process for purchases &gt; \$5K. (MLI, Jul 20<sup>th</sup>, 2010)</b>	M. Lazo	On going	
F2-16	April 14, 2010	HEAD UPS: Do we need to automate the start of MOS mask change for remote observing approach now? I.e. automate open/close valve and associated procedures having on account that currently a person is required to start warming up the dewar before replacing masks. <b>I don't think with the new schedule we can commit to do this. MLI May 17<sup>th</sup> 2010. According to Eric this won't be pursued. MLI June 20<sup>th</sup>, 2010.</b>	Eric	Closed	June 20, 2010
F2-15	April 14, 2010	HEAD UPS: Contact Florida to get assistance from UF software engineer (Craig) when modifying software to tune new mechanisms detent, home and speed parameters. This could be done remotely from Florida or coordinate to have Craig in La Serena for a couple of weeks or so. Time? TBD. <b>Considering the way the mechanisms are being designed probably UF support won't be required for this purpose. The AI will be closed. MLI June 20<sup>th</sup>, 2010</b>	Scot	Closed	June 20, 2010
F2-14	April 14, 2010 Aug 2, 2010	Optical alignment for MCAO observing. We need to consider performing optical alignment/checks for MCAO observing. Telecon is needed between UF (Steve) and Scot, Maxime, Gabriel, Eric Discuss lens cell alignment issues and design details	Maxime, Scot, Eric, Gabriel	Open	



		Zero in on issues we've found with L7 and L9, but also probe about other design issues that we may not be aware of (e.g. was the lens cell design adjusted so that after being machined/assembled warm, all elements would be centered cold?)			
F2-13	March, 23 2010	Manuel generates a work log for Nick Raines when assisting us. The log is necessary to report about Nick's work to record his activities	M. Lazo	Closed	April 6, 2010
F2-12	March 23, 2010	Manuel contact HIA to enquiry information and report about OIWFS alignment and potential cause of misalignment.	M. Lazo	Closed	Mar 26, 2010
F2-11	March 15, 2010	Scot/Eric provide information about H2 and the license to export one or two devices (S-grade and E-grade) to Chile for future tests here in Chile as option to test them in Hilo (or any place in the US). <b>Almost ready to close this item. MLI Jul 20<sup>th</sup>, 2010.</b>	Eric/Scot	<b>Ongoing</b>	
F2-10	March 15, 2010	Manuel order He Compressors for SBF eng lab. <b>Struggling with procurement process for purchases &gt; \$5K. (MLI, Jul 20<sup>th</sup>, 2010)</b>	M. Lazo	<b>Ongoing</b>	
F2-9	March 15, 2010	Manuel order Vacuum Pump for SBF eng lab. <b>Struggling with procurement process for purchases &gt; \$5K. (MLI, Jul 20<sup>th</sup>, 2010)</b>	M. Lazo	<b>Ongoing</b>	
F2-8	March 15, 2010	Contact ISG to provide network environment for F2 at SBF lab	Manuel Lazo	Closed	April 5, 2010
F2-7	March 3, 2010	Option to test new Teledyne H2 devices. <b>Closed but leave F2-10 ongoing. MLI June 20<sup>th</sup>, 2010.</b>	Eric Tollestrup	<b>Closed</b>	Jun 20, 2010
F2-6	March 1, 2010	Contact Nick Raines to coordinate his assistance to assist us. He should arrive on first week of April to support F2 disassemble.	Eric Tollestrup	Closed	Mar 8 2010
F2-5	Feb 16, 2010	Get F2 transportation Insurance from CP to La Serena	D. Maltes	Closed	Feb 25, 2010
F2-4	Feb 16, 2010	Create account to charge F2 improvement costs	E. Tollestrup	Closed	Feb 23, 2010
F2-3	Feb 12, 2010	Contact Nick Raines from UF to invite to participate in the project	E. Tollestrup	Closed	Feb 19, 2010
F2-2	Feb 8, 2010	Coordinate the recovery of the SBF detector lab	D. Maltes, M. Lazo	Closed	Feb 8, 2010
F2-1	Feb 5, 2010	Prepare a list of equipment to be required to set up SBF lab	M. Lazo	Closed	Mar 29, 2010

## 6 Project Expenses to June 2010

**GEMINI OBSERVATORY**  
**Actual Expenditures versus Calendar Year Revised Spend Budget**  
**June, 2010**  
**353320129 Flamingos 2 Improvements**

VARIABLES	Monthly Expense	Monthly Budget	-Monthly Variance	YTD Actual	Annual Budget	-Annual Budget Left to Spend
Contract/Temp Hires				124	15,848	15,724
- Total Outside Labor				124	15,848	15,724
- TOTAL DIRECT LABOR				124	15,848	15,724
Supplies & Materials	6,910		(6,910)	34,953		(34,953)
Cryogenics						
General Equip-Non Capital				4,999		(4,999)
Computer Equip - Non Capital						
- TOTAL SUPPLIES/MATERIAL	6,910		(6,910)	39,952		(39,952)
- Total Domestic Travel						
Foreign Travel--Others				3,404		(3,404)
- Total Foreign Travel				3,404		(3,404)
- TOTAL TRAVEL				3,404		(3,404)
Facilities Use Fee						
- Total Facility						
Freight	24		(24)	17,140		(17,140)
Postage & Express Mail						
- Total Services	24		(24)	17,140		(17,140)
- TOTAL PURCHASED SERVICES	24		(24)	17,140		(17,140)
SUBCONTRACTED SERVICES	1,931	41,667	39,736	2,282	484,152	481,870
Gen & Admin Indirects	0		(0)	382		(382)
- TOTAL OVERHEAD	0		(0)	382		(382)
-TOTAL EXP w/o Reserves	8,865	41,667	32,802	63,284	500,000	436,716
CONTINGENCY						
- Total Pending Allocations & Contingency						
-TOTAL EXPENSES	8,865	41,667	32,802	63,284	500,000	436,716
-GRAND TOTAL	8,865	41,667	32,802	63,284	500,000	436,716

## **7 Project Management Conclusion**

The project plan is based on an optimistic approach, so there is some risk involved about the end date of June 2011. After entering in the plan the real estimation for Camera rework including adequate contingency and cold cycles a better end of project date will be available.

## **8 Appendix A – Camera Opening Report By Gabriel P.**

[http://dmt.gemini.edu/docushare/dsweb/Get/Document-60275/camera%20opening%20report\\_gp100722.pdf](http://dmt.gemini.edu/docushare/dsweb/Get/Document-60275/camera%20opening%20report_gp100722.pdf)

## **9 Appendix B – Collimator and Camera Lenses Repor By Gabriel P.**

[http://dmt.gemini.edu/docushare/dsweb/Get/Document-60332/collimator%20and%20camera%20lenses\\_report\\_gp100730a.pdf](http://dmt.gemini.edu/docushare/dsweb/Get/Document-60332/collimator%20and%20camera%20lenses_report_gp100730a.pdf)

## **10 Appendix C – Camera Rework Efforts – Preliminary Assessment By Gabriel P.**

[http://dmt.gemini.edu/docushare/dsweb/Get/Document-60333/collimator-came-baffles-seals%20upgrades%20estimation%20July%202010\\_gp100730a.xls](http://dmt.gemini.edu/docushare/dsweb/Get/Document-60333/collimator-came-baffles-seals%20upgrades%20estimation%20July%202010_gp100730a.xls)

## **11 Appendix D – Camera Lenses De-Centering Report By Gabriel P.**

[http://dmt.gemini.edu/docushare/dsweb/Get/Document-60378/camera%20lenses%20decentering\\_gp100802.pdf](http://dmt.gemini.edu/docushare/dsweb/Get/Document-60378/camera%20lenses%20decentering_gp100802.pdf)

## **12 Appendix D - F2 Spectral Repeatability Report by Percy G.**

<http://dmt.gemini.edu/docushare/dsweb/Get/Document-60336/F2SpectralARepeatibilityRep-Jul30thPGomez.doc>