*Wildlife Use of NPDES Outfalls
at Los Alamos National Laboratory*

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WILDLIFE USE OF NPDES OUTFALLS AT LOS ALAMOS NATIONAL LABORATORY

by

Teralene Foxx and Brenda Blea-Edeskuty

ABSTRACT

From July through October of 1991, the Biological Resources Evaluation Team (BRET) surveyed 133 of the 140 National Pollutant Discharge and Elimination System outfalls at Los Alamos National Laboratory (LANL). The purpose of the survey was to determine the use of these wastewater outfalls by wildlife. BRET observed wildlife or evidence of wildlife (scat, tracks, or bedding) by 35 vertebrate species in the vicinity of the outfalls, suggesting these animals could be using water from outfalls. Approximately 56% of the outfalls are probably used or are suitable for use by large mammals as sources of drinking water. Additionally, hydrophytic vegetation grows in association with approximately 40% of the outfalls—a characteristic that could make these areas eligible for wetland status.

BRET recommends further study to accurately characterize the use of outfalls by small and medium-sized mammals and amphibians. The team also recommends systematic aquatic macroinvertebrate studies to provide information on resident communities and water quality. Wetland assessments may be necessary to ensure compliance with wetland regulations if LANL activities affect any of the outfalls supporting hydrophytic vegetation.

1.0 INTRODUCTION

In 1991, 140 outfalls were approved for discharge throughout Los Alamos National Laboratory (LANL) lands. All of these outfalls are permitted by the United States Environmental Protection Agency (EPA) under the National Pollutant Discharge and Elimination System (NPDES) program. While the Laboratory has compiled considerable information on water quality at these outfalls, little information is available about the use of outfall effluents by wildlife and other organisms. As an initial reconnaissance study, the Biological Resource Evaluation Team (BRET) at LANL surveyed NPDES outfalls for evidence of wildlife. The Water Quality and Toxics section of group ESH-8 at LANL provided the funding for the survey.

1.1 Water Sources at LANL

There are two general types of water sources within the boundaries of LANL—natural and artificial. Natural sources include springs, ephemeral streams, short stretches of perennial streams, and small palustrine wetlands (NWI 1990). Artificial water sources result from effluent discharges at some of the 140 NPDES outfalls. These discharges include sanitary wastewater, power plant discharge, boiler blowdown, treated cooling water, noncontact cooling water, high explosive wastewater, photographic rinsewater, printed circuit board wastewater, and treated industrial wastewater (Table 1). The volume from these outfalls varies from a trickle to over 757 000 liters/day (200 000 gallons/day). Several outfalls produce a constant water source, while others discharge intermittently. Most of the outfalls normally discharge into dry arroyos (LANL 1993) and some may provide significant water resources to wildlife in an otherwise dry environment.

1.2 NPDES Outfalls and Wildlife Watering

Prior to this study, there had been no intensive surveys of the biota associated with LANL wastewater outfalls. This survey took place between July and October 1991. It was a preliminary survey with the following major goals:

- to determine the use of the outfalls by wildlife
- to document the presence/absence of hydrophytic vegetation downstream from each outfall source
- to determine the presence and distance of surface water flow

1.3 Supporting Laws and Regulations

The Clean Water Act (33 U.S.C. 1251 et seq.) protects the quality of the “waters of the United States.” Section 402 of the Act establishes the NPDES Permit Program. Under the NPDES program, any entity responsible for the discharge of a pollutant or pollutants into waters of the U. S. (note: this is terminology used in the Act and in the field) from any point source must apply for a permit. LANL is authorized to discharge under NPDES Permit No. NM0028355 for the main technical areas and NPDES Permit No. NM0028576 for the Fenton Hill geothermal site. The EPA regulations for the NPDES Permit Program are found in 40 CFR 122.

The EPA, Region 6, issues and enforces the Laboratory's NPDES permits. The New Mexico Environment Department (NMED) certifies the permit to meet state requirements, including the Water Quality Standards for Interstate and Intrastate Streams in New Mexico. The permit includes monitoring conditions and effluent limits based on best available technology (BAT) and water quality standards to protect the existing, designated, or attainable uses of the receiving waters.

The New Mexico Water Quality Standards for Interstate and Intrastate Streams (Water Quality Control Commission, 1991) are consistent with Section 101(a)(2) of the Federal Clean Water Act. This section makes clean water a national priority and calls for the preservation and restoration of water sources so they will provide for the "protection and propagation of fish, shellfish, and wildlife...." The ephemeral streams into which the Laboratory discharges have not been designated in Part 2 of the Water Quality Standards for Interstate and Intrastate Streams in New Mexico. The only known existing and attainable use of these ephemeral receiving streams is wildlife watering.

1.4 Wildlife at LANL

A variety of definitions for "wildlife" exist. The Wildlife Coordination Act (16 U.S.C. 661-66c) defines wildlife as "birds, fishes, mammals, and all other classes of wild animals." Wildlife management texts regard wildlife as including "free ranging vertebrates in their naturally associated environments " (Bailey 1984). The New Mexico Game and Fish Department (NMGFD) defines wildlife as "those species of fauna that are not human, that have not been domesticated, and [were] not formerly domesticated..." (NMGFD 1978).

For the purposes of this study, BRET used deer and elk as general indicators of wildlife use at outfalls. This is consistent with the traditional and NMGFD definition of wildlife, but should not be construed to indicate that other species are unworthy of consideration. Small- and medium-sized mammals may be more dependent on outfalls than large mammals and may be most severely affected when effluents are polluted or eliminated (Raymer 1994). In addition, amphibians (Heyer 1994) and aquatic macroinvertebrates (EPA 1990) are valuable indicators of water and habitat quality. In future studies, this report's narrow definition of wildlife should be expanded to include other groups of organisms.

1.5 Wildlife and Water

In the semi-arid climates of the southwestern United States, water and the vegetation that grows nearby provide wildlife with drinking water, shelter, and food. Ribbons of riparian vegetation are also used as travel corridors through the arid landscape.

Riparian areas generally support more diverse plant and animal communities than adjacent uplands and sites without water. Riparian vegetation depends on perennial or ephemeral water flow at or near the soil surface and can develop around both natural and artificial water sources.

Wetlands are usually described in terms of hydrology, vegetation, and soils. For example, the Corps of Engineers defines wetlands as "Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (Federal Register 1982). In some cases, protection of wetlands is mandated by law whether they are sustained by natural or artificial water sources. This reconnaissance study did not comprehensively assess wetland areas and is insufficient to establish their qualifications as jurisdictional wetlands.

In the southwestern United States, wetland and riparian areas make up less than 1% of the landscape, yet they are the richest environments in terms of biological productivity and diversity (State of Arizona 1990). In the state of Arizona, for example, 75% of all native wildlife species depend on healthy riparian systems during some part of their life cycle (State of Arizona 1990). In the semi-arid habitats of the LANL area, any source of water has the potential to be useful to wildlife.

2.0 METHODOLOGY

The Water Quality and Toxics Section of the Environmental Protection Group (ESH-8) supplied a list of NPDES outfalls at LANL. Appendices A and B list NPDES outfall numbers and corresponding technical areas. All outfall groupings are noted in Table 1. BRET visited 133 of 142 outfalls from July through October of 1991; the remaining nine outfalls infrequently discharged effluents and were not surveyed. Two outfalls,

EPA-04A-102 and EPA-04A-103, which BRET later discovered had been deleted from the permit, were surveyed and included in these results. The team photographed each outfall's identification marker, discharge pipe, associated channel, and other notable features, while recording information on the following aspects of the site:

- **Physical Features of Outfall**

Type of discharge pipe (metal, ceramic, PVC, etc.)
Approximate outside diameter of pipe.

(Information on physical features was not collected until several outfalls had been surveyed and researchers realized the diversity of types and sizes of discharge pipes.)

- **Physical Features of Effluent**

Flow (gallons per minute)
Color
Odor
Presence of suspended particles

In some cases, the team estimated effluent flow rate by timing how long it took to fill a five gallon bucket to the one- or five-gallon mark and converting the rate to gallons per minute (gpm). However, it was not possible to measure the flow rate in this manner at most outfalls. In some cases, the team made a rough estimate of flow; at other outfalls, BRET was able to use estimates of effluent volume provided by Johnson Controls Incorporated personnel.

- **Topographical Features**

Topography (mesa top, slope, canyon floor, etc.) at the discharge point for each outfall. (In addition, the team walked downstream from each outfall to see if the effluent reached a receiving canyon or watercourse and to record the point where the water went subsurface.)

- **Vegetation Type**

The dominant overstory and understory vegetation type at the discharge point of each outfall.

To gather data on wildlife use, BRET searched the outfall area for wildlife, tracks, scat, and other animal sign. Large mammal activity and the presence of hydrophytic vegetation were used as primary criteria to categorize the outfalls; in general, the team took the presence of deer or elk and hydrophytic vegetation as an indication of probable wildlife use. The team assigned each outfall to one of the categories summarized as follows:

- **Category 1 (Probable Use): Outfalls used or probably used by wildlife as water sources**

Direct wildlife observation, either by the BRET team or by technical area personnel
Sightings during previous BRET studies
The presence of hydrophytic vegetation and water pools

- **Category 2 (Potential Use): Outfalls that wildlife could use as water sources**

Evidence of wildlife use through scat, bedding, tracks, game trails (particularly deer and elk)
Standing water
Long channels with water
Presence of hydrophytic vegetation

- **Category 3 (No Significant Use): Outfalls with little or no evidence of wildlife use**

Infrequent or lack of discharge from the outfall
Inaccessibility to wildlife due to topography or Laboratory developments and/or fences

3.0 RESULTS

Tables 2–8 list the outfalls along with their assigned category of use. The tables also indicate the presence of associated hydrophytic vegetation, deer and elk activity, and game trails. A total of 75 (approximately 56%) outfalls fell into the probable use or potential use category. Of these 75, 19 (approximately 14%) fell into the probable use category. Most of the outfalls assigned to Categories 1 and 2 were type O5A (high-explosives wastewater) and SSS (sanitary wastewater) outfalls, and over 70% of these outfalls were probably used or could be used by wildlife (Table 9). The high incidence of use for these outfalls is probably due to the location of these outfalls in technical areas that are not highly developed and bordered by undeveloped areas.

There were outfalls placed in Category 3 (No Significant Use) that were not flowing at the time of the survey. Many of these outfalls were inactive or discharged infrequently according to site personnel and were placed in Category 3 based on this information. Outfalls determined to be active, however, should be resurveyed during discharge to determine the potential, if any, for wildlife use. A few outfalls which supported hydrophytic vegetation were placed in Category 3 based on inaccessibility of these outfalls to large mammals. It is possible, however, that these outfalls may be used by small mammals or birds.

Only a small patch of one outfall (EPA-04A-91) in Category 3 (No Significant Use) showed deer or elk sign and hydrophytic vegetation. Field observations indicated that the hydrophytic vegetation at this outfall was probably maintained by storm run-off rather than effluent releases.

3.1 Wildlife Observations

BRET identified a variety of wildlife species in association with the outfalls. Tables 10A and 10B present a summary of the species observed or inferred to visit the outfalls based on tracks, scat, or bedding. Researchers did not directly observe wildlife drinking water from the outfalls, but they did note various passerine birds bathing at EPA-03A-181.

The animal sign most commonly encountered at the outfalls was of deer and elk. BRET found deer sign at 34.6% of the outfalls and elk sign at 37.6%. Other animal sign commonly encountered was from squirrels (20.3%), raccoons (13.5%), coyotes (8.3%), and rabbits (7.5%). BRET observed the following animals within or on the surface of water at various outfalls:

- chorus frog (*Pseudacris triseriata*)
- larvae of damselflies (Zygoptera), dragonflies (Anisoptera), flies (Diptera), and mayflies (Ephemeroptera)
- scuds (Amphipoda)
- aquatic beetles (Coleoptera)
- water striders (Gerridae)
- whirligig beetles (Gyrinidae)
- midge larvae, "bloodworms" (Chironomidae)

A more thorough search of outfall effluents and more detailed descriptions of their resident communities would provide valuable data that could assist water quality determinations.

3.2 Hydrophytic Vegetation

Hydrophytes grow only in moist habitats; they need a consistent water source at or near the soil surface. The presence of hydrophytic vegetation at 40.6% of all outfalls indicate consistent water flow.

Hydrophytes may be classified either as facultative or obligate wetland species. Cattails (*Typha* spp.), coyote willow (*Salix exigua*), and watercress (*Rorippa nasturtium-aquaticum*) are obligate wetland species; they grow almost exclusively in wetlands. Willows (*Salix* spp.), sedges (*Carex* spp.), cottonwoods (*Populus* spp.), and barnyard grass (*Echinochloa crusgalli*), which usually grow in wetlands but sometimes also grow in other habitats, are facultative wetland species. Thus, by noting the vegetation at outfalls (Tables 11A and 11B), BRET was able to identify wetland areas. Miscellaneous observations made while surveying the outfalls are listed in Table 12.

3.3 Effluent Discharges

The nature of the receiving channel at each outfall varies. In some cases, effluents flow onto bare ground, while other outfalls discharge into artificial channels or ephemeral or intermittent streams. Lengths of surface flow recorded at some surveyed outfalls are listed in Table 13. The LANL area received above-average rainfall during each month from May through September, 1991 (LANL 1993). At the time of the survey, many streams were running or contained standing water, probably because of the increased precipitation. Because many effluent discharges are also associated with storm runoff, the unusual rainfall probably increased the volumes and distances of surface flow. These problems contributed to uncertainty in measuring lengths of surface flow attributable to outfalls.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Effluent discharges at many NPDES outfalls are low in volume and sporadic in nature. In general, outfalls that discharge substantial volumes on a regular basis provide a dependable water source for wildlife and hydrophytic vegetation. Approximately 56% of all outfalls within LANL boundaries are accessible and probably used by large mammals such as deer and elk.

LANL should initiate wildlife monitoring programs at Category 2 outfalls that may be affected by LANL projects. To provide preconstruction information, we suggest that BRET monitor areas where water volume would decrease or increase due to Laboratory operations. This data would help in the design of mitigation measures and record project impacts. Further monitoring of outfalls would generate baseline data concerning wildlife use.

Many of the small outfalls that are inaccessible to large mammals may be important to small- and medium-sized mammals. Selected outfalls should be examined to determine the composition and distribution of associated small- and medium-sized mammal communities.

Non-mammals also rely on outfall effluents. Future work is needed to accurately characterize aquatic macroinvertebrates and amphibian communities. Systematic monitoring of these organisms would supplement chemical measurements of effluent water quality.

Hydrophytic vegetation has developed below approximately 40.6% of the outfalls. If projects are planned in the vicinity, LANL should assess the wetland status of these areas. LANL should also assess the wetland status of hydrophytic vegetation at any outfalls where water flow will be discontinued or substantially decreased. These assessments will ensure compliance with the US Department of Energy (DOE)'s 10 CFR 1022, which outlines the procedures for DOE compliance with Executive Orders 11988 and 11990 protecting flood plains and wetlands. Specific studies on selected wetlands would refine our understanding of wildlife use patterns at NPDES outfalls.

ACKNOWLEDGMENTS

An extensive project such as this is not accomplished by one or two individuals. The authors wish to acknowledge the support of Steve Rae, group leader of ESH-18. Steve and other personnel within ESH-18 provided necessary funding and background outfall information. We would also like to thank Aletha Banar, Kathy Bennett, Gregory Gray, Steve Jamison, and Delia Raymer for their work in the field conductivity surveys. Additionally, we want to express our thanks to Kathy Bennett, James Biggs, Saul Cross, Eric Pacheco, Delia Raymer, Debbie Risberg, and Don Usner for their help with the compilation and editing of this document. We would especially like to thank Saul Cross for his final shepherding of the paper through to publication.

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TABLE 1. Water Sources of Outfalls Examined for Wildlife Use

WATER SOURCE	NPDES CATEGORY
Sanitary waste water	SSS
Power plant discharge	01A
Boiler blowdown	02A
Treated cooling water	03A
Noncontact cooling water	04A
High explosive waste water	05A
Photographic rinse water	06A
Fenton Hill	001
Printed circuit board	128
Industrial waste waster treatment	051

TABLE 2. Wildlife Watering Potential of Printed Circuit Board (128-128) and Industrial Wastewater Treatment (051-051) and Fenton Hill (001) Outfalls

CATEGORY				
OUTFALL	TA	1	2	3
128-128	22	*** DEH		
051-051	50		*** H	
001-001	57			*** E

D=DEER

E=ELK

H=HYDROPHYTIC VEGETATION

G=GAME TRAILS

CATEGORY 1= Probable use

CATEGORY 2= Potential use

CATEGORY 3= No significant use

TABLE 3. Wildlife Watering Potential of Power Plant Discharge (01A) and Boiler Blowdown (02A) Outfalls

CATEGORY				
OUTFALL	TA	1	2	3
01A-001	03	*** H		
02A-007	16	*** DE		
02A-129	21		***	

D=DEER

E=ELK

H=HYDROPHYTIC VEGETATION

G=GAME TRAILS

CATEGORY 1= Probable use

CATEGORY 2= Potential use

CATEGORY 3= No significant use

TABLE 4. Wildlife Watering Potential of Treated Cooling Water Outfalls

OUTFALL	TA	CATEGORY		
		1	2	3
03A-009	03		*** H	
03A-020	02	*** D		
03A-021	03		*** DEH	
03A-022	03	*** DEH		
03A-023	03			***
03A-024	03			***
03A-025	03		***	
03A-027	03	*** H		
03A-028	15		*** EH	
03A-031	21		*** H	
03A-032	21			***
03A-034	21		*** H	
03A-035	21		***	
03A-036	21		*** DEH	
03A-037	21			***
03A-038	33			*** H
03A-040	43		*** H	
03A-042	46		*** H	
03A-043	46		***	
03A-045	48		*** H	
03A-047	53		*** DH	
03A-048	53			***
03A-049	53			***
03A-060	16		*** DEH	
03A-098	59		*** H	
03A-113	53		***	
03A-114	53		*** H	
03A-124	46			*** H
03A-125	53			***

CATEGORY

OUTFALL	TA	1	2	3
03A-130	11		*** DEG	
03A-136	46			***
03A-145	53			***
03A-146	53			***
03A-148	03			***
03A-158	21			***
03A-160	35			***
03A-181	55		*** DEH	

D=DEER

E=ELK

H=HYDROPHYTIC VEGETATION

G=GAME TRAILS

CATEGORY 1= Probable use

CATEGORY 2= Potential use

CATEGORY 3= No significant use

TABLE 5. Wildlife Watering Potential of Non-contact Cooling Water Outfalls

OUTFALL	TA	CATEGORY		
		1	2	3
04A-013	46	NOT SURVEYED		
04A-014	46			***
04A-016	48			*** H
04A-018	46			*** H
04A-070	16		*** DE	
04A-083	16		*** HD	
04A-091	16			*** DEH
04A-092	16		*** DEGH	
04A-093	15	*** DEH		
04A-094	03		*** H	
04A-101	40			***
04A-102	15			*** E
04A-103	15		*** E	
04A-109	03	*** E		
04A-115	08		*** EH	
04A-117	46			***
04A-118	0	NOT SURVEYED		
04A-126	48	*** H		
04A-127	35		*** H	
04A-131	48		*** H	
04A-133	53	NOT SURVEYED		
04A-135	53			***
04A-137	48			***
04A-139	15			***
04A-140	03		*** H	
04A-141	39			***
04A-142	21		*** D	
04A-143	15		*** DE	

CATEGORY				
OUTFALL	TA	1	2	3
04A-147	33		*** DEH	
04A-151	03	***		
04A-152	48		*** H	
04A-153	48		*** H	
04A-155	09			*** DE
04A-156	39			*** E
04A-157	16	*** DEH		
04A-161	0	NOT SURVEYED		
04A-163	0			***
04A-164	0			***
04A-165	0			*** D
04A-166	0	NOT SURVEYED		
04A-167	0	NOT SURVEYED		
04A-168	0			***
04A-169	0			***
04A-170	0			***
04A-171	0			***
04A-172	0			***
04A-173	0			***
04A-174	0			***
04A-175	0			***
04A-176	0			***
04A-177	0	NOT SURVEYED		
04A-178	0			***
04A-179	0	NOT SURVEYED		
04A-182	21			***

D=DEER
E=ELK

H=HYDROPHYTIC VEGETATION
G=GAME TRAILS

CATEGORY 1= Probable use
CATEGORY 2= Potential use
CATEGORY 3= No significant use

TABLE 6. Wildlife Watering Potential of High Explosive Waste Water Outfalls

CATEGORY				
OUTFALL	TA	1	2	3
05A-052	16			*** DE
05A-053	16		*** DH	
05A-054	16	*** DEGH		
05A-055	16		*** G	
05A-056	16		*** DE	
05A-057	16			*** DE
05A-058	16	*** DEH		
05A-061	16		*** DEH	
05A-062	16			*** D
05A-063	16			*** DEH
05A-066	09		*** DEH	
05A-067	09		*** E	
05A-068	09		*** EG	
05A-069	11		*** DE	
05A-071	16		*** DEH	
05A-072	16	*** DEH		
05A-096	11		*** DEG	
05A-097	11		*** D	
05A-149	16			*** DE
05A-154	40			***
05A-159	16		*** DE	

D=DEER
E=ELK

H=HYDROPHYTIC VEGETATION
G=GAME TRAILS

CATEGORY 1= Probable use
CATEGORY 2= Potential use
CATEGORY 3= No significant use

TABLE 7. Wildlife Watering Potential of Photographic Rinsewater Outfalls

CATEGORY				
OUTFALL	TA	1	2	3
06A-073	16	*** DH		
06A-074	08	*** EG		
06A-075	08	*** DEH		
06A-078	22		*** H	
06A-079	40			*** E
06A-080	40			*** DE
06A-081	40			***
06A-082	40			***
06A-099	40		*** E	
06A-100	40			***
06A-106	36			***
06A-123	15		*** DEH	
06A-132	35			*** H

D=DEER

E=ELK

H=HYDROPHYTIC VEGETATION

G=GAME TRAILS

CATEGORY 1= Probable use

CATEGORY 2= Potential use

CATEGORY 3= No significant use

TABLE 8. Wildlife Watering Potential of Sanitary Wastewater Outfalls

CATEGORY				
OUTFALL	TA	1	2	3
SSS-01S	03	*** EH		
SSS-02S	09		*** E	
SSS-03S	16		*** DE	
SSS-04S	18	*** DEH		
SSS-05S	21		*** DH	
SSS-06S	41		***	
SSS-07S	46			***
SSS-09S	53			***
SSS-10S	35		*** DEH	
SSS-12S	46			***
SSS-13S	46	NOT SURVEYED		

D=DEER

E=ELK

H=HYDROPHYTIC VEGETATION

G=GAME TRAILS

CATEGORY 1= Probable use

CATEGORY 2= Potential use

CATEGORY 3= No significant use

TABLE 9. Percent of Outfalls within each Category of Use
(Outfalls not surveyed are not included.)

<u>Outfall Grouping</u>	<u>Number of Outfalls</u>	CATEGORY					
		1		2		3	
		<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>	<u>No</u>	<u>%</u>
Misc	4	(2)	50.0	(1)	25.0	(1)	25.0
02A	2	(1)	50.0	(1)	50.0	(0)	0.0
03A	37	(3)	8.1	(20)	54.1	(14)	37.8
04A	46	(5)	10.9	(14)	30.4	(27)	58.7
05A	21	(3)	14.3	(12)	57.1	(6)	28.6
06A	13	(3)	23.1	(3)	23.1	(7)	53.8
SSS	10	(2)	20.0	(5)	50.0	(3)	30.0
<u>TOTAL</u>	<u>133</u>	<u>(19)</u>	<u>14.3</u>	<u>(56)</u>	<u>42.1</u>	<u>(58)</u>	<u>43.6</u>

Category 1=Probable Use

Category 2=Potential Use

Category 3=No Significant Use

Table 10A. Fauna Associated with Outfalls

COMMON NAME	SCIENTIFIC NAME	OUTFALL NO.	TA
ABERT'S SQUIRREL	<i>Sciurus aberti</i>	EPA-05A-054 EPA-128-128	TA-16 TA-22
AQUATIC BEETLE	Coleoptera	EPA-03A-020 EPA-03A-021 EPA-06A-075 EPA-128-128	TA-02 TA-03 TA-08 TA-22
BEAR	<i>Ursus americanus</i>	EPA-03A-130 EPA-05A-069 EPA-05A-096 EPA-06A-080	TA-11 TA-11 TA-11 TA-40
CHICKADEE	<i>Parus</i> sp.	EPA-03A-020 EPA-128-128	TA-02 TA-22
BLOODWORM	Chironomidae	EPA-03A-021 EPA-03A-025	TA-03 TA-03
BOBCAT	<i>Felis rufus</i>	EPA-128-128	TA-22
CHIPMUNK	<i>Eutamias</i> sp.	EPA-03A-020 EPA-03A-045 EPA-03A-114 EPA-04A-109 EPA-05A-063	TA-02 TA-48 TA-53 TA-03 TA-16
CHORUS FROG	<i>Pseudacris triseriata</i>	EPA-06A-073	TA-16
COYOTE	<i>Canis latrans</i>	EPA-02A-007 EPA-03A-020 EPA-03A-038 EPA-04A-143 EPA-04A-157 EPA-05A-067 EPA-05A-096 EPA-06A-075 EPA-128-128 EPA-SSS-01S EPA-SSS-02S	TA-16 TA-02 TA-33 TA-15 TA-16 TA-09 TA-11 TA-08 TA-22 TA-03 TA-09
DAMSELFLY	Zygoptera	EPA-03A-023 EPA-04A-016 EPA-04A-094 EPA-04A-109 EPA-04A-115 EPA-04A-152 EPA-06A-074 EPA-SSS-03S EPA-SSS-04S	TA-03 TA-48 TA-03 TA-03 TA-08 TA-48 TA-08 TA-16 TA-18
DAMSELFLY LARVA	Zygoptera	EPA-04A-094 EPA-05A-054	TA-03 TA-16
DARK-EYED JUNCO	<i>Junco hyemalis</i>	EPA-03A-181	TA-55
DEER MOUSE	<i>Peromyscus maniculatus</i>	EPA-03A-020 EPA-128-128	TA-02 TA-22
DIPTERAN LARVA	Diptera	EPA-04A-109 EPA-05A-054 EPA-SSS-04S	TA-03 TA-16 TA-18
DRAGONFLY	Anisoptera	EPA-03A-022 EPA-03A-042 EPA-04A-126 EPA-05A-058 EPA-SSS-04S	TA-03 TA-46 TA-48 TA-16 TA-18

EASTERN FENCE LIZARD	<i>Sceloporus undulatus</i>	EPA-03A-022	TA-03
		EPA-03A-124	TA-46
ELK		EPA-03A-160	TA-35
		EPA-04A-101	TA-40
		EPA-04A-127	TA-35
		EPA-04A-142	TA-21
		EPA-04A-182	TA-21
		EPA-05A-052	TA-16
		EPA-05A-053	TA-16
		EPA-05A-055	TA-16
		EPA-05A-056	TA-16
		EPA-05A-062	TA-16
		EPA-05A-068	TA-09
		EPA-05A-071	TA-16
		EPA-06A-079	TA-40
		EPA-06A-080	TA-40
	<i>Cervus canadensis</i>	EPA-001-001	TA-57
		EPA-02A-007	TA-16
		EPA-03A-021	TA-03
		EPA-03A-022	TA-03
		EPA-03A-028	TA-15
		EPA-03A-036	TA-21
		EPA-03A-060	TA-16
		EPA-03A-130	TA-11
		EPA-03A-181	TA-55
		EPA-04A-070	TA-16
		EPA-04A-091	TA-16
		EPA-04A-092	TA-16
		EPA-04A-093	TA-15
		EPA-04A-102	TA-15
		EPA-04A-103	TA-15
		EPA-04A-109	TA-03
		EPA-04A-115	TA-08
		EPA-04A-143	TA-15
		EPA-04A-147	TA-33
		EPA-04A-155	TA-09
		EPA-04A-156	TA-39
		EPA-04A-157	TA-16
		EPA-05A-052	TA-16
		EPA-05A-054	TA-16
		EPA-05A-056	TA-16
		EPA-05A-057	TA-16
		EPA-05A-058	TA-16
		EPA-05A-061	TA-16
		EPA-05A-063	TA-16
		EPA-05A-066	TA-09
		EPA-05A-067	TA-09
		EPA-05A-068	TA-09
		EPA-05A-069	TA-11
		EPA-05A-071	TA-16
		EPA-05A-072	TA-16
		EPA-05A-096	TA-11
		EPA-05A-149	TA-16
		EPA-05A-159	TA-16
		EPA-06A-074	TA-08
		EPA-06A-075	TA-08
		EPA-06A-079	TA-40
		EPA-06A-080	TA-40
		EPA-06A-099	TA-40
		EPA-06A-123	TA-15
		EPA-128-128	TA-22
		EPA-SSS-01S	TA-03
		EPA-SSS-02S	TA-09
		EPA-SSS-03S	TA-16
		EPA-SSS-04S	TA-18
		EPA-SSS-10S	TA-35
FOX	<i>Vulpes vulpes</i>	EPA-03A-020	TA-02

GARTER SNAKE	<i>Thamnophis elegans</i>	EPA-03A-040	TA-43
GOPHER	<i>Thomomys talpoides</i>	EPA-001-001	TA-57
		EPA-02A-007	TA-16
		EPA-03A-130	TA-11
		EPA-04A-102	TA-15
		EPA-04A-141	TA-39
		EPA-04A-142	TA-21
		EPA-04A-156	TA-39
		EPA-04A-157	TA-16
		EPA-04A-176	TA-0
		EPA-04A-182	TA-21
		EPA-05A-052	TA-16
		EPA-SSS-04S	TA-18
GREAT HORNED OWL	<i>Bubo virginianus</i>	EPA-128-128	TA-22
ISOPOD	Isopoda	EPA-04A-109	TA-03
JUNE BEETLE	Scarabaeidae	EPA-03A-022	TA-03
LINCOLN SPARROW	<i>Melospiza lincolnii</i>	EPA-03A-181	TA-55
LIZARD	Gekkonidae	EPA-03A-047	TA-53
MAYFLY LARVA	Ephemeroptera	EPA-03A-021	TA-03
		EPA-03A-042	TA-46
		EPA-04A-152	TA-48
		EPA-05A-054	TA-16
		EPA-SSS-04S	TA-18
MOSQUITO LARVA	Culicidae	EPA-03A-028	TA-15
		EPA-03A-042	TA-46
		EPA-03A-043	TA-46
		EPA-04A-115	TA-08
		EPA-06A-074	TA-08
		EPA-06A-075	TA-08
MOURNING CLOAK BUTTERFLY	<i>Nymphalis antiopa</i>	EPA-03A-020	TA-02
MOUSE	Cricetidae	EPA-04A-083	TA-16
MULE DEER	<i>Odocoileus hemionus</i>	EPA-02A-007	TA-16
		EPA-03A-020	TA-02
		EPA-03A-021	TA-03
		EPA-03A-022	TA-03
		EPA-03A-036	TA-21
		EPA-03A-047	TA-53
		EPA-03A-060	TA-16
		EPA-03A-130	TA-11
		EPA-03A-181	TA-55
		EPA-04A-070	TA-16
		EPA-04A-083	TA-16
		EPA-04A-091	TA-16
		EPA-04A-092	TA-16
		EPA-04A-093	TA-15
		EPA-04A-142	TA-21
		EPA-04A-143	TA-15
		EPA-04A-147	TA-33
		EPA-04A-155	TA-09
		EPA-04A-157	TA-16
		EPA-04A-165	TA-0
		EPA-05A-052	TA-16
		EPA-05A-053	TA-16
		EPA-05A-054	TA-16
		EPA-05A-056	TA-16
		EPA-05A-057	TA-16
		EPA-05A-058	TA-15
		EPA-05A-061	TA-16
		EPA-05A-062	TA-16
		EPA-05A-063	TA-16
		EPA-05A-066	TA-09
		EPA-05A-069	TA-11
		EPA-05A-071	TA-16

MULE DEER CONTINUED		EPA-05A-072 EPA-05A-096 EPA-05A-097 EPA-05A-149 EPA-05A-159 EPA-06A-073 EPA-06A-075 EPA-06A-080 EPA-06A-123 EPA-128-128 EPA-SSS-03S EPA-SSS-04S EPA-SSS-05S EPA-SSS-10S	TA-16 TA-11 TA-11 TA-16 TA-16 TA-16 TA-08 TA-40 TA-15 TA-22 TA-16 TA-18 TA-21 TA-35
PINYON JAY	<i>Gymnorhinus cyanocephalus</i>	EPA-04A-147	TA-33
PORCUPINE	<i>Erethizon dorsatum</i>	EPA-05A-053 EPA-05A-054	TA-16 TA-16
RABBIT	<i>Sylvilagus sp.</i>	EPA-001-001 EPA-03A-038 EPA-03A-114 EPA-04A-093 EPA-04A-131 EPA-04A-140 EPA-04A-147 EPA-05A-054 EPA-05A-058 EPA-05A-062	TA-57 TA-33 TA-53 TA-15 TA-48 TA-03 TA-33 TA-16 TA-16 TA-16
RACCOON	<i>Procyon lotor</i>	EPA-03A-020 EPA-03A-025 EPA-03A-040 EPA-03A-098 EPA-03A-113 EPA-03A-114 EPA-04A-109 EPA-04A-126 EPA-04A-131 EPA-04A-137 EPA-04A-140 EPA-04A-147 EPA-04A-151 EPA-04A-152 EPA-05A-063 EPA-128-128 EPA-SSS-01S EPA-SSS-04S	TA-02 TA-03 TA-43 TA-59 TA-53 TA-53 TA-03 TA-48 TA-48 TA-48 TA-03 TA-33 TA-03 TA-48 TA-16 TA-22 TA-03 TA-18
RATTLESNAKE	Crotalinae	EPA-03A-025	TA-03
RAVEN	<i>Corvus corax</i>	EPA-03A-181 EPA-04A-109 EPA-128-128	TA-55 TA-03 TA-22
RED SQUIRREL	<i>Sciurus arizonensis</i>	EPA-04A-109	TA-03
ROBIN	<i>Turdus migratorius</i>	EPA-03A-114	TA-53
SHORT HORNED LIZARD	<i>Phrynosoma douglassi</i>	EPA-05A-053	TA-16
SHREW	<i>Sorex sp.</i>	EPA-05A-071	TA-16
SHRIMP	Amphipoda	EPA-128-128	TA-22
SKUNK	<i>Mephitis sp.</i>	EPA-05A-063	TA-16
SNAIL	Gastropoda	EPA-SSS-04S	TA-18

SQUIRREL	<i>Spermophilus sp.</i>	EPA-03A-022	TA-03
		EPA-03A-034	TA-21
		EPA-03A-036	TA-21
		EPA-03A-045	TA-48
		EPA-03A-048	TA-53
		EPA-03A-130	TA-11
		EPA-04A-091	TA-16
		EPA-04A-092	TA-16
		EPA-04A-093	TA-15
		EPA-04A-109	TA-03
		EPA-04A-127	TA-35
		EPA-04A-131	TA-48
		EPA-04A-140	TA-03
		EPA-04A-157	TA-16
		EPA-04A-182	TA-21
		EPA-05A-054	TA-16
		EPA-05A-055	TA-16
		EPA-05A-056	TA-16
		EPA-05A-058	TA-16
		EPA-05A-062	TA-16
		EPA-05A-063	TA-16
		EPA-05A-066	TA-09
		EPA-05A-096	TA-11
		EPA-06A-075	TA-08
		EPA-06A-132	TA-35
		EPA-SSS-03S	TA-16
		EPA-SSS-05S	TA-21
TURKEY VULTURES	<i>Cathartes aura</i>	EPA-03A-034	TA-21
		EPA-SSS-09S	TA-53
VOLE	<i>Microtus sp.</i>	EPA-03A-020	TA-02
		EPA-03A-025	TA-03
WATER STRIDERS	Gerridae	EPA-04A-157	TA-16
		EPA-05A-058	TA-15
		EPA-05A-069	TA-11
		EPA-06A-073	TA-16
		EPA-128-128	TA-22
		EPA-SSS-03S	TA-16
		EPA-SSS-04S	TA-18
WEASEL	<i>Mustela sp.</i>	EPA-03A-027	TA-03
		EPA-03A-113	TA-53
		EPA-04A-093	TA-15
WHIPTAIL LIZARD	<i>Cnemidophorus sp.</i>	EPA-03A-113	TA-53
WHIRLIGIG BEETLE	Gyrinidae	EPA-04A-094	TA-03
		EPA-04A-157	TA-16
		EPA-06A-073	TA-16
WHITE CROWNED SPARROW	<i>Zonotrichia leucophrys</i>	EPA-03A-181	TA-55
WOODRAT	<i>Neotoma sp.</i>	EPA-06A-106	TA-36

Table 10B. Fauna Associated with Outfalls.

OUTFALL NO.	TA	COMMON NAME	SCIENTIFIC NAME
EPA-001-001	TA-57	Elk	<i>Cervus canadensis</i>
EPA-001-001	TA-57	Gopher	<i>Thomomys talpoides</i>
EPA-001-001	TA-57	Rabbit	<i>Sylvilagus</i> sp.
EPA-02A-007	TA-16	Coyote	<i>Canis latrans</i>
EPA-02A-007	TA-16	Elk	<i>Cervus canadensis</i>
EPA-02A-007	TA-16	Gopher	<i>Thomomys talpoides</i>
EPA-02A-007	TA-16	Mule deer	<i>Odocoileus hemionus</i>
EPA-03A-020	TA-02	Aquatic beetle	Colcoptera
EPA-03A-020	TA-02	Chickadee	<i>Parus</i> sp.
EPA-03A-020	TA-02	Chipmunk	<i>Eutamias</i> sp.
EPA-03A-020	TA-02	Coyote	<i>Canis latrans</i>
EPA-03A-020	TA-02	Deer mouse	<i>Peromyscus maniculatus</i>
EPA-03A-020	TA-02	Fox	<i>Vulpes vulpes</i>
EPA-03A-020	TA-02	Mourning cloak butterfly	<i>Nymphalis antiopa</i>
EPA-03A-020	TA-02	Mule deer	<i>Odocoileus hemionus</i>
EPA-03A-020	TA-02	Raccoon	<i>Procyon lotor</i>
EPA-03A-020	TA-02	Vole	<i>Microtus</i> sp.
EPA-03A-021	TA-03	Aquatic beetle	Coleoptera
EPA-03A-021	TA-03	Bloodworm	Chironomidae
EPA-03A-021	TA-03	Elk	<i>Cervus canadensis</i>
EPA-03A-021	TA-03	Mayfly larva	Ephemeroptera
EPA-03A-021	TA-03	Mule deer	<i>Odocoileus hemionus</i>
EPA-03A-022	TA-03	Dragonfly	Anisoptera
EPA-03A-022	TA-03	Eastern fence lizard	<i>Sceloporus undulatus</i>
EPA-03A-022	TA-03	Elk	<i>Cervus canadensis</i>
EPA-03A-022	TA-03	June beetle	Scarabaeidae
EPA-03A-022	TA-03	Mule deer	<i>Odocoileus hemionus</i>
EPA-03A-022	TA-03	Squirrel	<i>Spermophilus</i> sp.
EPA-03A-023	TA-03	Damselfly adults	Zygoptera
EPA-03A-025	TA-03	Bloodworm	Chironomidae
EPA-03A-025	TA-03	Raccoon	<i>Procyon lotor</i>
EPA-03A-025	TA-03	Rattlesnake	Crotalinae
EPA-03A-025	TA-03	Vole	<i>Microtus</i> sp.
EPA-03A-027	TA-03	Weasel	<i>Mustela</i> sp.
EPA-03A-028	TA-15	Elk	<i>Cervus canadensis</i>
EPA-03A-028	TA-15	Mosquito larva	Culicidae
EPA-03A-034	TA-21	Squirrel	<i>Spermophilus</i> sp.
EPA-03A-034	TA-21	Turkey vulture	<i>Cathartes aura</i>
EPA-03A-036	TA-21	Elk	<i>Cervus canadensis</i>
EPA-03A-036	TA-21	Mule deer	<i>Odocoileus hemionus</i>
EPA-03A-036	TA-21	Squirrel	<i>Spermophilus</i> sp.
EPA-03A-038	TA-33	Coyote	<i>Canis latrans</i>
EPA-03A-038	TA-33	Rabbit	<i>Sylvilagus</i> sp.
EPA-03A-040	TA-43	Garter snake	<i>Thamnophis elegans</i>
EPA-03A-040	TA-43	Raccoon	<i>Procyon lotor</i>
EPA-03A-042	TA-46	Dragonfly	Anisoptera

EPA-03A-042	TA-46	Mayfly larva	Ephemeroptera
EPA-03A-042	TA-46	Mosquito larva	Culicidae
EPA-03A-043	TA-46	Mosquito larva	Culicidae
EPA-03A-045	TA-48	Chipmunk	<i>Eutamias</i> sp.
EPA-03A-045	TA-48	Dragonfly larva	Anisoptera
EPA-03A-045	TA-48	Squirrel	<i>Spermophilus</i> sp.
EPA-03A-047	TA-53	Lizard	Gekkonidae
EPA-03A-047	TA-53	Mule deer	<i>Odocoileus hemionus</i>
EPA-03A-048	TA-53	Squirrel	<i>Spermophilus</i> sp.
EPA-03A-060	TA-16	Elk	<i>Cervus canadensis</i>
EPA-03A-060	TA-16	Mule deer	<i>Odocoileus hemionus</i>
EPA-03A-098	TA-59	Raccoon	<i>Procyon lotor</i>
EPA-03A-113	TA-53	Raccoon	<i>Procyon lotor</i>
EPA-03A-113	TA-53	Weasel	<i>Mustela</i> sp.
EPA-03A-113	TA-53	Whiptail lizard	<i>Cnemidophorus</i> sp.
EPA-03A-114	TA-53	Chipmunk	<i>Eutamias</i> sp.
EPA-03A-114	TA-53	Rabbit	<i>Sylvilagus</i> sp.
EPA-03A-114	TA-53	Raccoon	<i>Procyon lotor</i>
EPA-03A-114	TA-53	Robin	<i>Turdus migratorius</i>
EPA-03A-124	TA-46	Eastern fence lizard	<i>Sceloporus undulatus</i>
EPA-03A-130	TA-11	Bear	<i>Ursus americanus</i>
EPA-03A-130	TA-11	Elk	<i>Cervus canadensis</i>
EPA-03A-130	TA-11	Gopher	<i>Thomomys talpoides</i>
EPA-03A-130	TA-11	Mule deer	<i>Odocoileus hemionus</i>
EPA-03A-130	TA-11	Squirrel	<i>Spermophilus</i> sp.
EPA-03A-160	TA-35	Eastern fence lizard	<i>Sceloporus undulatus</i>
EPA-03A-181	TA-55	Dark-eyed junco	<i>Junco hyemalis</i>
EPA-03A-181	TA-55	Elk	<i>Cervus canadensis</i>
EPA-03A-181	TA-55	Lincoln sparrow	<i>Melospiza lincolnii</i>
EPA-03A-181	TA-55	Mule deer	<i>Odocoileus hemionus</i>
EPA-03A-181	TA-55	Raven	<i>Corvus corax</i>
EPA-03A-181	TA-55	White crowned sparrow	<i>Zonotrichia leucophrys</i>
EPA-04A-016	TA-48	Damselfly adults	Zygoptera
EPA-04A-070	TA-16	Elk	<i>Cervus canadensis</i>
EPA-04A-070	TA-16	Mule deer	<i>Odocoileus hemionus</i>
EPA-04A-083	TA-16	Mouse	Cricetidae
EPA-04A-083	TA-16	Mule deer	<i>Odocoileus hemionus</i>
EPA-04A-091	TA-16	Elk	<i>Cervus canadensis</i>
EPA-04A-091	TA-16	Mule deer	<i>Odocoileus hemionus</i>
EPA-04A-091	TA-16	Squirrel	<i>Spermophilus</i> sp.
EPA-04A-092	TA-16	Elk	<i>Cervus canadensis</i>
EPA-04A-092	TA-16	Mule deer	<i>Odocoileus hemionus</i>
EPA-04A-092	TA-16	Squirrel	<i>Spermophilus</i> sp.
EPA-04A-093	TA-15	Elk	<i>Cervus canadensis</i>
EPA-04A-093	TA-15	Mule deer	<i>Odocoileus hemionus</i>
EPA-04A-093	TA-15	Rabbit	<i>Sylvilagus</i> sp.
EPA-04A-093	TA-15	Squirrel	<i>Spermophilus</i> sp.
EPA-04A-093	TA-15	Weasel	<i>Mustela</i> sp.
EPA-04A-094	TA-03	Damselfly adults	Zygoptera
EPA-04A-094	TA-03	Damselfly larvae	Zygoptera

EPA-04A-094	TA-03	Dragonfly larva	Anisoptera
EPA-04A-094	TA-03	Whirligig beetle	Gyrinidae
EPA-04A-101	TA-40	Eastern fence lizard	<i>Sceloporus undulatus</i>
EPA-04A-102	TA-15	Elk	<i>Cervus canadensis</i>
EPA-04A-102	TA-15	Gopher	<i>Thomomys talpoides</i>
EPA-04A-103	TA-15	Elk	<i>Cervus canadensis</i>
EPA-04A-109	TA-03	Chipmunk	<i>Eutamias</i> sp.
EPA-04A-109	TA-03	Damselfly adults	Zygoptera
EPA-04A-109	TA-03	Elk	<i>Cervus canadensis</i>
EPA-04A-109	TA-03	Fly larva	Diptera
EPA-04A-109	TA-03	Isopod	Isopoda
EPA-04A-109	TA-03	Raccoon	<i>Procyon lotor</i>
EPA-04A-109	TA-03	Raven	<i>Corvus corax</i>
EPA-04A-109	TA-03	Red squirrel	<i>Sciurus arizonensis</i>
EPA-04A-109	TA-03	Squirrel	<i>Spermophilus</i> sp.
EPA-04A-115	TA-08	Damselfly adults	Zygoptera
EPA-04A-115	TA-08	Elk	<i>Cervus canadensis</i>
EPA-04A-115	TA-08	Mosquito larva	Culicidae
EPA-04A-126	TA-48	Dragonfly	Anisoptera
EPA-04A-126	TA-48	Raccoon	<i>Procyon lotor</i>
EPA-04A-127	TA-35	Eastern fence lizard	<i>Sceloporus undulatus</i>
EPA-04A-127	TA-35	Squirrel	<i>Spermophilus</i> sp.
EPA-04A-131	TA-48	Rabbit	<i>Sylvilagus</i> sp.
EPA-04A-131	TA-48	Raccoon	<i>Procyon lotor</i>
EPA-04A-131	TA-48	Squirrel	<i>Spermophilus</i> sp.
EPA-04A-137	TA-48	Raccoon	<i>Procyon lotor</i>
EPA-04A-140	TA-03	Rabbit	<i>Sylvilagus</i> sp.
EPA-04A-140	TA-03	Raccoon	<i>Procyon lotor</i>
EPA-04A-140	TA-03	Squirrel	<i>Spermophilus</i> sp.
EPA-04A-141	TA-39	Gopher	<i>Thomomys talpoides</i>
EPA-04A-142	TA-21	Eastern fence lizard	<i>Sceloporus undulatus</i>
EPA-04A-142	TA-21	Gopher	<i>Thomomys talpoides</i>
EPA-04A-142	TA-21	Mule deer	<i>Odocoileus hemionus</i>
EPA-04A-143	TA-15	Coyote	<i>Canis latrans</i>
EPA-04A-143	TA-15	Elk	<i>Cervus canadensis</i>
EPA-04A-143	TA-15	Mule deer	<i>Odocoileus hemionus</i>
EPA-04A-147	TA-33	Elk	<i>Cervus canadensis</i>
EPA-04A-147	TA-33	Mule deer	<i>Odocoileus hemionus</i>
EPA-04A-147	TA-33	Pinyon jay	<i>Gymnorhinus cyanocephalus</i>
EPA-04A-147	TA-33	Rabbit	<i>Sylvilagus</i> sp.
EPA-04A-147	TA-33	Raccoon	<i>Procyon lotor</i>
EPA-04A-151	TA-03	Raccoon	<i>Procyon lotor</i>
EPA-04A-152	TA-48	Damselfly adults	Zygoptera
EPA-04A-152	TA-48	Mayfly larva	Ephemeroptera
EPA-04A-152	TA-48	Raccoon	<i>Procyon lotor</i>
EPA-04A-155	TA-09	Elk	<i>Cervus canadensis</i>
EPA-04A-155	TA-09	Mule deer	<i>Odocoileus hemionus</i>
EPA-04A-156	TA-39	Elk	<i>Cervus canadensis</i>
EPA-04A-156	TA-39	Gopher	<i>Thomomys talpoides</i>
EPA-04A-157	TA-16	Coyote	<i>Canis latrans</i>

EPA-04A-157	TA-16	Elk	<i>Cervus canadensis</i>
EPA-04A-157	TA-16	Gopher	<i>Thomomys talpoides</i>
EPA-04A-157	TA-16	Mule deer	<i>Odocoileus hemionus</i>
EPA-04A-157	TA-16	Squirrel	<i>Spermophilus</i> sp.
EPA-04A-157	TA-16	Water striders	Gerridae
EPA-04A-157	TA-16	Whirligig beetle	Gyrinidae
EPA-04A-165	TA-0	Mule deer	<i>Odocoileus hemionus</i>
EPA-04A-176	TA-0	Gopher	<i>Thomomys talpoides</i>
EPA-04A-182	TA-21	Eastern fence lizard	<i>Sceloporus undulatus</i>
EPA-04A-182	TA-21	Gopher	<i>Thomomys talpoides</i>
EPA-04A-182	TA-21	Squirrel	<i>Spermophilus</i> sp.
EPA-05A-052	TA-16	Eastern fence lizard	<i>Sceloporus undulatus</i>
EPA-05A-052	TA-16	Elk	<i>Cervus canadensis</i>
EPA-05A-052	TA-16	Gopher	<i>Thomomys talpoides</i>
EPA-05A-052	TA-16	Mule deer	<i>Odocoileus hemionus</i>
EPA-05A-053	TA-16	Eastern fence lizard	<i>Sceloporus undulatus</i>
EPA-05A-053	TA-16	Mule deer	<i>Odocoileus hemionus</i>
EPA-05A-053	TA-16	Porcupine	<i>Erethizon dorsatum</i>
EPA-05A-053	TA-16	Short horned lizard	<i>Phrynosoma douglassi</i>
EPA-05A-054	TA-16	Abert's squirrel	<i>Sciurus aberti</i>
EPA-05A-054	TA-16	Damselfly larvae	Zygoptera
EPA-05A-054	TA-16	Elk	<i>Cervus canadensis</i>
EPA-05A-054	TA-16	Fly larva	Diptera
EPA-05A-054	TA-16	Mayfly larva	Ephemeroptera
EPA-05A-054	TA-16	Mule deer	<i>Odocoileus hemionus</i>
EPA-05A-054	TA-16	Porcupine	<i>Erethizon dorsatum</i>
EPA-05A-054	TA-16	Rabbit	<i>Sylvilagus</i> sp.
EPA-05A-054	TA-16	Squirrel	<i>Spermophilus</i> sp.
EPA-05A-055	TA-16	Eastern fence lizard	<i>Sceloporus undulatus</i>
EPA-05A-055	TA-16	Squirrel	<i>Spermophilus</i> sp.
EPA-05A-056	TA-16	Eastern fence lizard	<i>Sceloporus undulatus</i>
EPA-05A-056	TA-16	Elk	<i>Cervus canadensis</i>
EPA-05A-056	TA-16	Mule deer	<i>Odocoileus hemionus</i>
EPA-05A-056	TA-16	Squirrel	<i>Spermophilus</i> sp.
EPA-05A-057	TA-16	Elk	<i>Cervus canadensis</i>
EPA-05A-057	TA-16	Mule deer	<i>Odocoileus hemionus</i>
EPA-05A-058	TA-16	Dragonfly	Anisoptera
EPA-05A-058	TA-16	Elk	<i>Cervus canadensis</i>
EPA-05A-058	TA-15	Mule deer	<i>Odocoileus hemionus</i>
EPA-05A-058	TA-16	Rabbit	<i>Sylvilagus</i> sp.
EPA-05A-058	TA-16	Squirrel	<i>Spermophilus</i> sp.
EPA-05A-058	TA-15	Water striders	Gerridae
EPA-05A-061	TA-16	Elk	<i>Cervus canadensis</i>
EPA-05A-061	TA-16	Mule deer	<i>Odocoileus hemionus</i>
EPA-05A-062	TA-16	Eastern fence lizard	<i>Sceloporus undulatus</i>
EPA-05A-062	TA-16	Mule deer	<i>Odocoileus hemionus</i>
EPA-05A-062	TA-16	Rabbit	<i>Sylvilagus</i> sp.
EPA-05A-062	TA-16	Squirrel	<i>Spermophilus</i> sp.
EPA-05A-063	TA-16	Chipmunk	<i>Eutamias</i> sp.
EPA-05A-063	TA-16	Elk	<i>Cervus canadensis</i>

EPA-05A-063	TA-16	Mule deer	<i>Odocoileus hemionus</i>
EPA-05A-063	TA-16	Raccoon	<i>Procyon lotor</i>
EPA-05A-063	TA-16	Skunk	<i>Mephitis</i> sp.
EPA-05A-063	TA-16	Squirrel	<i>Spermophilus</i> sp.
EPA-05A-066	TA-09	Elk	<i>Cervus canadensis</i>
EPA-05A-066	TA-09	Mule deer	<i>Odocoileus hemionus</i>
EPA-05A-066	TA-09	Squirrel	<i>Spermophilus</i> sp.
EPA-05A-067	TA-09	Coyote	<i>Canis latrans</i>
EPA-05A-067	TA-09	Elk	<i>Cervus canadensis</i>
EPA-05A-068	TA-09	Eastern fence lizard	<i>Sceloporus undulatus</i>
EPA-05A-068	TA-09	Elk	<i>Cervus canadensis</i>
EPA-05A-069	TA-11	Bear	<i>Ursus americanus</i>
EPA-05A-069	TA-11	Elk	<i>Cervus canadensis</i>
EPA-05A-069	TA-11	Mule deer	<i>Odocoileus hemionus</i>
EPA-05A-069	TA-11	Water striders	Gerridae
EPA-05A-071	TA-16	Eastern fence lizard	<i>Sceloporus undulatus</i>
EPA-05A-071	TA-16	Elk	<i>Cervus canadensis</i>
EPA-05A-071	TA-16	Mule deer	<i>Odocoileus hemionus</i>
EPA-05A-071	TA-16	Shrew	<i>Sorex</i> sp.
EPA-05A-072	TA-16	Elk	<i>Cervus canadensis</i>
EPA-05A-072	TA-16	Mule deer	<i>Odocoileus hemionus</i>
EPA-05A-096	TA-11	Bear	<i>Ursus americanus</i>
EPA-05A-096	TA-11	Coyote	<i>Canis latrans</i>
EPA-05A-096	TA-11	Elk	<i>Cervus canadensis</i>
EPA-05A-096	TA-11	Mule deer	<i>Odocoileus hemionus</i>
EPA-05A-096	TA-11	Squirrel	<i>Spermophilus</i> sp.
EPA-05A-097	TA-11	Mule deer	<i>Odocoileus hemionus</i>
EPA-05A-149	TA-16	Elk	<i>Cervus canadensis</i>
EPA-05A-149	TA-16	Mule deer	<i>Odocoileus hemionus</i>
EPA-05A-159	TA-16	Elk	<i>Cervus canadensis</i>
EPA-05A-159	TA-16	Mule deer	<i>Odocoileus hemionus</i>
EPA-06A-073	TA-16	Chorus frog	<i>Pseudacris triseriata</i>
EPA-06A-073	TA-16	Mule deer	<i>Odocoileus hemionus</i>
EPA-06A-073	TA-16	Water striders	Gerridae
EPA-06A-073	TA-16	Whirligig beetle	Gyrinidae
EPA-06A-074	TA-08	Damselfly adults	Zygoptera
EPA-06A-074	TA-08	Elk	<i>Cervus canadensis</i>
EPA-06A-074	TA-08	Mosquito larva	Culicidae
EPA-06A-075	TA-08	Aquatic beetle	Coleoptera
EPA-06A-075	TA-08	Coyote	<i>Canis latrans</i>
EPA-06A-075	TA-08	Elk	<i>Cervus canadensis</i>
EPA-06A-075	TA-08	Mosquito larva	Culicidae
EPA-06A-075	TA-08	Mule deer	<i>Odocoileus hemionus</i>
EPA-06A-075	TA-08	Squirrel	<i>Spermophilus</i> sp.
EPA-06A-079	TA-40	Eastern fence lizard	<i>Sceloporus undulatus</i>
EPA-06A-079	TA-40	Elk	<i>Cervus canadensis</i>
EPA-06A-080	TA-40	Bear	<i>Ursus americanus</i>
EPA-06A-080	TA-40	Eastern fence lizard	<i>Sceloporus undulatus</i>
EPA-06A-080	TA-40	Elk	<i>Cervus canadensis</i>
EPA-06A-080	TA-40	Mule deer	<i>Odocoileus hemionus</i>

EPA-06A-099	TA-40	Elk	<i>Cervus canadensis</i>
EPA-06A-106	TA-36	Woodrat	<i>Neotoma</i> sp.
EPA-06A-123	TA-15	Elk	<i>Cervus canadensis</i>
EPA-06A-123	TA-15	Mule deer	<i>Odocoileus hemionus</i>
EPA-06A-132	TA-35	Squirrel	<i>Spermophilus</i> sp.
EPA-128-128	TA-22	Abert's squirrel	<i>Sciurus aberti</i>
EPA-128-128	TA-22	Aquatic beetle	Coleoptera
EPA-128-128	TA-22	Chickadee	<i>Parus</i> sp.
EPA-128-128	TA-22	Bobcat	<i>Felis rufus</i>
EPA-128-128	TA-22	Coyote	<i>Canis latrans</i>
EPA-128-128	TA-22	Deer mouse	<i>Peromyscus maniculatus</i>
EPA-128-128	TA-22	Earthworm	Annelida
EPA-128-128	TA-22	Elk	<i>Cervus canadensis</i>
EPA-128-128	TA-22	Great horned owl	<i>Bubo virginianus</i>
EPA-128-128	TA-22	Mule deer	<i>Odocoileus hemionus</i>
EPA-128-128	TA-22	Raccoon	<i>Procyon lotor</i>
EPA-128-128	TA-22	Raven	<i>Corvus corax</i>
EPA-128-128	TA-22	Shrimp	Amphipoda
EPA-128-128	TA-22	Water striders	Gerridae
EPA-SSS-01S	TA-03	Coyote	<i>Canis latrans</i>
EPA-SSS-01S	TA-03	Elk	<i>Cervus canadensis</i>
EPA-SSS-01S	TA-03	Raccoon	<i>Procyon lotor</i>
EPA-SSS-02S	TA-09	Coyote	<i>Canis latrans</i>
EPA-SSS-02S	TA-09	Elk	<i>Cervus canadensis</i>
EPA-SSS-03S	TA-16	Damselfly adults	Zygoptera
EPA-SSS-03S	TA-16	Elk	<i>Cervus canadensis</i>
EPA-SSS-03S	TA-16	Mule deer	<i>Odocoileus hemionus</i>
EPA-SSS-03S	TA-16	Squirrel	<i>Spermophilus</i> sp.
EPA-SSS-03S	TA-16	Water striders	Gerridae
EPA-SSS-04S	TA-18	Damselfly adults	Zygoptera
EPA-SSS-04S	TA-18	Dragonfly	Anisoptera
EPA-SSS-04S	TA-18	Elk	<i>Cervus canadensis</i>
EPA-SSS-04S	TA-18	Fly larva	Diptera
EPA-SSS-04S	TA-18	Gopher	<i>Thomomys talpoides</i>
EPA-SSS-04S	TA-18	Mayfly larva	Ephemeroptera
EPA-SSS-04S	TA-18	Mule deer	<i>Odocoileus hemionus</i>
EPA-SSS-04S	TA-18	Raccoon	<i>Procyon lotor</i>
EPA-SSS-04S	TA-18	Snail	Gastropoda
EPA-SSS-04S	TA-18	Water striders	Gerridae
EPA-SSS-05S	TA-21	Mule deer	<i>Odocoileus hemionus</i>
EPA-SSS-05S	TA-21	Squirrel	<i>Spermophilus</i> sp.
EPA-SSS-09S	TA-53	Turkey vulture	<i>Cathartes aura</i>
EPA-SSS-10S	TA-35	Elk	<i>Cervus canadensis</i>
EPA-SSS-10S	TA-35	Mule deer	<i>Odocoileus hemionus</i>

Table 11A. Outfalls with Hydrophytic Vegetation

CATTAILS	<i>Typha latifolia</i>	EPA-01A-001	TA-03
		EPA-03A-009	TA-03
		EPA-03A-021	TA-03
		EPA-03A-022	TA-03
		EPA-03A-027	TA-03
		EPA-03A-028	TA-15
		EPA-03A-031	TA-21
		EPA-03A-034	TA-21
		EPA-03A-036	TA-21
		EPA-03A-038	TA-33
		EPA-03A-042	TA-46
		EPA-03A-045	TA-48
		EPA-03A-047	TA-03
		EPA-03A-060	TA-16
		EPA-03A-181	TA-55
		EPA-03A-114	TA-53
		EPA-03A-124	TA-46
		EPA-04A-016	TA-48
		EPA-04A-018	TA-46
		EPA-04A-083	TA-16
		EPA-04A-092	TA-16
		EPA-04A-094	TA-03
		EPA-04A-115	TA-08
		EPA-04A-126	TA-48
		EPA-04A-127	TA-35
		EPA-04A-131	TA-48
		EPA-04A-140	TA-03
		EPA-04A-147	TA-33
		EPA-04A-152	TA-48
		EPA-04A-153	TA-48
		EPA-04A-157	TA-16
		EPA-05A-054	TA-16
		EPA-05A-058	TA-16
		EPA-05A-061	TA-16
		EPA-05A-063	TA-16
		EPA-05A-071	TA-16
		EPA-05A-072	TA-16
		EPA-06A-075	TA-08
		EPA-06A-078	TA-22
		EPA-06A-123	TA-15
		EPA-128-128	TA-22
		EPA-SSS-01S	TA-03
		EPA-SSS-04S	TA-18
		EPA-SSS-05S	TA-21
		EPA-SSS-10S	TA-35
NARROWLEAF COTTONWOOD	<i>Populus angustifolia</i>	EPA-03A-009	TA-03
		EPA-03A-114	TA-53
		EPA-04A-016	TA-48

SEDGES/RUSHES	<i>Carex sp./Juncus sp.</i>	EPA-03A-022	TA-03
		EPA-03A-036	TA-21
		EPA-03A-045	TA-48
		EPA-03A-047	TA-53
		EPA-03A-060	TA-16
		EPA-03A-114	TA-53
		EPA-04A-094	TA-03
		EPA-04A-115	TA-08
		EPA-04A-126	TA-48
		EPA-04A-140	TA-03
		EPA-04A-153	TA-48
		EPA-04A-157	TA-16
		EPA-05A-054	TA-16
		EPA-05A-061	TA-16
		EPA-05A-066	TA-09
		EPA-05A-071	TA-16
		EPA-051-051	TA-50
		EPA-128-128	TA-22
TAMARISK	<i>Tamarix pentandra</i>	EPA-03A-034	TA-21
WATERCRESS	<i>Rorippa sp.</i>	EPA-04A-094	TA-03
WILLOW	<i>Salix sp.</i>	EPA-03A-009	TA-03
		EPA-03A-022	TA-03
		EPA-03A-036	TA-21
		EPA-03A-040	TA-43
		EPA-03A-098	TA-59
		EPA-03A-114	TA-53
		EPA-03A-181	TA-55
		EPA-04A-016	TA-48
		EPA-04A-091	TA-16
		EPA-04A-092	TA-16
		EPA-04A-093	TA-15
		EPA-04A-115	TA-08
		EPA-04A-126	TA-48
		EPA-04A-127	TA-35
		EPA-04A-147	TA-33
		EPA-04A-152	TA-48
		EPA-05A-053	TA-16
		EPA-05A-071	TA-16
		EPA-06A-132	TA-35
		EPA-SSS-04S	TA-18
BARNYARD GRASS	<i>Echinochloa crusgalli</i>	EPA-06A-073	TA-16

Table 11B. Outfalls with Hydrophytic Vegetation

OUTFALL NO.	TA	COMMON NAME	SCIENTIFIC NAME
EPA-01A-001	TA-03	Cattails	<i>Typha latifolia</i>
EPA-03A-009	TA-03	Cattails	<i>Typha latifolia</i>
EPA-03A-009	TA-03	Narrowleaf cottonwood	<i>Populus angustifolia</i>
EPA-03A-009	TA-03	Willow	<i>Salix</i> sp.
EPA-03A-021	TA-03	Cattails	<i>Typha latifolia</i>
EPA-03A-022	TA-03	Cattails	<i>Typha latifolia</i>
EPA-03A-022	TA-03	Sedges/Rushes	<i>Carex</i> sp./ <i>Juncus</i> sp.
EPA-03A-022	TA-03	Willow	<i>Salix</i> sp.
EPA-03A-027	TA-03	Cattails	<i>Typha latifolia</i>
EPA-03A-028	TA-15	Cattails	<i>Typha latifolia</i>
EPA-03A-031	TA-21	Cattails	<i>Typha latifolia</i>
EPA-03A-034	TA-21	Cattails	<i>Typha latifolia</i>
EPA-03A-034	TA-21	Tamarisk	<i>Tamarix pentandra</i>
EPA-03A-036	TA-21	Cattails	<i>Typha latifolia</i>
EPA-03A-036	TA-21	Sedges/Rushes	<i>Carex</i> sp./ <i>Juncus</i> sp.
EPA-03A-036	TA-21	Willow	<i>Salix</i> sp.
EPA-03A-038	TA-33	Cattails	<i>Typha latifolia</i>
EPA-03A-040	TA-43	Willow	<i>Salix</i> sp.
EPA-03A-042	TA-46	Cattails	<i>Typha latifolia</i>
EPA-03A-045	TA-48	Cattails	<i>Typha latifolia</i>
EPA-03A-045	TA-48	Sedges/Rushes	<i>Carex</i> sp./ <i>Juncus</i> sp.
EPA-03A-047	TA-03	Cattails	<i>Typha latifolia</i>
EPA-03A-047	TA-53	Sedges/Rushes	<i>Carex</i> sp./ <i>Juncus</i> sp.
EPA-03A-060	TA-16	Cattails	<i>Typha latifolia</i>
EPA-03A-060	TA-16	Sedges/Rushes	<i>Carex</i> sp./ <i>Juncus</i> sp.
EPA-03A-098	TA-59	Willow	<i>Salix</i> sp.
EPA-03A-114	TA-53	Cattails	<i>Typha latifolia</i>
EPA-03A-114	TA-53	Narrowleaf cottonwood	<i>Populus angustifolia</i>
EPA-03A-114	TA-53	Sedges/Rushes	<i>Carex</i> sp./ <i>Juncus</i> sp.
EPA-03A-114	TA-53	Willow	<i>Salix</i> sp.
EPA-03A-124	TA-46	Cattails	<i>Typha latifolia</i>
EPA-03A-181	TA-55	Cattails	<i>Typha latifolia</i>
EPA-03A-181	TA-55	Willow	<i>Salix</i> sp.
EPA-04A-016	TA-48	Cattails	<i>Typha latifolia</i>
EPA-04A-016	TA-48	Narrowleaf cottonwood	<i>Populus angustifolia</i>
EPA-04A-016	TA-48	Willow	<i>Salix</i> sp.
EPA-04A-018	TA-46	Cattails	<i>Typha latifolia</i>
EPA-04A-083	TA-16	Cattails	<i>Typha latifolia</i>
EPA-04A-091	TA-16	Willow	<i>Salix</i> sp.
EPA-04A-092	TA-16	Cattails	<i>Typha latifolia</i>
EPA-04A-092	TA-16	Willow	<i>Salix</i> sp.
EPA-04A-093	TA-15	Willow	<i>Salix</i> sp.
EPA-04A-094	TA-03	Cattails	<i>Typha latifolia</i>
EPA-04A-094	TA-03	Sedges/Rushes	<i>Carex</i> sp./ <i>Juncus</i> sp.
EPA-04A-094	TA-03	Watercress	<i>Rorippa</i> sp.
EPA-04A-115	TA-08	Cattails	<i>Typha latifolia</i>
EPA-04A-115	TA-08	Sedges/Rushes	<i>Carex</i> sp./ <i>Juncus</i> sp.

OUTFALL NO.	TA	COMMON NAME	SCIENTIFIC NAME
EPA-04A-115	TA-08	Willow	<i>Salix</i> sp.
EPA-04A-126	TA-48	Cattails	<i>Typha latifolia</i>
EPA-04A-126	TA-48	Sedges/Rushes	<i>Carex</i> sp./ <i>Juncus</i> sp.
EPA-04A-126	TA-48	Willow	<i>Salix</i> sp.
EPA-04A-127	TA-35	Cattails	<i>Typha latifolia</i>
EPA-04A-127	TA-35	Willow	<i>Salix</i> sp.
EPA-04A-131	TA-48	Cattails	<i>Typha latifolia</i>
EPA-04A-140	TA-03	Cattails	<i>Typha latifolia</i>
EPA-04A-140	TA-03	Sedges/Rushes	<i>Carex</i> sp./ <i>Juncus</i> sp.
EPA-04A-147	TA-33	Cattails	<i>Typha latifolia</i>
EPA-04A-147	TA-33	Willow	<i>Salix</i> sp.
EPA-04A-152	TA-48	Cattails	<i>Typha latifolia</i>
EPA-04A-152	TA-48	Willow	<i>Salix</i> sp.
EPA-04A-153	TA-48	Cattails	<i>Typha latifolia</i>
EPA-04A-153	TA-48	Sedges/Rushes	<i>Carex</i> sp./ <i>Juncus</i> sp.
EPA-04A-157	TA-16	Cattails	<i>Typha latifolia</i>
EPA-04A-157	TA-16	Sedges/Rushes	<i>Carex</i> sp./ <i>Juncus</i> sp.
EPA-051-051	TA-50	Sedges/Rushes	<i>Carex</i> sp./ <i>Juncus</i> sp.
EPA-05A-053	TA-16	Willow	<i>Salix</i> sp.
EPA-05A-054	TA-16	Cattails	<i>Typha latifolia</i>
EPA-05A-054	TA-16	Sedges/Rushes	<i>Carex</i> sp./ <i>Juncus</i> sp.
EPA-05A-058	TA-16	Cattails	<i>Typha latifolia</i>
EPA-05A-061	TA-16	Cattails	<i>Typha latifolia</i>
EPA-05A-061	TA-16	Sedges/Rushes	<i>Carex</i> sp./ <i>Juncus</i> sp.
EPA-05A-063	TA-16	Cattails	<i>Typha latifolia</i>
EPA-05A-066	TA-09	Sedges/Rushes	<i>Carex</i> sp./ <i>Juncus</i> sp.
EPA-05A-071	TA-16	Cattails	<i>Typha latifolia</i>
EPA-05A-071	TA-16	Sedges/Rushes	<i>Carex</i> sp./ <i>Juncus</i> sp.
EPA-05A-071	TA-16	Willow	<i>Salix</i> sp.
EPA-05A-072	TA-16	Cattails	<i>Typha latifolia</i>
EPA-06A-073	TA-16	Barnyard grass	<i>Echinochloa crusgalli</i>
EPA-06A-075	TA-08	Cattails	<i>Typha latifolia</i>
EPA-06A-078	TA-22	Cattails	<i>Typha latifolia</i>
EPA-06A-123	TA-15	Cattails	<i>Typha latifolia</i>
EPA-06A-132	TA-35	Willow	<i>Salix</i> sp.
EPA-128-128	TA-22	Cattails	<i>Typha latifolia</i>
EPA-128-128	TA-22	Sedges/Rushes	<i>Carex</i> sp./ <i>Juncus</i> sp.
EPA-SSS-01S	TA-03	Cattails	<i>Typha latifolia</i>
EPA-SSS-04S	TA-18	Cattails	<i>Typha latifolia</i>
EPA-SSS-04S	TA-18	Willow	<i>Salix</i> sp.
EPA-SSS-05S	TA-21	Cattails	<i>Typha latifolia</i>
EPA-SSS-10S	TA-35	Cattails	<i>Typha latifolia</i>

TABLE 12. Miscellaneous Observations

<u>OUTFALL</u>	<u>TA</u>	<u>COMMENTS</u>
03A-022	03	Tarp in channel
03A-023	03	No sign, bundles absorbent boom
03A-040	43	Stryofoam beads in channel
03A-045	48	Erosion
03A-148	03	No sign
03A-181	55	Erosion
04A-083	16	Small white particles in channel
04A-092	16	Number on sign different number in print out (04A)
04A-094	03	Dumping, debris in channel
04A-109	03	Asphalt in channel
04A-143	15	Oil sprays reaching channel
04A-151	03	Gray sediment lining channel
06A-099	40	Grate covering pipe open
06A-100	40	Erosion
06A-132	35	Debris in channel, discarded pipe

Table 13. Surface Water Flow at Surveyed Outfalls

NPDES Number	TA	Length of flow
EPA-128-128	22	At least 1380 ft
EPA-051-051	50	N/A
EPA-001-001	57	N/A
EPA-01A-001	3	Flow from combined outfalls approximately 2 miles
EPA-02A-007	16	950 ft.
EPA-02A-129	21	N/A
EPA-03A-009	3	Undetermined
EPA-03A-020	2	Undetermined
EPA-03A-021	3	200 ft.
EPA-03A-022	3	350-400 ft.
EPA-03A-023	3	330 ft.
EPA-03A-024	3	N/A
EPA-03A-025	3	30 ft.
EPA-03A-027	3	Flow from combined outfalls approximately 2 miles
EPA-03A-028	15	6 ft.
EPA-03A-031	21	Undetermined
EPA-03A-032	21	2 ft.
EPA-03A-034	21	30 ft.
EPA-03A-035	21	N/A
EPA-03A-036	21	N/A
EPA-03A-037	21	N/A
EPA-03A-038	33	30 ft.
EPA-03A-040	43	250-300 ft.
EPA-03A-042	46	Intermittent for 125 ft.
EPA-03A-043	46	Undetermined
EPA-03A-045	48	Intermittent for 250 ft.
EPA-03A-047	53	Intermittent for 435 ft.
EPA-03A-048	53	Undetermined
EPA-03A-049	53	Undetermined
EPA-03A-060	16	20 ft.
EPA-03A-098	59	110 ft.
EPA-03A-113	53	500-800 ft.
EPA-03A-114	53	125 ft.
EPA-03A-124	46	20 ft.
EPA-03A-125	53	N/A
EPA-03A-130	11	N/A
EPA-03A-136	46	N/A
EPA-03A-145	53	1.5 ft.
EPA-03A-146	53	N/A
EPA-03A-148	3	At least 45 ft.
EPA-03A-158	21	Undetermined
EPA-03A-160	35	N/A
EPA-03A-181	55	390 ft.
EPA-04A-013	46	N/A
EPA-04A-014	46	Undetermined
EPA-04A-016	48	Intermittent for 150 ft.

NPDES Number	TA	Length of flow
EPA-04A-018	46	N/A
EPA-04A-070	16	40 ft.
EPA-04A-083	16	295 ft.
EPA-04A-091	16	N/A
EPA-04A-092	16	2 ft.
EPA-04A-093	15	60 ft.
EPA-04A-094	3	Undetermined
EPA-04A-101	40	Immediately disappears
EPA-04A-102	15	N/A
EPA-04A-103	15	N/A
EPA-04A-109	3	Flow from combined outfalls approximately 2 miles
EPA-04A-115	8	N/A
EPA-04A-117	46	N/A
EPA-04A-118	0	Not surveyed
EPA-04A-126	48	Approximately 500 ft.
EPA-04A-127	35	Intermittent for 60 ft.
EPA-04A-131	48	45 ft.
EPA-04A-133	53	Not surveyed
EPA-04A-135	53	N/A
EPA-04A-137	48	N/A
EPA-04A-139	15	N/A
EPA-04A-140	3	N/A
EPA-04A-141	39	30 ft. maximum
EPA-04A-142	21	15 ft.
EPA-04A-143	15	Undetermined
EPA-04A-147	33	N/A
EPA-04A-151	3	Flow from combined outfalls approximately 2 miles
EPA-04A-152	48	At least 175 ft.
EPA-04A-153	48	Intermittent for 160 ft.
EPA-04A-155	9	N/A
EPA-04A-156	39	N/A
EPA-04A-157	16	3000 ft.
EPA-04A-161	0	Not surveyed
EPA-04A-163	0	N/A
EPA-04A-164	0	50 ft.
EPA-04A-165	0	N/A
EPA-04A-166	0	Not surveyed
EPA-04A-167	0	Not surveyed
EPA-04A-168	0	N/A
EPA-04A-169	0	N/A
EPA-04A-170	0	N/A
EPA-04A-171	0	N/A
EPA-04A-172	0	N/A
EPA-04A-173	0	N/A
EPA-04A-174	0	N/A
EPA-04A-175	0	N/A
EPA-04A-176	0	N/A

NPDES Number	TA	Length of flow
EPA-04A-177	0	Not surveyed
EPA-04A-178	0	N/A
EPA-04A-179	0	Not surveyed
EPA-04A-182	21	N/A
EPA-05A-052	16	N/A
EPA-05A-053	16	12 ft.
EPA-05A-054	16	1000 ft.
EPA-05A-055	16	125 ft.
EPA-05A-056	16	400 ft.
EPA-05A-057	16	N/A
EPA-05A-058	16	At least 480 ft.
EPA-05A-061	16	N/A
EPA-05A-062	16	N/A
EPA-05A-063	16	N/A
EPA-05A-066	9	90 ft.
EPA-05A-067	9	N/A
EPA-05A-068	9	N/A
EPA-05A-069	11	N/A
EPA-05A-071	16	N/A
EPA-05A-072	16	N/A
EPA-05A-096	11	N/A
EPA-05A-097	11	N/A
EPA-05A-149	16	N/A
EPA-05A-154	40	N/A
EPA-05A-159	16	N/A
EPA-06A-073	16	280 ft.
EPA-06A-074	8	715 ft.
EPA-06A-075	8	350 ft.
EPA-06A-078	22	146 ft.
EPA-06A-079	40	N/A
EPA-06A-080	40	1 ft.
EPA-06A-081	40	N/A
EPA-06A-082	40	Immediately disappears
EPA-06A-099	40	N/A
EPA-06A-100	40	N/A
EPA-06A-106	36	50 ft.
EPA-06A-123	15	N/A
EPA-06A-132	35	50 ft.
EPA-SSS-01S	3	Flow from combined outfalls approximately 2 miles
EPA-SSS-02S	9	Undetermined
EPA-SSS-03S	16	Undetermined
EPA-SSS-04S	18	N/A
EPA-SSS-05S	21	300-400 ft.
EPA-SSS-06S	41	N/A
EPA-SSS-07S	46	N/A
EPA-SSS-09S	53	N/A
EPA-SSS-10S	35	Undetermined
EPA-SSS-12S	46	N/A

APPENDIX A
NPDES Outfalls by Category

EPA Outfall Category	NPDES ID Number	Technical Area
001	001	57
01A	001	3
02A	007	16
02A	129	21
03A	009	3
03A	020	2
03A	021	3
03A	022	3
03A	023	3
03A	024	3
03A	025	3
03A	027	3
03A	028	15
03A	031	21
03A	032	21
03A	034	21
03A	035	21
03A	036	21
03A	037	21
03A	038	33
03A	040	43
03A	042	46
03A	043	46
03A	045	48
03A	047	53
03A	048	53
03A	049	53
03A	060	16
03A	098	59
03A	113	53
03A	114	53
03A	124	46
03A	125	53
03A	130	11
03A	136	46
03A	145	53
03A	146	53
03A	148	3
03A	158	21

EPA Outfall Category	NPDES ID Number	Technical Area
03A	160	35
03A	181	55
04A	013	46
04A	014	46
04A	016	48
04A	018	46
04A	070	16
04A	083	16
04A	091	16
04A	092	16
04A	093	15
04A	094	3
04A	101	40
04A	102	15
04A	103	15
04A	109	3
04A	115	8
04A	117	46
04A	118	0
04A	126	48
04A	127	35
04A	131	48
04A	133	53
04A	135	53
04A	137	48
04A	139	15
04A	140	3
04A	141	39
04A	142	21
04A	143	15
04A	147	33
04A	151	3
04A	152	48
04A	153	48
04A	155	9
04A	156	39
04A	157	16
04A	161	0
04A	163	0
04A	164	0
04A	165	0
04A	166	0

EPA Outfall Category	NPDES ID Number	Technical Area
04A	167	0
04A	168	0
04A	169	0
04A	170	0
04A	171	0
04A	172	0
04A	173	0
04A	174	0
04A	175	0
04A	176	0
04A	177	0
04A	178	0
04A	179	0
04A	182	21
05A	052	16
05A	053	16
05A	054	16
05A	055	16
05A	056	16
05A	057	16
05A	058	16
05A	061	16
05A	062	16
05A	063	16
05A	066	9
05A	067	9
05A	068	9
05A	069	11
05A	071	16
05A	072	16
05A	096	11
05A	097	11
05A	149	16
05A	154	40
05A	159	16
06A	073	16
06A	074	8
06A	075	8
06A	078	22
06A	079	40
06A	080	40
06A	081	40

EPA Outfall Category	NPDES ID Number	Technical Area
06A	082	40
06A	099	40
06A	100	40
06A	106	36
06A	123	15
06A	132	35
051	051	50
128	128	22
SSS	01S	3
SSS	02S	9
SSS	03S	16
SSS	04S	18
SSS	05S	21
SSS	06S	41
SSS	07S	46
SSS	09S	53
SSS	10S	35
SSS	12S	46

APPENDIX B
NPDES Outfalls by Technical Area

Technical Area	EPA Outfall Category	NPDES ID Number
0	04A	118
0	04A	161
0	04A	163
0	04A	164
0	04A	165
0	04A	166
0	04A	167
0	04A	168
0	04A	169
0	04A	170
0	04A	171
0	04A	172
0	04A	173
0	04A	174
0	04A	175
0	04A	176
0	04A	177
0	04A	178
0	04A	179
2	03A	020
3	01A	001
3	03A	009
3	03A	021
3	03A	022
3	03A	023
3	03A	024
3	03A	025
3	03A	027
3	03A	148
3	04A	094
3	04A	109
3	04A	140
3	04A	151
3	SSS	01S
8	04A	115
8	06A	074
8	06A	075
9	04A	155
9	05A	066

Technical Area	EPA Outfall Category	NPDES ID Number
9	05A	067
9	05A	068
9	SSS	02S
11	03A	130
11	05A	069
11	05A	096
11	05A	097
15	03A	028
15	04A	093
15	04A	102
15	04A	103
15	04A	139
15	04A	143
15	06A	123
16	02A	007
16	03A	060
16	04A	070
16	04A	083
16	04A	091
16	04A	092
16	04A	157
16	05A	052
16	05A	053
16	05A	054
16	05A	055
16	05A	056
16	05A	057
16	05A	058
16	05A	061
16	05A	062
16	05A	063
16	05A	071
16	05A	072
16	05A	149
16	05A	159
16	06A	073
16	SSS	03S
18	SSS	04S
21	02A	129
21	03A	031
21	03A	032
21	03A	034

Technical Area	EPA Outfall Category	NPDES ID Number
21	03A	035
21	03A	036
21	03A	037
21	03A	158
21	04A	142
21	04A	182
21	SSS	05S
22	06A	078
22	128	128
33	03A	038
33	04A	147
35	03A	160
35	04A	127
35	06A	132
35	SSS	10S
36	06A	106
39	04A	141
39	04A	156
40	04A	101
40	05A	154
40	06A	079
40	06A	080
40	06A	081
40	06A	082
40	06A	099
40	06A	100
41	SSS	06S
43	03A	040
46	SSS	07S
46	SSS	12S
46	03A	042
46	03A	043
46	03A	124
46	03A	136
46	04A	013
46	04A	014
46	04A	018
46	04A	117
48	03A	045
48	04A	016
48	04A	126
48	04A	131

Technical Area	EPA Outfall Category	NPDES ID Number
48	04A	137
48	04A	152
48	04A	153
50	051	051
53	03A	047
53	03A	048
53	03A	049
53	03A	113
53	03A	114
53	03A	125
53	03A	145
53	03A	146
53	04A	133
53	04A	135
53	SSS	09S
55	03A	181
57	001	001
59	03A	098