

BIRD CONTROL AND DETERRENT PLAN

ACUA Environmental Park

Prepared for:

New Jersey Department of Environmental Protection
Solid and Hazardous Waste Management Program



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1.0 Introduction

The Atlantic County Utilities Authority's Haneman Environmental Park consists of a number of facilities designed to implement the County Solid Waste Management Plan. A scale house, transfer station, landfill, recycling center and yard waste compost facility are sized to manage all of the County's waste and recycling. These facilities process six (6) waste streams (DEP types: 10 municipal solid waste [MSW], 13 bulky waste, 13C construction and demolition waste, 23 vegetative waste, 25 animal and food processing waste and 27 dry industrial waste).

Because the Atlantic County Utilities Authority (ACUA) facilities are located near the Atlantic City International Airport (ACY) the Federal Aviation Administration (FAA) has expressed concern over the potential for the site to attract birds that could create an air safety issue. Thus the permits issued by the New Jersey Department of Environmental Protection (DEP) to construct and operate the ACUA facilities contain conditions that are designed to decrease the attractiveness of the site to birds, particularly gulls. Thus, bird control and monitoring have been part of the operating permits for the ACUA facilities.

A bird control and monitoring program was begun on the site in August 1990 when the Transfer Station began operation. The program was updated in 1992 when the bulky waste landfill began operating, and in 1995 when the transfer station permit was renewed. The bird control and monitoring conditions became part of Operations and Maintenance (O&M) Manual for the landfill and transfer station that has been approved by the DEP.

This document represents the latest revision of the Bird Control and Deterrent Plan that was instituted at the ACUA site in conjunction with the acceptance of MSW at the landfill on site. The Bird Control and Deterrent Plan was tested as part of a two-year research, demonstration and development (RD&D) project allowing the acceptance of municipal solid waste in the ACUA landfill. The RD&D project began in October 1997. The Bird Control and Deterrent Plan was developed and has been monitored by a leading wildlife consulting firm, LGL Limited. LGL has extensive experience in bird control at landfills and airports. Input from interested parties, including the FAA, USDA-Wildlife Services, Air National Guard, South Jersey Transportation Authority and local property owners was also used in the development of the plan.

2.0 Bird Control and Deterrent Plan

The Bird Control and Deterrent Plan for the ACUA Environmental Park consists of three principal elements: waste handling procedures, habitat management on the site, and active bird scaring measures. The key to the control program is to insure that the waste handling procedures minimize the food waste that is available to gulls through night landfilling and good cover. The habitat on the site is managed to reduce its attractiveness to gulls and other hazardous species. This reduces the numbers of birds on the site and makes active control easier to conduct. The active scaring techniques are used on the few gulls that actually do frequent the site.

2.1 Waste Handling Procedures

All MSW (Id 10 waste) is delivered to the transfer station during the day. The MSW is transferred to covered trailers and staged either inside the transfer station or at the staging area behind the transfer station. The area behind the transfer station (Western side of the building) is the designated staging area for transfer trailers. Bulky Waste (Id 13), Construction and Demolition Waste (Id 13C) and Dry Industrial Waste (Id 27), which generally does not attract hazardous birds, is either landfilled during permitted waste processing hours or loaded into transfer trailers. Transfer trailers that are loaded with Bulky Waste (Id 13) and Construction & Demolition Waste (Id 13C) are staged outside of the transfer station either at the designated staging area (western side of the building) or at the “drop lot” (the lot on the northern side of the transfer station).

Landfilling of the municipal solid waste (MSW) begins one hour after sunset. Most birds do not feed at night and gulls are at their distant night roosts. No gulls visited the landfill at night during the disposal of MSW during the first 135 months of the program. The bulky waste, construction and demolition waste, dry industrial waste and MSW is disposed of in the same active tipping area. To insure that all waste is deposited in the appropriate area, all trucks depositing waste at the landfill at night are driven by trained ACUA personnel.

Waste is covered by 6 inches of soil or other non-food containing waste (i.e. bulky, construction & demolition or dry industrial waste) or by approved alternative daily cover (ADC). Care is taken to insure that the cover is complete. The cover is inspected by the Night Manager to insure that no waste is protruding. The cover is completed at least an hour before sunrise to insure that no waste is exposed to gulls that fly over the site in the early morning on their way to inland feeding areas.

After the daily cover is applied to the active area at night, it is examined by the Night Manager to insure that no waste is exposed. ACUA’s biologist will also inspect the landfill’s cover, as an added precaution. The ACUA biologist will arrive on site shortly after sunrise to inspect the cover on the active area for any exposed waste. If any waste is exposed, it will be covered immediately and any necessary bird control action will be taken. The cover check will be conducted Monday through Sunday mornings, after the waste disposal on the previous evenings.

The area behind the transfer station is the designated staging area for transfer vehicles (please refer to ACUA’s O&M Manual Section 2.2.5 Transfer Station Operations, 2.2.5.1 General). This area will be utilized for the purpose of staging loaded and unloaded trailers. These trailers occasionally leaked leachate and small bits of waste, which could attract Gulls. To keep this area from attracting Gulls, ACUA implemented the following:

- A monofilament overhead grid has been installed over the entire designated staging area outside the transfer station. This discourages the attraction of gulls to the outside area.
- Both wet & dry MSW will be mixed prior to loading. This will help minimize the occurrence of leaking transfer vehicles.
- Each transfer trailer will be inspected for hanging debris, exposed food or other waste prior to leaving the transfer station.
- If excessive leachate is leaking from any transfer trailer, ACUA will temporarily stage them inside of the transfer station.

- If any leachate does occur outside of the transfer station ACUA will utilize acceptable procedures for clean up.
- No loaded trailers will be staged outside for more than a 24 hr period.
- All waste-containing vehicles that leave ACUA landfill property will be covered or closed.
- ACUA transfer station's supervisory staff will monitor the bird activity at the transfer trailer staging area and will be responsible for assisting the wildlife biologist with bird control.

In addition, physical design features at the Transfer Station also serve as bird deterrents. These include a wire grid system on the roof that prevents gulls from loafing there and wire grids above the truck entrance and exit to prevent gulls from entering the station and from feeding on spilled food scraps before they can be cleaned up.

2.1.a Plasma Installation

Sometime in mid-2011, the NRG Energy Plasma Gasification Research, Development and Demonstration (RD&D) Project will be opened on a parcel of land immediately north of the existing Transfer Station. This plasma gasification plant will have the capacity to process 150 tons of municipal solid waste a day maximum during the initial RD&D phase. This addition to our facility is not expected to be an attractant for gulls. In the event that it does attract unwanted hazardous birds, this facility will be easy to monitor due to its central location and proximity to the existing Transfer Station. This site will be easily incorporated into the Biologist's Survey protocol and birds detected there will be included in each data sample taken at the Transfer Station.

2.2 Habitat Management

A very effective form of bird control at a landfill is to make the habitat at the site unattractive to hazardous bird species. The habitat management measures tend to be permanent and they are effective both at night and during the day.

The most effective habitat management measures are the operational waste handling procedures (discussed above) that insure that waste is not available as food for diurnal birds. Additional habitat measures are designed to reduce the attractiveness of the Environmental Park to bird species that are potentially hazardous to aircraft using Atlantic City International Airport (ACY).

The major habitat management task at the site was completed in 1998. The site contained large water-filled excavated areas that supported substantial numbers of gulls, geese and ducks. Filling of these areas was completed in September 1998. Thus, a major bird attraction on the site has been eliminated by use of habitat management techniques.

Gulls are attracted to large bare areas for loafing. The lack of vegetation on these areas allows the gulls an unobstructed view of approaching predators. To reduce loafing habitat on the ACUA site, bare areas such as completed cells will be, and have been, planted with vegetation as soon as possible. In many cases, the vegetation is also needed to control erosion. Vegetation will be maintained at heights of at least 14 inches. Similarly, efforts will be made to delay disturbance of soil in areas needed for future cells since such disturbed areas can attract gulls.

Gulls use perch points like street lights and flat roof tops, such as at the Fuel Island and The Scale House. ACUA has installed solar powered bird deterrents and bird netting at the Fuel Island and the Scale House. At other possible perch points throughout the site such as utility and light standards, ACUA has installed passive bird deterrent devices such as 'bird spike' and similar apparatus. Repairs and adjustments to such passive bird deterrent apparatus are ongoing.

In an effort to remove large flying insects such as grasshoppers that have been observed as a source of food for gulls, pesticides are used. ACUA applies pesticides to the interior of the Landfill's footprint annually as needed. ACUA restricts pesticide application to the footprint of the landfill, under which an impermeable leachate collection system protects the groundwater in order to limit possible contamination. ACUA hires licensed pesticide applicators to apply the pesticides.

In addition to reducing the numbers of birds on the site, effective habitat management makes active bird control easier by reducing the size of the area that must be controlled.

2.3 Active Bird Control

A low-intensity active bird control program was in place at the Environmental Park starting in 1990, and the landfill from 1992 until 1997. This program consisted of pyrotechnics being used at the active bulky waste disposal area by the equipment operators. As part of the RD&D, a more active bird control program was instituted in October 1997 over the entire Environmental Park. This program consists of pyrotechnics being used at the active disposal area by the equipment operators, ACUA biologist and other trained staff. The biologist and trained staff have extended the use of pyrotechnics to other parts of the site that may attract birds. The same active control techniques are available for use at night, but they have not been found to be necessary. Components of the active bird control program are discussed below.

- The equipment operators and other Transfer Station/Landfill personnel use pistol-fired pyrotechnics at the landfill. This technique is very effective, particularly since gulls are not actively feeding at the bulky waste that will be disposed of during daylight. An Annual Bird Deterrence Refresher Training workshop is given to all personnel involved in Bird Control.
- Pyrotechnics are used at other parts of the site, as necessary. The ACUA staff biologist conducts Biologists Surveys five times a day to determine if hazardous birds are present on the ACUA site. Such birds will be scared away using pyrotechnics. These Biologist Surveys cover all parts of the site that attract potentially hazardous bird species. This includes the active disposal cell, closed landfill cells, sedimentation ponds, vegetation compost area, transfer station, and recycling center. When gulls are present, bird controllers provide continuous control coverage throughout the day.
- ACUA will continue to hire and train additional Wildlife Technicians when necessary to insure year-round dawn to dusk coverage.
- Depredation control permits have been obtained from the U. S. Fish and Wildlife Service and NJDEP Division of Fish and Wildlife to allow the killing by shotgun of gulls, geese, vultures and starlings. These permits will be acted on when certain behaviors are exhibited by flocks.

Examples of behaviors that will trigger a 'take' of birds include the apparent habituation to the standard pyrotechnics and flight patterns indicating repeated travel to and from area attractions such as nearby housing developments or water features.

- A simple reporting system has been instituted so that the numbers of control incidents are recorded. Over time, the numbers of control incidents should remain stable or decline. If the numbers of incidents increase, it may indicate that a problem is developing and that remedial action is required. The incident reporting system will be used for early warning of any problems that develop.
- Seasonal and construction-related bodies of water located around the ACUA site can attract flocks of gulls for the purpose of bathing. Future construction contracts will include financial penalties for contractors who fail to maintain a construction area free of water.

3.0 Monitoring and Research Program

When operations began at the landfill, three to four daily bird counts were recorded, providing extensive historical data on bird activity at the ACUA site. Landfill operational staff conducted these daily bird counts after minimal training. That program ended in December 1998 and provides baseline data for the 7-year period from 1992 to 1998. The results of the 1-year test of the Bird Control and Deterrent Plan in 1998 have been compared with the previous 6 years to document the dramatic decrease in gull numbers at the site (see report by Davis and Mangino 1999). The surveys that have been conducted by landfill staff are useful for comparing major trends in numbers over the years; however, they are not conducted by trained biologists and do not provide the level of precision needed for future monitoring. Therefore, these surveys were replaced by the 'Biologist Surveys' that are conducted by trained biologists. The 'Biologist Surveys' were begun in October 1997.

The Bird Control and Deterrent Plan were tested under the RD&D program at the Environmental Park. The Bird Control and Deterrent Plan included significant monitoring and research components. These components have been combined into an operational monitoring program to accompany the requested operating permit. The monitoring program will collect the data needed to determine whether gull numbers are being maintained at acceptable levels that prevent bird hazards arising. In addition, the program will maintain those elements of the research program that provided data necessary for interpretation of the numerical results from the monitoring.

The basic objective of the monitoring and research program is to document the numbers and species of potentially hazardous birds that are attracted to the ACUA site by the waste disposal activities. Only species that are actually attracted to the landfill and that could potentially affect air safety will be considered. The principal species of concern are gulls, geese, vultures and starlings.

The main elements of the 'Monitoring and Research Program' are outlined below.

3.1 Night Observations

The Night Manager at the landfill is on site during the entire MSW disposal period. The manager

makes observations through the night and records his findings. Thus, if any birds approach the lighted MSW disposal area, that information will be available to the ACUA Biologist the next day. The ACUA biologist made observations at the landfill during the night disposal of MSW at least one night per week until May 2002. During the RD&D program, these observations had been made on two nights per week. However, since gulls have not yet been seen at the site at night (as of June 2009), it was agreed by DEP to eliminate the night observations by the biologist. In the unlikely event that gulls do appear at night, then the coverage would be increased and control initiated, if necessary.

3.2 Biologist Surveys

The Biologist Surveys are conducted by the ACUA Biologist and Wildlife Technicians. These surveys document the numbers of gulls and other potentially hazardous species that occur at all of the potential attractions at the site. If gulls are present, the biologist or technician on duty records the numbers and behavior of the birds at that specific survey point. The birds are simultaneously harassed away from the ACUA site. All gathered data are recorded in the Bird Control Events log, with a check box indicating if birds were observed on a particular Biologist Survey. Once the survey point is cleared of potentially hazardous birds the survey continues with the next prescribed survey point. Each Biologist Survey covers all active and inactive landfill cells, cleared areas designated for future cell construction, sedimentation ponds, vegetative composting area, the transfer station and associated pond, the recycling center and one additional ‘view only’ survey point which is described below. The Biologist Surveys are conducted at regular intervals every day of the year and in all weather.

An additional survey point was added to the Biologist Survey on April 1, 2009. A large housing development on property adjacent to the landfill has attracted loafing gulls. A Beazer Homes community known as ‘The Gatherings at Bel Air Lakes’ began construction in 2005. Since that time, gulls have perched on the rooftops of these buildings in the daytime with an unrestricted view of the landfill and are undeterred by the controllers due to the fact that this location is on private property.

Aerial behavior of key species such as gulls and vultures will be documented at the site. Towering behavior will be assessed and the environmental conditions conducive to this behavior will be determined.

3.3 Bird Control Monitoring

The numbers and types of bird control activities used at the site are documented. It is important that the amount of effort needed to control gulls be quantified so that the onset of habituation by gulls can be determined and countered. The Equipment Operators at the active disposal area use pyrotechnics to scare gulls. The numbers of shots that they fire each day are recorded. The ACUA Biologist and wildlife technicians conduct the most intensive control efforts at the site. Each control incident is recorded in terms of location, numbers and types of birds involved, behavior of the birds, type of control applied, and numbers and types of pyrotechnics used. These data are summarized to document trends.

Bird deterrence operations are ongoing throughout the daylight hours from dawn to dusk every day and in all weather.

3.4 Regional Monitoring

In order to interpret trends in gull numbers at the ACUA site, it is important to have information about gull numbers and behavior in surrounding areas. This information is obtained through two types of surveys.

Gulls roost at night along the coast and fly inland in the early morning to feeding areas. Some of these gulls pass directly over the ACUA site. If there are major changes in the numbers that fly over the site, then there may be corresponding changes in the numbers at the site or there may be increased control activities required. The numbers flying inland are monitored during a "Morning Flyover Survey" one morning every month from 0.5 hours before sunrise until 2.5 hours after sunrise.

The second type of regional monitoring involves "Offsite Surveys" of surrounding areas. Fifteen specific locations are surveyed every month. Survey locations include regional and local shopping centers, schools, fast-food restaurants, parks, campuses, and agricultural areas. The numbers of gulls attracted to these sites is compared to the numbers at the ACUA site.

4.0 Summary of Plan

The proposed BCDP is an integrated approach to minimizing the numbers of hazardous bird species at the ACUA Environmental Park. This revised Plan contains all the components of the existing plan that has been in operation since October 1997.

The BCDP consists of 5 major elements: handling of waste, habitat management, active bird control, monitoring, and research. The revised plan is basically the same plan that has operated successfully as part of the RD&D project at the ACUA site since 15 October 1997. The plan was upgraded beginning in autumn 2004 to the full scale dawn-to-dusk control program that is presently in place.

The RD&D plan has been developed, supervised and reported by ornithological consultant LGL Limited. LGL has continued to be involved in a supervisory role under the new permit to insure that all aspects of the program operate as planned, that bird hazards are not created, and that the Bird Control and Deterrent Plan operates effectively.

The Bird Control and Deterrent Plan has been very successful and has resulted in significant decreases in bird numbers at the Environmental Park. These reductions have been well documented in the quarterly and annual reports (e.g. entitled *Research, Development and Demonstration Plan Disposal of Municipal solid Waste at the ACUA Landfill: Full Year report - 15 December 1997 to 14 December 1998*. Report by LGL Limited to Atlantic County Utilities Authority, 12 February 1999. 116p.) The quarterly and annual reports are available for each year since January 1998.

5.0 Shutdown Procedures

It is recognized that if the ACUA Landfill and Transfer Station attract large numbers of hazardous bird species, then there could be a potential hazard to aircraft safety at the Atlantic City International Airport. To insure that this situation does not occur, there is detailed habitat management,

a comprehensive bird control plan, and a systematic monitoring program at the site. These are described elsewhere in the O & M Manual. As a failsafe mechanism, a shutdown procedure is outlined in this section to be invoked if long-term problems develop that cannot be solved.

Review Task Force

A task force of relevant stakeholders monitored the progress of the 2-year (1997-1999) experimental program of night landfilling of municipal solid waste at the ACUA Landfill. This task force consisted of representatives of the NJDEP, SJTA, FAA (region, headquarters, and Tech. Ctr.), NJANG, USDA Wildlife Services, adjacent landowners, and the ACUA and its specialist consultant, LGL Limited. This Review Task Force continues to meet quarterly and will have a continuing role in monitoring the ongoing success of the bird control activities at the ACUA site.

Airport Notification

The Atlantic City International Airport Operations Office will be notified if the number of gulls on any part of the ACUA site exceeds 75 during any monitoring survey or at any other time. The number 75 has been chosen because it is below the bottom end of the range of numbers that might be considered to cause a safety concern to aircraft using the airport.

If 75 or more gulls are detected sitting on, foraging or flying over or on a part of the site, then they will immediately be dispersed (as are all gulls found on the site), and the airport control tower will be notified. The telephone number of the Atlantic City International Airport Operations Office is (609) 646-6624.

It will be important for the airport members of the Review Task Force to brief the control tower staff about the background of the project so that they will understand the situation when they receive a phone call from the ACUA site.

Training to Recognize Potential Bird Hazards

Untrained observers invariably underestimate the numbers of gulls in an area. Rather than having non-biologist staff counting gulls and perhaps making incorrect conclusions about the numbers present, the O&M Manual stresses that biological conclusions should be reached by biologists. The main role of the non-biologists is to alert the biologists that gulls are present and that a potential problem may be developing.

All ACUA staff that regularly work on the landfill site and management staff that regularly travel on the site will be instructed to watch for gulls on the site and to determine whether any are landing on the site. If gulls are seen to land, the bird controller on duty will be notified and will immediately travel to the area. He will count the gulls to determine how many are present and then he will disperse them. If the number present exceeded 75, then the airport control tower would be notified that there were birds in the area.

The ACUA biologist will meet regularly with landfill managers to reinforce the need to have staff watch for gulls and notify the bird controllers if gulls are present. The biologists will also meet

personally with key operations staff to emphasize the importance of making these observations.

The secret to successful gull control is to not allow gulls to aggregate on the site; therefore, it is important to disperse gulls from the site as soon as possible. The approach outlined above improves the rapidity of response by the biologist/controller.

Bird Surveys, Monitoring and Deterrent Programs

The bird surveys and monitoring programs described elsewhere in this O&M Manual will continue through the life of the DEP Permit. The habitat management and the gull control programs identified in the O&M Manual will also continue.

There will be no modification of the identified bird monitoring, surveying and deterrent programs without written authorization from the Department (NJDEP).

FAA Conditions

The Federal Aviation Administration is charged with insuring the safety of U.S. airports. They have requested that the following be implemented as permit conditions. These conditions are addressed in this section of the O&M Manual.

- The bird counting program as conducted in 1997-99 will be continued.

- The quarterly meetings of the Review Task Force will continue.

- The ACUA will report to the airport control tower the occurrence of any unusual event that creates an unexpected bird attraction at the ACUA site. This will allow the tower to advise airmen of a potential bird concern. An example of such an event would be the period after heavy rain that washed the cover material off the waste and before the cover could be re-established.

An immediate meeting of the FAA/ACUA/SJTA and other interested parties will be triggered if either of the following conditions occurs. If one of the conditions occurs, the FAA or SJTA will notify the ACUA of the occurrence. The ACUA will immediately organize a meeting of the Task Force to address the issue.

- Pilot reports of unusual numbers of birds towering over or near the landfill.

- An aircraft/bird strike occurs that involves birds that are, or may be, associated with the landfill.

If any of the below listed changes occurs, then the ACUA will prepare an action plan to correct the situation. Action plans will be prepared promptly, discussed with, and agreed to by, the Task Force, and approved by the NJDEP. Action plans may include temporary closure of the landfill.

- A dramatic increase in landfill-associated bird species at the airport. Some species occur at the airport in large numbers but are not attracted to landfills. Increases in these species at the airport would not trigger an action plan at the landfill.

-The appearance of birds at the landfill at night.

-Any increase in bird numbers at the landfill that involves a surveying period, with gull counts exceeding 75, three or more times in a single month.

-Any occurrence of 75 gulls or more that occurs on the site will be immediately reported to the control tower at the airport (discussed above).

Waste Diversion

If it becomes necessary to close the landfill to regain control of hazardous bird species, then the municipal solid waste would be diverted to the out-of-state disposal facility under the current operate/haul/dispose contract. Bulky waste, construction & demolition debris and industrial waste that is not a bird attractant, would continue to be disposed of in the ACUA landfill.

Annual Report

The ACUA submits a detailed annual report that describes the results of bird surveys, monitoring and control programs conducted during the previous year. The report evaluates the success of the programs and will recommend any changes that should be implemented. The report is submitted quarterly to the Department (NJDEP) and to members of the Review Task Force.