



Chajnantor Working Group Safety
ALMA-10.08.03.00-004-A-MAN

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Chajnantor Working Group Safety Policies

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Change record

VERSION	DATE	AFFECTED SECTION	CRE	REASON/INITIATION /REMARKS
A	2006-04-27	All		First Issue
A revision 1	2007-06-27	S 2. S4. S14. S15. Ch 4		Inclement weather General access requirement Vehicle use at the site Driving on the Alma site
A revision 2	2009-03-21	S1 S2 S17		Emergencies General Access Requirement and driving on ALMA Security information Statement and waiver of responsibility for Chajnantor members



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1 EMERGENCIES

- Verbally report (see below) any injury on the ALMA site requiring medical treatment, accident with property loss, motor vehicle accident, or unsafe condition to the Safety Office within 24 hours of the incident.
- If immediate medical attention is required, injured or ill persons should be transported to the nearest emergency health care facility. This may be accomplished by calling the ALMA site paramedic who will initiate emergency care and transport.
 - The OSF policlinic is operating 24/24 in case of emergency.
 - The AOS policlinic is operating from 7.00am to 7.00 pm
- Anyone with an illness or injury that does not require immediate medical attention but needs medical consultation may also visit the ALMA sites first aid station from 8.00am to 8.00pm at OSF and from 7.00am to 7.00pm at AOS.
- Inform your base when expected to drive off road or to leave your vehicle. Stay into the car or in a safe place in case of stack, breakdown, lightning or earthquake and wait for help is you are far from a safer place.
- [The following ALMA emergency numbers](#) may be used in case of any emergency. The radio channels and/or telephone numbers are monitored at all times.
 - ✚ First aid station - Paramedic / Ambulance on duty at number 55- 448 400, or ALMA Radio Emergency Channel.
 - ✚ Safety Officer on duty at number 55- 448 409 or 448 438 or 448 512 or ALMA Radio Emergency Channel.
 - ✚ Safety Manager at number 55- 448 417
 - ✚ An Emergency number can be call at any time: 55- 448 **555**
 - ✚ Chajnantor Emergency phones are working through the radio channel.
 - ✚ **San Pedro Police station: 55-755284**



2 GENERAL ACCESS REQUIREMENTS AND DRIVING ON ALMA

- Everyone entering the main entrance must have proper identification and will be permitted entry only when holding proper badging credentials, or when registered on the guard's access control file.
- Always cooperate with the guards. All individuals and vehicles entering and leaving the premises are subject to search. Any vehicle or person failing to cooperate will be denied access.
- ALMA is going to start a new internal driver training for permanent staff. An internal driving license shall be issued and only authorized drivers shall be permitted to drive on ALMA. Non permanent staff should be driven by an authorized driver.
- Before traveling to and fro Chajnantor the driver must inform his base of departure and report of the arrival at the site.
- A permanent radio contact with Alma Security is required. The driver must call on the emergency channel at km21; 31; 41.
- A new radio communication system is being installed. A GPS module will be incorporated.
 - All vehicle traveling on ALMA shall use this radio/GPS system
 - All permanent vehicles shall be equipped by radio base DGM 6100+
 - All others vehicles (deliveries and occasional vehicles) shall be equipped by radio handy DGP 6150+ borrowed by ALMA at the entrance under responsibility of the user. The equipment shall be returned at the entrance.

<u>USE</u>	<u>MAKE</u>	<u>MODEL</u>	<u>FREQ BAND</u>	<u>DETAILS</u>	<u>SPECIFICATIONS</u>
MOBILE/ BASE	MOTOROLA	DGM 6100+	VHF	When Ordering Request Radio to have GPS	DGM_6100.pdf
HANDY/ PORTABLE	MOTOROLA	DGP 6150+	VHF	When Ordering Request Radio to have GPS	DGP_6150.pdf

- The policy with the non regular transport drivers is the following:
 - The Transport Companies are sent all the information about the risk of commuting on the ALMA road.
 - They have to be informed about the risk related to the very high altitude (contraindications and ALMA OSF medical protocol – See Section 11).
 - They have to be informed (through the contract) about the rules and regulations applicable on the ALMA site (systematic alcohol testing for trucks



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drivers, speed limit, vehicle requirements, use of radio, use of Oxygen at high altitude, etc)

- If they do not have a HAME (High Alt. Med. Exam) they are requested to stop at the OSF policlinic to check whether they comply with our medical protocol before ascending at very high altitude.
 - Drivers have to sign a waiver and release.
 - They must be escorted up to the high site and down by the user.

ALMA requires all Chajnantor members to apply this policy as a minimum with all transporters ascending Chajnantor plateau through the OSF. Furthermore ALMA Safety needs the data of the trucks and the drivers at least the day before the access.

- Deliveries must be scheduled during day time. Exceptions must be scheduled in advance with the Safety Office.
- Heavy equipment operators are required to comply with all applicable licensing requirements and training in order to operate specific equipment.
- Only properly outfitted vehicles are permitted on the access road from the OSF to AOS. The use of four wheel drive vehicles on the ALMA site is strongly recommended.
- All heavy trucks that will operate at the site, more than 350 HP shall be equipped either by hydraulic retarders and / or Jacobs brakes systems.
- Only experienced, authorized and trained trucks drivers (Mountain training).
- No alcoholic beverages or drugs are allowed in vehicles. Driving while under the influence of alcohol or drugs is absolutely forbidden.
- Drivers of vehicles entering the site are subject to breath alcohol testing by the guard.
- Do not overload vehicles.
- Manual transmission is recommended for access to AOS.
- It is recommended that vehicles should have a minimum 130hp for access to the AOS.
- Four wheel drive motorbikes are prohibited from use at ALMA.
- O2 check up and use of oxygen required for drivers at Chajnantor or driving down after a long stay.
- As soon as the km 29 check post is operating (12/24) all vehicles shall stop for a 5mn rest.
- Keep all vehicles to designated roadways. Do not drive into the Chajnantor Plateau where no roadways exist.
- Night travel is discouraged in all areas of the site.
- No single vehicle is permitted for night travel between OSF and AOS.
- Do not disturb any flora or fauna while driving at the site.



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- In the case of animals on the road, vehicles must stop to prevent injury to the animal and damage to the vehicle. Always be alert to the possibility that animals may cross the road.
 - Obey all posted signs related to safe driving including warning signs and speed limits.
 - No one is allowed to ride on any portion of a vehicle not designed for carrying passengers e.g., cargo-carrying areas of trucks.
 - No hazardous materials may be transported in any vehicle for which the primary design and purpose is for the transportation of personnel.
 - Hazard warning placards must be displayed for vehicles carrying dangerous goods.
 - Vehicles going up the site have the right of way preference over vehicles going down.
 - Heavy equipment has the right of way where the road is not marked.
 - The antenna transporter always has the right of way.
 - In construction areas, follow the directions of the traffic control director.
 - Keep a clear distance when traveling behind heavy equipment.
 - Do not park in any roadway or any location where access to facilities is obstructed.
 - Do not park any vehicle near air intakes of the facilities
 - Use the authorized parking lots.
- SPEED LIMITS
 - Between the entrance to the site and OSF
 - For light vehicles the maximum speed is 60 km/hr unless otherwise posted.
 - For loaded trucks or heavy equipment, the maximum speed is 40 km/h.
 - Between OSF and AOS (Chajnantor Plateau)
 - For light vehicles, the maximum speed is 60 km/hr unless otherwise posted.
 - For loaded trucks or heavy equipment, the maximum speed is 40 km/h.
 - In the area of the OSF facilities, the maximum speed is 30 km/h.
 - Reduce speeds as appropriate for road and weather conditions.
 - In construction zones, the speed limit is 40 km/hr.

WARNING:

The transporter road is not graded to accommodate high speed traffic. The roadway has a flat profile to accommodate transporter traffic. This road profile may permit loss of vehicle control at speeds exceeding the posted limits.

DRIVING SANCTIONS

- Speeding or other infractions of the driving and road policy will result in disciplinary actions.
- First infraction is a suspension for the remainder of the shift (turno), plus one shift (turno), not to exceed 15 working days



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- Second infraction the suspension is 30 days. It should be noted that ALMA can impose two infractions at once such as speeding and reckless driving, considering reckless driving could include speed in excess of 40% over the posted limit.
- A third violation will result in a permanent driving ban on ALMA site.
- The ALMA Site Manager on Duty (MOD) has the prerogative to increase the sanction level in case of dangerous or negligent violations.

SAFETY EQUIPMENT IN VEHICLES

- All vehicles in use on the site, especially in winter, should have the following safety equipment in place and available for use prior to ascending.
 - Roll over inside protection bars.
 - Two way radio for communication
 - Bottled Oxygen
 - Fire extinguisher
 - Spare tire, snow chains
 - Emergency light
 - Windshield scraper
 - Blanket
 - Shovel, tow sling(s)
 - Battery power booster
 - Tool box with tools
 - Shovel, pick, and axe
 - Tow and rescue slings with associated hardware

SECURITY

Several cars and trucks have been robbed on Paso de Jama road. According to the local police, commuting alone near by the Bolivian bordure is very risky except if several vehicles are clustered in convoy.

Therefore ALMA authorizes the Chajnantor members to use his road provided that the road's rules and regulations are strictly respected.

ALMA's guards are located at AOS/TB and use to patrol along Pampa la Bola road, looking at others projects in the surroundings.

3 SIGNS AND PLACARDS

- Ensure any signage posted on the ALMA site is approved by ALMA.
- Report any areas needing hazard signage to the ALMA Safety Office.
- Report any damaged or missing signs to the ALMA Safety Office.



4 INCLEMENT WEATHER

- It is strongly recommended that each group monitors weather conditions in the area, as well as news and alerts that may be introduced via internet or radio.
- Each group is responsible for developing their own procedures and specific response actions for emergency events.
- It is recommended to verify site conditions by sending teams in well equipped vehicles when required.
- During these times, projects are allowed to commute via the OSF according to the driver's emergency policy.
- All vehicles must comply with ALMA regulations with Safety equipment required.
- Do not start when the conditions are bad (White wind, lightening, thick snow).
- Inform Alma safety (ALMA emergency channel) before starting.
- Start before the conditions become dangerous and inform ALMA at km 21; 31 and 41 during the trip.
- Avoid travelling alone, especially by night. Be sure not forgetting somebody.
- Never leave somebody alone.

5 WILDLIFE AND ARCHAEOLOGICAL SITES

- Produce an environmental evaluation of areas to be affected by construction activities. If any archaeological sites, endangered plants or animals are discovered, notify the ALMA Safety Office immediately.
- Signs will be posted at sites along the road and any areas where protected species of flora and fauna are known to be located.
- Hunting and disturbing animals in the area is strictly forbidden, as well as destroying dens, picking eggs, capturing species and feeding or disturbing fauna in any way
- It is forbidden to destroy or harm the cultural heritage in the area.
- Be aware that archaeological/biological monitors are authorized to stop any activities that disrupt the environment.
- Verbally report any environmental damage or accident occurred inside ALMA site to the Safety Office within 24 hours of the incident.
- Keep informed contractors and visitors about ALMA environmental policy



6 WASTES

- Waste shall not be disposed on the ALMA site.
- Dispose of flammable and hazardous wastes properly.
- In the event of a spill or leak on the ALMA Site, contact the ALMA Safety Office and report the material released, within one day of discovery.
- Only authorized waste haulers are permitted to transport hazardous waste through the ALMA Site.
- Unregulated discharge of sanitary waste is not permitted.
- The producer of wastes is responsible for its proper disposal.

7 ANTENNA OPERATIONS AND ACCESS

- ALMA is an active construction site and will be a fully operational site. Access to construction areas and operational sites is restricted.
- Anyone that desires to enter the restricted area around any antenna must have prior authorization from the ALMA site Manager On Duty (MOD).
- Visitor vehicles, buses and tour vehicles are not permitted within the restricted zone (20m from antenna).
- Vehicles are not permitted to drive across antenna pads at any time.

8 DRUG AND ALCOHOL TESTING

- Chilean Traffic regulations sanction all drivers having between 0.0 gr/l - 0.49 gr/l alcohol in their blood which has signs and symptoms of drunkenness (alteration of their behavior, reflex or perception).
- Concentrations over 0.5 gr/l blood alcohol levels are considered a serious offense and the sanction depends on the associated situation (accidents, deaths).

SITE RESTRICTIONS

- It is forbidden to enter the ALMA site under the influence of alcohol or drugs.



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- It is forbidden to bring, store or sell alcoholic beverage or drugs at the ALMA site.
- Illegal drugs are prohibited at all times.
- Alcohol and drug tests can be performed at the main entrance or on the ALMA site.
- Breath alcohol checks may be performed by the guard randomly at any time on the ALMA site.

DISCIPLINE MEASURES

- Any person registering a controlled positive > 0.0 g/l for alcohol will be reported to the sponsoring group.
- Any person with a controlled positive > 0.0 g/l for alcohol shall be prohibited from driving on the ALMA site.
- The sponsoring group will be expected to take the appropriate sanction.

9 RFI PROTECTION

All persons and Projects operating within the boundaries of ALMA will abide by the provisions of the SUBTEL Resolution creating the Quiet and Coordination areas on behalf of the ALMA Project. All mobile communications within the site will be conducted using ALMA pre-assigned frequencies

APPENDICES



10 - WEATHER AND NATURAL DISASTER

GENERAL

- It is recommended that each group maintain the emergency supplies including:
 - Flashlights with batteries
 - Radios
 - First-aid kit
 - Emergency phone numbers
- Every work group should:
 - Make evacuation plans.
 - Establish a meeting place to gather if there is a natural disaster.

EARTHQUAKE

Every group should be prepared for earthquakes and should be aware of the following:

- Identify locations where the gas, electric and water main shutoffs are.
- Train employees in how to turn off utilities if there is a leak or electrical short.
- Secure bookcases, cabinets, tall furniture, file cabinets, etc. to wall studs.
- Brace or anchor heavy electronics and other heavy items.
- Secure items that might fall.
- Keep heavy or fragile items to lower shelves.
- Fasten drawers and cabinet doors with latches or locks.
- Brace overhead light fixtures.
- Strap the water heater to wall studs and bolt down any gas appliances.
- Look for other non-structural steps to take to reduce chances for injury and loss.

VOLCANO

Every group should be prepared for a response to a volcano:

- Be prepared for the hazards that can accompany volcanoes:
 - Mudflows and flash floods
 - Landslides and rockfalls
 - Earthquakes
 - Ashfall and acid rain
- If caught indoors:
 - Close all windows, doors, and dampers.
 - Put all machinery inside a garage.
- If trapped outdoors:
 - Use a dust mask or hold a damp cloth over your face to help breathing. Volcanic ash can irritate your respiratory system.
 - Wear goggles to protect your eyes.
 - Keep skin covered to avoid irritation from contact with ash.
 - Seek shelter indoors.
 - Avoid valleys and low lying areas.
- Clear roofs of ashfall: Ashfall is very heavy and can cause buildings to collapse. Exercise great caution when working on a roof.



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- Avoid driving in ashfall. Driving will stir up ash that can clog engines and stall vehicles.

MUDSLIDE / LANDSLIDE

- Slides can occur during periods of intense rainfall or rapid snowmelt. They usually start on steep hillsides, liquefy and accelerate down the hill. The flow ranges from watery mud to thick, rocky mud that can carry large items such as boulders and cars.
- Every person should become aware of the potential for mudslides.
- Preparation
 - Become familiar with the land. Find out if you're in a slide prone area.
 - Watch the patterns of storm-water drainage on slopes nearby, and especially where runoff water converges, increasing flow over soil-covered slopes.
- During Intense Storms
 - Stay alert; short bursts of rain may be particularly dangerous, especially after longer periods of heavy rainfall and damp weather.
 - Watch hillsides for signs of land movement, such as small slides or debris flows, or progressively tilting trees to alert to the potential of a greater landslide threat.
 - If in areas susceptible to landslides and debris flows, leave if it is safe to do so.
 - Listen for any unusual sounds that might indicate moving debris.
 - If near a channel, be alert for an increase or decrease in water flow or a change from clear to muddy water. Changes may indicate landslide activity upstream.
 - Be especially alert when driving. Embankments along roadsides are particularly susceptible to landslides. Watch the road for collapsed pavement, mud, fallen rocks, and other indications of possible debris flows.
- During a Slide
 - Quickly move out of the path of the landslide or debris flow. Moving away from the path of the flow to a stable area will reduce your risk.
 - If escape is not possible, curl into a tight ball and protect your head. A tight ball will provide the best protection for your body.
- After a Slide
 - Stay away from the slide area. There may be danger of additional slides.
 - Check for injured and trapped persons near the slide, without entering the direct slide area. Direct rescuers to their locations.
 - Listen to the radio for the latest emergency information.
 - Watch for flooding, which may occur after a landslide or debris flow.
 - Look for and report broken utility lines to management to get utilities turned off as quickly as possible, preventing further hazard and injury.

LIGHTNING

Lightning can occur at various times during the year. All individuals must be prepared to react properly to a lightning strike.

- Use the Flash/Bang (F/B) technique to measure lightning distance. Five seconds from seeing the lightning flash to hearing the associated thunder is equal to 1.61 km.
- Use the 30/30 Rule. When you see lightning, count the time until you hear thunder. If the time is 30 seconds or less, go immediately to a safe place.



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- Wait 30 minutes or more after hearing the last thunder before leaving the safer location. A “Safe Location” is a properly protected building or telescope.
 - The safest place commonly available during a lightning storm is a large, fully enclosed, substantially constructed building which can conduct lightning current safely to ground.
 - If you can’t reach a substantial building, get in an enclosed vehicle with a solid metal roof and metal sides. Close the windows, lean away from the door, put your hands in your lap and don’t touch the steering wheel, ignition, gear shifter or radio.
 - Convertibles, cars with fiberglass or plastic shells, and open-framed vehicles are not suitable lightning shelters. A fully enclosed metal vehicle is a safe location because of the (partial) Faraday Cage effect.
- Do not touch any metal conductor exposed to the outside because it could become a lightning conduit.
- Stay away from corded telephones, electrical appliances, lighting fixtures, ham radio microphones, electric sockets and plumbing.
- Don’t watch lightning from open windows or doorways.
- Be alert to changes in sky conditions portending thunderstorm development directly overhead.
- When outside:
 - Proceed from higher to lower elevations.
 - Avoid wide-open areas and tall, isolated objects like poles and light posts.
 - Avoid water-related activities such as swimming (including indoor pools).
 - Do not remain in open vehicles like tractors, cab-less construction machinery, and riding lawnmowers (sun roofs offer no protection).
 - Do not consider unprotected open structures such as picnic pavilions, rain shelters and bus stops.
 - Avoid contact with metal fences, metal bleachers, or other long metal structures.
 - Do not take shelter under tall objects to keep dry during thunderstorms.
 - If in a group, spread out so there are several body lengths between each person. Once spread out, stay away from other people, remove metal objects, crouch with feet together, head tucked, and placing hands on ears to reduce acoustic shock from nearby thunder.
 - When the immediate threat of lightning is past, head to the safest place possible.
 - When planning outdoor work activities, obtain the weather forecast.
- Work shall cease and personnel shall immediately proceed to a Safe Location under the following conditions:
 - A lightning strike is observed within a 19.31 km range of the work location.
 - The storm is observed to be approaching the work site or;
 - The range and direction, as described above, is determined by a lightning sensing device or;
 - Upon notification by or from a Safety Officer or Supervisor.
 - Report the lightning threat to the supervisor and notify them of the decision to stop work and go to a Safe Location.
 - Upon notification, supervisors shall notify all other personnel working outdoors and advise them of the lightning threat. If conditions for these personnel match



- those described above, work shall cease immediately and the personnel are required to proceed to a Safe Location.
- Personnel may resume work when an “All Clear” notification is given by a Safety Officer or Supervisor or when the source of lightning has moved and NO lightning strikes are observed within a 19.31 km radius for over 15 minutes.
 - Lightning injuries
 - Call for emergency help immediately.
 - All deaths from lightning strikes result from cardiac arrest and/or stopped breathing; begin CPR or mouth-to-mouth-resuscitation.
 - Strike victims do not pose any electric hazard to a care giver.
 - If the storm’s lightning is ongoing and represents a continuing risk to responders, consider moving the victim to a safer location

FLASH FLOODS

- Turn off all utilities at the main power switch and close the main gas valve if evacuation appears necessary.
- Don't walk or drive through a flooded area.
- If the car stalls, abandon it immediately and climb to higher ground.
- Stay away from downed power and electrical wires. Electric current passes easily through water.
- Before entering a flooded building, inspect foundations for cracks or other damage. Don't go in if there is any chance of the building collapsing.
- Upon entering the building, don't use matches, cigarette lighters or any other open flames, since gas may be trapped inside. Instead, use a flashlight.
- Keep power off until an electrician has inspected the system for safety.
- Floodwaters pick up sewage and chemicals from roads and buildings. If flooded, protect health by cleaning up right away.
- Until declared safe, boil water for drinking and food preparation before using.

THUNDERSTORMS AND HIGH WINDS

- According to the National Weather Service, a thunderstorm is “severe” when winds reach or exceed 92.5 km/hr or produce hail 2 cm in diameter or larger.
- If thunderstorms are possible, keep up with forecasts. Plan work activities accordingly, which may include postponing or canceling planned activities.
- Reduce speed when driving in a thunderstorm or pull off to the shoulder of the road away from tall objects, such as trees, which could fall due to wind or lightning.
- Turn on emergency flashers and remain in the car until the storm passes.
- Avoid driving on roads covered by water.

COLD, SNOW OR ICE STORMS

- Ensure maintenance service is completed on the vehicle as often as the manufacturer recommends.
- When weather is extremely cold, especially if there are high winds, try to stay indoors.
- Make trips outside as brief as possible.



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- Be sure the outer clothing layer is tightly woven, preferably wind resistant, to reduce body-heat loss caused by wind.
- Wool, silk, or polypropylene inner layers of clothing hold more body heat than cotton.
- Stay dry—wet clothing chills the body rapidly.
- Excess perspiration will increase heat loss, so remove extra layers of clothing whenever you feel too warm.
- Avoid getting gasoline or alcohol on skin. These materials on skin increase body heat loss.
- Do not ignore shivering. It's an important first sign that the body is losing heat. Persistent shivering is a signal to return indoors.
- Cold weather puts an extra strain on the heart. If you have heart disease or high blood pressure, follow your doctor's advice about performing hard work in the cold.
- The Wind Chill index is based on the rate of heat loss from exposed skin caused by the effects of wind and cold. As the speed of the wind increases, it can carry heat away from your body much more quickly, causing skin temperature to drop.
- If Stranded
 - Stay in a vehicle when stranded if winter storms create poor visibility or if roadways are ice covered.
 - Tie a brightly colored cloth to the antenna as a signal to rescuers and raise the hood of the car (if it is not snowing).
 - Move anything needed from the trunk into the passenger area.
 - Wrap in extra clothing, blankets, or newspapers.
 - Stay awake to be less vulnerable to cold-related health problems.
 - Run the motor (and heater) for about 10 minutes per hour, opening one window slightly to let in air. Make sure that snow is not blocking the exhaust pipe—to reduce the risk of carbon monoxide poisoning.
 - Do not eat melted snow because it will lower your body temperature.
 - Huddle with other people for warmth.
- Hypothermia
 - Get the victim into a warm room or shelter.
 - If the victim has on any wet clothing, remove it.
 - Warm the center of the body first—chest, neck, head, and groin—using skin-to-skin contact under loose, dry layers of blankets, clothing, towels, or sheets.
 - Warm beverages can help increase the body temperature, but do not give alcoholic beverages. Do not try to give beverages to an unconscious person.
 - After body temperature has increased, keep the person dry and wrapped in a warm blanket, including the head and neck.
 - Get medical attention as soon as possible.
- Frostbite
 - Get into a warm room as soon as possible.
 - Unless absolutely necessary, do not walk on frostbitten feet or toes—this increases the damage.
 - Immerse the affected area in warm—not hot—water (the temperature should be comfortable to the touch for unaffected parts of the body).



- Or, warm the affected area using body heat. For example, the heat of an armpit can be used to warm frostbitten fingers.
- Do not rub the frostbitten area with snow or massage it at all. This can cause more damage.
- Don't use a heating pad, heat lamp, or the heat of a stove, fireplace, or radiator for warming. Affected areas are numb and can be easily burned.

HEAT

- **Heat Exhaustion** results from loss of fluid through sweating when fluids or salt are not replaced. The worker with heat exhaustion still sweats but experiences extreme weakness, fatigue, giddiness, nausea or headache. The skin is clammy and moist, the complexion may be pale or flushed and the body temperature is normal or slightly higher.
- **Fainting** or heat syncope may be a problem for the worker unacclimatized to a hot environment by standing still in heat.
- **Heat Stroke** is a serious hot environment health problem caused by failure of the body's internal mechanism to regulate its core temperature. Sweating stops and the body can no longer rid itself of excess heat. **Victims of heat stroke will die unless treated promptly.**
- Engineering Controls
 - Control the heat at the source through the use of insulating and reflective barriers (insulate furnace walls).
 - Exhaust hot air and steam produced by specific operations.
 - Reduce the temperature and humidity through air cooling.
 - Provide air-conditioned rest areas.
 - Increase air movement if temperatures are less than 35° C (fans).
 - Reduce physical demands of work task through mechanical assistance.
- Administrative Controls
 - Assess the demands of all jobs and ensure monitoring and control strategies are in place for hot days.
 - Increase the frequency and length of rest breaks.
 - Schedule hot jobs to cooler times of the day.
 - Provide cool drinking water near workers and remind them to drink a cup every 20 minutes or so.
 - Assign additional workers or slow down work pace.
 - Train workers to recognize the signs and symptoms of heat stress and use a "Buddy System" as people are not likely to notice their own symptoms.
 - Pregnant workers and workers with a medical condition should discuss working in the heat with their doctor.
- Personal Protective Equipment
 - Wear light summer clothing to allow free air movement and sweat evaporation.
 - A wide-brimmed hat will provide shade and keep the head cool.
 - In a high radiant heat situation reflective clothing may help.
 - For very hot environments, consider air, water or ice-cooled insulated clothing.
 - Vapor barrier clothing greatly increases the amount of heat stress on the body, and extra caution is necessary.
 - Select a high value of sunscreen to protect yourself adequately. Apply sunscreen 30 minutes before going outdoors and reapply according to package directions.



11 - PHYSICAL EXAM REQUIREMENTS

Annual high altitude medical exams are recommended for everyone working at elevation, regardless of their duty station or work duration.

ACUTE MOUNTAIN SICKNESS

- Acute Mountain Sickness - AMS is a term applied to a group of symptoms. It is more apt to occur in unacclimatized people who make rapid ascents to above 3,000 m. It also occurs in people who partially acclimatize then make an abrupt ascent to a higher altitude. Therefore overnight stay or camping at the AOS is prohibited except in emergency situations or special agreement duly approved by ALMA authorities.
- High Altitude Pulmonary Edema - HAPE is abnormal fluid accumulation in the lungs resulting from poor adaptation to altitude. HAPE rarely occurs below 2,500 m and is more common in young males.
- High Altitude Cerebral Edema - HACE is swelling of the brain thought to be caused by hypoxia-damage to brain tissue. HACE generally occurs above 3,500 m but has been recorded at 3,100 m.

MEDICAL EXAM REQUIREMENTS

- Every employee required to work on the site should consult an ACHS or other physician to verify that there is no medical conditions that make it inadvisable to work at high altitude.
- The high altitude physical exam is an annual requirement for ALMA affected employees.

MEDICAL PROTOCOLS FOR WORKING IN ALTITUDE

- ALMA follows the AHCS norm for the medical examination.
- Physical Examinations are required annually for all workers.
- Physical Exam Battery
 - Medical checkup (Including Body Mass Index)
 - Altitude Survey (modified Lake Louise Survey)
 - Electrocardiogram at rest (reviewed by medical cardiologist or internist)
 - Lipid profile
 - Hemoglobin
 - Creatinin
 - Glicemia (Glucose)
 - PA Chest X-ray
 - Basal Spirometry
 - Additional examination components may be performed at the discretion of the examining physician.

ABSOLUTE CONTRAINDICATIONS - According to ACHS, the following conditions are qualified as absolute contraindications for altitude exposure:

- Pregnancy
- Kidney transplants or kidney failure (moderate or severe)



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- Record of heart failure.
- Record of vascular encephalic failure
- Epilepsy with convulsions
- Insulin dependent diabetes (when the location of the work site is an isolated place)

RELATIVE CONTRAINDICATIONS - Relative contraindications are temporary conditions which are modifiable on a short or medium term (6 months) through control of the pathology or risk factor. Once the following are modified, ascent may be authorized:

- Any chronic unbalanced pathology
- Body mass index greater than or equal to 35 (weight in kilograms / height squared in meters)
- Moderate or severe cholesterol levels LDL/HDL > 3.5 or triglycerides > 500 mg/dl
- Hemoglobin over 18.7 gr/dl in men, and over 18 gr/dl in women.
- Severe anemia with hemoglobin less than 8 grams.
- Hypertension with the diastolic pressure < 90 mm Hg

HEALTH CERTIFICATION

- The written evaluation certificate should be provided.
- “Appointment - The examination does not show apparent condition(s) which contraindicate the altitude assignment”.
- “Pending authorization” is for the case that the worker requires medical diagnosis, management or stabilization of a chronic or severe pathology.
- “Non-appointment - There are condition(s) in the examination which contraindicate work at altitude”.
- The certificate should record the expiration date.
- The medical evaluation is valid for 1 year, unless a specific lesser term is presented in the Report of the evaluating doctor.

MEDICATIONS

When Diamox or other medications are used to assist in altitude issues, follow the recommended prescription as established by the prescribing physician. Mild headaches caused by AMS usually respond to aspirin or Tylenol.

CLINIC RECOMMENDATIONS

- All employees and visitors should be checked at the clinic before ascension by the ALMA Paramedic.
- If the screening is not passed, access is not permitted.
- Screening is also recommended for employees and visitors coming to the Site infrequently or irregularly (more than three months since the last visit).
- If there is no copy of the medical exam available, the individual will be requested to sign a certification at this time in order to access the AOS.



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GENERAL RECOMMENDATIONS FOR ALTITUDE

- Before Ascending:
 - Spend one night at approximately 2500 meters before ascending to the AOS to acclimatize.
 - Go to sleep early the night before. Do not drink coffee or alcohol.
 - You must not be suffering from any acute respiratory infection.
 - Eat a light breakfast and start early in the morning.
 - Drink abundant water without carbonation, or gas, during the trip.
- At Altitudes:
 - Do not visit the site if you are already feeling unwell as the stress of high altitude could exacerbate the condition. Especially for any chest infection or respiratory problem.
 - Do not expose yourself unnecessarily to the cold.
 - Do not perform strenuous exercise.
 - Rest 6-12 hours before working, if staying longer than 2-3 days.
 - If possible, do not sleep at a high altitude. Descend and sleep at lower altitudes (3,000 to 3,500 meters).
 - Eat light and non-flatulent foods, preferably carbohydrates.
- Altitude Illness:
 - If a member of the party appears to be in distress with severe symptoms of high altitude illness, immediately drive them down from elevation.
 - Obtain and use emergency oxygen bottles and have a third person administer oxygen to the sick person during descent.
 - If necessary, take the patient to the hospital in Calama or medical clinic in San Pedro de Atacama.

ALTITUDE TRAINING RECOMMENDATIONS

- Read high altitude material to become familiar with the symptoms of high altitude medical conditions that could develop.
- Take basic First Aid and CPR training.
- All personnel that regularly work at elevation should be trained in response to high altitude illnesses.

VISITORS TO ALMA

- Access for visitors to the ALMA Project site must be authorized through the ALMA headquarters office in Santiago, Chile. For additional information on the procedures for visiting the site, see the ALMA Safety page for visitors.
<http://wikis.alma.cl/twiki/bin/view/ALMASafety/WebHome>
- Access for visitors must be coordinated with the ALMA Safety Office at least 24 hours in advance in order to prepare High Altitude equipment, training and health examination procedures with the paramedic.
- Official visitors to the AOS are required to read an informational pamphlet, participate in the paramedic medical check up and sign an acknowledgement and release waiver before being escorted to the AOS.



12 - SYMPTOMS AND TREATMENT FOR ACUTE MOUNTAIN SICKNESS (AMS)

- The most relevant aspects of high altitude issues for physical activity includes: relative lack of oxygen, extreme temperatures, high solar radiation, dry air, and psychological reactions of the affected population to all these phenomena.
- The most important issue to challenge the physiology and well being of workers performing work at the AOS is the relative lack of oxygen.
- To some extent, all workers will suffer physiologic and metabolic changes that will diminish his or her capabilities to perform both physically and mentally.
- These changes also contribute to risk of severe high altitude related diseases.
- Trauma at this altitude will be challenging and difficult to manage due to the metabolical and physiological status of the workers which cut short all basal body responses to injury, and also due to the environmental challenges that high altitude offers for pre-hospital medical rescue.

PREVENTIVE MEDICINE

- Every worker should have proper Preventive Medicine examinations prior to being included in the group of workers at the high site. In general terms, the medical risks that the workers will be facing are:
 - Acute Mountain Sickness (AMS), which can be recognized by the following:
 - Headache
 - Shortness of breath and difficult breathing
 - Nausea and Vomiting
 - Dizziness
 - Fatigue
 - Lethargy and poor concentration
 - Unspecific not well being or not feeling well, so called “Malaise”
 - Mild medical conditions such as:
 - Metabolic disorders which include initial plasma alkalosis because of hyperventilation, but later acidosis.
 - Dehydration due to enhanced diuresis and hyperventilation, poliglobulia (increased number of red cells in blood) and more concentrated plasma.
 - Problems concerning corneal injuries due to hypoxia, high radiation and air dryness that might lead to sight loss and later corneal ulcers if not prevented properly.
 - Some behavioral disorders, irritability and mood changes as also been described.
 - High Altitude Pulmonary Edema (HAPE), which will appear if any outdoor worker continues working with an already established AMS. Attention must be paid to the “macho” concept of hiding symptoms.
 - High Altitude Cerebral Edema (HACE), which may happen if a worker, who has a mild or severe case of HAPE, would keep on performing physically demanding tasks. HACE might also appear simultaneously with HAPE.



These two last conditions are defined as life-threatening, and require immediate treatment, emergency medical management and mandatory evacuation to a full equipped medical facility.

MEDICAL SURVEILLANCE AT THE HIGH SITE

- Continuous medical vigilance of the work group must be maintained at all times.
- Any signs of AMS must be detected immediately and the worker must be taken to the nearest medical care unit.
- Any case of AMS should be initially treated with supplemental oxygen and acetazolamide as well as standard analgesic for headache cases, and the worker must rest until full recovery is achieved.
- The advice found in literature for these cases is to put the patient into the equivalent of a lower altitude environment, whether this is done in a “hyperbaric (isobaric) bag”, or exposure to an enriched O₂ air in a closed environment.
- Should there be an injured worker affected by severe AMS, HAPE, HACE, he or she should receive immediate treatment by medical personnel.

13 - CONTROL PROTOCOL FOR VITAL SIGNS AND AUTHORIZATION FOR ASCENDING TO CHAJNANTOR

I.- **Objective:** Maintain order in the control of new personnel and visitors who need to go up to Chajnantor.

II.- **Directed at:** All ALMA (Atacama Large Millimeter Array) contractual personnel and all personnel under the responsibility of ALMA who work above 3000m a.s.l.

III.- According to mandatory Health and Safety regulations:

- Personnel must spend one night in OSF before their ascent.
- Personnel must attend the health clinic the same day of their ascent, in order to carry out the respective check-up of vital signs.
- All personnel, whether Executives or new comers, must present an up-to-date high altitude pre-occupational examination. This must be presented at the ALMA health clinic.
- In accordance with internal regulations, “any member of staff testing positive for alcohol consumption will not be permitted to carry out any work for ALMA, whatever their position.”



IV.- Regarding Control Levels

- In order to be authorised by an ALMA paramedic, control ranges for Vital Signs must be within the limits established by ALMA.
- Criteria will be established in comparison with pre-occupational examinations.
- ESO or NRAO AUI or ALMA J visitors must have up-to-date examinations for presentation at the time of their check-up.
- External visitors need only sign a responsibility exemption statement for visitors. Their control levels must be within normal limits.
- Any visitor or worker ascending for the first time must be accompanied by someone who has previously ascended.
- Anyone will be assessed according to ALMA standards. They may only ascend if on examination they present **normal** or **slightly high blood pressure**.
- Any recommendation given by paramedical staff should be adhered to, in order to enable the best possible adaptation to high altitude.
- The paramedic will provide information regarding risks and precautions to be taken by anybody who needs to ascend to more than 3000 meters a.s.l.
- The paramedic will inform the Safety Office of all those who have not been authorised to ascend.

Ranges for Vital Signs established by ALMA are as follows:

BLOOD PRESSURE

CATEGORY	SYSTOLIC	DIASTOLIC
NORMAL	<130	<85
NORMAL HIGH	130-139	85-89

HIGH BLOOD PRESSURE

CATEGORY	SYSTOLIC	DIASTOLIC
SLIGHT	140-159	90-99
MODERATE	160-179	100-109
SEVERE	180-209	110-119
DANGEROUS	> 0 = 210	> 0 = 120

People showing level classified as **MODERATE** with **DIASTOLIC < 100mmHg**, could ascend only when showing a medical certificate.

People showing levels classified as **SEVERE** or **DANGEROUS** will definitely not be authorised to ascend.



Oxygen saturation levels should vary between 80% and 100%. If they are between 80% and 70% the person should ascend with oxygen always when they are asymptomatic and have control levels within normal ranges.

If oxygen saturation is below 70%, the person should not ascend.

Pulse will be left to the paramedic's criteria in accordance to the check-up carried out.

Those people presenting the following characteristics must not ascend:

1. Systolic pressure greater than 160 mmHg without medical certificate.
2. Systolic pressure $>$ or $=$ 180mmHg.
3. Diastolic blood pressure $>$ or $=$ 100mmHg.
4. Heartbeat frequency greater than 95 per minute or lower than 45 per minute.
5. Under no circumstance a person with an oxygen saturation level below 70%, or below 80% when showing symptoms of headaches, dyspnea, tachycardia, blood pressure alterations.
6. Anyone with a blood pressure level less than that indicated in point 1, but showing symptomatic indications.
7. Any person in the camp or during the check-up who shows signs of altitude sickness (fatigue, dyspnea, headaches, sleep disruption, tachycardia, palpitations).
8. Patients with a history of AMI (acute myocardial infarction), without the authorisation of an attending heart specialist. The authorisation should expressly state that it is for an altitude level of 5000 meters.
9. Patients with a history of any form of cardiac insufficiency.

“Prophylactic” anti-hypertension treatment will not be administered.

Diabetic patients should be assessed via a hemogluco-test before ascending. Descompensated diabetic patients cannot ascend (a hemoglutotest above 200 mg/dl).

Prepared by Mauricio Guzmán and Daniel Sossa, ALMA paramedics.
Checked and approved by Dr Juan Pinto Robles, ACHS Doctor, Calama.

This protocol shall be continually reviewed and improved according to our last knowledge.



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14 - ALMA SITE SAFETY, SECURITY, HEALTH AND ENVIRONMENT (SSHE) RULES

I – ALMA SITE SSHE GENERAL ORGANIZATION:

ALMA Safety Office in charge of SSHE issues and establishes the rules and ensures their implementation.

The ALMA Safety Office includes:

- 1 Safety Manager in turno 5/2 Extension **6417 – Cell phone 08 230 3389**
- 1 Safety Officer in turno 7/7 Extension **6409 + Radio Canal 1**
- 1 Safety Officer in turno 7/7 Extension **6438 + Radio Canal 1**
- 1 Safety Officer in turno 5/2 Extension **6512 + Radio Canal 1**
- 6 Guards in turno 7/7 **Radio Canal 1 - Cell phone 09 884 4707**
- 1 Paramedic in turno 7/7 Extension **6400 + Radio Canal 1**

II – HYGIENE AND HEALTH:

Alcohol and drugs [See ALMA Safety Manual section 5.4.](#)

Among others:

- It is forbidden being under the influence of alcohol or illegal drugs on the ALMA site.
- It is forbidden to bring, store or sell alcoholic beverage or illegal drugs at the ALMA site.

Penalties:

For the first offend, the offender can no longer stay at the OSF or lodge there. If he stays in San Pedro, the guard will have instructions to give him an alcohol breath test when he arrives at the gate and again when he leaves the site.

Testing positive when he arrives on-site means no access for that day.

Testing positive at night when leaving the site means permanent banishment because it means somehow he drank alcohol while on-site.

- Drug test is required for all Contractors' new employees before their first working day. Any person registering a positive control shall be rejected immediately from ALMA premises.
- Non-prescription drugs are prohibited at all times.
- Random alcohol and drug tests may be performed at the entrance or on the ALMA site.
- Systematic alcohol tests shall be performed at the entrance on drivers carrying “dangerous” goods.
- Systematic alcohol tests shall be performed on drivers entering the site from 10.00 pm to 8.00am

Penalties

- Any person registering a positive control > 0.0 g/l for alcohol must not carry on any work on the ALMA site until he registers a negative control at the polyclinic.



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- Supervisors shall be informed of any positive results. The supervisor will be expected to take the appropriate measures.

III – TOBACCO:

- It is forbidden to smoke inside the buildings, rooms and places of the ALMA Project as well as all designated locations where it is clearly indicated.

- People smoking outside must use the ashtrays displayed and provided in the area.

Penalties:

- For the first complaint a warning and reminder is sent to the supervisor.

- For the second complaint the warning is repeated and formally sent to the contractor management.

- A third complaint results in dismissal from the site.

- In case there is evidence that someone disabled the smoke detectors or other serious offense for smoking it will result in dismissal from the site.

IV – DRIVING ON THE ALMA SITE: [See ALMA Safety Manual section 12.](#)

Among others:

- Any driver of any ALMA car or equipment must have the appropriate driving license.

- Safety belt is mandatory for all people in the vehicle.

- The drivers must respect the general commuting rules and the specifics ALMA rules like speed limits.

- Random speed controls are performed on the site.

- Sanctions shall be applied and will be a function of the severity of the offense.

* For the First offense: The driver will be prohibited from driving for one month at the ALMA site

* For the second offense: A permanent ban on driving at the ALMA site.

V – SAFETY INSTRUCTIONS:

- Every one must be familiar with and implement the Safety Instructions.

- ALMA Safety Manual: ALMA-10.08.00.00-011-C-MAN

- Conditions, Rules and Regulations for contractors: ALMA-10.00.00.00-004-C-PRO

- The Safety training is mandatory for every newcomer before beginning to work on the ALMA site.

- The high altitude medical visit is mandatory for every person before ascending above 3000m. The

Safety Office verifies the validity of the certificate.

- It is mandatory to visit the polyclinic before the first working day or visit over 3000m.

- It is mandatory to stay one night at the OSF or similar before working over 3000m.

- Bringing visitors over 3000m should be in compliance with the ALMA safety rules and ALMA Safety Office must be informed prior to any visit.



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VI - COMMUNICATION:

- Every employee working on the ALMA site must inform the Safety Office of any kind of danger to themselves, to other people or to the environment.
- If exposed to imminent or serious danger, every employee must withdraw from the danger after taking safe actions and inform the Safety Office.

VII – PROTECTION OF THE ENVIRONMENT:

- Every person working on the ALMA Site must take all precautions to avoid pollution of the ground, under ground, the air, the water.
- Everyone must take care of waste.
- Everyone must think to economize water and energy.
- Respect fauna, flora and archeology within the ALMA concession, ALMA territory and right of way.
- Do not use powerful lights during the night.

VIII – USE OF THE ALMA FACILITIES:

- Every person is responsible to take care of the ALMA facilities and equipment.
- Intentional or negligent destruction damages shall be charged to the responsible individual.

IX – PERSONAL EFFECTS OR OBJECTS:

- Personal objects or effects can be brought into the camp on the owner's responsibility and ALMA is not liable for damage or loss.
- It is not recommended to bring valuables to the Site. ALMA cannot be responsible for damage or robbery inside or outside facilities.
- Personal objects or effects should be stored in a safe closed place. Doors and cabinets must be locked.
- Alma reserves the right to control inside the dormitories, luggage, and personal belongings.

X – COHABITATION RULES:

- It is forbidden to make noise which could disturb other people after 11.00 pm.
- Guards at the OSF shall ensure compliance to this rule.



15 - USE AND ABUSE OF ALCOHOL, AND ALCOHOL AS A FACTOR OF WORK ACCIDENTS

Alcohol is a very old drug, which has been used in Medicine for ages. Nevertheless, nowadays it is considered as a drug associated to a very high risk of accidents. This is the reason why all throughout the world, driving drunk or under the effects of alcohol is seriously penalized.

The alteration produced by the alcohol, starts with very low levels in the blood, and is due to this that is very important to detect as fast and timely as possible. The tests available for measuring the alcohol levels through breathing, are comparable, on their results, with the ones obtained in blood samples (blood level of alcohol).

The effects are proportional to the alcohol levels in the blood, and they are progressive. They can be classified acute effects (of the moment) and long term effects (not curable illnesses).

The acute effects, depending on the alcohol levels in the blood, are the following:

- **0.2gr/l** Relaxation, lack of inhibition, false perception of safety when driving.
- **0.5gr/l** important relaxation, less alert, minor concentration, slight lack of coordination, decrease of the sense of responsibility and prudence. **(This limit is the one considered for serious offenses, as per the Chilean Traffic Law).**
- **0.8gr/l** Clear alteration of judgment and moving coordination, decrease of reflex and loss of reaction against common sensitive stimuli (ex: lights and movements).
- **1.0gr/l** Clear drunkenness, swinging during walking and in rest, decrease of muscular strength, talk and consciousness alteration.
- **4.0gr/l** Alcohol coma, death in most of the cases.

It is important to point out that the Chilean Traffic regulations, sanction all drivers that having over 0.0gr/l of alcohol in their blood, have signs and symptoms of drunkenness (alteration of their behavior, reflex or perception), which is considered as a serious offense, up to the level of 0.49gr/l. Nevertheless, over 0.5gr/l it is considered a serious offense and its sanction depends on the associated situation (accidents, deaths).

At the site, even though not all the workers must drive vehicles, some employees have machinery and equipment in charge, there are others who work at high altitude and/or supervise and lead groups of other workers. When including the effects of alcohol described above, we have a site which is low risk in terms of accidents, to become in a site where accidents may occur almost for sure.



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Within the long term effects, and that are not reversible, there is Hepatic Cirrhosis (hepatic damage due to alcohol), cardiac insufficiency, renal insufficiency and psychiatric disorders.

We must point out that the acute pulmonary edema, disease produced by a heart failure, which works as a pump, and causes the lungs to get “flooded” with liquid, producing the person to suffocate and lacking oxygen to the blood. Alcohol is one of the drugs which produce this failure to the heart, and if we add high altitude and the decrease of oxygen pressure, it is more than probable that this pathology appears. The control of this illness is very complex, and that is a reason why the prevention continues to be of major importance.

As a conclusion, it is clear that a person who has consumed alcohol is a risk at any job and work site, even if they have had a minimum consumption, due to a motorist and perception affected, and due to the same reasons, he/she should not be allowed to work, since he/se is putting not only him/herself in danger but the rest of the employees as well.

Prepared by: Dr. Roberto Aravena O.
Physician / Surgeon
RUT: 10.063.364-7

16 - STATEMENT AND WAIVER OF RESPONSIBILITY FOR VISITORS

Having requested and obtained, from the Director of ALMA-JAO, due authorization to enter the ALMA Project site, I hereby make the following statement and undertake the following obligations:

1. I have been informed that the ALMA Project, its Operations Support Facility (OSF) and other installations are located at an altitude of approximately 3.000 to 5.000 m above sea level and I agree to undertake any eventual risk on my health and assets thereof.
2. I also state that I am aware that visiting the ALMA Project may pose risks or hazards to my health. These risks might result from the nature of the area itself, its location, or from human error or negligence of persons who have scheduled or organized the activities or programs carried out on site. I also state I have read the medical information issued by ALMA, concerning health hazards derived from a visit to a high altitude site.
3. That as a result of these potential hazards I, as an authorized visitor, am aware I may suffer body injuries or serious illnesses, leading even to death.
4. I state I have been informed about the convenience of undergoing a medical test, by a physician, prior to my visit to the ALMA Project, in order to ensure that I do not suffer



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- from any health impairment that might render my stay, under high altitude conditions, hazardous.
5. I therefore declare I do not suffer from any physical or health impairment that prevents me from visiting high altitude sites, particularly at the altitude where the ALMA facilities are located.
 6. I agree that it is my responsibility to read and abide with all safety and protection regulations and instructions given orally, or in writing, by the ALMA personnel.
 7. Therefore, I accept to abide with all rules, regulations and all other instructions concerning Safety and Protection, mentioned in the above paragraph. Moreover, I accept full responsibility for any result or effects derived from my eventual non-compliance to the norms, regulations and instructions.
 8. In the event of any accident or emergency that might cause injury or any type of illness, I authorize the ALMA personnel or the person to whom ALMA has delegated this authority, to seek and take all emergency measures.
 9. Through this document I acknowledge that I forfeit the right to take any action, or pursue any claim, complaint or law suit of any nature whatsoever (*except when resulting from deceitful behavior or gross negligence of ALMA officials, staff, executives and other personnel*) resulting in harm or loss to myself or my assets, as a direct consequence of my visit to the ALMA Project.
 10. I hereby accept to repair and /or leave undamaged the ALMA Project, its offices, directors, executives, staff, contractors, cessionaries and personnel in general, for any harm, injury (including death) or loss, resulting directly or as a consequence of my conduct or activities within the ALMA facilities.
 11. I state I have been informed and agree, that I or any assets under my control (including vehicles) may be searched, at any moment, by the ALMA staff.
 12. I state I have read with attention, and am aware of all statements, obligations and waivers of responsibility included in this document and know the legal consequences that may result thereof. I agree and sign this document through my own free will and in a responsible manner.

This document will be valid for a year, as from the date of signature

NAME:

IDENTITY CARD N°:

COMPANY

PHONE:

ADDRESS:

DATE:

SIGNATURE:



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17 - STATEMENT AND WAIVER OF RESPONSIBILITY FOR CHAJNANTOR MEMBERS

Having requested and obtained, from the Director of ALMA-JAO, due authorization to use the ALMA roads, we hereby make the following statement and undertake the following obligations:

1. We have been informed that the ALMA Observatory, its roads, are located at an altitude starting approximately from 2.500 mt up to 5.000 mt above sea level and we agree to assume all responsibilities for any eventual risk on our Safety/health and assets thereof.
2. We also state that we are aware that using the ALMA road may pose risks or hazards to our health and safety. These risks might result from the nature of the area itself, its location, its state or from human error or negligence by persons using the ALMA roads. We also state we have read and understood the CWG policies and information issued by ALMA, concerning safety and health hazards derived from commuting to and from a high altitude site.
3. That as a result of these potential hazards we, as authorized users, are aware we may suffer body injuries or serious illnesses, leading even to death.
4. We state we have been informed about the convenience of undergoing a medical test, by a physician, prior to ascending to Chajnantor Plateau, in order to ensure that our authorized staff does not suffer from any health impairment that might render their stay, under high altitude conditions, hazardous.
5. We therefore declare our staff does not suffer from any physical or health impairment that prevents them from ascending high altitude sites, particularly at the altitude where the ALMA roads are located.
6. We agree that it is our responsibility to know and abide by the ALMA road safety regulations and Chilean code.
7. Therefore, we accept to abide by the ALMA internal regulations and other instructions concerning Safety and Protection. Moreover, we accept full responsibility for any result or effects on our assets and personnel or on those of ALMA derived from our eventual non-compliance with the norms, regulations and instructions.
8. In the event of any accident or emergency that might cause injury or any type of illness, we authorize the ALMA personnel or the person to whom ALMA has delegated this authority, to seek and take all emergency measures.



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9. Through this document we renounce to take any action, claim, complaint or law suit of any nature whatsoever (except when resulting from deceitful behavior or gross negligence of ALMA officials, staff, executives and other personnel) resulting in harm or loss to us or our assets, as a direct consequence of using the ALMA roads.
10. We hereby accept to repair and /or leave undamaged the ALMA Observatory, its offices, staff and contractors, for any harm, injury (including death) or loss, resulting directly or as a consequence of our conduct on the ALMA concession.
11. We state we have been informed and agree, that both our organization and any assets under our control (including vehicles) may be searched, at any moment, by authorized ALMA staff.
12. We state we have read with attention, and are aware of all statements, obligations and waivers of responsibility included in this document and know the legal consequences that may result thereof. We agree and sign this document in a responsible manner.

This document will be valid for one year, as from the date of signature.

COMPANY NAME:

IDENTITY CARD N°:

PHONE:

ADDRESS:

DATE:

SIGNATURE: