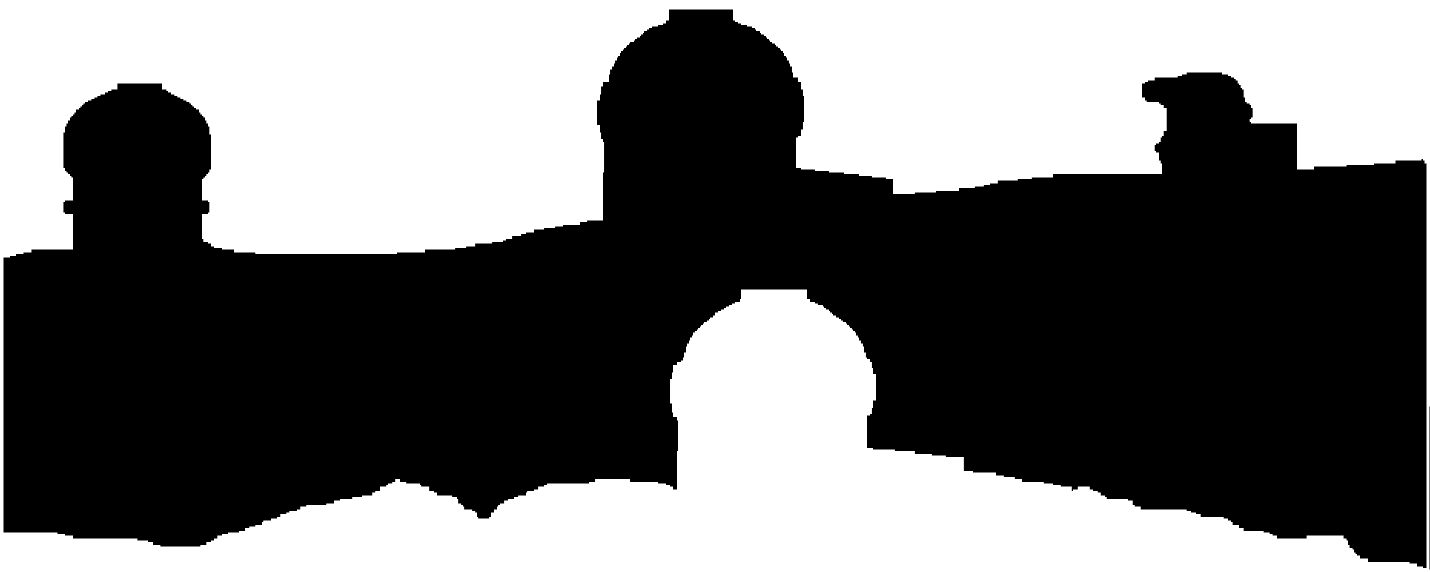
GEMINI
8-M Telescopes
Project

PG-PM-G0017

Gemini South Safety Program



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Gemini Project Safety Guide
Revision Sheet

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1. PROJECT SAFETY AND LOSS PREVENTION POLICY

It is the intent of AURA that a safe and healthful working environment be provided for all project personnel during the construction of the Gemini Cerro Pachon Observatory. 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 Project.

Notwithstanding the above, all Contractors shall implement measures which support safety awareness, furnish proper tools and equipment, respond to emergency conditions, and generally pursue their contract objectives in the safest possible manner. Each Contractor 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 Contractor of such responsibility.

For purposes of this Project Safety Program, the term “Contractor” refers to any person or organization that performs any work at the Gemini Cerro Pachon Observatory under contract to AURA, including the Contractor’s subcontractors of all tiers. The “Project” includes all activity occurring during construction of the Gemini Cerro Pachon Observatory as well as the work in progress on and off the site and the work completed.

2. PURPOSE

The Project Safety Program has been developed in order to:

(a) Provide a safe workplace for the construction of the Gemini Cerro Pachon Observatory, thereby eliminating personal injury and property damage and their associated losses;
(b) Formulate a uniform Project Safety Program that complies with all safety, environmental, and health regulations;
(c) As appropriate for this Project, enhance and supplement the safety and health standards that are required by law;
(d) Establish clear lines of communication, responsibility, and accountability for safety programming throughout the duration of the Project;
(e) Subject to the responsibilities of Contractors for safety, as specified in the Project Safety Program, assist Contractors in maintaining their own safety program and in maintaining a work place free of recognized hazards, and;
(f) Set forth basic responsibilities, guidelines and regulations for all personnel involved in the construction of the Gemini Cerro Pachon Observatory.

3. RESPONSIBILITIES

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

3.1 AURA. AURA's responsibility in the Project Safety Program involves full cooperation and commitment to all safety activities at the Site. It accomplishes this responsibility through the AURA Site Safety Officer and the AURA Safety Engineer.

3.1.1 The AURA Site Safety Officer and the AURA Safety Engineer. AURA has appointed the Site Safety Officer and the Safety Engineer, who have 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 Site;
(b) Administer the Project Safety Program for AURA, which includes general responsibility for AURA's safety requirements, maintaining safety related records, and filing applicable reports;
(c) Review and coordinate the safety programs developed by each of the Contractors;
(d) Monitor the compliance of each of the Contractors with the Project Safety Program;
(e) Conduct weekly safety meetings with the Contractors' Safety Representatives;
(f) Conduct weekly Site inspections with the Contractors' Safety Representatives;
(g) Conduct safety and loss prevention surveys at the Site as needed;
(h) Recommend corrections for hazardous conditions observed at the Site, or for preventing potentially hazardous conditions at the Site;
(i) Issue written notifications of violations observed at the Site;
(j) Issue Hot Work Permits;
(k) Investigate all accidents and safety incidents or near-misses of a serious nature in coordination with the Contractors' Safety Representatives, and make recommendations for corrective action;
(l) Monitor claims handling and participate in claims review meetings, and;
(m) Periodically review the adequacy of the Project Safety Program, and recommend changes for improvement as necessary.

Notwithstanding the above, the Site Safety Officer's responsibilities for review, identification and coordination of the Contractors' safety programs shall not extend to direct control over or charge of the acts or omissions of the Contractors (including its subcontractors, agents or employees of the Contractors or subcontractors, or any other persons performing any portion of any of the work at the Sites and not directly employed by AURA). The activities of the Site Safety Officer shall in no way relieve any Contractor 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 its contract with AURA and the Project Safety Program.

3.2 Contractors. Contractors have the following responsibilities in performing work at the Site:

(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 all applicable Chilean norms, and safety, environmental, and health regulations, and the Project Safety Program;
(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 or Safety Engineer may implement to ensure job site safety;
(f) Provide supervisory investigation reports and manpower support for any accidents;
(g) Attend and participate in weekly safety meetings conducted by the Site Safety Officer;
(h) Attend and participate in weekly Site inspections conducted by the Site Safety Officer or Safety Engineer;
(i) Conduct weekly “tool box” safety meetings for all their employees and provide the AURA Site Safety Officer with a written record of each meeting. The written record shall include the date, topics discussed, comments, and attendees;
(j) Take immediate corrective action upon discovery of unsafe practices or conditions;
(k) Notify the AURA Site Safety Officer of unsafe conditions or practices that are not within the Contractor’s jurisdiction;
(l) Provide names and certifications for their persons on the Project who have First Aid training;
(m) Maintain a file of Material Safety Data Sheets (MSDS) for all materials at the Project. Copies of MSDS are to be delivered to the AURA Site Safety Officer prior to arrival of materials at the Project;
(n) Provide proper and specific work task training for employees regarding the hazards of their jobs and how to work safely;
(o) Employ at the Site a responsible, qualified, Safety Representative whose duties include the protection of persons and property and the administration of the Contractor’s safety program;
(p) Inspect tools and all equipment, including heavy equipment such as cranes and hoists, as required. Copies of inspection records shall be available for inspection by the AURA Site Safety Officer;
(q) Immediately inform the AURA Site Safety Officer of all accidents and provide detailed accident reports to same;
(r) Instruct each employee concerning the hazards associated with their work assignment and ensure that each employee fully understands his or her responsibilities;
(s) Make each employee understands that violations of the Project Safety Program will not be tolerated and that proper disciplinary action will be administered, including removal from the Project for noncompliance;
(t) Prepare and post an emergency plan to be utilized in case of fire, serious injury, or other potentially catastrophic events; and instruct each employee in the emergency procedures;

(u) Identify and correct the causes of all accidents and hazardous situations. Provide to the AURA Site Safety Officer descriptions of conditions found and actions taken to correct;
(v) Work closely with the AURA Site Safety Officer and Safety Engineer to help them achieve an effective safety and health program;
(w) Conduct daily inspections of the work site. Copies of documentation of inspections shall be available for inspection by the AURA Site Safety Officer or Safety Engineer;
(x) Comply with all aspects of its contract with AURA;
(y) Comply with any security provisions enacted by the AURA Site Safety Officer or Safety Engineer;
(z) Maintain records of all occupational injuries and illnesses and promptly file the required reports with the AURA Site Safety Officer and Safety Engineer, and other applicable authorities;
(aa) Keep all working areas clear of debris and trash, and maintain good housekeeping conditions for the Project.
(bb) Provide and maintain adequate fire protection equipment, and instruct each employee in the use of this equipment;
(cc) Follow up on and comply with recommendations provided by the AURA Site Manager, Site Safety Officer and Safety Engineer;
(dd) Properly dispose of chemical and hazardous waste generated by the Contractor, and;
(ee) Instruct each employee in the locations of First Aid stations and kits, and in the recognition of symptoms and antidotes for high altitude sickness.

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 Contractor. 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 Project 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 meeting;
(d) Obtain and use proper tools and personal protective equipment for the job at hand;
(e) Receive and apply appropriate training on all tools, machines, and other equipment used. Do not use any tool, machine or other equipment without proper authorization;
(f) Report all unsafe acts or conditions to their supervisor, and;
(g) Help 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 Chilean norms, safety, environmental, and health regulations and the Project Safety Program;

(b) Hard hats must be worn at all times;

(c) 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 permitted. Additional protective equipment and clothing will be worn as specific work assignments require;

(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 on AURA property. Drinking alcoholic beverages or intoxicants are prohibited on AURA property;

(f) Work areas will be kept clean and orderly at all times;

(g) All injuries, no matter how slight, will be reported immediately to the injured employee's supervisor and the AURA Site Safety Officer or Safety Engineer;

(h) Each Contractor shall provide the AURA Site Safety Officer with 24-hour emergency phone numbers of contact persons;

(i) All visitors, prior to entering the Work area, will advise the AURA Site Safety Officer of their presence. All visitors will be required to comply with the Project Safety Program, including the need for appropriate attire and personal protective equipment;

(j) All areas where work is being performed overhead shall be barricaded with warning signs posted;

(k) Riding of crane hook, ball or load is strictly prohibited;

(l) If for any reason during the performance of the work, any safety related items, such as perimeter cables and barricades, are removed by a Contractor to perform the work, it is the responsibility of that Contractor to replace them promptly when leaving the area;

(m) The AURA Site Safety Officer and Safety Engineer will participate in meetings, to be conducted by the Contractors, to assess potential safety and health concerns prior to the start of significant and new construction activities;

(n) Contractor will make all records and documentation of safety related issues available to the AURA Site Safety Officer or Safety Engineer upon request.

5. SPECIAL PROJECT SAFETY RULES

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

(a) A 100% tie-off policy is in effect on the Project. This applies to any work over six feet above ground level, and where falls of less than six feet will be hazardous.

(b) All employees required to tie-off for fall protection will utilize full body safety harnesses and shock absorbing lanyards with locking snap hooks. All fall protection equipment shall be inspected periodically.

(c) All welding, cutting, or other operation involving open flame or electric arc requires a Hot Work Permit issued by an authorized AURA representative.

(d) Contractors shall ensure the use of ground fault circuit interrupters for temporary electrical systems. An assured grounding protection program is an acceptable alternative, if approved by the Site Safety Officer.

(e) Before beginning any construction work activities, each Contractor's Safety Representative shall attend an initial safety orientation meeting conducted by the Site Safety Officer or Safety Engineer. The intent of this meeting is to acquaint each Contractor with the Project Site, the nature of the job, the hazards which may be encountered, and the equipment and safe practices to be used and followed to minimize accidents. The meeting shall not exceed one hour.

(f) If a situation arises where the Contractor believes that safety requirements will be impossible to enforce, a meeting is to be held with the AURA Site Safety Officer and Safety Engineer to reach an acceptable plan for safely completing the work.

(g) All Contractors shall implement and maintain a drug-free policy for all employees at the Site.

6. ENFORCEMENT OF SAFETY PROGRAM

The Project Safety Program constitutes rules and regulations promulgated by AURA. As a result, Contractors have a contractual obligation to abide by the requirements of the Project Safety Program. In order to monitor and assure compliance with the Project Safety Program, AURA shall have the following rights:

(a) In the event of a conflict between various rules, regulations and statutes on safety provisions, the Site Safety Officer or Safety Engineer may require that the most stringent requirement apply;
(b) The Site Safety Officer or Safety Engineer has the authority to stop any construction or related activity at the Site which constitutes an immediate threat or imminent danger;
(c) The Site Safety Officer or Safety Engineer may stop the work in progress, when necessary, to enforce mandatory safety and loss control requirements. The Contractor shall be fully responsible for any lost time due to the stop work order and any additional costs incurred;
(d) A violation of the Project Safety Program will constitute a default under the applicable contract, and give rise to all remedies and rights of AURA specified in the contract, including termination of the Contract;
(e) The Site Safety Officer or Safety Engineer may eject any person from the Site where such person fails to comply with safety directives or the Project Safety Program;
(f) The Site Safety Officer may require the Contractor to perform all required acts and to refrain from performing any prohibited acts, as provided in this Project Safety Program, and the Contractor will not receive additional payment or reimbursement for safety items and equipment and work which have been identified as required by the Project Safety Program;
(g) The Site Safety Officer may require that the Contractor perform (and the Contractor shall promptly perform) any and all remedial work necessary to assure an adequate safety environment at the Site on an overtime basis so as not to interfere with normal operations at the Site. If immediate action is required, all costs related to interruption of normal construction activities will be back charged to the responsible Contractor, and;
(h) In the event that work at the Site, or any portion thereof, is stopped or shut down by any outside agency because of unsafe conditions, the responsible Contractor shall bear the total expenses relating to the shut down of such portion of the Site during the entire time such portion of the Site is shut down as a result of such condition.

In the absence of the Site Safety Officer or Safety Engineer, the Gemini Contracts Manager, the AURA Technical Representative, and any deputy of any such persons shall have the rights of the Site Safety Officer, as specified above.

7. ACCIDENT INVESTIGATION AND REPORTING PROCEDURES

The AURA Site Safety Officer or Safety Engineer will investigate all accidents and incidents of a serious nature. It is the Contractor's obligation to also investigate all accidents, provide all information outlined below, and submit a report to the Site 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 in the preparation of the *Declaracion Individual de Accidentes del Trabajo*.
(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 Site Safety Officer or Safety Engineer.
(b) All injury, property damage, fire and incidents will be investigated by the foreman and/or supervisor in the area of occurrence at the time. Notice must be forwarded immediately to the Contractor's safety representative and the Site Safety Officer or Safety Engineer.
(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 Contractor's safety representative and the AURA Site Safety Officer or Safety Engineer, who will investigate the incident.
(e) In the event of a fatality, the Contractor will immediately notify the police (*carabineros*) and the *Mutual de Seguridad* with which the worker is affiliated.
(f) In the event of a fatality, the AURA Site Safety Officer will immediately notify AURA Corporate Office.
(g) 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 Site Safety Officer, unless an additional hazard is present and requires immediate action.
(h) All official notifications to the family of an injured employee will be made by the Contractor / Employer of the injured employee(s).
(i) All releases to the news media regarding an accident must be either made or approved by the AURA Head of Mission in Chile, or in his absence, those persons specifically authorized to act in his behalf for this purpose.
(j) Contractors are encouraged to investigate all possibilities for placement of injured employees for light duty work.

(k) Copies of all claims of *Declaracion Individual de Accidentes del Trabajo* 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) R.U.T. numbers or passport numbers.
(e) Complete addresses and telephone numbers.
(f) Injured person's occupation, age and employer.
(g) Description of what the injured person was doing when hurt.
(h) The nature and extent of the injury.
(i) Where was injured taken for treatment? Transportation?
(j) Description of property damaged, identification numbers, etc.
(k) Owner of property damaged and address of owner.
(l) Year, make, model, serial number, license number of any vehicles involved.
(m) Names of other party's insurance company(s).
(n) Witnesses' statements or accounts of accident.
(o) Details of incident fully described to answer the basic how, when, why questions.
(p) What safety measures could prevent a recurrence.
(q) Name and identification of person completing the report.
(r) Signature of Contractor's safety representative.

7.4 Injury Report Retention

All reports pertaining to injury or illness involving employees or visitors, or property damage shall be preserved and not destroyed without approval from the Contractor's safety representative and the AURA Site Safety Officer. Reports shall not be released to anyone without the approval of the AURA Site Safety Officer and only after consultation with the AURA Corporate Office.

8. DRUG FREE COMMITMENT

The use of illegal drugs or abuse of either alcohol or prescription drugs may impair the ability of the persons to perform tasks that are critical to proper work performance. The result is an increase in accidents and failures which 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 project personnel, AURA requires the commitment of the Contractor to provide a drug-free workplace. As a part of this commitment, the Contractor 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 Contractor's workplace 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 Contractor'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 a 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. The Contractor is solely responsible for the development and administration of necessary substance abuse testing programs.

9. CONCLUSION

The contents of this Project Safety Program are in no way intended to address nor describe in all possible detail the entire body of all laws and regulations concerning construction safety and health. They are intended to augment, clarify, and supplement those articles which are generally pertinent and sometimes misinterpreted. Contractors 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 Contractors raising needs for special awareness, etc.). So long as full communications are maintained, there will be sufficient notice available to avoid unnecessary surprises. Contractors are immediately responsible for compliance with new laws and regulations as they become effective.

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