

LAKE MEAD NATIONAL RECREATION AREA

INTERNAL

AVIATION MANAGEMENT PLAN

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I. Policy

The policy of Lake Mead National Recreation Area (NRA) is to limit the primary use of its aircraft to activities involving search and rescue, law enforcement, life or health threatening emergencies, fire detection, visitor protection, resource management, and for individually approved special purpose missions. Lake Mead NRA aviation activities shall be performed in accordance with applicable Federal Aviation Administration (FAA) Regulations and the Department of the Interior (DOI) policies to ensure a safe, economical, and efficient method of performing the required task. All aviation activities shall be accomplished with the least possible impact to the park and neighboring resources and visitors.

Everyone is responsible for becoming familiar with and applying correct procedures in all phases of aircraft use. Specialists in air operations should take the lead in providing examples and knowledge of such procedures. The number one concern at all times is SAFETY!

II. Purpose

The purpose of the Internal Aviation Management Plan (IAMP) is to establish general guidelines for official use of aircraft. It also attempts to provide specific direction for those individuals involved in the use of aircraft as a significant portion of their position description, or incidental to their duties. This plan will ensure safety, protection of park resources and facilities, compliance with the National Park Service mission, and as stated in the policy, that each flight considers efficiency, economy, and effectiveness.

The IAMP only applies to aircraft on DOI business and is not meant to cover private, commercial, or military operations in or around Lake Mead NRA.

This plan also provides the following:

- A. Definitive expansion of guidelines set forth in National Park Service (NPS) Management Policies and other pertinent, park-specific documents. In cases of conflicting statements, NPS Management Policies will be followed; and
- B. A reference for Lake Mead NRA personnel engaged in aviation management so they may understand Lake Mead NRA aviation procedures.

In summary, the purpose of this plan is to document accepted procedures for official use, to reduce and minimize the number of flights, and to establish a safe operation while protecting the park and the visitors' experience of the park.

Lake Mead NRA's IAMP will be reviewed annually, in January, and revised as necessary. The policies in this plan supersede the plan of April 1995 and any other local policy documents that reference Lake Mead NRA aviation management.

III. Introduction

A. Aviation Workload

Aircraft are involved in nearly every function within the park, law enforcement, search and rescue, wildland fire detection/suppression, emergency medical response, basic transportation of personnel and cargo for managerial and administrative purposes, and cultural and resource management. There is routine and nonroutine flying

B. Geographic Considerations

Lake Mead NRA is located in designated mountainous terrain, and encompasses a diversity of topography and climate. The park is 1,270,971 acres in size and extends from Bullhead City, Arizona, and Laughlin, Nevada, north to Moapa Valley, Nevada, and east to Grand Canyon National Park.

The recreation area is centered on two artificial lakes on the Colorado River. Lake Mead, created by Hoover Dam, is 76 miles long, has 153,235 acres of water surface (240 square miles), and 695 miles of shoreline. Lake Mohave, which is 66 miles long, lies behind Davis Dam and has 27,882 acres of water surface (44 square miles) and 257 miles of shoreline.

Geologically, the recreation area is located in two provinces. The area most utilized by visitor's lies west of the Grand Wash Cliffs within the Basin and Range Province. With north-south trending series of mountain ranges and basins featuring alluvial fans, wide bajadas, and playa deposits of silts, clays, and weakly cemented gravel. Extensive igneous intrusions with interspersed granitic or volcanic-capped mountain blocks are another feature of this area. Elevations vary from 517 to 5,400 feet above sea level.

The other province includes a portion of the Shivwits Plateau located east of the Grand Wash Cliffs and north of the Sanup Plateau. The Shivwits Plateau, at an average elevation of 6,400 feet, is two plateaus from the northern border of the Grand Canyon. Small, widely scattered and heavily eroded formations rise above the Shivwits Plateau, culminating at Mt. Dellenbaugh, Lake Mead NRA's highest point at 7,072 feet above sea level. Precipitation patterns vary accordingly, and vegetation is consequently sparse in the desert regions while being moderately dense forest on the Shivwits Plateau.

Temperatures are likewise diverse, varying from the low to mid twenties in the winter to highs of 120+ degrees in the summer. Temperatures encountered within the same hour or day may also be very different, such as on a flight from Bullhead City Airport to the Shivwits Fire Camp. Density altitude becomes an important factor in all warm weather flight planning.

C. Types of Aircraft and Use

One DOI Fleet single-engine airplane, single-engine or twin-engine airplanes and helicopters rented from local vendors equipped with OAS authorized aircraft, and pilots.

D. Aircraft Procurement

Other than the DOI Fleet aircraft in use by Lake Mead NRA, for day-to-day operations, other procurements may be at the discretion of the superintendent, chief park ranger, chief of emergency services, or chief of maintenance for radio system work.

Aircraft may also be procured in a variety of ways. The Office of Aircraft Services (OAS) writes all contracts for specific needs. OAS is responsible for the acquisition of all aircraft. Air tankers or other wildland fire suppression aircraft are requisitioned, as needed, and may be part of an OAS or United States Forest Service (USFS) national contract.

E. Park Aviation Organization and Responsibilities

1. Aviation manager (park pilot) is responsible for:
 - a. Analyzing and determining the park's aviation needs.
 - b. Developing, implementing, maintaining, and evaluating the Park Aviation Management Plan.
 - c. Obtaining aircraft services to accomplish specific projects of the park program.
 - d. Assuring the park's aviation program complies with applicable regulations, policies, and guidelines.
 - e. Implementing parkwide aviation safety and training programs.
 - f. Preparing and administering cooperative agreements for aviation use.
 - g. Participating in accident/incident investigations.
 - h. Reviewing and recommending revisions and additions to aviation policies and procedures.
 - i. Preparing mishap reports.

- j. Participating in preparing and inspecting park aviation facilities to ensure compliance with existing standards.
 - k. Preparing OAS 23 and OAS 2 forms.
2. The chief ranger's program analyst is responsible for scheduling all routine flights. Nonroutine flights will be at the discretion of the superintendent, chief park ranger, district rangers, and in emergencies, the Communications Center.
 3. Pilot responsibility and authority
 - a. Being aware of, and complying with, Federal Aviation Regulations, and all OAS DM's, OPM's, and policies relating to Lake Mead NRA's aircraft.
 - b. Maintaining and repairing the aircraft, determining if the aircraft is airworthy, and the required maintenance inspections are performed.
 - c. Assuring safe operation of the aircraft and the safety of the crew and passengers insofar as loading, weather, mechanical, and other safety conditions are concerned.
 - d. Determining whether a particular flight shall be made or continued.

IV. Federal Policies, Guidelines, and Regulations

As stated in this policy, Lake Mead NRA's aviation activities are performed in accordance with applicable Federal Aviation Regulations (FAR's) and DOI policies. Deviations from policy are not permitted, unless authorized by the Director of OAS. Therefore, all aviation operations, except emergencies (see section V), will be conducted in accordance with the following:

- A. Federal Aviation Administration, Federal Aviation Regulations (Parts 1, 13, 61, 71, 91, 133, and 135). This includes Special Federal Aviation Regulations SFAR 50-2, Grand Canyon National Park Special Flight Rules Area.
- B. Office of Aircraft Services Department Manual (Parts 110, 112, and 350 to 354). Operational Procedures Memoranda (OPM's), Information Bulletins (IB's), and miscellaneous handbooks. Users should remember that OPM's are updated yearly, while Departmental Manuals (DM's) may last longer. Aviation operations will comply with all items (drawn up by OAS) between the park and commercial operators.

- C. The NPS Organic Act of 1916, and the National Park Over Flights Act of 1987 (Public Law 100-91).
- D. National Park Service Management Policies (October 1996).
- E. National Park Service Aviation Management Guidelines (DO 60, May 1989).
- F. Other relevant NPS Guidelines, such as DM 446, NPS-9, NPS-5, NPS-18, NPS-20, NPS-51 and NPS-56.

G. Department Rules 20.735-15:

1. General Responsibility

Employees shall be held accountable for government property entrusted to them in connection with their duties. It is each employee's responsibility to protect and conserve Government property and use it economically and for official purposes only.

2. Misuse of Government Motor Vehicle or Aircraft

Employees shall not willfully use or authorize the use of a Government owned or leased passenger vehicle (aircraft) for other than official purposes. Violations of this provision shall automatically result in suspension from duty without compensation for not less than one month.

H. Aviation operations will comply with:

- 1. Title 36, Code of Federal Regulations, Chapter 1, Part 2, Section 2.17 whenever possible, and Part 7, Section 7.48.
- 2. Title 41, Section 114-38.5003, as it pertains to the use of motor vehicles (aircraft) by employees other than while on official travel.

The accomplishment of official business is the sole reason for acquiring and operating a government vehicle (aircraft). It is for official purposes when a government vehicle (aircraft) is:

- 1. Used to carry out authorized programs, including work under cooperative agreements or other contractual arrangements made pursuant to authority vested in the Department (see 41 CFR 101-25.100).

2. Used to render assistance in major disasters or emergency situations as provided in 905 DM 1.
3. Used by an officer or employee to travel between his/her residence and place of employment such use is authorized as provided in 31 USC 638a and in accordance with the procedures set forth in 114-38.5005.
- 4.

V. Lake Mead National Recreation Area Operational Requirements

A. NonRoutine Flights

Nonroutine flights are for emergencies and are exempted from the normal flight approval process. Because of their life threatening or health threatening nature, these types of flights cannot be scheduled in advance. They may occur in both approved and primitive landing zones, or remote and isolated duty stations (see Section VI), or in the following instances (this is not a priority listing):

1. Administrative emergencies: some of which include life threatening situations, involve public health, park closure, property protection, and endangered species.
2. Law enforcement emergencies.
3. Fire suppression or monitoring prescribed natural fires.
4. Medical evacuations (not to replace local medical helicopters).
5. Search and rescue operations.

B. Routine Flights

Routine flights are defined as those that can, and will, be scheduled in advance and also meet the other requirements of this section. Routine flights may or may not be approved. Section VI of this document, entitled "Management Guidelines," deals with day-to-day scheduling.

C. Remote/Isolated Duty Stations

Remote duty stations are areas not easily accessible, less than 3 hours round trip by motor vehicle, or 1 hour by boat, to reach the work site (examples are Tassi and Shivwits Fire Camp).

D. Transportation of Passengers

Travel on government aircraft is restricted to official travel or travel on space-available basis, subject to the policies and definitions prescribed in 14 CFR Part 101-37.

The following categories of personnel are defined as official passengers, employees of the Federal government traveling on official business. Members of Congress and employees of Congressional committee staffs whose work relates to DOI programs; and nonfederal passengers when engaged in missions which enhance accomplishments of park programs, such as personnel of cooperating state, county, or local agencies; representatives of foreign governments; and contractor representatives.

Space available passengers authorized and approved in accordance with OMB Circular A-126.

Unauthorized passengers are all personnel who are not official passengers shall be considered as unauthorized passengers and are not authorized to be transported in any aircraft owned or operated by or on behalf of DOI. A person who is otherwise an official passenger could become unauthorized by performing a function for which that person is not authorized; e.g., a passenger performing pilot duties without proper authorization.

E. Flight Priority and Sequencing

Flight priority and sequencing will be in the following order:

1. Nonroutine flights
2. Routine law enforcement patrols
3. NPS personnel and equipment on approved routine business
4. Space available passengers will be transported in the following sequence:
 - a. Persons on official business or official cargo, whose mission may not be so pressing as to schedule a separate flight.
 - b. Authorized Volunteers-In-Park, off duty employees, and nondependent family members.

F. Flight Approval Process

1. Nonroutine Flight Approval

Flights to accomplish activities meeting the nonroutine definition (Part A.1 of this Section) are automatically approved.

2. Routine Flight Approval

A flight request form will be submitted by the originator to the division chief. Division chiefs will review requests and forward to the chief ranger's office for scheduling. Requests will be submitted to the chief ranger's office at least 5 working days prior to

the flight date; however, this may be waived in special circumstances. In no instance will a routine flight be authorized unless a request has been submitted and approved at least 24 hours prior to the actual flight time.

All requests for routine flights should be prepared by the individual responsible. The request will contain:

- a. Statement as to why the flight is necessary, instead of transportation by traditional means (motor vehicle or boat). This should address what alternatives to airplane/helicopter use exist and why they are not being employed. Division chiefs must certify that utilizing an aircraft is the minimum tool.
- b. Who or what will be flown - - personnel, cargo, mail drop?
- c. Is it a one way flight, is it a drop and wait, or a drop and return at a later time?

The Shivwits Fire Camp personnel may make their requests through their immediate supervisor or by radio if time is short, but the flight is still considered routine.

If the Division chief is uncertain as to whether an activity justifies use of the park aircraft, he/she should consult with the chief park ranger, or the aviation manager for help in making the determination. Requests disapproved by the division can be appealed by the originator through the superintendent's office only after the appropriate division chief(s) and aviation manager have been consulted. Specific procedure for scheduling flights are contained in Section VI, Management Guidelines.

3. Research

All research proposals indicating a need for air support will submit a Routine Flight Request Form. Research requiring aircraft use will be coordinated through the resource management office.

G. Specific Activities and Applicable Policies

The following activities, procedures, and services will be guided by the indicated policy. When the explanation is more detailed than room allows, the appropriate reference is shown.

1. Aircraft Data Cards

Aircraft will not be used unless a current Aircraft Data Card is displayed. Note: U.S. Department of Agriculture (USDA) and DOI cards are interchangeable; i.e., aircraft carded under one agency can be used by the other.

2. Pilot Qualification Cards

All pilots will carry a current Pilot Qualification Card.

3. Pilot Duty Limitations

Limitations will be adhered to except in cases of extreme emergency, 351 DM 3 3.5(2)

4. Single Engine Night Flight

Night flights will only be authorized when in compliance FAR's and 351 DM 1 1.3 B (1). The chief park ranger, aviation manager, and emergency medical services (EMS) or search and rescue (SAR) coordinators must concur in the determination that a single engine night flight is necessary. No Lake Mead NRA employee is authorized to make this decision alone.

5. Transportation of Flammables and Explosives

Guidelines contained in OAS DM's, OPM's, FAR's, and the DOI's Hazardous Materials Handbook will be followed. Applicable OSHA recommendations (such as Section 1910.106-a-29) should be considered. Flammable liquids (such as gasoline, acetylene, LPG, et cetera) will only be transported in approved containers. Also refer to 49 CFR, Part 175. Lake Mead NRA does have a Hazardous Material Exemption, 351 DM 1 1.6 B.

6. Transportation of Animals

Pets must be restrained with a leash or inside an enclosure while being transported. Pilots should remember the whine of an aircraft engine sometimes bothers animals.

7. Special Use/Low Level Flight

Flights will be performed in accordance with OAS DM's, OPM's and FAR's. No Lake Mead NRA employee will fly in any aircraft at an altitude of less than 500 feet above ground level, unless full Personal Protective Equipment (PPE) is worn. DM 351 1.7 A, B; 350 DM 1, Appendix 5; 351 DM 2.2; 351 DM 4.1 b; 351 DM 2.4 A (2); 351 DM 2.3; 351 DM 3.1; 351 DM 3.4 H.

8. Beyond Power Off-Gliding Distance to Shore

See Operations Plan in Appendix A and Air Observer Program, Appendix B.

9. Fuel Reserves

Applicable FAR's and OAS DM's will be followed, whichever is stricter.

10. Procedure for Requesting Airspace Restrictions

Procedure for requesting airspace restrictions are covered under FAR 91.137 and OAS OPM 95-2, Temporary Flight Restrictions. This request will only come from the chief park ranger, aviation manager or fire management officer.

11. Flight Hazard Map

These maps will be maintained and kept in the air operations office.

12. Pilot Briefing

Employees requesting a flight will brief the pilot in all aspects of the mission; i.e., what is being looked for, altitudes to be flown, et cetera.

13. Authorized Passengers, Cargo and Flights

Flights will be of an authorized nature, and passengers will be only those necessary to complete the mission. Refer to Section V for details.

H. Summary

Aircraft users will ensure that the aircraft is the minimum tool for the job (see Section IV). Flights must be combined whenever possible. Better work scheduling will eliminate the need for many flights.

VI. Management Guidelines

A. Aircraft, General

1. Safety

Safety is integrated into all phases of aviation management. To minimize potential hazards, there will be intensive, regular inspections and reviews of air operation personnel, equipment, and techniques by the park's aviation manager or OAS representatives. Safety and orientation courses will be made available for appropriate personnel when reasonably possible.

a. Passenger Safety

A properly briefed passenger should never be endangered by spinning rotors or propellers, yet, some have lost their lives because they were not briefed on how to approach or depart an aircraft. The simplest way to avoid accidents of this sort is to have the rotors and propellers stopped before passengers are enplaned or deplaned. This is not always possible.

b. Non Flight Crew Personnel

Persons directly involved with loading or unloading passengers or cargo, aircraft servicing, rigging, connecting external loads, et cetera, must be thoroughly familiar with their duties.

Keep passengers and all unauthorized persons out of the helicopter and airplane landing and take-off areas.

2. Personal Protective Equipment (PPE)

Personnel, while on board a helicopter or airplane on a special mission, will be clothed per standard in DM 351 1.7 E, 4.1 C 3.

It is the responsibility of each department to supply equipment for its personnel. It is the responsibility of each crew member, air service person, and passengers to comply with these regulations. Pilots and crew bosses are responsible for enforcing this section.

All helicopter flights at Lake Mead NRA will be considered preplanned special use activities; therefore, all crew members and passengers will wear the following PPE:

- a. Aviator's protective helmet
- b. Nomex flight suit
- c. Leather boots (extending above the ankle)
- d. All leather or leather and Nomex gloves

3. Flight Manifest and Load Calculations

Weight and balance calculations will be performed for all flights. Applicable FAR's and OAS DM's and OPM's will be observed.

4. Pilot Authority

The pilot of the aircraft will have the final say as to whether an aspect of the flight operation can be safely performed. The organizer also has the discretion of vetoing a trip if he/she believes that the mission cannot be successfully or safely completed.

5. General Scheduling Guidelines

- a. See Section V. A., for specific information regarding the approval process for routine and nonroutine flights.

- b. Scheduling of the park's aircraft will be performed by the Chief Park Ranger's Program Analyst.
- c. Routine flights will occur Monday through Friday, between the hours of 7:30 a.m. and 4 :30 p.m. whenever possible. Late afternoon flights must be arranged so the park's aircraft is back on the ground by 4:15 p.m.
- d. Nonroutine flights will be given priority at all times.
- e. It is recognized that deviations from a routine flight are occasionally necessary to accomplish another mission of routine nature with little or no loss of continuity, time, or efficiency. This is largely predicated on the schedule of the aircraft, and the feasibility of such deviation may be determined by the pilot or the person responsible for flight scheduling.
- f. Combining trips and planning flights back-to-back will be an objective, if possible. Not that single occupancy flights will not be approved. Overtime for flights scheduled before or after normal working hours, will be charged to the division requesting the flight.
- g. All passengers must arrive at the airport at least 10 minutes ahead of time. Arrival any later than 10 minutes may, at the very least, cause the flight to depart late, or may even cause the flight to be postponed or canceled. Remember you may not be the only one waiting for a flight.

7. Environmental Impact Mitigation and Noise Abatement

NPS Aviation Management Guideline (DO-60) states:

There is often a fine line between accomplishing a goal and adversely affecting the resources we are obligated to protect. Our commitment to protecting park resources will undoubtedly be judged by how well we mitigate the impacts of our own aircraft use.

Impacts to park resources by aircraft over-flights in the Grand Canyon (Shivwits Plateau) are a serious consideration in flight planning. There was enough concern regarding these impacts that Congress passed Public Law 100-91, The National Park Over-flight Act (August 1987). Federal Aviation Regulation, SFAR 50-2.

The aircraft in use at Lake Mead NRA will not be used in fire suppression, with the exception of spotting and locating for ground crews, and transportation of personnel to and from designated landing sites.

DOI employees boarding any aircraft will check all pilots for a current Pilot Qualification Card (USDA-Forest Service Form 5700-3, GPO Form 907-259, or DOI/OAS Form 30 A, B, or C).

B. Aircraft Designated Landing Areas

Aircraft will generally be restricted to landing in those areas outlined in Title 36, Code of Federal Regulations, Section 7.48. Those areas are Echo Bay airport, Temple Bar airport, and Pearce Ferry airport. Tassi is also authorized for fixed wing aircraft.

Emergency and wildland fire operations are exempt.

Other areas authorized for helicopter operations are:

1. Shivwits administrative site
2. Cottonwood Cove helipad

Obviously, there will be times when other areas will need to be utilized to complete our mission; i.e., training and other special operations. These will be handled on a case-by-case basis. The aviation manager will be consulted for these special needs.

This policy prohibits landing at the NPS warehouse. Such landing presents an unacceptable level of risk to personnel on the ground and to the residential area.

C. Fixed Wing Aircraft

1. Landing areas will generally be confined to designated airstrips operated by Lake Mead NRA and those areas (i.e., paved roads, dirt roads, dry lake beds, et cetera) approved by the aviation manager according to the DM's and OAS OPM's.
2. Transportation of personnel and cargo will be in accordance to Federal Aviation Regulations OAS policies.
3. Paracargo is not authorized at anytime. Dropping of messages or other items will be done in a manner that will not endanger proper or persons.

D. Rotary Aircraft

1. Personal Protective Equipment

Protective clothing for contract pilots, ground or helitack crews, and passengers will be in accordance with OAS DM's and OPM's.

2. Load Calculations

See Section VI., A. 3.

3. Heliports, Helipads, Helispots

Heliports, helipads, and helispots are not permitted, unless approved by Lake Mead NRA's Management Staff. Natural openings may be utilized as helispots. No site marking or improvements of any type will be permitted, except in conjunction with specific emergencies, after which the area will be restored.

4. Enplaning/Deplaning

The following rules apply to passenger activity around helicopters.

- a. STAY AWAY from the rear of the aircraft.
- b. Approach from the front or side but never out of the pilot's line of vision.
- c. Do not approach the helicopter until the pilot or service personnel indicate that you may do so.
- d. **DO NOT APPROACH THE HELICOPTER FROM ANY SIDE WHERE THE GROUND IS HIGHER THAN WHERE THE HELICOPTER IS STANDING OR HOVERING. TO DO SO COULD BE FATAL DUE TO THE POSSIBILITY OF WALKING INTO THE TAIL OR MAIN ROTOR.** In an unimproved landing area, it may be necessary to crouch.
- e. Hold on firmly to hats and loose articles. If your hat does not have a chin strap, carry it under your arm until in the aircraft; baseball-type hats will **NEVER** be worn in or around helicopters.
- f. Never reach up or run after a hat or other articles that may have been blown off or away.
- g. Protect your eyes from blowing dust and debris by holding them with your hands, by squinting, by looking away, or, best of all, by wearing protective

goggles. Unless equipped with eye goggles or glasses, or at least 200 feet away from a helicopter, do not watch landing, take-off, or hovering operations.

- h. If you are suddenly blinded by dust or debris, **STOP, CROUCH LOW OR SIT DOWN AND WAIT FOR HELP. NEVER GROPE OR FEEL YOUR WAY TO OR AWAY FROM THE HELICOPTER.**
- i. Allow helicopter personnel to load your tools. Do not carry them with you to the helicopter.
- j. If in a situation where you have to load long tools, **KEEP THEM HORIZONTAL**, parallel to the ground, **NEVER CARRY THEM UPRIGHT!!** Stow items gently; windows have been broken or holes punched in the thin aluminum of the cargo compartment by rough handling.
- k. When unloading cargo, never throw things! Make every move slow and deliberate.
- l. Keep clear of all helicopter rotors (main and tail). They are moving scythes and **ARE DEADLY!** Unless you have business and are cleared by the pilot or ground crew, do not approach any helicopter (operating or not) closer than 150 feet.
- m. When leaving the helicopter snap the seat belts behind you, this ensures that it will not be hanging outside when you close the door (rotor wash makes seat belts pound against the fuselage, causing extensive damage). Close the helicopter door firmly (do not slam it).

5. External Loads

All external loads will be flown by a pilot appropriately carded. All hookups will be by qualified personnel wearing the proper PPE.

6. Fuel Storage and Handling

All aspects of fuel storage and handling will be in compliance with OAS 351 DM, Aviation Fuel Handling. Hot refueling is prohibited at anytime. If this type of refueling must occur, it will be done at the contractor's heliport with all passengers off-loaded.

7. General Project Work

The same requirements will be in effect as when performing any other flight. Administrative, maintenance, or other project flights will have personnel on board who are skilled in working with helicopters. The ultimate goal is for all operations on the ground, and in the air, to be conducted in the safest possible manner.

8. Helicopter Toe In, Single Skid, and Step Out Landings

Due to the hazardous nature of these types of landings, toe in, single skid, and step out landings are PROHIBITED.

VII. Dispatching and Flight Following

Flight request forms will be submitted to the chief ranger's program analyst for scheduling and coordination. Nonroutine flights will be at the discretion of the superintendent, chief ranger, district rangers, and the communications center.

For flights outside the recreation area, where normal radio communications are not possible, a flight plan will be filed with the Flight Service Station, and a copy will be given to the Communication Center with the names of everyone on board. These flights will be approved by the Superintendent and Chief Ranger. See Section XI. B. 1.

Flight following will be conducted by Lake Mead NRA's Communication Center.

Flight following for Lake Mead NRA's aircraft will be accomplished through GPS tracking. Lake Mead NRA's aircraft is equipped with an Automatic Vehicle Locator system (AVL). This system operates through the park's radio network. The radio network provides overlapping coverage using four repeaters giving 100 percent coverage for the AVL system. The AVL can be programmed to allow tracking of the aircraft by a specific distance traveled, a specific time frame or can be queried as to location at the discretion of the dispatcher tasked with flight following.

Lake Mead NRA has elected to program the AVL to update the aircraft's location, using a specific time frame. This time frame can be picked from any 20-second interval. We have selected every **2 minutes and 20 seconds**.

The pilot will advise the Communications Center of the aircraft's departure and intended route. It is not necessary for normal radio flight following as long as the tracking system is operational. Upon commencement of a flight, the dispatcher will confirm the system is operational with the pilot. Once every hour the dispatcher will confirm system operation with the pilot by confirming location.

If the AVL fails, flight following will be accomplished in the normal manor by the dispatcher making radio contact with the aircraft every 15 minutes. If contact has not been made at the appropriate time, the Communications Center will continue contact efforts with the aircraft for the next 10 minutes. If no contact is made, the Communications Center will initiate an immediate search. See Section VIII, Overdue/Missing Aircraft.

The AVL is also equipped with an emergency button a crew member can activate which will alert the dispatcher to an aircraft problem. Upon activation, the system will update its location five times in the next 60 seconds. This system can be activated as many times as necessary, until such time as the crew has to prepare for the unplanned event they face. Lake Mead NRA's aircraft is also equipped with a King KLN89 GPS. If the AVL should fail, the pilot can provide latitude and longitude information manually to the dispatcher, just as the AVL does automatically.

VIII. Overdue/Missing Aircraft

It will be the responsibility of the Communications Center to implement the procedures for locating overdue aircraft on DOI business. If no response is received from the aircraft, the Communications Center will seek information from ground/water units along the intended route. After a reasonable effort has failed, the aircraft will be considered missing and a search will be initiated. OAS Information Bulletin No. 91-1 "Aviation Pre-accident Plan" will guide procedures in this event.

IX. Search and Rescue Operations for DOI Aircraft

Responsibility for initiating searches for missing Lake Mead NRA controlled (DOI) aircraft rests with the chief park ranger's office. Responsibility for searches of all other missing aircraft is a combined effort of the chief park ranger's office with assistance from other agencies having jurisdiction. The Civil Air Patrol may be involved, as well as the National Transportation and Safety Board. In extended search situations a SAR Team will be established.

Once the aircraft has been located and it is determined that an accident has occurred, action at the scene will follow the instructions given in the OAS Aviation Pre-accident Plans and Guide for Witnesses of Aircraft Accidents. Action by any aviation management personnel will follow the instructions in these two documents.

X. Records and Reports

A. Accident and Incident Reports

Basically, an aircraft accident (as defined by OAS) is an unplanned event that causes substantial damage or causes serious injury when associated with the operation of applicable aircraft, occurring between the time the engine(s) is/are started or rotors turning for the purpose of commencing flight, until the aircraft comes to rest with engines and propellers or rotors stopped, the brakes set or wheel chocks in place, and all persons have disembarked

When an aircraft accident has occurred, it is imperative that the crash site be preserved much the same way a crime scene is protected. After necessary EMS activities are concluded, the accident site will be defined and perimeter established with flagging or evidence tape. NPS personnel must make sure everything inside the flagging remains exactly as it was found until trained aviation accident investigators arrive on the scene; this is crucial to the investigation.

An aircraft incident or malfunction (as defined by OAS) is an unplanned event that does damage which is less than aircraft accident criteria, or incurs injury requiring first aid and/or medical attention. It is a situation involving an aircraft and/or personnel which results in deviation from standard aircraft operational procedures and has the potential of resulting in an accident. Examples of incidents are: precautionary or forced landing (with minimal damage/injury), engine problems, bird strikes which damage some component of the aircraft, smoke in the cockpit, jettisoning or loss of cargo, and flying outside of daylight flight restrictions.

The chief park ranger and the aviation manager will be notified immediately when either type of incident occurs.

The director of OAS will be notified immediately, by the most expeditious means available, when an aircraft accident or ground mishap occurs, and when an aircraft is declared missing; OAS will often dispatch an investigator to the scene without delay.

Individuals making any of the above reports to the director of OAS, will supply the information contained in the Aircraft and Pre-accident and Hazards Map; Aircraft Accident Reporting Procedures, Part I; Information to Supply Director, OAS, Part II; Initial Report of Aircraft Mishap, Form OAS-78, will be used during subsequent investigations; OAS 352 MD, Chapter 6, Aircraft Accident/Incident Reporting and Investigation, will be complied with.

Within 5 working days after an aircraft accident, Form OAS 34, Aircraft Accident Report, will be completed by the pilot or the supervisor and mailed to the director of OAS. It is the responsibility of the bureau or office to ensure that the proper internal notifications have been made. One copy of the OAS-34A will be returned to the originating office, or as directed by the bureau or office. Users are encouraged to consult OAS 352 DM, Chapter 6, for further instruction on report dispositions, aircraft accident investigations, and follow up actions.

The director of OAS, will be notified immediately, by the most expeditious means available, when an aircraft incident or malfunction occurs and damage to an aircraft which, in the opinion of any DOI employee, is of a serious enough nature that it could adversely affect the safety or flight of the aircraft operated by the bureau and office of DOI. All incident or malfunctions will be reported on Form OAS-34, Incident/Malfunction Report, and forwarded no later than 10 working days after the incident or malfunction occurred. The original copy of the form will be mailed to the director of OAS, with remaining copies being retained in the operating office, or as directed by the bureau or office. Users are encouraged to consult OAS 352 DM, Chapter 6, for further information on aircraft incident/malfunction investigations.

The Aviation Manager will make sure that OAS or Lake Mead NRA notifies FAA and/or NTSB when applicable, and that the Code of Federal Regulations, Title 49, Transportation, Chapter VIII, National Transportation Safety Board, Part 830 (Rules to the Notification of Reporting Aircraft Accidents or Incidents and Overdue Aircraft, and Preservation of Aircraft Wreckage, Mail Cargo, and Records), is followed.

XI. Coordination

A. Within Lake Mead National Recreation Area

The operational requirements and management guidelines discussed in this document will be followed.

B. Away from Lake Mead National Recreation Area

Release of park controlled aircraft for out-of-park missions will only be approved by the Superintendent and the chief park ranger or their acting. The superintendent and chief park ranger may consult with the pilot or the aviation manager. For point-to-point travel outside the park, form A-126 will be completed. The park aircraft shall not be dispatched for temporary out-of-park assignments unless backup or standby aircraft are available for in-park missions.

APPENDIX A

BEYOND POWER-OFF GLIDING DISTANCE FROM SHORE

DOI Policy DM 351 DM 2, 2.2, C, prohibits single engine aircraft from operating beyond power-off gliding distance from shore if not float equipped.

Lake Mead NRA has the occasion to fly beyond power-off gliding distance from shore during open water searches. These type of searches are about 15 percent of Lake Mead NRA's flight hours. Our goal, while operating in this environment, is to provide for the safety of the pilot and crew members.

While in this environment, the following procedures will be followed:

1. Flight following will be accomplished in accordance with the park's IAMP, Section VII, Dispatching and Flight Following.
2. No person shall act as a crew member unless he/she has received training as outlined in the park's Air Observer Program. Minimum required training: Basic Aviation Safety (b3), Water Ditching and Survival (S5), Lake Mead Air Observer Course (see Air Observer Program, Appendix B).

If untrained passengers are aboard the aircraft when it becomes necessary to conduct open water searches, those passengers will be taken to their destination or back to their point of origin before conducting the search.

3. Each crew member will wear an inflatable vest of Personal Flotation Device (PFD) as outlined in the park's Air Observer Program. Minimum equipment to be carried on this vest or PFD is:
 - a. Strobe light
 - b. Whistle
 - c. Signal Mirror
 - d. Three water proof aerial signal flares
 - e. Supplemental oxygen (spare air)
 - f. Personal emergency locator

All items will be inspected annually at the time the aircraft has it annual inspection.