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Private Industry Initiative at Bird Control: A Success Story

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INTRODUCTION

An increase in land development pressures and land use conflicts in urban centres with airports requires that a greater priority be placed on bird control and wildlife management. This is a particularly high concern for the siting and operation of landfills. Minimizing the potential for bird/wildlife interactions with aircraft is critical to maintaining air traffic safety.

Browning-Ferris Industries (BFI) has demonstrated a corporate sensitivity to the bird management issue. A corporate commitment has been made to address the issue of bird management at waste management facilities in the vicinity of airports. This paper provides an overview of two case studies of BFI sites with quite different challenges regarding bird management: one in Denver, Colorado, and one near Winnipeg, Manitoba. At the Denver site, the BFI facility had been operating for over 15 years when an international airport was established in the vicinity. At the Winnipeg site, the airport has been in operation for over 40 years, and a BFI waste management facility was proposed in proximity to the airport.

This paper will provide an overview of the following:

- A comparison of the two sites.
- The baseline studies conducted.
- The bird control programs established.
- The results of monitoring programs.
- Concluding remarks and discussion.

SITE DESCRIPTIONS

The Denver Site

BFI's Tower Road Landfill is located northeast of the City of Denver in Colorado. The landfill property is approximately 233 ha (576 acres) in size, of which, 192 ha (475 acres) are permitted for landfilling. Operations began in 1981 and approximately 32 ha (80 acres) have been filled (1994). In the late 1980s, construction of a new Denver International Airport was approved, and operations began in 1995. Part of the landfill property is located less than 3 km (10,000 feet) from the end of the southwest east-west runway.

The Winnipeg Site

BFI's Prairie Green Waste Management Facility is located immediately to the north of the City of Winnipeg, in Manitoba. The landfill property is approximately 290 ha (475 acres) in size, of which, 192 ha (175 acres) are permitted for landfilling. Winnipeg has had an international airport in operation for over 40 years. After a siting exercise, BFI received approval to operate a landfill approximately 8 km to the north of the airport and began operations in the spring of 1997. Approximately 8 ha (20 acres) have been filled to date. While beyond the airport exclusionary zone, the landfill is located on the flight path from runway 18/36.

METHODOLOGY

General

While the situations were quite different, BFI adopted a similar strategy in addressing the bird hazard issue at each site. The Denver facility was treated as though the company was siting a new facility adjacent to an airport, as occurred at the Winnipeg facility (Goldby, 1996). The objective was to demonstrate that the facilities were designed and operated in a manner which did not pose a hazard to aircraft movements. The approach was therefore to conduct a regional baseline study and develop a Gull Control Program (GCP), gulls being by far for the most abundant species at landfills. The effectiveness of the GCP was then evaluated through an ongoing monitoring program.

Baseline Study

Baseline studies were conducted at both facilities. At the Denver site, the study was conducted by LGL Limited (Davis and Davis, 1994) from May 1992 to August 1993. At the Winnipeg site, the study was conducted by LGL Limited from April 1995 to May 1996 (Miller and Davis, 1996). For both facilities, the baseline study consisted essentially of the following components:

- Obtain regional information on key habitat areas, such as breeding colonies, roosting sites, and other feeding areas.
- Determine the species and age composition of gulls foraging on the site.
- Examine gull behavior and movement, including times and direction of arrivals and departures, flight elevation, etc.

- Examine the use of habitat on the site (loafing areas, active landfill areas, amount of time feeding, etc.).

Gull Control Programs (GCP)

The objective of the GCP was to exclude all gulls from all parts of the landfill at all times, through the following measures:

- Prompt covering of waste.
- Habitat management (vegetation height, standing water, etc.).
- Active control measures (bangers, crackers, screamers, shells).
- Employee training.

Monitoring Program

At both sites, a monitoring program was established to evaluate the effectiveness of the GCP. It consisted of the following components:

- Quantify the incidence of gulls landing, loafing, “looking low” (circling overhead with intent to land).
- Examine gull behavior and movement, as in the baseline study.
- Examine the use of habitat on the site, as in the baseline study.
- Quantify the use/type of active control measures used.

RESULTS

Baseline Studies

Denver Site

LGL Limited (Davis and Davis, 1994) developed and conducted the baseline study at the Denver facility, and produced detailed results on the study. Prior to the establishment of the GCP, gulls were present at the Tower Road Landfill in substantial numbers. Numbers ranged from lows of 280 in May of 1992 and 139 in July of 1993, to highs of 4,061 in November of 1992 and 5,057 in April of 1993. There were fewer gulls in the winter (513 to 1,950), with increases beginning in mid-March. Species included ring-billed gulls, Herring gulls, Franklin’s gulls, and California gulls, with California gulls being much more abundant than the other species. Gulls were found to make daily round trip migrations of over 138 km (86 miles) from the landfill to roost sites at reservoirs.

Winnipeg Site

LGL Limited (Miller and Davis, 1996) developed and conducted the baseline study for the Winnipeg facility and detailed findings can be found in their report. It is unlikely that gulls were present in any significant numbers prior to the establishment of the landfill, and no observations of gulls were made. A regional study examined gull use at two existing landfills, with gull numbers ranging from 2,100 to 6,400 during mid-April to early-May of 1995. Species included the ring-billed gull, Herring gull, and Franklin's gull, with the first two species being more abundant. Primary roost sites during the study period were found to be a reservoir and flooded fields, as much as 50 km (31 miles) round trip distance from the existing landfills.

Gull Control Program (GCP)

Denver Site

In order to implement the GCP, BFI hired two full-time staff who received formal training in gull control and management. Other staff were also trained in the use of pyrotechnics, which included bangers, screamers, crackers, and shells.

An evaluation of on-site habitat indicated that a large flat-topped hill, and several ponds on the site were attracting gulls for loafing purposes. Ponds were either eliminated, or partially drained and taller vegetation allowed to grow. A system of parallel lines consisting of fishing line were placed on the hill, spaced at 12 m (40 foot) intervals at a height of 1.5 m (5 feet), to prevent fall migrants from landing.

Winnipeg Site

The Winnipeg staff integrated gull control into the design of the facility, and addressed many of the habitat issues, as well as integrating a bird control section into the Site Operation Manual. This section had protocols for habitat management, active control, personnel equipment, permits, training, and monitoring. Rather than hiring staff dedicated to bird management, all staff received training in gull control. Active control measures included the use of bangers and screamers, with crackers not being used due to a lack of effectiveness.

Monitoring

Denver Site

The monitoring program at the Denver site was longer and more extensive than the one for the Winnipeg site. During the nine month study period, a total of 3,656 shells were used, averaging 13.6 shells/day or 1.2 shells/hour. Numbers used ranged from 0 to 116/day, with more being required during the spring and fall migrations.

In terms of gull use of the facility, significant reductions over baseline conditions were observed. Landings in active and clean out areas averaged only 1 and 1.5 per operating day, respectively, and 15 per day in loafing areas. "Looking low" numbers ranged from 18 to 107 per operating day in active areas and from 66 to 400 in loafing areas. Total number of gulls using the facility dropped from 2-3,000 before the GCP, to less than 200 (and sometimes less than 1) after the GCP. This results in more than a 95 percent reduction in gull numbers.

Winnipeg Site

Dillon Consulting Limited (1997, 1998) conducted the monitoring programs at the Winnipeg site. During the period of May 1997 to May 1998, shell use ranged from 0 to 225 per day, with an average use of 24 per day. Most were required during the spring (May), with another smaller peak in use in the fall (October).

No gulls were observed landing on the site during operating hours, in either the fall (Dillon, 1997) or spring (Dillon, 1998) gull monitoring periods. The average number of gulls "looking low" was 69 in the fall of 1997, and 52.7 in the spring of 1998.

CONCLUSIONS AND DISCUSSION

Through aggressive, proactive steps, BFI has demonstrated that it is possible to successfully manage gulls at their landfill sites. A structured approach involving establishing baseline conditions in the region, developing a formal GCP, training employees, constant surveillance, and a system of monitoring/auditing is the reason for this success.

BFI's flexible approach to gull management allows them to apply it to both new and existing waste management facilities. The 19 year old Denver site has seen a dramatic decrease (over 95 percent) in gull use, and no gulls have been observed using the new Winnipeg site. It is more difficult to control gulls at the Denver site because they have had many years of using the landfill for feeding and loafing. The GCP was in place at the Winnipeg site as soon as landfilling activities began - the site was made less attractive to gulls, and they were not given an opportunity to "learn" about the new food source. As a result, successes were easier to achieve, and a less intensive GCP was required. At both sites, increased vigilance is required in the spring and fall migration period, when new birds arrive (in the spring), or younger birds are present (fall) since these birds require "training" to avoid the landfill.

An important factor in effectively minimizing bird strike hazards is integrating a regional approach to managing gulls (and other birds). Simply eliminating birds from one site will only shift the problem to other

locations, and may increase the bird strike hazards for aircraft (Bruleigh et al., 1998). It is important to establish a formal bird management committee, so that results, ideas, and resources/costs can be shared. In Denver, BFI requested a working group of government agencies to assist the company in addressing the bird management issues. Representatives from the Federal Aviation Authority, US Department of Agriculture (Animal Damage Control Division), the City and County of Denver, and the Airport Authority have established continuous open communication to address this issue. In Winnipeg, BFI is a member of the Winnipeg Bird Strike Committee, which includes the City of Winnipeg, Transport Canada, the Local Airport Authority, and Wildlife Control personnel. Only by adopting a regional approach, can the hazards concerning bird strike be effectively managed.

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