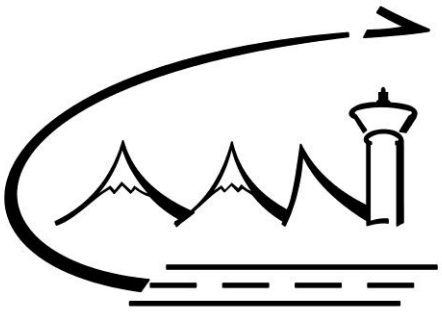

Civil Aviation Authority of Nepal

Procedure for Continuing Surveillance Inspection At Aerodromes

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CIVIL AVIATION AUTHORITY OF NEPAL
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CIVIL AVIATION REQUIREMENTS 14 – I
Aerodromes - 003 **EFFECTIVE: FORTHWITH**
(CAR AD – 003)

Subject: Procedure for Continuing Surveillance Inspection at Aerodromes

1 INTRODUCTION

An Aerodrome certificate holder is expected to comply with the Rules laid down in the CAAN Airport Certificate Regulations (ACR) 2004 and Standards and Recommended Practices of Manual of Standards of Nepal (MASN), Volume I - Aerodrome Design and Operations. There may be some circumstances where regular, special surveillance, internal and external audits, etc. are required at an aerodrome for safety and improvement of its facilities. These situations require CAAN to have procedures for surveillance in respect of an aerodrome being issued with a certificate.

This CAR is issued under Rules 42 and in accordance with the provisions contained in Rule 29 and 31 of the CAAN ACR 2004. This CAR stipulates the procedures for continuing surveillance inspection at aerodromes to maintain facilities as per Rules detailed in the CAAN ACR 2004 and SARPs of MASN, V-I and SMS Manual of Tribhuvan International Airport.

2 PURPOSE

The purpose of this CAR is to ensure safety of the existing facilities and maintain systematic records and a process to notify the concerned departments/divisions/sections to rectify the deficiencies which do not conform to all the specifications contained in the MASN V-I.

3 BACKGROUND

a. While some hazardous airport conditions develop virtually instantaneously, others are gradual. It is important that the airport operator have an airport safety surveillance self-inspection program that monitors specific airport conditions in order to identify unsatisfactory conditions for prompt corrective actions. The programs vary in scope and effectiveness from verbal instructions and unscheduled and unrecorded inspections to very comprehensive inspection programs with multiple daily schedules and widely distributed responsibilities.

b. The self-inspection program is a key component of an airport operator's airport certification program. Airport Certificate Regulation – 2061 (2004) defines when an airport certificate must be obtained:

(1) The operator of the airport that may be used for public purpose as per the national need must obtain the Airport Certificate.
(2) The Airport Certificate must be obtained to operate international public air transportation service at any airport of the Kingdom of Nepal.
(3) An application may also be submitted for the airport certificate to operate domestic airport except as referred to in sub-rule (2).

c. The operator of certificated airport is required regularly to conduct scheduled, continuous surveillance, periodic and special inspections, and a daily safety self-inspection to ensure that prompt corrective action is taken to eliminate unsafe conditions on the airport. The specific requirements of the inspection program at each certificated airport are addressed in the airport aerodrome certification manual. This guideline suggests components, responsibilities and items for regularly scheduled, continuous surveillance, periodic condition and special inspections, and checklists for use during any of these airport safety inspections. This guidance can be modified as necessary to meet specific local situations.

4 RESPONSIBILITIES

a. Safety Self-Inspection. Self-inspection is a primary responsibility of the chief of the airport, e.g., General Manager TIACAO. Primary attention should be given to such operational items as pavement areas, safety areas, markings, signs, lighting, aircraft rescue and fire fighting, fueling operations, navigational aids, ground vehicles, obstructions, public protection, wildlife hazard management, construction, and snow and ice control. Inspection of areas that have been assigned to individual air carriers, fixed base operators, or other tenants can be made the responsibility of the user. However, the certificate holder is ultimately responsible for operating the airport safely.

b. **Recommended Inspection Frequency**

(1) Regularly scheduled inspection. The airport should be inspected daily during times when aircraft activity is minimal in order to create the least impact on airport operations. Part of this inspection should be done during the hours of darkness at those airports that serve air carriers after dark.

(2) Continuous surveillance inspection. Those activities and facilities that have been identified to require continuous surveillance should be inspected any time personnel are in the air operations area. Hazardous conditions can occur at any time and in a short period of time. Director General can approve a schedule of inspection as per the need of the situation at the particular airport, e.g., as a continuing surveillance inspection program, DG CAAN has approved an inspection of six times per year. Such schedule of inspection will remain in force till cancelled.

(3) Periodic condition inspection. Periodic condition inspection of activities and facilities can be conducted on a regularly scheduled basis but less frequently than daily. The time interval could be weekly, monthly, or quarterly, depending on the activity or facility. According to Airport Certificate Regulation – 2061 (2004) a safety audit should be carried out once every 12 months.

(4) Special inspection. Special inspections of activities and facilities should be conducted after receipt of a complaint or when an unusual condition or unusual event occurs on the

airport, such as a significant meteorological event or an accident or incident. Special inspections should also be conducted at the end of construction activity to ensure that there are no unsafe conditions present related to the construction activity. A special inspection should be conducted prior to construction personnel leaving the airport in the event that corrective actions are necessary. Special inspections should be documented on the appropriate portions of the regularly scheduled inspection checklist.

c. **Inspection Records.** An effective safety self-inspection program includes procedures for reporting and correcting deficiencies. This means that the airport operator should have a work order system in place so that deficiencies can be corrected in an expeditious manner.

1. The operator should issue a Notice to Airmen (NOTAM), as appropriate, through AIS Division reporting deficient conditions that could have an immediate and critical impact on the safety of aircraft operations. When corrective actions have been taken, the NOTAM should be cancelled.

2. For even the smallest airport, it is desirable to use a safety self-inspection checklist that constitutes a written record of conditions noted, and acts as a check on follow-up actions taken. The scheduled use of a dated checklist will assure the regularity and thoroughness of safety inspections and follow-up. The checklist can be an important administrative tool for airport management. It can provide a snapshot of the condition of the airport, indicating trends, defining problem areas, indicating systems that are beginning to deteriorate and helping to define budgetary requirements. It is most desirable to use a format (see examples, Appendices 1–5) in which each inspected area of the airport complex is positively noted. Retain the checklist until indicated actions are completed. However, the regularly scheduled inspection checklist should be the basic log documenting that safety inspection responsibilities are being met.

d. **Follow-up.** The airport operator should follow up on complaints or requests for corrective action and on all deficient items or problem areas noted during the daily inspection. Determine which problems require immediate attention and treat those with highest priority, including developing appropriate NOTAM notification.

5 INSPECTION TECHNIQUES.

Inspectors should vary the pattern of the inspection. Fixed inspection patterns, while easy to learn, do not provide for an adequate inspection. The use of such fixed inspection patterns can lead to complacency and to the possibility of missing items that are in need of correction. When conducting an inspection on a runway and when there is time to do only one pass on that runway, inspection personnel, whenever practical, should drive towards the direction of landing aircraft with high intensity flashing beacon and headlights on day and night. This practice will enable self-inspection personnel to see approaching aircraft and improve visibility of the vehicle to pilots. However, it is recommended that a runway inspection be done in both directions. Inspection personnel should also drive the stub taxiways between the runway and parallel taxiway as these areas are commonly overlooked.

6 KNOWLEDGE AND EQUIPMENT FOR SELF-INSPECTION.

a. Airport personnel who conduct safety self-inspections (referred to as inspectors) should receive training in at least the following areas:

1. Airport familiarization, including airport signs, marking, and lighting;

2. Obstruction Limitation Surfaces
3. Pavement design, drainage system
4. Airport Emergency Plan (if the airport has one);
5. Notice to Airmen (NOTAM) notification procedures;
6. Procedures for pedestrians and ground vehicles in movement areas and safety areas;
7. Airport inspection procedures and techniques; and
8. Discrepancy reporting procedures.

b. Inspectors should know the location and types of airport facilities, airport rules and regulations and be familiar with the Aerodrome Certification Manual.

c. Inspectors should have a vehicle equipped with:

1. a two-way ground control radio capable of communicating with the Airport Traffic Control Tower on controlled airports;
2. a beacon for nighttime (or inclement weather conditions) inspections; and
3. either a beacon or checkered flag for daytime inspections.

d. Inspectors should know and use correct radio communication phraseology, procedures and techniques, as specified in the Aeronautical Information Manual.

e. Inspectors should be supplied with checklists covering the various inspection areas (sample airport safety self-inspection checklists are contained in Appendices 1–5). While format of checklists vary, it is important to develop a checklist that is useful for the airport and its operation. If certain inspectors will be responsible for only certain items, separate checklists pertinent to those areas may be developed. A sketch of the airport should accompany the checklist so that the location of problems can be marked for easy identification.

f. Inspectors should review the most recently completed checklist from the previous inspection cycle prior to beginning the inspection.

g. If construction is in progress, inspectors should be familiar with the safety plan for the project.

h. Inspectors should be familiar with the aerodrome certification manual requirements.

7 COMPONENTS OF A SAFETY SELF-INSPECTION PROGRAM

A successful safety self-inspection program has four components:

a. A regularly scheduled inspection of physical facilities (which must be conducted daily at airports certificated under Airport Certificate Regulation – 2061 (2004). If the airport serves air carriers after dark, there should also be a nighttime inspection of lighting;

b. Continuous surveillance inspection of certain airport activities, such as fueling operations, construction, airfield maintenance;

c. A periodic condition inspection program for such things as surveying approach slopes, obstructions, etc.; and

d. Special condition inspections during unusual conditions or situations, such as changing weather or days of unusually high number of aircraft operations.

8 REGULARLY SCHEDULED INSPECTION.

The regularly scheduled inspection consists of specific observations of airport physical facilities on at least a daily basis. This inspection should concentrate on the areas described in this section, which are also included in Appendix 1. If deficiencies exist, the inspector should indicate the deficient item and identify its location on an airport sketch, providing dimensions and depths, as necessary. If appropriate, the inspector should take photographs to document the condition.

a. Pavement Areas. The condition of pavement surfaces is an important part of airport safety. Pavement inspection should be conducted daily before flight operations commence to ensure pavement surfaces are clear. As a minimum, a daily inspection should be performed of all paved areas that are the responsibility of the airport operator. During the pavement inspection, the inspector should:

(1) Check the pavement lips—the area between full-strength pavement and shoulders or paved shoulders and safety areas—to assure that they are no greater than necessary to allow water to drain off the pavement. A lip height no greater than 1 1/2 inches is usually sufficient to allow proper drainage.

(2) Determine if there are any cracks wide enough to cause directional control problems for an aircraft. Report and monitor these cracks.

(3) Determine if there are any holes that could cause directional control problems for an aircraft. (any hole that cannot be covered by a 5-inch circle, and the side slope at any point in the hole that exceeds 3 inches in depth and is 45 degrees or greater, is a discrepancy. If the hole cannot be covered by a 5-inch circle but the side slope at any point in the hole that exceeds 3 inches in depth or is less than 45 degrees, it may be a discrepancy if it is determined to be a surface variation that could impair directional control of an air carrier aircraft.)

(4) Check the condition of pavement areas for cracks, scaling, sapling, bumps, low spots, and for debris that could cause foreign object damage to aircraft.

(5) Check for vegetation growth along runway and taxiway edges that may impede drainage from the pavement surface.

(6) Check for vegetation growth in cracks.

(7) Report and monitor any cracks, holes, variations and vegetation that can cause loss of aircraft directional control or may cause pavement damage, including damaged caused by damming or ponding water.

b. Safety Areas. The inspector should know the dimensions of the runway and taxiway safety areas at the airport. The dimensions of the safety areas should be documented in the aerodrome manual. During the safety area inspection, the inspector should:

(1) Determine if there are any hazardous ruts, depressions, humps or variations from the normal smooth surface.

(2) Check to ensure no object is located in a safety area, except objects that must be in the safety areas because of their functions (such as runway lights, signs, or navigational aids). These objects must be constructed on frangibly mounted structures of the lowest practical height. The frangible point must be no higher than 3 inches above grade.

(3) Determine if the base for any equipment in safety areas is at grade level (especially during the winter thaw) and equipment and NAVAIDs mounted on frangible couplings.

(4) Check to ensure that manhole and handhole covers are at grade level and can support vehicles and aircraft. Check to ensure that mounts for light fixtures are at grade level.

(5) Check for surface variation and other damage caused by rodents or other animals.

(6) Report any objects that are not frangible or not at grade level. Also report extraneous equipment and objects, such construction equipment, and surface variations that would cause damage to an aircraft or impede emergency response vehicles.

c. Markings. Airport markings provide important information to pilots during takeoff, landing, and taxiing. To avoid confusion and disorientation, airport markings should be in compliance with MASN Volume I. The inspector should know the appropriate markings required at the airport. During the marking inspection, the inspector should:

(1) Check markings for correct color-coding, peeling, blistering, chipping, fading, and obscurity due to rubber buildup.

(2) Check to see if all runway hold position markings are clearly visible.

(3) During and after construction projects, check new markings for compliance with FAA marking standards.

(4) If the markings have glass beads, check markings during periods of darkness to determine if the reflectivity of glass beads is adequate at night.

(5) Report and monitor any nonstandard marking or markings that are obscured, faded or deteriorating.

d. Signage. Signs provide important information to pilots while taxiing. To avoid pilot confusion and disorientation, airport signs should be in accordance with MASN Volume I. The inspector should know the appropriate signage standards and specifications at the airport and

(1) Check signs to ensure they are easy to read, in accordance with color standards, retro-reflective, and that all lighted signs are working and not obscured by vegetation, dirt, snow, etc.

(2) Check signs to ensure they are frangibly mounted and concrete bases are properly maintained at grade level.

(3) Check to see that sign panels are not missing or damaged, that they have the correct legend and arrow orientation, and that they are not cracked or broken.

(4) During and after construction projects, check new signs for compliance to MASN Volume I.

(5) During periods of darkness, check signs to ensure they are properly illuminated. Ensure mandatory instruction signs are illuminated with the associated runway lighting system. Check signs for correct operations; that they are on the correct circuits, they do not flicker and that they follow the intensity setting of the runway or taxiway lights.

(6) Report and monitor any nonstandard sign or any sign that is not functioning, is faded or damaged.

e. Lighting. At night and during periods of low visibility, lighting is important for safe airport operations. Inspection of lighting is best accomplished during periods of darkness in order to evaluate lighting systems when they provide the primary visual aid for pilots. The inspection should concentrate on the lighting owned by the airport operator. However, the inspector should observe any lighting owned or operated by others and report any observed problems immediately to the appropriate responsible owner. During the lighting inspection, the inspector should:

(1) Check to ensure that the following are operable, if installed, and that vegetation or deposits of foreign material do not obscure the light fixture.

(i) Runway and taxiway edge lights;

(ii) Apron edge lights;

(iii) Runway centerline and touchdown zone lights;

(iv) Taxiway centerline lights or centerline reflectors;

(v) Runway threshold/end lights; and

(vi) Runway guard lights (both elevated and in-pavement, if installed).

(2) Check that the following are operable, if installed:

(i) Ramp lights and floodlights used in construction to ensure they are properly shielded);

(ii) Obstruction lights; and

(iii) Lighting in fuel storage areas.

(3) Report all fixtures missing and lights that are not working or appear dim.

(4) Report any missing or broken light fixture lenses.

(5) Ensure that runway and taxiway lights and runway threshold lights are the proper color and are oriented correctly.

(6) Check that lights function properly through the manual or radio control features, and that photocell controls function properly.

(7) Check the lights for proper alignment, aiming and correct changes in intensity, for correct height, erosion around the bases and the height of frangibility.

f. Navigational Aids (NAVAIDs). The inspection of NAVAIDs should concentrate on the visual navigational aids owned by the airport operator. During the inspection of NAVAIDs, the inspector should:

(1) Determine if the segmented circle is clear of vegetation and that it can be seen easily from the air.

(2) Determine if the airport rotating beacon is visible and working properly.

(3) Check the wind cone(s) to ensure that it swings freely, the cone fabric is not faded or frayed, and, if lighted, that all lights are operating.

(4) Determine if the Runway End Lights (RENLs) are flashing in proper sequence and mounted on frangible couplings.

(5) Check Visual Glide Slope Indicators (VASIs, PLASIs, or PAPIs) to ensure that their lights are working and mounted on frangible couplings.

(6) Determine if the Approach Lighting systems are functioning properly.

(7) Report and monitor any NAVAID that is malfunctioning, inoperable or misaligned, damaged or missing.

g. Obstructions. The inspection of obstructions should concentrate on a visual check of construction underway on or near the airport that could affect aircraft operations. This also

includes checking for any vegetation, especially, trees that may penetrate the obstruction limitation surfaces. During the inspection of obstructions, the inspector should:

(1) Check to ensure that construction equipment, especially tall cranes being used at construction sites, are not an obstruction. If construction is found and thought to create an obstruction, the airport operator should determine if proper notification to CAAN or Airport Layout Plan review, has been provided.

(2) Determine if obstructions are properly marked and lighted.

(3) Direct any person proposing construction near a public-use airport infringing the obstruction limitation surfaces to CAAN or airport Civil Aviation Office immediately.

(4) Report and monitor any obstruction light that is missing, inoperative or damaged, and any object that appears to be an obstruction and is not properly marked or lit.

h. Fueling Operations. The daily inspection on aircraft fueling operations should concentrate on a quick inspection for the most common problems concerning compliance with local fire safety codes at fuel storage areas and with mobile fuelers. The inspection should also include security, fire protection, general housekeeping, and fuel dispensing facilities and procedures. A more detailed fueling operation inspection should be scheduled quarterly (see Quarterly Fueling Operations under Periodic Condition Inspection). During the daily inspection of aircraft fueling operations, the inspector should:

(1) Determine if the fueling operator is permitting any unsafe fueling practices or is in violation of local fire code, such as failure to bond aircraft with the mobile fuelers during fueling operations or fueling personnel smoking while fueling aircraft.

(2) Check to ensure that the appropriate signs for the fuel farm are installed and that all gates are locked except when the facility is occupied by an authorized user.

(3) Report and monitor any unsafe fueling practices and violation of local fire codes.

i. Snow and Ice. The inspector should be familiar with the airport's snow and ice removal procedures, if applicable. During the snow and ice control inspection, the inspector should:

(1) Determine if any lights and signs are obscured by snow or damaged by snow removal operations.

(2) Check to ensure that snow banks and drifts next to the runway and taxiways provide clearance for aircraft wing tips, engines, and propellers.

(3) Check to ensure that snow is not piled across the runway threshold or across runway/runway intersections.

(4) Check to be sure that no foreign objects are left on the pavement from snow removal operations.

(5) Check to ensure that snow removal operations have not blocked any taxiways or access routes dedicated for aircraft rescue and firefighting equipment.

(6) Check to ensure that snow is not accumulated or piled in the critical areas for electronic NAVAIDs.

(7) Check for and report slippery pavement conditions in terms of either braking action or MU values. If a friction measurement device is available, issue the appropriate numbers obtained from the equipment.

(8) Report and monitor any snow and ice accumulation that has been missed by the snow and ice removal operation, and any dangerous condition created by such operations, such as obscured signs or lights.

j. Construction. The inspector should be familiar with the airport's construction safety procedures and guidance during airport construction. During the construction inspection, the inspector should:

(1) Determine if stockpiled material and construction materials are properly stored to keep them from being moved by wind, jet blast, or prop wash, and is not left in safety areas or movement area.

(2) Check all construction adjacent to movement areas to ensure areas are identified with conspicuous marking and lighting.

(3) Determine if construction equipment (such as bulldozers, cranes, etc.) are marked and lighted and parked clear of the safety areas.

(4) Ensure construction barricades are properly positioned to define the limits of construction and hazardous areas and, if barricades are lighted, check to ensure lights are working properly and are positioned correctly.

(5) Check to ensure that debris and foreign objects are continuously being picked up around construction areas.

(6) Check for open trenches in the safety areas or adjacent to movement areas.

(7) Check operation of lighting in areas adjacent to construction daily before the construction crews depart for the day. In particular, ensure that mandatory instruction signs remain lit with the associated runway lights, even on taxiways that have been closed for construction.

(8) Check NOTAMs daily during construction projects to ensure they accurately reflect the conditions on the airport.

(9) Verify that closed taxiways or runways are properly marked and lighted.

(10) Report and monitor any dangerous condition created by construction activity, including damage to signs, lights, markings and NAVAIDS or equipment and supplies left in movement areas and safety areas.

k. Aircraft Rescue and Fire Fighting. During the inspection of rescue and fire fighting (RFF) capabilities, the inspector should:

(1) Check the status of RFF response, including the availability of equipment, fire fighters and extinguishing agent. Ensure that such RFF capabilities comply with the approved Aerodrome Certification Manual and that the airport's fire category is still appropriate for air carrier aircraft served.

(2) Ensure alarm and emergency notification communication systems are operable.

(3) Determine the adequacy of available fire extinguishing agents.

(4) Check for construction or maintenance activity on the movement area that could affect RFF response routes. Ensure that the RFF Department has been notified if construction or maintenance activity could affect emergency response routes.

(5) Report and monitor any RFF vehicle, equipment or extinguishing agent that is not available or inoperative; any RFF personnel that are not available; and any changes to aircraft that may require a change to RFF capabilities. Notify airport authority and CAAN if RFF vehicles is inoperative and cannot be replaced immediately, as specified under Aerodrome

Manual and issue a NOTAM regarding non-availability of any rescue and firefighting capability, as specified under Aerodrome Manual.

l. Public Protection. During the public protection inspection, check gates, fencing, locks, and other safeguards are in place and functioning properly to prevent inadvertent entry to movement areas by unauthorized persons and vehicles and offer protection from jet blast. Report and monitor any safeguards that are damaged or missing. In accordance with the airport's security plan, report unauthorized persons or vehicles in the movement area.

m. Wildlife Hazard Management. During the wildlife hazard inspection, the inspector should check for evidence of birds or animals on the runways, taxiways, aprons, and ramps or other signs that wildlife problems may have developed - such as large flocks of birds on or adjacent to the airport. Wildlife hazards found during the daily self-inspection should be properly documented. All dead wildlife found and all wildlife aircraft strikes should be reported to the CAAN on form specified in table 4.1 of Aerodrome Manual. Additionally, the inspector should check fencing and gates for wildlife accessibility and should ensure that wildlife control equipment is available and operational.

9 CONTINUOUS SURVEILLANCE INSPECTION

Continuous surveillance inspection consists of general observation of activities for compliance with regulations, procedures, etc., as well as abnormalities with physical facilities that are readily apparent. This is performed any time inspection personnel are on the air operations area. Continuous surveillance of airport physical facilities and activities should cover at least the areas described in this section, which are also included in Appendix 2.

a. Ground Vehicles. During the continuous surveillance inspection of ground vehicles, the inspector should:

1. Determine if vehicle drivers are following the airport's procedures and arrangements for the orderly operations of ground vehicles (including mowing machines or other maintenance vehicles in the safety areas). Extra attention should be paid to ground vehicle activity during construction, winter operations, and other special events.

2. Report and monitor any vehicle operator that is not complying with the airport's vehicle procedures and arrangements.

3. Report any ground vehicle accident observed and any ground vehicle signs and markings that are damaged, missing or obscured.

b. Fueling Operations. The inspector should:

(1) Emphasize fire and explosion hazards inherent in aircraft refueling.

(2) Ensure proper bonding is being used, deadman controls are not blocked, and no smoking prohibitions are being observed, and aircraft are not being fueled inside hangars.

(3) Check for proper parking of mobile fuelers to ensure these vehicles are at least 3 m (10 feet) apart and 15 m (50 feet) from buildings.

(4) Check for fuel leaks or spills in the fuel storage area and around mobile fuelers.

(5) Determine if the fuel farm is free of flammable materials, including litter and vegetation.

(6) Report and monitor any of unsafe fueling conditions discussed above and other obvious violations of local fire code and airport fuel fire safety procedures.

c. Snow and Ice. During the continuous surveillance inspection of snow and ice removal operations, the inspector should check snow or ice covered pavements and report and monitor any surfaces where snow and ice may affect the safety of aircraft operations. In addition, the inspector should monitor snow and ice removal NOTAMS to ensure they remain current and issue timely corrections, as necessary. If the airport uses other means to notify tenants of snow and ice removal operations, e.g., faxed or electronic messages, the inspector should also monitor this information for accuracy. Check to ensure that snow or ice on pavement surfaces does not affect the safety of aircraft operations and that NOTAMS are current.

d. Construction. The Inspector should check construction projects to ensure that the contractor is following the construction safety plan. During the continuous surveillance inspection of construction activity, the inspector should check for, and report, any of the following conditions:

(1) Unauthorized use of runways, taxiways, and aprons by construction personnel and equipment.

(2) Conditions that may result in runway incursions and other irregularities. This includes ensuring that construction areas are delineated appropriately with barricades, cones, markings, etc.

(3) Construction equipment is not operated in NAVAID critical areas unless coordination with NAVAID department/division/section of the airport has been accomplished.

(4) Perimeter gates are left open and unattended, unlocked or construction vehicles and personnel are not following access and escort procedures.

(5) Construction vehicles not properly marked or missing appropriate flags and/or beacons.

(6) Foreign object debris on haul roads adjacent to movement areas that can be tracked onto taxiways, aprons, and ramp areas.

(7) Confusing or missing signs, markings or lighting that could potentially confuse or mislead pilots.

(8) Barricades and lighting are in place and operational.

e. Public Protection. Pay special attention to public protection during construction and special events. During the continuous surveillance inspection of safeguards used to protect the public, the inspector should check for, and report, any of the following conditions:

(1) Unauthorized personnel, vehicles, and animals, particularly in areas aircraft passengers and the general public are present on the air carrier ramp and other portions of the movement area, i.e, remote aircraft parking locations.

(2) Inoperable or blocked gates, particularly those that would impede access by aircraft rescue and firefighting equipment.

(3) **O**pen or unlocked gates and missing or damaged signs posted to prevent unauthorized access to the airfield.

(4) Damaged or missing jet blast fences.

f. Wildlife Hazard Management. During the continuous surveillance inspection of wildlife hazards, the inspector should check for, and report, any of the following conditions:

(1) Birds or animals, such as dogs, deer, etc., on or adjacent to the runways, taxiways, aprons, and ramps to determine if there is a potential wildlife hazard problem.

(2) Potential hazard created by birds on or adjacent to the airport.

(3) Wildlife strikes and carcasses found on the runways. Report these to the CAAN on form specified in table 4.1 of Aerodrome Manual.

g. Foreign Object Debris (FOD). The inspector should continuously check for, and remove any FOD in movement areas, aircraft parking areas and loading ramps.

10 PERIODIC CONDITION INSPECTION

Periodic condition inspections consist of specific checks of physical facilities on a regularly scheduled basis (but less frequently than daily). Checks may require use of equipment (e.g., Walker Bar to measure VASI glide slope angles or transit to survey approach slopes, or continuous friction measurement equipment) or checking specific features of physical facilities. Periodic inspection of airport physical facilities and activities should cover at least the areas described in this section, which are also included in Appendix 3.

a. Pavement Areas. The inspector should check pavement surfaces for rubber buildup, polishing, or other items affecting friction.

b. Markings. The inspector should:

(1) Check pavement markings to ensure they are correct and clearly visible. Markings on concrete and faded asphalt should be outlined with a black border.

(2) Determine if markings are visible at night; especially examine for rubber buildup in the touchdown zone areas.

c. Signs. The inspector should check sign faces for peeling and for fading or faded colors.

d. Quarterly Fueling Inspections. Aerodromes Certified under Airport Certificate Regulation – 2061 (2004) are required to establish fire safety standards for safe fueling operations and conduct quarterly inspections of the fueling facilities. Sample quarterly inspection checklists for fuel storage areas and mobile fuelers are included in Appendix 5. Typical fire safety standards to inspect quarterly are listed below. Aerodromes certificated under Airport Certificate Regulation – 2061 (2004) are required to maintain a record of this inspection for at least 24 months.

(1) Fuel storage areas and loading/unloading stations. The inspector should:

(i) Check fuel storage areas for adequate fencing and security to prevent unauthorized access or tampering.

(ii) Check for "No Smoking" signs that are clearly visible.

(iii) Check fuel storage areas for materials such as trash or vegetation that could contribute to the spread of fire. Also check for equipment, functions or activities that could be ignition sources.

(iv) Note if fueling equipment appears to be in good operating condition and free of fuel leaks.

(v) Check piping for reasonable protection from damage by vehicles if piping is above ground.

(vi) Check fuel storage areas for at least two accessible and serviceable fire extinguishers.

(vii) Check for explosion proof equipment, switches and wiring that is reasonably protected from heat, abrasion or impact, which could cause an ignition source.

(viii) Check for piping, filters, tanks and pumps being electrically bonded together and interconnected to an adequate grounding/earthing rod.

(ix) Check loading stations for deadman control features.

(x) Look for a boldly marked emergency cutoff capable of stopping all fuel flow with one physical movement. The emergency cutoff should be located outside the probable fuel spill area near the route that normally is used to leave the spill area or to reach the fire extinguishers.

(2) Mobile fuelers. At least once every 3 months, inspect all fuel trucks to ensure they meet fire safety standards. The inspector should:

(i) Note if mobile fuelers appear to be in good operating condition and free of fuel leaks.

(ii) Check mobile fuelers for parking at least 15 m (50 feet) from a building and at least 3 m (10 feet) from each other.

(iii) Check for flammability labels on all sides. Lettering should be at least 3 inches high. Also check for hazardous materials placards on all sides.

(iv) Check the cab for a "No Smoking" sign and the presence of smoking equipment. Ashtrays and cigarette lighters are not to be provided.

(v) Check for two fire extinguishers, accessible from each side of the mobile fueler. Fire extinguishers should be charged, sealed and tagged from the last fire extinguisher inspection.

(vi) Check emergency fuel cutoffs to ensure they are boldly marked and operable. There should be an emergency fuel cutoff accessible from each side.

(vii) Check electrical equipment, switches, wiring and tail light lens covers for explosion proof construction and reasonable protection from heat, abrasion or impact which could be an ignition source.

(viii) Check for serviceable bonding wires and clamps.

(ix) Check nozzles for deadman control feature.

(x) Check the vehicle exhaust system for exhaust leaks and for adequate shielding if it extends under the fuel tank portion of the vehicle.

e. Navigational Aids. Periodically check the aiming of REILs and Visual Glide Slope Indicators.

f. Lighting. The inspector should:

(1) Determine that power generator and circuit resistance tests are being conducted.

(2) Ensure lights with adjustable optical systems are checked for proper aiming.

g. Obstructions. The inspector should:

(1) Check to ensure there are no overhead power lines in the aircraft parking areas.

(2) Annually survey trees and other structures near the airport that could affect glide path angles, approach light lanes, or intruding Obstruction Limitation Surfaces.

h. Aircraft Rescue and Fire Fighting. The inspector should:

(1) Periodically determine if the aircraft rescue and firefighting equipment is capable of meeting response times.

(2) Ensure that recurrent training and hot-fire drills are being conducted.

(3) Check to ensure the availability of adequate entry tools.

11 SPECIAL CONDITION INSPECTIONS. Special condition inspections occur after receipt of a complaint or as triggered by an unusual condition or event. A special inspection should be conducted after an accident or incident. Depending upon circumstances, special condition inspections may include the inspection of any of the specific facilities or activities under the other three components. A special condition inspection of airport physical facilities and activities should cover at least the areas described in this section, which are also included in Appendix 4.

a. Pavement Areas. After a rain or thunderstorm, the inspector should check the pavement areas for ponding and edge damming.

b. Markings and Signs. The inspector should:

(1) Determine if markings are visible at night especially when the pavement is wet following a rain.

(2) After construction or maintenance operations, ensure that pavement markings are correct.

c. Safety Areas. The inspector should:

(1) Ensure that the storm sewer system is checked to verify that inlets are not clogged and drainage channels are free of debris. Note any standing water.

(2) Ensure all inlet covers are in place and sewer covers are at grade level.

(3) Conduct a special inspection before reopening a runway or taxiway following any construction or maintenance that has been performed in or around that safety area.

(4) Any time an aircraft has left the pavement and entered a safety area, check to ensure that no ruts or holes have been made by the aircraft tires or by personnel and equipment during the recovery operation.

(5) Check for construction and maintenance activities to ensure that no hazardous conditions have been created.

(6) Physically drive or walk the safety areas to check for any discrepancies.

d. Snow and Ice. Several special inspections may be needed during a winter storm until the airport is back to a normal operation. The inspector should:

(1) Check to ensure that all foreign objects have been picked up after snow and ice removal operations.

(2) If a friction measurement device is available, issue the appropriate numbers obtained from the equipment.

(3) Conduct a special sign inspection after snowstorms for signs that may have been damaged by plows or by snow thrown by blowers.

e. Construction. The inspector should:

(1) Ensure that construction areas are barricaded and lighted properly.

(2) Check construction equipment to ensure that they are parked within the pre-arranged areas.

(3) Conduct night inspections to ensure that barricades, warning lighting, and reflectors are adequate to keep aircraft away from the construction area.

(4) Check the location of construction material and stockpiles to ensure that they are outside of safety areas and do not block any signs.

(5) Check any movement areas adjacent to construction areas or movement areas traversed by construction vehicles to ensure there is no FOD present.

(6) Check movement areas around construction sites for potentially confusing marking, lighting, and signs that could cause pilot confusion or result in a runway incursion.

f. Surface Movement Guidance and Control Systems (SMGCS).

(1) For operations below 1,200 feet runway visual range, the inspector should conduct an initial inspection of stop bar lights, runway guard lights, clearance bar lights, taxiway centerline lights, and taxiway edge lights installed on the low visibility routes in accordance with the airport's SMGCS plan.

(2) SMGCS lighting systems that are not electronically monitored should be periodically inspected every 2 to 4 hours for during operations below 1,200 feet to 600 feet. For operations below 600 feet, these inspections should take place every 2 hours. Such inspections should be detailed in the airport's SMGCS plan.

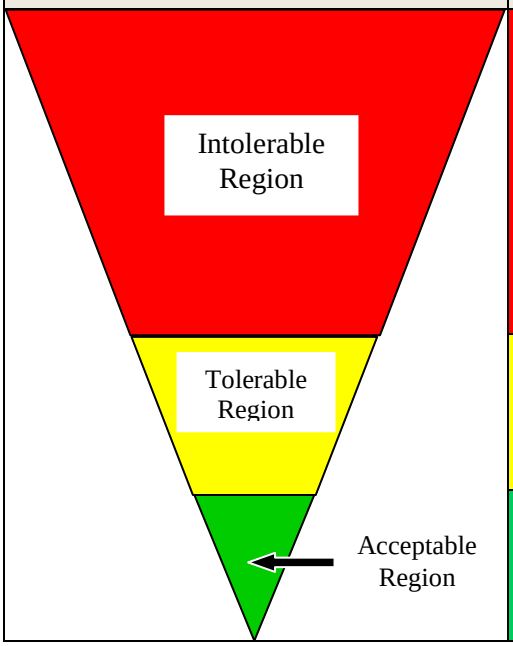
12 CONDITION REPORTING

Alert users of the airport to any unsafe conditions that exists and that could affect their operations. Ensure appropriate NOTAMS are issued for unsafe conditions that are identified during an inspection but cannot be corrected immediately. After reporting NOTAMs to the AIS, follow-up to ensure that the NOTAMS were processed and transmitted.

Table 12- 1 Safety Risk Assessment Matrix (Risk Index)

Risk probability	Risk severity				
	Catastrophic (A)	Hazardous (B)	Major (C)	Minor (D)	Negligible (E)
Frequent (5)	5A	5B	5C	5D	5E
Occasional (4)	4A	4B	4C	4D	4E
Remote (3)	3A	3B	3C	3D	3E
Improbable (2)	2A	2B	2C	2D	2E
Extremely Improbable (1)	1A	1B	1C	1D	1E

Table 12-2 Safety Risk Tolerability Matrix

Suggested Criteria	Assessment Risk Index	Suggested Criteria [Acceptability/Action Required]
	**5A, 5B, 5C,** **4A, 4B,** **3A**	Unacceptable under the existing circumstances. [Do not permit any operation until sufficient control measures have been implemented to reduce risk to an acceptable level.]
	5D, 5E, **4C, 4D, 4E,** **3B, 3C, 3D** **2A, 2B, 2C**	Acceptable based on risk mitigation. It may require management decision.
	3E, **2D, 2E,** **1A, 1B, 1C, 1D, 1E**	Acceptable

13 CATEGORIZATION OF DEFICIENCY AND DEADLINE FOR CORRECTION

As the ultimate purpose of inspection/surveillance is to identify the safety hazards; assess the safety risk and rectify the deficiencies as required, it is practical here to utilize the safety risk probability table and safety risk severity table of Safety Management System Manual of Tribhuvan International Airport to find the level of probability and severity of the risk associated with the deficiency. The risk arising out of the deficiency is then assessed using the safety risk assessment matrix (risk index) Table 12-1 above. After getting the risk index, it is checked against the safety risk tolerability matrix Table 12-2 above and the outcome will be referred to ***Safety Review Board***. If it is in the Intolerable Region, then the issue is immediately put forward as a top priority to the CAAN for ***immediate action***. If it falls under the tolerable region and deficiency can be rectified within the expertise and budget of TIACAO, then it will be rectified within **three to six months**, depending on the nature of deficiency. However, if it is not within the capacity, then TIACAO will coordinate with the CAAN to rectify the same within one or two fiscal year, as the case may be.

Director General

Civil Aviation Authority of Nepal

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APPENDICES 1–4

SUGGESTED AIRPORT SAFETY SELF-INSPECTION CHECKLISTS

An airport safety self-inspection checklist should cover the condition of the facilities and equipment on the airport for it to be a part of a good safety inspection program. The checklist should be developed so that it is useful for the airport and its operation. A ***sketch of the airport*** is highly recommended to readily identify the location of problems found during the daily inspection.

The suggested checklists consist of a listing of facilities and equipment and a series of conditions that are inspected.

The blank squares indicate the conditions to be evaluated for each facility. A check (√) in one of these squares would indicate that the condition of the facility and equipment was found to be satisfactory. On the other hand, an "x" in one of these squares would indicate that the condition of the facility and equipment was found to be unsatisfactory.

When an unsatisfactory condition is found:

1. An "x" for each applicable square should be entered;

2. A note provided in the Remark/Action Taken section;

3. The location of the condition should be identified in the airport sketch; and

4. Appropriate follow-up action including NOTAMs should be initiated. Corrective action should be documented on either the self-inspection checklists or on a separate work order system.

APPENDIX 1

AIRPORT SAFETY SELF-INSPECTION CHECKLIST

DATE: _____ **DAY**: _____ √ **Satisfactory**

X Unsatisfactory

Day Inspector/Time: _____ **Night Inspector/Time:** _____

FACILITIES	CONDITIONS	D	N	REMARKS	RESOLVED BY (Date/Initials)
Pavement Areas	Pavement lips over 3"				
	Hole – 5" diam. 3" deep				
	Cracks/sapling/heaves				
	FOD: gravel/debris/sand				
	Rubber deposits				
	Ponding/edge dams				
Safety Areas	Ruts/humps/erosion				
	Drainage/construction				
	Support equipment/aircraft				
	Frangible bases				
	Unauthorized objects				
Markings	Clearly visible/standard				
	Runway markings				
	Taxiway markings				
	Holding position markings				
	Glass beads				
Signs	Standard/meet Sign Plan				
	Obscured/operable				
	Damaged/retroreflective				
Lighting	Obscured/dirty/operable				
	Damaged/missing				
	Faulty aim/adjustment				

FACILITIES	CONDITIONS	D	N	REMARKS	RESOLVED BY (Date/Initials)
	Runway lighting				
	Taxiway lighting				
	Pilot control lighting				
Navigational Aids	Rotating beacon operable				
	Wind indicators				
	RENLs/VGSI systems				
Obstructions	Obstruction lights operable				
	Cranes/trees				
Fueling Operations	Fencing/gates/signs				
	Fuel marking/labeling				
	Fire extinguishers				
	Frayed wires				
	Fuel leaks/vegetation				
Snow & Ice	Surface conditions				
	Snowbank clearances				
	Lights & signs obscured				
	NAVAIDs				
	Fire access				
Construction	Barricades/lights				
	Equipment parking				
	Material stockpiles				
	Confusing signs/markings				

FACILITIES	CONDITIONS	D	N	REMARKS	RESOLVED BY (Date/Initials)
Aircraft Rescue and Fire Fighting	Equipment/crew availability				
	Communications/alarms				
	Response routes affected				
Public Protection	Fencing/gates/signs				
	Jet blast problems				
Wildlife Hazards	Wildlife present/location				
	Complying with WHMP				
	Dead birds				

Comments/Remarks: _____

Airfield Map on Reverse Side

APPENDIX 2

CONTINUOUS SURVEILLANCE CHECKLIST

√ **Satisfactory**

DATE: _____ **DAY:** _____ **X Unsatisfactory**

TIME: _____ **INSPECTOR:** _____

FACILITIES	CONDITIONS	√	REMARKS/ACTIONS TAKEN
Ground Vehicles	Rules/Procedures Followed		
Fueling Operations	Fire/Explosion Hazards		
	Signing/No smoking		
Snow & Ice	Surface Conditions		
Construction	Safety Plan		
	Runway Incursions		
	Runway & Taxiway Use		
	FOD		
Public Protection	Unauthorized Persons		
	Unauthorized Vehicles		
	Gates clear		
Wildlife Hazards	Birds/Animals		
Miscellaneous	Pedestrians in Movement Areas		
	Passenger Load/Unload		
	Debris in Movement Area		
Additional Remarks			

Airfield Map on Reverse Side

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APPENDIX 3

PERIODIC CONDITION INSPECTION CHECKLIST

√ y

DATE: _____ **DAY:** _____ **X Unsatisfactory**

TIME: _____ **INSPECTOR:** _____

FACILITIES	CONDITIONS	√	REMARKS/ACTIONS TAKEN
Pavement Areas	Rubber Deposits		
	Polishing		
Markings and Signs	Visible		
	Standards		
Fueling Operations	Physical Facilities		
	Mobile Fuelers		
	Fire Extinguishers		
	Fuel Marking/Labeling		
	Frayed Wiring		
Navigational Aids	RENLs/VGSI Aiming		
Lighting	Power Generator Check		
	Circuit Resistance Test		
	Aim/Adjustment		
Obstructions	Surveyed Trees/Structures		
	Overhead Power Lines		
Aircraft Rescue and Fire Fighting	Response Times		
	Live Fire Drills		
	Training		

Additional Remarks

Airfield Map on Reverse Side

APPENDIX 4

SPECIAL INSPECTION CHECKLIST

√ **Satisfactory**

DATE: _____ **DAY:** _____ **X Unsatisfactory**

TIME: _____ **INSPECTOR:** _____

FACILITIES	CONDITIONS	√	REMARKS/ACTIONS TAKEN
Pavement Areas	Ponding/Edge Dams		
Markings And Signs	Visible after rain		
	Standards after Construction		
Safety Areas	Drainage		
	Reopening Runways		
	Reopening Taxiways		
Snow and Ice	Surface conditions		
	Snowbank clearance		
	Lights & Signs Obscured		
	FOD		
	Braking Action/MU Reports		
Construction	Barricades		
	Construction Lights		
	Equipment Parking		
SMGCS	SMGCS Lighting		

Additional Remarks

Airfield Map on Reverse Side

APPENDIX 5A

QUARTERLY INSPECTION – MOBILE FUELERS

Inspector: _____ **Fueling Agent:** _____ **Date:** _____

S – Satisfactory **U – Unsatisfactory** **R – Remark Below**	**Jet A Fuelers**			**100LL Fuelers**			**Other Fueler**		
	S	**U**	**R**	**S**	**U**	**R**	**S**	**U**	**R**
No Smoking sign in cab									
Flammability Signs/Haz Mat Placards all sides									
Bonding Cables and Clips functional									
Deadman Control for all nozzles									
2 Fire Extinguishers – Proper type/Inspected									
Emergency Shutoffs operable and marked									
No Fuel Leaks – Hoses/Gaskets/Valves									
Vehicle Exhaust System – Shielded/Leak free									
No evidence of Smoking – No ashtray in cab									
Vehicle Parking – 10' apart/50' from buildings.									
Explosion proof electrical/Light lens intact									
Ignition Sources (Clothing, Shoes, Matches)									
							No of Mobile Fuelers		
Proper Fueling Procedures Observed							Jet A _____		
Fueling Personnel Meet Training Requirements							100 LL _____		
Fueling Personnel Training Records maintained							Other _____		

Remarks:_____

APPENDIX 5B

QUARTERLY INSPECTION – FUEL STORAGE AREAS

Inspector: _____ **Fueling Agent:** _____ **Date:** _____

S – Satisfactory **U – Unsatisfactory** **R – Remark Below**	**Jet A Section**			**100LL Section**			**Other** _____		
	S	**U**	**R**	**S**	**U**	**R**	**S**	**U**	**R**
Fencing/Locks/Signs									
Piping protected from vehicles									
No Smoking signs posted									
Deadman Controls for loading stations									
2 Fire Extinguishers – Inspected/Accessible									
Boldly Marked Emergency Cutoffs – Location									
No Fuel Leaks									
Bonding wire/clips at loading stations/operable									
Piping/Pumps bonded and grounded									
No vegetation or materials to spread fire									
No evidence of Smoking									
Hoses in good condition									
Explosion Proof Electrical Equipment									

Remarks:_____