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ENVIRONMENTAL ACHIEVEMENTS

@ MIAMI INTERNATIONAL AIRPORT

D. Boyd

A Watchful Eye

on the Environment

MIAMI-DADE
COUNTY

Delivering Excellence Every Day

CONTENTS

ENVIRONMENTAL POLICY

The Miami-Dade Aviation Department (MDAD) is committed to conducting its operations in an environmentally responsible manner. Our goal is to provide efficient aviation services while striving to achieve the highest environmental quality for air, soil, and water. To achieve these goals, MDAD has established the following objectives:

Awareness – MDAD staff will continuously heighten its awareness of and keep a watchful eye on the environment concerns of our community. MDAD will act promptly on environmental incidents.

Implementation of best management practices – MDAD will integrate its environmental management system with the best management practices and commits to continually review, improve and report on its effectiveness. Reports will be accessible to all employees and the public.

Restoration of the environment – MDAD will continue environmental rehabilitation of its airports.

Pollution Prevention – MDAD will strive to implement procedures that integrate pollution prevention and waste reduction. MDAD will seek to conserve natural resources by reusing and recycling materials, purchasing recycled materials and products that do not adversely affect the environment and that can be reused, recycled and disposed of in a safe manner.

Objectives and Targets – MDAD will establish and update environmental objectives and targets through periodic audits and self-assessments.

Regulatory Compliance – MDAD will continue efforts to meet or exceed all applicable governmental regulations and implement voluntary guidelines to which the Aviation Department subscribes.

Tenant Compliance – MDAD will work with its tenants, suppliers and contractors to make them aware of MDAD's environmental management system and encourage them to adopt sound, comprehensive environmental management practices.

MDAD employees are advised to follow this policy and report any environmental concern to the Operations Control Room or notify their supervisors for appropriate action.

Our vision is to continue a tradition of leadership concerning environmental issues and to practice sustainable development. By carefully balancing environmental, social and economic factors into our business planning and decision-making processes, we will ensure a favorable workplace today and a healthy environment tomorrow.

Carlos Alvarez
County Mayor

Barbara J. Jordan
District 1

Dorrin D. Rolle
District 2

Audrey Edmonson
District 3

Sally A. Heyman
District 4

Bruno A. Barreiro
District 5

Rebeca Sosa
District 6

Carlos A. Gimenez
District 7

Katy Sorenson
District 8

Dennis C. Moss
District 9

Javier D. Souto
District 10

Jose A. Martinez
District 11

Jose "Pepe" Diaz
District 12

Natacha Seijas
District 13

George M. Burgess
County Manager

Robert A. Cuevas
County Attorney

A Message from the Director

Dear reader:

Miami International Airport (MIA), operated by the Miami-Dade Aviation Department (MDAD), is located on about 3,000 acres of Miami-Dade County, Florida. It is one of the primary economic engines for South Florida, providing about a quarter of a million jobs, directly and indirectly, in the region.

In addition to our economic contributions to the community, we want to inform our stakeholders (passengers, customers, business partners, employees, regulators, the community at large, etc.) about our commitment to operate MIA in an environmentally responsible manner. This brochure will provide the reader a glimpse at some of the environmental achievements at MIA in recent years.

MDAD, through its environmental policy, strives to provide efficient aviation services while achieving the highest levels of environmental, health and safety standards possible. MDAD wants to be both a good neighbor and a good citizen when environmental issues are concerned.

MDAD began reinventing how it measured its environmental footprint by using the certification process under International Organization for Standardization (ISO) 14001 standards for the implementation of Environmental Management Systems (EMS). The ISO 14001 certification is an indicator that an organization has taken a concentrated, quality-based approach to its environmental management responsibilities. We are very proud that the following areas at MIA have received the prestigious ISO 14001 certification: Fuel Facility; Civil Environmental Engineering; Facilities Maintenance; and Commodities.

Miami-Dade County residents can be assured that the environmental management of MDAD's operations will provide our current users and future generations with safer, cleaner facilities to enjoy.
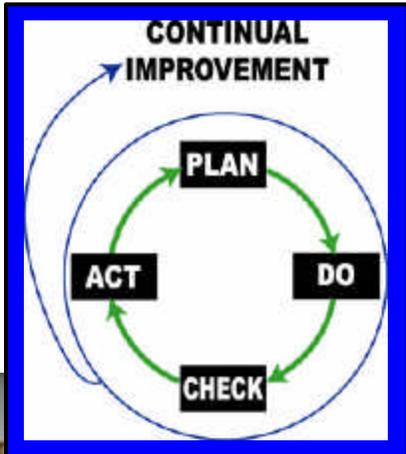
José Abreu
Miami-Dade Aviation Director

INTERNATIONAL

ENVIRONMENTAL

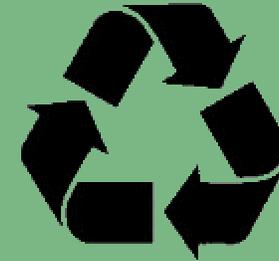**EXCELLENCE**

ENVIRONMENTAL MANAGEMENT SYSTEM

An Environmental Management System (EMS) is a comprehensive process to identify, prioritize and manage an organization's environmental aspects and impacts. This is the familiar "Plan, Do, Check, Act" cycle of continual improvement.

To receive the ISO 14001 certification, written procedures must be developed for all operational areas that are likely to handle potential pollutants and employees must be trained accordingly. Those procedures must be reviewed and approved by an authorized ISO 14001 certification firm.

MDAD has adopted a decentralized approach in obtaining ISO 14001 certification by dividing its operations into six units that seek certification independently from one another. We have received ISO 14001 certification in the Fuel Facility, Civil and Environmental Engineering, Facilities Maintenance and Commodities Management units. We are initiating the process for the remaining two areas of our operations (Properties and Facilities) on a planned schedule through 2010.

- MIA has been working since 1993 to achieve the highest level of environmental compliance   -   MIA was the first U.S. airport to be ISO 14001 certified -

- MIA is recycling office paper equivalent to saving 1,700 trees a year, and the equivalent in batteries used by 922 household per year -

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Reduction – Using less material to get the job done. Source reduction lessens the manpower effort, amount of material that must be recycled and the volume of waste.

Reusing – Refers to the reuse of a material either for its original purpose or in a new role, without any major modification. Computers, cardboard products, wooden shipping pallets and office furniture all typically have more than one life at MIA.

Recycling – The act of processing used or abandoned materials for use in creating new products.

In 2005, MIA initiated a new program of selling marginally contaminated soils to Department of Transportation (DOT) contractors for reuse/recycle as roadbeds. MIA saved $9 million in the first 10 months.

$1,167 dollars was credited to the County through office paper recycling in 2005.

REDUCE, REUSE AND RECYCLE

MATERIALS RECYCLED

2005 - 2006

PAPER	510,814 pounds
FLUORESCENT LIGHTS	36,394 feet
TIRES	30 metric tons
USED OIL	2,895 gallons
BATTERIES	2,440 pounds
CARPET	5,000 yards
CONTAMINATED FUEL	514,077 gallons
COOLANT / ANTIFREEZE	385 gallons
ELECTRONICS	232 units
USED OIL FILTERS	3 drums
CONTAMINATED SOIL	350,000 c/yards
LOST AND FOUND	Returned 8,594 items
	Auctioned 13,876 items
TONER CARTRIDGES	1,500 units
CARDBOARD	(in process)
WOOD PALLETS	(in process)

MIA has always taken a very proactive approach in protecting its soil and groundwater by closely monitoring, promptly responding and remediating, if necessary, any spillage incidents, to protect human health and the environment. In addition to spills, MIA uses different cleanup methods to remove toxic and hazardous materials from impacted areas, such as mold and asbestos abatement in buildings. Also, remediation technologies involve excavation of impacted soils and subsequent thermal treatment, or treat the contamination on-site without removing the soils.

Remediation is the removal of pollution or contaminants from the environment (soil, groundwater, air or surface water)


REMEDIATION

Since 1993, MIA has spent over $200 million to:

- Clean over five billion gallons of groundwater from the Biscayne Aquifer – our primary source of drinking water.
- Recover more than 100,000 gallons of petroleum products from the underground.
- Remove over 200 underground fuel tanks that pose an environmental threat.
- Remove, treat, recycle and properly dispose of more than one million tons of contaminated soil.
- Complete asbestos abatement and/or demolish buildings containing asbestos at an approximate cost of $25 million.
- Reduce VOC (volatile organic compounds) emissions by 12% since 1999.
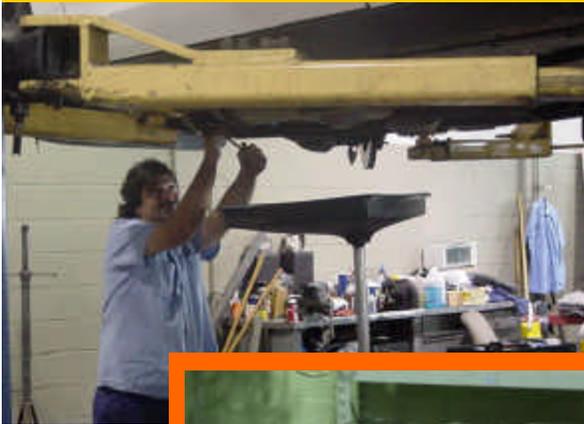
Oil based paint was replaced by water-based paint.

Mineral spirit's products inventory was reduced by 50%.

Hazardous-stripping products for aircraft paint was replaced by citrus-based, bio-friendly products by the tenant providing this service at MIA.

The mobile maintenance shop installed auxiliary oil filtration systems in MDAD vehicles to improve engine performance, life span, reduce the frequency of oil filter replacement, as well as the volume of used oil.

WASTE MANAGEMENT

Waste disposal management uses methods and techniques that help reduce the amount of wastes generated during operations, including recycling and other efforts to reduce waste streams.

STORMWATER MANAGEMENT

The Miami International Airport (MIA) drainage system collects the stormwater runoff generated by the entire facility and discharges it into the canals surrounding the airport. In order to prevent contamination of the surface waters, MIA has implemented the following control measures:

Pollution Control Devices. Oil water separators, turbidity barriers and other efficient devices have been installed throughout the airport drainage system to remove pollutants from the stormwater prior to their final discharge into the canals.

Stormwater Pollution Prevention Plan (SWPPP). The SWPPP for construction and industrial activities at the airport makes contractors and tenants implement appropriate practices such as protection of existing drainage structures, employee training, preventive maintenance, spill prevention and response, housekeeping, etc. to prevent pollutants from entering the airport drainage system.

Stormwater Monitoring Program. Surface water samples are collected on a monthly basis where the stormwater from the airport discharges into the canals. Additional samples are collected during storm events and investigative samplings for analysis.

DRINKING WATER QUALITY

The quality of the drinking water is tested on a monthly basis throughout the airport. MIA has replaced all drinking water fountains not meeting the potable water quality criteria.

- Storm and surface water quality at MIA has largely met applicable standards and permit conditions   -   Abundant wildlife is present in all the canals at MIA   -

- The tree canopy at MIA includes more than 10,000 trees, resulting in an estimated CO2 emission reduction of 30 tons per year -

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The quality of the water at the canals surrounding the airport is monitored monthly to prevent surface water contamination, ensuring a safe habitat for fish, birds and other wildlife.

Manatee barriers have been installed to prevent these endangered mammals from entering the MIA canals and getting stuck in small pipes.

FISH, WILDLIFE AND PLANTS

The number of trees (canopy cover) at MIA is higher than the standard canopy in Miami-Dade County. The area at MIA, excluding the airside (runways, gates and taxiways), is 45% under tree canopy. The County is 10% under canopy.

MDAD maintains more than 10,000 trees at this airport.

ENERGY CONSERVATION

Due to its large facilities, Miami International Airport consumes a substantial amount of energy, using approximately 300 million kilowatt-hours of electricity in a year. Over the last three years, the electricity consumption has decreased due to an extensive energy reduction initiative.

Some of the measures adopted in this energy reduction initiative were:

Re-lamping with less and more efficient fluorescent bulbs.

Installation at the Central Chiller Plant of a Thermal Energy Storage System that produces ice during the off-peak time to cool the air during the on-peak time, resulting in a saving of electricity. FPL issues a rebate to the airport of $300 for every ton produced.

In fiscal year 2005-06, we replaced more than 100 CRT (cathode ray tube) computer monitors with LCD (liquid crystal display) monitors. The LCD monitors use very little power and emit less heat and radiation than CRTs, saving MDAD 60% in electricity costs.

-   With ultimate expansion capability to 40,000 tons of refrigeration, Central Chiller Plant East will support the efficient operation of MIA well into the future -

- The elimination of the waste incinerators at MIA reduced CO2 emission by 109 tons and the energy cost savings was 38.8 million BTUs -

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Miami International Airport has measures in place designed to reduce air pollution, greenhouse gases and energy consumption as part of the drive to preserve the global environment.

Elimination of the Incinerators

Since July 2001, international waste is no longer incinerated. It is now placed in closed containers that are taken to the new Transfer Station, where it is compacted and liquids generated in that process are disposed via the sanitary sewer. Then the compacted solid waste is taken in the same closed containers to a power co-generating facility.

MIA eliminated incinerators to reduce air emission and save energy by eliminating natural gas usage.

We have reduced the travel distance for the fueling trucks with the establishment of the West End Fuel Tender Facility. The diesel fuel use reduction as a result of shorter distance is expected at 20,890 gallons per year.

EMISSIONS REDUCTION

Reducing CO2 with Ground Power Units (GPU)

Parked aircraft use a small internal engine known as an auxiliary power unit (APU) to provide electricity and air conditioning. However, this generates a considerable amount of exhaust emissions and noise.
Large aircraft such as the Boeing 747-400 generates about one ton of CO2 per hour with an APU but only 80 to 90 kilograms with a GPU.
At Miami International Airport, we have been replacing the Diesel Fuel Ground Support Equipments (GSE) that provide AC and power for aircraft at Concourse H with fixed GPUs as an alternative to the APU and diesel GSE. The GPU supplies the aircraft with power and pre-conditioned air from airport facilities and, therefore, the CO2 emission is far less than the APU and diesel GSE. These represent an estimated reduction of 131,400 gallons of diesel per year.

Miami International Airport has a Tenant Environmental Compliance Auditing and Assistance Program.

All tenants are required to comply with federal, state and local environmental regulatory requirements, as well as to maintain all required permits, licenses and related documentation. The Tenant Auditing Program provides them with guidance and assistance in their efforts to achieve environmental compliance, waste minimization, pollution prevention (P2), and improved environmental management.
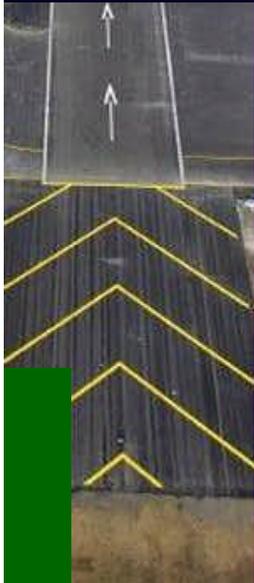
TENANT AUDITING PROGRAM

- MIA has 2.7 million square feet of leased cargo facilities   - In 2006, two million tons of air cargo was handled at MIA, and 32.5 million passengers used the airport

INTERNAL AUDITING PROGRAM

Internal audits of the MIA Environmental Management System are performed monthly by Internal EMS/Safety Auditors. They check all Maintenance shops, warehouse and offices for environmental compliance and safety violations. These audits are part of the annual regulatory compliance audit and represent the procedure to assure a successful ISO 14001 annual environmental re-certification of the airport.

GREEN PURCHASING

Green purchasing includes the acquisition of recycled content products, environmentally preferable products and services, bio-based products, energy- and water-efficient products, alternate fuel vehicles, products using renewable energy, and alternatives to hazardous or toxic chemicals.

The Miami-Dade Aviation Department, as a part of Miami-Dade County, participates in the green-purchasing mandate.

MIA buys directly from GSA (General Service Administration) or through contract services a variety of green products, including:

- **Green seal cleaning products**

- **Plastic desk accessories**

- **Binders**

- **Note pads**

- **Clipboards**

- **Cardboard storage boxes**

- **Desk pad planners**

- **Hybrid vehicles**

- **Bathroom fixtures to save water**

- **Paper cups**

- **This report**

- MIA is replacing bathroom faucets and urinals to reduce the consumption of water -

- US Green Building Council, ISO 14001 and Green Seal Products are some of the tools that MIA is using to reduce its environmental footprint -

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The Green Building project is designed to help airports achieve quick and measurable benefits in environmental quality and energy savings and reduce conflicts with local communities. Its goal is not just to make airports greener but to accommodate their growth in a manner that illustrates the principles of sustainable development and creates more livable communities.

MIA is building its new terminals with bigger areas for windows to have more day lighting. This measure allows a more pleasant environment for the passenger and reduces energy consumption.

GREEN BUILDING

Every time we need to replace the terminal seating, we refurbish the seats but re-use the same frame, saving 75% of the cost, valuable landfill space and materials.

An Airport Commissioning Team oversees all the operational systems to make sure that they function as designed and that they follow the principles of the U.S. Green Building Council.

Miami International Airport, through Miami-Dade GSA Fleet Management, began utilizing Hybrid Electric Vehicles (HEVs) in 2004 with the assignment of one Toyota Prius. MIA has plans to receive more HEVs vehicles in the coming years. In 2006, MIA purchased 10 electric tugs.

During the coming years, the MIA Fuel Facility will consider conducting a pilot program to use bio-diesel fuel.

Also, there are plans to link the MIA terminal with the countywide transit system using an electric people mover. These initiatives are part of an effort to improve the overall fuel efficiency of the County's passenger and vehicle fleet.

GREEN FLEET

It all adds up to cleaner air

I'm a fuel efficient hybrid vehicle

- The creation of the free cell phone parking lot for drivers who are picking up passengers at MIA is part of a CO2 emission reduction initiative around the terminal -

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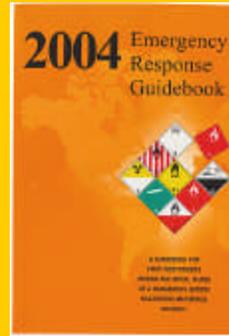
MIA has undertaken, as one of its highest priorities, the prevention of spills from fueling operations. However, due to the large volume of fuel handled and human error, some spillages are unavoidable.

ENVIRONMENTAL EMERGENCY RESPONSE

MIA developed and implemented procedures to minimize environmental damage in case of an accident or emergency situation, especially in the event of spillages or accidental releases. Maintenance crews have been trained in spill containment procedures, emergency communications with key personnel and aid agencies, and the possibility of mutual assistance from neighboring agencies in case it is required.

AIRCRAFT NOISE ABATEMENT

D. Boyd

The Miami-Dade Aviation Department (MDAD) has taken a proactive approach to dealing with community concerns over aircraft noise. The Noise Abatement and Environmental Planning Office is working with the Federal Aviation Administration (FAA), Noise Abatement Task Force (NATF), airport users, civic organizations and surrounding municipalities to develop strategies for the reduction of noise impacts associated with aircraft operations at Miami International Airport (MIA), and all General Aviation Airports operated by MDAD.

The most recent accomplishment happened in mid-2006 when the FAA issued MDAD a Finding of No Significant Impact (FONSI), and a Record of Decision (ROD) for Phase I of the Operational Noise Mitigation Procedures Environmental Assessment for MIA. The FAA started implementation of these new operational noise mitigation procedures on March 15, 2007.
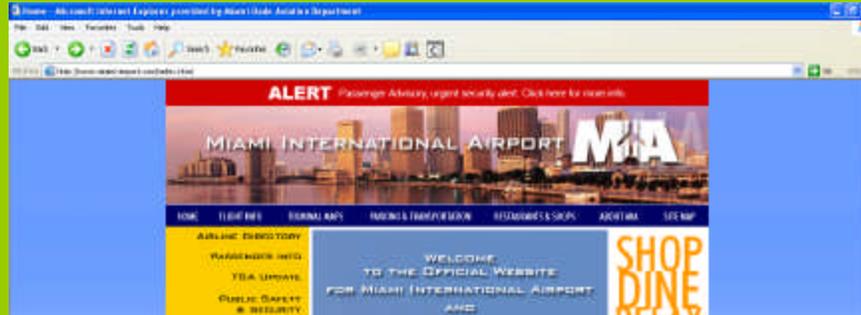

Noise wall constructed along NW 36th Street designed to reduce noise levels associated with aircraft ramp/ground activity. Since its construction, aircraft noise levels have been reduced at least 10 decibels within 500 feet of the barrier. Benefits beyond 500 feet also are being experienced.
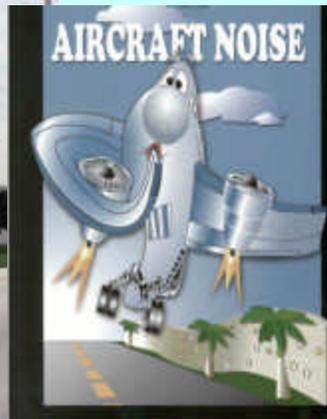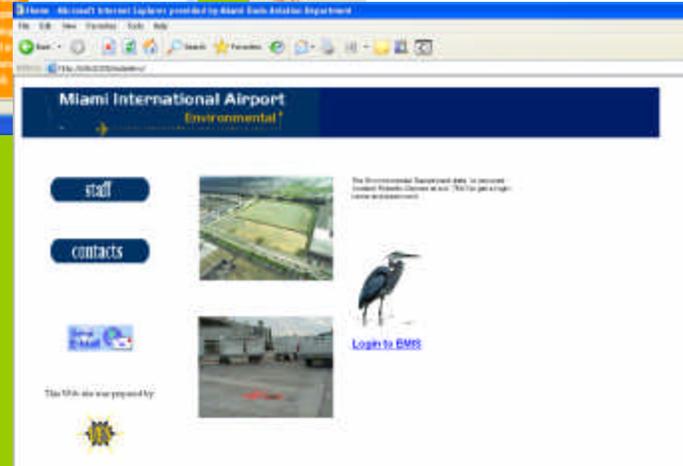

MIA encourages public input and participation to ensure that both existing and proposed developments/procedures are acceptable to both aviation interests and neighborhood communities.

If you have a concern regarding aircraft noise and would like to register a complaint, contact the Aircraft Noise Complaint Line at (305) 876-PLANE (7526) or e-mail us at noise@miami-airport.com.

ENVIRONMENTAL COMMUNICATION

The Miami International Airport website provides a wide range of information, including the latest flight information and guidance on its facilities. Besides the state of airport development and operation, the MIA public website and intranet site offers information for employees, tenants, consultants, contractors and the community on its environmental management system and a variety of environmental compliance issues.

www.miami-airport.com

GLOSSARY

Abatement: Reducing the degree or intensity of, or eliminating pollution.

Asbestos: A mineral fiber that can pollute air or water and cause cancer or asbestosis when inhaled.

Best Management Practices (BMP): Methods that have been determined to be the most effective, practical means of preventing or reducing pollution from non-point sources.

Chiller: A device that generates a cold liquid that is circulated through an air-handling unit's cooling coil to cool the air supplied to the building.

Contamination: Introduction into water, air, and soil of microorganisms, chemicals, toxic substances, wastes, or wastewater in a concentration that makes the medium unfit for its next intended use. Also applies to surfaces of objects, buildings, and various household and agricultural use products.

Disposal: Final placement or destruction of toxic, radioactive, or other wastes; surplus or banned pesticides or other chemicals; polluted soils; and drums containing hazardous materials from removal actions or accidental releases. Disposal may be accomplished through use of approved secure landfills, surface impoundments, land farming, deep-well injection, ocean dumping, or incineration.

Emission: Pollution discharged into the atmosphere from smokestacks, other vents, and surface areas of commercial or industrial facilities; from residential chimneys; and from motor vehicle, locomotive, or aircraft exhausts.

Environment: The sum of all external conditions affecting the life, development and survival of an organism.

Environmental Management System: Comprehensive process to identify, prioritize, and manage an organization's environmental aspects and impacts.

Environmental Audit: An independent assessment of the current status of a party's compliance with applicable environmental requirements or of a party's environmental compliance policies, practices, and controls.

Greenhouse gas: A gas, such as carbon dioxide or methane, which contributes to potential climate change.

Ground Water: The supply of fresh water found beneath the Earth's surface, usually in aquifers, which supply wells and springs. Because ground water is a major source of drinking water, there is growing concern over contamination from leaching agricultural or industrial pollutants or leaking underground storage tanks.

Hazardous Waste: By-products of society that can pose a substantial or potential hazard to human health or the environment when improperly managed.

Oil Spill: An accidental or intentional discharge of oil which reaches bodies of water. Can be controlled by chemical dispersion, combustion, mechanical containment, and/or adsorption. Spills from tanks and pipelines can also occur away from water bodies, contaminating the soil, getting into sewer systems and threatening underground water sources.

Pollution: Generally, the presence of a substance in the environment that because of its chemical composition or quantity prevents the functioning of natural processes and produces undesirable environmental and health effects. Under the Clean Water Act, for example, the term has been defined as the man-made or man-induced alteration of the physical, biological, chemical, and radiological integrity of water and other media.

Restoration: Measures taken to return a site to pre-violation conditions.

Run-Off: That part of precipitation or irrigation water that runs off the land into streams or other surface-water. It can carry pollutants from the air and land into receiving waters.

Source: EPA Environmental Glossary 2004

"We do not inherit the earth from our ancestors, we borrow it from our children" ~ Native American Proverb

"The activist is not the man who says the river is dirty. The activist is the man who cleans up the river" ~ Ross Perot

"You must be the change you wish to see in the world"~ Mahatma Gandhi

"There are no other Everglades in the world. . . . Nothing anywhere else is like them" ~ Marjory Stoneman Douglas

"Water is the driving force of all nature" ~Leonardo Da Vinci

CREDITS

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2007

Miami International Airport

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