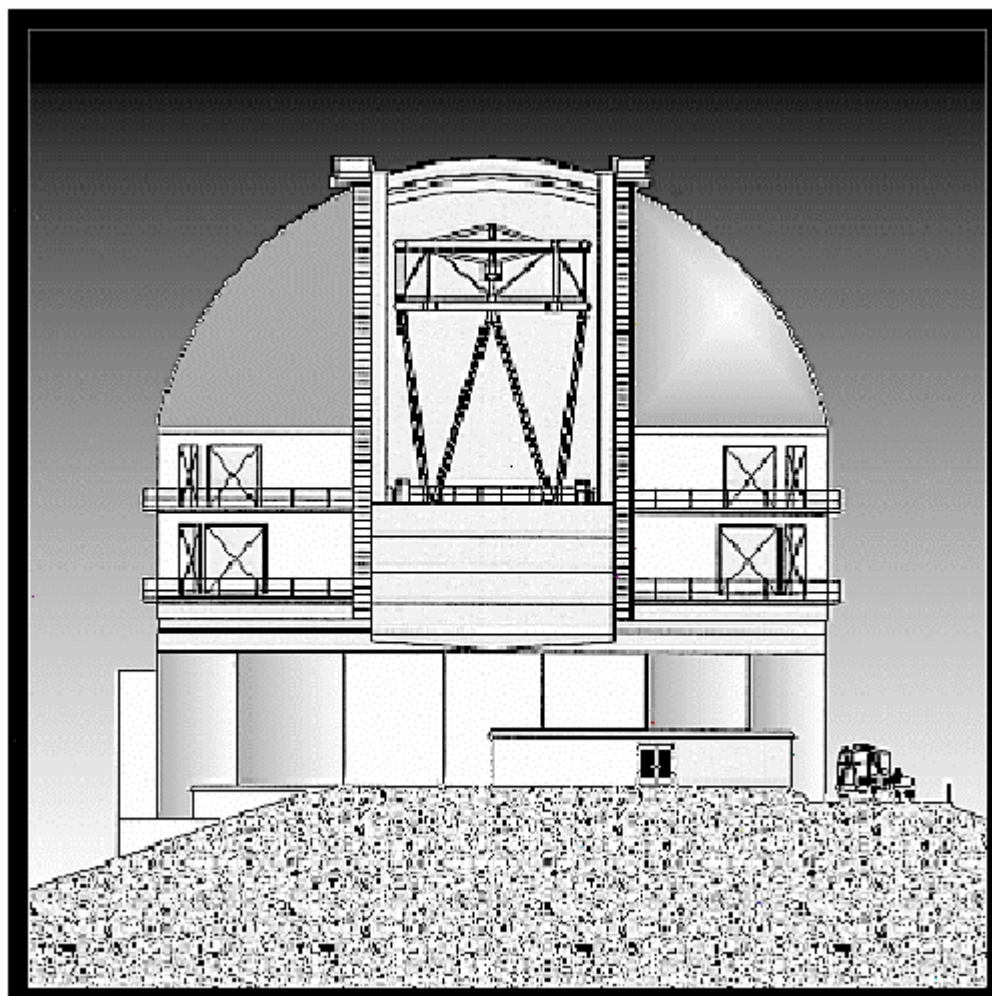


GEMINI
8-M Telescopes
Project

PG-O-G0011

Safety Plan for the M1 Cell Assembly Area at the Facility of NFM Technologies in Le Creusot, France



19 August 1997

Approved By: _____, Gemini Project Manager

GEMINI PROJECT OFFICE

950 N. Cherry Ave.

Tucson, Arizona 85719

Phone: (520) 318-8545

Fax: (520) 318-8590

AGREEMENT SIGNATURES

The undersigned agree to abide by the guidelines set forth in this document.

AURA Safety Officer for M1 Cell Assembly Area _____

RGO Safety Representative _____

NFM Safety Representative _____

Subcontractor _____ Safety Representative _____

Subcontractor _____ Safety Representative _____

Subcontractor _____ Safety Representative _____

1. INTRODUCTION

The Gemini M1 Cell Assemblies will be assembled and tested in the facilities of NFM Technologies (NFM) in Le Creusot, France. This work will be accomplished by a team consisting of staff from the following Organizations: (1) the International Gemini Project Office in Tucson (IGPO); (2) the Royal Greenwich Observatory (RGO); (3) NFM; and (4) subcontractors of the above. The enclosed area dedicated to the Gemini work, and associated areas surrounding it in which Gemini work is allowed by NFM, will be called collectively the Assembly Area.

The Gemini Project is managed by the Association of Universities for Research in Astronomy (AURA). It is the intent of AURA that a safe and healthful working environment be provided for all personnel during the assembly and testing of the Gemini M1 Cell Assemblies in the NFM facility. The goal is to achieve voluntary compliance with all applicable statutory regulations relating to employee safety and health and thereby prevent personal injury and property damage. This goal can only be realized with the cooperation of everyone involved in the work.

Each of the Organizations listed above shall implement measures which support safety awareness, furnish proper tools and equipment, respond to emergency conditions, and generally pursue their objectives in the safest possible manner. Each Organization shall bear sole and exclusive responsibility for safety in all phases of its work, which shall include, without limitation, the work performed by all of its agents, employees and subcontractors of all tiers. Nothing contained herein shall relieve each Organization of such responsibility.

2. PURPOSE

This Safety Plan has been developed in order to:

- (a) Provide a safe workplace at the M1 Cell Assembly Area at the NFM Facility, thereby eliminating personal injury and property damage and their associated losses;
- (b) Formulate a uniform Safety Plan that complies with all appropriate environmental, safety, and health regulations;
- (c) As appropriate for this work, enhance and supplement the safety and health standards that are required by law;
- (d) Establish clear lines of communication, responsibility, and accountability for safety throughout the duration of the work;
- (e) Subject to the responsibilities of the Organizations for safety, as specified in this Safety Plan, assist these Organizations in maintaining their own safety program and in maintaining a work place free of recognized hazards, and;
- (f) Set forth basic responsibilities, guidelines, rules and regulations for all personnel involved in the assembly and testing of the M1 Cell Assemblies.

3. RESPONSIBILITIES

This section outlines the responsibilities of AURA and the other Organizations regarding accountability, duties, procedures, training, inspection, reporting and other similar matters relating to environmental, safety, and health concerns at the Assembly Area.

3.1. AURA.

AURA's responsibility in the Safety Plan involves full cooperation and commitment to all safety activities at the Assembly Area. It accomplishes this responsibility through the AURA Assembly Area Safety Officer, hereafter referred to as the "AURA Safety Officer".

3.1.1. AURA Safety Officer.

AURA has appointed the AURA Safety Officer, who has the following responsibilities:

- (a) To the extent AURA is obligated to provide such, be responsible for providing a safe and healthful working environment at the Assembly Area;
- (b) Administer the Safety Plan for AURA, which includes general responsibility for AURA's safety requirements, maintaining safety related records, and filing applicable reports;
- (c) Work with the NFM Safety Representative to ensure compliance with applicable safety regulations.
- (d) Review and coordinate the safety programs developed by each of the Organizations;
- (e) Monitor the compliance of each of the Organizations with this Safety Plan, including compliance with the Plan of Prevention provided by NFM, which is attached as Appendix A;
- (f) Conduct regularly scheduled safety meetings, at least monthly, with the Organizations' Safety Representatives;
- (g) Conduct regularly scheduled inspections, at least monthly, with the Organizations' Safety Representatives;
- (h) Conduct safety and loss prevention surveys at the Assembly Area as needed;
- (i) Recommend corrections for hazardous or potentially hazardous conditions observed at the Assembly Area;
- (j) Issue written notification of violations observed at the Assembly Area;
- (k) Issue Hazardous Work Permits, as outlined in Section 5;
- (l) Investigate all accidents or safety incidents of a serious nature in coordination with the Organizations' Safety Representatives, and make recommendations for corrective action;
- (m) Monitor claims handling and participate in claims review meetings, and;
- (n) Periodically review the adequacy of the Safety Plan, and recommend changes for improvement to the Gemini Safety Committee, as necessary.
- (o) Maintain a file of Material Safety Data Sheets (MSDS) for all materials at the Assembly Area.
- (p) Any time the AURA Safety Officer must be away from the Assembly Area for an extended period, he shall designate an Acting Safety Officer to carry on his duties as described in this Safety Plan.

Notwithstanding the above, the AURA Safety Officer's responsibilities for review, identification and coordination of the Organizations' safety programs shall not extend to direct control over or charge of the acts or omissions of the Organizations (including their subcontractors, agents or employees of the Organizations or subcontractors, or any other persons performing any portion of any of the work at the Assembly Area and not directly employed by AURA. The activities of the AURA Safety Officer shall in no way relieve any Organization of its obligations to maintain a work place free of recognized hazards and to comply with all applicable statutory safety and health regulations and the provisions of the Safety Plan.

3.2. Organizations.

Each Organization has the following responsibilities in performing work at the Assembly Area:

- (a) Initiate, maintain, and supervise all safety precautions, procedures, and programs in connection with the Work;
- (b) Provide and execute their Work so as to comply with this Safety Plan, including the Plan of Prevention provided by NFM (see Appendix A);
- (c) Be responsible for the safety and health of their employees, agents, subcontractors, and other persons on the Site;
- (d) Provide and enforce the use of personal protective equipment;
- (e) Comply with recommendations and procedures which the AURA Safety Officer may implement to ensure job site safety;
- (f) Provide supervisory investigation reports and manpower support for any accidents;
- (g) Attend and participate in safety meetings conducted by the AURA Safety Officer;
- (h) Attend and participate in Assembly Area inspections conducted by the AURA Safety Officer;
- (i) Conduct regularly scheduled safety meetings, at least monthly, for all their employees and provide the AURA Safety Officer with a written record of each meeting. The written record shall include the date, topics discussed, comments, and attendees;
- (j) Notify the AURA Safety Officer of unsafe conditions or practices that are not within the Organization's jurisdiction;
- (k) Provide names and certifications for their persons who have First Aid training;
- (l) Maintain a file of Material Safety Data Sheets (MSDS), in both English and French, as specified in the NFM Plan for Prevention, for all materials used by the Organization at the Assembly Area. Copies of MSDS are to be delivered to the AURA Safety Officer prior to arrival of materials at the Assembly Area;
- (m) Provide proper and specific work task training for employees regarding the hazards of their jobs and how to work safely;
- (n) Employ at the Site a responsible, qualified, Safety Representative whose duties include the protection of persons and property and the administration of the Organization's safety program;
- (o) Inspect tools and all equipment as required. Copies of inspection records shall be available for inspection by the AURA Safety Officer;
- (p) Immediately inform the AURA Safety Officer of all accidents, maintain records of all occupational injuries/illnesses, and promptly file the required reports with the AURA Safety Officer and all applicable authorities;

- (q) Make each employee understand that violations of this Safety Plan will not be tolerated and that proper disciplinary action will be administered, including removal from the Project for noncompliance;
- (r) Prepare and post an emergency plan to be utilized in case of fire or other potentially catastrophic events; and instruct each employee in the emergency procedures;
- (s) Work closely with the AURA Safety Officer to help achieve an effective safety and health program;
- (t) Conduct daily inspections of the work area, to identify hazardous conditions. Provide to the AURA Safety Officer written descriptions of all hazardous conditions found and actions taken to correct these conditions;
- (u) Maintain copies of all safety documents including, without limitation, accident and injury reports, inspection reports, and Material Safety Data Sheets. These documents shall be available for inspection by the AURA Safety Officer;
- (v) Comply with all aspects of its agreement with AURA;
- (w) Keep all working areas clear of debris and trash, and maintain good housekeeping conditions in the Assembly Area;
- (x) Provide and maintain adequate fire protection equipment, in cooperation with the AURA Safety Officer, and instruct each employee in the use of this equipment;
- (y) Properly dispose of chemical and hazardous waste, and;
- (z) Instruct each employee in the locations of First Aid stations and kits.

3.3. Employees.

The safety and health of all employees on the Site must receive first consideration throughout all phases of the Work. The safety and health of each employee is the responsibility of the Organization for whom he or she works. However, each employee is expected as a condition of employment to work in a manner which will not cause injury to himself or herself or to fellow employees. All employees must be fully aware of the responsibility to prevent health impairment due to occupational exposure and to achieve accident free work. It is the responsibility of each employee to:

- (a) Comply with all applicable safety and health rules and regulations as they apply to each assigned task;
- (b) Report all accidents and injuries immediately to their supervisor. Provide any assistance required or requested;
- (c) Attend safety orientation meetings;
- (d) Obtain and use proper tools and personal protective equipment for the job at hand;
- (e) Report all unsafe acts or conditions to their supervisor, and;
- (f) Help to maintain a safe and healthful work site.

4. GENERAL SAFETY AND HEALTH RULES

The following general rules apply to all work that is performed at the Site.

- (a) All personnel must fully comply with the Plan of Prevention provided by NFM and this Safety Plan.
- (b) As a minimum, sturdy leather shoes or boots, full-length pants, and shirts with minimum four-inch sleeves will be worn. No tennis shoes, tank tops or shorts will be worn. Additional protective equipment and clothing will be worn as specific work assignments require.
- (c) Employees and authorized visitors will enter and leave the Assembly Area through the appropriate designated gates selected by the AURA Safety Officer for control purposes.
- (d) Fighting, horseplay or engaging in practical jokes is prohibited.
- (e) Anyone reporting to work apparently under the influence of intoxicants or drugs will not be permitted in the Assembly Area.
- (f) Work areas will be kept clean and orderly at all times.
- (g) Firearms will not be permitted on the Site.
- (h) All injuries, no matter how slight, will be reported immediately to the injured employee's supervisor and the AURA Safety Officer.
- (i) Each Organization shall provide the AURA Safety Officer with 24-hour emergency phone numbers of contact persons.
- (j) All visitors, prior to entering the Work area, will advise the AURA Safety Officer of their presence. All visitors will be required to comply with the Safety Plan, including the need for appropriate attire and personal protective equipment.
- (k) All areas where work is being performed overhead shall be barricaded with warning signs posted.
- (l) Riding of crane hook, ball or load is strictly prohibited.
- (m) If for any reason during the performance of the work perimeter cables, barricades or any other safety related items are removed by an Organization to perform the work, it is the responsibility of that Organization to replace them promptly when leaving the area.
- (n) The AURA Safety Officer will participate in meetings, to be conducted by the Organization involved, to assess potential safety and health concerns prior to the start of significant and new activities.
- (o) Each Organization will make all records and documentation of safety related issues available to the AURA Safety Officer upon request.

5. SPECIAL SAFETY RULES

The following special rules apply to all work that is performed at the Site.

- (a) Before beginning any work activities, each Organization's Safety Representative shall attend an initial safety orientation meeting conducted by the AURA Safety Officer. The intent of this meeting is to acquaint each Organization with the Assembly Area, the nature of the job, the hazards that may be encountered, and the equipment and safe practices to be used and followed to minimize accidents. The meeting shall not exceed one hour.
- (b) Each employee will sign an agreement to abide by the rules of this Safety Plan before beginning work in the Assembly Area.
- (c) Anyone working more than 2 meters above the floor level shall be protected from falling by guard rails or scaffolds. If such protective barriers are not provided, the worker must be tied off utilizing full body safety harnesses and shock absorbing lanyards with locking snap hooks. All fall protection equipment shall be inspected periodically.
- (d) Written approval is required from the AURA Safety Officer, in the form of a Hazardous Work Permit, before engaging in any of the following activities:
 - (1) welding, cutting, or other operation involving open flame, electric arc or heat adequate to start combustion
 - (2) Use of oxygen displacing gasses
 - (3) Use of flammable or toxic materials
 - (4) Work producing dust, particulates or smoke
 - (5) Use of materials that release flammable or toxic vapors
 - (6) Manually lifting of equipment heavier than 50 pounds
- (e) If a situation arises where the Organization's Safety Representative believes that safety requirements will be impossible to enforce, a meeting is to be held with the AURA Safety Officer to reach an acceptable plan for safely completing the work.
- (f) All Organizations shall implement and maintain a drug-free policy for all employees at the Site.

6. ENFORCEMENT OF SAFETY PLAN

The Safety Plan constitutes rules and regulations promulgated by AURA. Other organizations with personnel in the Assembly Area have an obligation to abide by the requirements of this Safety Plan. In order to monitor and assure compliance with the Safety Plan, AURA shall have the following rights:

- (a) In the event of a conflict between various rules, regulations and statutes on safety provisions, the AURA Safety Officer may require that the most stringent requirement will apply;
- (b) The AURA Safety Officer has the authority to stop any activity in the Assembly Area which constitutes an immediate threat or imminent danger;
- (c) The AURA Safety Officer may stop the work in progress, when necessary, to enforce mandatory safety and loss control requirements.
- (d) The AURA Safety Officer may eject any person from the Assembly Area where such person fails to comply with safety directives or the Safety Plan;
- (e) In the event that work in the Assembly Area, or any portion thereof, is stopped or shut down by any outside agency because of unsafe conditions, the responsible Organization shall bear the total expenses relating to the shut down of such portion of the Assembly Area during the entire time such portion of the Assembly Area is shut down as a result of such condition.

In the absence of the AURA Safety Officer, the Acting Safety Officer shall have the rights of the AURA Safety Officer, as specified above.

7. ACCIDENT INVESTIGATION AND REPORTING PROCEDURES

The AURA Safety Officer will investigate all accidents and incidents of a serious nature. It is the involved Organization's obligation to also investigate all accidents, provide all information outlined below, and submit a report to the AURA Safety Officer.

7.1. Purpose

- (a) To determine cause for the purpose of preventing recurrence, and in some instances, to determine potential liability.
- (b) To comply with applicable codes and regulations for reporting loss information.
- (c) To provide documentation of occupational injuries and illnesses, and to assist workers compensation claims management.
- (d) To ensure sensitive handling of notification to an injured employee's family.

7.2. Procedures

- (a) All job site injuries, no matter how minor, must be reported to the AURA Safety Officer.
- (b) All injury, property damage, fire and near-miss accidents will be investigated by the foreman and/or supervisor in the area of occurrence at the time. Notice must be forwarded immediately to the Organization's safety representative and the AURA Safety Officer.
- (c) Investigation results will be reported in writing within one working day. When essential information is lacking, the report will be returned for immediate completion.
- (d) In the event an injury is or has the possibility of being a fatality, or there are multiple serious injuries or extensive damage to any property, immediate notification will be made to the Organization's safety representative and the AURA Safety Officer, who will investigate the incident.
- (e) In the event of a fatality, the AURA Safety Officer will immediately notify the Gemini Project Manager.
- (f) The scene of any major accident must be secured until documentary, photographic, and physical evidence can be preserved. No material, machinery, or equipment should be moved until approval is given by the AURA Safety Officer, unless an additional hazard is present and requires immediate action.
- (g) All official notifications to the family of an injured employee will be made by the Employer of the injured employee(s).
- (h) Any releases to the news media regarding an accident must be either made or approved by AURA.
- (i) Contractors are encouraged to investigate all possibilities for placement of the injured employee for light duty work.
- (j) Copies of all claims under the AURA Workers Compensation policy will be sent to the AURA Corporate Office.

7.3. Investigation Checklist

- (a) Date and time of incident.
- (b) Exact location of incident.

- (c) Full names of all parties involved in the accident, including witnesses.
- (d) Complete addresses and telephone numbers.
- (e) Injured person's occupation, age and employer.
- (f) Description of what injured person was doing when hurt.
- (g) The nature and extent of the injury.
- (h) Where was injured taken for treatment? Transportation?
- (i) Description of property damaged, identification numbers, etc.
- (j) Owner of property damaged and address of owner.
- (k) Year, make, model, serial number, licensee number of vehicle.
- (l) Names of other party's insurance company(s).
- (m) Witnesses statements or accounts of accident.
- (n) Details of incident fully described to answer the basic how, when, why questions.
- (o) Name and identification of person completing the report.
- (p) Signature of the Organization's safety representative.

7.4. Injury Report Retention

All reports pertaining to work-related injury or illness, or damage to visitors or property shall be preserved and not destroyed without approval from the Organization's safety representative and the AURA Safety Officer. Reports shall not be released to anyone without the approval of the AURA Safety Officer.

8. DRUG FREE COMMITMENT

The use of illegal drugs or abuse of either alcohol or prescription drugs may impair the ability of persons to perform tasks that are critical to proper work performance. The result is an increase in accidents and failures that pose a serious threat to the safety of all workers, visitors, and the general public. Impaired persons also tend to be less productive, less reliable, and prone to greater absenteeism resulting in the potential for increased cost and delays in the timely completion of the Project.

Furthermore, all persons have the right to work in a drug-free environment and to work with persons free from the negative and endangering effects of drugs and alcohol. Persons who abuse drugs or alcohol are a danger to themselves and to other co-workers.

So that a safe and healthful working environment can be provided for all personnel, AURA requires the commitment of each Organization to provide a drug-free workplace. As a part of this commitment, each Organization shall:

- (a) Publish and provide to all employees a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the Assembly Area and specifying the actions that will be taken against employees for violation of such prohibition.
- (b) Establish a drug-free awareness program to inform employees about:
 - 1. The danger of drug abuse in the workplace;
 - 2. The Organization's policy of maintaining a drug-free workplace;
 - 3. Any available drug counseling, rehabilitation and employee assistance programs; and
 - 4. The penalties that may be imposed upon an employee for drug abuse violations occurring in the workplace.
- (c) Notify all employees that as a condition of employment the employee will abide by the terms of this statement.
- (d) Require that all employees submit to substance abuse testing if there is reasonable cause to believe that the person has abused drugs or alcohol, or if an employee's performance either may have contributed to an accident or cannot be completely discounted as a contributing factor to an accident. Each Organization is solely responsible for the development and administration of any necessary substance abuse testing program for its employees.

9. CONCLUSION

The contents of this Safety Plan are in no way intended to address nor describe in all possible detail the entire body of laws and regulations concerning work place safety and health. They are intended to augment, clarify, and supplement those articles that are generally pertinent and sometimes misinterpreted. Organizations are responsible for complying with all applicable laws and regulations.

All regulations are subject to change as the operating conditions are altered (by new laws, new areas of safety concerns, additional Organizations raising needs for special awareness, etc.). So long as full communications are maintained, there will be sufficient notice available to avoid unnecessary surprises. Each Organization is immediately responsible for compliance with new laws and regulations as they become effective.

Each Organization will be expected to exercise prompt action and meticulous attention to details for those requirements which have been assigned as its responsibility. For this reason, Supervisors should be as responsive and dedicated to safety and health as they are to quality, cost, and productivity.

APPENDIX A

NFM TECHNOLOGIES PLAN OF PREVENTION

The French law, by decree #92 158 of 20 February 1992, imposes the different companies intervening in the same place, to the same moment, for the realization of a same objective, the writing of a plan of prevention of risks.

In the framework of this decree, the responsible of the welcoming company has to communicate applicable security orders to works or to displacement.

Employers have to communicate all necessary information for the prevention, notably the description of works to undertake, used equipment and operative modes as soon as they have an impact on the hygiene and the security.

This plan of prevention concerns the intervention AURA-RGO in NFM TECHNOLOGIES Workshops in Le Creusot for the realization of tests on GEMINI Mirror Cells.

anticipated dates: 26 May 1997 to 1 August 1998

Each signatory is committed, in its company, to make it known and to circulate it to each person ahead working at the yard.

This document comprises 5 pages

For NFM TECHNOLOGIES

For AURA-RGO

Le Creusot, the.....

Le Creusot, the

This translation is only intended to help AURA-RGO people understand; the French version is the only reference.