
OFFICE OF THE CITY AUDITOR

PERFORMANCE AUDIT OF THE DALLAS ZOO ADMINISTRATION

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Memorandum



January 23, 2004

Honorable Mayor and Members of the City Council
City of Dallas

We have conducted an audit of the administrative function of the Dallas Zoo (Zoo), a division of the Park and Recreation Department.

We found that the Zoo has a clearly defined mission statement that provides a basis for the annual goals and objectives. We also conclude that Zoo management adequately monitors the City's contract for marketing and fundraising services with the Dallas Zoological Society, and the contract materially benefits the Zoo. However, the efficiency and effectiveness of Zoo administrative and operational practices could be improved to address additional staffing for animal care and administration, network connectivity, dietary procedures, and records.

These concerns are discussed in the Opportunities for Improvement section of this report.

We appreciate the cooperation of City and Dallas Zoological Society staff during our examination.

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c: Teodoro J. Benavides, City Manager

PERFORMANCE AUDIT OF THE DALLAS ZOO ADMINISTRATION

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EXECUTIVE SUMMARY

We have conducted an audit of the effectiveness of the Dallas Zoo (Zoo) administration, which is administered and overseen by the Parks and Recreation Department (PKR). Our audit reviewed the period from October 1, 2001, through June 30, 2003. As a result of our inquiries, observations, examinations, and tests, we conclude that:

- The Zoo has a clearly defined mission statement that identifies its unique role and provides a clear basis for its annual goals and objectives.
- Zoo management adequately monitors all contracts, including the contract between the City and the Dallas Zoological Society, which materially benefits the Zoo.
- The Dallas Zoological Society has a comprehensive marketing plan that adequately considers several funding sources in the Dallas/Fort Worth area.
- Operating costs are effectively monitored and appropriate action is taken to limit costs when warranted.
- Animal food inventories are properly stored and controlled.

However, improvements should be made to increase the program's efficiency and effectiveness. We have summarized our Opportunities for Improvement below.

- Continued Zoo staffing shortages are reducing the effectiveness of overall Zoo operations.
 - The United States Department of Agriculture (USDA) fined the City for violations found during an investigation into a gorilla escape in 1998. One of the contributing factors identified was a shortage of staff. The City agreed to hire more keepers to comply with the USDA-mandated "two-person rule" for the handling of dangerous animals. However, the City has cut the Zoo budget, preventing the hiring of the additional keepers. As a result, existing staff is required to spend a greater percentage of their time on prevention of safety-related incidents and less time on efforts to maintain or improve animal care facilities.
 - Several full-time responsibilities have been merged into one full-time position with unrealistic performance expectations. The Zoo nutritionist and commissary manager positions have been combined with an adverse effect on the animal dietary records (see third bullet below). Also, the Zoo network administrator position has been merged with two other positions, creating a nine-month backlog in the entry of animal care records.
- The Zoo's computer network impedes operational efficiency. Only the seven Zoo administration buildings are connected to the City's network; fourteen other zoo buildings used for animal care remain unconnected. Many of the Zoo computers are not compatible because they have different operating systems or different versions of application programs. Valuable and rare animals may be

endangered or otherwise harmed because time-sensitive data about their care or feeding is not passed quickly to the Zoo veterinarian or easily retrieved by animal care staff. Considerable staff time is used to hand carry and deliver messages or other data, thereby exacerbating operational inefficiencies.

- Recorded animal diet sheets may not be consistent or reliable. Individual animal diet sheets document the type and quantity of foods actually fed to each animal. These sheets are intended to aid in research and in diagnosing illnesses. The diet sheets maintained in the commissary for the Zoo nutritionist and in veterinary records may not consistently match the diet sheets prepared by the animal keepers. Inconsistent records provide contradictory information and cannot be relied upon to diagnose health concerns or document research. Records cannot be used to predict food usage for inventory and purchasing.
- The Zoo commissary procedures are not completely documented. Written procedures covering the proper storage and rotation of animal food do not include the detailed steps actually performed by the commissary staff. New staff may not consistently perform the procedures properly if more experienced staff do not train them.
- The Zoo's purchasing policies and procedures are inadequately documented. The Zoo administration relies on a few knowledgeable and capable individuals to perform most of the procurement duties. Over-reliance on a few individuals for procurement may result in delays or errors if those persons leave, become ill, or cannot perform any procurement duties.

We commend the department for taking positive steps to resolve these issues.

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Authorization

We have conducted an audit of the Dallas Zoo (Zoo) administration. This audit was conducted under the authority of Chapter IX, Section 2 of the Dallas City Charter and in accordance with the Annual Audit Plan approved by the City Council.

Scope and Methodology

Our examination was made in accordance with generally accepted government auditing standards and, accordingly, included tests of the accounting records and other audit procedures that we considered necessary in the circumstances. Our audit reviewed the period from October 1, 2001, through June 30, 2003.

The objectives of our audit were to determine whether:

- The Zoo has a clearly defined mission statement that adequately addresses all administrative and operating components.
- The contract between the City and the Dallas Zoological Society (DZS) is reasonable and adequately monitored to ensure that the terms are achieved and that the contract materially benefits the Zoo.
- Additional funding sources are identified and considered.
- Operating costs are effectively monitored, and appropriate action is taken when it is warranted.
- Animal food storage and inventories are adequately controlled and reported, and mechanisms to reduce food costs are considered and used when appropriate.
- The Zoo properly manages and adequately monitors contracts.

To achieve our audit objectives, we:

- Reviewed the best practices survey, "Every Great City Deserves a Great Zoo," conducted by McKinsey & Company for the Zoo.
- Reviewed the Zoo mission statement and FY02-03 Zoo and Aquarium goals.
- Reviewed audited financial statements and IRS Form 990s of the DZS and other major U.S. zoos and related fundraising organizations.
- Reviewed various reports and studies on the operation of the Zoo.

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- Reviewed websites of various zoo professional organizations and zoo regulatory agencies.
- Reviewed accreditation documents of the Zoo with the American Zoo and Aquarium Association (AZA).
- Interviewed various Zoo staff members concerning their duties and familiarity with the FY02-03 Zoo and Aquarium goals.
- Examined and compared Zoo organization and staffing charts with related budget documents.
- Examined Zoo budget spreadsheets and source documents.

Overall Conclusion

As a result of our analysis and tests, we conclude that:

- The Zoo has a clearly defined mission statement that identifies its unique role and provides a clear basis for its annual goals and objectives.
- The Zoo benefited from operational reviews performed by a wide variety of outside agencies and companies. Zoo management has capitalized on them by using these recommendations in its planning process.
- Zoo management adequately monitors the contract between the City and the DZS, and the contract materially benefits the Zoo.
- The DZS has a comprehensive marketing plan that adequately considers several funding sources in the Dallas/Fort Worth area.
- Zoo management effectively monitors operating costs, and appropriate action is taken to limit costs when warranted.
- Animal food inventories are properly stored and controlled.
- Contracts are adequately monitored.

However, we identified improvements to the Zoo's efficiency and effectiveness. Our concerns are discussed in the Opportunities for Improvement section of this report.

Background

The Zoo is one of the oldest public zoos in Texas. It was started in 1888 at Old City Park and was located briefly at Fair Park before moving to its present location in 1912. Over the remainder of the century, growth at the Zoo corresponded to the economic cycles of Dallas. Today, it sits on 95 developed acres in North Oak Cliff. The Zoo contains a collection of 1,825

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animals of 356 species. The Aquarium at Fair Park is a division of the Zoo; its collection includes 4,676 animals of 355 species. The Zoo is an accredited member of the AZA. As a member of the AZA, the Zoo participates in the Species Survival Plans (SSP) for 37 endangered or threatened species, including gorillas, tigers, chimpanzees, lemurs, and okapis.

PKR and the Park Board administer the Zoo. For most of its history, the Zoo has also relied on the direct support of a variety of organizations that raised donations and recruited volunteer help for the Zoo. Those groups were formally organized into the non-profit DZS in 1955. All of these groups cooperated to purchase new animals and build new facilities for the Zoo.

DZS has a contract with the City to operate the concessions at the Zoo and provide marketing and fundraising services to the Zoo. The contract allows DZS to retain all of the concession and membership revenue and pays DZS a marketing fee based upon the level of attendance at the Zoo. The contract also requires DZS to seek donors and develop both corporate and individual gifts for the Zoo. DZS has a marketing plan that identifies the segments of the Dallas/Fort Worth market that are willing to support the Zoo and provides several steps to approach them for donations. Zoo management approves all concession and marketing activities.

The Animal Welfare Act (AWA) was passed in 1966 and, in 1970, it was expanded to include warm-blooded animals exhibited to the public. The Act contained measures to ensure the humane care and treatment of those animals and to minimize harmful risks to both the public and to the animals. These measures have gradually made the zoo industry more professional and have also greatly increased the operating costs of zoos across the country. The AWA has had several effects on the Zoo. Formerly, any growth at the Zoo usually depended upon the generosity of donors. Now, the AWA requires careful planning (which considers all facets of the animals' and the public's health) for animal exhibits. This requirement greatly increases both the initial capital costs and subsequent operating costs for any new exhibit. In addition, the AWA has led to a dramatic increase in public expectations of zoos for conservation and education.

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The Park Board commissioned a \$75,000,000 master plan in 1981. Dallas voters approved a bond issue of \$18,500,000 to fund the first phase of the Wilds of Africa exhibit under this plan. However, as the Dallas economy began to decline in the mid-1980's, the remainder of the plan was abandoned due to a lack of funds.

In 1992, PKR commissioned a Long Range Strategic Plan for the Zoo following a major gift from Exxon Corporation. This 20-year plan was intended to highlight the natural beauty of the park and emphasize up-close contact with the animals. The department hired Portico, Inc., a planning and design firm that specialized in zoos and other public education facilities. The plan was completed in 1994 and called for a comprehensive reconfiguration and update of the Zoo's facilities over a 20-year period. The DZS pledged to match City bond funding for the initial improvements, and the combined funding totaled nearly \$30 million.

The DZS also asked management consultants McKinsey & Company, Inc. to help set a new strategy for the Zoo. They performed a survey of the London Zoo and twelve major U.S. zoos to identify those operating practices that exemplified the best zoos. Zoo management used the McKinsey survey as background data for the development of the Zoo's 2001 Long Range Development Plan and the following mission statement:

We exist to broaden support for worldwide conservation efforts by creating an environment which allows our community and visitors to experience dramatic, engaging, and diverse presentations of the living plant and animal world through excellent animal management, solid conservation science (research) and dynamic educational programs.

Zoo management sets annual Zoo and Aquarium goals that reinforce this mission. More specific objectives that support each goal are created. Management and staff identify needs and develop specific initiatives to achieve these objectives. The initiatives are matched with related performance measures, and they are then assigned to Zoo staff. The initiatives are monitored monthly and considered during performance reviews.

Increased regulation under the AWA and increased influence from the AZA have enhanced the quality of life for zoo animals and greatly increased the cost of their care. In response to the

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reduction of native habitats for many endangered or threatened species of animals, the AZA developed the SSP to promote captive breeding of selected species. This program is required for all AZA-accredited zoos. The program records genetic information about all the animals in AZA zoos and matches animals for breeding. These restrictions limit the freedom of the zoos to exchange the animals and effectively prevent the zoos from having full title to the animals. However, participation in the SSP assures zoos that they will have a source of new animals.

The combined effect of AWA regulations and SSP restrictions have reduced the number of zoos willing to take on larger-sized animals and dramatically reduced the trade of wild animals in the U.S. This increased professionalism in the zoo industry has also restricted the labor pool that zoos may draw from and increased the salaries and wages that they must pay to attract qualified staff.

Because of these trends, many large zoos have found that they must have larger and more consistent funding levels, which are not traditionally available under municipal budgets. Many zoos have either privatized their operations under non-profit organizations separate from their founding city governments or have transferred their operations to larger, tax-funded agencies or authorities. The Woodland Park Zoo in Seattle, Washington, and the Pittsburgh Zoo are now operated by their former fundraising organizations. The Cleveland Zoo and Oklahoma City Zoo are both operated by independent local authorities that receive local taxes as their main funding sources.

The following unaudited budget information was provided by Zoo management.

Dallas Zoo and Aquarium			
	Actual FY 01/02	Budget FY02/03	Approved FY03/04
FTE	261.5	240.9	235.1
Personnel Cost	\$ 10,316,885	\$ 9,417,344	\$ 8,905,592
Non-Personnel Cost	\$ 2,642,240	\$ 2,670,572	\$ 2,669,673
Total Cost	<u>\$ 12,959,125</u>	<u>\$ 12,087,916</u>	<u>\$ 11,575,265</u>
Admission and Other Revenue	\$ 1,834,076	\$ 1,930,378	\$ 1,930,378

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The DZS has supported lobbying efforts to seek an independent tax-funded government authority for the Zoo. During its most recent session, the Texas Legislature passed Senate Bill 1472. That bill authorizes the creation of a Dallas County Zoo Board to be funded by a voter-approved ad valorem tax. The bill limits that tax to 3 cents per \$100 of valuation. The DZS is currently working with the Park Board and Zoo management to create a plan for presenting this proposal to the voters and to transfer operation of the Zoo to the Zoo Board if the proposition passes.

The Zoo has benefited from operational reviews performed by a wide variety of outside agencies and companies. Zoo management has implemented and/or considered the various recommendations in its planning process.

MANAGEMENT'S ACCOMPLISHMENTS

We asked the Zoo management staff to provide comments on procedural and operational changes and improvements. Their unedited comments are included below.

Major Accomplishments Since 2000

Zoo Attendance and Visitor Attractions: Attendance is a clear measure of a zoo's success in attracting visitors. Attendance increases are often tied to new exhibits, facility upgrades and new visitor programs; however, a new Dallas Zoo entry constructed off of R.L. Thornton Freeway and construction of a new DART Station at the Zoo have also contributed significantly to this success.

- Since 1995 the Dallas Zoo has increased attendance by over 55%, with the highest attendance of 635,937 in 2000-01. Coupled with the Dallas Aquarium at Fair Park, the two institutions drew just under 800,000 visitors.
- A new Prime Meridian Restaurant began operation in October 2003 and offers visitors a respite from the weather as well as a new site rental opportunity.
- The Endangered Species Carousel on the Zoo's entry plaza was opened in March 2002 and provides a nostalgic attraction for both children and adults. In FY 2002-03 the Carousel had over 116,000 riders or 20% of total attendance.
- The privately funded Lacerte Family Children's Zoo opened in September 2000 and has added many new attractions for young visitors, including the one-of-a-kind Nature Exchange where over 5,700 children currently trade natural artifacts for points to allow purchase of natural treasures.
- Special exhibits such as "Venom"; "Claws -- You Eat Them, Now Meet Them"; "Sea Venom – A Stinging Sensation"; and "Giant Octopus" have also increased attendance and educational opportunities for visitors.
- Completed the 2001 Long Range Development Plan to guide zoo development over the next 20 years. The plan calls for finishing the plans for naturalistic habitats for the major African mammals remaining in ZooNorth as well as for reinvigorating ZooNorth.

Compliance with Regulations and Standards: Successful zoos rely on industry accreditation through the AZA to facilitate the acquisition of endangered species. A USDA license to ensure compliance with the Animal Welfare Act is also required before zoo animals can be exhibited to the public. Therefore, compliance with these regulations is critical to the success of zoos.

- In March 2002, the AZA granted full accreditation to the Dallas Zoo, seven months before a deadline, after finding approximately \$1.6 million in needed infrastructure improvements.
- In March 2002, the USDA, citing continued progress in animal care facility improvements, house keeping, animal enrichment and training, provided the first inspection report in a decade with "no non-compliance items". The Dallas Zoo has received two additional no non-compliance inspections since (November 2002 and June 2003).
- Compliance with the standards and regulations noted above allowed the Dallas Zoo to continue to acquire, house, exhibit and breed endangered species.

MANAGEMENT'S ACCOMPLISHMENTS

Education and Conservation Science: AZA accreditation standards require a strong commitment to education and wildlife conservation science.

- In 2001 the Dallas Zoo combined the Education and Science functions into a single department to better support the importance of education and research in our conservation efforts.
- Since 2000 the Dallas Zoo has obtained an unprecedented amount of grant/scholarship money to develop new programs for teachers, schools, educational groups, day cares, recreation centers, and provided scholarships for children who could not otherwise afford the programs.
- The Dallas Zoo created a Zoo Advisory Panel consisting of teachers, principals, and science supervisors in seven different school districts to assist in tailoring our programs to better meet State and National education standards.
- The Dallas Zoo continues to provide scientific research through grants in conjunction with other zoos, universities, other governmental and private entities. Highlights include:
 - Received two national AZA awards for research and breeding the very rare Okapi antelope and for our role in the “Ruffed Lemur Reintroduction into Madagascar” program.
 - Facilitated personnel from over 20 zoos and aquariums to travel to the Yucatan State in Mexico to assist with hand rearing hundreds of wild Caribbean Flamingo chicks after a jaguar made raids on a nesting colony. Also collaborated in banding close to 400 birds for DNA and nutritional analysis.

Safety First: The Dallas Zoo has recognized the need for clearly defined procedures and practice drills to address the potential risks of operating a 95 acre zoo with approximately 600,000 annual visitors, 1,800 wild animals and approximately 260 employees.

- Created written procedures, processes and training programs for emergency response to dangerous animal escapes, monorail drills, venomous snake bites, weather and terrorist acts. The procedures are tested through emergency drills, debriefed and revised to reflect changes to emergency procedures.
- Implemented a Critical Incident Stress Management (CISM) program with assistance from the Dallas Fire Department to assist employees and volunteers when an emergency results in serious injury or death to an animal or employee.
- Produced an animal escape training video with the Dallas Police Department (DPD), to train zoo and police personnel on procedures when a dangerous animal escapes to include animal behavior, biology, search tactics and joint weapons team training.
- Developed and implemented Personal Safety Training policy for all zoo employees. Training includes programs for fire extinguishers, first aid, blood borne pathogens, CPR and other programs more specific to individual jobs.

MANAGEMENT'S ACCOMPLISHMENTS

Zoo Management Improvements

- Created and implemented a formal meeting structure to facilitate communication between the Dallas Zoo and Dallas Zoological Society and all levels of management and employees within both organizations.
- Established Employee Committees to work on key issues. Some committees are on-going such as the Safety Committee and Training Committee. Many others are ad hoc in nature and include the Commissary Improvement Committee, Vehicle Committee, and the First Amendment Zone Committee.
- In process of implementing a strategy to use longer lasting materials in repairing and constructing facility improvements to reduce maintenance demand long term. An example includes encasing peeling paint with a fiberglass wall panels to eliminate the need to re-paint in the future.
- Restructured Zoo and Aquarium fee structure to generate more general fund revenues while remaining realistically and competitively priced across the Metroplex.
- Compiled and printed the 114 year history of the Dallas Zoo.
- The Dallas Zoo continues to receive recognition and awards for new facility and exhibit construction. *TexasArchitect* magazine featured stories on the design and construction of the recently completed A.H. Meadows Animal Health Care Facility (\$4M private donations) and the ExxonMobil Endangered Tiger Habitat (\$4.4 M City Bond Funds and private donations).

OPPORTUNITIES FOR IMPROVEMENT

We identified certain policies, practices, and procedures that should be improved. Our audit was not designed or intended to be a detailed study of every relevant system, procedure, or transaction. Accordingly, the opportunities for improvement presented in this report may not be inclusive of where improvement may be needed.

1. Continued Zoo staffing shortages are reducing the effectiveness of overall Zoo operations.

Budget cuts and hiring freezes negatively impact overall Zoo operations, as well as the Zoo's compliance with a USDA consent order to improve safety for animal keepers and the public. The Zoo has traditionally been unable to fill all of its funded positions because of shortages in the zoo labor pool. Further, City budget cuts have forced PKR to eliminate many of those unfilled funded positions.

The principal areas that staff shortages have affected are implementation of the two-person rule and meeting operational requirements.

A. The Two-Person Rule

In response to the injury of a zookeeper following a gorilla escape in a non-public service area in November 1998, the USDA mandated that the Dallas Zoo adopt the "two-person rule." Under that rule, two zookeepers must be present when a dangerous animal is moved from one containment area to another, or whenever a keeper must work in an animal service area near a dangerous animal. The second zookeeper must be present to sound an alarm in the event of an emergency, and to verify that the first keeper closes and locks all containment doors. The Zoo has been able to implement the rule largely by increasing overtime and requiring supervisors to serve as the second zookeeper at exhibits outside of their normal areas. This practice reduces the time supervisors can spend on their assigned areas and staff. The two-person rule delays the transfer of animals from their overnight care areas to exhibit areas when the Zoo opens and delays the return of the animals at closing whenever staffing is reduced because of vacations, training, or illnesses. As a result, visitors cannot see animals that have not yet been moved to their exhibits.

To settle fines assessed by the USDA during its investigation of the gorilla escape, the City was obligated to increase staffing and fully implement the two-person rule; however, there has been a net reduction in staff during the last year. The USDA inspector has twice raised concerns in the last year and a half that the City has reduced staff.

B. Operational Requirements

The shortage of personnel requires the assignment of multiple responsibilities to certain positions. These assignments are causing internal control issues. Additionally, employees are required to work in areas outside of their expertise.

OPPORTUNITIES FOR IMPROVEMENT

- Commissary Manager

The commissary manager is responsible for providing all nutritional needs of the Zoo animals. Responsibilities include supervision of the kitchen staff as well as purchasing, storing, and tracking large inventories of food. The commissary manager has also been assigned several nutritionist responsibilities. A zoo nutritionist is primarily responsible for verifying that the animals receive the proper food, that the food has the proper quality, and that the animal diet histories are properly documented. An outside review of the Dallas Zoo's commissary by nutritionists from other zoos indicated that each of the two positions should be a full-time responsibility. The nutritionist position also has some oversight responsibilities over the commissary; thus, merging the two responsibilities has compromised internal controls.

We observed that many of the diet records are not being updated on a timely basis. The commissary manager told us that he has been unable to fully complete all diet records or to perform quality review checks normally required of nutritionists because he has not had time.

- Network Administrator

The network administrator is responsible for a variety of disparate tasks: computer systems support, ISIS Registrar, and Emergency Weapons Team Leader.

1. Most computers were purchased or donated at different times in the past and, therefore, there is little standardization of software or operating systems among them. Only seven of the Zoo buildings targeted for network connections are now connected to the City's network. The administrator is the primary support person for maintaining the Zoo's network hardware and software.
2. The International Species Information System (ISIS) and Animal Record Keeping System (ARKS) databases are used to inventory zoo animals and record specific care information about those animals. Each zoo that participates in the SSP is required to maintain the ISIS database. The ARKS database is used to account for animals not included in the SSP. The network administrator is responsible for quality control of data in both databases. Since animal care staff in the field cannot enter the data, they must write the information on paper forms. These forms are delivered to the network administrator's office, where they are entered. Due to the limited number of clerks available to assist in data entry, there was a nine-month backlog.
3. Directing the Emergency Weapons Team. The administrator has developed emergency procedures to find and capture, or destroy if necessary, escaped animals to protect the public. He trains and qualifies selected Zoo staff assigned to teams with specific responsibilities. Teams are assigned different responsibilities such as:

OPPORTUNITIES FOR IMPROVEMENT

- Closing certain gates to contain the escaped animal.
- Directing visitors to safe areas and protecting the public from the escaped animal.
- Capturing or killing the escaped animal. This team requires very specific training in weapons, animal behavior, and capture methods.

Teams practice in a series of periodic emergency drills, which must be coordinated with Zoo management and among team leaders. Additional responsibilities include maintaining and distributing the team rosters and coordinating procedures and training with the Dallas Police Tactical Unit.

The job has increased from a minor collateral duty into a year-round long-term assignment after safety requirements were emphasized in various safety studies and USDA inspections.

We observed other instances where staff shortages were exacerbated by a limited labor pool and specialized job knowledge requirements. This level of knowledge is not generally taught and must be learned on the job at other major zoos. For example, horticulturalists and groundskeepers have to ensure that plants in animal containment areas are not toxic to the animals. Pest control workers must be aware of the effects of their treatments on a wide variety of species. Facilities staff must know the structural requirements for containing large and very dangerous animals, as well as the safe use of various materials around a variety of animals.

Assigning multiple responsibilities to single individuals may provide relief to short-term staffing shortages. However, the assignment of too many duties or dissimilar duties may lead to decreased productivity and increased employee turnover. Commonly accepted business practices require that management provide its staff with adequate materials and resources to do their jobs.

We recommend that the Director of PKR identify the staffing levels required to meet AWA standards and seek means to adequately satisfy those levels.

Management's Response:

Concur, with input from Zoo management, the PKR Director will immediately submit an FY 04-05 budget cycle budget adjustment form (BAF) to the Park Board, which addresses both the animal management and operations staff shortages as the auditors have recommended. If approved by the Park Board, this BAF will go to the City budget office for CMO and City Council consideration.

OPPORTUNITIES FOR IMPROVEMENT

2. The Zoo's computer network and incompatible computers negatively impact administration and operations.

Most of the Zoo's buildings are not connected to a common computer network. Further, many of the computers at the Zoo are not compatible. Zoo staff spend time doing administrative tasks that could be done more efficiently and effectively if they had adequate computer software and hardware support. Those tasks include:

- Work orders for facility repairs
- Time entry into the Lawson system
- Daily animal care reports
- Dietary change requests

Only the computers in seven Zoo administration buildings are connected to the City's network. Fourteen other targeted zoo buildings, used for animal care, remain unconnected. Only Zoo staff in connected buildings can send computer e-mail messages or attachments. As a result, communication between Zoo's management, as well as with other Zoo personnel, is inadequate and inefficient. For example, if senior Zoo management wants to distribute information to all staff quickly, only a few staff members may receive e-mails; the remainder must be notified by fax or telephone.

The computers in various offices have been donated or purchased at different times and have different protocols, capabilities, and formats. Because the computers have not been standardized to a common software platform, data files in one Zoo office may not be accessible on computers in other Zoo offices. The Zoo purchased a specialized animal care software package that is designed to exchange information among its various modules. However, because the offices that use the different modules are not connected, the information entered in one office cannot be shared with the modules in other offices. The same information must sometimes be reentered, which can lead to data errors.

Most of the vital animal care reports must be handwritten by the animal keepers, carried to other locations, and then keyed into a software program that can transmit the data into required databases. Data entry is delayed because those reports must be screened for errors and then entered by one full-time employee. The preferred method would be to have animal keepers enter the data and require the current data entry person to perform quality control checks on the data.

There is no backup power generator or uninterruptible power supply (UPS) for the Voiceover IP (VOIP) telephone service should electrical power to the VOIP system be interrupted. Any of the administration offices connected to the VOIP would be without telephone service until power is restored.

OPPORTUNITIES FOR IMPROVEMENT

The primary benefits of a computer network include:

- Improved efficiency and productivity from entering data once and sharing it throughout the organization.
- Reduced cost by sharing hardware and software.
- Improved control and efficiency from centralized communication, administration and support.

The Zoo network is incomplete and not fully integrated to reap any of the benefits listed above.

We recommend that the Director of PKR:

- Ensure that the Zoo is provided with an adequate computer networking system that meets program and operating needs, including software upgrades from the City's enterprise software license, additional cable or wireless connections for additional animal care buildings, and a power backup or UPS for the VOIP system.
- Conduct a computer needs assessment and prioritize these needs. Goal attainment considerations should include funding sources such as the General Fund, the DZS, governmental or private grants/awards, as well as corporate and private contributions.

Management's Response:

- Concur, with input from Zoo management and the assistance of the PKR Systems Analyst, the PKR Director will immediately submit an FY 04-05 budget cycle BAF to the Park Board which addresses estimated funding for the Zoo's connectivity/backup capability needs as the auditors have recommended. If approved by the Park Board, this BAF will go to the City budget office for CMO and City Council consideration.

The network connectivity process has already begun with the networking of seven of the key admin hubs at the Zoo using VOIP connections and Novell 5 network operating system to participate in the City of Dallas intranet, as pointed out in the City of Dallas Audit report. These seven admin hubs are: the main Zoo office, Zoo Business Office, Zoo Annex (Animal Management senior staff), Facility offices and warehouse, Education Department offices, Facility modular offices, and the Bird/Reptile Bldg. In FY 04, an additional two facilities, the Veterinary staff offices in the A. H. Meadows Animal Care Facility and the Guest Relations office, will connect to the City of Dallas intranet using VOIP connections. In addition, the connection of the staff offices in the Lacerte Family Children Zoo will begin in FY 04 and will be completed in FY 05 using VOIP connections. The 2 remaining supervisor offices and other key facilities that will need to be connected in FY 05 and FY 06 include: Commissary, front gate

OPPORTUNITIES FOR IMPROVEMENT

booths, Gorilla Bldg, Monorail office, night keeper/Large Mammal supervisor office complex, Tiger Bldg office, Hill office, Old Hospital office, Large Mammal Bldg office, WOA Barn 8, and WOA Barn 13. If the City does not approve the Zoo to “go wireless,” then the cost of connecting these facilities using VOIP could become prohibitively expensive due to the number of supervisors and key personnel who will need to operate in these areas and the great distance between these facilities.

- Concur, the PKR Director will direct the Zoo’s Deputy Director for Operations and the Zoo’s Systems Analyst to review the technology audit currently being conducted on the Zoo’s computer needs by EDS.

Beginning in October 2003, EDS assembled a technology audit committee on a pro bono basis. One of the key recommendations of this committee will be to identify the most cost effective technology for connecting the outlying facilities at the Dallas Zoo. This report will be completed in calendar year 04 and implementation will begin in FY 05 with completion in FY 06 if funding and staff resources are obtained. The completion of these network connections will provide: 1) email connectivity, using GroupWise, to all Zoo supervisors and above; 2) convenient participation by all Zoo supervisors and above in the work order system already being implemented by PKR; and 3) convenient participation by all Zoo staff in the Lawson time entry system used by the City of Dallas. In addition, it will provide the network basis for a dietary change requests system, an electronic daily animal care report system, and a means of providing feedback of animal care information to the animal care staff in a convenient manner. It is anticipated the costs to implement the recommendations will approach or exceed \$150,000.

The Zoo will first address the issue of incompatible and obsolete computers by replacement of key computers in each Zoo department with new leased Dell computers. This process had begun prior to the audit by leasing 13 Dell computers in FY 01 and 9 Dell computers in FY 03. In FY 04, the Zoo will seek approval to lease an additional 18 Dell computers which will provide up-to-date computers for the Zoo director and his secretary, both deputy directors and their secretaries, all Zoo department heads, all veterinarians, and some of the Zoo supervisors and other key technicians. Given available funds, in FY 05 the Zoo will lease an additional 15 Dell computers to equip additional Zoo supervisors. By the end of FY 05, all senior staff down through Zoo department heads and all but 10 Zoo supervisors and all key technical staff positions will be equipped with Dell leased computers. The exception will be the Graphics Department, which will continue to be equipped with Macintosh computers because of the specialized graphics software they use. To keep the Graphics Department connected via email, however, a PC computer capable of functioning as a GroupWise platform will be dedicated to the Graphics Department and connected to the city intranet. In FY 06 the rest of the Zoo supervisor staff will be equipped

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with leased Dell computers as well as the rest of the research technicians and Education Dept instructors.

To address the software compatibility issues as mentioned in the audit, as the older computers are replaced with new Dell computers, they will use Windows 2000 as the standard operating system, Microsoft Word 2000 as the standard word processor program, Microsoft Excel 2000 as the standard spreadsheet program, and Microsoft Access 2000 as the standard database program, and Microsoft Internet Explorer 6.0 as the standard Internet browser.

To address the daily animal care reports, the feedback of animal care information will first be addressed. A copy of the ARKS database will be placed on the Zoo server and the ARKS program installed on all animal department computers that have a need to look up information in the ARKS database. This will be completed in FY 04 and will be extended to the various animal department computers in FY 05 and FY 06 as the network discussed above is extended to those areas. The copy of this database on the Zoo server will be updated from the primary copy on a weekly schedule. This will provide a ready means for animal care staff to look up critical information on the Dallas Zoo animal collection.

The ANIMALRC database which contains the comments from the daily animal care reports submitted by the animal staff, will be converted from dBASE IV to Access by the end of FY 05 and a copy will also be placed on the Zoo server at that time with updated copies on a weekly schedule. An Access program for accessing this database will be developed and installed on the computers of each of the animal care staff that have a need to access this database, by the end of FY 05.

The development of an electronic form for the daily animal care reports will need to await the implementation of the Zoo Information Management System (ZIMS) currently being developed by the International Species Information System (ISIS), as this database system will impact the form that the electronic daily reports will need to take. The Dallas Zoo will implement ZIMS as it is released by ISIS, and at that time begin development of an electronic daily report system that will compliment ZIMS.

3. Recorded animal diets may not be consistent or reliable.

Based upon discussions with Zoo personnel and limited review and observation of diet records, there is inadequate assurance that each responsible unit or individual has the most current animal diet sheets for each animal. Individual animal diet sheets are intended to document the type and quantity of foods given to each animal, as well as chronicle the diet history for that animal for research purposes and to aid in diagnosing illnesses. Initial diet sheets are called Diet Information Sheets.

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The animal supervisor and curator initially develop the diet sheets. The original sheet is given to commissary personnel, both the veterinarian and the commissary manager retain a copy, and another copy is provided to food preparation personnel (i.e., kitchens in the individual animal care areas). Zoo procedures require that animal diet sheets cannot be altered (i.e., animal diet change request form) until the animal supervisor, senior curator, and the Zoo veterinarian approve the changes.

Animal keepers observe changes in an animal's health, appearance, or behavior that may be treated by changes to the animal's diet. Some diet changes are permanent; other diet changes are temporary. The keepers initiate any diet change requests and then forward them to their supervisors. The supervisors relay the requests to the curators, who then pass them on to the veterinarian. The veterinarian approves all changes and establishes the time period for temporary diet changes. When the diet change is approved, copies are forwarded to the commissary manager and the requesting animal keeper. When any designated individual does not receive a copy of the diet alteration sheet, his/her understanding of the approved diet for that animal may differ from the established diet.

The veterinary and commissary staffs have established consistent procedures for animal care staff to document animal diet information. However, there is inadequate assurance that all need-to-know personnel are receiving copies of the most current diet alteration sheets. The commissary manager is not conducting sufficient onsite visits to reasonably ensure that each animal is being given the most current approved diet.

USDA regulation 2CFR Section 2.40 requires that:

Each exhibitor shall establish and maintain programs of adequate veterinary care that include:

- *The use of appropriate methods to prevent, control, diagnose and treat diseases;*
- *Daily observation of all animals to assess their health and well-being;*
- *A mechanism of direct and frequent communication is required so that timely and accurate information is conveyed to the attending veterinarian.*

The effects of this issue include:

- Inconsistent records offer contradictory information about what has actually been fed to individual animals and may not be relied upon to diagnose health concerns or accurately document research.
- Animal health may be impaired.
- Dietary errors may result in adverse findings from oversight agency reviews.
- Records may not be accurately used to determine food usage for inventory and purchasing.
- Veterinarians may draw improper conclusions if their understanding of an animal's diet differs from the animal's actual diet.

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We recommend that the Director of PKR:

- Direct Zoo management to explore the establishment of a separate nutritionist position responsible for ensuring that the correct diet is being provided to each animal by examining diet sheets, performing site visits at appropriate intervals, and performing quality control tests on animal food.
- Develop procedures to ensure that each need-to-know person has a copy of the most current diet sheet/diet change sheet and that the verification is documented and signed by responsible individuals.
- Ensure that periodic verification of diet request changes do not exceed the time frame established by the Zoo veterinarian.
- Consult with CIS or an outside systems analyst to determine whether diet change requests may be requested and authorized using a network or e-mail system.

Management's Response:

- Concur, with input from Zoo management, the PKR Director will immediately submit an FY 04-05 BAF to the Park Board, which addresses the need for a full time nutritionist as the auditors have recommended. If approved by the Park Board, this BAF will go to the City budget office for CMO and City Council consideration. If approved, the nutritionist will be in a position to help ensure the remainder of items 3 and 4 are implemented in a timely manner. Without that position being filled, the implementation timetable will be unattainable, as the Commissary Manager is doing double duty as the audit pointed out.
- Concur, the PKR Director will direct the Zoo's Deputy Director for Animal Management and the Zoo Veterinary Services Manager to establish regular diet sheet reconciliation/review meetings with the curators, staff vets, and animal area supervisors to review, update and sign approved diet sheets. The Commissary Manager will provide quarterly reports of current diets to area supervisors, curators and the staff vets as well as maintaining copies of the Zoo's master diet books in the commissary, Zoo library, and the animal health care facility (hospital). To address the dietary change request needs, a review will be completed by the end of FY 04 of cost effective means of providing for dietary change requests with access to all animal care staff who need to participate in the system. The review will include the effectiveness of inexpensive means such as the use of request forms attached to email messages. It will also include review of off-the-shelf software used by other U.S. zoos with a situation similar to the Dallas Zoo, and other commercial products that might be available. A decision on a system will be made in early FY 05 and implementation begun in FY 05. The system will be extended to the various supervisors and animal areas in FY 05 and FY 06 as the network discussed above is extended to those areas.

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- Concur, the PKR Director will direct the Zoo's Deputy Director for Animal Management and the Zoo Veterinary Services Manager to establish that the appropriate time frame for diet change requests should be three (3) working days, but in no case more than seven (7) working days. The Commissary Manager will accept verbal approval of emergency/urgent diet requests from the staff vets or animal curators to be followed by proper paperwork within 3-7 working days. The Commissary Manager will also revise the commissary daily report to provide the status of diet change requests. This revised form will be prominently placed at the Zoo's Station One so all animal management staff and animal keeper staff have easy access to the data.
- Concur, the PKR Director will direct the Zoo's Deputy Director for Operations and the Zoo's Systems Analyst to follow the recommendations in paragraphs 2A and 2B to first determine the feasibility of providing a network connection to the commissary and then to obtain a new computer system for the Commissary Manager. The Systems Analyst will work with the Veterinary Services Manager to consult with CIS and other AZA accredited zoos to try to identify off-the-shelf software, which could be used to implement this recommendation or identify e-mail procedures, which will accomplish this requirement. A full-up system should be in place by FY 06.

4. The Zoo commissary procedures on animal food storage are inadequately documented.

The Zoo commissary has written procedures requiring the proper storage and rotation of animal food inventories to prevent spoilage. However, those procedures do not include detailed steps that explain how or what should be done. There are four storage rooms in the commissary. One other storage room, outside of the commissary, is clearly marked with signs that provide instructions and guidance for issuing and receiving food plus rotating food stocks. We observed three of the four inside storerooms and noted that they did not have any posted signs or written procedures for receiving or issuing food supplies. Commissary staff are aware of and practice detailed procedures for receiving and issuing food in each of the four storerooms; however, none of these detailed steps are included in the written commissary procedures.

Commonly accepted food service practices include written and approved procedures to rotate inventories and prevent food spoilage. Additionally, responsible personnel should be adequately trained on these policies and procedures.

Administrative Directive 4-9 requires department directors to establish and document procedures specific to their operations. Without approved written policies and procedures, there is no assurance that staff will perform procedures properly and consistently. Food that is not rotated through inventories in a timely manner may spoil. Also, improper monitoring of food items through inventories may result in improper quantities of food ordered, leading to shortages or excessive inventories.

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We recommend that the Director of PKR:

- Require the commissary manager to develop and document detailed instructions (with diagrams) for receiving, storing, and issuing food for each storeroom in the Zoo commissary. These instructions should be included in the Zoo commissary written policies and procedures and diagrams should be displayed in all of the commissary storerooms.
- Ensure that Zoo management periodically monitors commissary procedures to ensure that steps are being consistently followed in all food storage areas.

Management's Response:

- Concur, the PKR Director will direct the Zoo's Deputy Director for Animal Management and the Zoo Veterinary Services Manager to work with the Commissary Manager to develop a master commissary manual and post appropriate areas of the commissary with the following as a minimum: store room schematic diagrams; professional labels on storage items as well as ordering instructions, policies and procedures for receiving and handling all food items; policies and procedures for dealing with damaged goods, non-acceptable goods, and vendor invoices; information on stock receipt dates, shelf life, and food item rotation using the FIFO accounting methodology. The Commissary Manager will also implement an "active" and "non-active" storage/inventory system to aid in inventory control.
- Concur, the PKR Director will direct the Zoo's Deputy Director for Animal Management and the Zoo Veterinary Services Manager to monitor the commissary operations, to include at least quarterly walk-through "visits" by senior Zoo management. The Commissary Manager will also provide at least semi-annual "commissary activity" reports to senior Zoo management and middle management at the regularly scheduled Tuesday department head/management meetings.

5. The Zoo's purchasing policies and procedures are inadequately documented.

The Zoo's administration has no comprehensive purchasing policy document. It has a series of smaller policies and a series of memos that address different purchasing problems. However, these policies and procedures are not documented or formally approved, nor do they address other steps involved in the current Zoo purchasing process.

Zoo administration has relied mainly on a few knowledgeable and capable individuals to perform most of the procurement duties. Reliance on a few individuals for procurement can mean delays or errors if those persons leave or are ill.

Administrative Directive 4-9 requires department directors to establish and document procedures specific to their operations. Having clear and complete purchasing policies

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and procedures will allow another person to successfully perform those steps when the need arises.

We recommend that the Director of PKR ensure that the specific steps taken by Zoo offices for each type of procurement is documented, approved, distributed to responsible individuals, and updated as needed.

Management's Response:

Concur, the PKR Director will direct the Zoo's Deputy Director for Operations and the Business Manager to complete a comprehensive standard operating procedure (SOP) and procurement manual for the Zoo within 120 days.