MID087738431

Severstal
International

February 6, 2013

Via Certified Mail – Return Receipt Requested

Diane M. Sharrow (LR-8J)
Enforcement Officer
RCRA Branch
Land and Chemicals Division
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3590

Subject: Report on carcasses found at Schaefer Road Waste Water Treatment Plant

Reference: Severstal Dearborn, Administrative Order Docket No R7003-5-00-001

Dear Ms. Sharrow:

The enclosed January 31, 2013 reports by our wildlife consultant details the discovery and the basis for identification of an adult Opossum and an adult female Belted Kingfisher.

If you are interested in further investigation of the carcasses, please let us know. We will store them until March 25, 2013, after which, space considerations dictate that the carcasses will be disposed.

Please contact me at (313) 323-1260 if you have questions on the information in these reports.

Sincerely yours,

Lan Trinh
Environmental Engineering

Enclosure

cc: Mr. John Craig, MDEQ
US Fish & Wildlife

Severstal Dearborn, LLC
14661 Rotunda Drive
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MEC ENVIRONMENTAL CONSULTING

January 31, 2013

Mr. James E. Earl
Severstal Dearborn LLC.
14661 Rotunda Drive
Post Office Box 1699
Dearborn, MI 48120-1699

Subject: Schaefer Road Wastewater Treatment Plant – Carcass Report (P. N. 00330)

Dear Jim:

Please find herein the report on the avian carcass which was found by myself on October 17, 2012 at 16:22 at the Primary Lagoon. This report was prepared in accordance with the procedures outlined in EPA's letters from Diane Sharrow to Don Windeler, dated December 14, 2001 and August 12, 2004. The carcass is a probable adult female Belted Kingfisher (*Megaceryle alcyon*).

The carcass was found approximately 5 feet west of the water's edge on slag-covered ground at the lower slope of the west central bank of the Primary Lagoon opposite the TVT approximately 50 feet south of the tall standpipe. The bill of the bird pointed northwest and the tail pointed southeast. The bird lay on its right side with its back facing east and underparts facing west. The neck was slightly extended and the relatively large head bent backwards such that the nape, which appeared to be very shaggy and uniform in color, was tangent to the back. The carcass did not appear to be contorted. The bill was long, thick, and blackish-blue in color except for the base of the mandible which was pinkish. Although the bill was closed, the gape appeared to be reddish and the commisure extended to a point below and perpendicular to the center of the eye. The left eye, which was relatively large and dull black, was open, intact, and only slightly sunken with the nictitating membrane retracted. The feathers near the lower eye lid appeared to be somewhat flared giving the lower lid a puffy appearance as if the bird had bags under its eye. The chin and throat feathers were pale apricot in color, and appeared to be flared. A neat mass of blue-gray breast feathers, which appeared to be flared and matted, protruded from the bird's upper breast like a ruff. The upper belly appeared to be whitish. The bird's left primary and secondary coverts and long tertials, extending to the base of the tail, were azure in color, and appeared to be slightly matted, but otherwise generally neat and in-place. Although both wings appeared to be slightly open, the primaries, which were dark gray to black in color, were slightly drooped, and appeared to be very slightly matted. A portion of the middle and distal vanes of a few of the left outer primaries were misplaced and overlapped other left outer primaries. The tail, which was relatively wide and square at the distal end, appeared to be slightly open or spread. The undertail was mostly a dark brownish gray narrowly barred with white giving it a checkered appearance. The uppertail was a dark bluish gray to black with white bars making the uppertail appear largely spotted. The left side of the carcass did not appear to be stained. No insect activity was noted. No smell of decay or odor characteristic of the oil and sludge of the SRWWTP was detected despite temperatures around 69° F. No droppings or tracks were observed adjacent to the carcass.

Upon closer examination of the carcass as found, the right leg and foot, which were dark purplish-gray in color and booted, were noted to be extended caudally and ventrally such that the appendage was visible between the slightly drooped wings. The bottom (ventral) side of the right foot faced the base of the tail such that only the top (dorsal) side of the foot was visible. The digits of the right foot appeared to be close together and slightly curved dorsally as if in repose. The left foot was not visible. A thin layer of oil or oil-like substance was noted on the carcass. The carcass did not appear to be wet. The carcass appeared free of dirt or sediment, except for a few particles of dried plant material on the left primaries.

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Photographs of the carcass as found were taken. The carcass was not immediately retrieved, however, due to time constraints imposed by the protocol of the wildlife survey, especially given the reduced hours of daylight.

The wildlife specialist did not observe any recoverable oil or significant sheen on the Primary Lagoon. Around 17:10 the wildlife specialist observed a Belted Kingfisher on the west side of the Rouge River approximately 300 feet north of the Severstal outfall. The bird was observed to call noisily as it flew towards the south. Approximately 200-300 feet north of this sighting and approximately 200 feet south of the bend in the Rouge River, the wildlife specialist observed an area of sheen along the west concrete bank of the Rouge River and the adjacent water surface. Although impossible to determine with certainty, this area of sheen, which was observed through binoculars and photographed using an 18x telephoto lens, appeared to be caused by the presence of oil.

The carcass was retrieved at 20:50 with the aid of vehicle headlights and a six million candlepower spotlight after the conclusion of the dusk bird survey. The carcass was carefully turned over, revealing the right side which was examined and photographed. A very slight odor of decay was noted from the right side of the carcass. No odor of SRWWTP oil or sludge was noted. The right eye was intact, open and only somewhat sunken with the nictitating membrane retracted and puffy-looking lower lid, like the left eye. The crown was relatively flat without any erect feathers. A white collar at the neck of the bird was conspicuous. A blue breast band without any trace of burnt orange was conspicuous. A broken band of burnt orange was conspicuous on the upper belly. A patch of burnt orange was also conspicuous on the marginal underwing coverts of the left wing. The undertail coverts were relatively long and whitish. The left leg and foot was extended caudally but less ventrally than the right. Both tarsi were tangent to the primaries. The digits of the left foot were positioned in a similar manner as the right but were closer and seemingly more tightly curled.

Overall, the plumage on the right side appeared to be more matted and unkempt than that on the left. The entire carcass appeared to be thinly and evenly covered with a light oily material that was gray in color and not very viscous. The primaries and secondaries of both wings appeared to be equally covered with the material, giving the remiges a thin, almost flimsy appearance. Very little residue of this material was apparent on the wildlife specialist's nitrile gloves after examination and recovery. However, several dark spots on two or three chunks of slag, where the carcass had lain originally, appeared to be oily residue from the carcass.

No sign of *rigor mortis* was observed. No sign of injury or predation was noted. The neck and wings were intact, and not broken. In addition, the bird appeared to be in firm, good flesh and thrifty. The keel was detected, but was not sharp or protruding. No wounds or visible lesions were found. Pinkish red skin was noted at the cephalad ends of the scapulars and axillary regions of both wings. The primaries and secondaries of each wing appeared to be symmetrical, and there was no obvious indication that the bird had been active in molt. The tips of remiges, particularly the secondaries, as well as the tips of the rectrices appeared to be slightly worn. A relatively narrow strip of black was noted along the rachis of the central rectrices, and several small dull pale spots were noted along the rachis of the central rectrix.

The carcass was retrieved at 21:09 on October 17, 2012, bagged, and placed on ice in a hard plastic cooler at 21:23. The carcass was transported by the wildlife specialist to MEC Environmental Consulting where it was transferred to a non-self-defrosting freezer under the company's federal and state salvage permits at 23:14, and subsequently labeled. No necropsy was performed.

Based on the long, heavy bill, shaggy crest, and overall blue and gray-black plumage, the avian carcass was immediately identified as a Belted Kingfisher (*Megaceryle alcyon*). Based on the absence of burnt

orange in the blue breast band, uniform color of the crest, absence of a broad strip of black along the rachis of the central rectrix , and presence of dark purplish-gray legs and feet, the bird was determined to be an adult. Based on the presence of a partial burnt orange belly band and small spots along the rachis of the central rectrix, the bird is a probable female.

The carcass was fresh because of the fact that the eyes were intact and entire, and that there was very little to no odor of decay or observed insect activity. The bird probably died one day prior to discovery of the carcass, likely during the late night of October 15 or early morning of October 16. Birds typically face the direction of the prevailing wind, especially when standing or sitting on the ground for any length of time, presumably to keep their feathers in place and o avoid being blown over. Because the anterior end of the carcass, as found, pointed northwest it can be concluded that the bird was facing northwest when it died. Significantly, weather data for several days prior to October 17 indicate that winds were predominantly from a southerly direction, except on October 15. Winds on October 15 were generally out of the west until around noon when winds shifted to out of the northwest. Northwest winds continued until approximately 05:00 on October 16. If the bird had died either before or after this 17-hour period, the carcass would have been oriented in the opposite direction. In addition, light rain fell on the evening of October 15 around 20:32. Because the carcass was not wet, presumably death occurred after 20:32 when rain had ceased.

Kingfishers, as their name suggests, feed almost exclusively on fish, although some crayfish, frogs, and insects are also taken. The birds readily spot their prey in the water from a perch- typically a bare branch, wire, pier piling, or rock above the surface of a river, lake, or pond. Kingfishers also are able to hover over water and look below the surface for fish. Belted Kingfisher typically feeds on fish less than 4 inches in length that swim within two feet of the water surface (Kelly, J. F., E. S. Bridge and M. J. Hamas, "Belted Kingfisher- Megaceryle alcyon," *The Birds of North America Online*, A. Poole, Ed.; Ithaca, NY: Cornell Lab of Ornithology; 2009: http://bna.birds.cornell.edu/bna/species/084). When a fish is spotted, the kingfisher plunge-dives into the water, either at an oblique or right angle, grabbing the fish in its long thick bill. Thus, kingfishers must of necessity forage for fish in clear water (Bent, A. C., "Eastern Belted Kingfisher," *Life Histories of North American Birds*, Washington, D.C.: Smithsonian Institute, 1940, v.176, pp. 111-129).

The subject kingfisher likely became exposed to oil by plunge-diving and/or re-surfacing through a patch of oil floating atop the water surface in pursuit of a fish. It should be noted that the oily material covering the carcass did not resemble the dark brown recoverable oil or the dark gray to blackish oily sludge found at the SRWWTP. Moreover , the oily material seemed odorless and did not exhibit the characteristic vegetable oil smell of the oily wastewater of the SRWWTP. In addition, no kingfisher has ever been observed during wildlife surveys or daily wildlife activity inspections to plunge-dive into any of the treatment ponds or lagoons of the SRWWTP. The reason for this likely is that the wastewater of the Primary Lagoon is not clear due to the concentration of suspended solids. Finally, it should be noted that no recoverable oil uncaptured by skimmers was observed at the Primary Lagoon on October 15, 16, or 17, based on inspection reports by the SRWWTP operators.

Thus, it is likely that the subject Belted Kingfisher, feeding on fish during the day of October 15 (Feeding activity of this species is greatest from 07:00–10:00 (Kelly, J. F., *loc. cit.*).), came in contact with oily material on the Rouge River, possibly the area of oil indicated by sheen observed on the west side of the river approximately one hour after the carcass was found. After contacting the oily material the bird likely flew east-northeast (with prevailing winds) to the fully fenced Primary Lagoon. Some birds, perceiving trouble or danger, often seek refuge inside fences presumably because they sense that these structures offer more security from predators. It appears that the Belted Kingfisher stood on the ground at the lower slope of the west Primary Lagoon, where the carcass was found, likely in an attempt to avoid

stiff winds. The bird's short legs and fleshy feet preclude efficient movement on land (*Ibid.*).

The bird likely died from hypothermia due to the oily material covering its feathers, which as a result failed to trap air and provide insulation, causing the bird to lose its ability to properly thermoregulate. The flared throat and breast feathers as well as the drooped wings and slightly spread tail of the carcass indicate that the bird was attempting to thermoregulate- i.e., warm itself. Temperatures slowly but steadily fell from 59° F around 01:00 on October 15 throughout the day and the next morning to 39° F at 08:00 on October 16. Furthermore, from 01:00 until around 18:00 on October 15, winds were approximately 15-20 mph with gusts to 30 mph, producing significant wind chill.

Belted Kingfisher is a common species throughout Michigan. Its distribution and widespread breeding warrant no special concerns other than potentially loss of habitat or water quality (Brewer, R., G. A. McPeek, and R. J. Adams, Jr., *The Atlas of Breeding Birds of Michigan*, East Lansing, MI: Michigan State University Press, 1991 p. 258). Little is known about adult mortality of Belted Kingfisher, although it appears to be relatively high (Kelly, J. F., *loc. cit.*.). Many internal parasites, including helminths, nematodes, and trematodes affect Belted Kingfisher. Although these are chiefly found in the gut and associated organs, they also occur in the trachea, air sacs, and eyes (*Ibid.*). External parasites affecting this species include flies, mites, and ticks (*Ibid.*). It is possible that the swollen lower eyelids observed on the carcass were due to internal parasites, which potentially could have weakened the bird.

Since 2000, Belted Kingfisher has been observed at the SRWWTP during at least one wildlife survey annually, except for 2001 and 2007, including a total of 7 observations at the Primary Lagoon over the 13 year period. An individual was observed to briefly land at the Primary Lagoon on three of these seven observations: twice on netting support cables and once on a wooden stake, both at the north end of the Primary Lagoon. In contrast, Belted Kingfisher was observed to vocalize along the Rouge River west of the SRWWTP in 29 of the 100 wildlife surveys conducted. Indeed, as mentioned above, one individual was observed along the west side of the Rouge River the same afternoon that the carcass was found. The species is not known to have nested at the SRWWTP, and nesting here is unlikely due to slag-covered ground and the lack of suitable sand banks required by the species for nest sites.

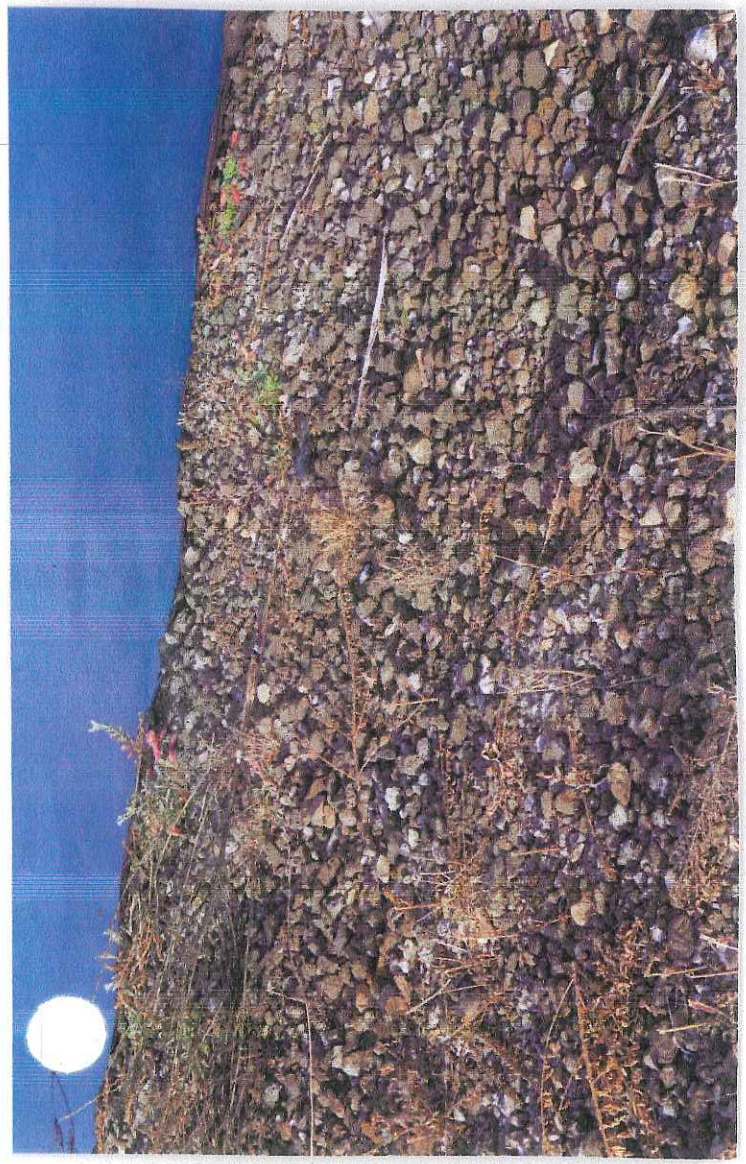
If you have any questions regarding this report, please call me at (248) 585-3800. Thank you again for selecting MEC Environmental Consulting for your wildlife management consulting needs.

Sincerely yours,

MEC ENVIRONMENTAL CONSULTING

Michael Carlson
Principal

enclosures (photographs)



1 2 3 4 5 6

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
October 17, 2012 - afternoon

#1: West central bank of the Primary Lagoon, looking north from approximately 65 feet north of southwest corner of lagoon. Note Belted Kingfisher carcass at center of far side of triangle formed by reddish plants in foreground.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
October 17, 2012 - afternoon

#2: Lower slope of west central bank of the Primary Lagoon, looking east from top of west bank opposite the TVT. Note bluish gray and white mass just above and right of center is Belted Kingfisher carcass.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
October 17, 2012 - afternoon

#3: Belted Kingfisher carcass as found, looking east from approximately 6 feet west of water's edge opposite the TVT. Note flared chin, throat, and breast feathers; slightly open & drooped left wing, barred square tail. Inch ruler for sizing.

1 2 3 4 5 6

1 2 3 4 5

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
October 17, 2012 - afternoon

#4: Belted Kingfisher carcass as found, looking down & west from approximately 4 feet west of water's edge opposite the TVT. Note shaggy nape; blue plumage; dark gray slightly open left primaries, matted breast. Inch ruler for sizing.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
October 17, 2012 - afternoon

#5: Close-up of head of Belted Kingfisher carcass as found, looking down & west from approximately 5 feet west of water's edge. Note ruffled & matted feathers of breast & neck; intact eye; long, thick bill; inch ruler for sizing.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
October 17, 2012 - afternoon

#6: Dorsal view of Belted Kingfisher carcass as found, looking west from approximately 4 feet west of water's edge opposite the TVT. Note matted blue (purplish in photo) back and wing coverts, intact eye, long bill; inch ruler for size.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
October 17, 2012 - afternoon

#7: Right side of Belted Kingfisher carcass after being turned over. Note intact eye with swollen lower lid, white collar, orange breast band, purplish feet, flared & matted plumage; dark spots on slag is oily material from carcass.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
October 17, 2012 - afternoon

#8: West bank of Rouge River, looking west from east bank of Rouge River approximately 200 feet southeast of the west bend of the river (east of Greenfield). Note sheen on bank and adjacent water surface possibly due to oil.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
October 17, 2012 - afternoon

#9: West bank of Rouge River, looking west from east bank of Rouge River approximately 200 feet southeast of the west bend of the river. Note what appears to be oil sheen on concrete bank of river. (Telephoto lens used.)

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
October 17, 2012 - afternoon

#10: West bank of Rouge River, looking west from east bank of Rouge River approximately 200 feet southeast of the west bend of the river. Note what appears to be oil sheen on bank of river and water surface. (Telephoto lens used.)

MEC ENVIRONMENTAL CONSULTING

January 31, 2013

Mr. James E. Earl
Severstal Dearborn, LLC.
14661 Rotunda Drive
Post Office Box 1699
Dearborn, MI 48120-1699

Subject: Schaefer Road Wastewater Treatment Plant – Carcass Report (P. N. 00330)

Dear Jim:

Please find herein the report on the mammalian carcass found by myself on September 19, 2012. This report was prepared in accordance with the procedures outlined in EPA's letters from Diane Sharrow to Don Windeler, dated December 14, 2001 and August 12, 2004. The carcass is an adult Opossum (*Didelphis virginiana*).

The carcass was found at 12:51 tangled in netting at the top of the west central bank of the East Sludge Pond approximately 65 feet south of Station No. 1, which is at the northwest corner of the East Sludge Pond. The presence of a carcass was initially detected by a strong odor of decay. The carcass was found with its ventral side against the ground, and dorsal side visible immediately adjacent to the west edge of the net. The anterior of the mammal pointed south-southeast and the posterior pointed northwest. The carcass was significantly decomposed. Indeed the carcass appeared as an amorphous mass of pale fur underlain with purplish-brown skin and straw-colored bones, including vertebrae, and barely recognizable as a carcass. Numerous large maggots were observed crawling on and in the carcass. Approximately a dozen adult Flesh (*Sacrophagidae* sp.) and Greenbottle (*Lucilia sericata*) Flies flew around and periodically landed on the carcass. The fur, which was mostly whitish and pale gray with beige hues, appeared unkempt and clumped. The hairs were generally long and relatively fine. A considerable amount of loose fur was observed immediately adjacent to the carcass. Two small, round, thin, black, leathery, seemingly hairless ears protruded from either side of the head. The left ear appeared to be approximately one inch lower than the left. The mammal had a relatively long, tapered snout, which was tipped with a small dark gray nose, and long, straw-colored whiskers. Cartilage was visible through an elliptical hole in the skin atop the snout. The right eye, which appeared to be only slightly closed and mostly decomposed, was repeatedly visited for prolonged periods by an adult Greenbottle Fly. Fur around the right eye, and especially anterior of the eye, was a darker gray, almost resembling mascara. Only the left hind foot was apparent. This appendage, pointing northeast, was open and turned, such that the ventral side faced upwards, and the hallux (i.e., big toe), which lacked a talon, was above a strand of netting and perpendicular to the rest of the foot. The other digits of this foot were extended and lay tangent to the ground beneath the netting. Pieces of hairless, scaly, pale to medium brown skin were observed to be detaching from the rather long, slender tail, which was generally tangent and parallel to the outer frame cable and rolled excess netting fastened to this cable. The carcass did not appear to be oiled, and no staining was noted.

Photographs were taken of the carcass as found. However, due to time constraints imposed by the protocol of the wildlife survey, especially given the fewer daylight hours in the fall, the wildlife

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specialist informed the SRWWTP operator on-duty that he would return the following morning to recover the carcass.

The wildlife specialist returned to the SRWWTP around 11:30 on September 20 to recover the carcass. The carcass measured approximately 24.5 inches long. Hundreds of maggots were observed on and in the carcass. Posterior portions of the carcass were observed to move slightly due to insect activity and noticeable heat from the carcass was apparent.

The tip of the mammal's tail was observed to protrude approximately 1.5 inches out from under the netting and frame cable, and to point west. A gap of 2.25 inches between the bottom of the frame cable and the ground was observed where the mammal's tail was. A narrow, shallow gully extended east in the bank from this gap, tangent to the posterior of the opossum, and down to the water's edge. During retrieval, the carcass was found to be lying under the netting except for the left hind leg, left foreleg, and head. The left foreleg was through two mesh squares, the elbow of the left foreleg entirely above the netting. The left forefoot poked up through the next square south, the wrist pressed against the north end of the square and three pink-taloned digits draped over the east side of the square. The head was extracted through two immediately adjacent mesh squares west of a small section of netting which was imbedded in soil and vegetation, and immediately south of a short ridge of puckered netting just north of a point where an east-west support cable is anchored to the perpendicular outer frame cable. The mammal's mouth was slightly open revealing multiple teeth and two relatively long canine teeth on either side. A thin, wrinkled, yellow brown tongue hung from the tip of the snout. The appearance suggested that of a live Opossum playing dead. A portion of one mesh square was found inside the mammal's mouth but did not appear to be cut or frayed.

After extricating the head and limbs such that the entire carcass was below the netting, the wildlife specialist attempted to pull the entire carcass out from under the net through the gap. The carcass, however, fell apart because of the advanced stage of decomposition and wetness of the carcass, in part due to rains the previous night. The wildlife specialist then pushed portions of the carcass towards the gap and then scooped them up, along with soil and vegetation, into a plastic garbage bag. Thus, it was not possible to examine the ventral side of the carcass or look for evidence of a pouch. No indication of oil, however, was found during recovery. No beetles were evident in or below the carcass although due to the condition of the carcass and recovery method this could have been overlooked. No strands of netting appeared to have been frayed or broken either by the Opossum or its recovery. The carcass recovery operation was completed at 13:37 on September 20. The carcass site still had a very strong odor of decomposition and approximately 10-12 adult Greenbottle Flies repeatedly landed on the ground and netting. The carcass was double-bagged and placed on ice inside a hard plastic cooler at 13:50. The bagged remains were then subsequently transferred by the wildlife consultant to MEC Environmental Consulting. The bagged carcass was deposited in a non-self-defrosting freezer at 15:13 under the company's Scientific Collector's Permit No. 1223 issued by the Michigan Department of Natural Resources.

As the wildlife specialist was cleaning up after carcass recovery, he was met by Jim Buccellato of the Severstal Maintenance Department inquiring about the carcass and the net. The two inspected the site of the carcass and the gap under the net. Mr. Buccellato observed that the gap apparently was caused by storm water runoff which eroded the bank at this slight drop in grade. He indicated that he would have a load of backfill material hauled in that day or the next to raise the ground and close the gap, thus precluding entry of any other wildlife through this point.

Based on the presence of whitish fur; small, thin black, protruding ears; tapered snout; hallux with no talon; and long, scaly, hairless tail, the carcass was identified as an Opossum (*Didelphis virginiana*). Based on the relatively large size of the carcass, the Opossum was likely an adult.

While likely foraging for food, the mammal crawled through the 2.25 inch gap between the netting frame and the ground on the west side of the East Sludge Pond, encountered a section of netting imbedded in soil and vegetation, crawled through a puckered portion of netting near an anchoring point of the net, and quickly became stuck. The animal apparently tried to crawl further through the netting, only becoming more entangled. It also apparently tried to chew a hole in the netting in an attempt to free itself. The mammal likely died from exposure and/or starvation.

Based on the large size of the maggots, heat emanating from the carcass, and little flesh present, the carcass was in post-decay stage, which typically occurs 10-25 days after death (Gennard, D., *An Introduction to Forensic Entomology*). Based on the amount of skin present and the absence of beetle activity, the carcass was likely in the mid- to late phase of the post-decay stage (Clery, J., *Focus on Forensic Entomology*, 2001), which would mean that the carcass likely was approximately 20-25 days old.

Although they have a very keen sense of smell, Opossums do not see well, and respond poorly to most visual stimuli (Krause, W.J. and W.A., *The Opossum: Its Amazing Story*, Columbia, MO: University of Missouri Press, 2006, pp, 11, 13: http://web.missouri.edu/~krausew/Histology/Home_files/opossum.pdf). Opossums are omnivores, eating any and all forms of animal and vegetable matter (*Ibid.*, p. 72). Nocturnal, they frequently scavenge, and are known to eat rodents, frogs, snails, and slugs, as well as beetles and other insects.

For their size, Opossums are one of the shortest-lived animals in the world (*Ibid.* p. 36). The typical life span of an Opossum is 2-3 years (*Ibid.*). Leading causes of death are motor vehicles, hunting and trapping, disease and parasites, as well as exposure and starvation (*Ibid.*). Predation does not appear to be a significant cause of mortality in adult Opossums (*Ibid.*).

An Opossum carcass has never before been found at the SRWWTP. Moreover, this species has never been directly observed during the 13 years of wildlife surveys at the SRWWTP. However, Opossum tracks have occasionally been observed at the facility in past surveys.

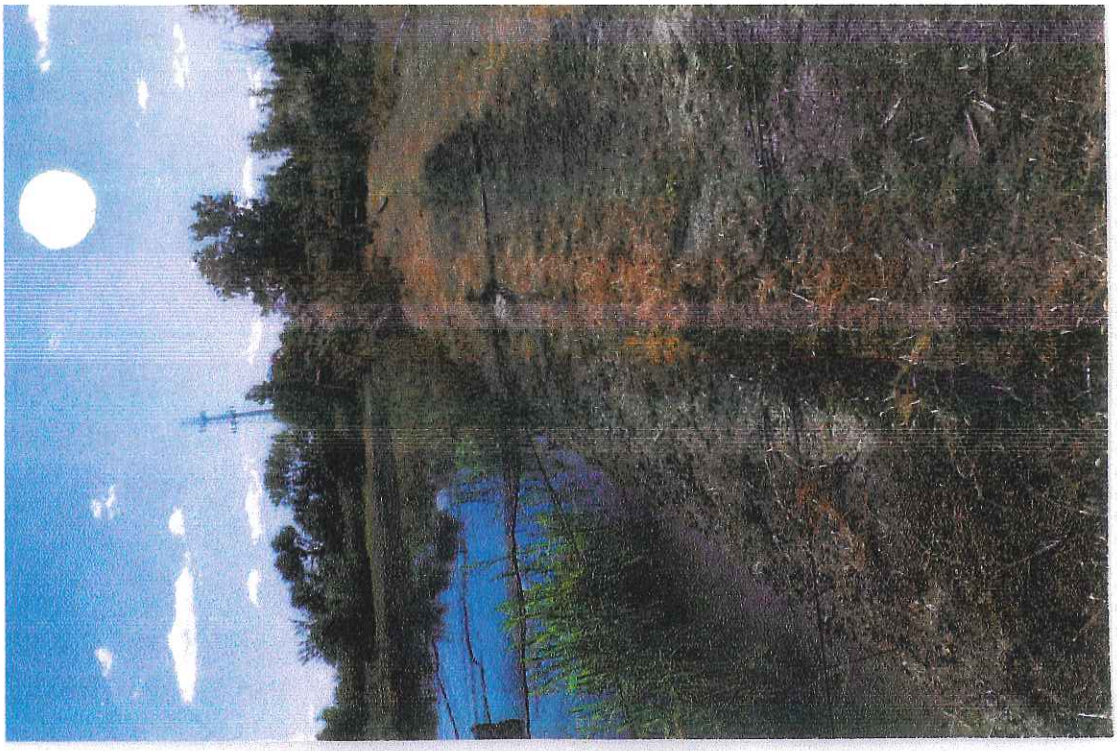
If you have any questions regarding this report, please call me at (248) 585-3800. Thank you again for selecting MEC Environmental Consulting for your wildlife management consulting needs.

Sincerely yours,

MEC ENVIRONMENTAL CONSULTING

Michael Carlson
Principal

enclosures (photographs)



SEVERSTAL DEARBORN, LLC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson (digital)
September 19, 2012 - afternoon

#1: West central bank of East Sludge Pond looking south from approximately 30 feet south of Station No. 1, located at northwest corner of pond. Note small whitish patch near center is decomposed Opossum carcass.

SEVERSTAL DEARBORN, LLC.
SCHAEFER ROAD WWTP

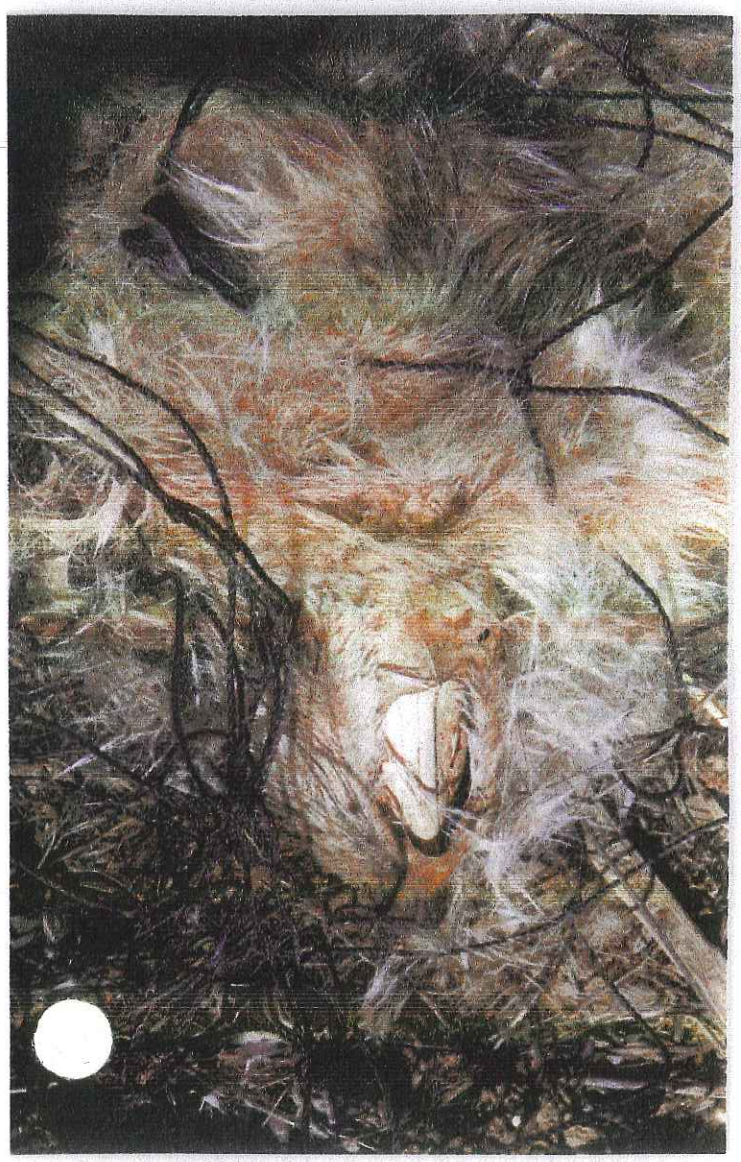
Photographed by Michael Carlson (digital)
September 19, 2012 - afternoon

#2: West central bank of East Sludge Pond looking south from approximately 60 feet south of Station No. 1. Note whitish mass is decomposed Opossum carcass. Note netting cross cable and anchor adjacent to carcass.

SEVERSTAL DEARBORN, LLC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson (digital)
September 19, 2012 - afternoon

#3: Opossum carcass at west central bank of East Sludge Pond looking down and south from approximately 65 feet south of Station No. 1 Note head at top (right) & tan tail protruding out from under net at lower right (left).



SEVERSTAL DEARBORN, LLC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson (digital)
September 19, 2012 - afternoon

#4: Opossum carcass at west central bank of East Sludge Pond looking down and northwest from approximately 78 feet south of Station No. 1 Note netting mostly above carcass, which is mostly fur, skin, and bones.

SEVERSTAL DEARBORN, LLC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson (digital)
September 19, 2012 - afternoon

#5: Close-up of dorsal view of head of Opossum carcass. Note black, leathery right ear (lower left or lower right), skin separating from cartilage of snout (near center), and dark nose (right or top).

SEVERSTAL DEARBORN, LLC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson (digital)
September 19, 2012 - afternoon

#6: Close-up of right side of head of Opossum carcass, looking down & northeast. Note loose fur, black ear, green in eye socket is feeding Greenbottle Fly, brownish tongue protruding from tip of snout, and puckered netting.

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SEVERSTAL DEARBORN, LLC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson (digital)
September 20, 2012 - afternoon

#7: Close-up of left hind foot of Opossum carcass, looking down and east. Note ventral or bottom side of foot facing upwards with hallux above net and four other digits, below net. Foot resembles a human hand.

SEVERSTAL DEARBORN, LLC.
SCHAEFER ROAD WWTP

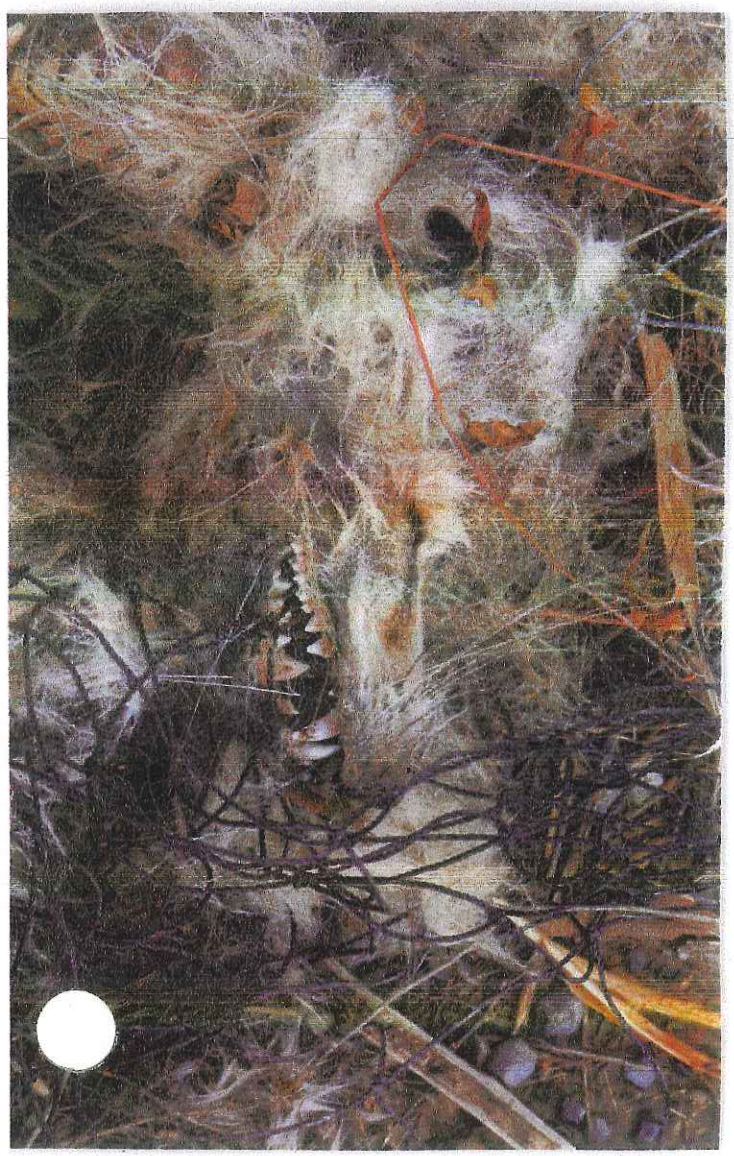
Photographed by Michael Carlson (digital)
September 20, 2012 - afternoon

#8: Close-up of decomposing tail of Opossum carcass, looking down and east. Note tail under netting and tangent to rolled excess netting at west edge of net, and hairless, scaly skin sloughing off tail.

SEVERSTAL DEARBORN, LLC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson (digital)
September 20, 2012 - afternoon

#9: Ground of west central side of East Sludge Pond at gap under outer netting frame just south of Opossum carcass. Note brown "leaf" is skin sloughed from tail protruding from under net. (Tail not visible due to underexposure.)



SEVERSTAL DEARBORN, LLC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson (digital)
October 17, 2012 - morning

#12: Ground at top of west central bank of East Sludge Pond where Opossum carcass was found subsequent to carcass recovery. Note gap closed with compacted soil, and absence of space under outer cable frame of netting.

SEVERSTAL DEARBORN, LLC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson (digital)
September 20, 2012 - afternoon

#11: Close-up of right side of head after being partially extracted from netting. Note netting strands inside mouth with canine teeth, blackish nose, brown tongue protruding from tip of snout, dark around eye, and skeletal vertebrae.

SEVERSTAL DEARBORN, LLC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson (digital)
September 20, 2012 - afternoon

#10: Close-up of left foreleg and foot of Opossum carcass. Note loose fur, and flexed elbow, netting taut at wrist, and dorsal side of pinkish talons atop net as if mammal were trying to crawl forward.

Severstal
International

MID 087738431

December 21, 2012

Via Certified Mail – Return Receipt Requested

Diane M. Sharrow (LR-8J)
Enforcement Officer
RCRA Branch
Land and Chemicals Division
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3590

Subject: Report on carcasses found at Schaefer Road Waste Water Treatment Plant

Reference: Severstal Dearborn, Administrative Order Docket No R7003-5-00-001

Dear Ms. Sharrow:

The enclosed December 18, 2012 reports by our wildlife consultant details the discovery and the basis for identification of an adult European Starling a male Mallard.

If you are interested in further investigation of the carcasses, please let us know. We will store them until February 5, 1013, after which, space considerations dictate that the carcasses will be disposed.

Please contact me at (313) 323-1260 if you have questions on the information in these reports.

Sincerely yours,

Lan Trinh
Environmental Engineering

Enclosure

cc: Mr. John Craig, MDEQ
US Fish & Wildlife

Severstal Dearborn, LLC
14661 Rotunda Drive
P. O. Box 1699
Dearborn, MI 48120-1699

T: (313) 323-1260
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MEC ENVIRONMENTAL CONSULTING

VIA COURIER

December 18, 2012

Mr. James E. Earl
Severstal Dearborn LLC
14661 Rotunda Drive
Post Office Box 1699
Dearborn, MI 48120-1699

Subject: **Schaefer Road Wastewater Treatment Plant - Carcass Report: European Starling (P. N. 00330)**

Dear Jim:

Please find herein the report on the carcass which was found by myself on May 15, 2012 at approximately 15:34. This report was prepared in accordance with the procedures outlined in EPA's letters from Diane Sharrow, dated December 14, 2001 and August 12, 2004. The carcass is of an adult European Starling (*Sturnus vulgaris*).

The carcass was found on the slag- and short, sparse grass-covered ground atop the northeast slope of the Primary Lagoon approximately eight inches east of the southeast corner of the base of the utility pole and approximately two feet west (i.e., inside of) the Primary Lagoon fence. The carcass, which was approximately six inches in length, lay with its dorsal side against the ground and ventral side facing up. It appeared to be intact and entire. The head pointed to the north-northeast, the bill pointed northeast, both feet pointed south, and the tail pointed southwest. A smell of decay was very apparent. A greenbottle fly was noted on the carcass. The bird's plumage was significantly matted and shiny black, and appeared to be oiled. The breast was particularly matted; indeed, no individual feathers could be distinguished, and it appeared to be one smoothly glazed mass. No dirt or debris was noted on the plumage.

Upon closer examination, the entire plumage, at least ventrally, appeared to be severely matted. However, the plumage with the exception of the top of the head and neck did not appear to be ruffled or unkempt. The bill of the bird was long (approximately 0.75 inches), slender, yellow, and rather sharply pointed. The bill was open only slightly. Approximately 2-3 mm of the distal end of the bill was dark, seemingly from staining. Both wings were held laterally away from the bird's median (sagittal plane) and posteriorly, such that the underwing coverts, especially those of the left wing, were mostly visible. The wings were slightly open or fanned, such that they would have appeared to droop if the bird was upright. The rachis of the outermost primary on the left wing, the only rachis visible, was whitish. The left wing was under the left tibia and right tarsus, with the distal tip of the left wing over the distal third of the tail and pointed west-southwest. The right wing was directly over the undertail coverts, with the wing tip underneath that of the left wing forming a symmetrical "X". Both the right and the left tibia and tarsus, which were medium reddish-brown in color, were parallel to each other, and extended straight out caudally. The foot was scutellate. The digits (toes) were completely splayed, evenly spaced, and extended distally beyond the tip of the tail. The tail appeared to be quite matted with the tip rounded.

Due to time constraints imposed by the protocol of the wildlife survey, the carcass was retrieved later in the evening, around 21:55, after the dusk bird survey was completed, using a 6 million candle-power halogen spotlight. At that time the carcass was turned over, and the dorsal side was photographed and examined. The carcass felt somewhat greasy and sticky to the wildlife specialist's gloved hand. Portions of slag that was under the carcass appeared to be darkly stained, presumably with the same blackish oily

1003 AMELIA AVENUE ROYAL OAK, MICHIGAN 48073-2704
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material that covered the carcass. The dorsal side was severely matted, with individual feather distinction virtually obliterated with the exception of neck and nape feathering which was ruffled and unkempt. The feathers appeared very shiny black in the light. Unlike the ventral side, the dorsal side of the tibiae and tarsi were mostly covered likely with the same black oily material that coated the feathers. The keel was not apparent or protruding noticeably from the breast. No puncture wounds or torn skin was noted.

The carcass was recovered at 22:08, placed and sealed in a clear gallon-size plastic freezer bag, and then packed on ice inside a hard plastic cooler at 22:11. The bagged and iced carcass was subsequently transferred by the wildlife consultant to MEC Environmental Consulting; and deposited in a non-self-defrosting freezer under the company's federal and state salvage permits at 23:08. No necropsy or laboratory analysis of the oily material was conducted.

Based on the small size of the carcass, the long, slender bill, whitish rachis of the primary, as well as the reddish-brown legs and feet, the carcass was identified as a European Starling (*Sturnus vulgaris*). Based on the yellow bill, the bird was determined to be an adult.

Based on the fact that odor of decay was very apparent, the bird's death likely occurred approximately three to five days before discovery. It should be noted that the carcass was located in the pathway typically taken by the wildlife specialist when performing the sign search at the Primary Lagoon. The carcass was not observed during the sign search of the wildlife survey conducted on April 15, 2012.

Given the extent of matting both dorsally and ventrally, the shinier than typical appearance of the plumage, as well as the presence of the oil material on the legs and feet, it is likely that the bird contacted oily material through bathing. European Starlings frequently bathe, often prior to going to roost. (Cabe, P. R., "European Starling, Sturnus vulgaris," 1993, *The Birds of North America Online* (A. Poole, Ed.), Ithaca, NY: Cornell Lab of Ornithology; *http://bna.birds.cornell.edu/bna/species/048*). Moreover, the degree to which the carcass was covered with oily material suggests that the bird was unable to fly any significant distance afterwards. Thus, the bird likely bathed and contacted oily material at the northeast bank of the Primary Lagoon. Although less likely, it is possible that the bird may have contacted oily surfaces while exploring possible nest locations at either OMI 1 or OMI 3, skimmers that are infrequently operated.

Based on the partially spread wings, wings held laterally and caudally, as well as the fully extended legs and feet, it is likely that the bird was hot and attempting to cool itself. The oily material it contacted likely exacerbated the bird's hot condition by interfering with evaporative cooling from the skin and legs. Based on the dark stained tip of the bill, the bird attempted to preen and clean the oily material from its feathers. Thus, the subject individual likely died of hyperthermia, or possibly hypothermia. Early morning temperatures on May 13 fell from 63° F near midnight to 46° F by 09:00 with light rain from around 07:00 to 09:00.

The fact that the carcass was present at the SRWWTP for several days, together with the fact that it showed no sign of depredation or scavenging whatsoever, effectively debunks agency allegations that wildlife carcasses at the SRWWTP are being consumed or carried off by scavengers, and thus going undetected or being underestimated. It should be emphasized that other wildlife carcasses have been discovered that have been present for extended periods without signs of depredation or scavenging.

The European Starling is a non-native, invasive species that is not afforded protection as a migratory bird under the federal Migratory Bird Treaties Act. In fact, this species is considered a nuisance or pest species by the U.S. Fish and Wildlife Service (USFWS) and the U.S. Department of Agriculture (USDA).

European Starling is abundant throughout southeast Michigan. The species has been frequently observed throughout the Rouge Manufacturing Complex, and is known to breed there. A number of European

Starlings have routinely been recorded at the SRWWTP during practically every wildlife survey since March 2000. Hundreds to thousands of individuals night roost in the bermed area mostly from fall to spring. Approximately a dozen individuals were observed in the immediate vicinity of the Primary Lagoon during the April 2012 wildlife survey, including one individual which was observed to forage in vegetation on the east central bank.

This is the first European Starling carcass found at the SRWWTP.

If you have any questions regarding this report, please call me at (248) 585-3800. Thank you again for selecting MEC Environmental Consulting for your wildlife management needs.

Sincerely yours,

MEC ENVIRONMENTAL CONSULTING

Michael Carlson
Principal

enclosures (photographs)

1 2 3 4 5 6

SEVERSTAL DEARBORN, LLC
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 15, 2012 - afternoon (film)

#1: East bank of the Primary Lagoon, looking south from top of northeast bank approximately 10 feet north of the utility pole. European Starling carcass is partially in dark shadow just to the left of the base of the utility pole.

SEVERSTAL DEARBORN, LLC
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 15, 2012 - afternoon (film)

#2: Northeast bank of Primary Lagoon, looking North from top of northeast bank approximately 12 feet south of the utility pole. Note European Starling carcass partially in dark shadow just to the right of the base of the utility pole.

SEVERSTAL DEARBORN, LLC
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 15, 2012 - afternoon (film)

#3: Ground at top of northeast bank of Primary Lagoon, looking down and west from approximately 2 feet east of southeast corner of base of utility pole. Note European Starling carcass, as found, and inch ruler for sizing.

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SEVERSTAL DEARBORN, LLC
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 15, 2012 - afternoon (film)

#4: Close-up of European Starling carcass, as found. Note long, slender yellow bill with dark stained tip; plumage matted and covered with blackish oily material; wings slightly open and held both laterally and posteriorly.

May 15, 2012 - afternoon (film)

#5: Ground at top of northeast bank of Primary Lagoon, looking down and west from near southeast corner of utility pole base. Note dorsal side of European Starling carcass, staining of slag where carcass lay, & inch ruler for sizing.

SEVERSTAL DEARBORN, LLC
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 15, 2012 - afternoon (film)

#6: European Starling carcass in gloved hand of wildlife specialist at top of northeast bank of Primary Lagoon. Note ruffled feathers on head and neck, and long, slender, yellow bill. Carcass is out-of-focus.

MEC ENVIRONMENTAL CONSULTING

December 18, 2012 VIA COURIER

Mr. James E. Earl
Severstal Dearborn LLC
14661 Rotunda Drive
Post Office Box 1699
Dearborn, MI 48120-1699

Subject: **Schaefer Road Wastewater Treatment Plant - Carcass Report: Mallard (P. N. 00330)**

Dear Jim:

Please find herein the report on the avian remains which were found by myself on May 15, 2012 at approximately 17:28. This report was prepared in accordance with the procedures outlined in EPA's letters from Diane Sharrow, dated December 14, 2001 and August 12, 2004. The remains are of a male Mallard (*Anas platyrhynchos*).

The remains, comprising mostly of loose remiges or wing feathers, were found on in the lower slope of the southeast bank of the Primary Lagoon approximately 6 feet north of the mop skimmer tray of OMI 1 and approximately 8 feet east of the water's edge. The feathers were scattered in a seemingly haphazard fashion over approximately a 6 square foot area. Some of the remiges lay in a mostly horizontal position on and/or against vegetation, mostly Field Thistle (*Cirsium arvense*), Wild-rye (*Elymus virginicus*), and an unidentified grass, possibly Quack Grass (*Agropyron repens*). Other feathers were more upright: the calami of some feathers pointed up, while others close by pointed down. The outer vanes of several of the feathers appeared to be coated in a blackish, lightly viscous substance that resembled oil. Several photographs were taken. The tip of at least one primary was covered with a reddish-brown material which appeared to be oil.

Due to time constraints imposed by the protocol of the wildlife survey and the fact that the remains may have taken a considerable amount of time to collect, the wildlife specialist informed the SRWWTP operator on-duty that he would return the following morning to recover the remains.

The wildlife specialist returned to the SRWWTP around 11:50 to take close-up photographs and to recover the remains. A strong manure-like smell, which was almost nauseating, was apparent. Indeed, the feathers did not have the distinctive, sharp odor with a scent of vegetable oil so characteristic of SRWWTP oil and oily sludge.

Most of the feathers were clustered within approximately a 10-12 inch diameter circle. Viewed from overhead in the fashion of a clock face with noon/midnight being the most easterly point, this cluster consisted of: 1) one primary and one secondary at 11:00 with both calami pointed to the ground; 2) one primary approximately 2 inches away at 12:00 with the calamus pointed west; 3) one primary approximately 4 inches away at 4:00 with calamus pointed northeast; and, 4) several primaries approximately 5 inches away at 7:00 with calami pointed southwest and elevated higher than the distal feather ends. The posterior and anterior vanes of one of the primaries (Item 1) were each separated in one location of the distal one-third of the feather. In addition, a 0.4 inch section of the posterior vane of a second primary (Item 2) was completely twisted ventrally with the barbs protruding beyond the anterior vane. None of the other feathers appeared to be damaged or broken, and all of the feathers did not appear to be worn or weathered. What appeared to be a set of rectrices or tail feathers was found approximately 12 inches west of Item 4 above. These feathers appeared to be matted with the distal halves flared. An

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irregularly-shaped area of stained ground approximately 11 by 6 inches was found approximately 14 inches from Item 1 above. A thistle with lower leaves covered with the same blackish, oily substance as the feathers was immediately tangent to this stained area on the east side. In addition, an area of stained ground, including vegetation approximately 5 by 3 inches, was found proximal to the cluster at roughly the 5:00 position. Finally, several thistles were noted with bits of the blackish oily substance on them. A bit of this substance covered the axil of the top east-pointing leaf of a 12-14 inch high thistle approximately 10 inches east of the single primary (Item 3). A middle leaf on the east side of a second thistle approximately 12 inches east of Item 1 above was covered with the same blackish, oily material.

The feathers were immediately determined to be from one of the ducks based on the very long calami of relatively slender remiges, and by the glazed underside or tegmen of the primaries which was apparent despite the oiled condition. Based on the length of the primaries recovered, an identification of Mallard was suspected. In order to verify the identification, one of the primaries was removed prior to freezing and washed. The primary was cleaned in a relatively short time, requiring only one washing. The length of the clean feather was measured at 21 cm. The reported length of a long primary for Mallard is 21.5 cm (Scott, S. D., and McFarland, C., *Bird Feathers: A Guide to North American Species*, 2010, p. 79). Moreover, the clean remex showed an anterior vane that was dark brown, and the distal tip as well as the trailing edge of the distal half of the posterior vane was the same dark brown, with paler brown proximal to the rachis. This pattern and coloration matches perfectly with the illustration of a Mallard primary (*Ibid.*), and is not characteristic of other ducks or waterfowl. Thus, the remains are that of a Mallard.

The strong manure-like, almost nauseating odor unlike any at the SRWWTP, in addition to the brownish red appearance of the contaminant on several of the feathers, unlike the color of oil found in the treatment ponds and lagoons at the SRWWTP, strongly suggests that the bird was exposed to a contaminant prior to arriving at the SRWWTP. The bird may well have sought shelter at the Primary Lagoon because of the perception of safety posed by the fence around the lagoon. The fact that several of the primaries were not completely covered with the contaminant and the fact that the one primary became clean after one washing, suggest that the bird was able to fly after its exposure.

Because of the fact that no organs, or bones, or even more feathers were found with the remains, the bird was obviously either predated or, once dead, the carcass was scavenged. Unfortunately, not having more of the remains or carcass makes this determination difficult indeed. Nevertheless, the breaks or separation of the barbs of the vanes of a number of the feathers, and especially the one primary exhibiting barbs twisted and protruding from the ventral side of the anterior vane suggest that the bird was predated. Even in a weakened state from exposure to the contaminant, the duck would likely have put up a struggle if attacked by a predator, and the observed disturbance of the feathers likely was the result of such a struggle. However, the flared rectrices may not have been due to the struggle but possibly indicate that the bird was trying to thermoregulate due to disease, or more likely the presence of the black and brown oily substance on its plumage.

Therefore, the carcass was probably seized by a mammalian or avian predator, likely a Red Fox or a Red-tailed Hawk, respectively. A Red Fox could have entered the Primary Lagoon through the southeast gate, if this was inadvertently left open. However, a Red Fox could easily have cleared the 4 foot high fence around the Primary Lagoon because this mammal can jump six feet into the air (Voelker, W., *The Natural History of Living Mammals*, .Medford, NJ: Plexus Publishing, Inc., 1986, p.201). The observed haphazard, yet clustered, arrangement of remiges and rectrices also suggests a predator attack. The second smaller area of stained ground was likely the site of the duck's demise. A Red Fox typically pounces on its prey, dispatching it with several quick bites (Matheson, R.T., "Red Fox" in *Liska's EncycVulpedia*, 1997: http://mynarskiforest.purrsia.com/ev6rhunt.htm). It should be emphasized, however, that the actual loss of the remiges and rectrices had less to do with the predator attack, and more to do with the fact that a Mallard drake begins molting its remiges in mid-May and typically loses all of

these as well as rectrices within a few days (Drilling, N., et al., "Mallard," in *The Birds of North America Online*, No. 658, Ithaca, NY: Cornell Laboratory of Ornithology, 2002, Section 13). Because the Mallard hen begins her wing and tail molt in late summer after the breeding season, the remains are from a drake or male Mallard.

It's possible that the Mallard was predated by a Red-tailed Hawk. In all 2012 wildlife surveys at least one Red-tailed Hawk was observed hunting over the SRWWTP. However, the hypothesis of predation by a Red Fox seems be better supported by the presence of bits of blackish oily material on the east side of several plants, including the leaf axil atop a 10-12 inch tall Field Thistle, which likely rubbed against the carcass as the mammal carried it.

Predation of the Mallard took place subsequent to April 9, 2012 because the subject remains were not observed during the wildlife survey conducted on that day. It can reasonably be concluded that the predation and death likely occurred sometime between May 8 and May 15, 2012. A considerable amount of rain fell throughout the day on May 7 finally ending at approximately 3 am on May 8 . Such rain would likely have washed the observed bits of blackish, oily material from the leaves of the thistles. The conclusion that the remains were relatively fresh is also corroborated by the unweathered appearance of the feathers.

After the remains were photographed, examined, and retrieved, they were placed and sealed in a clear gallon-size plastic freezer bag and packed on ice inside a hard plastic cooler at approximately 13:05 on May 16, 2012. The remains were then transported by the wildlife specialist for deposition in a non-self-defrosting freezer at MEC Environmental Consulting under the company's federal and state migratory bird salvage permits. The bagged remains were placed in the freezer around 13:30 on May 16, 2012.

The subject remains are the fourth set of Mallard remains found at the SRWWTP- all at the Primary Lagoon. On April 9, 2012 remains of a hen were found on the middle slope of the east central bank approximately 250 feet north of the subject carcass. The carcass of a drake was found in shallow water near the southwest corner on February 16, 2007, and that of a hen on the middle slope of the northwest bank on February 21, 2007. Mallards have regularly been recorded at the SRWWTP during the wildlife surveys since their inception in 2000, and have periodically been reported by SRWWTP operators. The species has occasionally roosted, and may have nested, in the bermed area. Mallards have also been regularly observed in the nearby Rouge River.

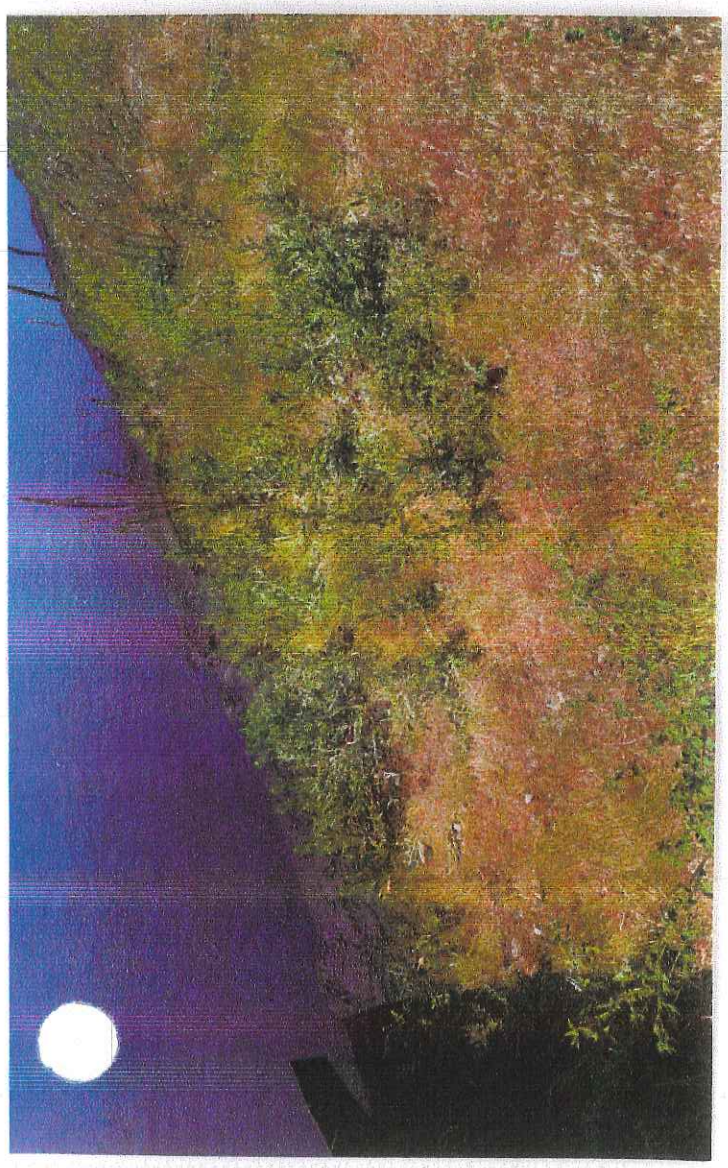
If you have any questions regarding this report, please call me at (248) 585-3800. Thank you again for selecting MEC Environmental Consulting for your wildlife management consulting needs.

Sincerely yours,

MEC ENVIRONMENTAL CONSULTING

Michael Carlson
Principal

enclosures (photographs)



SEVERSTAL DEARBORN, LLC
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 16, 2012 - afternoon (digital)

#1: Southeast bank of Primary Lagoon, looking southwest from top of bank approximately 30 feet north of OMI 1. Mallard remains were found in stand of Field Thistle near center of photo. OMI 1 mop tray in background.

SEVERSTAL DEARBORN, LLC
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 16, 2012 - afternoon (digital)

#2: Southeast bank of Primary Lagoon, looking west from top of bank approximately 4 feet north of OMI 1. Mallard remains were found in stand of Field Thistle near flattened areas. Corner of OMI 1 mop tray at far left.

SEVERSTAL DEARBORN, LLC
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 15, 2012 - afternoon (film)

#3: Stand of Field Thistle & emerging grass on lower slope of southeast bank of Primary Lagoon, looking down and west from approximately 6 feet north of OMI 1 mop tray. Note Mallard primaries and inch ruler for sizing.

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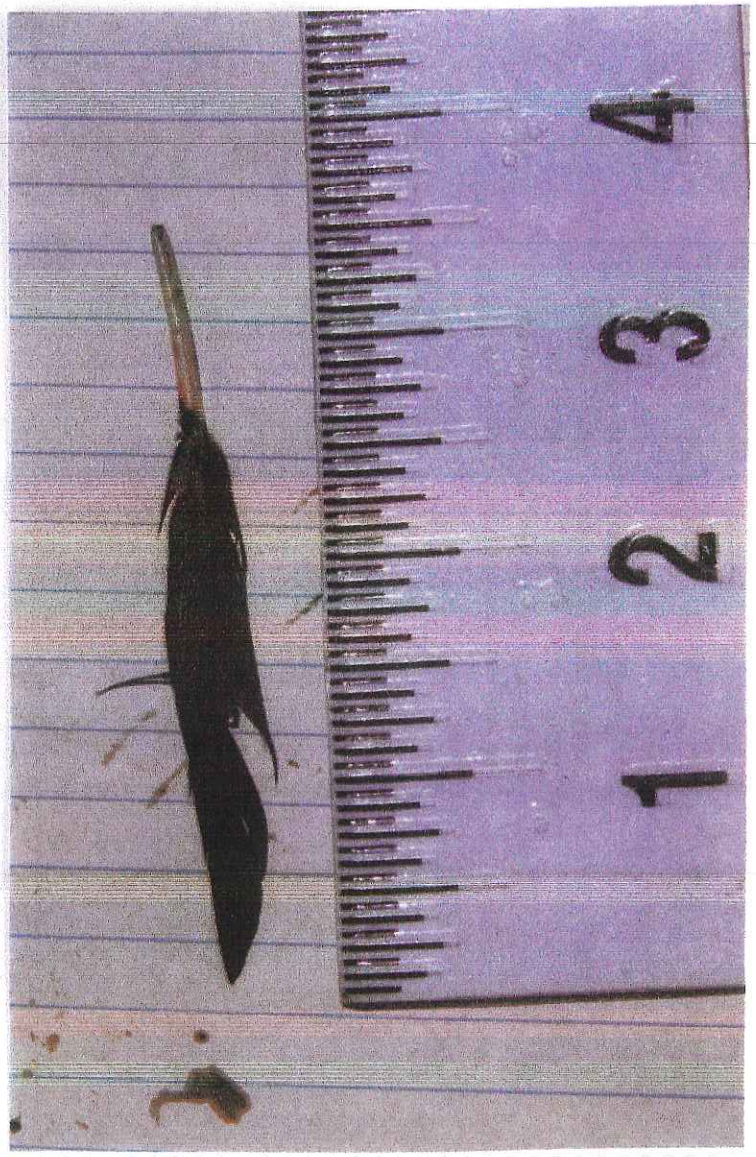
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SEVERSTAL DEARBORN, LLC
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 15, 2012 - afternoon (film)

#4: Ground at lower slope of southeast bank of Primary Lagoon with Mallard primaries and inch ruler for sizing. Note edges of both vanes covered with blackish oily substance, and rachides with brown & black spots of material.

SEVERSTAL DEARBORN, LLC
SCHAEFER ROAD WWTP

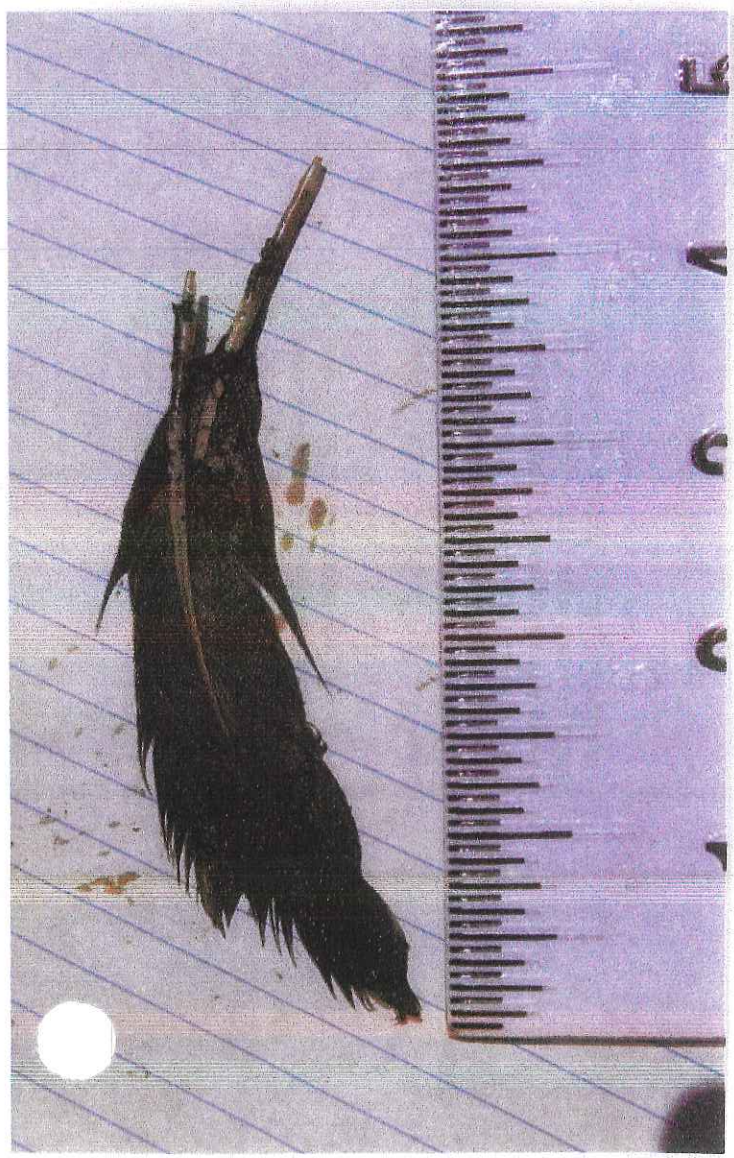
Photographed by Michael Carlson
May 16, 2012 - afternoon (digital)

#5: Ground at lower slope of southeast bank of Primary Lagoon with Mallard short primary. Note gap and breaks in posterior vane near distal end of feather and at proximal end, respectively. Note long calamus typical of ducks.

SEVERSTAL DEARBORN, LLC
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 16, 2012 - afternoon (digital)

#6: Short primary of Mallard with inch ruler on ruled tablet. Note blackish oily material on feather; section of posterior vane twisted ventrally, barbs protruding out from anterior vane, and vane separation at proximal end.



SEVERSTAL DEARBORN, LLC
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 16, 2012 - afternoon (digital)

#7: Ground at lower slope of southeast bank of Primary Lagoon. Note probable rectrices of Mallard, and black oily substance on vanes.

SEVERSTAL DEARBORN, LLC
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 16, 2012 - afternoon (digital)

#8: Probable rectrices of Mallard with inch ruler on ruled tablet. Note blackish oily material on feathers, matting, vane separation near proximal ends, proximal barbs wrapped around rachides, red-brown on calamus, & flaring at distal ends.

SEVERSTAL DEARBORN, LLC
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 16, 2012 - afternoon (digital)

#9: Ground at lower slope of southeast bank of Primary Lagoon with Mallard primary and secondary. Note brown vane with edges coated with blackish oily material, vane separation in two places, and stained rachis.

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SEVERSTAL DEARBORN, LLC
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 16, 2012 - afternoon (digital)

#10: Ground at lower slope of southeast bank of Primary Lagoon with dorsal view (as found) of Mallard primary. Note brown vane coated with blackish oily material, and rachis stained reddish brown.

SEVERSTAL DEARBORN, LLC
SCHAEFER ROAD WWTP

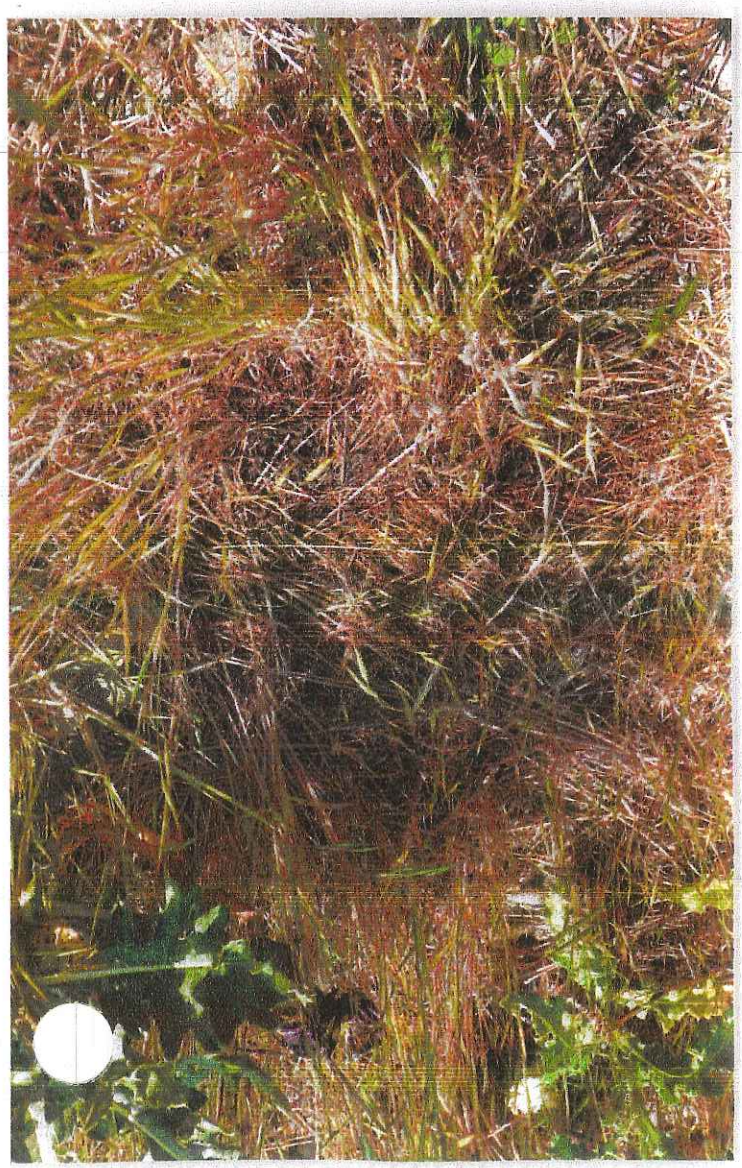
Photographed by Michael Carlson
May 16, 2012 - afternoon (digital)

#11: Ground at lower slope of southeast bank of Primary Lagoon with ventral view of Mallard primary. Note rachis and brown vane with blackish oily material, and paler center of feather, which is the tegmen.

SEVERSTAL DEARBORN, LLC
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 16, 2012 - afternoon (digital)

#12: Probable greater coverts of Mallard with inch ruler on ruled tablet. Note blackish oily material coating feathers, matting, and vane separation near proximal ends.



SEVERSTAL DEARBORN, LLC
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 16, 2012 - morning (digital)

#13: Ground of lower slope of east bank of Primary Lagoon approximately 14 inches south-southwest of clustered feathers. Note area of gray and brown staining where Mallard exposed to oily material likely lay.

SEVERSTAL DEARBORN, LLC
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 16, 2012 - morning (digital)

#14: Ground of lower slope of east bank of Primary Lagoon approximately 2-4 inches southwest of clustered feathers. Note area of gray and brown staining where Mallard exposed to oily material likely was temporarily.

MID087 738431

Severstal International

February 14, 2011

Via Certified Mail – Return Receipt Requested

Diane M. Sharrow (LR-8J)
Enforcement Officer
RCRA Branch
Land and Chemicals Division
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3590

Subject: Report on carcasses found at Schaefer Road Waste Water Treatment Plant

Reference: Severstal Dearborn, Administrative Order Docket No R7003-5-00-001

Dear Ms. Sharrow:

The enclosed February 4, 2011 reports by our wildlife consultant details the discovery and the basis for identification of a Spotted Sandpiper and a Common Grackle.

If you are interested in further investigation of the carcasses, please let us know. We will store them until April 30, 2011, after which, space considerations dictate that the carcasses will be disposed.

Please contact me at (313) 323-1260 if you have questions on the information in these reports.

Very truly yours,

Lan Trinh
Environmental Engineering

Enclosure

cc: Mr. John Craig, MDEQ
US Fish & Wildlife

Severstal Dearborn
14661 Rotunda Drive
P. O. Box 1699
Dearborn, MI 48120-1699

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MEC ENVIRONMENTAL CONSULTING

February 4, 2011

Mr. James E. Earl
Severstal North America, Inc.
14661 Rotunda Drive
P.O. Box 1699
Dearborn, MI 48120-1699

Subject: Schaefer Road Wastewater Treatment Plant – Carcass Report (P. N. 00330)

Dear Jim:

Please find herein the report on the carcass which was found at the SRWWTP by the wildlife consultant on September 8, 2010 at 13:50. This report was prepared in accordance with the procedures outlined in EPA's letters from Diane Sharrow to Don Windeler, dated December 14, 2001 and August 12, 2004. The carcass is a second year female Common Grackle (*Quiscalus quiscula*).

The carcass was found by the wildlife consultant on the upper portion of the lower slope of the south central bank of the Secondary Lagoon approximately 70 feet southwest of the belt skimmer, located at the southeast corner of the Secondary Lagoon, and approximately 8 feet south-southeast of the water's edge. The carcass was located in the middle of a relatively tall stand of White Sweet Clover (*Melilotus alba*). The bird lay with its ventral side against the ground, such that only its dorsal side was visible, with its head facing north and its tail pointed south. The carcass appeared to be mostly covered with a dark gray, very greasy substance. Several strands of grass, approximately 1 to 4.5 inches in length, were observed between portions of the carcass, particularly between the left wing and the tail.

The carcass was significantly decomposed, but entire, and had a slight odor of decay. No flesh was evident. At one point a greenbottle fly was observed to briefly land on the carcass. The head and neck were skeletal. The skull, which was completely pneumaticized and medium brown in color, was observed to be separate from the rest of the carcass, but immediately north of a horn-colored vertebra attached to the carcass. The skull lay with the ventral side visible and dorsal side facing the ground. The bill, which was horn-colored and sharply pointed, pointed east and was open at approximately a 30 degree angle. The maxilla appeared to be long (approximately 1.25 inches) and relatively straight except for a decurved premaxilla. The dentary was similarly long and straight.

The entire dorsal plumage appeared to be severely matted. In addition, the plumage appeared to be stained dark gray. However, the true dark to light brown color of the plumage was apparent, particularly on the left wing. The wings of the bird, which, appeared to be slightly open and extended laterally, were long (approximately 9.5 inches), with the tips extending past the tail. The distal tip of the left wing, at least P8, was bent slightly towards the tail, although no primaries appeared broken. The left wing appeared to be extended cranially, such that the shoulder of the bird was tangent to a line perpendicular to the base of the bird's neck. At least one vertebra attached to the carcass was perpendicular to the back of the carcass. The latter or former , or both, gave the bird a distinctly hunched over appearance. Despite matting, several remiges, especially, on the left wing, had margins that seemed to be flared. Distal tips of remiges were roundly pointed. Feathering on the back appeared to be very ruffled, flared, and unkempt. Several bones were visible through the back feathers. The tail was relatively long and wide with a wedge-shaped tip. Several rectrices were out of position or misaligned, and in many places barbs were separated from each other. One rectrix at the center base of the tail was curled, such that the distal tip pointed towards the rump. The posterior (caudal) side of each pale horn-colored leg was apparent on either side of the tail. The legs were relatively long and thick. The left leg extended straight and parallel

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to the tail with the tip of the tips of Digits 1 and 2 beneath and tangent to the primaries. The right leg extended caudally at approximately a 30° angle with the tail, such that only one digit was visible; the rest were under the right wing. The tibiotarsus and tarsometatarsus were skeletal. The digits of the left foot were open and generally spaced evenly. The ventral digits of the left foot were partially covered with a dark brownish material, which was determined subsequently at MEC to be remnant podotheca.

Plumage on the ventral side of the carcass, especially the breast, belly, and vent was grimy, very matted, and unkempt. In addition, many of these feathers were very flared and ruffled, giving especially feathers of the breast and belly a stringy, hair-like appearance. Both wings appeared to be held laterally away from the sides of the breast and belly, and there was a distinct gap of approximately 0.5-1.0 inches between the medial edge of each wing and the corresponding side of the bird. The feathers of the wing lining and marginal wing coverts generally were beige to buff-colored with the distal half to one-third medium to dark gray. The conspicuously milk white calami and rachides of many of the remiges were visible through the gaps in the matted wing covert feathers and sharply contrasted with the darker vanes of the remiges. The proximal ends of the calami of the remiges, especially the primaries, appeared to be only loosely connected to the wing bones, and most of primaries fell out as the carcass was recovered and bagged. Calami of primaries, which were approximately one inch in length, were translucent white with narrow opaque white bands. Both the anterior and posterior vanes of visible primaries appeared unusually glossy, and many of the barbs appeared to be slightly misaligned and detached from one another. Nevertheless, feathers showed no signs of damage or wear whatsoever. A feather sheath was observed to cover the calamus of one primary. The rachides of most breast feathers were an orange-yellow color. Wing bones were a dark yellowish brown color, and were somewhat shiny. The surface of the femur had a greasy feel. The left leg and foot appeared to be almost fully extended caudally with digit 2 appearing to be an extension of the tibiotarsus, and the other digits extended caudally. The digits of the right foot were opened evenly and slightly flexed dorsally and laterally, such that they were not as fully extended or as much in the same plane as the left foot. A short (approximately 0.5 inches) ring of vestigial podotheca was present around the middle of the right tarsometatarsus. This podotheca appeared to be dark brown gray with paler bands resembling scutes. There was no sign or indication of predation or scavenging.

The odor of the material present on the carcass was similar to that of the sediment of the Secondary Lagoon nearby. No test was performed on this material to determine whether it was oil. Nevertheless, one of the primaries from the carcass that was placed in a covered 9-ounce plastic container of cold tap water produced a rainbow sheen on the water surface after several days.

The carcass was retrieved by the wildlife consultant on September 8, 2010 at 21:19 using a 2 million candle-power halogen spotlight. The carcass was recovered at 21:37, placed in a plastic bag and sealed, and then packed on ice inside a hard plastic cooler at 21:40. The bagged and iced carcass was subsequently transferred by the wildlife consultant to MEC Environmental Consulting; and deposited on the same day around 23:45 in a non-self-defrosting freezer under the company's federal and state salvage permits.

Based on the relatively long, wedge-shaped tail, the relatively long, decurved bill, and the long, thick legs, the carcass was identified as a Common Grackle (*Quiscalus quiscula*). Based on the overall brownish plumage and roundly pointed distal tips of the primaries, the carcass was originally reported to Severstal as an immature. However, second year individuals can also have pale brown feathers, beige wing linings, and primaries with roundly pointed distal tips (Pyle, P. *Identification Guide to North American Birds-Part I*, Bolinas, CA: Slate Creek Press, 1997, p. 639-640). Thus, based on the latter features, and complete pneumaticization of the skull, the carcass was most likely a second year (i.e., hatched in 2009) female (*Ibid.*). (An immature would show window holes in the dorsal center of the skull indicating

incomplete pneumaticization.) The absence of feather wear and the presence of a growth sheath on at least one primary indicate that the bird was probably near the end of a molt cycle (prebasic). It should be noted that in the case of Common Grackle the pattern and cycle of this molt can be identical for immature and second year birds (*Ibid.*).

Based on the fact that an adult Common Grackle in molt was observed during the wildlife survey on June 17, and that the prebasic molt is typically not completed before mid-July (Peer, B. D. and E. K. Bollinger, "Common Grackle (Quiscalus quiscula)," 1997, *The Birds of North America Online* (A. Poole, Ed.), Ithaca, NY: Cornell Lab of Ornithology; *http://bna.birds.cornell.edu/bna/species/271*), the bird's death likely occurred between July 1 and July 12 given the extent of decomposition, although it is possible that death occurred later in July considering that hot weather in late July and August as well as the bird's dark plumage could have accelerated decomposition. The carcass was not observed during the survey conducted on June 17, 2010 despite the wildlife consultant walking the lower slope of the south bank of the Secondary Lagoon. However, several Common Grackles were observed at different times during the June survey to fly from the direction of the south bank of the Secondary Lagoon and to forage on the banks and net of the East Sludge Pond, including one individual foraging under the net.

Given the extent of matting both dorsally and ventrally, the shinier than typical appearance of the wings, as well as the staining and greasy appearance of the bones, it is likely that the bird contacted oily material or sediment through bathing. The validity of this hypothesis is supported by the unusually hot weather in late June and early July. Indeed, there was a period of ten straight days (June 28 to July 7) with sunny to mostly sunny skies, no rain, and high temperatures over 90° F from July 4 to July 8. Blackbirds, such as the Common Grackle, only reflect 5% of the solar radiation striking them because of their predominantly dark or blackish plumage (Lustick, S., S. Talbot, and E. L. Fox, "Absorption of Radiant Energy in Redwinged Blackbirds, *Agelaius phoeniceus*," *Condor*, Vol. 72, No. 4, July-August, 1970, p. 473). At an air temperature of 86° F, a Red-winged Blackbird, a smaller cousin of the Common Grackle, in direct sunlight begins to absorb more solar radiation than its body reradiates, and typically moves to a shady area (*Ibid.*) and/or keeps its bill open. Such opening of the bill for extended periods, referred to as "panting", takes heat away from a bird's body through evaporation of water from the lungs and air sacs, and is the functional equivalent of sweat glands, which birds, unlike mammals, do not have. A bird, when hot, will also slightly elevate its wings to increase the surface of skin exposed to breezes, and often stand more erect so that breezes can contact the legs, thereby increasing convective heat loss. Birds also frequently enhance evaporative cooling through drinking and bathing (W.R. Dawson, "A review of Temperature Regulation and Water Requirements of the Brown and Abert's Towhees, *Pipilo fuscus* and *Pipilo aberti*," *Auk*, Vol. 72, No. 3, July-September, 1955).

The presence of the bird in a stand of sweet white clover rather than in a tree or near other vegetation affording greater shade, together with the degree of matting, suggests that the bird was unable to fly any significant distance after contacting the oily material. Thus, the bird likely bathed and contacted oily material at the south side of the Secondary Lagoon close to where the carcass was discovered, or possibly at the north end of the East Sludge Pond.

Based on the hunched posture of the carcass, the partially opened and elevated wings, the open bill, the fully extended legs, and the fully extended left foot, it is likely that the bird was hot and attempting to cool itself. The oily material it contacted likely exacerbated the bird's hot condition by interfering with evaporative cooling from the skin and legs. As a result, likely the only effective means of cooling available to the bird was panting. Excessive panting can lead to dehydration, especially in very hot weather . Thus, the subject individual likely died of hyperthermia or dehydration. The position of the legs parallel to, and almost in the same plane as, the tail with the anterior (cephalad) sides of the legs against the ground indicates that that bird was likely standing very erect on the tips of toes of the left foot, and

that, as the bird died, it collapsed forward onto its breast.

The fact that the carcass was present at the SRWWTP for at least two months, together with the fact that it showed no sign of depredation or scavenging whatsoever, effectively debunks agency allegations that wildlife carcasses at the SRWWTP are being consumed or carried off by scavengers, and thus going undetected or being underestimated. It should be emphasized that other wildlife carcasses have been discovered that have been present for extended periods without signs of depredation or scavenging.

Although a protected migratory bird, the Common Grackle is considered a pest species by the U.S. Fish and Wildlife Service (USFWS) and the U.S. Department of Agriculture (USDA). Indeed, the former agency has issued a depredation order, codified at 50 CFR 21.43, which allows these birds, as well as other select species of blackbird, to be killed without a federal depredation permit when they are "found committing or about to commit depredations upon ornamental or shade trees, agricultural crops, livestock, or wildlife, or when concentrated in such numbers and manner as to constitute a health hazard or other nuisance."

Common Grackle is very common throughout southeast Michigan, and has routinely been recorded at the SRWWTP during wildlife surveys every month of the year except January (no survey ever conducted), February (one survey conducted), and December. A pair of this species successfully nested at the SRWWTP this past spring in a juniper approximately 18 feet northeast of where the carcass was found. It is quite possible that the carcass found was the female from this nest location.. Within days of the discovery, the tree with the empty, inactive nest was removed by SRWWTP staff in order to deter the birds from re-nesting there in subsequent years.

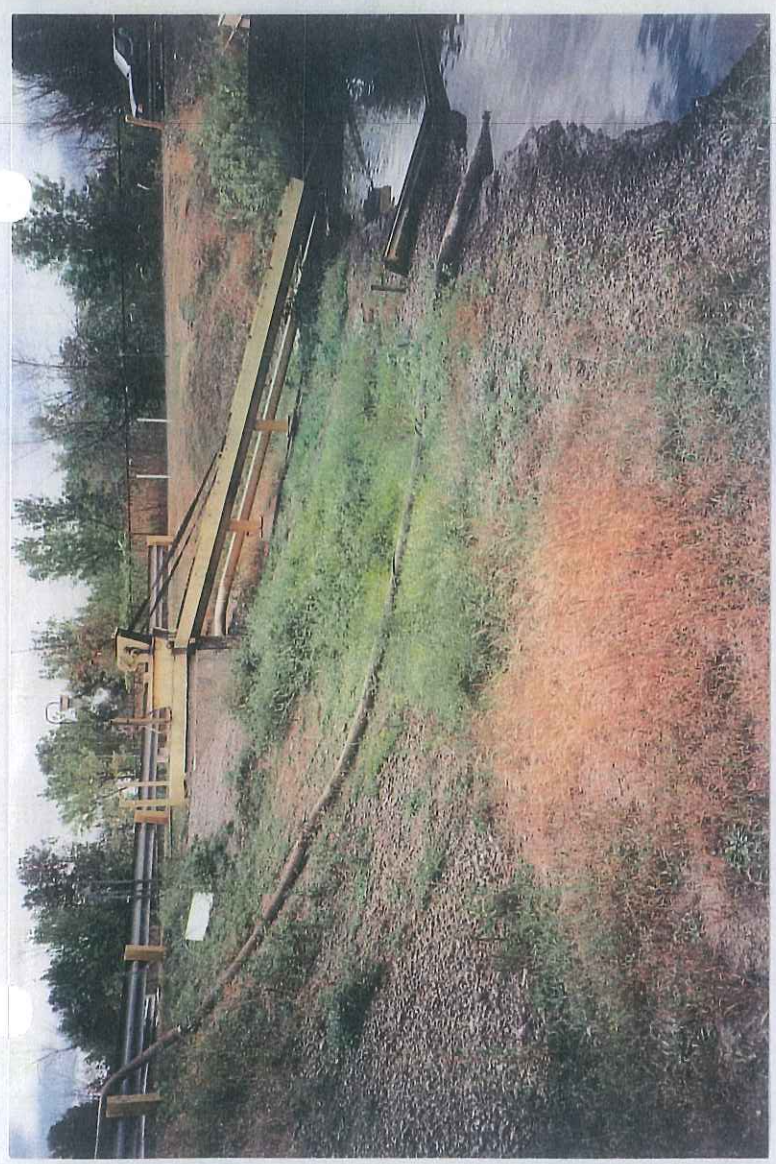
If you have any questions regarding this report, please call me at (248) 585-3800. Thank you again for selecting MEC Environmental Consulting for your wildlife management consulting needs.

Sincerely yours,

MEC ENVIRONMENTAL CONSULTING

Michael Carlson
Principal

enclosures (photographs)



SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
September 8, 2010 - afternoon

#1: East side of south end of Secondary Lagoon, looking east-northeast from approximately 20 feet east of OMI-4. Common Grackle carcass at base of shrubby plant (right foreground); nest tree juniper in background.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
September 8, 2010 - afternoon

#2: West side of south end of Secondary Lagoon, looking southwest from approximately 12 feet southwest of juniper. Note shrubby sweet white clover at center, before hose, was location of Common Grackle carcass.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
September 8, 2010 - afternoon

#3: South central bank of Secondary Lagoon, looking south from approximately 28 feet east of OMI-4. Note dark gray mass in middle of white sweet clover is Common Grackle carcass. Note steep slope immediately behind carcass.

1 2 3 4 5 6

1 2 3 4 5 6

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
September 8, 2010 - afternoon

#4: Ground at lower slope of south bank of Secondary Lagoon looking down and south. Note Common Grackle carcass as-found, and inch ruler for scale. Note open skeletal bill, and matted plumage of dorsal side.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
September 8, 2010 - afternoon

#5: Close-up of dorsal side of Common Grackle carcass as-found, looking down and east, and inch ruler for scale. Note open skeletal bill, detached head and vertebra, partially open wings, and matted plumage.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed (digital) by Michael Carlson
September 8, 2010 - afternoon

#6: Close-up of dorsal side of Common Grackle carcass with grass trimmed, looking down and east. Note long bill, long wings, long rather thick legs, and long, wedge-shaped tail- all features characteristic of Common Grackle.

1 2 3 4 5

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed (digital) by Michael Carlson
September 8, 2010 - afternoon

#7: Close-up of dorsal anterior of Common Grackle carcass. Note open, skeletal bill, skeletal vertebrae, matted brownish feathers. Photo is over-exposed.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed (digital) by Michael Carlson
September 8, 2010 - afternoon

#8: Close-up of ventral side of bill of Common Grackle carcass, and inch ruler for sizing. Note long bill with decurved premaxilla, which is characteristic of Common Grackle.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed (digital) by Michael Carlson
September 8, 2010 - afternoon

#9: Close-up of dorsal side of tail and left wing tip of Common Grackle carcass. Note extension of ventral side of skeletal left leg and foot. Also note degree of matting of primaries and rectrices.

1 2 3 4 5 6

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed (digital) by Michael Carlson
September 8, 2010 - afternoon

#10: Close-up of ventral side of Common Grackle carcass, looking down and east, and inch ruler for scale. Note wings held out laterally, right remiges falling out, white calami and rachides apparent, and matted feathers.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed (digital) by Michael Carlson
September 8, 2010 - afternoon

#11: Close-up of dorsal side of left tibiotarsus of Common Grackle carcass. Note almost full extension of tibiotarsus and extended yet open digits. Note shiny, very matted primaries and stained, matted vent feathers; bent left primary.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed (digital) by Michael Carlson
September 8, 2010 - afternoon

#12: Close-up of dorsal side of right tibiotarsus of Common Grackle carcass. Note almost full extension of tibiotarsus and extended but flexed open digits. Note remnant podotheca, and heavy matting of right primaries.

MEC ENVIRONMENTAL CONSULTING

February 4, 2011

Mr. James E. Earl
Severstal North America, Inc.
14661 Rotunda Drive
Post Office Box 1699
Dearborn, MI 48120-1699

Subject: Schaefer Road Wastewater Treatment Plant – Carcass Report (P. N. 00330)

Dear Jim:

Please find herein the report on the avian carcass which was found by the wildlife consultant on September 8, 2010 at 17:19. This report was prepared in accordance with the procedures outlined in EPA's letters from Diane Sharrow to Don Windeler, dated December 14, 2001 and August 12, 2004. The carcass is a Spotted Sandpiper (*Actitis macularius*).

The carcass was found near the center of the littoral area on the east side of the Primary Lagoon between the baffle and weir at the south end of the lagoon, and approximately 8 feet south-southeast of the mop tray of OMI 1 skimmer, located near the southeast corner of the Primary Lagoon. The severely decomposed carcass lay dorsal side up on stained, dead vegetation and debris approximately two feet from the water's edge, and approximately 3 feet north of and below the water discharge pipe of OMI 1. The anterior portion of the carcass pointed northwest, and the posterior end generally southeast. Oil or staining was not apparent on the carcass, and no significant matting was observed. No odor of decay or petroleum odor was noted.

The carcass was photographed immediately after discovery and at the time of retrieval, but was not closely examined at either time. The carcass was more thoroughly examined subsequently under laboratory conditions at MEC Environmental Consulting.

A blackish-stained, soiled stem of probable water mint (*Mentha aquatica*) lay roughly perpendicular to the water's edge and immediately under the anterior portion of the carcass at approximately a 45 degree angle. The position of the carcass together with its brown coloration created the impression of dead or soiled leaves. Indeed, the carcass was likely dismissed as vegetation by the wildlife consultant during the June wildlife survey. (No wildlife surveys were conducted in July or August.) The head was missing, and the anterior portion of the carcass consisted only of 5 orange-brown cervical vertebrae. Both wings appeared to be slightly open and held out laterally. The right wing was more open and appeared to be spread somewhat, as well as perpendicular to the sagittal plane of the carcass. The tertials of the right wing were curved laterally, creating a gap in the center of the distal portion of the right wing. The left wing was positioned such that the wing was more parallel to the sagittal plane, and forward, i.e. cephalad, such that the tip of the shoulder was tangent to an imaginary line perpendicular and tangent to the distal vertebra of the neck. By contrast, the shoulder of the right wing was tangent to a line perpendicular to the second visible proximal cervical vertebra. The tail, which was rather long, appeared to be almost fully fanned. The tail was positioned asymmetrically at approximately a 135 degree angle with the left side of the rump, and slightly elevated with respect to he back and rump. The distal tip of the left wing was draped over what appeared to be the central rectrix approximately 0.375 inches from its distal end. A small stick was draped almost perpendicularly over all but the anterior vane of the outermost visible primary of the right wing approximately 0.56 inches from the distal tip of the primaries. Part of the same stick was also parallel to the distal 0.56 inches of the primaries. One rectrix appeared to be almost

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perpendicular to the left side of the rump. The feather was immediately underneath the left primaries approximately 0.875 inches proximal of the distal end of the wing. A small stick was tangent and perpendicular to the proximal portion of this rectrix, and a what appeared to be a strand of darkly stained vegetation was tangent to this stick and draped over the feather. In addition, a small, dark stained stick which lay parallel to the back appeared to lie over several of the distal tips of the left back feathers. Tarsi were not apparent.

Dorsal feathers, which were generally uniformly medium to dark brown in color, appeared to be slightly matted. The rachides of several remiges and rectrices were conspicuous and brownish yellow in coloration, giving a golden hue especially to the wings. In addition, the back and rump feathers, the distal 0.125 inches of two of the visible central rectrices, and the distal 0.375 inches of both the right and left primaries appeared to be dirty and possibly stained with a dark brown-gray substance. However, upon closer examination later, the feathers were impregnated with fine, dark grayish brown dirt particles, which created the impression of staining. No significant feather flaring was apparent.

The ventral side of the carcass was not examined in the field but only photographed in the hand of the wildlife consultant immediately after careful retrieval of the carcass and attached vegetation because it was night at the time. The photographs of the ventral side of the carcass show the right wing separated from the pale apricot-colored, skeletal sternum, and the sternum rotated and shifted approximately 1cm to the left of the median of the carcass (sagittal plane). Indeed, although at least two sternal ribs were still connected to the right side of the sternum these were not connected to any of the five, yellowish brown, vertebral ribs. Moreover the right coracoid was not attached to the sternum, and the scapula was not attached to the coracoid. The sternum and delicate, tissue paper-thin carina did not appear to be damaged or broken. The proximal ends of both the coracoid and scapula were approximately 1-2 cm lateral of the sternum. Although the radius, ulna, humerus, and scapula of the right wing were not broken, the proximal ends of the radius and ulna were separated from each other although less than 1 mm, and the distal end of the humerus appeared to be disconnected from the ulna by approximately 1 mm. In addition, the proximal end of the humerus appeared to be disconnected from the scapula. Several sternal ribs appear to be connected to the left side of the sternum, but these, like those of the right side appeared not to be connected to vertebral ribs. The skeletal left femur was connected to the orange-brown, skeletal pelvis and extended cephaladly and distally at approximately a 45° angle with the caudal vertebrae. The left fibula-tibiotarsus was separated from the femur by approximately 2.5 cm, but was connected to the tarsometatarsus at approximately a 50° angle. Three digits were connected to the distal end of the tarso-metatarsus at approximately a 150° angle. The middle digit appeared to be long and near the center was slightly flexed medially. The ventral side of the digits faced the carcass. The right femur, fibula, tibiotarsus, and tarsometatarsus were not attached to the carcass; in fact the right femur was not found. The distal 2 mm of the alulal feather projected from the right wing at approximately a 20° angle with the calami of the outermost primary. The marginal and lesser coverts of the right underwing appeared to be mostly bright white. Feathers of the right wing appeared to be only slightly ruffled and unkempt. Feathers of the left wing, however, appeared to be very flared, frayed, and very unkempt. A break between the first and second proximal caudal vertebrae was apparent. Indeed, the section of caudal vertebrae between the second process and the pygostyle was separated and shifted approximately 1-2 mm to the right of the bird's median. The carcass was extremely rigid such that the sternum and tail fell off as the carcass was being placed in a plastic bag at recovery.

The carcass was more closely examined under laboratory conditions at MEC. The right wing appeared to have 10 primaries. The outermost primary was roundly pointed with virtually no anterior vane. No bristles were present on the underwing of the anterior vane of the outermost primaries. Ventrally, the calami of the primaries of the right wing were a soft, almost powdery, off-white. Primary underwing covert feathers were brown-gray with the distal one-sixth of the feather silvery gray. P10 was a dark

gray-brown with a small spot of soft, silvery gray buff near the center of the posterior vane . The gray-buff center of the posterior vane was larger and almost extended to the rachides of P9 to P7. The basal half of P6 was gray-buff. The bones of the left wing were unbroken and connected to each other. The angle between the ulna-radius and the humerus was approximately 50°, and the angle between the humerus and the scapula was approximately 45°. The alulal feather projected from the left wing in similar manner and angle to that of the right wing. Wing chord lengths were 102 and 104 mm for the right and left wings, respectively. The skeletal right tibiotarsus and tarsometatarsus were separate. Two digits were present and compressed, extending almost straight distally such that they appeared to be part of the tarsometatarsus. The digits crossed near the center of each. The proximal end (cnemial crest) of the left tibiotarsus appeared to be slightly rougher than that of the right. Tarsometatarsal lengths were 21 and 23 mm. The distal tip (1 mm) of the right outer rectrix was a dull white, followed proximally by a 1 mm blackish band. The remainder of the rectrix was a dark gray-brown. Tail length was approximately 51 mm. No evidence of the carcass having been scavenged was found. A portion of the tail from the carcass was placed in a plastic container filled with approximately 8 fl. oz. of cold tap water. No oil sheen was noted on the water surface within several hours or after several days.

The carcass was initially identified in the field and reported to Severstal as a possible Northern Rough-winged Swallow (*Stelgidopteryx serripennis*), based primarily on plumage coloration and apparent size. However, days later, once the tarsometatarsi (tarsi) were examined, it was concluded that the carcass was not a Northern Rough-winged Swallow because this species has a much shorter tarsal length, an average of 11 mm. Moreover. the ventral side of the leading edge of the wings did not exhibit bristle-like projections characteristic of the male Northern Rough-winged Swallow. Veery (*Catharus fuscescens*) was the next candidate but this species has a tarsal length of 27-32 mm, thus eliminating it and the other thrushes. The wings of the carcass were subsequently compared to photographs in the online Wing Image Collection at the University of Puget Sound in Tacoma, Washington (*http://www.pugetsound.edu/academics/academic-resources/slater-museum/biodiversity-resources/birds/wing-image-collection/*). The carcass wings appeared to resemble those of an adult Spotted Sandpiper (*Actitis macularius*) in the online collection, but the two-dimensional, scaleless images were insufficient for verification. Thus, the carcass was iced and carried in a portable cooler to the Bird Division of the Museum of Zoology at the University of Michigan in Ann Arbor. There the sternum and wings of the carcass were compared to those of Spotted Sandpiper, and were found to very closely match. Moreover, carcass measurements of wing chord, tarsal length, and tail length fit reported ranges of these features for an adult male Spotted Sandpiper, viz., 102-104 mm, 21-25 mm, and 47-52 mm, respectively (Oring, L. W., E. M. Gray, and J. M. Reed, "Spotted Sandpiper (Actitis macularius)," *The Birds of North America Online* (A. Poole, Ed.), Ithaca, NY: Cornell Lab of Ornithology; 1997, http://bna.birds.cornell.edu/bna/species/289doi:10.2173/bna.289). However, another source concludes that measurements are not very helpful in sexing Spotted Sandpiper (Pyle, P. *Identification Guide to North American Birds- Part II,* Bolinas, CA: Slate Creek Press, 2008, p. 547). Thus, the carcass is a probable adult male Spotted Sandpiper.

Based on the severely decomposed condition of the carcass, the bird's death likely occurred in May after the May 10 wildlife survey. Based on the open and laterally held wings, the protracted alulal feathers on both wings (these feathers are typically extended only as a bird takes off or lands), the position of the left femur with its distal end pointing cephaladly, and the spread, slightly elevated tail, the bird had likely just landed or been in the process of landing on the littoral area of the Primary Lagoon when it died. Based on the break in the caudal vertebrae and the resulting shift of the tail to the left, unkempt plumage on the left side of the carcass, the detachment of the right coracoid from the sternum and the displacement of the latter to the left, as well as the disconnection between the proximal end of the right humerus and the right scapula, between the distal end of the humerus and the proximal end of the ulna, and between the proximal ends of the right radius and ulna, it appears that the bird was struck suddenly by a hawk, quite

possibly an accipiter or a falcon. This hypothesis is supported by the fact that the head and furcula (fused clavicles), which attaches to the breast, were missing. Cooper's Hawk (*Accipiter cooperii*) as well as other accipiters, like the Sharp-shinned Hawk (*Accipiter striatus*) often eat only the head and breast of a bird. This species feeds heavily on birds in the spring (Grossman, M. L. and J. Hamlet, *Birds of Prey of the World*, New York, NY: Clarkson N. Potter, Inc, 1964, p. 98). Falcons are also known to decapitate birds. In addition, large hawks take adult Spotted Sandpipers (Oring, L. W., E. M. Gray and J. M. Reed, "Spotted Sandpiper", 1997, in *The Birds of North America Online*, A. Poole, ed., Ithaca: Cornell Lab of Ornithology, http://bna.birds.cornell.edu/bna/species/289http:/dx.doi.org/10.2173/bna.289).

A total of six Spotted Sandpipers was observed on May 10, 2010 during the wildlife survey at the SRWWTP, mostly at the Primary Lagoon. Two individuals were observed twice during the day to stand near the middle of the baffle at the south end of the Primary Lagoon. In addition, one Red-tailed Hawk (*Buteo jamaicensis*) was observed at one point to hunt as it flew directly over the Primary Lagoon during this same survey. A Sharp-shinned Hawk was observed to fly over the Primary Lagoon during the wildlife survey on June 17, 2010. During the April 2009 wildlife survey a pair of American Kestrels (*Falco sparverius*) were observed to perch atop OMI 1.

Spotted Sandpiper is common throughout southeast Michigan, and has routinely been recorded at the SRWWTP during the spring and summer wildlife surveys. This species breeds along the Rouge River and probably at the SRWWTP, although no nest has been found to date.

The fact that the carcass was present at the SRWWTP for at least four months, together with the fact that it showed no sign of depredation or scavenging whatsoever, effectively debunks agency allegations that wildlife carcasses at the SRWWTP are being consumed or carried off by scavengers, and thus going undetected or being underestimated. It should be emphasized that other wildlife carcasses have been discovered that have been present for extended periods without signs of depredation or scavenging.

The carcass was retrieved around 21:49 on September 8, placed in a plastic bag, sealed, and then packed on ice inside a hard plastic cooler at 21:51. The carcass was then transported by the wildlife consultant to MEC Environmental Consulting; labeled as to species, date discovered, party that discovered the carcass, location, date and time recovered, party responsible for recovery, and name of party completing the tag; and deposited in a non-self-defrosting freezer under the company's federal and state salvage permits around 23:45.

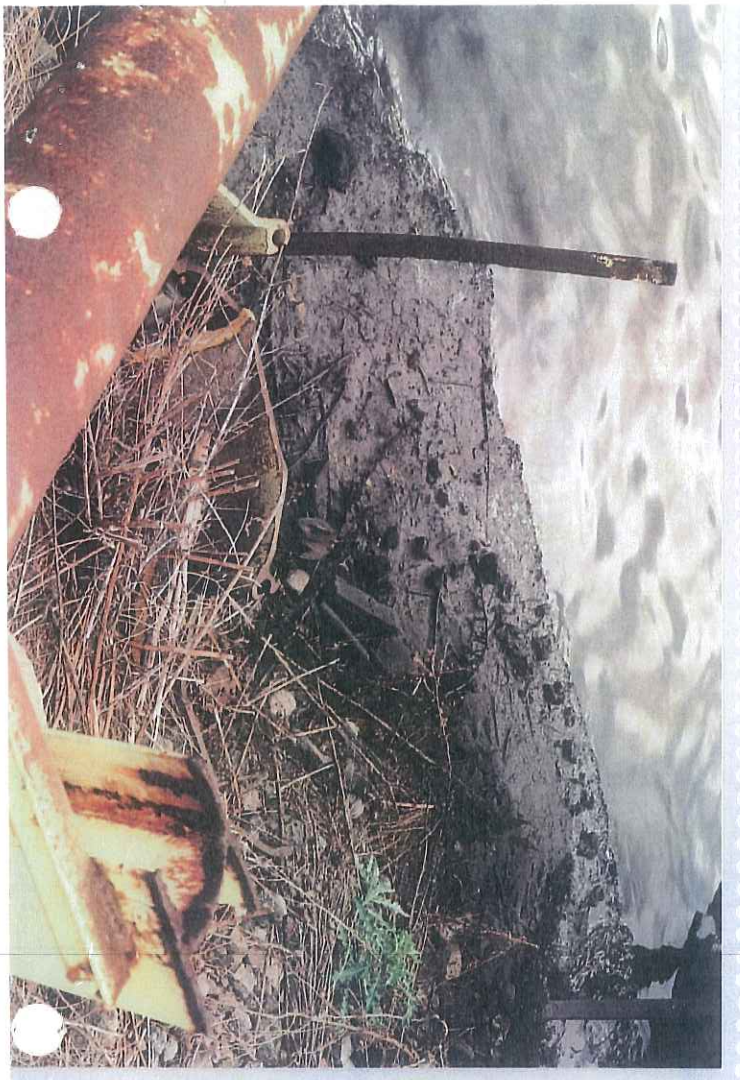
If you have any questions regarding this report, please call me at (248) 585-3800. Thank you very much for selecting MEC Environmental Consulting to meet your wildlife management consulting needs.

Sincerely yours,

MEC ENVIRONMENTAL CONSULTING

Michael Carlson
Principal

enclosures (photographs)



SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
September 8, 2010 - afternoon

#1: Southeast bank of Primary Lagoon, looking northwest from approximately 12 feet south of OMI 1 at top of bank of same. Note overflow pipe and skimmer tray of OMI 1, steel headwall, baffle and weir; TVT at right center

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
September 8, 2010 - afternoon

#2: East shoreline of Primary Lagoon, looking north from opposite the east end of the baffle at the south end of the lagoon. Note littoral area between headwall and weir. Carcass of Spotted Sandpiper is opposite & just past pipe invert.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
September 8, 2010 - afternoon

#3: Littoral area near southeast corner of Primary Lagoon, looking west from approximately two feet east of the headwall at OMI 1 pipe. Note Spotted Sandpiper carcass near center below long stem stretching to water.

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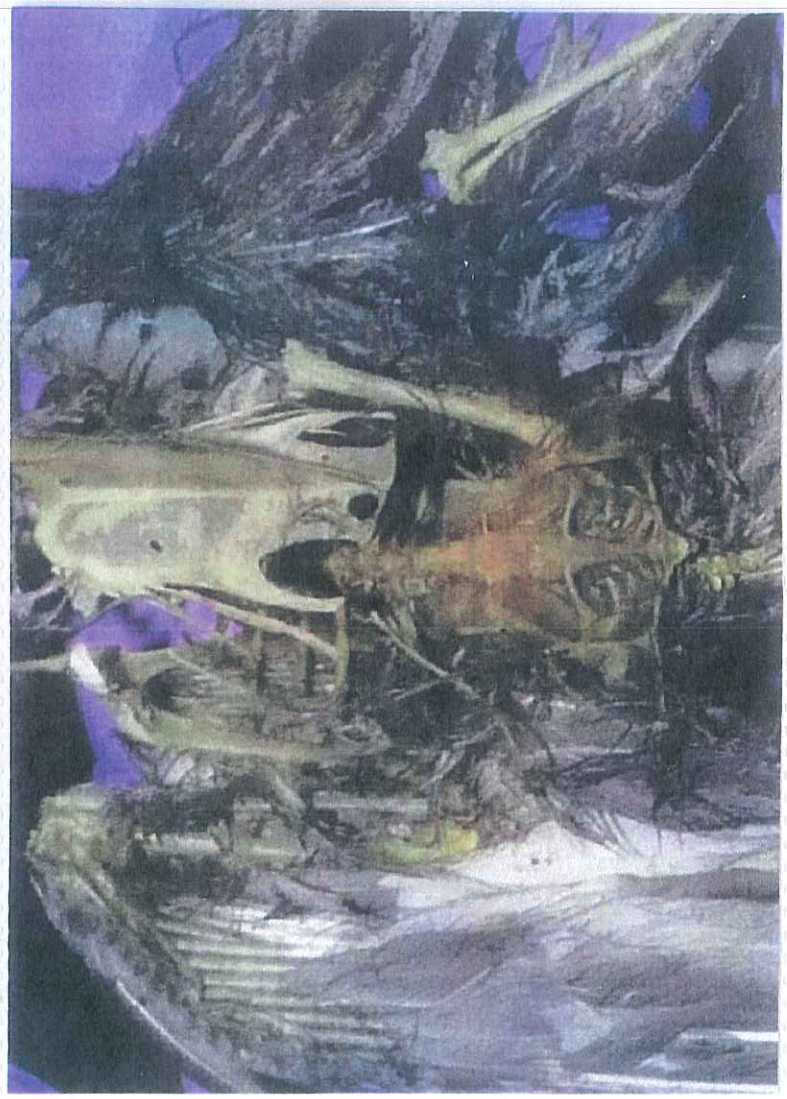

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
September 8, 2010 - afternoon

#4: Ground of littoral area near southeast corner of Primary Lagoon, looking south from same. Note dorsal view of Spotted Sandpiper carcass, as found, and inch ruler for sizing. Note missing head, partially open wings, long tail.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed (digital) by Michael Carlson
September 8, 2010 - evening

#5: Ventral view of Spotted Sandpiper carcass at time of retrieval. Note skeletal condition, missing right femur, alulal feather projection, partially spread tail, displaced sternum, separate left tibiotarsus, & unkempt plumage on left side.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed (digital) by Michael Carlson
September 8, 2010 - evening

#6: Closeup of ventral side of Spotted Sandpiper carcass. Note break between pelvis and caudal vertebrae, and right side disconnections between sternum and cortacoid, cortacoid and scapula, radius and ulna, and ulna and humerus.

MID 087 738 431

MEC ENVIRONMENTAL CONSULTING

October 12, 2010

Mr. James E. Earl
Severstal North America, Inc.
14661 Rotunda Drive
Post Office Box 1699
Dearborn, MI 48120-1699

Subject: Schaefer Road Wastewater Treatment Plant – Carcass Report (P. N. 00330)

Dear Jim:

Please find herein the report on the avian remains which were found by the wildlife consultant on June 17, 2010 at 17:45. This report was prepared in accordance with the procedures outlined in EPA's letters from Diane Sharrow to Don Windeler, dated December 14, 2001 and August 12, 2004. The remains are of a male Snow Bunting (*Plectrophenax nivalis*).

The remains were found near the base of the inside face of the south side of the Primary Lagoon fence approximately 24 feet west of the southeast corner of the fence and approximately 12 inches north of the fence. The remains consisted of a partial left wing, a set of 6 feathers, and 1 loose feather. The wing lay dorsal side up on browned, cut grass and vegetation. The tip of the primaries generally pointed northwest, and the shoulder generally pointed southeast. Five feathers were found approximately 3 inches east of the wing, and one feather was found approximately 9.5 inches east of the wing. No sign of oil or staining was observed on the wing or any of the feathers. A mild odor of decay and no petroleum odor was noted. The remiges were not matted.

The remains were photographed and briefly examined at the time of discovery. They were more thoroughly examined at the time of retrieval and later under laboratory conditions at MEC Environmental Consulting.

The wing, which appeared to be partially open, was approximately 4 inches (103 mm) in length. The estimated wing chord was 100 mm, but this measurement may not be totally accurate due to significant *rigor mortis* (the wing could not be fully spread open) and the fact that this measurement is typically performed on the completely folded or closed wing of a live bird. Dorsally, the wing was mostly dark brown to blackish-brown with the two innermost secondaries mostly white. The three outermost primaries (P9, P8, and P7) were the same length. P6 was approximately 9 mm shorter. Only the basal half of P5 was present; the rest of the feather was broken off and not present. The distal ends of P1, P2, and P3 were at graduated intervals of approximately 2-3 mm. The distance between the tip of P1 and the tip of P9 was 4 cm. The outboard edge of the primaries was thinly edged in white and appears worn. The primaries id not appear to be notched or emarginated. P7 to P9 were relatively narrow and tapered with slightly rounded to pointed distal ends. P1 to P6 were slightly wider and less tapered. The tips of the first three inner primaries (i.e., P1, P2, and P3) were very narrowly white-tipped and blunt with a slight terminal notch, especially P1. P4 had even less of a narrow white tip, and is more rounded. The greater primary coverts are mostly dark brown to blackish brown. without pale margins. Some of the distal ends of the greater primary coverts were white, giving a slight effect of a second wing bar. This effect may have been stronger if more remiges had been present. Little contrast was evident between the dark coloration of the greater

1003 AMELIA AVENUE ROYAL OAK, MICHIGAN 48073-2704
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primary coverts and the primaries. Most of the secondaries were missing. In fact, only S1 and S5 appeared to be present. These secondaries, particularly the innermost (i.e., S5), were unkempt and disheveled. Most of the barbs of the posterior vane of S5 were separated from each other and some were tangled giving this part of the remex a very frayed appearance. Rachides (shafts) of the primaries were generally pale to medium brown Rachides of the secondaries were pale to white. Marginal wing coverts were also present. These were small, very dark brown, almost black, feathers. Similar colored lesser coverts were also apparent. These darker coverts appeared to contrast slightly with the dorsal dark brown remiges. The distal half to one-third of most of the lesser coverts was white, creating the effect of a short upper wing bar.

Ventrally, the wing was mostly a silvery white to off-white. The distal half of the primaries appeared to be dark brown. The distal third of all secondaries except S5 appeared to be dark brown to blackish brown, but the terminal tips were conspicuously tipped with white. The disheveled appearance of the secondaries was also apparent, but additionally several of the secondaries appeared to be askew such that several calami (quills) were crossed instead of being parallel with each other. As noted above, it was apparent that many secondaries were missing. Rachides of both primaries and secondaries appeared to be off-white to pale brown. Bones of the wing were clearly visible. The carpometacarpus appeared to be intact. The radius and ulna, which measured approximately 18 mm, appeared to be intact and unbroken, although the proximal end was not connected to the humerus. In fact, no humerus was present. Upon examination with a 10 to 20 power magnifying glass, approximately 6 tiny red-orange spots were apparent around the distal end of the ulna, and one tiny red-orange spot was found at the distal end of the carpometacarpus.

Atop the south bank of the Primary Lagoon, approximately three inches east of the wing, lay three mostly white secondaries, ventral side up, approximately 1.6 inches in length. The three feathers were superimposed such that it appeared as though there was only one feather. These feathers appeared to be some of the missing feathers from the partial wing, viz., S2, S3, and S4. These three secondaries were mostly pure white to off-white. The edge of much of the distal one quarter of the anterior vane of S2 and S3 was a dark to medium brown. This streak of brown, however, did not extend fully to the rachis of the terminal end of the feather. S4 was almost completely white except for a narrow streak of dusky light brown in the distal quarter of the remex close and parallel to the edge of the feather. This streak did not extend to the tip of S4. The distal end of these remeges was generally rounded, and the rachis was pure white. The margins were worn. The feathers appeared unkempt: the barbs were partially separated in a number of places. The barbs of the basal half of both the anterior and posterior vanes appeared to be misaligned and mixed together, giving this part of the remex a very rumpled appearance. Tangent to, and immediately west of these secondaries, lay two darker feathers with their posterior vanes against the ground, and dorsal side generally facing east. These feathers, which were approximately 1.2 inches in length, appeared to be loosely attached to the base of the secondaries at approximately a 30° angle. The feathers, which appeared to be greater primary or secondary coverts, were mostly dark brown to blackish brown, except for the distal one-quarter of the anterior vane which was white. Rachides were brownish. Many of the barbs of these feathers were also partially separated along the edges of both vanes, giving the feathers a very frayed appearance. The margins similarly appeared worn. Several small particles of soil were noted at the base of this set of feathers, and two or three very narrow stems of vegetation were draped over the feathers.

One loose feather, likely a greater primary or secondary covert, considering the relative size, lay

ventral side up atop cut and dry vegetation approximately 9.5 inches east of the partial wing. The anterior vane of this feather was a dark to medium brown, except for a small amount of white at the terminal tip. The basal three-quarters of the posterior vane appeared to be dark to medium brown, and the rest of the remex was white. The tip of the remex appeared blunt to rounded. Margins were worn. Barbs of the posterior vane, particularly on the basal third of the feather, were separated from each other giving this side of the feather a very frayed appearance. The rachis was brownish, and the seemingly short calamus whitish, except for the basal half, which was brownish-gray. The basal end of the calamus appeared under magnification to be uneven, not pointed, and to be missing the inferior umbilicus.

The remains were initially identified as a possible female Black-and-white Warbler (*Mniotilta varia*) based primarily on the pied coloration and pattern of the partial wing. However, the average wing length of a female Black-and-white Warbler is 66 mm, which is significantly shorter than the measured length of the subject wing, viz., 103 mm. The wing was subsequently thought to be that of a female or immature (after hatch year) Rose-breasted Grosbeak (*Pheucticus ludovicianus*) based on wing length, coloration and appearance of the dorsal wing (e.g., semblance of wing bars). However, when the wing was compared to that of several female-type Rose-breasted Grosbeak skin specimens in the collection of the Bird Division of the University of Michigan in Ann Arbor, it looked very different from this species. Indeed, this species lacks the mostly white secondaries, which characterized the recovered wing. The wing, however, matched perfectly that of a male Snow Bunting (*Plectrophenax nivalis*): wing length, wing morphology (shape), pale edging of remiges, and the characteristic single brown streak on the anterior vane of S1-S4. P9 appeared to be considerably narrower than those of the Snow Bunting skin specimens. Moreover, P9 did not appear to be notched like those of the specimens. It should be emphasized, however, that P9 of the subject wing appeared to be very worn, and, as such, the somewhat broader, notched appearance of this feather was likely lost. Based on the appearance of the secondaries and greater primary coverts as well as the coloration and appearance of the outer primaries, the bird was a second year bird. (Pyle, P. *Identification Guide to North American Birds- Part I*, Bolinas, CA: Slate Creek Press, 1997, p. 604).

It appears that the wing was likely pulled off by a hawk, probably an accipiter or falcon. Such hawks typically prey on birds, and pluck those they catch, often removing the wings, before feeding on the rest of the body. Given the location of the wing being very close to the base of the Primary Lagoon fence, a hawk may have sat atop the fence and begun plucking the bird. This conclusion is supported by the presence of two to three medium-sized droppings on the top cross-bar of the fence immediately above and adjacent to the wing at the time that the remains were discovered. The droppings were tentatively identified as a Merlin. Based on the partially open wing, and the fact that suitable resting or foraging habitat (viz., plowed agricultural fields, and sparsely vegetated open fields) for Snow Bunting is not present at or immediately adjacent to the SRWWTP, it is probable that this bird was taken while in flight by a Merlin or possibly a Peregrine Falcon. Either falcon would likely be more adept at taking a Snow Bunting in mid-air than a Sharp-shinned or Cooper's Hawk, considering the hunting strategies of the falcons and the fact that Snow Bunting often migrates at a relatively high altitude.

The fact that the partial wing lay atop cut vegetation indicates that it fell there after the SRWWTP operator cut the vegetation at the south bank of the Primary Lagoon. According to the SRWWTP operator responsible, this bank was mowed sometime during the first week of June, possibly June 2.

Thus, it appears that the Snow Bunting was killed in early June by a hawk, probably a falcon, which flew to the top of the Primary Lagoon fence and began to pluck the bird, ripping its left wing off. Snow Buntings weakened by severe weather are easily caught by predators (Lyon, Bruce and Robert Montgomerie. 1995. "Snow Bunting" in *The Birds of North America Online*, A. Poole, ed., Ithaca: Cornell Lab of Ornithology, *http://bna.birds.cornell.edu/bna/species/198/articles/demography*). The predator hawk may have been frightened, possibly by the firing of the propane cannon, and flew off with its prey before plucking the entire bird.

While it is almost certain that the Snow Bunting was killed naturally by a hawk, both the date and place of death in the above scenario, although possible, is highly unlikely. Snow Bunting is an uncommon winter visitor to southern Michigan, and typically departs in March for breeding grounds in the tundra. It is very rarely observed in southeast Michigan after early to mid-April until the following November, and never in June. Moreover, it is unlikely that the extent of decomposition apparent in the underwing (i.e., ventral side of the wing) could have occurred within two weeks or less. In addition, the feathers of the wing are very worn and S5 very frayed. While it is possible that such feather wear could have resulted from the bird struggling in the grip of the hawk's talons, it is more probable that the bird died very quickly without much struggle, especially if struck in mid-air by a falcon. Thus, it is likely that the observed feather wear was caused by weathering, which is very unlikely to have occurred in less than two weeks time. Finally, it is odd that no other feathers (e.g., contour, right remiges, or rectrices) were found despite a rather diligent search of the top of the bank by the wildlife consultant. Indeed, all the feathers found were associated with the left wing.

Given these points, it is far more likely that the bunting was killed by a hawk in March or April as the former migrated, possibly over the Rouge River, and that the left wing was found and subsequently carried to the SRWWTP early in June probably by a Common Grackle or European Starling. It should be noted that the size and general appearance of the droppings on the Primary Lagoon fence appear to be consistent with the size of those of both birds, especially Common Grackle. Both Common Grackle and European Starling frequently use feathers in their nests, and are sometimes seen carrying feathers in their bills. During the May 2004 wildlife survey a European Starling was observed at the top of the west central bank of the Secondary Lagoon on two separate occasions to collect loose, white gull feathers in its bill, likely for nesting material. An hypothesis of transport for nesting material is supported by the discovery of a set of white secondaries apart from the rest of the wing, suggesting that the European Starling or Common Grackle had pulled these from the partial wing. This hypothesis is further supported by the very frayed edge of S5 and the frayed appearance of S2-S4, which suggest that the starling or grackle may have been attempting to pull one of the white feathers from first the wing and then the set of secondaries. Finally, the absence of the secondaries S6-S9, which in the male of this species, is virtually pure white, suggests that these feathers were taken for use as nesting material, and supports the hypothesis of avian transport of the bunting wing to the SRWWTP. Indeed, it is possible that the median coverts and other coverts of the underwing, which also would have been white, were also pulled from the severed wing by birds or mice for nesting material off-site before transport to the SRWWTP. It should be noted that Common Grackle was observed on 5 separate occasions from Station 3, located approximately 10 feet from where the remains were found) during the May and June 2010 wildlife surveys, and European Starling was observed here once during the May survey. Common Grackle has nested in recent years at the SRWWTP, and European Starling has nested in the vicinity. Alternatively, it is also possible that the wing was carried to the SRWWTP by a European Starling, Common Grackle or other avian scavenger. A Common Crow was observed on April 26, 2002 to feed on a gull wing (probably Ring-

billed Gull), and then to fly with the wing in its bill over the Rouge Manufacturing complex.

Regardless of the exact predator species or circumstances involved, it must be concluded from the observations and points discussed above that the Snow Bunting did not die in early June at the SRWWTP, but rather that the bunting's decomposed wing was transported to the facility's south bank of the Primary Lagoon in early June, at least several months after its death.

Snow Bunting has only been recorded once at the SRWWTP: one individual was observed to call from the airspace over the Diked Lagoon in the late afternoon of the December 19, 2007, the date of the wildlife survey.

The remains were recovered around 19:33 on June 17, placed in a plastic bag, sealed, and then packed on ice inside a hard plastic cooler at 19:38. The remains were then transported by the wildlife consultant to MEC Environmental Consulting; labeled as to species, date discovered, party that discovered the carcass, location, date and time recovered, party responsible for recovery, and name of party completing the tag; and deposited in a non-self-defrosting freezer under the company's federal and state salvage permits around midnight.

If you have any questions regarding this report, please call me at (248) 585-3800. Thank you very much for selecting MEC Environmental Consulting to meet your wildlife management consulting needs.

Sincerely yours,

MEC ENVIRONMENTAL CONSULTING

Michael Carlson
Principal

enclosures (photographs)

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SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
June 17, 2010 - afternoon

#4: Ground at top of south bank of Primary Lagoon approximately 24 feet west of the east side of the fence. Note dorsal side of wing of Snow Bunting, as found, lying atop dried grass and vegetation, and inch ruler for scale.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

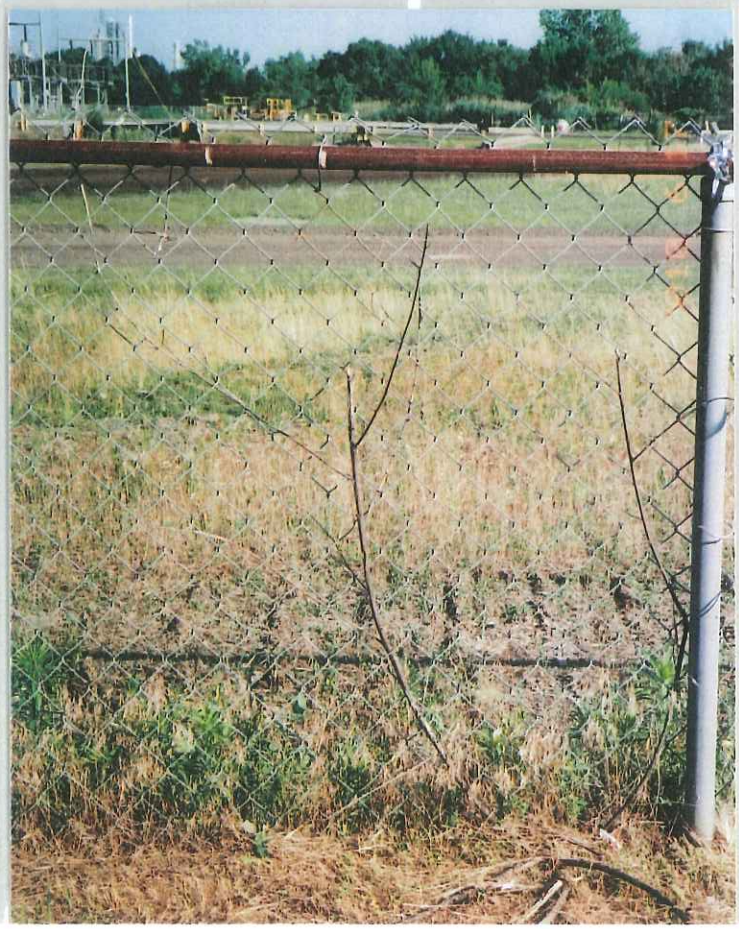
Photographed by Michael Carlson
June 17, 2010 - afternoon

#5: Ground at top of south bank of Primary Lagoon approximately 24 feet west of the east side of the fence. Note frayed feathers on ventral side of partial wing of Snow Bunting, and inch ruler for scale.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed (digital) by Michael Carlson
June 17, 2010 - afternoon

#6: Ground at top of south bank of Primary Lagoon approximately 24 feet west of the east side of the fence. Note frayed white secondaries of dorsal side of repositioned left wing of Snow Bunting, and inch ruler for scale.



SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
June 17, 2010 - afternoon

#1: Top of southeast bank of Primary Lagoon, looking east from approximately 50 feet west-northwest of the southeast corner of the Primary Lagoon fence. Avian remains found between fence section on right bounded by posts.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
June 17, 2010 - afternoon

#2: Top of southeast bank of Primary Lagoon, looking west-southwest from approximately 12 feet northwest of the southeast corner of the Primary Lagoon fence. White spot at base of center post is partial wing of Snow Bunting.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
June 17, 2010 - afternoon

#3: Center section of east half of south Primary Lagoon fence, looking south from inside fence approximately 24 feet west of the east fence. Note droppings on fence, & white bit at top left of sticks on ground is wing of Snow Bunting.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed (digital) by Michael Carlson
June 17, 2010 - afternoon

#7: Close-up of dorsal side of Snow Bunting wing on ground at top of south bank of Primary Lagoon, with inch ruler for scale. Note intact radius and ulna; worn margins of primaries (long feathers) and frayed inner secondary.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed (digital) by Michael Carlson
June 17, 2010 - afternoon

#8: Ground at top of south bank of Primary Lagoon approximately 24 feet west of the east side of the fence. Note frayed and worn margins of ventral side of both primaries and secondaries of Snow Bunting wing, and inch ruler for scale.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed (digital) by Michael Carlson
June 17, 2010 - afternoon

#9: Close-up of ventral side of Snow Bunting wing on ground at top of south bank of Primary Lagoon, with inch ruler for scale. Note absence of feathering (underwing coverts) and flesh; note clearly visible bones of wing.

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SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed (digital) by Michael Carlson
June 17, 2010 - afternoon

#10: Close-up of ventral side of secondaries and dorsal side of greater primary or secondary coverts from Snow Bunting on ground at top of south bank of Primary Lagoon, with inch ruler for scale. Note almost pure white secondaries.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

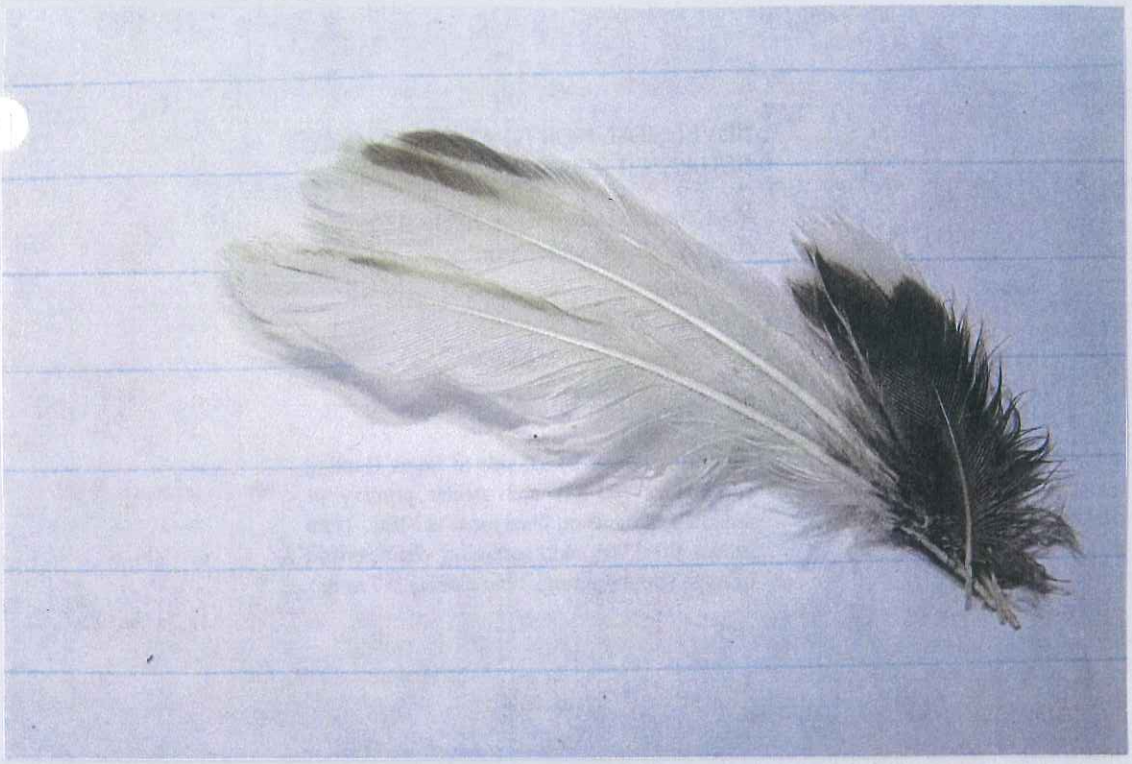
Photographed (digital) by Michael Carlson
June 17, 2010 - afternoon

#11: Close-up of ventral side of greater primary or secondary covert from Snow Bunting, as found, on ground at top of south bank of Primary Lagoon, with inch ruler for scale.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed (digital) by Michael Carlson
August 7, 2010 - afternoon

#12: Close-up of dorsal side of Snow Bunting partial wing on lined paper at MEC Environmental Consulting. Note intact radius and ulna; worn margins of primaries. Line spacing of paper is 7 mm.



SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed (digital) by Michael Carlson
August 7, 2010 - afternoon

#13: Close-up of dorsal side of Snow Bunting secondaries (S2-S4) and greater primary or secondary coverts on lined paper at MEC. Note brown streak on each secondary characteristic of male Snow Bunting. Line spacing is 7 mm.

Severstal
International

July 15, 2010

Via Certified Mail – Return Receipt Requested

Diane M. Sharrow (LR-8J)
Enforcement Officer
RCRA Branch
Land and Chemicals Division
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3590

Subject: Report on carcass found at Schaefer Road Waste Water Treatment Plant

Reference: Severstal Dearborn, Administrative Order Docket No R7003-5-00-001

Dear Ms. Sharrow:

The enclosed July 14, 2010 report by our wildlife consultant details the discovery and the basis for identification of a probable Common Yellowthroat.

If you are interested in further investigation of the carcass, please let us know. We will store it until August 30, 2010, after which, space considerations dictate that the carcass will be disposed.

Please contact me at (313) 845-3217 if you have questions on the information in this report.

Very truly yours,

James E. Earl, Manager
Environmental Engineering

Enclosure

cc: Mr. John Craig, MDEQ
US Fish & Wildlife

Severstal Dearborn
14661 Rotunda Drive
P. O. Box 1699
Dearborn, MI 48120-1699

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MEC ENVIRONMENTAL CONSULTING

July 14, 2010

Mr. James E. Earl
Severstal North America, Inc.
14661 Rotunda Drive
Post Office Box 1699
Dearborn, MI 48120-1699

Subject: Schaefer Road Wastewater Treatment Plant – Carcass Report (P. N. 00330)

Dear Jim:

Please find herein the report on the carcass which was found by the wildlife consultant on April 12, 2010 at 18:45. This report was prepared in accordance with the procedures outlined in EPA's letters from Diane Sharrow to Don Windeler, dated December 14, 2001 and August 12, 2004. The carcass is a probable Common Yellowthroat (*Geothlypis trichas*).

The carcass was found at the base of the northeast bank of the Secondary Lagoon approximately 18 feet south of the northeast corner of the Secondary Lagoon at the water's edge. (The carcass was initially observed around 15:15 but a positive determination that the object was indeed a carcass could not be made based on Zeiss 10 x 42 T* FL binoculars due the distance of the carcass at the base of a very steep section of slope together with glare created by the afternoon sun. The object was subsequently verified to be a carcass once viewed through a KOWA TSN-IV spotting scope at 40-60 power.) The carcass appeared to lie with its right side against the ground with its head pointed south-southeast and what appeared to be its tail pointed northwest. The head appeared to be mostly decomposed with a portion of the cranium visible and white. The horn-colored bill appeared to be thick and stout with the ventral portion of the mandible concave. Both the bill and feet generally pointed east. The plumage, which appeared to be heavily matted, was pale brown and bright spring green. The green coloration was thought to possibly be due to algae. Due to a misjudgment of the size of the carcass, and the fact that it was not immediately retrieved because of safety concerns, it was reported to Environmental Engineering around 19:00 as a possible Pied-billed Grebe.

Using a safety harness with a carabiner and rope, the wildlife consultant descended the steep slope of the Secondary Lagoon, photographed the carcass as found and retrieved the carcass around 15:00 on April 13, 2010. It was immediately apparent that the carcass was not that of a Pied-billed Grebe but a wood warbler, possibly a Common Yellowthroat. The carcass was approximately 5 inches in length. Environmental Engineering was verbally notified of the revised identification late in the afternoon of April 13.

The carcass was examined before and immediately after retrieval. The observations made the previous day through the spotting scope were corroborated in an examination of the carcass at the time of retrieval. In addition, the tail, which was pointed northwest, appeared to be long. (Tail length was subsequently measured at 2.125 inches). It appeared to be at approximately a 50° angle with the left femur. The left wing was closed (i.e., not open), however, the left wing appeared to be raised slightly at the shoulder such that the bottom (ventral) edge of the primaries is dorsal and parallel to the tail. (The left wing length from the shoulder to the tip of the primaries was subsequently measured at 2 inches.) In addition, at least the secondaries of the left wing appeared

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to be very slightly fanned. The right leg was apparently retracted against the belly, such that the tarsus was not visible and the right foot was mostly tucked in lower breast feathers seemingly approximately 1-2 mm left of the median. The visible portion of the toes or digits of the right foot, which are tightly closed, curve caudally towards the vent. The left tarsus extended at approximately a 40° angle with the belly. The three front digits were close together and curved towards the hind toe or hallux. The hallux was relatively perpendicular to the tarsus. Both feet appeared to be dark and thinly caked with what appeared to be an oily material. Despite this material and decomposition resulting in elimination of much of the podotheca, the feet appeared to be scutellate. The tarsi appeared to be a very dark gray but this coloration was subsequently found to be due to staining. The left tarsus was a pinkish-horn color when dark, oily residual was wiped from it. The plumage appeared to be significantly matted, and unkempt, particularly the greater primary and secondary coverts. The plumage on most of the left side was a medium to bright yellow-green. The left wing was beige with a slight hue of gold mixed with yellow-green. The tail, which appeared to be quite soiled, was a dark gray-brown also with slight hues of gold. The brain and other tissues, including musculature, were absent. The bill was closed. (Bill length from the proximal edge of the nostril was subsequently measured at approximately 1 cm.) No gashes or broken bones were evident.

The carcass exhibited significant *rigor mortis*. The head fell off when the carcass was gently turned over a second time. Although the left portion of the head was mostly skeletal, the right side, which had been against the ground, was still mostly feathered. The eye and ear cavities were both apparent. The right wing appeared to be closed and the tip of the primaries tangent to the dorsal edge of the tail suggesting a wing in generally a relaxed position. The back, scapular, breast and belly as well as marginal wing and greater coverts on the right side were severely decomposed and covered with blackish, oily mud. Several 1-2 mm balls of mud were imbedded into this side of the carcass. The primaries, secondaries and tail appeared to be brown with occasional slight green hues. These feathers appeared to be saturated with water and significantly matted. (After placement in the MEC freezer, the right side of the was encased in ice.) Feathers on the head, neck, and chin of the right side appeared to be flared. In addition, the secondaries of the right wing appear to be slightly spread. Finally, the plumage on the right side appears somewhat unkempt with several feathers at the vent and lower belly of the right side hung ventrally.

The carcass was again examined under laboratory conditions at MEC. Inner feathers of the lower left breast and upper belly were examined and found to be buff-beige colored in sharp contrast to the bright green of outer feathers on the left breast and belly and to the black of the right breast and belly. Feathers against the skin of the left breast and belly were dark gray to black in color, however, these did not appear to be oiled and were only very slightly soiled. Several breast feathers were removed from the carcass and washed in Dawn® dish detergent. The washed breast feathers were found to be essentially bicolored. The basal one-third was dark gray to black and the rest of the feather was a very pale yellow-buff. The shape of each breast feather was distinctive. The dark basal one-third was fan-shaped and wider than the rest of the feather. The middle third was essentially rachis with very few or no barbs. The terminal third was comprised of finer barbs. These breast feathers resembled filoplumes with a basal set of barbs. Several of the breast feathers, which were variable in length due to some having a shorter mid-section, appeared rather ragged or worn, particularly along the distal margins of the basal barbs.

In addition, several left remiges, including two primaries, were also washed. The calamus of the washed wing feathers was whitish, the dorsal side of the rachis dark brown, the ventral side of the

rachis a pale gray, the dorsal side of the vane pale brown, and the ventral side of the vane pale brown-gray. In addition both the dorsal and ventral anterior vane showed hues of gold. No significant wear was apparent on the washed remiges.

Based on the 5-inch length of the carcass, the horn color and stout shape of the bill, the pinkish horn colored legs, the relatively long tail, and the gold-brown color of the washed remiges, the carcass was identified as a probable Common Yellowthroat. Based on a comparison of tail length with reported values (Guzy, Michael J. and Gary Ritchison. 1999. "Common Yellowthroat" in *The Birds of North America Online*, A. Poole, ed., Ithaca: Cornell Lab of Ornithology: *http://bna.birds.cornell.edu/bna/species/448doi:10.2173/bna.448*), the carcass was possibly that of male. Based on wear observed in the breast feathers, the bird was likely an immature because the prebasic molt, which occurs June to September, is incomplete in hatch year (immature) birds but is complete in after hatch year (i.e., adult) birds (Pyle, P. *Identification Guide to North American Birds-Part I*, Bolinas, CA: Slate Creek Press, 1997, p. 512).

Although most Common Yellowthroats have migrated through the Detroit area by the end of October, individual stragglers of this species are not rare. Indeed, the wildlife consultant observed a Common Yellowthroat in a stand of *Phragmites* at a wastewater lagoon in Tobermory, Ontario approximately 230 miles northeast of the SRWWTP on October 17, 2009. Moreover, the species occasionally is observed over the winter months as indicated by the approximately 12 Common Yellowthroats reported from Michigan, Ohio, and southwestern Ontario during the Christmas Bird Counts (CBCs) held between December 14, 2009 and January 5, 2010. (http://cbc.audubon.org/cbccurrent). (The SRWWTP is not covered during a CBC, although it is included in the geographic area of the Detroit River CBC, always conducted on January 1 Common Yellowthroat has not been reported on this CBC since one individual on January 1, 2007.)

Thus, it is likely that the subject Common Yellowthroat was a late migrant, especially considering the mild fall and winter of 2009. (No Common Yellowthroat was observed during the SRWWTP wildlife survey conducted on October 14, 2009. It should be emphasized that the northeast shoreline of the Secondary Lagoon where the carcass was found was searched with binoculars during this survey and that no carcass was found. Also, the carcass was far too decomposed for it to be a spring 2010 migrant. Moreover, March and early April would be an extremely early arrival time for this species.) Even temperatures during many days in-January 2010 were above average. Then abruptly, on January 28, 2010 and continuing for five days, temperatures were consistently below freezing. High temperatures ranged from 22 to 29° F, and low temperatures from 6 to 17° F. It is possible that the subject individual moved into the area behind the strong cold front that passed through the region on January 29, 2010, and was attracted to the warmth of wastewater in the Secondary Lagoon as well as the relatively small clump of *Phragmites* which stood approximately 10 feet south of where the carcass was found. Nevertheless, it seems unlikely that both the food and shelter provided by such habitat would support a Common Yellowthroat for more than a day or so in such cold wintry weather. Based on the retracted right tarsus and foot and the extended left tarsus, the bird was standing, balanced on only the left leg, on the shore of the Secondary Lagoon facing south-southwest and at the time of death. Birds, especially small songbirds, such as the Common Yellowthroat, tuck their feet and legs into breast feathers in order to reduce heat loss due to cold weather or falling temperatures (Podulka, S., R.W. Rohrbaugh, Jr., and R. Bonney, eds., *Handbook of Bird Biology*, Second Edition, Ithaca, NY: Cornell Laboratory of Ornithology, 2004, p. 9-17). In addition, the flared feathers of the right side of the head suggest that the bird was indeed cold and attempting to

keep itself warm by increasing the amount of air amongst the feathers. (Although raised wings are usually a means of cooling off, it is possible that the slightly raised wings were also part of the flaring or even possibly an artifact or residual of shivering, the final stage in a bird's fight to survive in cold weather.) Flaring or ruffling of feathers on additional parts of the body possibly was obliterated due to decomposition as well as compaction by snow, and thus not apparent. Nevertheless, some residual effect of such flaring in the form of disarrayed plumage and/or bent or broken feathers, should be apparent. The unkempt appearance of the carcass and hanging feathers from the right side indicate that the bird's feathers were likely more extensively flared and ruffled in an attempt to thermoregulate. These observations together with the otherwise relaxed posture of the bird and the orientation of the carcass indicate that the bird, collapsed on its right side (side with retracted leg) while facing south-southwest. Moreover, the fully retracted right leg and foot, which shows no hint of any attempt to maintain balance, strongly suggests that the bird died from hypothermia. Furthermore, because birds typically face the direction of the wind when resting in the open, it can be concluded that the wind was blowing from the south-southwest at the time of the bird's death. Although there were 12 days in January with south-southwest winds (January 2010 Monthly Summary for Detroit Metro Airport, *http://www.wunderground.com/history*), given the hypothesis that the bird migrated into the area behind a major cold front and died shortly thereafter, January 30 and 31 seem most likely. Thus, the bird possibly expired early on January 31, 2010 when winds were predominantly out of the south-southwest. Common Yellowthroats can lose considerable weight in migration; one study calculated loss of 0.158g/hr, or about 1.6% of body weight/hour flight time for a 10 g bird (Guzy, Michael J., *loc cit.*). Although weight loss cannot be determined even qualitatively in this case due to decomposition of the carcass, loss of weight during migration may possibly have compromised the bird's ability to thermoregulate.

Residual oil in the wastewater of the Secondary Lagoon appears not to have been a factor in the death of the Common Yellowthroat. It is significant that no oil or oily material was observed on the inner left breast and belly of the bird. It should be emphasized that the dark basal portion of the bird's breast and belly feathers initially gave the impression that these parts were darkly oiled, especially when the carcass was first retrieved and wet. However, later closer examination of the carcass showed the inner left breast and belly to be free of oil and significant soil. If the bird, while alive, had contacted oily wastewater or surfaces even on external portions of its plumage, such oily material would likely have been carried to inner portions of the bird's breast and belly feathers through both preening and flaring or ruffling of feathers. Moreover, it seems unlikely that the bird would bathe in wastewater because of the cold weather. Finally, the observation of oily residue on the portion of the right foot poking through the lower breast feathers, effectively dispels any argument that the bird's plumage was oiled but that precipitation subsequently washed the oil away after it died. Such an argument additionally is not supported by the observation of green algae on the left side of the carcass which is not underlain by oily material. Thus, it can safely be concluded that the probable Common Yellowthroat died of natural causes.

After its death the Common Yellowthroat contacted oily wastewater and oily sediments at the Secondary Lagoon by virtue of both the location and manner of the bird's death at the water's edge and by subsequent compaction by ice and snow as well as possibly wave action through wind fetch.

Interestingly, adverse weather conditions during migration is the single greatest cause of mortality in Common Yellowthroats (Guzy, Michael J., *loc cit.*). The carcass did not appear to have been subject to any avian or mammalian predation or scavenging.

Common Yellowthroat has regularly been recorded at the SRWWTP during many of the monthly wildlife surveys especially in the spring and summer, specifically at the bermed area. One individual was observed at the bermed area proper on December 14, 2006. Other fall observations of Common Yellowthroat at the bermed area include at least two individuals on September 23, 2002, and single individuals on September 12, 2005, September 6, 2006, September 21, 2007, September 10, 2008, and October 9, 2008. The last time Common Yellowthroat was recorded in 2009 at the SRWWTP was August 9, 2009 when three individuals were observed vocalizing from the bermed area and east outer slope of the Diked Lagoon. No Common Yellowthroat has ever been previously observed at the Secondary Lagoon.

The carcass was photographed through the spotting scope on April 12 immediately after verification. It was found in exactly the same place, cursorily examined, and photographed on April 13. Afterwards the carcass was immediately placed in a plastic bag, sealed, and then packed on ice inside a hard plastic cooler at 15:22. The bagged carcass was then transferred by the wildlife consultant to MEC Environmental Consulting; labeled as to species, date discovered, party that discovered the carcass, location, date and time recovered, party responsible for recovery, and name of party completing the tag; and deposited in a non-self-defrosting freezer under the company's federal and state salvage permits after further examination around 16:45.

If you have any questions regarding this report, please call me at (248) 585-3800. Thank you very much for selecting MEC Environmental Consulting to meet your wildlife management consulting needs.

Sincerely yours,

MEC ENVIRONMENTAL CONSULTING

Michael Carlson
Principal

enclosures (photographs)

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
April 12, 2010 - afternoon

#2: Northeast corner of Secondary Lagoon, looking northwest from approximately 25 feet south of the northeast corner of the lagoon. Note steep slopes. Avian carcass discovered to left of large dark object (rock) at water's edge.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
April 12, 2010 - afternoon

#3: Lower slope of northeast bank of Secondary Lagoon, looking west-northwest from approximately 25 feet south of the northeast corner of the lagoon. Note avian carcass immediately right of center. Telephoto lens used.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
April 12, 2010 - afternoon

#4: View through spotting scope at 20X of toe of slope of northeast bank of Secondary Lagoon. Note avian carcass: mostly decomposed head showing white skull, horn-colored bill, and green and brownish feathers.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
April 13, 2010 - afternoon

#5: Probable Common Yellowthroat carcass at water's edge of northeast side of Secondary Lagoon, left side, as found. Note significant decomposition; long tail; green alga-stained feathers; and quarter for size comparison.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
April 13, 2010 - afternoon

#6: Left side of probable Common Yellowthroat carcass at water's edge of Secondary Lagoon. Note extended left foot, white of skull, slightly raised and fanned left wing, particularly greater coverts; and quarter for size comparison.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
April 13, 2010 - afternoon

#7: Right side of probable Common Yellowthroat carcass at Secondary Lagoon. Note dark, oiled plumage; flared feathers on head; belly & vent feathers hanging out-of-place; and quarter for size comparison.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

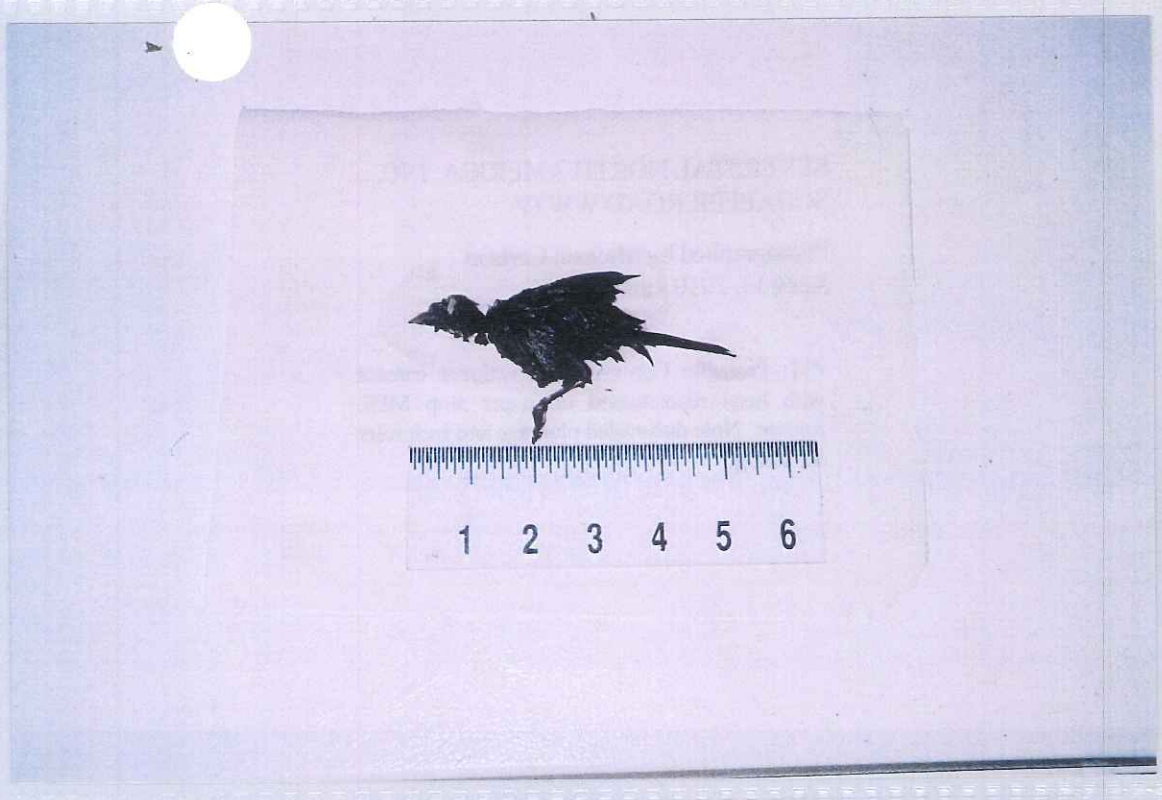
Photographed by Michael Carlson
April 13, 2010 - afternoon

#8: Left side view of probable Common Yellowthroat carcass at Secondary Lagoon. Note head fell off from handling; right foot protruding from breast; right & left foot soiled; stained feathers; & quarter for size comparison.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
April 13, 2010 - afternoon

#9: Probable Common Yellowthroat: right side of head, left side of body. Note flared head feathers; extended left leg and foot; retracted right foot; oily dirt on feet; long tail; rather long, stout bill; & quarter for size comparison.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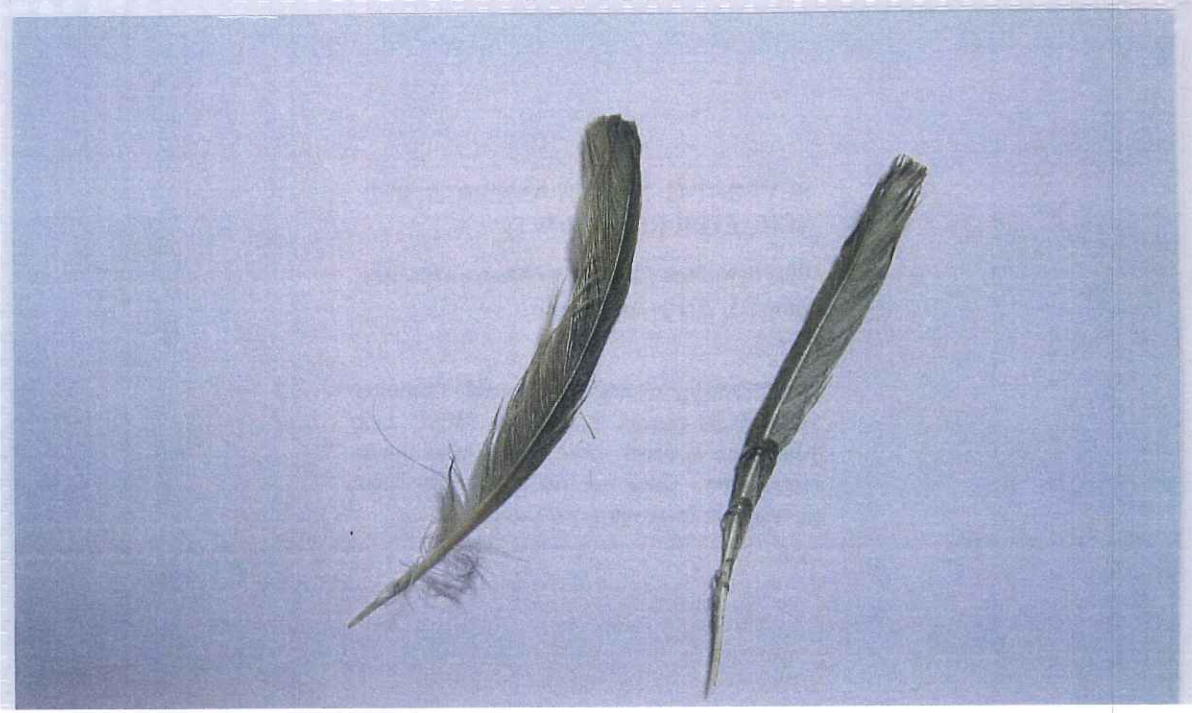


SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
April 13, 2010 - afternoon

#10: Left side posterior view of probable Common Yellowthroat carcass (head repositioned incorrectly) on lower slope of northeast bank of Secondary Lagoon. Note alga-stained plumage, long tail, and soiled feet.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

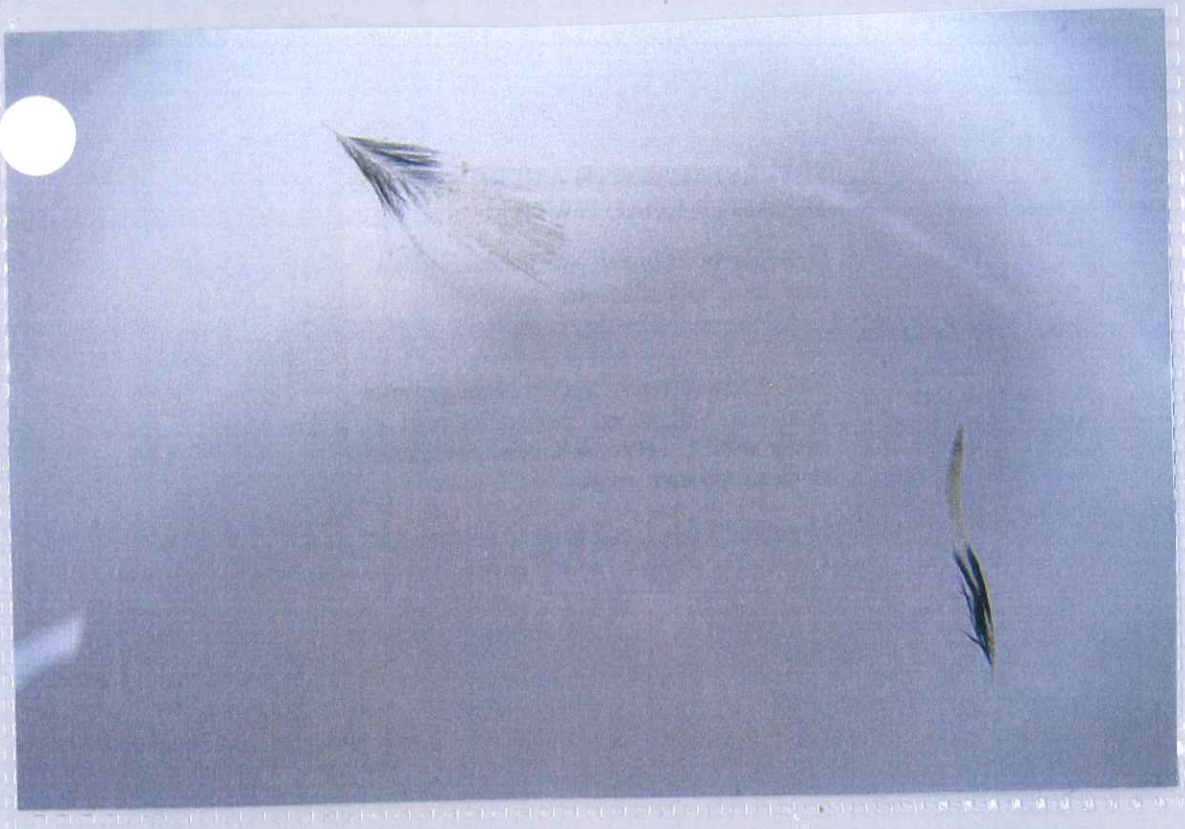
Photographed by Michael Carlson
April 13, 2010 - afternoon

#11: Probable Common Yellowthroat carcass with head repositioned on paper atop MEC freezer. Note disheveled plumage and inch ruler for sizing.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed (digital) by Michael Carlson
June 25, 2010 - afternoon

#12: Cleaned primaries from probable Common Yellowthroat carcass on paper at MEC. Left feather shows dorsal view; right feather shows ventral view. Color not true in photo; feathers are brown & brown-gray with no green hue.



SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed (digital) by Michael Carlson
June 25, 2010 - afternoon

#13: Cleaned breast feathers from probable Common Yellowthroat carcass in bowl of water at MEC. Note black basal one-third of feathers, and worn margins.

Severstal
International

MID 087 738431

November 16, 2009

Via Certified Mail – Return Receipt Requested

Diane M. Sharrow (LR-8J)
Enforcement Officer
RCRA Branch
Land and Chemicals Division
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3590

Subject: Report on carcass found at Schaefer Road Waste Water Treatment Plan

Reference: Severstal Dearborn, Administrative Order Docket No R7003-5-00-001

Dear Ms. Sharrow:

The enclosed September 3, 2009 report by our wildlife consultant details the discovery and the basis for identification of a probable young Eastern Cottontail.

If you are interested in further investigating the carcass, please let us know. We will store it until December 15, after which, space considerations dictate that the carcass should be disposed of.

Please contact me at (313) 845-3217 if you have questions on the information in this report.

Very truly yours,

James E. Earl, Manager
Environmental Engineering

Enclosure

cc: Mr. John Craig, MDEQ
Mr. Dan Sheill, US Fish & Wildlife

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MEC ENVIRONMENTAL CONSULTING

VIA COURIER

November 13, 2009

Mr. James E. Earl
Severstal North America, Inc.
14661 Rotunda Drive
Post Office Box 1699
Dearborn, MI 48120-1699

Subject: Schaefer Road Wastewater Treatment Plant – Carcass Report (P. N. 00330)

Dear Jim:

Please find herein the report on the carcass which was found by myself on September 3, 2009. This report was prepared in accordance with the procedures outlined in EPA's letters from Diane Sharrow to Don Windeler, dated December 14, 2001 and August 12, 2004. The carcass is a young Eastern Cottontail (*Sylvilagus floridanus*).

The carcass was found at approximately 13:39 on the sparsely vegetated lower portion of the middle slope of the slag-covered central east bank of the Secondary Lagoon approximately 35 feet southwest of the concrete pad at the southwest corner of the pumphouse. The well camouflaged carcass, despite being in the open, was discovered by scanning the slopes of the lagoon with 10 x 12 Leitz binoculars. Several greenbottle flies were observed on the carcass. It lay on its right side with the anterior generally pointed south and the posterior pointed north. The ventral side of the carcass faced east, and the dorsal side faced west. The carcass appeared to be whole, although no ears or tail were apparent when viewed through binoculars at the top of the east central bank approximately 15-20 feet to the east. Nevertheless, the head appeared to be relatively large and triangular-shaped like that of a rabbit. The carcass appeared to be no more than 10 inches in length.

The following observations were made while viewing the carcass through binoculars. The carcass appeared to be robust, not lean or emaciated. The fur appeared to be clean, dense, and in good condition. No oil or staining was visible. The underside of the mammal was cream-colored. The dorsal side appeared to be a light to medium brown intermixed with dark brown and some sepia at the sides. The fur on the animal's chest and left ribs appeared to be slightly disheveled or tousled as if windblown. Many hairs on the back left forequarter and midsection also appeared to be tousled.. (It should be noted that winds were not particularly strong. Winds were generally out of the north at

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less than 5 mph for most of the morning, and around 14:00 were out of the southeast at an estimated 3-8 mph.) The hind legs were almost fully extended and appeared to be close together, with the left hind foot crossed slightly over the right. The much shorter forelegs appeared to be further apart, the left flexed posteriorly at the wrist, and the right extended anteriorly. The back was slightly arched. The tail was extremely short and mostly white with dark brown laterally and dorsally. The head appeared to tilt ventrally and towards the right side. The forehead was dark brown. The left eye appeared to be blackish and slightly open. The nose appeared to be dark brown, and the nostrils flared. Most of the hairs at the top of the muzzle appear to be erect. The mouth or lips appeared to be tensed or pursed, suggestive of a pout.

The carcass was retrieved around 19:55 on September 3, 2009. No close-up in situ photographs were taken due to the very steep slope on which the carcass was discovered. No tracks or other sign were observed near the carcass. The following observations were made after the retrieved carcass was brought to the top of the slope and more closely examined, and then later after examination under more controlled conditions at MEC.

The carcass was very limp, and exhibited no *rigor mortis* whatsoever. There was no sign of decomposition, and no apparent odor of decay. No soil or oil was evident on the fur or feet of the carcass. Moreover, no petroleum odor was noted.

The carcass was approximately 5 inches in length from head to tail, excluding the hind legs. The dark brown, white-tipped tail was very short and inconspicuous. The ears appeared blackish and truncated. They were dry, hard stubs held relatively close to the back right side of the head and pointed generally posteriorly. The hairs on the top and back side of the head were blackish and disheveled- some appearing erect. What appeared to be a tiny spot of dried blood appeared to be present in the left nostril and on the left lower lip of the animal's mouth, which was closed. However, no visible wounds or broken bones were noted with the possible exception of the animal's ears. Many single, mostly dark hairs fell from the carcass during examination.

Photographs of the carcass were taken at the time of discovery and during subsequent detailed examination after retrieval. The carcass was recovered, placed in a small plastic bag, sealed, and then packed on ice inside a hard plastic cooler around 20:20. The bagged remains were then transferred by the wildlife consultant to MEC Environmental Consulting; where the carcass was closely examined under optimal light conditions. No necropsy was performed. The carcass was then re-bagged and deposited in a non-self-defrosting freezer around 00:10 on September 4, 2009 under the company's Scientific Collector's Permit No. 1223 issued by the Michigan Department of Natural Resources.

Based on the small size of the carcass, angular shape of the head, the very short white

tail, and long hind legs, the carcass was identified as a young Eastern Cottontail (*Sylvilagus floridanus*), likely 3-4 weeks of age.

A combination of several factors likely resulted in the death of the mammal. The ears of a 3-4 week Eastern Cottontail are normally erect and approximately one inch in length. The ears of the carcass, however, were drooped to one side and were approximately 0.4 to 0.7 inches in length. The tips of the ears appear to be roughly truncated and not rounded as though the ears were torn. The ears of young rabbits are paper-thin and vulnerable to tearing. When a *Sylvilagus* rabbit is aggressive, it often targets its opponent's ears. Cottontails are often observed with torn ears, or with large pieces of an ear missing. The subject cottontail possibly got into a scrap with one or more of its litter mates and damaged its ears. The ears of the carcass appear black, hard, and shriveled, supporting a hypothesis that the ears were damaged and had subsequently become infected. Young rabbits are particularly prone to infestations of ear mites which alone can cause infection. Ear mites often cause a rabbit's ears to droop, and can cause the ears to blacken. Ear mites can even cause death in neonatal cottontails.

The position and orientation of the carcass, including its slightly arched back, extended limbs, and left foot crossed over the right indicate that the animal was in the process of running when it died. Moreover, its discovery on a virtually unvegetated section of steep slope, in a location typically too open and devoid of cover for an Eastern Cottontail to spend any significant amount of time, corroborates this conclusion. Finally, the flared nostrils as well as the erect hairs and distortion of the muzzle, as well as the tousled fur on the chest and ribs, suggest that the animal was in a state of active exertion and possible anxiety. (It should be noted that an Eastern Cottontail only breathes through its nostrils, not its mouth.) These features also support the conclusion that the animal collapsed in mid-run, quite possibly as it was fleeing a potential predator. A Red-tailed Hawk was observed to be hunting over the SRWWTP west of the Secondary Lagoon around 07:51. The Red-tailed Hawk is one of the principal avian predators of Eastern Cottontail. However, it is doubtful that a hunting Red-tailed Hawk would have caused the rabbit to run from cover into the open. Around 11:00 the SRWWTP operator began mowing the tall grass immediately east of the east perimeter fence. It is quite possible that the mower came near to the resting place of the young rabbit, and that the sudden action and loud noise of the mower caused the rabbit to panic and flee through or under the east perimeter fence and down the east bank of the Secondary Lagoon. Given the rabbit's likely compromised health condition due to infection caused by ear mites and/or damaged ears, the panic and exertion probably resulted in cardiac arrest. Fatal cardiac arrest in rabbits can be brought on by stress or fear of being caught (L. Stocker, ed., *Practical Wildlife Care*, 2005, J. Wiley & Sons, pp. 216-223).

Death likely occurred between approximately 11:00 and 13:00. The facts that the carcass

was limp and showed no signs of *rigor mortis*, decomposition, or odor when retrieved support the conclusion that the time of death was only several hours prior to discovery. Moreover, although the carcass was camouflaged on the bank, it is likely that the wildlife consultant would have seen the carcass during the morning had it been present because he repeatedly passed by location, looking down the east slope of the Secondary Lagoon for birds and other wildlife.

All of these facts, together with the findings based on examination of the carcass discussed earlier, indicate that the young rabbit probably died from natural causes, specifically cardiac arrest likely exacerbated by infection. It should be emphasized that disease and predators as well as other factors, e.g., weather, cause significant mortality in Eastern Cottontail. Indeed, it is estimated that 85 percent of young Eastern Cottontails die within their first year, and that only 1 in 100 makes it to the third year (S. R. Craven, *Cottontail Rabbits*, University of Wisconsin-Madison Extension, February 2008).

The observed loss of hair from the carcass likely was natural and not related to its death. Young rabbits once weaned lose their dark neonatal hairs as this coat is replaced by mature fur (K. Laber-Laird, M. M. Swindle et al., eds., *Handbook of Rodent and Rabbit Medicine*, Elsevier, 1998).

Eastern Cottontail has been regularly observed at the SRWWTP since 2000 when wildlife surveys were first initiated.. In addition, sign in the form of scats and tracks have been found in a number of the wildlife surveys. The species has likely bred at the SRWWTP since at least 2000. This is the first time that a carcass of an Eastern Cottontail has been found at the SRWWTP.

If you have any questions regarding this report, please call me at (248) 585-3800. Thank you again for selecting MEC Environmental Consulting for your wildlife management consulting needs.

Sincerely yours,

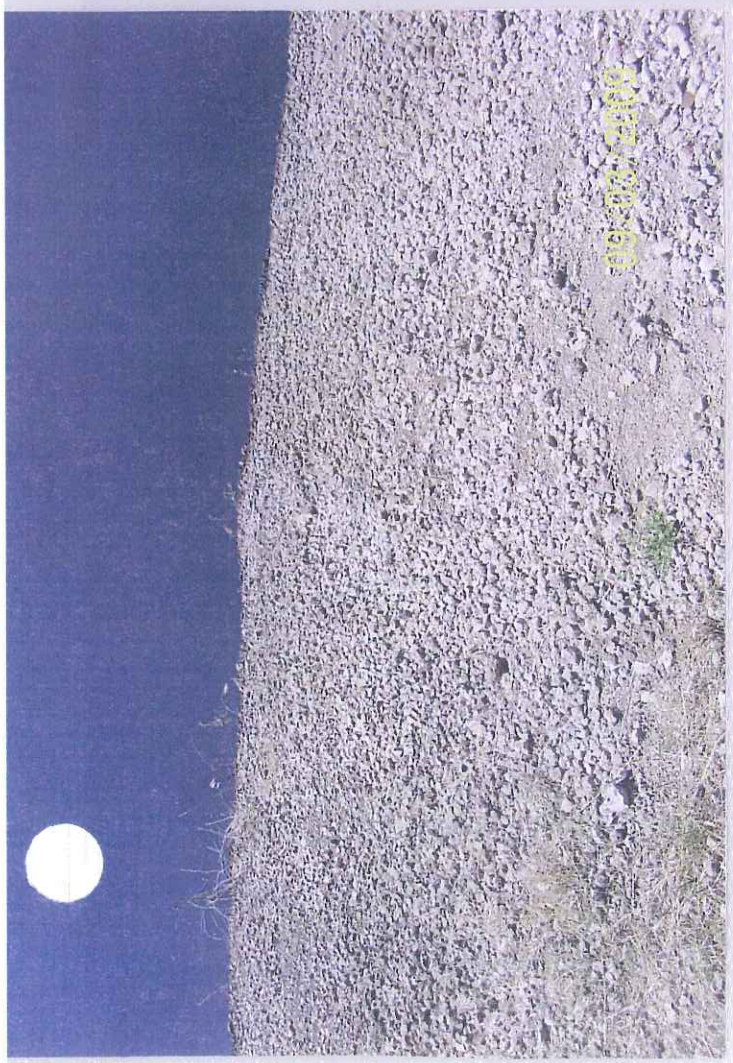
MEC ENVIRONMENTAL CONSULTING

Jessica Brown / for

Michael Carlson
Principal

enclosures (photographs)

09/03/2009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SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
September 03, 2009 - afternoon (digital)

#1: East central slope of Secondary Lagoon. looking south from approximately 15 feet south of the concrete pad at the southwest corner of the pumphouse. Note tiny pale brown spot at center of photo is Eastern Cottontail carcass.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
September 03, 2009 - afternoon (digital)

#2: East central slope of Secondary Lagoon. looking west from the top of the east bank approximately 35 feet south of the pumphouse concrete pad. Note whitish mass near center is young Eastern Cottontail carcass.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
September 03, 2009 - afternoon (digital)

#3: East central slope of Secondary Lagoon, looking west from approximately 30 feet southwest of the pumphouse concrete pad. Note extended limbs and slightly arched back of camouflaged young Eastern Cottontail carcass.

09/03/2009

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SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
September 03, 2009 - afternoon (digital)

#4: Close-up of young Eastern Cottontail carcass as found. Note tousled fur, large triangular head, pursed muzzle, extended limbs, slightly arched back, and white tail. Also note how carcass is camouflaged in slag of slope.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
September 03, 2009 - afternoon (digital)

#5: Eastern Cottontail carcass on east slope of Secondary Lagoon, looking northwest from approximately 50 feet southwest of the concrete pad. Note almost fully extended hind legs and fore legs, open eye, & apparent absence of ears.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
September 03, 2009 - afternoon (digital)

#6: Right side of young Eastern Cottontail carcass on lined note paper immediately after retrieval. Note small size, almost fully extended hind legs, very short tail, dark brown-black on top of head, and apparent absence of ears.

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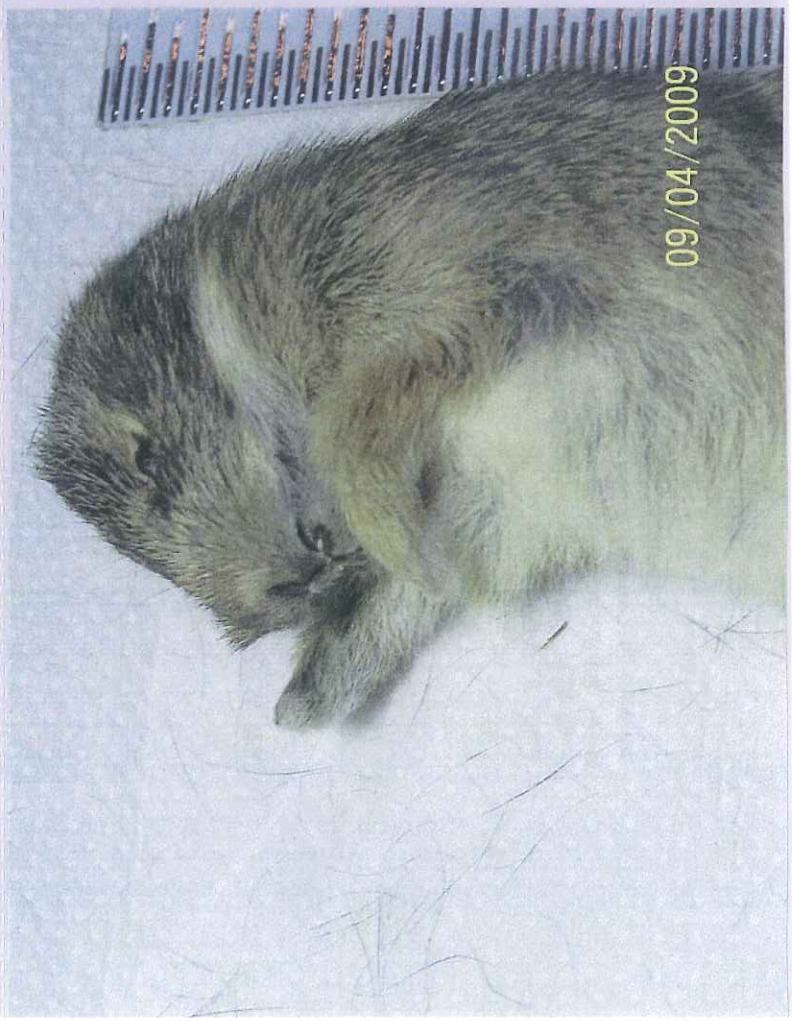
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SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
September 03, 2009 - afternoon (digital)

#7: Close-up of anterior right side of young Eastern Cottontail carcass immediately after retrieval. Note blackish truncated ears approximately the length of a one space on the paper (= 0.38 inches). Photo out-of-focus.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
September 04, 2009 - morning (digital)

#8: Left side of young Eastern Cottontail carcass on examination table at MEC. Note clean and dense fur, erect muzzle hairs, flexed left fore foot, extended right fore leg, single dark hairs on toweling, and inch ruler for scale.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
September 04, 2009 - morning (digital)

#9: Close-up of anterior left side of young Eastern Cottontail carcass at MEC. Note flared nostril, erect muzzle hairs, pursed lips. flexed left fore foot, extended right fore leg, clean fur, and single dark hairs on toweling.

09/04/2009

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
September 04, 2009 - morning (digital)

#10: Close-up of posterior left side of young Eastern Cottontail carcass at MEC. Note clean and dense fur; long, extended hind legs; short white tail with blackish side; and single dark hairs on toweling.

MID 087738431

MEC ENVIRONMENTAL CONSULTING

VIA USPS

November 5, 2008

Mr. James E. Earl
Severstal North America, Inc.
14661 Rotunda Drive
Post Office Box 1699
Dearborn, MI 48120-1699

Subject: Schaefer Road Wastewater Treatment Plant – Carcass Report (P. N. 00330)

Dear Jim:

Please find herein the report on the carcass which was found by myself on September 10, 2008 at approximately 13:40. This report was prepared in accordance with the procedures outlined in EPA's letters from Diane Sharrow to Don Windeler, dated December 14, 2001 and August 12, 2004. The carcass is a young Woodchuck (*Marmota monax*).

The carcass was found at the west shoulder of the road east of the East Sludge Pond approximately 3 feet southeast of the stop sign, which is located east of the northeast corner of the East Sludge Pond. The carcass, which resembled a small lump of coal, lay dorsal side up with the anterior generally pointed south-southeast and the posterior pointed north. A small fly was on the carcass when discovered. The carcass, which appeared to be severely decomposed, was approximately 2.5 inches in length. When the carcass was flipped over to reveal the ventral side, two orange-yellow, slightly convex upper incisors, approximately 3-4 millimeters in length, were conspicuous.

Upon closer examination, the carcass consisted mostly of fur and skeleton. A slight odor of decay was noted. All organs and most of the posterior, including the hind legs and tail, were missing, creating a cavity on the right side of the carcass. The fur of the carcass, predominantly black in color, with minor hues of dark gray, brown, and chestnut, was dry and weathered. Some of the fur on the back of the carcass appeared to be soiled with dirt and a material which appeared to be slightly tacky and grimy. No petroleum odor was noted. The fur appeared haphazard, disheveled, and matted.

The head of the carcass appeared to be more elliptically shaped than round, and longer than it was wide. The crown and back of the head appeared to be somewhat flattened. The skull was exposed at the rear of the right side of the head, and was flat black in color.

1003 AMELIA AVENUE ROYAL OAK, MICHIGAN 48073-2704
VOICE: (248) 585-3800 mecec@comcast.net FAX: (248) 585-8404

Ears were not apparent. Whiskers, which were silverish in color, were somewhat disarrayed and were almost the length of the head. Eyes and nose were not apparent. The forehead was slightly rounded and not sloped. The head had no pointed or significantly protruding snout.

The forelegs were extended perpendicular to the body. The left foreleg was flexed at the elbow with the radius and ulna raised towards the head, and the wrist flexed slightly downwards away from the head. The right foreleg was similarly oriented but slightly lower than the left and was flexed downwards (away from the head) more at the wrist - almost at a right angle. The forelegs and feet were hairy. Each foot was comprised of four digits- the fourth almost as long as the other three. Each of these digits was tipped with a slightly decurved talon. A very tiny fifth or thumb digit was noted which had a straight talon. Each digit gradually tapered distally.

The back of the animal was significantly arched such that the carcass was semicircular. No viscera were present. Moreover, no significant bones were present posterior of the front legs. Indeed, the rest of the carcass basically consisted of a dorsal shell of hardened skin and fur. The ventral portion of the skin and fur posterior of the forelegs was missing.

No tracks or other sign were observed near the carcass.

Photographs of the carcass were taken at the time of discovery and during subsequent examination. The carcass was retrieved by the wildlife consultant around 22:30. The carcass was placed in a plastic bag, sealed, and then packed on ice inside a hard plastic cooler around 22:40. The bagged remains were then transferred by the wildlife consultant to MEC Environmental Consulting; and deposited in a non-self-defrosting freezer under the company's state Scientific Collector's Permit No. 1223.

Based on the shape of the head, lack of conspicuous snout and ears, shape of the forefoot and digits, and lack of a decurved talon on the tiny fifth digit, the carcass was identified as a Woodchuck (*Marmota monax*). The coloration of the upper incisors are normally yellowish ivory in Woodchuck, not orange-yellow. However, the coloration of the baby Woodchuck upper incisors may be darker yellow or the coloration observed an anomaly. Regardless, incisor coloration is ignored here in view of the other characteristics of the carcass supporting identification of the animal as a Woodchuck. Based on the small size of the carcass and fur coloration, the animal was about 2-4 weeks old. Woodchucks develop black hair at the age of two weeks but typically do not crawl until 4 weeks old.

Woodchucks normally are born by mid- to late May and are weaned by late June or early July. Thus the time of death was likely late June 2008. There are two active Woodchuck

burrows within reasonable proximity of where the carcass was discovered: one approximately 80 feet northwest and approximately 800 feet north.

The absence of the posterior portion of the animal, together with the arched back, the display of upper incisors, the extended and raised forelegs, and disheveled fur, strongly suggests that the Woodchuck was killed by an avian or mammalian predator, possibly a Norway Rat. Red Fox, which is present at the SRWWTP, is the principal predator of Woodchuck. Because both the Norway Rat and Red Fox often cache food items, the carcass may not have been in the spot where it was discovered since late June. The soiled and matted condition of the fur lends credence to the hypothesis of caching and transport. Asphalt emulsion, frequently used as a dust suppressant on the SRWWTP dirt roads over the summer months, probably got onto the carcass as evidenced from black coloration of the exposed skull and slightly tacky, grimy material on dorsal portions of the fur. This contact with the asphalt emulsion may have occurred indirectly in the process of transfer to or from a food cache or directly to the carcass due to its discovery location being very close to road surfaces routinely sprayed with dust suppressant. Such contact, however, occurred after death because the exposed skull is black in coloration.

The typical life-span of an adult Woodchuck in the wild is 3-4 years; the maximum life span is 6 years. Mortality of young Woodchuck is likely significantly greater.

Adult Woodchucks have been observed regularly at the SRWWTP for years. The species has presumably bred at the SRWWTP since at least 2000 when wildlife surveys were first initiated. No Woodchuck has ever been observed in, on, or immediately adjacent to any of the SRWWTP treatment ponds and lagoons during wildlife surveys conducted at the facility.

If you have any questions regarding this report, please call me at (248) 585-3800. Thank you again for selecting MEC Environmental Consulting for your wildlife management consulting needs.

Sincerely yours,

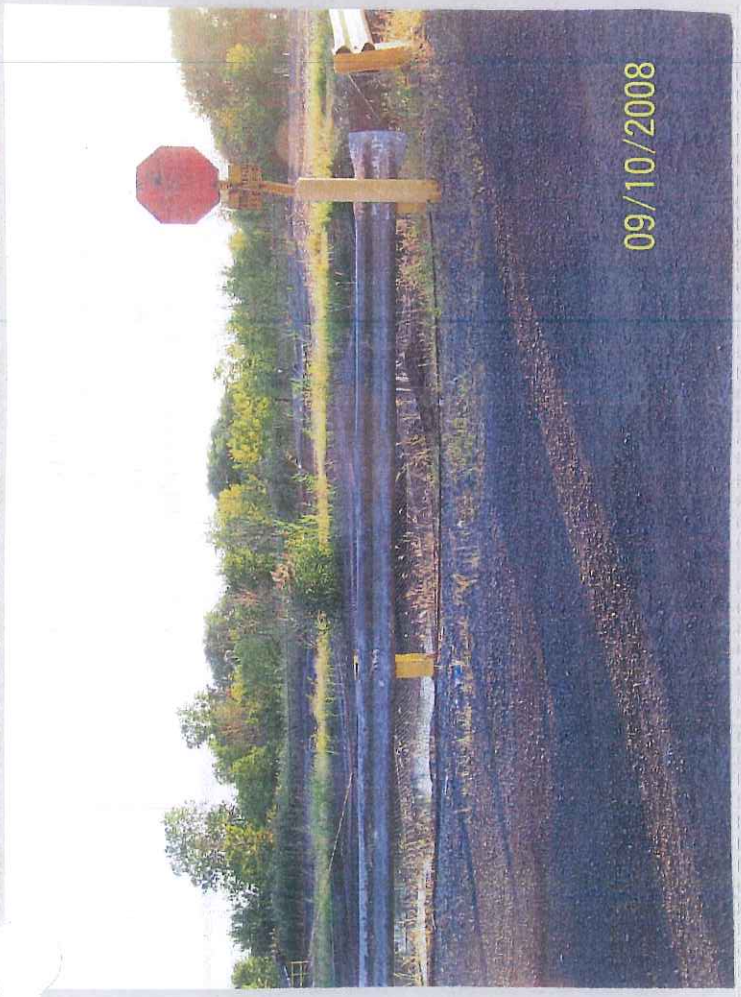
MEC ENVIRONMENTAL CONSULTING

Jessica Brown / for

Michael Carlson
Principal

enclosures (photographs)

09/10/2008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SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
September 10, 2008 - afternoon (digital)

#1: Road east of East Sludge Pond, looking south from approximately 6 feet southwest of the door to the SRWWTP Office. Note Stop sign at center, East Sludge Pond behind parked truck, and south clarifier (far left).

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
September 10, 2008 - afternoon (digital)

#2: North end of East Sludge Pond, looking west-southwest from middle of entrance road approximately 20 feet south of south clarifier. Note Stop sign. Baby Woodchuck carcass is approximately 3 feet to left of Stop sign.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
September 10, 2008 - afternoon (film)

#3: Ground at shoulder of road east of East Sludge Pond approximately 3 feet southeast of Stop sign, looking west from same. Note dark lump at center is dorsal side of baby Woodchuck carcass as-found; inch ruler for scale.

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SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
September 10, 2008 - afternoon (film)

#4: Ground at shoulder of road east of East Sludge Pond approximately 3 feet southeast of Stop sign, looking west & down from same. Note dark lump near center is ventral side of baby Woodchuck carcass; inch ruler for scale.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
September 10, 2008 - afternoon (film)

#5: Ground at shoulder of road east of East Sludge Pond approximately 3 feet southeast of Stop sign, looking west & down from same. Note dark lump near center is right side of baby Woodchuck carcass; inch ruler for scale.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
September 10, 2008 - afternoon (film)

#6: Ground at shoulder of road east of East Sludge Pond approximately 3 feet southeast of Stop sign, looking west & down from same. Note dark lump near center is left side of baby Woodchuck carcass; inch ruler for scale.

09/10/2008

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SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
September 10, 2008 - afternoon (digital)

#7: Right side of baby woodchuck carcass in gloved hand of wildlife consultant. Note dark yellow upper incisors, long whiskers, extended forelegs, matted fur, arched back, and visceral cavity near back.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
September 10, 2008 - afternoon (digital)

#8: Left side of baby woodchuck carcass in gloved hand of wildlife consultant. Photo is slightly overexposed. Note upper incisors (bottom), forelegs raised, disheveled and matted fur, as well as chestnut-colored hair.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
September 10, 2008 - afternoon (digital)

#9: Close-up of baby woodchuck carcass in gloved hand of wildlife consultant. Note upper two-thirds of photo is slightly overexposed. Note upper incisors, whiskers, forelegs extended, as well as disheveled and matted fur.

09/10/2008

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
September 10, 2008 - afternoon (digital)

#10: Close-up of anterior portion of baby woodchuck carcass in gloved hand of wildlife consultant. Photo is overexposed. Note flattish head, upper incisors, whiskers, raised forelegs, tapered digits, and disheveled and matted fur.

MID 087 738 431

SeverStal
North America, Inc.

14661 Rotunda Drive
P.O. Box 1699
Dearborn, MI 48120-1699

July 28, 2008

Via Certified Mail – Return Receipt Requested

Diane M. Sharrow (LR-8J)
Enforcement Officer
RCRA Branch
Land and Chemicals Division
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3590

Subject: Report on carcasses found at Schaefer Road Waste Water Treatment Plan

Reference: Severstal North America, Inc., Administrative Order Docket No R7003-5-00-001

Dear Ms. Sharrow:

The enclosed May 23, 2008 and June 23, 2008 reports by our wildlife consultant detail the discoveries and the basis for identifications of the probable Common Grackles.

If you are interested in further investigating the carcasses, please let us know. We will store them until September 15, after which, space considerations dictate that the carcasses should be disposed of.

Please contact me at (313) 323-1260 if you have questions on the information in these reports.

Very truly yours,

Lan Trinh
Environmental Engineer

Enclosures

cc: Mr. John Craig, MDEQ
Mr. Dan Sheill, US Fish & Wildlife

MEC ENVIRONMENTAL CONSULTING

July 17, 2008

Mr. James E. Earl
Severstal North America, Inc.
3001 Miller Road – Room 2110 ROB
Post Office Box 1631
Dearborn, MI 48121-1631

Subject: Schaefer Road Wastewater Treatment Plant – Carcass Report (P. N. 00330)

Dear Jim:

Please find herein the report on the carcass which was found by the wildlife consultant on May 23, 2008 at 18:35. This report was prepared in accordance with the procedures outlined in EPA's letters from Diane Sharrow to Don Windeler, dated December 14, 2001 and August 12, 2004. The carcass is a nestling, probably that of a Common Grackle (*Quiscalus quiscula*).

The carcass was found at the top of the west central bank of the Diked Lagoon approximately 40 feet south of the northwest corner of the Diked Lagoon. The carcass was approximately one foot east and 8 feet west of the west shoulder of the road west of the Diked Lagoon and the water's edge of the Diked Lagoon, respectively. The bird lay with its dorsal side against the ground with its wings open, and with both its bill and feet, which were held tightly against the belly, pointed south. The carcass, which was flattened, possibly from being stepped on, showed rigor mortis and significant decomposition but no evidence of staining or discoloration, or matted feathers. No chemical or petroleum odor was noted. A very slight odor of decay was apparent when within approximately six inches of the carcass.

The nestling was mostly covered with natal down and pin feathers: tiny blue-gray epitrichia and with even smaller emerging dark gray-brown feathers on the ventral side and mostly milk chocolate brown down on the dorsal side. The wings consisted of relatively long (varying from approximately 11 to 15 mm) pale blue-gray epitrichia (feather sheaths) with emerging dark brown feathers, which were approximately one-third the length of the feather sheaths. The epitrichia and feathers of both wings, which extended perpendicular to the body, were splayed and disheveled. The left wing appeared to be dislocated such that the proximal end was over the dorsal midline of the neck, and the distal end was over the rump of the bird. The bill appeared to be relatively long (slightly longer in length than the length of the head), broad at the base, relatively thick and stout, and bluntly tipped. The distal end of the bill was slightly opened. The ventral portion of the bill (lower mandible) appeared to be straw-colored. The dorsal bill (upper mandible) appeared to be darkish gray-brown, slightly soiled, and broken at the tip. The bill was pried open by the wildlife consultant during the examination. The gape (inside of the mouth) and gape flanges appear to be a pale yellow. No eyes were present; the orbitals were dark gray in color. The ear and neck appeared shriveled. The feet and legs were straw-colored with pale brown patches. The tibiotarsal-tarsometatarsal joints were conspicuous and straw-colored tinged with pink. Both the joints were positioned essentially in parallel caudal to the vent. The distal

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ends of both tibiotarsi were visible. The left tarsometatarsus appeared to be twisted, and the ventral side of the left foot was tangent to the left flank, the talons pointed towards the bird's flank. The dorsal side of the right foot was tangent to the right flank, and two toes were turned slightly such that the talons were pointed towards the belly of the bird. The toes of both feet were not fully extended but curled slightly except for the right hallux. Although the tarsometatarsus and phalanges were clearly visible, the podotheca (covering sheath) was still relatively intact. The proximal (dorsal) right podotheca appeared to be slightly scutellate, and the distal (ventral) right podotheca appeared to be booted. Flesh and most tissue was absent dorsally with little distinguishable features. Indeed, the dorsal portion of the carcass appeared to be rather concave.

Based on the presence of a relatively long and thick bill, the presence of a scutellate-booted podotheca, as well as presence of developing dark brown contour feathers remiges which appeared to be the same color and shade as the contour feathers of the juvenile Common Grackle, the carcass was identified as a probable Common Grackle. The podotheca of juvenile Common Grackle appears to be scutellate-booted: scutellate on the dorsal (top) side and booted on the ventral (bottom) side (Carla Dove, Ornithology Division of Smithsonian Institute, personal communication).

Although nestling gape coloration of Common Grackle is reportedly red, gape coloration can vary, and is thought to be a function of diet, specifically consumption of carotenoids (Meyerstein, F. W., and A.P. Moller, *Lifetime: A Unified Study of Life*, Paris: Pierre & Marie Curie University, September 2001, p. 148). (The gape color of nestlings of most species is red, which likely commands the attention of parent birds bringing the nestlings food.) Moreover, in sick Barn Swallow nestlings the gape color fades from red to dull yellow because carotenoid pigments are diverted to the immune system function (Saino, N. P. Ninni, et al., "Better Red than Dead: Carotenoid-based mouth coloration reveals infection in barn swallow nestlings", *Proceedings of the Royal Society of London B Biological Sciences*, 2000, v. 267, pp. 57-61).

The nestling was estimated to be approximately 6-8 days old based on the amount of pin feathers on the body and remiges emerging from epitrichia. It should be emphasized that a nestling of this age cannot adequately thermo regulate itself and must be brooded by a parent bird in order to maintain an appropriate temperature and survive. Based on the significant decomposition of the dorsal portion of the carcass and only a slight odor of decay, it appears that the nestling likely had died approximately five to seven days prior to its discovery.

The small size of the carcass as well as the significant decomposition and degree of *rigor mortis* precluded a definitive examination in order to postulate cause of death. It is possible that the nestling fell out of its nest, subsequently dying of hypothermia. It is equally possible that the nestling was killed or carried off from the nest by a predator. The dislocated left wing could possibly have been the result of either scenario. Finally, the pale yellow gape possibly suggests that the nestling was ill (Saino et al,. *loc cit.*) or died and was removed from the nest. However, red carotenoid pigment in the nestling's mouth may have naturally decayed to a pale yellow as a result of oxidation and the effects of weather following the bird's death.

Inclement weather caused the loss of 24% of young Common Grackles in a Wisconsin study (Peer, B. D., and E. K. Bollinger, "Common Grackle" in *The Birds of North America Online, No. 271*, Ithaca, NY: Cornell Laboratory of Ornithology, 1997). Based on another study involving Common Grackle, 8% of nestlings died due to falling out of the nest (*Ibid.*). Predation is responsible for 43% mortality in Common Grackle nestlings (*Ibid.*).

Thus, it can safely be concluded that the probable Common Grackle nestling died of natural causes.

Common Grackle has routinely been recorded at the SRWWTP during most of the monthly wildlife surveys. The species has nested, albeit unsuccessfully, for two years in the life preserver cabinet at the skimmer on the southwest side of the Secondary Lagoon near the junction of the diagonal booms. In addition, hundreds of individuals typically night roost in the bermed area during much of the year. Given the large number of this species that roosts in the bermed area, it is probable that at least one pair nests there. A nestling believed to be a Common Grackle was found only approximately 30-50 feet to the southwest on May 18, 2005.

The carcass was digitally photographed in place and from different angles on May 23 immediately after its discovery. The carcass was found in exactly the same place, cursorily examined, and photographed using both digital and film media for select features on May 24 around 16:00. (The photographs from film were not usable because they were badly out-of-focus.) The carcass was then immediately placed in a plastic bag, sealed, and then packed on ice inside a hard plastic cooler around 16:45. The bagged carcass was then transferred by the wildlife consultant to MEC Environmental Consulting; labeled as to species, date discovered, party that discovered the carcass, location, date and time recovered, party responsible for recovery, and name of party completing the tag; and deposited in a non-self-defrosting freezer under the company's federal and state salvage permits.

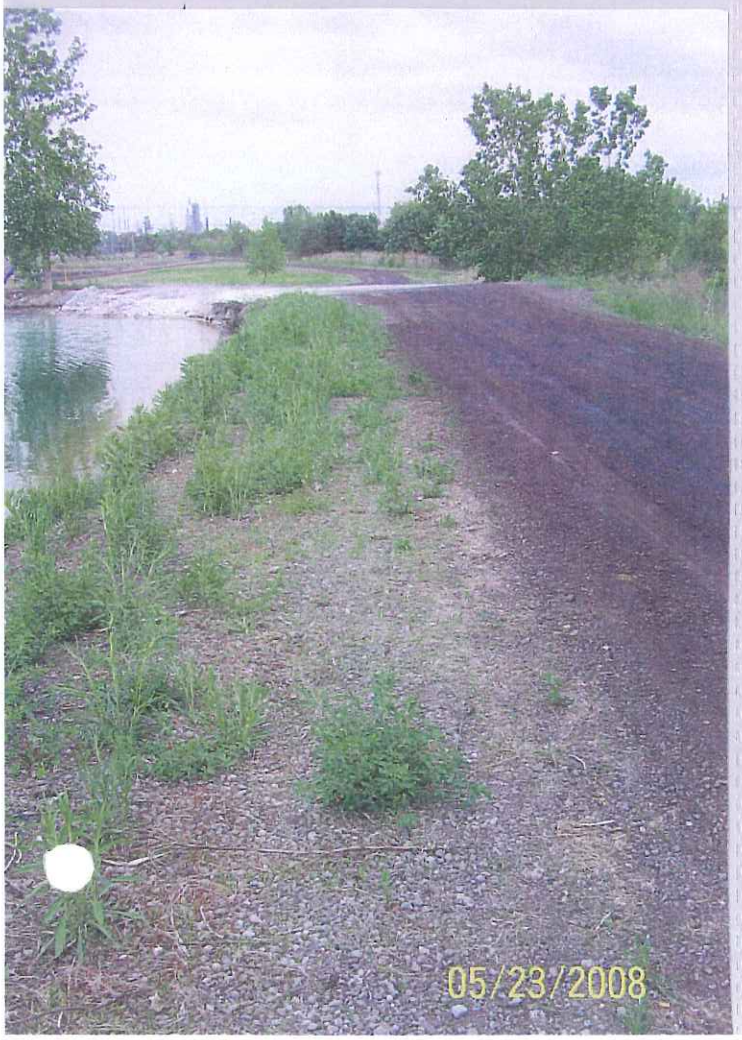
If you have any questions regarding this report, please call me at (248) 585-3800. Thank you again for selecting MEC Environmental Consulting for your wildlife management consulting needs.

Sincerely yours,

MEC ENVIRONMENTAL CONSULTING
Jessica Brown/for
Michael Carlson
Principal

enclosures (photographs)

05/23/2008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SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 23, 2008 - afternoon

#1: Top of west bank of Diked Lagoon and access road west of Diked Lagoon, looking east-southeast from approximately 40 feet south of the northwest corner of the lagoon. Note open area where the carcass was discovered.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 23, 2008 - afternoon

#2: Top of west bank of Diked Lagoon and access road west of Diked Lagoon, looking south from approximately 30 feet south of the northwest corner of the lagoon. Note open area where the carcass was discovered.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 23, 2008 - afternoon

#3: Probable Common Grackle nestling carcass as found at top of west Diked Lagoon bank, looking south. Note blue-gray epitrichia, emerging dark brown feathers, pin feathers, long & broad bill. Quarter for scale. Ventral view.

05/23/2008

05/23/2008

05/23/2008

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 24, 2008 - afternoon

#4: Probable Common Grackle nestling carcass at top of west Diked Lagoon bank, looking south. Note brown natal down, pin feathers, emerging dark brown feathers, Broad-based bill. Quarter for scale. Dorsal view.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 23, 2008 - afternoon

#5: Ventral view of probable Common Grackle nestling carcass propped up on tail at top of west Diked Lagoon bank Note scutellate-booted right podotheca, blue-gray epitrichia, emerging dark brown feathers, and yellow gape flange.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 23, 2008 - afternoon

#6: Dorsal view of probable Common Grackle nestling carcass propped up on tail at top of west Diked Lagoon bank Note dislocated left wing, brown natal down, emerging dark brown feathers, relatively long bill, and pin feathers.

05/23/2008

05/23/2008

05/24/2008

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 23, 2008 - afternoon

#7: Right side view of probable Common Grackle nestling carcass propped up on tail at top of west Diked Lagoon bank Note partially open bill, dark orbital, ear, blue-gray epitrichia, emerging dark brown feathers, and pin feathers.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 24, 2008 - afternoon

#8: Left side view of probable Common Grackle nestling carcass propped up on tail at top of west Diked Lagoon bank Note brown natal down, disheveled and dislocated left wing, and pin feathers.

SEVERSTAL NORTH AMERICA, INC.
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Photographed by Michael Carlson
May 24, 2008 - afternoon

#9: Probable Common Grackle nestling carcass in gloved hand of wildlife consultant, showing opened bill and roof of mouth. Note tongue and pale yellow inside mouth, natal down on head, and dislocated left wing.

05/24/2008

05/24/2008

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 23, 2008 - afternoon

#11: Closeup of probable Common Grackle nestling carcass in gloved hand of wildlife consultant, showing opened bill and roof of mouth. Note pale yellow inside mouth, natal down on head, and dislocated left wing.

MEC ENVIRONMENTAL CONSULTING

July 12, 2008

Mr. James E. Earl
Severstal North America, Inc.
14661 Rotunda Drive
P.O. Box 1699
Dearborn, MI 48120-1699

Subject: Schaefer Road Wastewater Treatment Plant – Carcass Report (P. N. 00330)

Dear Jim:

Please find herein the report on the carcass which was found by the wildlife consultant on June 23, 2008 at 08:37. This report was prepared in accordance with the procedures outlined in EPA's letters from Diane Sharrow to Don Windeler, dated December 14, 2001 and August 12, 2004. The carcass is believed to be an immature Common Grackle (*Quiscalus quiscula*).

The carcass was found in the Diked Lagoon approximately 15 feet south of the northeast corner of the Diked Lagoon and approximately 2 feet west of the water's edge. The carcass was partially submerged in dredged material which had been pumped from the Primary Lagoon to the east side of the Diked Lagoon by the dredging contractor. The bird lay with its ventral side against the surface of the Diked Lagoon. Only portions of its back, wings, and tail were visible. The visible parts of the carcass were covered with a dark brown to blackish material which appeared to be shiny and viscous. The visible feathers, although generally neatly arranged, appeared to be matted. The tail of the bird was pointed east-southeast. The anterior of the carcass pointed west-northwest.

The tail of the carcass appeared to be long. The rectrices (tail feathers) were rather neatly arranged but splayed. The calami (bases of the shaft) of the tail feathers were long and milk white in color, contrasting sharply with the rest of the carcass. The proximal ends of the calami appeared to be only loosely connected to the bird's body, and the uropygial gland there was visible and also appeared to be white. The angle between the distal end of the calami and the surface of the Diked Lagoon appeared to be approximately 35-45 degrees. Only the center part of the rump and back was visible above the surface. Both wings were open and extended, however only the secondaries were visible above the surface of the Diked Lagoon. The visible remiges appeared to be neat and not rumpled. The feathers were spread and oriented almost as if the bird were in flight. Indeed, the wings appeared to be slightly arched as if in a down stroke position. The primaries of both wings were not visible. Similarly the head, neck, as well as the anterior and sides of the lower back and most of the rump of the bird were not visible and appeared to be submerged in dredged material.

The wildlife consultant did not have a camera at the time of the discovery. (The wildlife consultant was conducting the monthly wildlife survey, and carcass/sign searches were

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typically done in the afternoon once the five-minute bird observations were completed in the morning.) Moreover, the carcass could not be safely retrieved at the time, and the wildlife consultant advised Severstal personnel that he would retrieve the carcass either later that day or the following day.

Several hours later the wildlife consultant noticed that the carcass was no longer visible, and that only a few loose rectrices remained in its place. These feathers were photographed in-place using a film camera. Since the discovery of the carcass, watery dredge material had continuously been pumped into the Diked Lagoon, although from a point at the north central side of the lagoon, approximately 300 feet northwest of the carcass.

The remains of the carcass, viz., approximately six rectrices, were retrieved by the wildlife consultant on June 24, 2008 at 15:30 using a 2.5 foot long plastic grabber. The rest of the carcass could not be found. Nevertheless an unsuccessful attempt was made to locate and retrieve the rest of the carcass using a 2.5 to 4.0 foot telescoping fishing net.

As soon as they were retrieved the rectrices, which were significantly matted, were placed in a plastic bag, sealed, and then packed on ice inside a hard plastic cooler around 15:45. The bagged remains were then transferred by the wildlife consultant to MEC Environmental Consulting; and deposited in a non-self-defrosting freezer under the company's federal and state salvage permits.

Before placement in the freezer one feather was removed. This rectrix was cleaned in a solution of tap water and Dawn® dish detergent, air dried, and examined. The cleaned feather was medium to dark grayish brown in color, and approximately 4.75 inches in length The distal end of the feather was roundly pointed. The distal 1.5 inches of the rachis was very close to the edge of the outer vane. The rachis was dark brown to black in color, and grooved ventrally except for the distal 0.25 inches. The calamus, almost one inch in length. was a translucent white with narrow opaque white bands. The feather showed no signs of damage. No wear was apparent at the margins of the feather which were noticeably paler than the rest of the vane, especially on the inner vane. The feather was digitally photographed, placed in a separate plastic bag, and then, together with the bag of rectrices earlier frozen, was placed into a third bag which was labeled as to species, date discovered, party that discovered the carcass, location, date and time recovered, party responsible for recovery, and name of party completing the tag.

Based on the appearance of the relatively long tail, and the dark gray-brown color of the cleaned rectrix, which appeared to be the same color and shade as the contour feathers of the immature Common Grackle, the carcass was identified as a probable immature Common Grackle (*Quiscalus quiscula*). The paler margins of the feather support the identification of immature Common Grackle, formerly known as Purple Grackle (Bent, A.C., "Purple Grackle" in U.S. National Museum Bulletin 211, Smithsonian Institution, 1958, pp. 374-390). Finally, the rounded distal tip and unworn margins of the cleaned rectrix support the

identification as a hatch year or immature bird (Pyle, P. *Identification Guide to North American Birds- Part I*, Bolinas, CA: Slate Creek Press, 1997, p. 21).

Obviously the inability to examine the complete carcass precludes any definitive determination of the cause of death. The bird's death likely occurred sometime between Friday, June 20 and Sunday, June 22.

Common Grackle has routinely been recorded at the SRWWTP during most of the monthly wildlife surveys. The species has nested, albeit unsuccessfully, for two years in the life preserver cabinet at the skimmer on the southwest side of the Secondary Lagoon near the junction of the diagonal booms. In addition, hundreds of individuals typically night roost in the bermed area during much of the year, and were observed prior to sunrise and at sunset in the June survey.

Within 24 hours of the discovery, SRWWTP operators installed additional deterrents, specifically Mylar ribbons, over the narrow littoral area at the east side of the Diked Lagoon. Additional deterrents should be installed at the Diked Lagoon prior to the commencement of any future dredging operations. In addition, the outlet end of the dredging pipe should be regularly moved along the edge of the Diked Lagoon to prevent the formation of bars or littoral areas composed of dredged material.

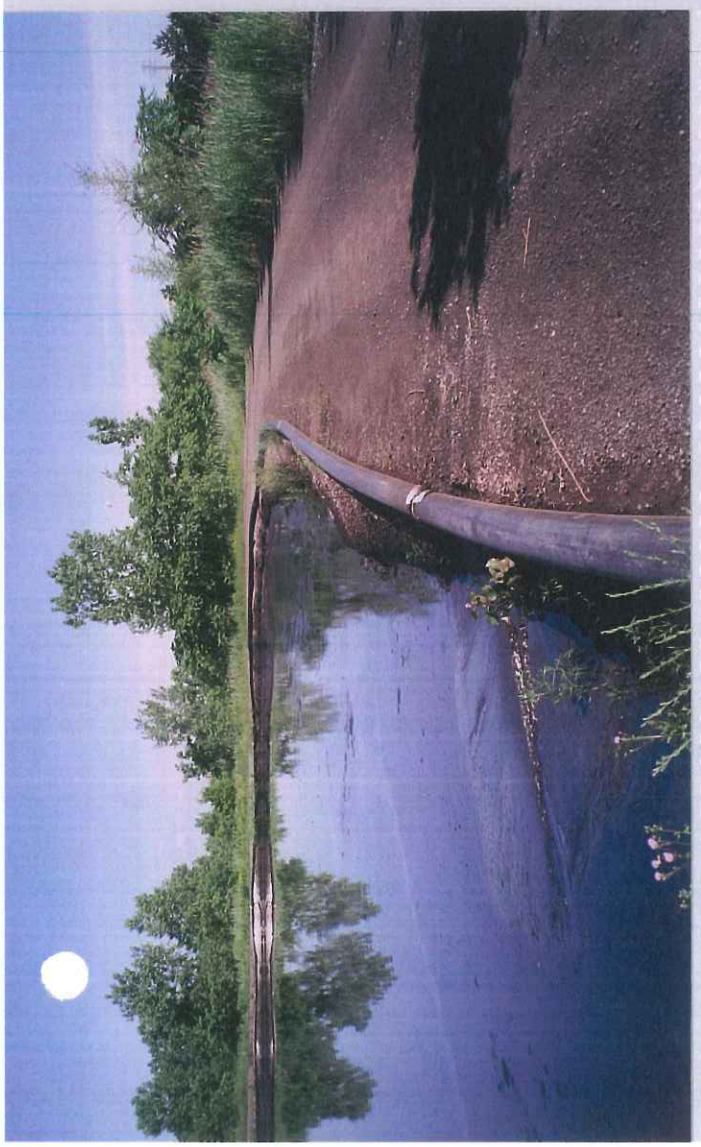
If you have any questions regarding this report, please call me at (248) 585-3800. Thank you again for selecting MEC Environmental Consulting for your wildlife management consulting needs.

Sincerely yours,

MEC ENVIRONMENTAL CONSULTING

Michael Carlson
Principal

enclosures (photographs)



SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
June 23, 2008 - morning (film)

#1: East side of Diked Lagoon, looking east-southeast from Station No. 5. Note pipe for conveying dredged material from Primary Lagoon at top of the east and north banks. Telephoto lens used.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
June 23, 2008 - morning (film)

#2: East central side & northeast corner of Diked Lagoon, looking north from approximately 15 feet northeast of Station No. 4. Note pipe for conveying dredged material from Primary Lagoon at top of the east & north banks.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
June 23, 2008 - morning (film)

#3: East bank and surface of Diked Lagoon approximately 12 feet south of the northeast corner of the Diked Lagoon. Note littoral area of dredged material where the carcass was

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SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
June 23, 2008 - morning (film)

#4: Close-up of littoral area of dredged material in the Diked Lagoon approximately 15 feet south of the northeast corner, looking down and west from same. Note probable Common Grackle tail feathers near bottom right of center.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
June 23, 2008 - morning (film)

#5: Close-up of probable Common Grackle tail feathers on surface of littoral area of dredged material in the Diked Lagoon approximately 15 feet south of the northeast corner, looking down and west from same. Note long white calami.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
June 24, 2008 - afternoon (digital)

#6: Dorsal side of washed, probable Common Grackle rectrix and inch ruler for scale. Note long white calamus, dark rachis, pale margin of inner vane, rounded distal tip, and rachis near

Report Strikes: http:
Bird Strike

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
June 24, 2008 - afternoon (digital)

#7: Ventral side of washed, probable Common Grackle rectrix and inch ruler for scale. Note long white calamus, dark rachis, pale margin of inner vane, rounded distal tip, and rachis near edge of distal 1.5 inches of feather.

MID 087 738 431

SeverStal
North America, Inc.

3001 Miller Road
P.O. Box 1699
Dearborn, MI 48121

August 28, 2007

Via Certified Mail – Return Receipt Requested

Ms. Diane Sharrow (DE-9J)
Project Manager
Enforcement and Compliance
Assurance Branch
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, IL 60604

Subject: Report on carcass found at Schaefer Road Waste Water Treatment Plan

Reference: Severstal North America, Inc., Administrative Order Docket No R7003-5-00-001

Dear Ms. Sharrow:

The enclosed May 16, 2007 report by our wildlife consultant details the discovery and the basis for identification of a probable immature Song Sparrow.

If you are interested in further investigating the carcass, please let us know. We will store it until October 5, after which, space considerations dictate that the carcass should be disposed of.

Please contact me at (313) 323-1260 if you have questions on the information in these reports.

Very truly yours,

Lan Trinh
Environmental Engineer

Enclosures

cc: Mr. John Craig, MDEQ
Mr. Dan Sheill, US Fish & Wildlife

MEC ENVIRONMENTAL CONSULTING

August 6, 2007

Mr. Donald S. Windeler
Severstal North America, Inc.
3001 Miller Road – Room 2110 ROB
Post Office Box 1631
Dearborn, MI 48120-1631

Subject: Schaefer Road Wastewater Treatment Plant – Carcass Report (P. N. 00330)

Dear Don:

Please find herein the report on the carcass which was found by the wildlife consultant on May 16, 2007 at 15:55. This report was prepared in accordance with the procedures outlined in EPA's letters from Diane Sharrow to you, dated December 14, 2001 and August 12, 2004. The carcass is a probable immature Song Sparrow (*Melospiza melodia*).

The carcass was found approximately 1-2 inches from the water's edge of the west central bank of the Diked Lagoon in approximately 1-2 inches of clear water approximately 35 feet north of the southwest corner of the Diked Lagoon and directly opposite a Cottonwood (*Populus deltoides*) immediately south of the Russian Olive (*Elaeagnus angustifolia*) on the east central side of the dogleg of the bermed area. The carcass, which was examined at close range using Zeiss 10 x 42 power FL T* binoculars and photographed in-place using a 10x optical zoom, 5.0 mp digital camera, appeared to lay with its right side under water with its tail generally pointed east. The left tarsus was flexed at the knee at a 90 degree angle and pointed southwest. Approximately 7 pale chocolate brown, narrow and translucent rectrices were observed to be fanned on and immediately below the surface of the water. Several of these appeared to be twisted, and at least one was observed to protrude slightly above the surface of the water. One rectrix also covered the back and vent of the carcass. In addition approximately four chocolate brown remiges of what appeared to be the left wing were observed to be fanned on the surface of the water west of and cranial to the carcass, as well as tangent to the ground at the water's edge. Portions of these feathers appeared to be muddy or soiled. Approximately three chocolate brown, translucent remiges of what appeared to be the right wing were also observed to be fanned at and immediately below the surface of the water but on the north side of the carcass. Most of the visible portion of the body of the bird, which- not considering the tail- appeared to be approximately two inches in length, consisted of white, bare skin. (In fact, initially, the wildlife consultant, focusing on the pale skin and leg, thought that the carcass was that of an altricial nestling sparrow species because of the large amount of bare skin and relative absence of feathers.) The carcass appeared to be significantly decomposed, although no odor of decay was observed. No chemical or petroleum odor was noted, and no insects or insect larvae were observed on the carcass. Principally due to the narrow shape (particularly of the outer vane) and pale color of the rachises (shafts) of the rectrices and remiges, the carcass did not appear to be that of a House Sparrow (*Passer domesticus*), but rather appeared to be that of a smaller, true (e.g., *Spizella* or *Melospiza* genus) sparrow.

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Because of the relatively steep slope and distance, it was not possible to safely retrieve the carcass by hand on May 16. Thus, the carcass was retrieved by the wildlife consultant using a 2.5 foot long plastic grabber on May 17, 2007 at 16:30. At the time of retrieval the carcass was found in exactly the same spot but present at the water's edge adjacent to the carcass was a narrow strip of brown-colored substance, which resembled oil but was not analyzed. Unfortunately, contact with this substance could not be avoided during retrieval of the carcass. The carcass was immediately placed for examination and photographing on plastic and paper sheeting situated atop the hood of the wildlife consultant's vehicle, which was parked close by.

In general, with exception of the tail, wings, and a few contour feathers on the belly, the carcass was devoid of feathers and feather tracts. The skin appeared to be white to pale pink with some pale blue hues on the head. Portions of the skin, in contrast to the pale, whitish skin observed the day before, appeared to be covered with a reddish brown substance, which resembled oil, following retrieval. The wing feathers, which were slightly matted and dark brown with a reddish hue, appeared to be curved suggestive of a swift in flight. The tail, which was also matted and dark brown with a slight reddish hue, appeared to be long, measuring approximately 2.5 inches in length, based on measurements of scaled photographs.

The carcass was examined in detail. The bill, which was closed, appeared to be generally conically shaped, rather stout, and yellowish or horn colored. The tip of the lower mandible appeared to be broken off and missing. On both sides of the base of the bill, a slight gape flange was apparent, especially on the left side,. The lower mandible appeared to be somewhat larger or rather thicker than the upper mandible. The underside of the lower mandible appeared to have a small superficial crack. The bill was opened rather easily. The inside of the mouth was a lemon yellow. A short tongue was noted. The right eye did not appear to be present, but a tiny globular mass in the left orbital appeared to be the residual of the left eye. Both orbitals and ear canals were dark gray in color. The head shape was rounded, and slightly peaked just caudal to the orbitals. The left side of the head and occiput were a blue-gray, while the top of the head was pinkish. Several dark brown feathers were conspicuous on the otherwise bare skin of the throat. Feather follicles were conspicuous over most of the head. No wounds or apparent contusions on the head were noted. The body of the carcass appeared to be skeletal but was mostly covered very tautly with skin, on which feather follicles were not readily apparent. Dorsally both the right and left humeri were exposed and not covered by skin. In particular, most of the left, horn-colored humerus was visible in a gap where a few scapular feathers, skin, and part of the patagium appear to have been pulled away from, and cranial to, the humerus.. The left ulna was mostly visible, and the postpatagium appeared to be very white and slightly swollen, especially closer to the humerus. Fourteen feathers with white calami, some lightly stained with reddish brown spots, were attached to the left ulna. The sixth and seventh left secondaries appeared to be missing, and the third and fourth left secondaries were broken very near to the base of the calumus, with the secondaries extending cranial and parallel to the head at an approximate 80 degree angle. The right ulna was not visible, nor was any calamus. Moreover, none of the right remiges appeared to be damaged. Ventrally, the left humerus as well as the left ulna and radius were conspicuous, although all parts appeared to be tautly covered with skin. By contrast, no bones were visible on the ventral side of the right wing. The sternum and keel, which were very

conspicuous, were covered with skin and several dark grayish brown feathers. A hole in the skin was conspicuous cranial to the proximal end of the left tibiotarsus at the joint with the femur. The distal half of the left tibiotarsus and the proximal three-quarters of the left tarsometatarsus appeared to be lightly stained with a rust-colored substance and lightly flecked with tiny dark brown to dark gray spots. The front toes of the left foot were slightly swollen and rather loosely closed. The left hallux (rear toe) extended perpendicularly from the front toes, and appeared to be significantly swollen and missing its claw or talon. The right tibiotarsus, tarsometatarsus, and toes were rather uniformly pale yellowish brown overlain with a very light rusty brown color. The right foot was open and the toes did not appear to be swollen or damaged in any way. The toes of the carcass appeared to be very fragile and brittle once dry. Dorsally, the left femur, left side of the ilium, as well as several caudal vertebrae were evident through skin that appeared to be almost transparent. Ligaments connecting the tail feathers to the body of the bird were apparent. The tail appeared to be quite long- approximately three-quarters the length of the rest of the bird. Tips of rectrices were generally tapered or truncated, not pointed. Several rectrices extended laterally from the left side of the base of the tail at approximately a 35 degree angle. No odor of decay was observed. Although no necropsy was performed, there was no external indication of any viscera or internal organs. It appeared that viscera were completely decomposed. *Rigor mortis* was not observed. The rachises of the remiges and rectrices appeared to be rather brittle. When cleaned, the vane of one secondary was a pale reddish brown, and the rachis was a light brown to straw color.

Based on the conical and rather stout bill, the long (2.5 inch) tail, and relatively small size, the carcass was identified as a probable Song Sparrow. Based on the presence of a slight gape flange, pale yellow inside the mouth (Arcese, P., et al., "Song Sparrow", *The Birds of North America, No. 704,* A. Poole and F. Gill, eds., Section 14), and the pinkish area at the top of the head, likely indicating a relatively large unpnematicized area of the skull (Pyle, P., *Identification Guide to North American Birds- Part I*, 1997, p. 12), the carcass is believed to be that of an immature or hatch year bird. Although it is possible to encounter individuals in full juvenal plumage on May 16 in Michigan, it is more probable on this date to find very young birds which have not yet undergone this molt. Furthermore, an immature Song Sparrow found as of this date would be expected to show very little to no pneumaticization of the skull (*Ibid.*, pp.10-12) and brighter yellow inside the mouth. The blue-gray sides of the head suggest that pneumaticization has occurred comparable to that of immatures encountered in August to October (*Ibid.*). Thus, it is most probable that the carcass is that of an immature bird born in 2006.

The same rationale provides a rough estimate for the time of death. The bird likely died in the early fall of 2006.

Based on the presence of exposed bones of the left wing proximal to the body of the carcass, displaced patagial skin and feathers which have been peeled away from the dorsal left wing proximal to the body of the bird and towards the head, and the hole in the flank at the femur-tibiotarsus joint, it appears that the bird was very possibly killed by a predator. These signs of apparent injury and their location on the dorsal side of the carcass are consistent with an attack by a predator, which generally strikes an unsuspecting bird from behind, hitting the dorsal side

first. The bird may have been prey for an American Kestrel, a species which is frequently observed hunting over and in the vicinity of the SRWWTP. Interestingly on the same day that the carcass was found an American Kestrel was observed to fly over the SRWWTP carrying a bird, which resembled a European Starling, in its talons, and obviously struggling with the load. Thus, it is possible that the American Kestrel dropped its prey over the SRWWTP, or, more likely, cached the prey in the bermed area. American Kestrels frequently hide surplus kills in grass clumps, tree roots, and bushes (Smallwood, J. A., et al., "American Kestrel", *The Birds of North America, No. 602*, A. Poole and F. Gill, eds., 2002. Section 7). However, American Kestrels usually, but not always, decapitate and eat the heads of avian prey they catch (*Ibid.*). The subject carcass was not missing its head. Other raptors, e.g., Sharp-shinned and Cooper's Hawks, are also known to prey on Song Sparrow (Arcese, *loc cit.*, Section 9). Although Cooper's Hawk is known to cache prey during the breeding season (Curtis, O. E., et al., "Cooper's Hawk" in *The Birds of North America, No. 75*, A. Poole, ed., 2006, Section 7), both these hawks typically grasp the head and consume it first. The subject carcass did not exhibit any injury or contusions on the head. Therefore, it may be more likely that the immature Song Sparrow was killed by a mammalian predator, probably a Red Fox, or domestic or feral cat. Both Red Fox and domestic and feral cats prey on Song Sparrow adults and young (*Ibid.* Sections 9 and 12). Red Foxes often cache prey in a shallow hole in the ground or in snow. Cats often kill birds without consuming them. Both Red Fox and cats have been observed in the past at and in the vicinity of the SRWTTP. Alternatively, the subject Song Sparrow may have succumbed from other natural causes, including disease. Song Sparrows are susceptible to West Nile Virus, although no individuals with the disease have been reported to date in Michigan. Given this hypothesis, the apparent injuries may have been caused by a scavenger, e.g., a Raccoon or Norway Rat. Raccoons frequently use water bodies to wash food items.

It should be emphasized that it is unlikely that the exposed bones and hole observed on the left side of the carcass resulted from the wildlife consultant's retrieval of the carcass. Unfortunately, these features are not evident in the photographs taken on May 16 because the dorsal and ventral sides of the left wing are mostly under water and the flank is not completely visible. Nevertheless, the appearance and coloration of the exposed bones of the left wing are very similar to that of the rest of the carcass, particularly the pelvic girdle. Although portions of the carcass seemed brittle during examination, likely because of lime added to the west end of the Diked Lagoon for solids separation, delicate features, e.g., the left tarsometatarsus and toes, conspicuous in photos taken on May 16, were not damaged in the retrieval process, as evident in photographs taken of the retrieved carcass on May 17. Therefore, the apparent injuries on the left side of the carcass are not due to carcass retrieval. Moreover, these features are probably not the result of natural decomposition or lengthy submersion in alkaline water. If the apparent injuries on the left wing were due to such decomposition, one would expect the right wing to look similar because both wings were submerged. However, the only bone exposed on the right wing is a very small section of the femur. Therefore, it is highly improbable that the apparent injuries on the left wing were due to natural decomposition or submersion in alkaline water.

Thus, it can safely be concluded that the probable immature Song Sparrow died of natural causes. It should be emphasized, however, that the relatively small size of the carcass and the

advanced stage of decomposition preclude a definitive determination of the cause of death.

Mortality of first year Song Sparrows is estimated to be 51% (*Ibid.*, Section 11). Predation is one of the biggest causes of mortality in this species (*Ibid.*), likely due to the fact that Song Sparrows spend much of their time on or close to the ground.

Song Sparrow has been routinely observed during the monthly wildlife surveys throughout most of the year at the SRWWTP, principally in the bermed area. At least one pair likely breeds annually at the bermed area immediately north (bermed area proper) and west (dogleg of the bermed area) of the Diked Lagoon where the carcass was found. During the June 2007 wildlife survey one immature Song Sparrow was observed along the south edge of the bermed area proper. It should be emphasized, however, that no Song Sparrow has ever been observed previously along the west side of the Diked Lagoon during the seven years that wildlife surveys have been performed at the facility.

Immediately after the carcass was examined at 17:45, it was put in a small plastic bag, sealed, and placed inside a hard plastic cooler to which ice was added. The bagged and iced carcass was then transported to MEC Environmental Consulting by the wildlife consultant under the company's federal and state salvage permits. There the carcass was labeled as to species, date discovered, party that discovered the carcass, location, date and time recovered, party responsible for recovery, and name of party completing the tag, and immediately placed in a non-self-defrosting freezer at 19:00.

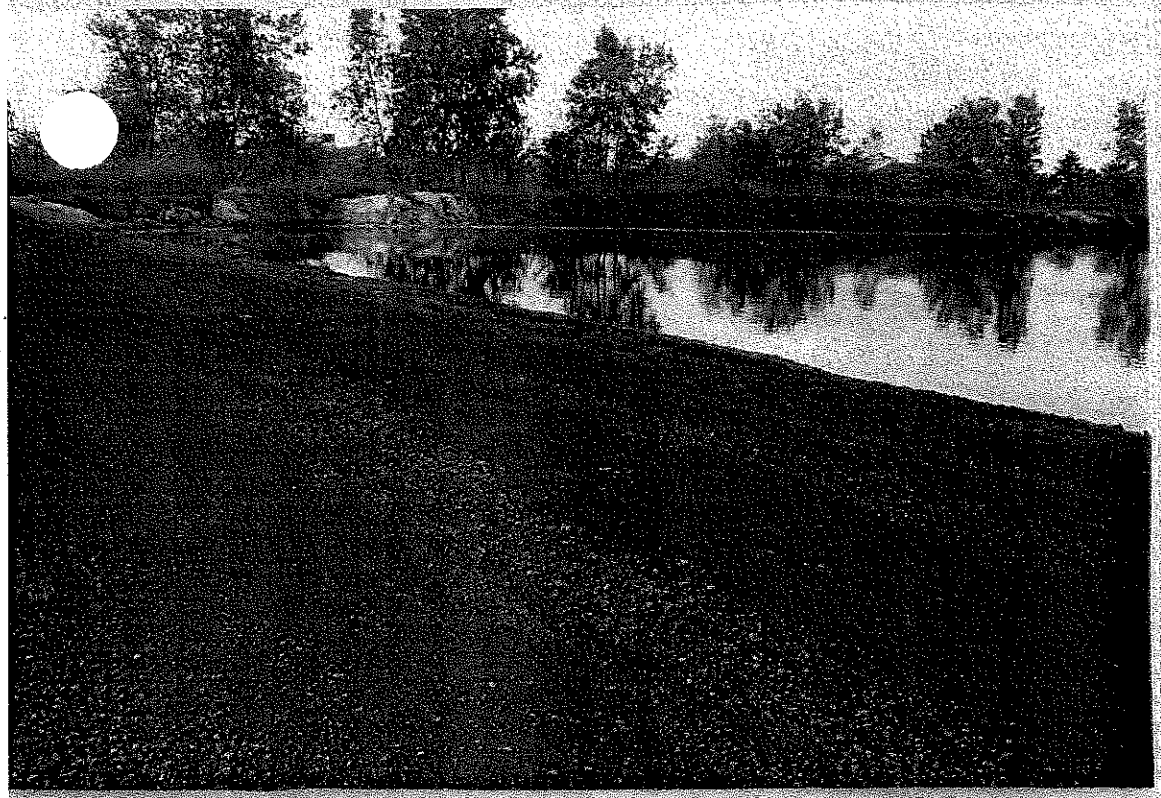
If you have any questions regarding this report, please call me at (248) 585-3800. Thank you again for selecting MEC Environmental Consulting for your wildlife management consulting needs.

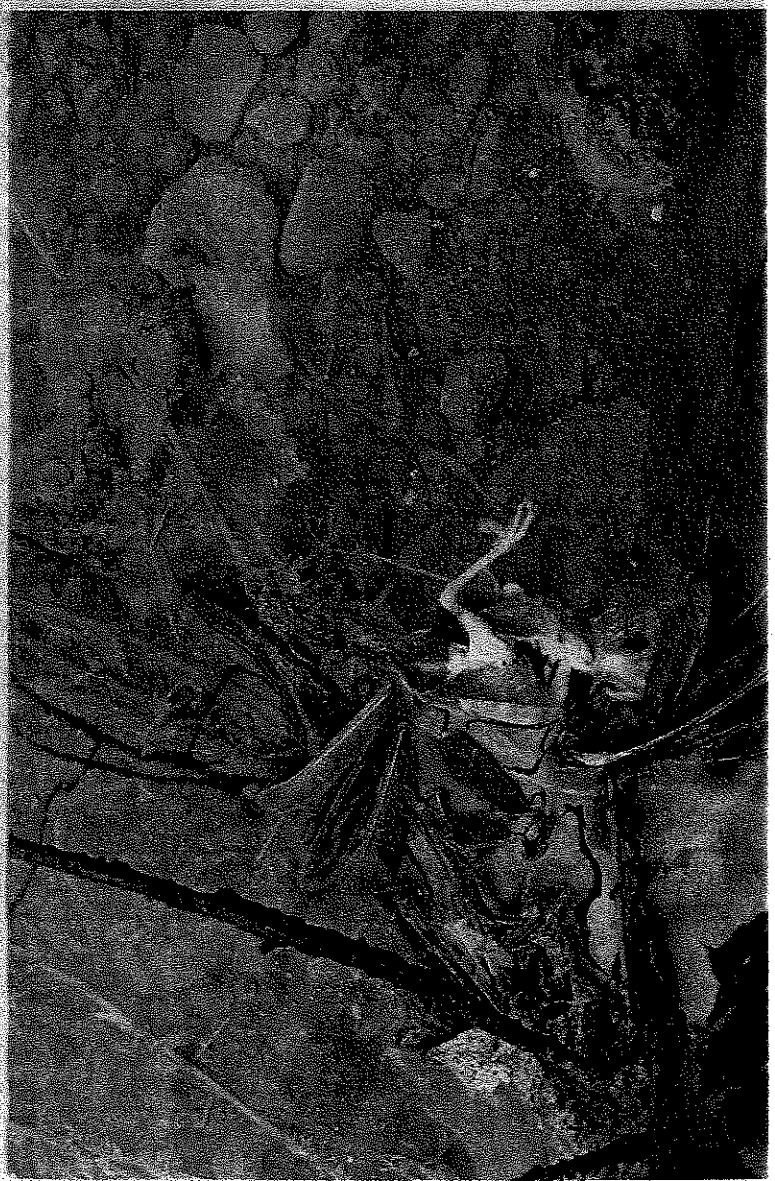
Sincerely yours,

MEC ENVIRONMENTAL CONSULTING

Michael Carlson
Principal

enclosures (photographs)





SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 17, 2007 - afternoon

#1: Road west of Diked Lagoon and top of west central bank of Diked Lagoon, looking north from approximately 20 feet northwest of the southwest corner of the lagoon towards the location of the probable Song Sparrow carcass.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

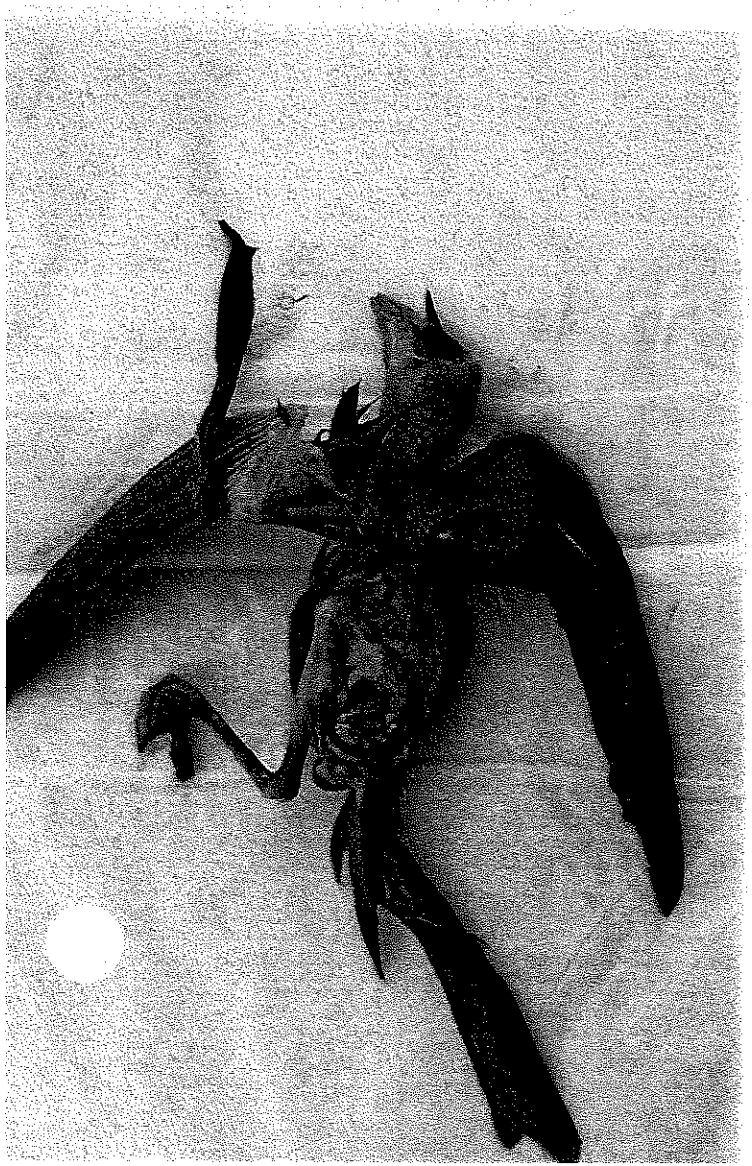
Photographed by Michael Carlson
May 16, 2007 - afternoon

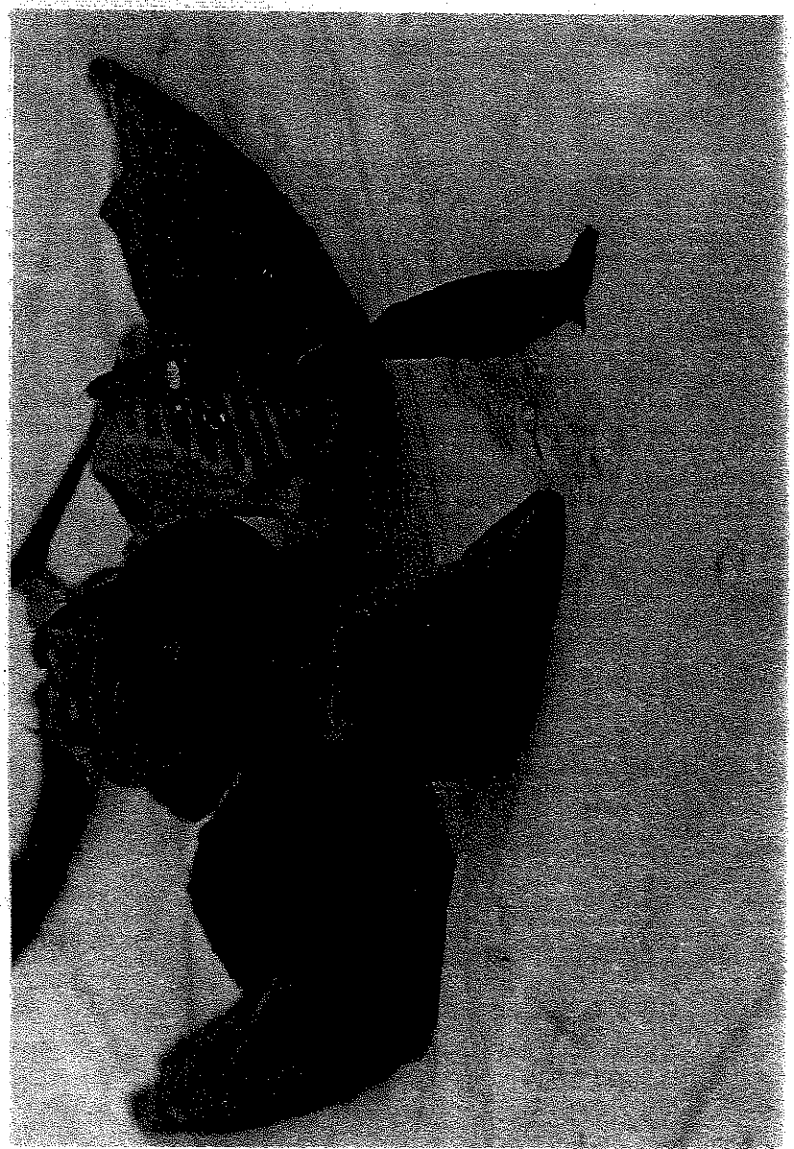
#2: Lower slope and water's edge of west central bank of Diked Lagoon approximately 35 feet north of southwest corner of Diked Lagoon, looking down & east. Note probable Song Sparrow carcass & inch ruler for scale.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 16, 2007 - afternoon

#3: Close-up of probable Song Sparrow carcass at west central bank of Diked Lagoon. Note no oil on carcass, & relatively clear water with fine white (lime) particles, wing (bottom & left) and tail (top) feathers & blanched foot.





SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 16, 2007 - afternoon

#4: Closer close-up of probable Song Sparrow carcass at west central bank of Diked Lagoon. Note relatively clear water with fine white (lime) particles, wing (bottom & left) and tail (top) feathers and blanched foot.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

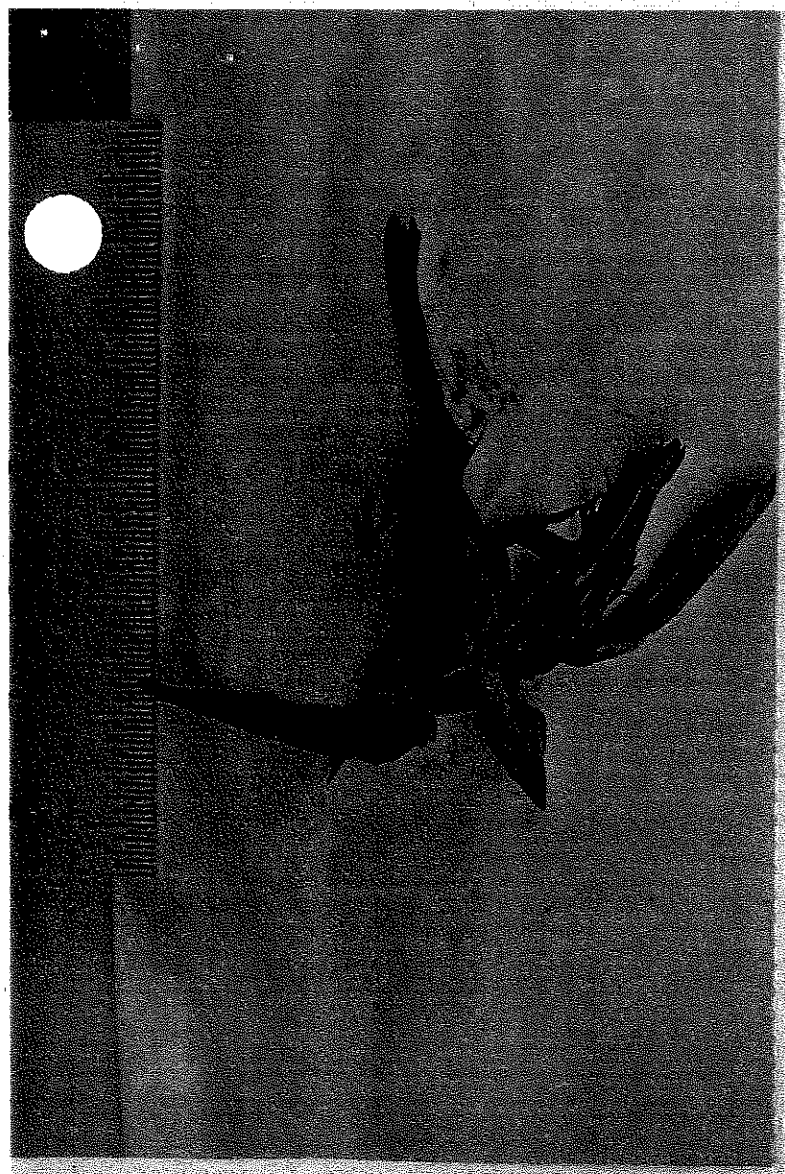
Photographed by Michael Carlson
May 17, 2007 - afternoon

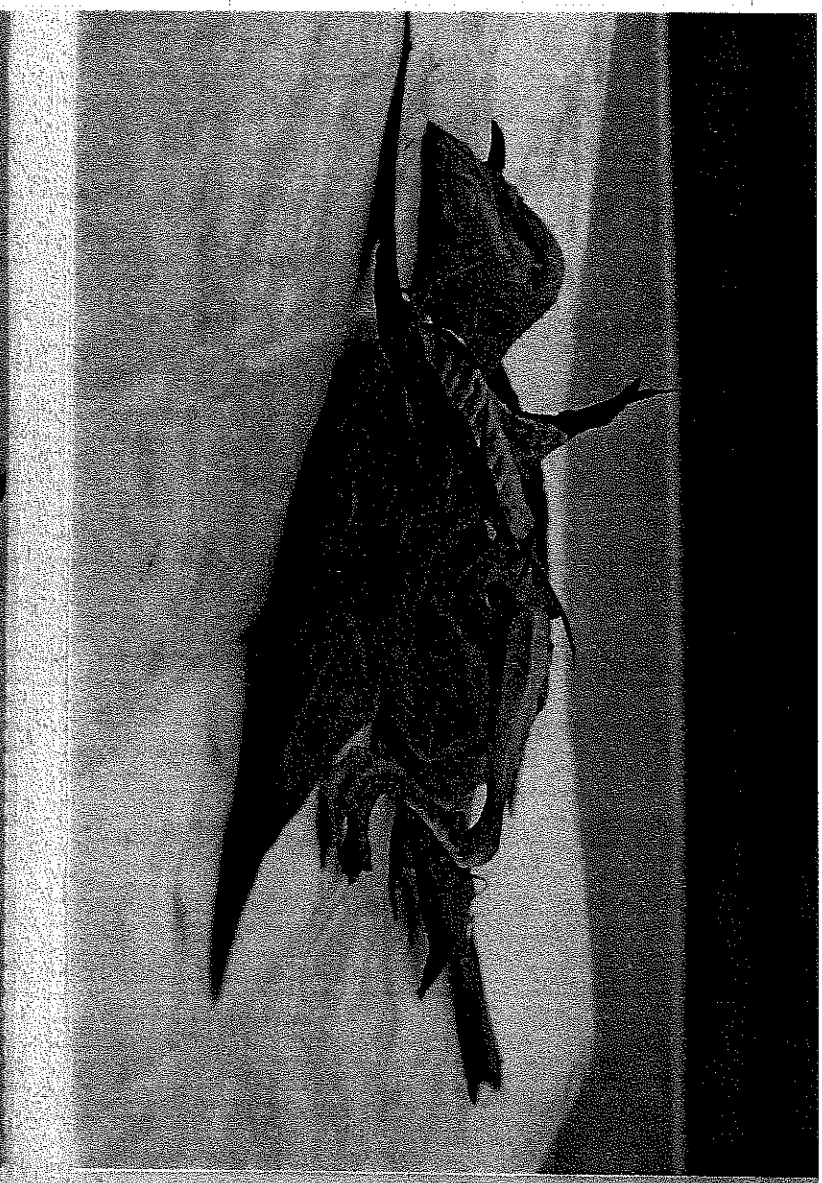
#5: Top view of dorsal and left sides of probable Song Sparrow carcass on white plastic. Note apparent tear in left wing exposing humerus, small hole cranial to tibiotarsal-femur joint, & pink atop blue head.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 17, 2007 - afternoon

#6: Anterior view of dorsal side of probable Song Sparrow carcass on white plastic. Note almost skeletal appearance of carcass, left ulna and calami visible, bent left secondary, and gape flange on bill.





SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 17, 2007 - afternoon

#7: Posterior view of dorsal side of probable Song Sparrow carcass on white plastic. Note matted rectrices, and several rectrices extending laterally from base of left side of tail.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 17, 2007 - afternoon

#8: Left side dorsal view (ventral view of head) of probable Song Sparrow carcass on white plastic. Note pale calami, small hole cranial to left tibiotarsal-femur joint, swollen left foot, and matted feathers of left wing.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 17, 2007 - afternoon

#9: Top view of ventral side of probable Song Sparrow carcass on white paper. Note soiled and matted wing and tail feathers, long tail, left ulna and calami, and inch ruler for scale.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 17, 2007 - afternoon

#10: Close-up of top view of ventral side of probable Song Sparrow carcass on white paper. Note skeletal appearance of body, soiled and matted wing and tail feathers, long tail, and left ulna and calami.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

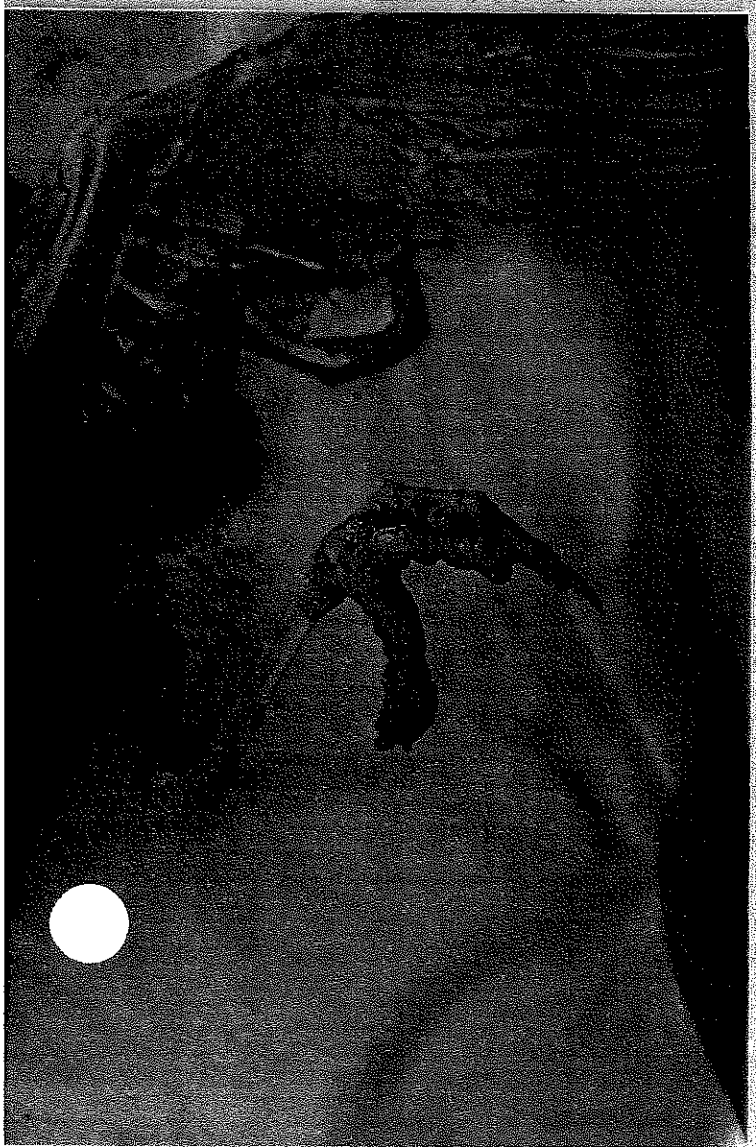
Photographed by Michael Carlson
May 17, 2007 - afternoon

#11: Anterior view of ventral side (right side of head) of probable Song Sparrow carcass on white plastic. Note left ulna and calami visible contrasting with right wing, and broken tip of lower mandible.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 17, 2007 - afternoon

#12: Right side ventral view of probable Song Sparrow carcass on white paper. Note soiled, matted feathers of right wing, right open foot, and apparent lack of viscera.



SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 17, 2007 - afternoon

#13: Close-up of ventral view of right foot of probable Song Sparrow carcass on white plastic. Note open, normal-looking toes with talons, and matted right wing feathers.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

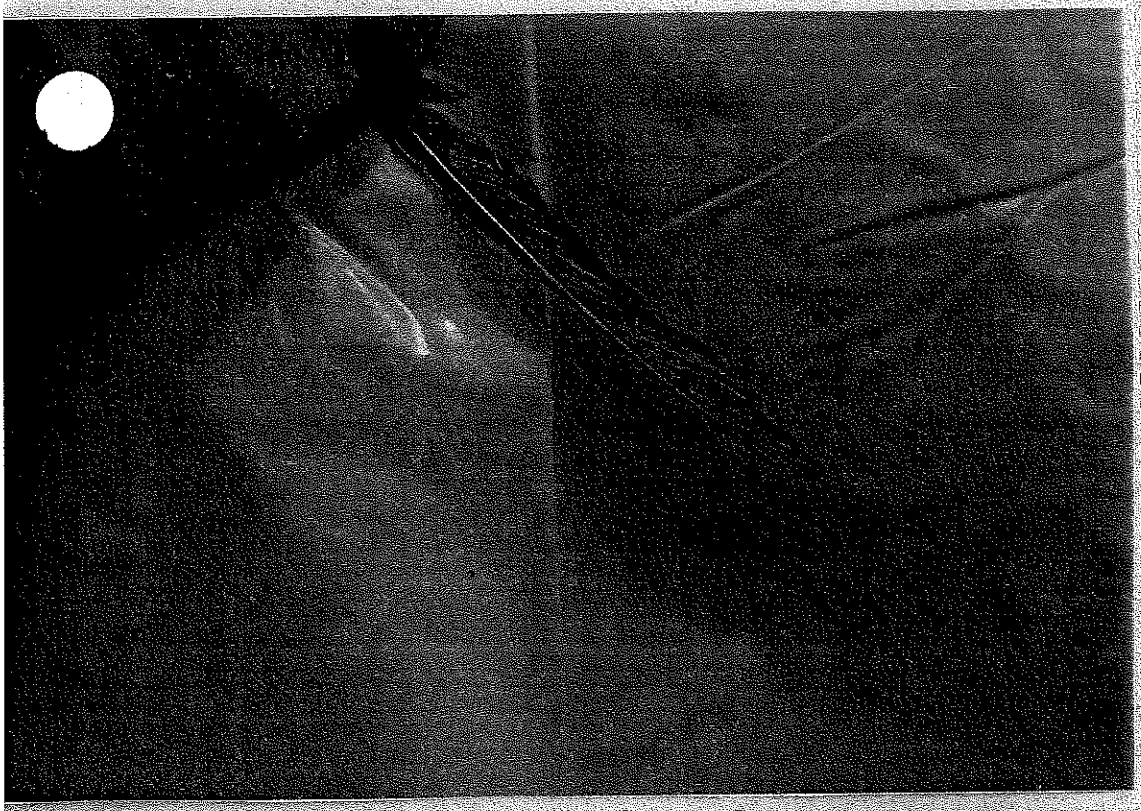
Photographed by Michael Carlson
May 17, 2007 - afternoon

#14: Close-up of ventral view of left foot of probable Song Sparrow carcass on white plastic. Note swollen toes, especially hallux, which is missing talon, and left radius and ulna with calami.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 17, 2007 - afternoon

#15: Anterior view of ventral side of opened bill of probable Song Sparrow carcass on white plastic. Note yellowish coloration inside of mouth, and right gape flange.



SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 17, 2007 - afternoon

#16: Cleaned secondary of probable Song Sparrow carcass against white plastic. Note reddish brown coloration of vane, narrow outer vane, and straw-colored rachis.

SeverStal
North America, Inc.

3001 Miller Road
P.O. Box 1699
Dearborn, MI 48121

May 16, 2007

Via Certified Mail – Return Receipt Requested

Ms. Diane Sharrow (DE-9J)
Project Manager
Enforcement and Compliance
Assurance Branch
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, IL 60604

Subject: Report on carcasses found at Schaefer Road Waste Water Treatment Plan

Reference: Severstal North America, Inc., Administrative Order Docket No R7003-5-00-001

Dear Ms. Sharrow:

The enclosed April 3 and 6, 2007 reports by our wildlife consultant details the discovery and the basis for identification of two Mallards.

If you are interested in further investigating the carcasses, please let us know. We will store them until June 30, after which, space considerations dictate that they should be disposed of.

Please contact me at (313) 323-1260 if you have questions on the information in these reports.

Very truly yours,

Lan Trinh
Environmental Engineer

Enclosures

cc: Mr. John Craig, MDEQ
Mr. Dan Sheill, US Fish & Wildlife

MEC ENVIRONMENTAL CONSULTING

VIA FEDERAL EXPRESS

April 6, 2007

Mr. Donald S. Windeler
Severstal North America, Inc.
3001 Miller Road - Room 2110 ROB
Post Office Box 1631
Dearborn, MI 48121-1631

Subject: Schaefer Road Wastewater Treatment Plant - Carcass Report (P. N. 00330)

Dear Don:

Please find herein the report on the carcass I found on February 21, 2007 at 15:10. This report was prepared in accordance with the procedures outlined in EPA's letters from Diane Sharrow to you, dated December 14, 2001 and August 12, 2004. The carcass is a female or hen Mallard (*Anas platyrhynchos*).

The carcass was found on slag-covered ground at the middle to lower slope of the west central bank of the Primary Lagoon, and specifically on the north side of the hoist structure, which is approximately 60 feet south of OMI 2, and approximately four feet west of the water's edge, and outside of the perimeter goose exclusion wire. The carcass, which was flush against the structure, was found dorsal side up (ventral side against the ground), with the head pointed east and the tail pointed west. Only the left side of the breast and ventral side of the neck, head, and orange bill, which was broad and rounded at the tip, were visible. (The dorsal side of the neck and head were against the ground.) The head and neck feathers appeared to be slightly matted and stained medium to dark gray. Feathers of the neck and breast appeared to be ruffled and unkempt. Feathers on the scapulars, back, rump, and uppertail coverts were generally dark grayish brown with broad buffy edges, and appeared to be ruffled and unkempt. These feathers did not appear to be stained or matted; however, the edges of many of the feathers on the scapulars and back appeared to be worn. The left wing was open such that virtually all the primaries and at least half of a metallic blue speculum were visible. A black band cranial and tangent to the speculum was conspicuous on the left wing as were the white-tipped greater secondary coverts creating a band of white cranial, tangent, and parallel to the black band. A short narrow band of white was visible along the caudal edge of the speculum of the left wing, created by the white distal ends of the secondaries. With the exception of the speculum, the remiges and coverts were generally a dark grayish brown with pale buff to off-white edges. The left shoulder appeared to be held slightly more cranial than that of a duck in a typical partially open wing posture. The most distal primary, viz., P-11, of the left wing appeared to be out of place, such that at least two-thirds of the inner vane of this feather was visible and seemed to cover most of P10, the tip of which appeared to be damaged. No staining was apparent on the remiges, i.e., wing feathers. The left leg and foot, which was orange, extended at an approximately 60 degree angle from the tail and was tangent to the open primaries of the left wing, the dorsal side of the foot being closest to the wing. The left foot was partially open, and the distal ends of the ventral side of the toes appeared to be slightly flexed again the ground. The hallux or hind toe was straight and projected proximally from the distal end of the tarsus at a 45-

1003 AMELIA AVENUE ROYAL OAK, MICHIGAN 48073-2704
VOICE: (248) 585-3800 mecec@comcast.net FAX: (248) 585-8404

degree angle. When the carcass was viewed posterially (i.e., from the tail, looking east), virtually the entire speculum on the right wing as well as the white band along the trailing edge of the wing caudal to the speculum were visible. In addition, a white band cranial to the speculum was conspicuous. (The black band immediately cranial to the right speculum and caudal to the white band was not apparent due to shadows.) The tertials of the right wing were angled over the rump of the bird and pointing northwest. A number of right scapular feathers were pressed against the scalloped steel base of the structure. It appeared that the bird was lying on the underside of the partially open right wing. The dark underside of the tips of what appeared to be P11 to P7 of the right wing were visible immediately below and slightly cranial to the tip of the tail. The distal one inch of P7 or P8 appeared to be considerably worn. The dorsal side of the tail (the only side visible *in situ*), which was mostly pale buff with dark brown patches and spots, appeared to be slightly spread open. No staining was observed on the tail.

The carcass was immediately recognized as a Mallard hen based on the orange bill and feet, the black and white bordered metallic blue speculum, size of the bird, and pale and dark brown coloration of the back and scapulars. The bird was likely a wild Mallard as opposed to a domesticated one because its plumage was considerably dark and not pale, as one would expect a domestic Mallard to be. (Domesticated ducks, including Mallards, are known to occur in the Dearborn area. Such domestic birds are not considered migratory birds under the Migratory Bird Treaty Act.) The carcass was photographed *in situ* from various angles. It was then placed on plastic sheeting several feet north of the recovery location for examination and further photographs.

Only a very faint odor of decay was noted. No petroleum odor was noted. The upper mandible was a dark to dusky brownish gray, except for the sides and distal 1-2 cm, which were pale yellowish orange. The bill was closed; however, lamellae were visible in the gap or grin between the two mandibles near the proximal end of the left side of the bill. The mouth of the bird was clean: it contained no food, debris, and was not stained. No lesions were observed; however, the underside of the tongue was not examined. The throat appeared to be very red. A pale to medium brownish gray material, which resembled clay, completely covered the lores on the left side of the head of the bird (i.e., from the base of the upper mandible to the eye), as well as the chin. The color of this material was only slightly lighter and browner than the color of the dark base of the upper mandible. The facial feathers were very matted, creating the appearance of many small indentations or pockmarks through the feathering, especially on the right side. A dark line through the eye and a narrow paler area above (dorsal to) and below (ventral to) the eye line was not obvious but discernible on the left side of the head. Several feathers on the left cheek and caudal to the right lores appeared to have a slight reddish hue. The left eye, which was elliptical and barely visible, was open and appeared to be blackish. The right eye, which also was elliptical and barely visible, appeared to be open and whitish, as though the nictitating membrane covered it. Feathers on the rest of the head were generally matted and appeared to be slightly ruffled. Many such feathers, which were basically various shades of brown and gray, appeared to be stained brownish gray. The breast feathers, which were dark gray distally and pale brownish proximally, were ruffled and flared. Some of these feathers appear to have been lightly stained with brownish gray but it was difficult to distinguish staining because of the gray coloration typical of the female Mallard breast and the ruffled and unkempt plumage. Dense, pure white down was visible through several small spaces in the contour feathers of the breast

and flanks. The lower breast, belly, and vent of the carcass were completely frozen. The keel of the bird could not be adequately detected due to the frozen condition; however, it obviously did nor protrude from the breast of the bird. A somewhat irregularly shaped concave depression, approximately one to two inches in diameter and approximately 0.5 to 0.75 inches deep, was apparent on the lower right breast. The contours of this depression matched a chunk of slag, approximately 2 inches in diameter, on which the carcass had originally lain. The breast and belly were pale gray flecked with medium to dark gray. The vent and undertail coverts were darker gray flecked with pale gray-brown. Belly, vent, and undertail feathers appeared to be somewhat matted and slightly flared. The cloacal opening or anus of the bird appeared to be whitish, and no evidence of bodily discharges or staining from such were observed. Flank feathers, which were medium to dark gray in color, appeared to be stained, as well as ruffled and matted. A dense layer of pure white down was observed on the body of the bird through the contour feathers of the flanks. Undertail feathers, which were dark gray with pale to medium gray edges, may have been lightly stained but it was difficult to distinguish staining because of the gray coloration typical of the undertail of the female Mallard. The right foot was closed and positioned more proximal to the body than the left foot. It appeared to be somewhat retracted. Both tibiotarsi were sharply demarcated in black above the ankle. Both legs and feet appeared to be lightly soiled or stained dark gray to black. The shoulder of the right wing of the bird appeared to be positioned slightly more caudal than that of a typical duck at rest. The inner vanes of the distal one inch of P10, P9, and P8 on the left wing were damaged and worn. The inner vanes of the distal one inch of P8 and P7 on the right wing were also worn. Both underwing linings were mostly white tinged with pale gray. Some feathers on the leading edge of both wings between the shoulder and alula appeared to be slightly matted.

The appendages of the carcass appeared somewhat loose and the whole carcass, with the exception of the frozen abdomen, seemed somewhat flexible. Signs of *rigor mortis* were not observed. The bird appeared to be in firm, good flesh due to the fact that the keel was not protruding from the breast, and no evidence of emaciation was observed. The bird did not appear to have any broken bones, nor did it exhibit any wounds or visible lesions. No bare batches in the plumage were observed. There was no indication of predation.

The depression on the right side of the frozen lower breast which matched the contours of a chunk of slag under the carcass indicates that the bird fell over on its right side immediately before or after its death. The weight of the carcass itself likely caused the abdomen to gradually conform to the contours of the chunk of slag while the carcass was fresh and unfrozen. Additional weight may have been exerted by snow, which began in Dearborn on the night on Monday, February 12 and Tuesday, February 13, 2007 and which persisted through February 17, 2007. It should be noted that such a depression would likely not have been present or would not have been as pronounced if the carcass was not fresh or had been frozen. Thus it can be surmised that the Mallard likely died late on February 11 or February 12, 2007. Daily low temperatures in Dearborn were at the maximum in the single digits from February 2 through February 11. On five of these eight days the low temperature was below zero. Thus, if the bird had died prior to early on February 11, the carcass would likely have frozen and the depression, which was observed on the subject carcass, would never have been created.

The slight wear on the margins of many of the scapular and back feathers is further indication

that the carcass was subjected to appreciable snow and ice. Indeed, much of the feather matting observed, particularly on ventral portions of the carcass, was likely due to the prolonged, ten-day exposure to moisture from snow, snowmelt, and other precipitation.

It should be obvious that the carcass realistically could not have been detected any sooner than it was because of the significant amount of fallen and drifted snow on the banks of the Primary Lagoon which covered the carcass. Indeed, the area, where the carcass was found, was buried in snow, as indicated in one of the photographs taken during the wildlife survey on February 16, 2007. Approximately two more inches of snow fell in the Dearborn area on February 17 and 18, 2007. The snow, which blanketed the area, did not begin to melt appreciably until February 20, 2007. Moreover, the mostly dark brown dorsal portion of the carcass was effectively camouflaged by the dark structure against which it lay, and the carcass was frequently in the structure's shadow.

The observation of ruffled and sometimes flared contour feathers on most of the body of the carcass *prima facie* suggests that the bird was trying to thermoregulate at the time of death. In addition, both wings appeared to have been opened or partially open and drooped, further suggesting possibly thermoregulation attempts. However, both ruffled feathers and opened wings can be indications of duck viral enteritis, a contagious avian disease caused by a herpes virus to which Mallards are particularly susceptible (Huffman, J. E., "Selected Diseases of Waterfowl" in *Wildlife Diseases*, S. Majumdar et al. (eds.), 2005, p. 184; and, Friend, M., "Duck Plague" in *Field Manual of Wildlife Diseases: Birds*, 1999, pp. 141, 146, 147). Drooped wings as well as an open or spread tail can also be an indication of this disease. In addition, a forwardly drooped head or head twisted to one side (*Ibid.*) can be a sign of duck viral enteritis, often referred to as DVE or duck plague. The unusual position of the head with respect to the rest of the subject carcass, viz., with the crown of the head against the ground, suggests that the duck may have exhibited such head droop and/or twist prior to its death.

Because the disease attacks the vascular system, one of the primary field signs of DVE is often blood flow from the mouth and nares as well as the cloacal opening. No evidence of blood or staining was noted on the ground underneath the carcass, around the cloacal opening, or around the nares. However, it should be noted that such blood or staining may have been washed away by snow, other precipitation, and snow-melt prior to discovery of the carcass. Blood stains can easily be washed away by cold water. Nevertheless, it is possible that the slight reddish hue on the left cheek and caudal to the right lores of the bird was attributable to blood staining from the nares. It is doubtful that this reddish hue is attributable to plumage because normally the face of the hen mallard in definitive alternate plumage is more grayish and usually lacks any shades of reddish brown (Drilling, N., et al., "Mallard," in *The Birds of North America Online*, *No. 658*, Ithaca, NY: Cornell Laboratory of Ornithology, 2002, Section 13). (The molt in Mallard from definitive basic plumage, in which some reddish brown is shown on the face, to definitive alternate should be mostly complete by mid-February (*Ibid.*, Figure 2). Nevertheless plumage characteristics can be quite varied in Mallards.). Moreover, it is possible that the very red throat observed was attributable to blood-infused tissue resulting from DVE. Finally, it is interesting to note that a bird with DVE is often hypersensitive to light and will seek out a shaded area (Friend, *op. cit.*, p. 146). The area immediately to the north of the structure, where the carcass was found, is frequently shaded during the winter months.

It appears that the duck was standing on its left foot with its right foot partially retracted in what superficially resembles a wing stretch position. It appears that the bird fell over onto its right side immediately prior to or at the time of death. Birds afflicted with DVE have been observed to fall over on their sides and be unable to right themselves (*Ibid.*, p. 148). However, based on the retracted right foot of the subject carcass, it appears that the bird made little or no attempt to right itself.

The fact that the carcass appeared to be in good flesh and not in any way emaciated generally suggests a viral diagnosis. It should be emphasized that it is virtually impossible to definitively determine the cause of death without a necropsy and/or testing. While a presumptive diagnosis of DVE may be made at necropsy based on characteristic internal lesions, final diagnosis can only be made by virus isolation and identification (*Ibid.*, p. 151).

Because of their gregarious nature outside of the breeding season, which typically begins in April, Mallards are quite susceptible to infectious diseases common to waterfowl. In addition to DVE, such diseases include avian cholera, avian influenza, aspergillosis, blood parasites (genera *Haemoproteus*, *Leucocytozoon*, and *Plasmodium*), and coccidiosis (Drilling, N., *op. cit.*, Section 11). In addition, pesticides and heavy metals as well as toxins from the bacterium *Clostridium botulinum* (avian botulism) and blue-green algae (*Anabaena flosaquae*) can cause morbidity and mortality in Mallards. Lead poisoning can be quite debilitating in Mallards. On a corn diet, ingestion of a single lead shot can result in death within 14 days (*Ibid.*, Section 12). Finally, leeches (*Theromyzon rude*, *Placobdella ornata*), which often attach to the eyes and nares, can also negatively effect the health of Mallards, and can aggravate cases of certain diseases (*Ibid.*, Section 11).

The mean life expectancy of adult Mallards is 1.8 years (Drilling, *loc. cit.*, Section 11).

It is possible that the Mallard came into contact with the brownish gray material and/or medium to dark gray material as a result of foraging in the Rouge River (approximately 260 feet southwest of the Primary Lagoon) or possibly the Detroit River (3.5 miles southeast of the Primary Lagoon). This Mallard, which may have even been an early migrant, likely sought shelter for roosting at the Primary Lagoon during the exceedingly cold weather because of the fact that the Primary Lagoon is lower in elevation and thus more sheltered than the surrounding area from the predominantly west to northwest winds, which occurred from February 4 through 11; because of the presence of the fence around the Primary Lagoon which would give the duck a greater sense of security and protection from predators; and because the bird may possibly have been ill prior to the advent of extremely cold weather. Mallards tend to select roosting sites which provide good visibility for predator sighting and shelter from wind (Drilling, *loc. cit.*, Section 9). The unseasonably and prolonged cold weather quite possibly triggered or exacerbated the disease. Daily low temperatures in Dearborn were at the maximum in the single digits from February 2 through February 11. On five of these eight days the low temperature was below zero. On February 5 the low temperature was minus 12° F. Also, the high temperature did not exceed 10° F on February 4 through February 6, 2007. Finally, from February 2 through February 11 peak wind gusts were typically between approximately 18 and 38 mph, resulting in significant wind chills.

No Mallard activity, or waterfowl activity whatsoever, was observed by the wildlife consultant inside the Primary Lagoon fence on February 16, February 17, and February 21. A drake Mallard carcass was retrieved from the water surface at the south end of the Primary Lagoon on February 17, 2007, and is the subject of a separate report. During the wildlife survey on February 16, three Mallards were observed to fly over the facility in the evening: one flying west and two flying east-northeast. In addition, it should be noted that no recoverable oil was observed at the Primary Lagoon on February 16, 17, and 21. Finally, logs maintained by the SRWWTP operators indicate that no recoverable oil was present at the Primary Lagoon during the month of February.

Mallard has regularly been recorded at the SRWWTP during the wildlife surveys since 2000. A total of 25 observations of Mallard have been made at the Primary Lagoon since 2000, based on wildlife surveys reports. All of these observations were of Mallards in flight over the Primary Lagoon, with none being observed to rest or roost on the banks of the Primary Lagoon. More than half of these records were from the spring (March to May). The species has occasionally roosted, and may have nested, in the bermed area. Mallards have also been regularly observed in the nearby Rouge River.

Once the carcass was retrieved, photographed, and examined, it was placed and sealed in a double-plastic bag at 17:10 on February 21, and then minutes later packed on ice inside a hard plastic cooler. The carcass was then transported by the wildlife consultant for deposition in a non-self-defrosting freezer at MEC Environmental Consulting under the company's federal and state salvage permits. Before being placed in the freezer, the bagged carcass was labeled as to species, date discovered, party that discovered the carcass, location, date and time recovered, party responsible for recovery, and name of party completing the tag. The bagged carcass was placed in the freezer around 18:15 on February 21, 2007.

If you have any questions regarding this report, please call me at (248) 585-3800. Thank you again for selecting MEC Environmental Consulting for your wildlife management consulting needs.

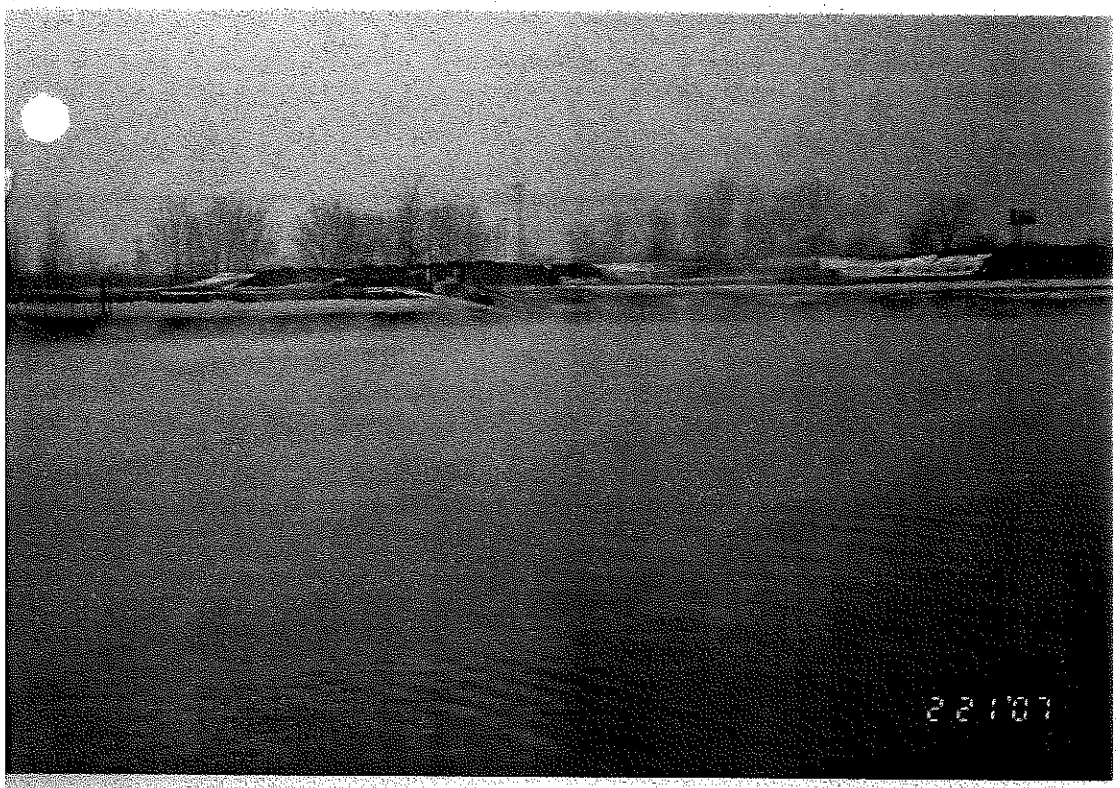
Sincerely yours,

MEC ENVIRONMENTAL CONSULTING

Michael Carlson
Principal

enclosures (photographs)

cc. S.R. Dismukes (w/o photographs)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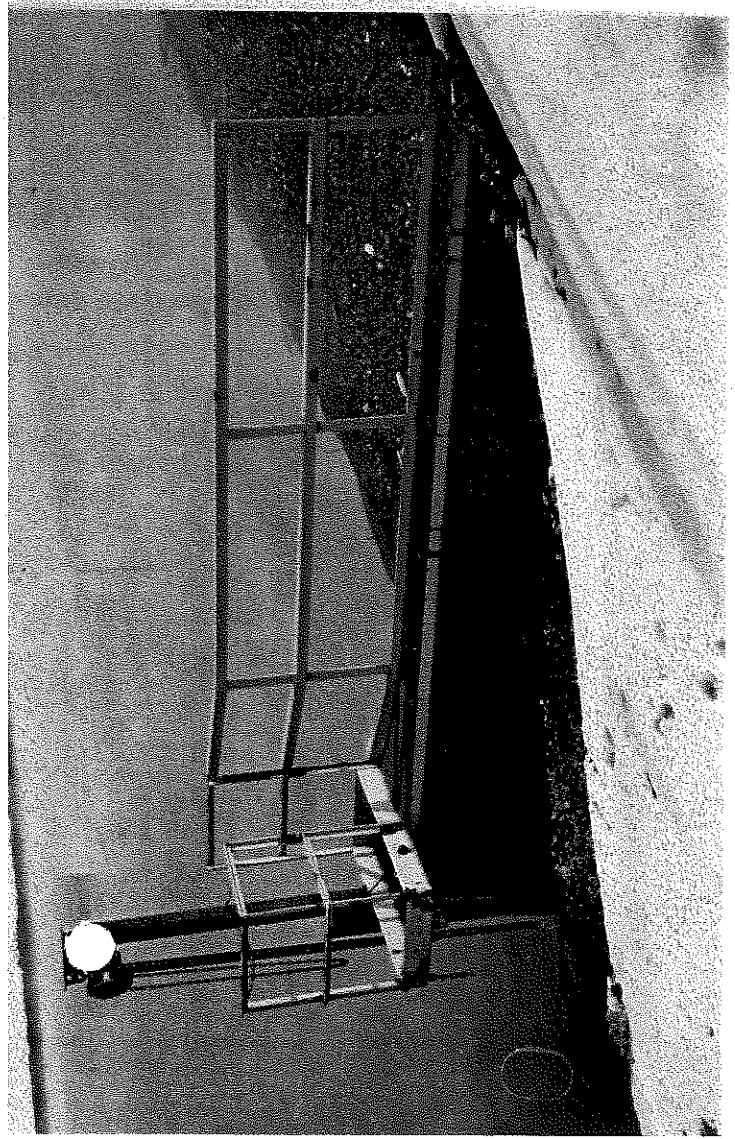


SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
February 21, 2007 - afternoon

#1: Northwest bank of the Primary Lagoon, looking northwest from the east bank of the Primary Lagoon approximately 25 feet south of the east side of OMI 2. Note west side of OMI 2 near center, and hoist to left.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

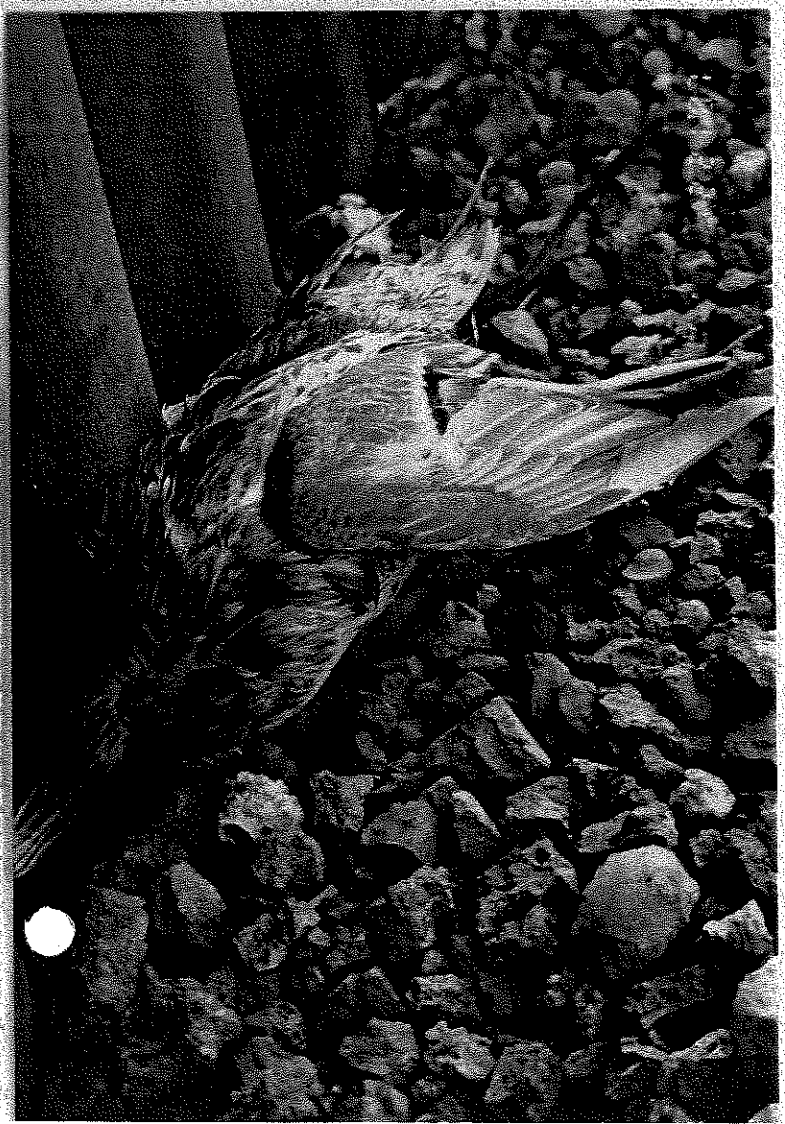
Photographed by Michael Carlson
February 21, 2007 - afternoon

#2: Hoist at west central bank of Primary Lagoon, looking southeast from approximately 15 feet northwest of hoist. Note dark mass barely visible against base of structure is female Mallard carcass. Also note melting snow.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
February 21, 2007 - afternoon

#3: Hoist at west central bank of Primary Lagoon, looking southeast from approximately 10 feet northwest of hoist. Note dark mass near center barely visible against base of structure is female Mallard carcass.



SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
February 21, 2007 - afternoon

#4: Dorsal side of in situ Mallard carcass against hoist base of northwest Primary Lagoon, looking down & south. Note partially open left wing & speculum, ruffled breast & back feathers, orange feet & lower mandible.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

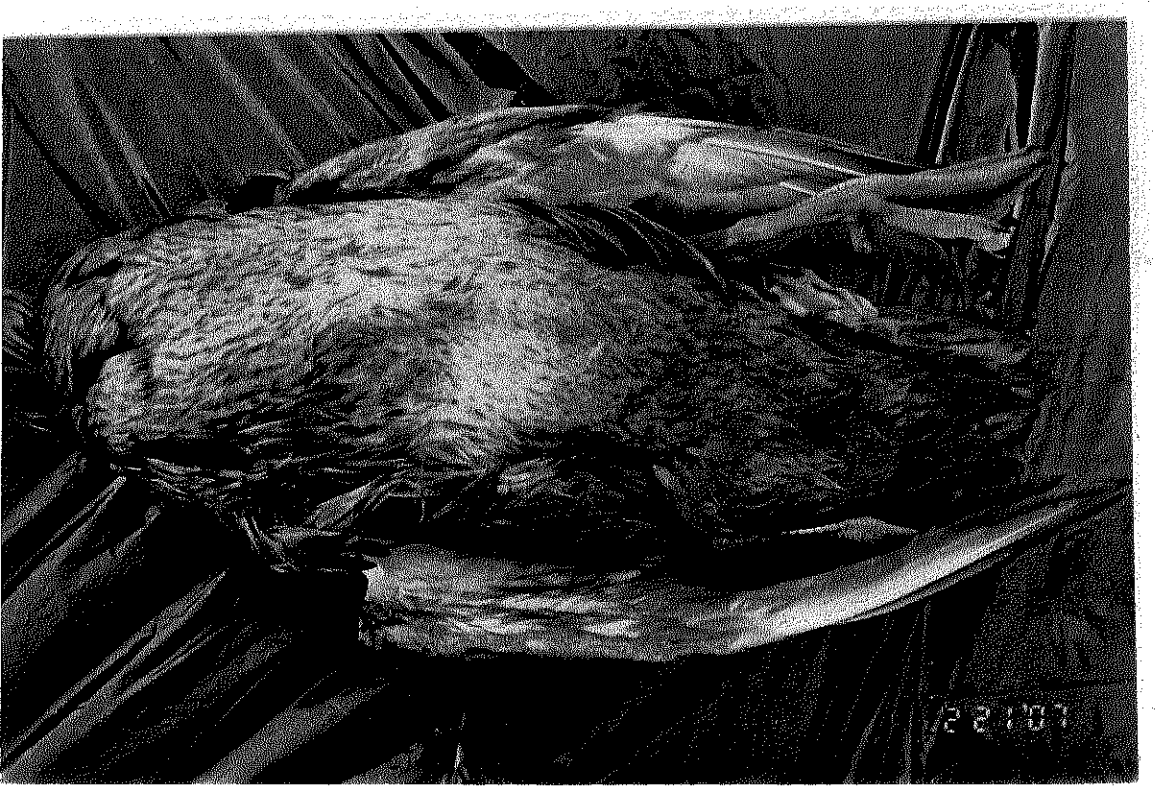
Photographed by Michael Carlson
February 21, 2007 - afternoon

#5: Anterior or cranial view of in situ Mallard carcass against hoist base of northwest Primary Lagoon, looking down and southwest. Note ruffled and matted feathers of neck, breast, & back; head upside-down; birds against hoist.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
February 21, 2007 - afternoon

#6: Posterior or caudal view of in situ Mallard carcass against hoist base of northwest Primary Lagoon, looking east. Note open right wing partially under tail, specula, left open and slightly flexed foot.



SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
February 21, 2007 - afternoon

#7: Dorsal view of Mallard hen carcass. Note clay-like material on left lores and chin; matting and reddish hue of feathers on head & neck; ruffled feathers, partially open tail; left wing drooped & held caudal; soiled/ stained left foot.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

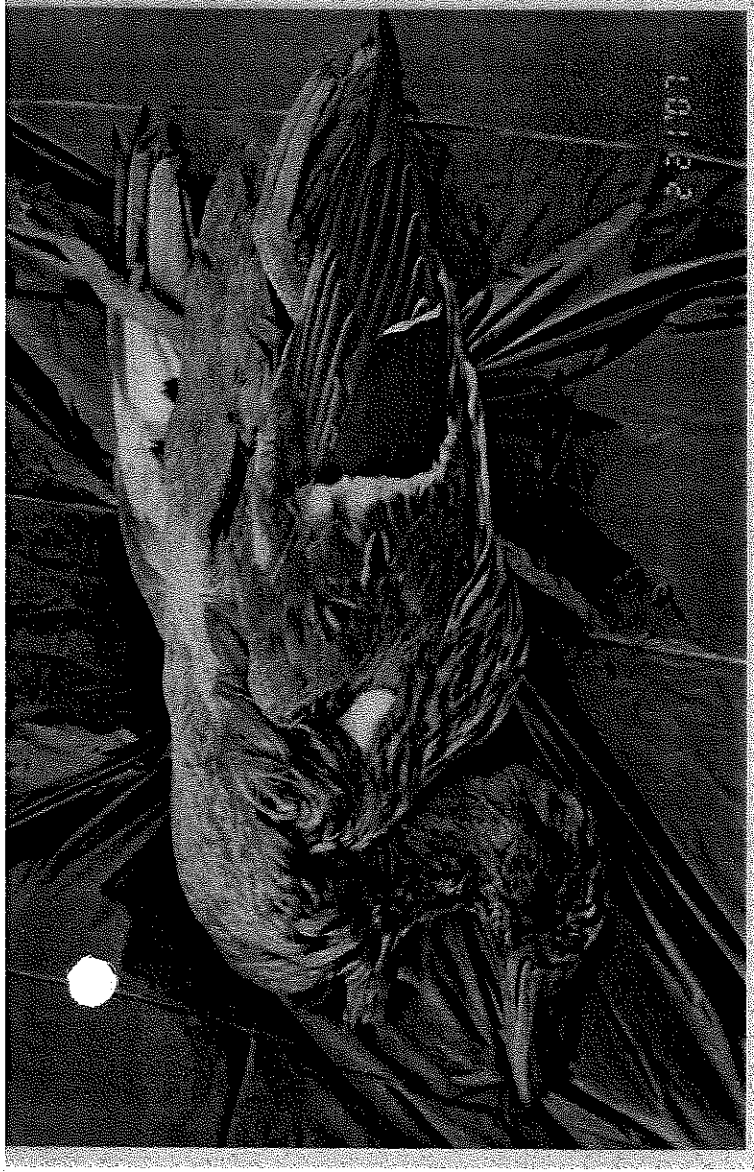
Photographed by Michael Carlson
February 21, 2007 - afternoon

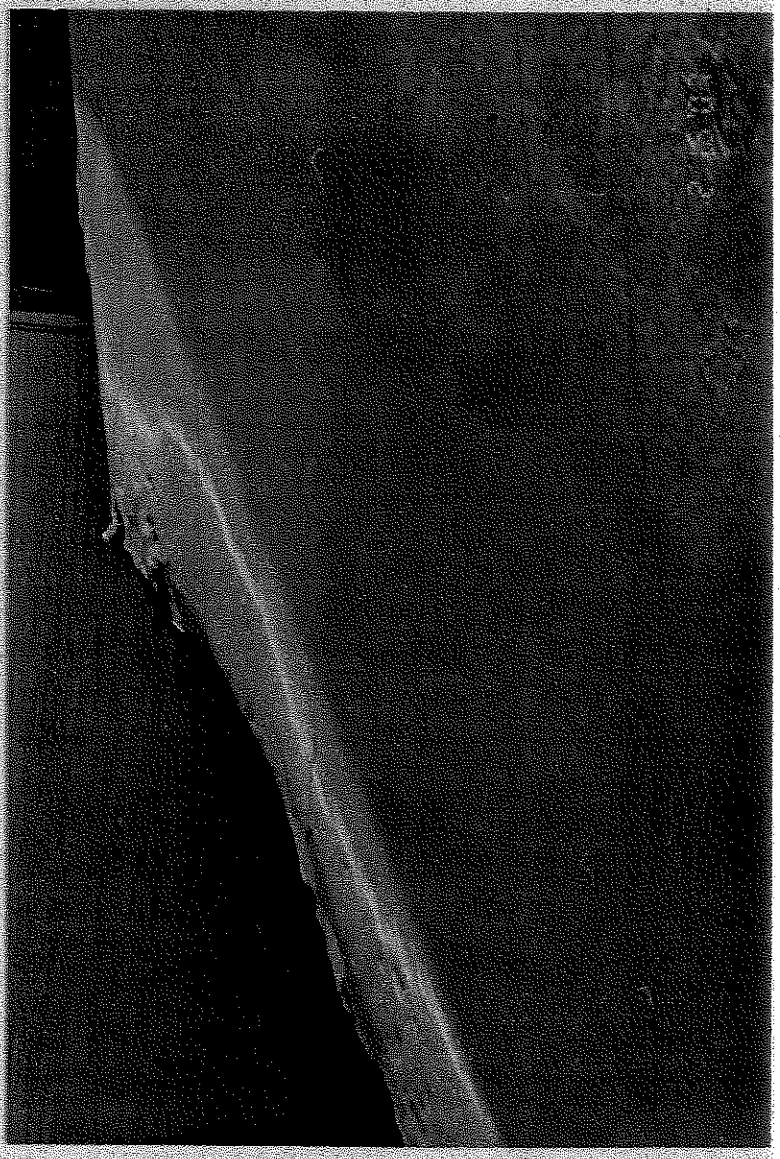
#8: Ventral view of Mallard hen carcass. Note pale, gray-speckled breast & belly; concave area on lower right breast; stained flanks; matted vent and undertail coverts; whitish wing linings; matted feathers on right side of head.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
February 16, 2007 - afternoon

#9: Close-up ventral view of Mallard hen carcass. Note concave area on lower right breast; stained flanks; matted vent & undertail coverts; whitish wing linings; right shoulder and wing positioned caudal to left.





SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
February 21, 2007 - afternoon

#10: Left side of Mallard hen carcass. Note clay-like material between eyes and bill; ruffled breast & back feathers, tract of white down at side of breast; lack of staining on upperparts; damaged tips of left P10 and P9.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
February 21, 2007 - afternoon

#11: Right side of Mallard hen carcass. Note retracted foot, barely visible eye with whitish nictitating membrane; matted feathers on head and neck; ruffled back feathers; white around blue speculum; white down cranial to wing.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
February 21, 2007 - afternoon

#12: Northwest bank of the Primary Lagoon, looking southeast from approximately 35 feet northwest of hoist. Note snow covering area where carcass was found 5 days later. Note goose exclusion wire near water's edge.

MEC ENVIRONMENTAL CONSULTING

VIA COURIER

April 3, 2007

Mr. Donald S. Windeler
Severstal North America, Inc.
3001 Miller Road - Room 2110 ROB
Post Office Box 1631
Dearborn, MI 48121-1631

Subject: Schaefer Road Wastewater Treatment Plant - Carcass Report (P. N. 00330)

Dear Don:

Please find herein the report on the carcass which was found by myself and Cindy Cartwright on February 16, 2007 at 15:35. This report was prepared in accordance with the procedures outlined in EPA's letters from Diane Sharrow to you, dated December 14, 2001 and August 12, 2004. The carcass is an adult male or drake Mallard (*Anas platyrhynchos*).

The carcass was found in the water approximately 1.5 feet north of the south central side of the Primary Lagoon opposite the cable mooring post located at the top of the south central bank of the Primary Lagoon. The carcass was floating dorsal side up (ventral side under water), with the barely visible head pointed east-northeast and the tail pointed west-southwest. The right side of the neck and breast as well as the back, scapulars, and greater secondary coverts protruded above the surface of the water. Several chunks of snow, approximately 0.25-0.5 inches in diameter were observed on the back of the carcass. The rough outline of a head and what appeared to be a long, narrow, yellowish bill, as well as a webbed right foot and a rather, broad, wedge-shaped tail were submerged approximately 1-2 inches below the surface but generally visible. The neck appeared to be long and slender. Both wings (although the right wing was able to be viewed closer than the left due to the position of the bird in the water) were folded but appeared to be drooped and held a slight distance away from the body. The visible portions of the carcass were gray and white which appeared to be stained with a dark gray to blackish substance. It appeared that the carcass was of a medium- to medium-large-sized waterfowl. Due to what appeared to be a long, slender neck and narrow bill, the bird was thought to possibly be a loon or merganser. The carcass was photographed but because of the distance from shore, slippery conditions due to ice and snow drift-covered banks, extremely cold temperatures, and time constraints, the carcass was not retrieved on March 16.

The carcass was retrieved by myself on March 17 at 15:30 using a 2.5 foot long plastic grabber, and placed temporarily on the snow covered bank. The carcass was then moved to plastic sheeting situated on the middle slope of the south bank of the Primary Lagoon for examination and further photographing. From a distance of approximately 3 to 4 feet, a strong odor of decay was observed. With exception of the belly, the entire carcass was heavily soiled and covered in a fine blackish to dark gray material, resembling coal dust, which was not viscous but seemed to be hydrophobic, and had a very faint odor suggestive of petroleum. The carcass was saturated and feathers were matted. In certain light, a very small amount of water on the right primaries of

1003 AMELIA AVENUE ROYAL OAK, MICHIGAN 48073-2704
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the carcass appeared to have a dark blue-green shine almost like a sheen. At least 40-50 leeches were found on various parts of the exterior body, including several on the head and neck. Several of these leeches were collected and placed in alcohol.

The bill of the bird was almost as long as the head. The upper mandible, which appeared to be yellowish beneath the dark gray coating of material, was approximately one inch wide and convex with exception of a concave but flat rectangular section at the middle of the bill. The distal end of the bill was broadly rounded with a nail at the tip, and was gently sloped at the base. The lower mandible, which was rounded at the rostral end, appeared to be olivaceous to flesh-colored. Relatively short, blunt comb-like lamellae were apparent along the sides of the bill in the very slight gap between the two mandibles. The bill appeared to be intact and not damaged. The mouth and tongue were slightly coated with the blackish material, however, the throat appeared to be clean. No worms or obvious lesions were observed inside the mouth or throat. The forehead was sloped and the head was rounded. The head and neck had an obvious, slightly iridescent, green cast despite being covered by the dark gray material. Although the neck seemed to be intact and not broken, it appeared somewhat elongated. Both eyes appeared to be open, but somewhat elliptical. Most of the eyes appeared to be a pale gray to whitish color except for possibly the rostral end which appeared to be somewhat darker, strongly suggesting that the nictitating membrane covered most of both eyes. The lower lid of both eyes appeared to be slightly swollen, especially at the conjunctiva. The left side of the face immediately rostral of the eye to several millimeters caudal to the gape of the bill appeared to have several small indentations or pockmarks through the feathering. The belly appeared to be a very finely vermiculated pale gray and slightly demarcated from the darker breast, which had a slightly reddish hue. The belly did not appear to be coated with as much of the dark gray material as the rest of the carcass. The vent appeared to be medium gray, darker than the belly and lighter than the breast. The undertail and uppertail coverts appeared to be very dark. The legs and feet, which were a medium reddish orange and covered with mud and the dark gray material (especially the feet), extended caudally with the right and left feet almost symmetrically positioned. The feet appeared to be closed with the toes flexed and pads of the feet towards the body. A small, thin section of bright orange skin was observed to peel away from the tarsus of the carcass during the examination. There was no metal leg band present. The feet appeared to be intact and not broken or damaged. The closed tail appeared to be medium gray with paler tip and margins. The back and scapulars were a finely vermiculated light to medium gray. Several contour feathers and many semiplume feathers on the left side of the carcass appeared to be pale gray with very little dark gray substance, and pale tan with no dark gray substance, respectively. The wings, which were both neatly folded, appeared to be medium to dark gray and heavily coated in the dark gray material. Both wings appeared to be intact and not broken, although the rachises of several of the primaries of the right underwing and left upperwing were conspicuous. A turquoise speculum was apparent on the left wing. White to pale tan feathers, which appeared to be semiplumes and free of the dark gray material on the rest of the carcass, were conspicuous in the right axillaries and right flank edge of the carcass. In addition, several patches of whitish to pale tan feathers, mostly semiplume and down, were apparent at the side of the right breast near the mantle. Pale yellowish rachises of many contour feathers were conspicuous on the back, scapulars, and mantle of the carcass. None of the feathers appeared to be flared.

The appendages of the carcass appeared somewhat loose and the whole carcass somewhat flexible. Signs of *rigor mortis* were not observed. The bird appeared to be in firm, good flesh. The breast and belly were both firm to the touch, the keel was not protruding or sharp, and no evidence of emaciation was observed. The bird did not appear to have any broken bones, nor did it exhibit any wounds or visible lesions. No bare batches in the plumage were observed. There was no indication of predation. Moreover, the carcass did not appear to be contorted in any way. The cloacal opening or anus of the bird appeared to be whitish, and no evidence of bodily discharges or staining by such were observed.

Based principally on the size, shape, and yellowish coloration of the bill, the round and sloped shape of the head, the green head and neck, the orange, webbed legs and feet, and the blue speculum, the carcass was identified as a drake Mallard (*Anas platyrhynchos*). The bird was likely a wild Mallard as opposed to a domesticated one because it did not appear to have any white on the neck or upper breast, as one would expect a domestic Mallard to exhibit. (Domesticated ducks, including Mallards, are known to occur in the Dearborn area. Such domestic birds are not considered migratory birds under the Migratory Bird Treaty Act.)

Unfortunately, the leech specimens were improperly preserved and thus were very difficult to properly identify. It appears, however, that they were members of the family *Glossiphonia*.

The carcass appeared to be at least several days old based primarily on the observed odor of decay. Due to the number of rachises apparent on the back and scapulars of the bird, it appears that this portion of the carcass was more weathered than the rest of the carcass. Indeed, this portion of the carcass protruded above the surface of the water and thus was more susceptible to weathering than the rest of the carcass situated in the 50 to 60° F water of the Primary Lagoon. Moreover, because this dorsal portion of the carcass was saturated with water, it appears likely that it was subjected to a considerable amount of precipitation. This conclusion seems to be corroborated by the observation on February 16 of several chunks of ice on the back of the carcass. A significant amount of precipitation, in the form of snow, fell on the Dearborn area during the early morning hours and late at night on Monday, February 12 and Tuesday, February 13, 2007, respectively. Thus, it is likely that death occurred prior to Monday, February 12, 2007. Although the carcass exhibited a noticeable odor of decay, the flesh on the breast and belly seemed to be firm and solid, not liquid or mushy. This was the case despite the breast and belly of the bird being submerged in the warm water of the Primary Lagoon for at least four days. Despite the very cold air temperatures, water in the Primary Lagoon probably did not go below 50° F. Under these relatively warm conditions, one would expect significant decomposition to occur within four to six days. Thus, the time of death was likely February 10 or 11, 2007.

It should be noted that the carcass likely was not detected sooner because of the significant amount of condensed water vapor within one to two feet above the surface of the Primary Lagoon due to the cold weather. At several times during the wildlife survey, conducted on February 16, 2007, only approximately 2% to 20% of the water surface of the Primary Lagoon was visible. Moreover, despite knowing the exact location of the carcass, it was not visible at all from outside the south side of the Primary Lagoon fence, and could not be clearly seen from any point on either the east or west side outside the fence without binoculars.

The fact that the carcass appeared to be in good flesh, and was not in any way emaciated, suggests that the bird died rather suddenly or quickly. This conclusion is also supported by the observation that contour feathers did not appear to be flared or held away from the body as a bird which is attempting to thermoregulate would do. These observations suggest that death was possibly caused by a virus. The presence of a somewhat elongated or projected neck suggests that the bird may died from duck viral enteritis (DVE), otherwise known as duck plague. A forwardly drooped head or head twisted to one side can be a sign of DVE ((Huffman, J. E., "Selected Diseases of Waterfowl" in *Wildlife Diseases*, S. Majumdar et al. (eds.), 2005, p. 184; and, Friend, M., "Duck Plague" in *Field Manual of Wildlife Diseases: Birds*, 1999, pp. 141, 146, 147). Drooped wings can also be an indication of this disease (*Ibid.*).

Because the disease attacks the vascular system, one of the primary field signs of DVE is often blood flow from the mouth and nares as well as the cloacal opening. No evidence of blood or staining was noted on the ground underneath the carcass, around the cloacal opening, or around the nares. However, it should be noted that such blood was likely washed away by the water of the Primary Lagoon or possibly consumed by leeches. Blood-stained plumage may have been indiscernible due to the soiled condition of the carcass.

It should be emphasized that it is virtually impossible to definitively determine the cause of death without a necropsy and/or testing. While a presumptive diagnosis of DVE may be made at necropsy based on characteristic internal lesions, final diagnosis can only be made by virus isolation and identification (*Friend, op. cit.*, p. 151).

Because of their gregarious nature outside of the breeding season, which typically begins in April, Mallards are quite susceptible to infectious diseases common to waterfowl. In addition to DVE, such diseases include avian cholera, avian influenza, aspergillosis, blood parasites (genera *Haemoproteus*, *Leucocytozoon*, and *Plasmodium*), and coccidiosis (Drilling, N., *op. cit.*, Section 11). In addition, pesticides and heavy metals as well as toxins from the bacterium *Clostridium botulinum* (avian botulism) and blue-green algae (*Anabaena flosaquae*) can cause morbidity and mortality in Mallards. Lead poisoning can be quite debilitating in Mallards. On a corn diet, ingestion of a single lead shot can result in death within 14 days (*Ibid.*, Section 12). Finally, leeches (*Theromyzon rude*, *Placobdella ornata*), which often attach to the eyes and nares, can also negatively effect the health of Mallards, and can aggravate disease (*Ibid.*, Section 11). Although there is disagreement among systematic biologists, some, including D. J. Klemm ("A Review of the Leeches (*Annelida: Hirudinea*) in the Great Lakes Region", *Michigan Academician*. vol. 9, pp. 397-418), consider *Glossiphonia* to include the genera *Theromyzon* and *Placobdella*. The pockmarks observed on the left side of the face of the carcass may have been attributable to the activity of leeches either before or after the death of the bird.

The mean life expectancy of adult Mallards is 1.8 years (Drilling, *loc. cit.*, Section 11).

It is possible that the Mallard came into contact with the blackish material as a result of foraging in the Rouge River (approximately 260 feet southwest of the Primary Lagoon) or possibly the Detroit River (3.5 miles southeast of the Primary Lagoon). This Mallard likely sought shelter for

roosting at the Primary Lagoon during the exceedingly cold weather because of the warm water of the Primary Lagoon; because of the fact that the water surface is lower in elevation and thus more sheltered than the surrounding area from the predominantly west to northwest winds, which occurred from February 4 through 11; and because of the presence of the fence around the Primary Lagoon which would give the duck a greater sense of security and protection from predators. Mallards tend to select roosting sites which provide good visibility for predator sighting and shelter from wind (Drilling, *loc. cit.*, Section 9). The unseasonably and prolonged cold weather quite possibly triggered illness. Daily low temperatures in Dearborn were at the maximum in the single digits from February 2 through February 11. On five of these eight days the low temperature was below zero. On February 5 the low temperature was minus 12° F. Also, the high temperature did not exceed 10° F on February 4 through February 6, 2007. Finally, from February 2 through February 11 peak wind gusts were typically between approximately 18 and 38 mph, resulting in significant wind chills. Once ill, the duck likely tried moving about in the water using its wings, and probably died from drowning. Ducks with DVE sometimes rapidly beat the surface of the water using their wings (Friend, *op. cit.*, p. 148). Waterfowl with this disease quickly lose the ability to keep their heads erect and sometimes die from drowning (*Ibid.*). Other waterfowl with DVE simply stop swimming, relax, and die (*Ibid.*). These events likely resulted in the saturation and soiling of the carcass. Besides the carcass, no Mallard was observed to be on the water surface of the Primary Lagoon at any time during the wildlife survey performed on February 16. During the survey, however, three Mallards were observed to fly over the facility in the evening: one flying west and two flying east-northeast. Moreover, it should be noted that no recoverable oil was observed at the Primary Lagoon on February 16 and 17. In addition, logs maintained by the SRWWTP operators indicate that no recoverable oil was present at the Primary Lagoon during the month of February.

Mallard has regularly been recorded at the SRWWTP during the wildlife surveys since 2000. A total of 25 observations of Mallard at the Primary Lagoon have made during wildlife surveys since 2000. All of these observations were of Mallards in flight over the Primary Lagoon; none were observed on the water surface of the Primary Lagoon. More than half of these records were from the spring (March to May). The species has occasionally roosted, and may have nested, in the bermed area. Mallards have also been regularly observed in the nearby Rouge River.

Once the carcass was retrieved, photographed, and examined, it was placed and sealed in a plastic bag at 16:45 on February 17, and then minutes later packed on ice inside a hard plastic cooler. The carcass was then transported by myself for deposition in a non-self-defrosting freezer at MEC Environmental Consulting under the company's federal and state salvage permits. Before being placed in the freezer, the bagged carcass was labeled as to species, date discovered, party that discovered the carcass, location, date and time recovered, party responsible for recovery, and name of party completing the tag. The bagged carcass was placed in the freezer at 18:00 on February 17, 2007.

If you have any questions regarding this report, please call me at (248) 585-3800. Thank you again for selecting MEC Environmental Consulting for your wildlife management consulting needs.

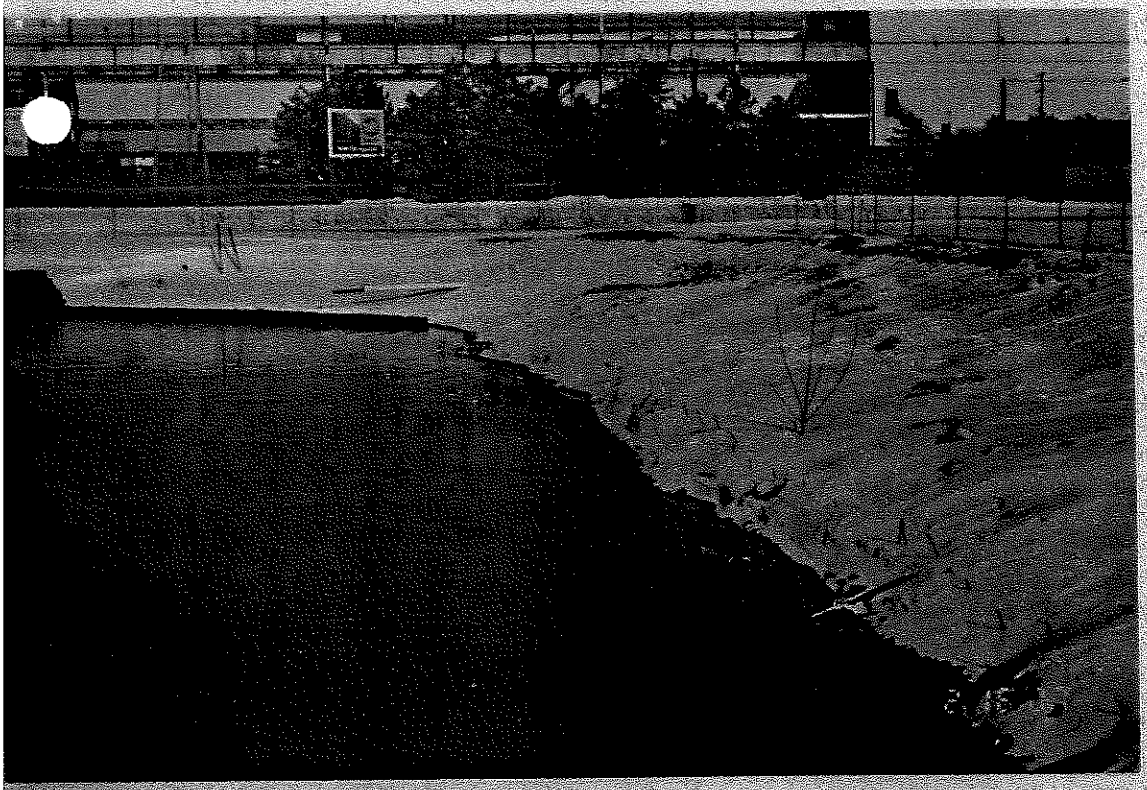
Sincerely yours,

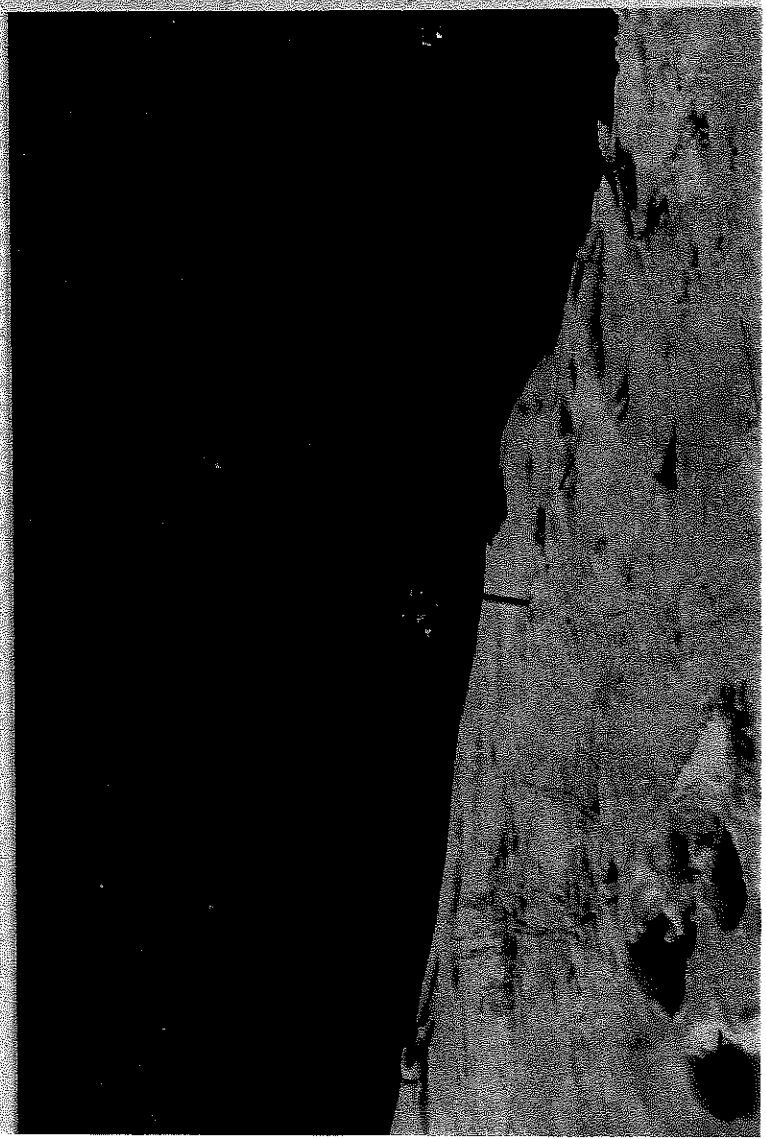
MEC ENVIRONMENTAL CONSULTING

Michael Carlson
Principal

enclosures (photographs)

cc. S.R. Dismukes (w/o photographs)





SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
February 16, 2007 - afternoon

#1: South side and southeast corner of Primary Lagoon, looking east from top of bank at southwest corner of Primary Lagoon. Note dark spot near cable in water near brown tuft of *Phragmites* at water's edge is Mallard carcass.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

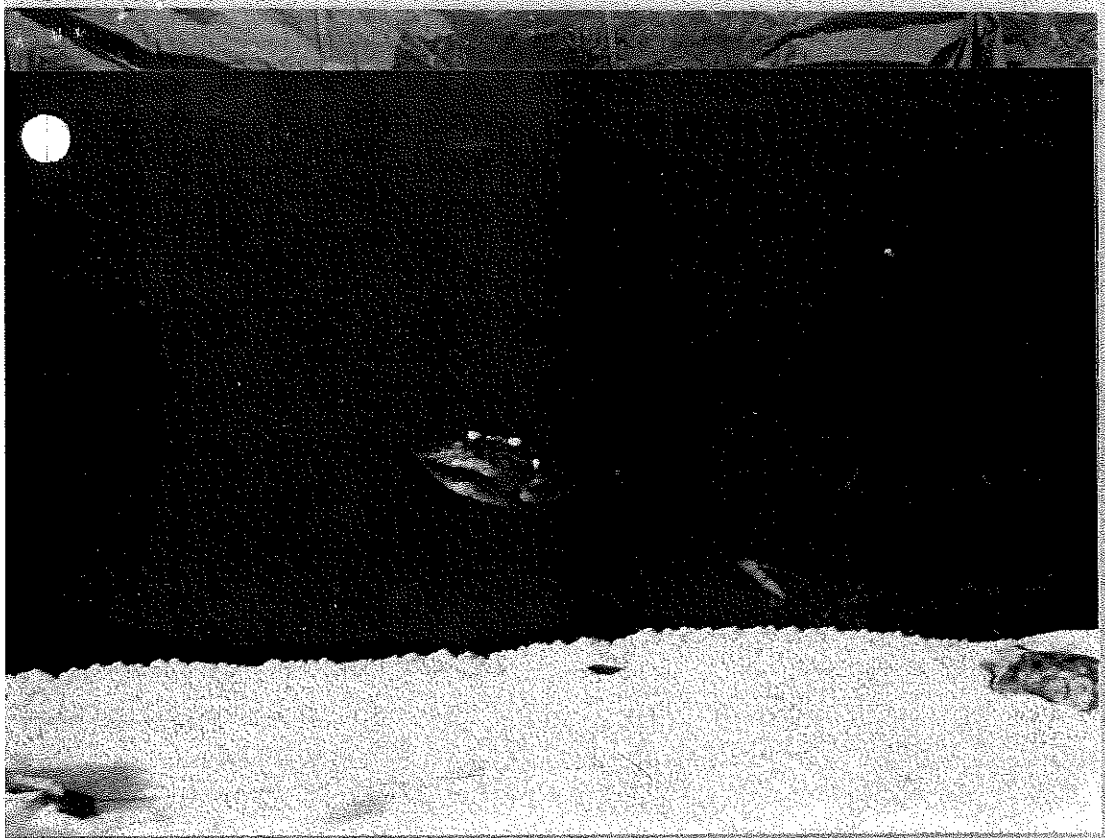
Photographed by Michael Carlson
February 16, 2007 - afternoon

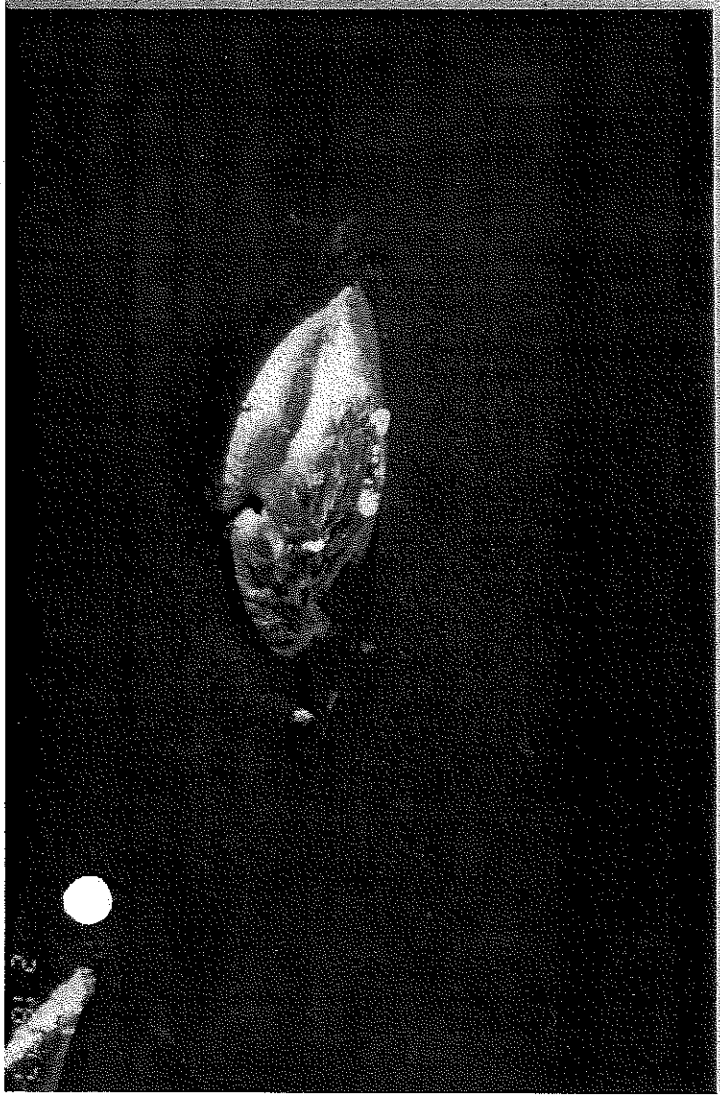
#2: Lower slope and water's edge at south central side of Primary Lagoon, looking north. Note dark, rounded body with three white spots near snowy edge is Mallard carcass. Note cable and Phragmites (right) and film emulsion defect.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
February 16, 2007 - afternoon

#3: Lower slope and water's edge at south central side of Primary Lagoon, looking northwest. Note dark, rounded object just below and left of center is Mallard carcass with bits of snow on it.





SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
February 16, 2007 - afternoon

#4: Lower slope and water's edge at south central side of Primary Lagoon, looking north. Note elliptical object in water is Mallard carcass with bits of snow on it. Brownish line against snow in foreground is goose exclusion wire.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
February 16, 2007 - afternoon

#5: Dorsal side of Mallard carcass in water of Primary Lagoon, looking down and north from the lower slope of south central bank of Primary Lagoon. Note yellowish bill, drooped right wing, and snow on back. Telephoto lens used.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
February 17, 2007 - afternoon

#6: Dorsal side of Mallard carcass immediately after retrieval from muddy water of Primary Lagoon and placement on snow of lower slope of south central Primary Lagoon. Note blackish material on bill and feathers, which are matted.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
February 17, 2007 - afternoon

#7: Right side of Mallard carcass. Note dark gray substance covering most of carcass, pale axillary and side breast feathers without dark gray substance, rather elongated neck, matted feathers, light belly and darker breast.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
February 17, 2007 - afternoon

#8: Closeup of right side of head of Mallard carcass. Note grayish eye, swollen whitish lower eye lid, lamellae of bill, bill length as long as head, greenish cast to head and neck, sloped forehead, and rounded head.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
February 17, 2007 - afternoon

#9: Ventral side of Mallard carcass. Note the light belly contrasting with the darker breast, which has a slight reddish hue. Also note visible underside of rachises of right primaries, and pale tufts of semiplume in axillaries.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
February 17, 2007 - afternoon

#10: Left side of Mallard carcass. Note dark gray substance and soil covering most of carcass, matted feathers, pale scapulars without dark gray substance, rather elongated neck, light belly and darker breast with reddish hue.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
February 17, 2007 - afternoon

#11: Closeup of left side of head of Mallard carcass. Note grayish eye, swollen whitish lower eye lid, pockmarks in face, lamellae of bill, greenish cast to head and neck, sloped forehead, rounded head, and leech on plastic.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
February 17, 2007 - afternoon

#12: Closeup of left wing of Mallard carcass. Note dark gray material covering wing, blue speculum, finely vermiculated scapulars, matted feathers, and conspicuous rachises of several primaries.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Law Enforcement
445 Etna Street, Suite 61
St. Paul, Minnesota 55106

IN REPLY REFER TO:

SeverStal North America, Inc.
Environmental Manager
3001 Miller Road, P. O. Box 1699
Dearborn, Michigan 48121

January 18, 2007

This letter is to notify you that effective immediately all correspondence formerly directed to Special Agent Sheila O'Connor should now be sent to a different address:

U.S. Fish and Wildlife Service
Office of Law Enforcement
3800 Packard Road, Suite 160
Ann Arbor, Michigan 48108

The EPA agrees with this change. You may verify this by contacting Ms. Diane Sharrow, Environmental Scientist for the EPA, at 312-886-6199. Ms. Sharrow has, in fact, directed you to send correspondence, including the monthly reports, to the Ann Arbor office before this. Your cooperation with this change is appreciated.

If you have any questions, you may contact Resident Agent in Charge Craig Tabor at 734-971-9755.

Sincerely,

SA Sheila O'Connor

Sheila O'Connor
Special Agent
USFWS-LE

Cc: file
Diane Sharrow, EPA

SeverStal
North America, Inc.

3001 Miller Road
P.O. Box 1699
Dearborn, MI 48121

October 6, 2005

Via Certified Mail – Return Receipt Requested

Ms. Diane Sharrow (DE-9J)
Project Manager
Enforcement and Compliance
Assurance Branch
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, IL 60604

Subject: Report on carcasses found at Schaefer Road Waste Water Treatment Plan

Reference: Severstal North America, Inc., Administrative Order Docket No R7003-5-00-001

Dear Ms. Sharrow:

The enclosed May 18, 2005 report by our wildlife consultant details the discovery and the basis for identification of a Common Grackle.

If you are interested in further investigating the carcasses, please let us know. We will store it until November 21, after which, space considerations dictate that it should be disposed of.

Please contact me at (313) 323-1260 if you have questions on the information in this report.

Very truly yours,

Lan Trinh
Environmental Engineer

Enclosures

cc: Mr. John Craig, MDEQ
Mr. Dan Sheill, US Fish & Wildlife

MEC ENVIRONMENTAL CONSULTING

August 11, 2005

Mr. Donald S. Windeler
SeverStal North America, Inc.
3001 Miller Road – Room 2110 ROB
Post Office Box 1631
Dearborn, MI 48121-1631

Subject: Schaefer Road Wastewater Treatment Plant – Carcass Report (P. N. 00330)

Dear Don:

Please find herein the report on the carcass which was found by the wildlife consultant on May 18, 2005 at 15:50. This report was prepared in accordance with the procedures outlined in EPA's letters from Diane Sharrow to you, dated December 14, 2001 and August 12, 2004. The carcass is a nestling believed to be that of a Common Grackle (*Quiscalus quiscula*).

The carcass was found near the west shoulder of the road west of the Diked Lagoon approximately opposite the southwest corner of the Diked Lagoon. The bird lay with its ventral side and part of its right side against the ground in a crouched or fetal position, with both its bill and feet pointed north. The lower mandible of the bird rested on the ground. There was no evidence of staining or discoloration, or matted feathers. No chemical or petroleum odor was noted. A slight odor of decay was apparent when within approximately 12 inches of the carcass. At least two adult Greenbottle Flies were hovering around the carcass, repeatedly landing on it.

The nestling was obviously altricial based on the large amount of bare skin and relative absence of feathers. The nestling appeared overall pink in coloration with dark gray to black pin feathers present on the back and pale brownish gray down on the otherwise pinkish head. The bill appeared to be relatively long (slightly less in length than the length of the head), relatively thick and stout, and bluntly tipped. The bill appeared to be horn-colored with gray scaling at the base. The gape flanges appeared to be yellowish. It should be noted, however, that the mouth was not pried open. The eyes were closed, and appeared concave. The chin and throat appeared to be bright yellow. (It should be noted that this latter observation was likely due to coloration inside the mouth of the nestling which is very common in many nestlings.) The right wing consisted of bluish black pin feathers barely emerging from epitrichia which were approximately 0.25-0.50 inches in length, and folded in-place alongside the body. However, the left wing appeared quite disheveled and dislocated dorsally and cranially. The dark pin feathers of the left wing appeared to be pushed and twisted above the left shoulder caudal of the head. The cloaca appeared to be yellowish orange in color. The left femur as well as the ribs were very pronounced and protruded from under the skin. The carcass was relatively inflexible, except for the neck, when turned and manipulated for photographing.

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Based on the presence of a relatively long and thick bill, as well as presence of developing dark bluish-black remiges, the carcass was tentatively identified as a Common Grackle.

The nestling was estimated to be approximately 4 days old based on the fact that its eyes were not open and the presence of some pin feathers, principally in the wings. It should be emphasized that a nestling of this age cannot thermoregulate itself and must be brooded by a parent bird in order to maintain an appropriate temperature and survive. Based on the presence of adult Greenbottle Flies and the slight odor of decay, it appears that the nestling likely died within one to two days prior to its discovery.

Although the main body of the nestling did not appear to be contorted, the left wing appeared to be severely contorted and rumpled. Indeed, it was barely recognizable as a wing. However, no gross wounds were apparent. It is likely that the nestling fell out of its nest. The nestling may have damaged its wing as a result of the fall, but it is more likely that the wing was subsequently damaged by a scavenger. It is also possible that the nestling was killed or carried off from the nest by a predator, although no apparent wounds or indications of predation were found. It should be noted, however, that the small size of the carcass and the degree of *rigor mortis* precluded a definitive examination.

Inclement weather caused the loss of 24% of young Common Grackles in a Wisconsin study (Peer, B. D., and E. K. Bollinger, "Common Grackle" in *The Birds of North America Online, No. 271*, Ithaca, NY: Cornell Laboratory of Ornithology, 1997). Based on another study involving Common Grackle, 8% of nestlings died due to falling out of the nest (*Ibid.*). Predation is responsible for 43% mortality in Common Grackle nestlings (*Ibid.*).

Thus, it can safely be concluded that the possible Common Grackle nestling died of natural causes.

Common Grackle has routinely been recorded at the SRWWTP, principally in the bermed area, during most of the monthly wildlife surveys. The species attempted to nest in the skimmer motor at the East Sludge Pond last month, and hundreds of individuals typically night roost in the bermed area during much of the year. Given the large number of this species that roosts in the bermed area, it is probable that at least one pair nests there.

The carcass was photographed in place on May 18 immediately after its discovery. The carcass was found in exactly the same place and cursorily examined on May 19 around 08:30. The carcass was then immediately placed in a plastic bag, sealed, and labeled as to species, date discovered, party that discovered the carcass, location, date and time recovered, party responsible for recovery, and name of party completing the tag. The bagged carcass was then packed on ice inside a Styrofoam cooler, covered, and transferred by the wildlife consultant for deposition in a non-self-defrosting freezer at MEC Environmental Consulting under the company's federal and state salvage permits.

If you have any questions regarding this report, please call me at (248) 585-3800. Thank you again for selecting MEC Environmental Consulting for your wildlife management consulting needs.

Sincerely yours,

MEC ENVIRONMENTAL CONSULTING

Michael Carlson
Principal

enclosures (photographs)

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 18, 2005 - afternoon

1 26MAY05 012 RITE AID

#1: West shoulder of access road west of southwest corner of Diked Lagoon, looking northwest from same. Note pinkish mass in foreground is possible Common Grackle nestling carcass, berned area in background.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 18, 2005 - afternoon

0 26MAY05 012 RITE AID

#2: Possible Common Grackle nestling carcass as found near west shoulder of road west of southwest corner of Diked Lagoon, looking north. Note dark pin feathers; down on altricial nestling; greenbottle fly on carcass and nearby.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 18, 2005 - afternoon

2 26MAY05 012 RITE AID

#3: Possible Common Grackle nestling carcass turned over near west shoulder of road west of southwest corner of Diked Lagoon, looking north. Note right side with dark pin feathers on right wing in-place; yellow chin and throat.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 18, 2005 - afternoon

3 26MAY05 012 RITE AID

#5: Left side of possible Common Grackle nestling carcass near west shoulder of road west of southwest corner of Diked Lagoon. Note ribs and femur prominently protruding from underneath skin, orange-yellow cloaca or fece.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 18, 2005 - afternoon

4 26MAY05 012 RITE AID

#4: Left side of possible Common Grackle nestling carcass near west shoulder of road west of southwest corner of Diked Lagoon. Note unopened concave eyes, dislocated wing crumpled above shoulder, thick bill.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 18, 2005 - afternoon

5 26MAY05 012 RITE AID

#6: Possible Common Grackle nestling carcass near west shoulder of road west of southwest corner of Diked Lagoon. Manipulated to show dark and horn-colored bill and dislocated left wing, brown-gray down on head.

M10 087 738431

SeverStal
North America, Inc.

3001 Miller Road
P.O. Box 1699
Dearborn, MI 48121

July 15, 2005

Via Certified Mail – Return Receipt Requested

Ms. Diane Sharrow (DE-9J)
Project Manager
Enforcement and Compliance
Assurance Branch
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, IL 60604

Subject: Report on carcasses found at Schaefer Road Waste Water Treatment Plan

Reference: Severstal North America, Inc., Administrative Order Docket No R7003-5-00-001

Dear Ms. Sharrow:

The enclosed June 13 and 14, 2005 reports by our wildlife consultant details the discovery and the basis for identification of an adult Pied-billed Grebe and an adult Common Tern.

If you are interested in further investigating the carcasses, please let us know. We will store it until September 1, after which, space considerations dictate that it should be disposed of.

Please contact me at (313) 323-1260 if you have questions on the information in this report.

Very truly yours,

Lan Trinh
Environmental Engineer

Enclosures

cc: Mr. John Craig, MDEQ
Mr. Dan Sheill, US Fish & Wildlife

MEC ENVIRONMENTAL CONSULTING

June 14, 2005

Mr. Donald S. Windeler
SeverStal North America, Inc.
3001 Miller Road – Room 2110 ROB
Post Office Box 1631
Dearborn, MI 48121-1631

Subject: Schaefer Road Wastewater Treatment Plant – Carcass Report (P. N. 00330)

Dear Don:

Please find herein the report on the carcass which was found by Mark Mahler on May 18, 2005 at 16:30. This report was prepared in accordance with the procedures outlined in EPA's letters from Diane Sharrow to you, dated December 14, 2001 and August 12, 2004. The carcass is an adult Common Tern (*Sterna hirundo*).

The carcass was found at the water's edge of the east side of the Primary Lagoon approximately 20 feet north of the TVT bridge. The carcass was floating in the water approximately 6-8 inches from the edge of the lagoon, with the dorsal side against the water, with the head pointed south-southeast and the tail pointed northwest. The bill, chin, upper throat, breast, belly, left foot, carpal joint and adjacent leading edge of the left wing, and the entire leading edge of the right wing protruded from the surface of the water. The rest of the long and slender wings, both of which were extended away from the body by approximately 3 inches at both shoulders, and the forked tail were visible as they lay submerged approximately 0.5-1.0 inches below the surface of the water. The wings crossed each other at the middle of the primaries, the right wing over the left, and near the middle of the tail.

The bill was long and sharp and medium red in color with black on the distal 1-2 mm of the left side. The base of the bill appeared to be mostly covered or stained with a dark gray-brown, mud-like material resembling oil. The chin, upper throat, breast, belly, and approximately 3 inches of the leading edge of the right wing approximately one inch distal of the carpal joint of the carcass was pale to medium gray stained with a pale yellowish to light brown. The belly and left foot was covered with a dark gray-brown, mud-like material which resembled oil. The majority of both wings were covered with a dark gray-brown, mud-like material that appeared to contain some fine sediment.

The carcass was retrieved from the water by the wildlife consultant and placed dorsal side down onto the geotextile over the adjacent shoreline. The entire left side of the head, including the eyes, a small section of the upper breast, both underwings, and undertail were covered with a dark brown to black viscous, rather shiny material that had a greasy feel and appeared to be oil. The left eye appeared to be intact and open. The neck appeared to be somewhat extended. A sharp line around the upper breast demarcated the dark brown to black coloration of the head and extreme upper breast from the contrasting dingy pale gray breast. A less distinct line extended caudally around the belly of the bird. Only the dorsal side of the legs and feet were visible in the

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ventral view of the carcass. The legs and partially open feet appeared to be fully extended straight back towards the tail. The red legs and partially webbed feet of the carcass were partially covered with the dark brown-black material discussed above, creating a mottled appearance. Both wings were partially open. Specifically, the humerus appeared to be extended caudally and then the antebrachium extended somewhat cranially approximately at a 90 degree angle with the secondaries open. The primaries were closed and each manus extended caudally from the carpal joint almost at a 45 degree angle from the antebrachium. The tail appeared to be somewhat open with several rectrices visible and the forks rather broadly splayed. It should be noted, however, that the tail is not completely spread because otherwise the tail would not appear particularly forked and all 12 rectrices would be visible.

The carcass was then turned over on the geotextile with the ventral side down, such that the dorsal side of the carcass was visible. Except for the bill, the entire dorsal side of the carcass was covered with a rather thick coat of dark gray-brown to black, greasy material that appeared to be oil. All of the feathers appeared to be matted and plastered rather tightly to the wings and body of the bird. Several of the back and neck feathers appeared slightly disheveled but this may possibly have been due to turning of the carcass. Both wings proximal to the carpal joint (i.e., the secondaries and associated coverts) appear markedly arched upwards, such that the top of the patagium appears to be even and actually slightly higher than the middle (high point) of the back of the bird. Both carpal joints also appear to be in a horizontal plane perpendicular to the sides of the carcass and tangent to the center of the lower breast (see discussion of ventral view above). In addition, both sets of dorsal primaries appear to be slightly arched upwards, i.e., curved convex. The tail appeared to be slightly concave and slightly elevated dorsally at the base. The dorsal side of the carcass also appeared to arched upward (dorsally) at the upper (cranial end) of the back. Thus, the dorsal side of the carcass appeared to be arched both right to left and anteriorly to posteriorly. The right eye, which appeared to be open, was fully intact and did not appear to be covered with the dark greasy material. With the exception of the distal 2 mm which was black, the right side of the lower mandible was medium red with a small amount of the dark greasy mud. The distal 6-8 mm of the right side of the upper mandible appeared to be black with the rest of the right side of the lower mandible light to medium red and lightly covered with the dark greasy mud. Approximately half of the ventral side of the left foot was visible as it protruded beyond (caudal to) the left secondaries proximal to the body. The foot was also mostly covered with the dark greasy mud but the base red color was visible in spots.

The appendages of the carcass appeared very loose and the whole carcass flexible. No signs of *rigor mortis* were observed. The bird appeared to be in firm, good flesh. The keel did not feel sharp. The bird did not appear to have any broken bones, nor did it exhibit any wounds or visible lesions. The cloaca, which appeared to be whitish stained with the dark greasy material, appeared to be puffy and protrude slightly from the vent. No apparent odor of decay was noted. No recoverable oil was noted on the Primary Lagoon.

Based on the long, slender red bill tipped in black, the degree of forkedness in the tail, the long and slender wings, as well as the pale gray on the breast, the carcass was identified as a Common Tern. The bird appeared to be a male based on the protruding cloaca, which was likely due to

the sperm storage sac.

The carcass appeared to be relatively fresh because of the complete lack of rigor mortis, the good condition of flesh, and little sign of decomposition. The bird likely died one day prior to discovery of the carcass. (It should be noted that the carcass was not observed during the May wildlife survey conducted on May 16.)

The carcass did not appear to be contorted. Indeed, it appeared that virtually every feather was in the proper place. There was no indication of predation or obvious external sign of disease. The configuration of the carcass, particularly the extension of the antebrachium and partially open secondaries, position of the "swept back" primaries parallel to the body of the bird, strong curvature of the extended wings and tail, and feet turned such that the ventral side faced up towards the tail, strongly suggests that the bird was in flight when it died. Specifically, the bird appears to have been in gliding flight as described by Olin Pettingill, Jr. (O. S. Pettingill, Jr., "An Analysis of a Series of Photographs of the Common Tern", *The Wilson Bulletin, Vol. 43, No. 3,* September 1931, p. 172): *The tail retains the typical deeply forked farmation [sic] of the Sterninae [tern family]. The legs are drawn partially backward and upward to the under surface of the body. As contrasted with the remiges [being fully open and extended], the primaries are partly folded and directed posteriorly due to an increase in flexion at the wrist.*

Mean annual mortality of Common Tern is estimated at 25% based on a long-term study completed in the mid-1950s (Berger, A. J., *Bird Study*, New York: John Wiley & Sons, 1961, p. 266).

Common Tern is very sensitive to organochlorine contamination, especially DDE and PCBs as well as their degradation compounds (Nisbet, I. C. T., "Common Tern," in *The Birds of North America Online, No. 618*, Ithaca, NY: Cornell Laboratory of Ornithology, 2002). Elevated levels of lead and other heavy metals have been found in the tissues of Common Terns from several states, including New York (*Ibid.*). In at least one location in New York, lead concentrations in the feathers of adults were within the range associated with adverse effects on behavior and growth, based on laboratory studies (*Ibid.*). Mean nickel concentrations of 31-36 mg/kg dry weight were found in the bone of a Common Tern from Hamilton, Ontario (Eisler, R., *Nickel Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review, Contaminant Hazards Review Report No. 34*, Biological Science Report USGS/BRD/BSR-1998-0001, Laurel, MD: Patuxent Wildlife Research Center, 1998, p. 43).

Moreover, because they typically breed and spent much time in colonies, Common Terns are very susceptible to disease, including influenza and avian cholera. In the northeastern United States avian cholera as well as biotoxins from various species of shellfish (Nisbet, *loc cit.*) has caused mortality in Common Tern. Birds with avian cholera often fly erratically, even sometimes upside down (Friend, M. and J.C. Franson, eds., *Field Manual of Wildlife Diseases: General Field Procedures and Diseases of Birds*, Washington, D.C.: U.S. Geological Survey, 1999, p. 83). Death from avian cholera can be so swift that *birds may literally fall out of the sky or die while feeding, with no apparent signs of illness* (*Ibid.*). Although no field signs of avian

cholera were noted on the carcass, it should be noted that these signs, including mucous discharges, soiling and matting of feathers around the bill, eye, and vent, and pasty yellow droppings, if present, would have been masked or obliterated as a result of the carcass being in the Primary Lagoon. Thus, the bird may have died in flight from avian cholera, and fallen into the Primary Lagoon.

However, it is also possible that the bird, impaired by disease or other condition, died as it dove into the Primary Lagoon. One of the several ways Common Terns forage for food, referred to as the "plunge-dive", is to dive head first into the water from a height of approximately 5-10 feet above the water surface in order to catch a fish or eel. When Common Terns plunge-dive they *drop like winged arrows, folding their wings as their bodies enter the water* (A. C. Bent, "Common Tern" in *Life Histories of North American Gulls and Terns*, Washington, D.C.: Smithsonian Institution, 1921). According to Bent (*Ibid.*), often a Common Tern in a plunge-dive will disappear entirely under the water. Usually, however, terns barely go below the surface of the water (Podulka, P. et al, *Handbook of Bird Biology- Second Edition*, Ithaca, NY: Cornell Laboratory of Ornithology, 2004, p. 1-29). Plunge-dive depths of Common Tern have not been measured precisely, but the maximum depth is estimated to be 20 inches (Nisbet, *loc cit.*). Immersion time is usually 0.6–1.4 seconds (*Ibid.*).

It is possible that the Common Tern came into contact with oil or oil-like material as a result of plunge-diving into the Rouge River because this species only occasionally lands on the water surface during the breeding season (Nisbet, *loc cit.*). No Common Tern was observed to either land on the water surface of the Primary Lagoon or to plunge-dive into the Primary Lagoon during the entire wildlife survey performed on May 16, two days earlier, despite the presence of approximately 10 terns flying around the Primary Lagoon and resting on its east bank. Moreover, it should be noted that no recoverable oil was observed on the Primary Lagoon during the May wildlife survey. Common Terns were frequently observed throughout that survey to fly from the west carrying in their bills fish, likely caught in the Rouge River. The bird may have attempted to wash the oil-like material off by plunge-diving into the Primary Lagoon. Common Terns bathe by splashing into water from the air (*Ibid.*), similar to a plunge-dive.

The position and aspect of the wings of a Common Tern at the nadir of a plunge-dive and as it exits the water is believed to be very similar to the gliding flight. Although few photographs of the Common Tern plunge-dive exist, one photograph supports this similarity. In addition, the tail of the bird would likely be closed at this point, after likely being opened to serve as a brake and rudder, controlling the dive. The tail of the carcass appears to be somewhat open, suggesting that the bird had just finished the plunge-dive and was still trying to use the tail as a rudder (O. S. Pettingill, Jr., *loc cit.* pp. 171-172). Thus, if the subject bird did not die in flight, it is likely that it died at or just after the nadir of the plunge-dive into the Primary Lagoon.

The position of the wings and tail as well as the lack of rumpled or disheveled plumage support the conclusion that the bird died before coming into contact with oil-like material. If the tern was indeed alive when it contacted oil, the bird would likely have panicked and attempted to pull itself up and out of the water as quickly as possible. If this were the case, one would expect the

wings of the carcass to be positioned more anteriorly, the primaries to be opened more, and the tail to be more tightly closed (i.e., the outer rectrices or forks more closely together). As described above, the carcass did not exhibit these characteristics or any indication of struggle. Moreover, if the bird had come into contact with oil prior to its death, the carcass would likely have exhibited ruffled or disheveled feathers indicating that the bird had attempted to shake or preen, respectively, in order to clean any oil or oil-like material from its plumage. A Common Tern, especially after bathing, shakes its wings and ruffles its body feathers (Nisbet, *loc cit.*). However, as noted above, the carcass exhibited a very neat plumage with practically every feather in its place. Thus, the bird likely died from a condition unrelated to the Primary Lagoon.

Common Tern has routinely been recorded at the SRWWTP during the April or May wildlife survey when one or two courting pairs have been observed each year to fly over the facility. During the wildlife survey performed on May 16, 2005 a small colony of three pairs was found nesting on the east central bank of the Primary Lagoon. The terns appeared to disperse and abandon the nests as a result of human activity and augmentation of deterrents. However, disease may have been a factor. The species historically nested at the facility.

The carcass was photographed in place on May 18 immediately after its discovery. The carcass was then immediately placed in a plastic bag, sealed, and labeled as to species, date discovered, party that discovered the carcass, location, date and time recovered, party responsible for recovery, and name of party completing the tag. The bagged carcass was then packed on ice inside a Styrofoam cooler, covered, and placed in a locked storage shed at the SRWWTP with extra ice and insulative covering. On May 19 at 08:30 the bagged carcass, which was still on solid ice, was picked up from the SRWWTP storage shed, transferred to a hard plastic cooler, placed on fresh ice, and transported by the wildlife consultant for deposition in a non-self-defrosting freezer at MEC Environmental Consulting under the company's federal and state salvage permits.

If you have any questions regarding this report, please call me at (248) 585-3800. Thank you again for selecting MEC Environmental Consulting for your wildlife management consulting needs.

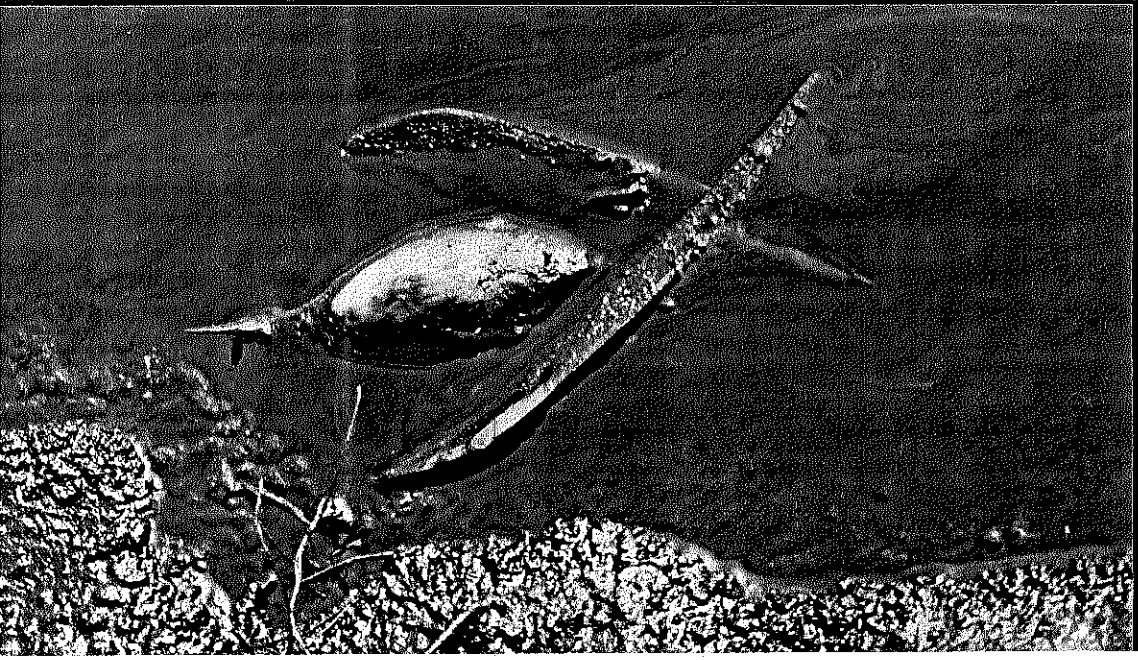
Sincerely yours,

MEC ENVIRONMENTAL CONSULTING

Michael Carlson
Principal

enclosures (photographs)

5 18 05



SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 18, 2005 - afternoon

#14 26MAY05 012 RITE AID

#1: East bank of Primary Lagoon north of the TVT bridge (far left), looking west-southwest from the Primary Lagoon fence approximately 60 feet north of the southeast gate. Common Tern carcass was found here at water's edge.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 18, 2005 - afternoon

6 26MAY05 012 RITE AID

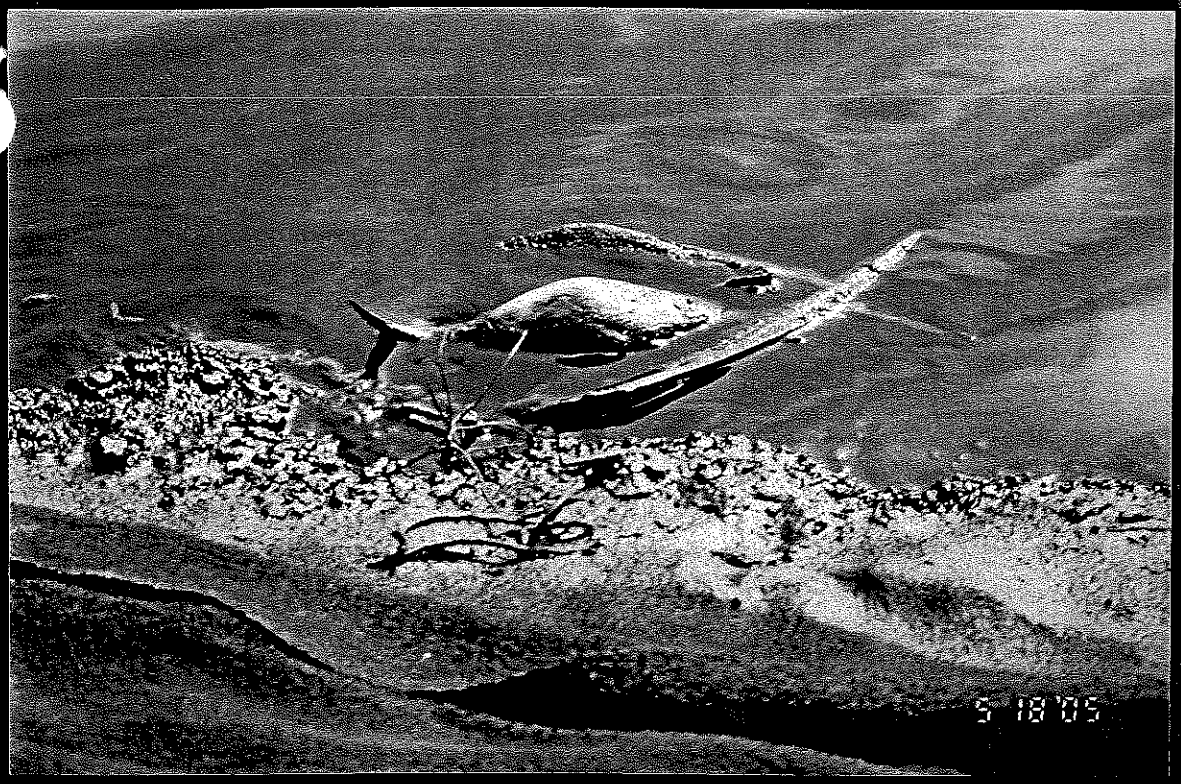
#2: Common Tern carcass as found at water's edge on east side of Primary Lagoon approximately 20 feet north of the TVT bridge, looking west-southwest from edge of geotextile. Note red bill, whitish breast, long wings.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 18, 2005 - afternoon

8 26MAY05 012 RITE AID

#3: Close-up of Common Tern carcass as found at water's edge on east side of Primary Lagoon approximately 20 feet north of the TVT bridge, looking west-southwest from edge of geotextile. Note protruding left foot and wing edges.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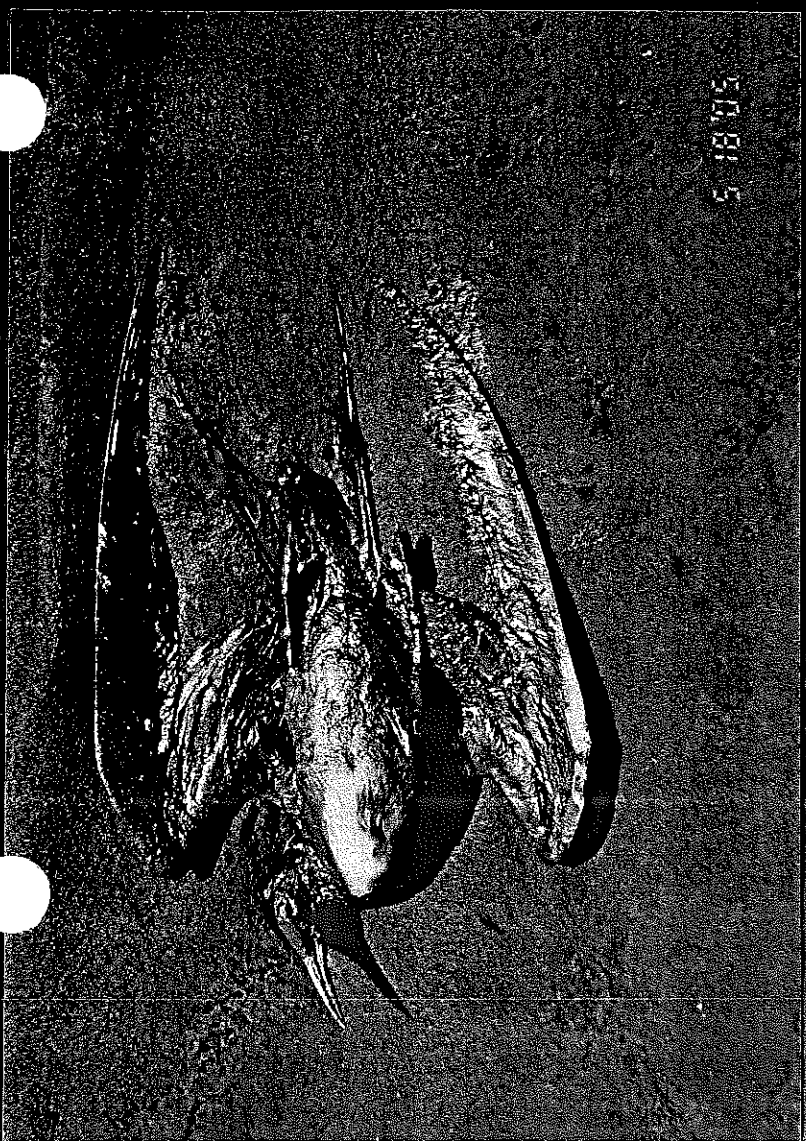


SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 18, 2005 - afternoon

7 26MAY05 012 RITE AID

#4: Right side close-up view of Common Tern carcass as found at water's edge on east side of Primary Lagoon approximately 20 feet north of the TVT bridge. Note red bill, left foot & wing edges protruding from water.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 18, 2005 - afternoon

9 26MAY05 012 RITE AID

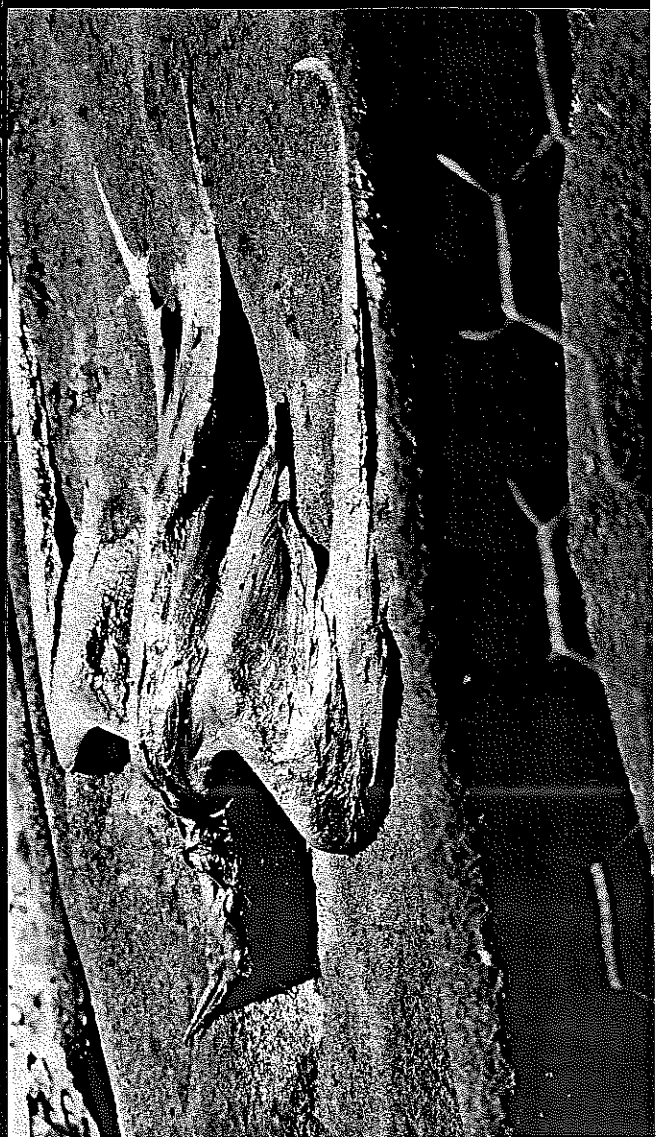
#5: Ventral side of Common Tern carcass on geotextile after retrieval from the water. Note dark, rather shiny material covering head, wings, vent, and tail; closed primaries; splay tail; feet extended posteriorly; intact right eye.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 18, 2005 - afternoon

#10 26MAY05 012 RITE AID

#6: Top view of dorsal side of Common Tern carcass on geotextile. Note dark, rather shiny material covering almost entire side. Note partially open secondaries, closed primaries, splay tail, foot protruding under left wing.



SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 18, 2005 - afternoon

#11 26MAY05 012 RITE AID

#7: Anterior view of dorsal side of Common Tern carcass. Note matted feathers; somewhat disheveled feathers on neck; intact, open right eye; curvature of antebrachium & secondaries; perpendicular manus (primaries).

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 18, 2005 - afternoon

#13 26MAY05 012 RITE AID

#8: Posterior view of dorsal side of Common Tern carcass on geotextile. Note splay tail; curvature of partially open secondaries and closed primaries.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 18, 2005 - afternoon

#12 26MAY05 012 RITE AID

#9: Left side view of dorsal side of Common Tern carcass on geotextile. Note curvature of wings; tail pointing slightly ventrally; intact, open left eye.

MEC ENVIRONMENTAL CONSULTING

June 13, 2005

Mr. Donald S. Windeler
SeverStal North America, Inc.
3001 Miller Road – Room 2110 ROB
Post Office Box 1631
Dearborn, MI 48121-1631

Subject: Schaefer Road Wastewater Treatment Plant – Carcass Report (P. N. 00330)

Dear Don:

Please find herein the report on the carcass which was found by the wildlife consultant on April 27, 2005 at 17:30. This report was prepared in accordance with the procedures outlined in EPA's letters from Diane Sharrow to you, dated December 14, 2001 and August 12, 2004. The carcass is an adult Pied-billed Grebe (*Podilymbus podiceps*) in definitive alternate (breeding) plumage.

The carcass was found on the netting, within approximately one foot of the edge, at the northwest corner of the Primary Lagoon, approximately 30 feet from the water's edge. From a distance the carcass had the appearance of a chunk of rock, or a piece of debris caught by the lower edge of the netting. The bird lay with its ventral side and a small portion of the right side against the ground and netting, with its neck and head against the right side, bill pointing southeast, and feet spread pointing west and northwest. With exception of the bill and portions of the head and breast, the carcass appeared blackish and was covered with a very fine black solid which appeared lubricous. In addition, some of the feathers appeared to be covered with a grease-like substance, resembling oil, but this material did not exhibit any chemical or petroleum odor. A slight odor of decay was apparent when within approximately two feet of the carcass. The body of the bird lay on the netting, the head and feet resting on the ground, which was approximately 0.25 -0.50 inches below the netting. The bill was relatively short, rather thick, and blunt-tipped, somewhat resembling that of a chicken. The upper mandible appeared to be pale gray edged with the distal quarter of the mandible and edge of the base a paler, horn-color and a large dark gray spot around the nostril. The lower mandible appeared to be a paler horn color with a dark gray spot near the center which, together with the spot on the upper mandible, created a dark band around the bill- the distinct identification feature of this species. The left eye appeared to be open and tan in color, as well as sunken, shriveled, and dessicated. Feathers on the left side of the head appeared to be matted and sticking outward from the head such that the left external ear canal was visible. Feathers on the neck, breast, and left flank which appeared to be blackish tipped in or mottled with beige, were matted and flared or fluffed out away from the body. Feathers on the back, rump, and scant tail appeared to be blackish in color, matted, and slightly flared. Both wings were short and appeared to be closed with remiges very dark gray and brownish in coloration and significantly matted. The right wing was positioned away from the body such that the tip was approximately 1.0-1.5 inches from the rump. It also appeared to be more narrow than the left wing. The left wing appeared to be held against the body. The tarsi (tarsometatarsi), which appeared to be very dark gray, were splayed such that each tarsus was

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perpendicular to the tail. Each crus rested on the net approximately 0.5-1.0 inches above the heel. The feet with lobed toes, which also appeared to be dark gray and slightly barred, were arched away from the body of the bird- the left foot curved toward the right and pointed northwest at an angle of approximately 45 degrees, and the right foot curved slightly towards the left and pointed west at an approximately 90 degree angle. The lobed toes of each foot were closed and appeared to be dessicated. The ventral (bottom) side of the both feet were more visible than the dorsal side. In other words, the dorsal side of the feet were mostly faced towards the ground.

A strong odor of decay emanated from the carcass as soon as the bird was turned over. The carcass, which was very stiff and rigid, was very light and easily turned. The ventral side of the body of the carcass appeared to be markedly concave with many variously sized but small circular holes principally in the belly. The carcass appeared to be devoid of any substantive moist flesh. A small amount of flesh, which was visible on the belly and vent, appeared to be dark reddish in color and dessicated. Feathers on the lower breast, belly, and vent appeared to be dark to medium gray and very matted, almost in wads. Feathers on the right side of the head appeared to be matted and somewhat disheveled. The right external ear canal was very conspicuous. The right eye was totally gone and a cavity in its place. Several small holes were apparent between the eye and the external ear canal. The dorsal (upper) sides of the feet were visible and dark to medium gray in color. The left foot was covered with sand-like soil. The ground underneath the carcass was very damp. At least two relatively small clumps of probable breast feathers as well as several loose feathers were noted on the moist ground.

The small size of the carcass, short wings, lack scant tail, and lobed toes support an identification of a grebe or member of the *Podiceps* family. Based on the presence of a thick, almost chicken-like bill, presence of a dark band around the bill, and brownish plumage, the carcass was identified as an adult Pied-billed Grebe.

The carcass, particularly the ventral side in contact with the ground, appeared to be considerably decomposed. A number of worm and/or maggot holes were observed in the belly, which appeared concave due to decomposition of the internal organs. In addition, the right eye cavity and portions of the right side of the head cranial were significantly decayed. Finally, a strong odor of decay was noted, especially when the carcass was turned over, such that the ventral side faced upwards.

The carcass appeared to be in a relatively peaceful repose; despite the partial extension of the right wing. The body did not appear to be contorted. There were no gross wounds apparent. Neither wing appeared to be broken. However, it is important to emphasize that the very rigid and decayed condition of the carcass precluded a definitive analysis. There was no indication of predation by a predator or depredation of the carcass by a scavenger.

The posture of the carcass, its right wing lifted away from the body, as well as the flared feathers noted on the head, neck, breast, back, and rump all indicate that the bird was attempting to thermoregulate. Given these observations, it is likely that the bird died of hypothermia. This

hypothesis is supported by the repose of the carcass, particularly the position of the head and neck relative to the right side of the carcass as if the bird died in its sleep. The moist ground underneath the carcass suggests that the bird likely succumbed when there was snow on the ground or during a period of heavy rainfall. (It is reasoned that a bird, even one struggling to thermoregulate, would likely generate enough heat to dry any but an excessively saturated or snow-covered ground beneath it before it succumbed to hypothermia.) Pied-billed Grebes migrate early in the spring, and sometimes land on ice-covered roads and parking lots which the birds mistake for open water bodies, usually resulting in death. In addition, exposure can cause mortality in Pied-billed Grebe.

An analysis of weather conditions between March 21, when the March wildlife survey was performed and the perimeter of the Primary Lagoon inspected, and April 27, when the carcass was found, revealed that the only dates when there was any precipitation occurring soon after night-time weather conditions favorable for migrants and consistent with the amount of decay observed in the carcass were March 22 and March 23. Flight conditions for migrant grebes were very good to excellent on both the early morning and late evening hours of March 22 as a cold front moved to the north from the southeast. Pied-billed Grebes migrate only at night. According to Muller and Storer (Muller, M. J., and R. W. Storer, "Pied-billed Grebe" in *The Birds of North America Online, No. 410*, Ithaca, NY: Cornell University Laboratory of Ornithology, 1999), *a migrating bird abruptly seeks a resting place at dawn so chance brings it to any water at hand.* It should be emphasized that on March 23 between 0.11 and 0.20 inches of snow fell in the Detroit area, temperatures rapidly fell from around 34° F to 27° F, and wind speeds were 10-20 mph with gusts to 28 mph. It is likely that these weather conditions resulted in the bird's hypothermia on March 23, especially if the bird was diseased or fatigued from the rigors of migration.. This date of death is generally consistent with the extent of decomposition observed.

Neurologically impaired Pied-billed Grebes have been noted in the Great Lakes. Testing has revealed that this impairment and subsequent mortality has been due to West Nile Virus (Nol, P., *Supplement to the Journal of Wildlife Diseases*, Volume 39, No. 1, January 2003, p. 8). Elevated concentrations of mercury have also been reported in Pied-billed Grebes from the Great Lakes (Muller and Storer, *loc cit.*). In addition, ingestion of pesticides has also been shown to cause Pied-billed Grebe mortality (*Ibid.*). Thus, hypothermia may also have been exacerbated by conditions existing prior to the bird's arrival at the SRWWTP. E.g., neurological impairment from West Nile Virus or contaminant levels may have compromised the bird's health, causing the bird to seek shelter under the netting of the Primary Lagoon.

The presence of loose breast feathers and small feather clumps on the ground beneath the carcass may have resulted from snow melting and subsequently refreezing before the bird had expired. However, the feathers may have been due to preening and this species habit of regularly removing feathers, principally from the flanks, and eating these to form regurgitable pellets (*Ibid.*), or less likely from the bird's movements against the plastic braided netting.

Although not noted in the examination of the carcass, one of the photographs clearly shows that

the right margin of the left foot is somewhat scraped and worn. Very awkward on its feet, the bird very possibly scraped its foot climbing up the rather steep, slag embankment at the northwest corner of the Primary Lagoon.

Pied-billed Grebe has been recorded at the SRWWTP on two previous occasions, viz., June 26, 2001, when a probable oiled Pied-billed Grebe was found at the East Sludge Pond, and was successfully rehabilitated; and, May 7, 2002, when a Pied-billed Grebe was briefly observed in early morning fog on the Primary Lagoon.

The carcass was photographed in place on April 27 immediately after its discovery. Additional photographs were taken the morning of April 28 when the carcass was examined and then placed in a plastic bag, sealed, and labeled as to species, date discovered, party that discovered the carcass, location, date and time recovered, party responsible for recovery, and name of party completing the tag. The bagged carcass was then packed on ice inside a Styrofoam cooler, covered, and transferred by the wildlife consultant for deposition in a non-self-defrosting freezer at MEC Environmental Consulting under the company's federal and state salvage permits.

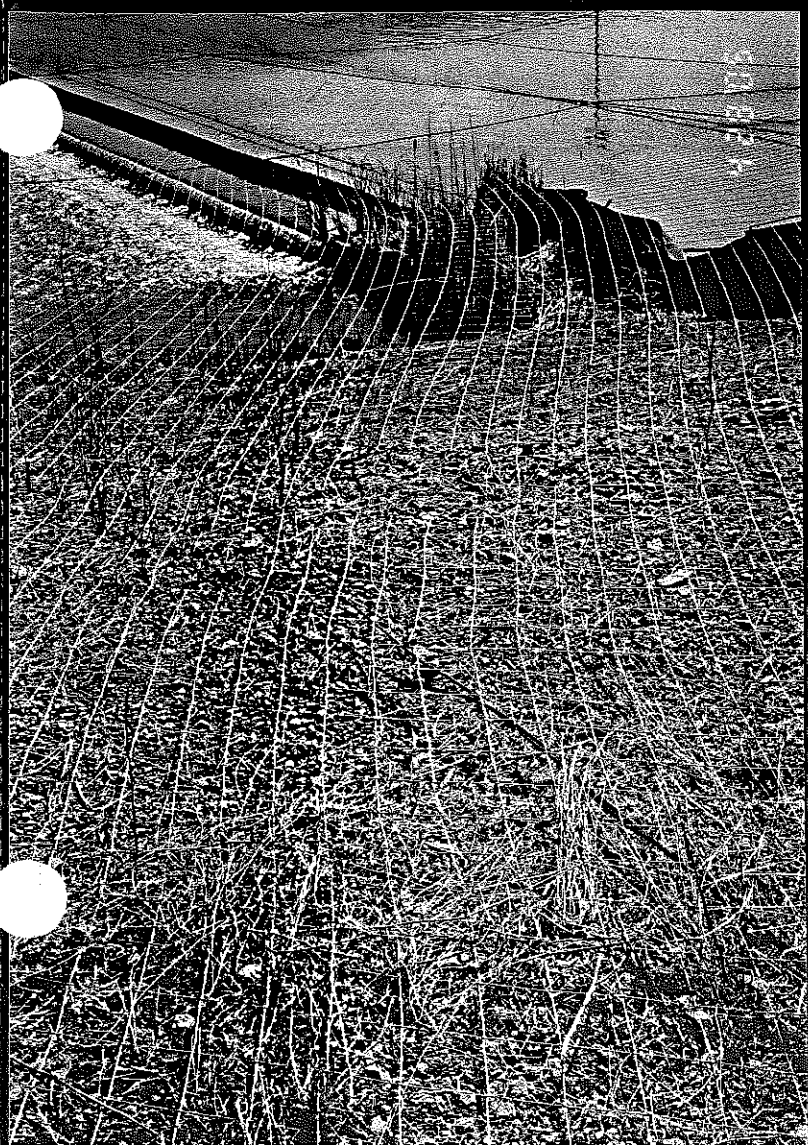
If you have any questions regarding this report, please call me at (248) 585-3800. Thank you again for selecting MEC Environmental Consulting for your wildlife management consulting needs.

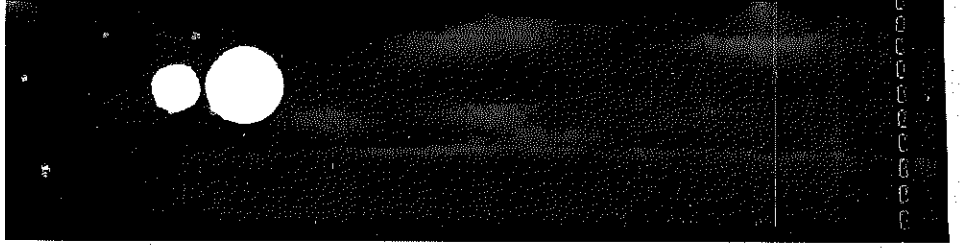
Sincerely yours,

MEC ENVIRONMENTAL CONSULTING

Michael Carlson
Principal

enclosures (photographs)





on netting; dark stained and matted plumage; flared feathers on head, neck, breast, flank, back, and rump; lifted right wing; and, lobed toes.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
April 27, 2005 - afternoon

#4: Close-up of head, neck and right dorsal side of Pied-billed Grebe carcass as found, looking north-northwest. Note light and dark ("pied") bill and flared feathers on head and neck.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
April 27, 2005 - afternoon

#5: Posterior end of dorsal side of Pied-billed Grebe carcass as found, looking east. Note scant tail; short, matted wings; lifted right wing; flared, matted feathers, both right and left crus resting on net; and barred, lobed toes.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
April 27, 2005 - afternoon

#6: Left side of Pied-billed Grebe carcass as found, looking south. Note matted breast feathers flared and fluffed; belly resting on ground, breast and tail on net, feet under net.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
April 28, 2005 - morning

#7: Anterior end of dorsal side of Pied-billed Grebe carcass as found. Note mottled color of breast feathers showing true plumage color; matted flared and fluffed breast feathers; lifted right wing; and, flared left flank feathers.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
April 27, 2005 - afternoon

#8: Ventral side of Pied-billed Grebe carcass (flipped over from original position), looking south. Note decay holes in head and belly; depressed belly showing spots of dried flesh; dorsal sides of lobed feet.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
April 28, 2005 - morning

#9: Ventral side of Pied-billed Grebe carcass (flipped over from original position), looking north. Note decay holes in head; decay of belly; and side support cable of net. Photograph is slightly out-of-focus.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
April 28, 2005 - morning

#10: Ventral side of Pied-billed Grebe carcass (flipped over from original position), looking northwest. Note flesh visible on vent. Photograph is out-of-focus.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

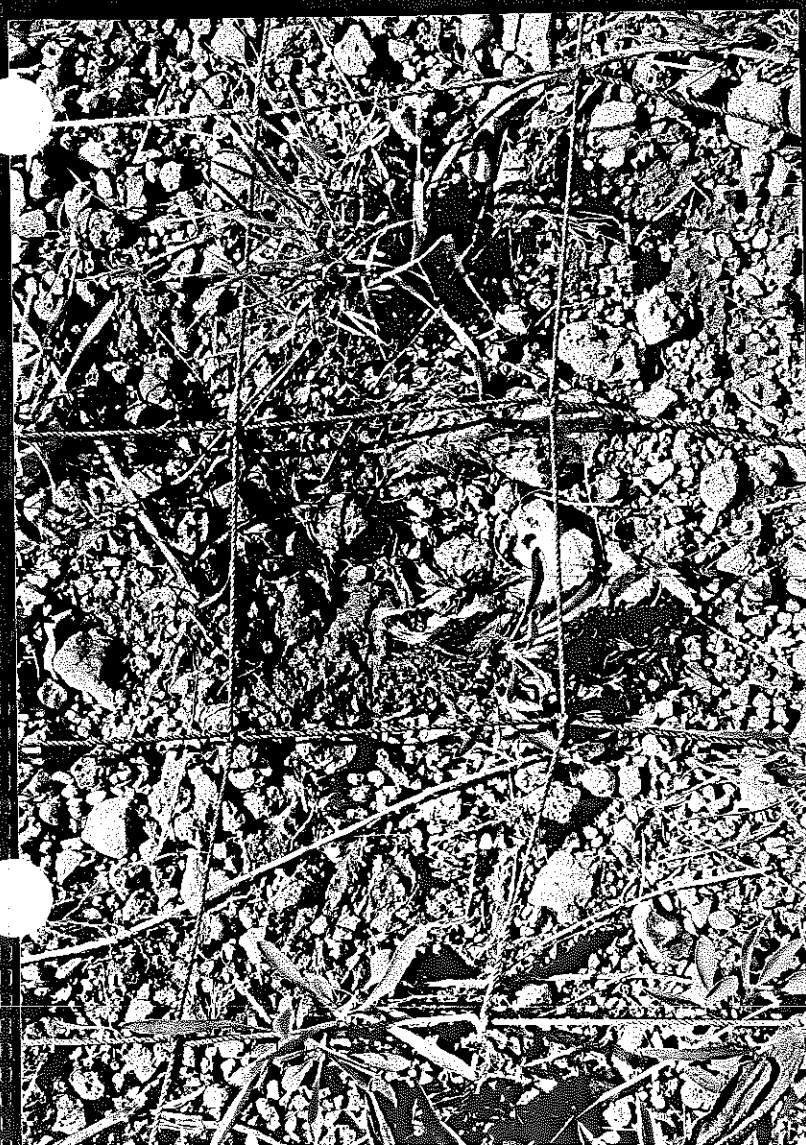
Photographed by Michael Carlson
April 28, 2005 - morning

#11: Ventral side of Pied-billed Grebe carcass (flipped over from original position), looking west. Note worn right margin of left foot; probable worm or maggot holes in belly; and apparent decay of belly.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
April 28, 2005 - morning

#12: Ventral side of Pied-billed Grebe carcass (flipped over from original position), looking east. Note missing eye and decay of cavity; light and dark ("pied") bill; and stained matted feathers which appear wadded.



SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
April 28, 2005 - morning

#13: Ventral side of Pied-billed Grebe carcass (flipped over from original position), looking south-southwest. Note probable worm or maggot holes in belly; and apparent decay of belly.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
April 28, 2005 - morning

#14: Ground immediately beneath Pied-billed Grebe carcass, looking south-southeast. Note darker coloration of ground indicating moisture; several small gray and brown feather clumps and loose feathers.

SeverStal
North America, Inc.

3001 Miller Road
P.O. Box 1699
Dearborn, MI 48121

February 25, 2005

Via Certified Mail – Return Receipt Requested

Ms. Diane Sharrow (DE-9J)
Project Manager
Enforcement and Compliance
Assurance Branch
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, IL 60604

Subject: Report on carcass found at Schaefer Road Waste Water Treatment Plan

Reference: Severstal North America, Inc., Administrative Order Docket No R7003-5-00-001

Dear Ms. Sharrow:

The enclosed February 9, 2005 report by our wildlife consultant details the discovery and the basis for identification as an immature Great Blue Heron. The feathers did not appear to be oiled. As noted in the report, the bird may have been killed by a raptor.

Please contact me at (313) 845-3217 if you have questions on the information in this report.

Very truly yours,

D. S. Windeler, Manager
Environmental Engineering

Enclosures

cc: Mr. John Craig, MDEQ
Mr. Dan Sheill, US Fish & Wildlife

MEC ENVIRONMENTAL CONSULTING

February 9, 2005

Mr. Donald S. Windeler
SeverStal North America, Inc.
3001 Miller Road – Room 2110 ROB
Post Office Box 1631
Dearborn, MI 48121-1631

Subject: Schaefer Road Wastewater Treatment Plant – Carcass Report (P. N. 00330)

Dear Don:

Please find herein the report on the carcass, which was found by Mark Mayler, SRWWTP plant operator, on Sunday, December 19, 2004 at approximately 19:00. This report was prepared in accordance with the procedures outlined in EPA's letters from Diane Sharrow to you, dated December 14, 2001 and August 12, 2004. The carcass is that of an immature Great Blue Heron (*Ardea herodias*).

The carcass originally was found in the middle of the road on the north side of the Diked Lagoon approximately 40 feet southeast of Station No. 5. According to Mr. Mayler, the carcass was missing its head, and lay on its ventral side with legs pointing west. Shortly before sunrise on December 20, the carcass was not seen in the middle of the access road as before. Later in the morning the carcass was discovered in sparse vegetation at the side of the road approximately 8 feet north of the original location. MEC Environmental Consulting's wildlife specialist arrived at the facility around 15:00 on December 20 to examine the carcass. Weather conditions were overcast, intermittent snow flurries, south winds approximately 14 mph, and temperature around 16° F, which created a wind chill of approximately minus 8° F. The carcass was bagged, tagged and maintained on ice in an exterior, locked shelter at the SRWWTP until it was reportedly picked up by Mr. Dan Sheill of the USFWS on December 21.

Several whitish feathers which resembled breast or belly feathers were found in the middle of the road where the carcass was reported to have been found initially. No tracks were observed at the top of the north bank of the Diked Lagoon, access road, or south edge of the bermed area proximal to the carcass.

The carcass lay on its dorsal (i.e., back) side with its legs generally pointing southeast. The head and a small section of the neck of the carcass was missing. The right wing was almost fully extended and open except for the distal 3-4 primaries. The left wing appeared to be closed, but held approximately one inch away from the body. In addition, the left shoulder or bend of the wing appeared to be positioned approximately one inch more cranial than normal for a resting bird. (It should be noted that this observation may be skewed due to the lack of the head and upper neck as well as the open and partially extended right wing.) Both legs distal of the knee appeared to be flexed somewhat forward of the ventral side, and the right leg was noticeably bent and dorsally crossed

1003 AMELIA AVENUE ROYAL OAK, MICHIGAN 48073-2704
VOICE: (248) 585-3800 mecec@comcast.net FAX: (248) 585-8404

with the left leg just proximal of the right heel. The feet appeared to be turned such that the undersides or ventral side pointed sideways and slightly dorsal towards the right wing. The extended toes, particularly the undersides, were brownish yellow. The toes and distal one inch of the tarsi were dark, appearing to be coated in mud.

The ventral plumage generally appeared to be in good condition, and was mostly white to medium gray. Some pale beige and cinnamon- to rust-colored feathers were apparent on the neck and upper breast of the carcass as well as proximally and distally of the alula of the right wing. Neck and upper breast feathers appeared to be very disheveled. Two small areas (approximately one square inch) of medium brown-gray staining were apparent: one on the lower central belly and the other on upper right breast. The thighs and a small portion of the vent were pale pinkish cinnamon in color. The distal ends (approximately 2-8 mm) of many of the right secondaries and a few of the tertials appeared to be soiled pale brown and unkempt. None of the feathers appeared to have plumes.

A circular patch of purplish red flesh, approximately 0.5 inches in diameter, was apparent immediately inside the leading edge of the right underwing approximately three inches proximal of the alula. The distal end of the neck, where the head and upper neck were severed, appeared whitish (bone) surrounded by medium red (flesh), and was noted to be slightly jagged and rough. What appeared to be a cleanly cut neck feather was also noted in one of the photographs of this part of the carcass. Due to the very cold weather and the fact that the carcass was frozen solid, the condition of the bird's flesh, including keel projection, and integrity of bones was not evaluated.

The dorsal plumage appeared quite disheveled and unkempt, especially at the anterior end of the body and both shoulders. Back feathers were disarrayed and sticking out of place. The right wing marginal coverts, median secondary coverts, as well as the greater and lesser secondary coverts were tipped in pale beige. In addition, several of the greater and lesser coverts were slightly edged in pale beige. A small patch (approximately 1.5 square inches) of the marginal coverts and median secondary coverts of the right wing at the shoulder appeared to be matted and disheveled, with many at the margin of the wing damaged. The right primaries and several of the secondaries were blue-black, sharply contrasting with the brownish and bluish gray coverts. The barbs of the distal ends of several of the secondaries were separated and appeared unkempt. Several of the rectrices (tail feathers) appeared to be missing. None of the feathers appeared to have plumes.

One area (approximately 1.5 square inches) of feathers on the left side of the upper back was stained red to orange with what appeared to be blood. Upon closer examination there was a relatively deep gash in the flesh below the stained feathers. In addition, a second gash with red-stained feathers around it was noted on the left side of the upper breast just under and obscured by the bend of the folded wing, approximately 1-2 inches ventral of the first gash.

The bird was determined to be an immature based on the absence of black on the edge of the shoulder proximal to the alula, the absence of rust-color and the presence of pale pinkish cinnamon color on the thighs, the absence of plumed feathers, and the presence of pale beige-colored tips and edges of the dorsal wing coverts.

The decapitated carcass, the gashes on the left side of the carcass (one on the upper back, and one towards the upper breast) together with the peculiar pose of the carcass (one wing open and extended, and the other one closed and seemingly held more cranial to the body than usual) strongly indicate that the bird was killed by a predator. The presence of what is most likely blood (orange-red staining) on the feathers of the left back and side of the upper breast corroborates this conclusion. If the observed gashes were caused by a scavenger after the bird's death, it is doubtful that blood would have coated some of the feathers because the extremely cold temperatures on Sunday likely flash-froze the carcass soon after death. [Probably a scavenger, likely a mammal, moved the carcass to the vegetation at the side of the road. It is likely that the purplish red patch of bare flesh on the ventral side of the leading edge of the right wing (no orange-red staining of feathers was observed here) and the matted and damaged feathers on the dorsal side of the right wing directly opposite the bare flesh was caused by this scavenger.]

Specifically, the fact that the bird was decapitated and the presence of what appears to be a cleanly cut feather at the cranial end of the carcass indicate that the bird was likely killed by a raptor. Raptors, including Great Horned Owl, all of the falcons, and some buteos, including Red-tailed and Rough-legged Hawks, routinely decapitate their prey. Sometimes only the head is taken by these raptors and the rest of the body left behind. Great Horned Owl is known to prey upon Great Blue Heron. Although they have not been observed at the SRWWTP, Great Horned Owls are known to reside year-round in the Dearborn area. Larger falcons, e.g., Peregrine Falcon and Gyrfalcon, could attack and kill a Great Blue Heron, especially an immature. Peregrine Falcons nest and are year-round residents in the nearby City of Detroit. A Gyrfalcon was reported in Dearborn the same week that the carcass was found. Generally buteos would be less likely to attack and kill a heron. However, the Red-tailed Hawk has been known to prey on herons (*Auk*, Vol. 88, July 1971, p. 669). At least one Red-tailed Hawk was seen along the Rouge River west of the SRWWTP by the wildlife specialist on the wildlife survey conducted four days previously. A pair of these raptors is routinely observed west of the facility along the Rouge River and occasionally in the bermed area.

Death by a raptor is also suggested by the disheveled or disorganized appearance of the plumage and misaligned feathers on the back of the bird. A raptor often strikes a bird from behind with significant force resulting in dislodged and/or mussed up feathers. A strike by a falcon generally would be expected to dislodge a considerable number of feathers. Less than six loose feathers were observed in the road. However, considering the relatively strong winds Sunday night and Monday afternoon, it is likely that the majority of any loose feathers was blown away.

From the posture of the carcass (viz., one wing mostly extended, feet pointing sideways and dorsally), it appears that the heron may have struck as it was flying over the facility. Great Blue Herons fly with the undersides (ventral side) of their feet facing upwards (i.e., towards the dorsal side). Four days before the carcass was found, the wildlife specialist observed a Great Blue Heron flying relatively low over the facility late in the afternoon from the direction of the Rouge River. Great Blue Herons have been known to over-winter along the Rouge River.

It should be emphasized that immature Great Blue Herons have a high mortality rate of 69%. In addition, severe winter weather can result in Great Blue Heron mortality. On the evening of Saturday, December 18 a very strong cold front moved through the region, causing temperatures to rapidly fall from 37° F at 20:53 on December 18 to 26° F at 12:53 on December 19 to single digits by 06:53. The temperature throughout the morning of December 19 after dawn was 5-6° F with northwest winds ranging from 14-22 mph. These conditions produced wind chills of approximately minus 22° F to minus 34° F. Afternoon temperatures continued to fall from 6° F to 3° F, with winds only slightly diminishing to 13-17 mph out of the northwest. These conditions produced wind chills of approximately minus 20° F to minus 30° F. In addition, periods of light snow, sometimes heavy at times, fell during the afternoon of December 18. This precipitation changed to rain in the evening of December 18, then back to light snow in the middle of the night, and continued through the early morning hours of December 19. It is possible that these very adverse weather conditions weakened the heron such that it became susceptible to predation.

If you have any questions regarding this report, please call me at (248) 585-3800. Thank you again for selecting MEC Environmental Consulting for your wildlife management consulting needs.

Sincerely yours,

MEC ENVIRONMENTAL CONSULTING

Michael E. Carlson
Principal

enclosures (photographs)

MANAGING ENVIRONMENTAL CONCERNS For Over 15 YEARS

12 20 04

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
December 20, 2004 - afternoon

#1: Access road south of bermed area and north of Diked Lagoon, looking west from approximately 50 feet southwest of Station No. 5. Location of Great Blue Heron carcass when first found. Note frozen Diked Lagoon.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
December 20, 2004 - afternoon

#2: Close-up of surface of access road where Great Blue Heron carcass was first found. Note white bits of fluff near upper right corner and lower left corner are likely Great Blue Heron breast or belly feathers.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
December 20, 2004 - afternoon

#3: North shoulder of access road south of bermed area and bermed area, looking north from approximately 60 feet west of the northeast corner of Diked Lagoon. Note pile of white before *Phragmites* is Great Blue Heron carcass.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
December 20, 2004 - afternoon

#4: Great Blue Heron carcass as re-found on 12-20-04, looking north from the north shoulder of the access road. Note right wing mostly extended, flexed legs, and whitish to light gray and beige ventral side.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
December 20, 2004 - afternoon

#5: Great Blue Heron carcass looking down from over right ventral side of carcass. Note missing head & portion of neck; extended right wing; patch of bare flesh near leading edge of right wing, soiled tips of secondaries.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
December 20, 2004 - afternoon

#6: Close-up of leading edge of right ventral wing of Great Blue Heron carcass. Note patch of soiled feathers, and purplish red, bare flesh and lack of blood-stained feathers. Note rust-colored feathers on leading edge & side of neck.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
December 20, 2004 - afternoon

#7: Right ventral side of Great Blue Heron carcass looking down and east. Note soiled/stained feathers on belly and side of breast; soiled, unkempt tips of right remiges; feet coated with mud or dark substance.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
December 20, 2004 - afternoon

#8: Great Blue Heron carcass looking down from over left ventral side of carcass. Note dorsal side of feet; feet turned to right and slightly pointing dorsally; and pale pinkish cinnamon thighs typical of immature.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
December 20, 2004 - afternoon

#9: Left ventral side of Great Blue Heron carcass looking west from near the ground. Note beige tips and edging of greater and secondary wing coverts; toes pointed right and dorsally; neck & breast feathers disheveled.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
December 20, 2004 - afternoon

#10: Close-up of the legs and feet of the ventral side of Great Blue Heron carcass, looking down and east from right side. Note dorsal side of feet mostly covered or stained with mud or dark substance; soiled tips of right secondaries.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
December 20, 2004 - afternoon

#11: Overhead view of dorsal side of Great Blue Heron carcass (flipped over from re-located position) looking down from right side and facing west. Note missing head; disheveled back feathers; pale tips & edges of wing coverts.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
December 20, 2004 - afternoon

#12: Overhead close-up of dorsal side of Great Blue Heron carcass looking down from right side and facing west. Note small patch of matted feathers on leading edge of right wing near back; missing head; disheveled back.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
December 20, 2004 - afternoon

#13: Right dorsal side of Great Blue Heron carcass, looking west from near the ground. Note lack of head, disheveled neck, back, and rump. Note ventral side of dark feet facing towards right, & soiled tips of secondaries.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
December 20, 2004 - afternoon

#14: Close-up of legs and feet of the dorsal side of Great Blue Heron carcass, looking down and west from the right side. Note dark & yellow ventral side of feet pointing right and generally toward dorsal side of carcass.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
December 20, 2004 - afternoon

#15: Close-up of end of decapitated lower neck of Great Blue Heron carcass. Note slightly jagged appearance of bone & ligament, cleanly cut feather near neck end, minor blood staining of feathers, relatively short neck remaining.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
December 20, 2004 - afternoon

#16: Overhead view of dorsal side of Great Blue Heron carcass, looking down from left side & facing west. Note closed left wing held more cranial (anterior) than typical; neck and back feathers disheveled.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
December 20, 2004 - afternoon

#17: Left dorsal side of Great Blue Heron carcass, looking east from near the ground. Note disheveled neck and left wing coverts; gash and apparent blood-stained feathers at left side of upper back.

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
December 20, 2004 - afternoon

#18: Left, dorsal side of Great Blue Heron carcass, looking from the anterior end of the carcass as it was propped up off ground with a stick. Note gash on side of back & on side of breast partially hidden by pale, left shoulder.

2004

SEVERSTAL NORTH AMERICA, INC.
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
December 20, 2004 - afternoon

#19: Close-up of left, ventral side of Great Blue Heron carcass, looking from near the anterior end of the carcass as it was propped up off ground with a stick. Note deep gash on left side of breast, & bare flesh on right underwing.

SeverStal
North America, Inc.

3001 Miller Road
P.O. Box 1699
Dearborn, MI 48121

July 9, 2004

Via Certified Mail – Return Receipt Requested

Ms. Diane Sharrow (DE-9J)
Project Manager
Enforcement and Compliance
Assurance Branch
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, IL 60604

Subject: Report on bird carcass found at Schaefer Road WasteWater Treatment Plant
May 6, 2004.
Reference: Rouge Steel Company, Administrative Order Docket No R7003-5-00-001

Dear Ms. Sharrow:

This letter confirms our telephone message to you following discovery. The enclosed July 7 report by our wildlife consultant details the discovery and the basis for identification as a probable adult Horned Grebe. The report indicates that an oily substance was observed on portions of the carcass. However, the source of the substance is unknown, since it did not appear consistent with the oil skimmed from the wastewater treatment ponds.

Please contact me at (313) 845-3217 if you have questions on this information.

Very truly yours,

D. S. Windeler, Manager
Environmental Engineering

Enclosure

cc: Mr. John Craig, MDEQ
Ms. Sheila O'Connor, US Fish & Wildlife

MEC ENVIRONMENTAL CONSULTING

July 7, 2004

Mr. Donald S. Windeler
Rouge Steel Company
3001 Miller Road – Room 2110 ROB
Post Office Box 1631
Dearborn, MI 48121-1631

Subject: Schaefer Road Wastewater Treatment Plant – Carcass Report (P. N. 00330)

Dear Don:

Please find herein the report on the carcass which was found by the wildlife consultant on May 6, 2004 at 17:00. This report was prepared in accordance with the procedures outlined in EPA's letter from Diane Sharrow to you, dated December 14, 2001 The carcass is believed to be an adult Horned Grebe (*Podiceps auritus*).

The carcass was found on the middle of the bank near the southwest side of the Primary Lagoon, well camouflaged against slag of similar color values to that of the carcass, approximately 75 feet south of the yellow standpoint and approximately 20 feet from the water's edge. The small-bodied, slightly elliptical-shaped carcass was in an advanced stage of decay, wherein the head and neck were completely skeletal (i.e., completely devoid of flesh) and very white as though bleached by the sun. The skull, severed from the neck, lay immediately next to the left breast of the carcass with the bill pointed towards the ground and towards the anterior end of the carcass, which faced southwest. Only a small amount of gray down remained adhered to the skull where the chin and throat had been. The bill of the carcass appeared to be gradually tapered to a sharp tip. Although at least one photograph seems to show the distal 2-3 mm of the lower mandible being slightly upturned, the lower mandible in actuality was not so upturned. The upperparts (i.e., back side) of the carcass was visible. Approximately seven vertebrae lay on the back of the carcass, and curved towards the left breast. The body was covered with weathered, seemingly somewhat faded, tan and chocolate brown feathers which appeared dirty and somewhat matted. Generally the feathers appeared somewhat darker at the margins and lighter at the rachides (i.e., shafts). Some of the feathers, especially those of the breast, left flank, and rump, seemed to be very lightly coated with a pale brown, grease-like substance, which may possibly have been oil, however, it did not appear to be visually consistent with oil skimmed off the SRWWTP ponds. The left wing was partially extended at an approximate 80 degree angle from the body, revealing a set of white secondaries still attached to the ulna. Many of these feathers appeared to be weathered but not worn. The right wing was not extended but was slightly opened with the carpals (i.e., wrist) positioned approximately 0.5 inches from the right breast. The right metacarpals were barely attached to the carpals. Only two primaries were attached to right metacarpals, although several primaries lay very closeby. Several of the right primary feathers, although weathered, did not appear to be worn. A few more primaries were attached to the left wing. Two of the primaries on the left wing appeared to be somewhat worn, and one of the tips appeared to be broken. The radius and ulna as well as the metacarpals of both wings were

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visible, appearing skeletal and white. The right wing showed a set of tightly compressed secondary feathers emerging from a row of epitrichia (horny, cylindrical sheaths at the base of the feathers), each epitrichium being approximately 7 mm long. Both wings appeared to be relatively short. No tail was visible. The legs, which protruded from the posterior end of the carcass, appeared to be barred, and very desiccated with white worn, almost chipped areas, especially at the base of the tibiae. The left tarsus extended at an approximate 80 degree angle from the body, with the toes curved back towards the right. The toes appeared to have light-colored swollen segments separated by dark joints, giving them an odd appearance. The right tarsus was angled slightly at an approximate 20 degree angle from the body, with toes, some of which appeared to be damaged, curving towards the left.

The underside of the bird appeared to be stoved in at the belly. Feathers around this cavity, which was not a hole into the body cavity, appeared to be stained and matted with a small amount of rust-colored substance, which may possibly have been residual blood. The carcass was completely devoid of moist or visible dried flesh. Feathers of the underside of the main body, which appeared virtually intact and very dense, were mostly pale gray in color with tinges of pale brown on the belly and some rufous on the flanks. The feathers were generally fluffed out away from the body. Some of the feathers, particularly on the breast, appeared matted and dirty. The secondaries of both the right and left wings appeared to be bright white. The tips of several of the secondaries appeared to be stained pale brown.

The carcass appeared to be in a relatively peaceful repose; despite the partial extension of the wings. The body did not appear to be contorted. There were no gross wounds apparent. The metacarpals appeared to be damaged and many primaries appeared to be missing; however, neither wing appeared to be broken. Yet it is important to emphasize that the decayed condition of the carcass precluded a definitive analysis, and that what appeared to be damage, e.g., right toes and missing primaries, may in fact have been due to the natural effects of weathering and degradation.

The small size of the carcass, short wings, lack of apparent tail, plumage coloration, bill shape, and barred tarsi with segmented (vestiges of lobes) toes support an identification of a grebe or member of the *Podiceps* family. Although initially identified as a Pied-billed Grebe, this identification was soon ruled out on the basis of bill size and shape. Based on size and other features, e.g., white secondaries, the carcass was determined to be either a Horned Grebe or its cousin, the Eared Grebe, which is rare east of the Mississippi. When alive the two species can be easily be distinguished. However, skeletal features can be used to distinguish the two species when dead and decayed. Bill height as measured at the base of the bill is greater than bill width in a Horned Grebe, while bill height is equal to or less than the bill width in Eared Grebe. In addition, the length of the tarsus is 43.5-48.5 in Horned Grebe, and 40-44 mm in Eared Grebe. Bill measurements were 5.0 mm in height and 7.0 mm in width. The tarsi were measured as 47.5 and 48 mm long. The bill measurement indicates Eared Grebe while the tarsi measurements indicate Horned Grebe. It should be pointed out that the bill measurements in this case should be discounted because it was difficult to ascertain where the actual base of the bill was because virtually all the flesh was missing, and hence part of the forehead was likely inadvertently

included in the measurements. Therefore, the tarsi measurements are considered to be a more accurate indicator. The carcass is, therefore, a Horned Grebe. The lighter plumage coloration exhibited by the carcass generally corroborates this identification. Moreover, the carcass is believed to be that of an adult because an immature bird would not show rufous coloration on the flanks and would show whitish margins on the feathers of the back.

The posture of the carcass, its slightly open wings, as well as the fluffed feathers noted on the underside all indicate that the bird was attempting to thermoregulate. Given these observations, it is likely that the bird died of hypothermia. This hypothesis is supported by the repose of the carcass, which suggests a sleeping bird. (Especially because of the position of the skull so close to the body and the bill pointed down towards the ground, it is likely that the skull naturally fell off the vertebrae probably by the action of ice and snow over this past winter once the body parts had decayed.) Exposure is major cause of mortality in Horned Grebe (Stedman, S. J., "Horned Grebe" in *Birds of North America*, No. 505, 2000, p. 18).

The Horned Grebe is also susceptible to avian botulism. Hundreds of this species died during outbreaks of botulism Type E in Lake Erie during the fall of 2000 and 2002 (Roblee, K., *Waterbird Mortality in New York Waters of Lakes Erie and Ontario Resulting from Botulism E*, 2003, p. 2). Outbreaks of avian botulism have consistently occurred in southern Lake Huron and throughout Lake Erie in the fall months since at least the late 1990s (McLaughlin, G., *Type E Botulism in the Great Lakes- Conference Overview*, 2002, p. 1). In addition, this species is believed to be vulnerable to avian cholera and various algal toxins because these diseases affect Eared Grebe. Finally, this species is considered moderately vulnerable to oiling (Stedman, S. J., *loc. cit.*, p. 20). Thus, hypothermia may also have been exacerbated by conditions existing prior to the bird's arrival at the SRWWTP, e.g., the presence of pale brown grease observed on parts of the bird and/or one of the aforementioned diseases, which may have compromised the bird's health.

The presence of several non-worn primaries together with epitrichia indicate that the bird had recently molted its primaries and was still in the process of new feather growth. Horned Grebes molt twice a year: in April or May the birds molt into their alternate or breeding plumage, and then usually in July or August they begin molting into basic or winter plumage, which is sometimes not fully developed until October or November. However, remiges (i.e., wing or flight feathers, including the secondaries) are only molted and replaced in the late summer molt from alternate (i.e., breeding) plumage to definitive basic (i.e. winter) plumage. In Eurasian males remiges are replaced in August-September, while in females, these feathers are replaced in October. (Otherwise, the plumages of male and female birds are virtually identical.) Assuming that the remiges of North American individuals are replaced around the same time as those of Eurasian birds, the individual found at the SRWWTP was likely a female because Horned Grebe only occurs in Michigan as a spring and fall migrant, passing through beginning in April and October, respectively.

These facts can also be used to determine the approximate time that the bird died. The bird likely died early to mid-October due to the aforementioned facts as well as the amount of rufous,

alternate plumage still present on the bird (By late October and November this species would generally display the all gray and white definitive basic plumage.). Although the upperparts of the carcass appeared weathered and the head and neck were almost completely skeletal, weathering would likely have been much more extensive and affecting underparts if the carcass were from the fall of 2002, or a previous year.

Probably because of the light coloration of the carcass and because it exhibited color values virtually identical to that of the slag on the bank, the carcass was not detected sooner. Indeed, the carcass was noted primarily because of the fact that the vertebrae had become skeletal and white likely only in recent weeks.

Horned Grebe has only been observed at the SRWWTP on one previous occasion, viz., March 28, 2000, when a probable oiled Horned Grebe was found near the Diked Lagoon, and was sent to rehabilitation.

The carcass was photographed in place. Two hours later it was placed in a plastic bag, sealed, and labeled as to species, date discovered, party that discovered the carcass, location, date and time recovered, party responsible for recovery, and name of party completing the tag. The bagged carcass was then packed on ice inside a Styrofoam cooler, covered, and transferred by the wildlife consultant for deposition in a non-self-defrosting freezer at MEC Environmental Consulting under the company's federal and state salvage permits.

If you have any questions regarding this report, please call me at (248) 585-3800. Thank you again for selecting MEC Environmental Consulting for your wildlife management consulting needs.

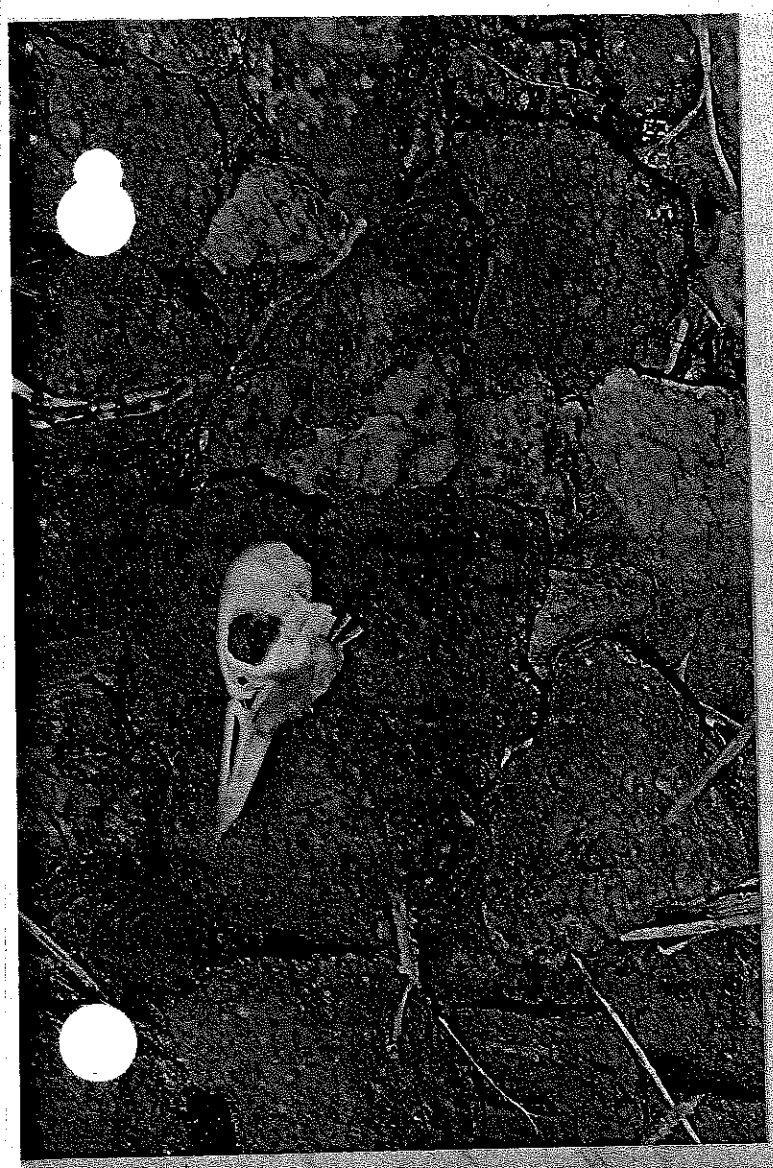
Sincerely yours,

MEC ENVIRONMENTAL CONSULTING

M. Carlson go

Michael Carlson
Principal

enclosures (photographs)



ROUGE STEEL COMPANY
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 6, 2004 - afternoon

#4: Horned Grebe carcass as found, looking south at right side. Note developing right secondaries with epimichia, relatively fresh-looking right primaries, metacarpals almost detached, and matted breast feathers.

ROUGE STEEL COMPANY
SCHAEFER ROAD WWTP

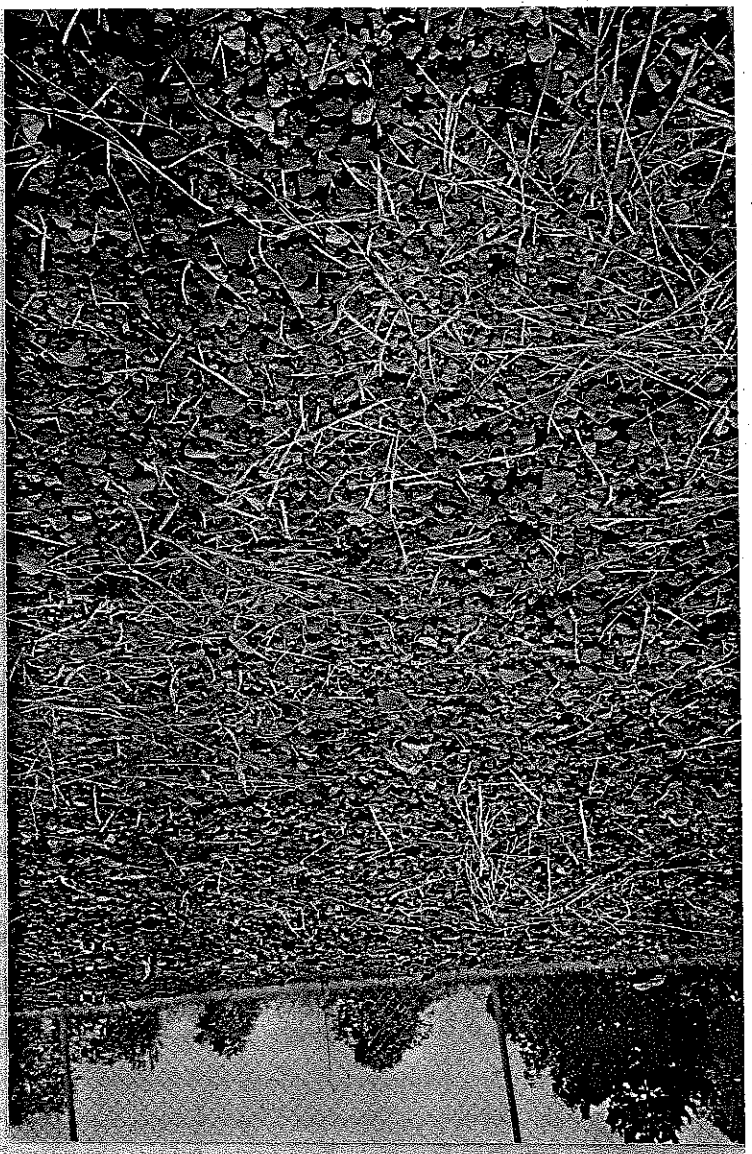
Photographed by Michael Carlson
May 6, 2004 - afternoon

#5: Horned Grebe carcass as found, looking east-southeast at front (anterior) side. Note relatively fresh-looking right primaries, metacarpals almost detached, and matted breast feathers.

ROUGE STEEL COMPANY
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 6, 2004 - afternoon

#6: Close-up of moved Horned Grebe skull (center), with left toes and left primary tips (top) (not manipulated). Note fresh tips of primaries, feet showing vestiges of lobes as segments, pointed bill, gray down on chin and throat.



ROUGE STEEL COMPANY
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 6, 2004 - afternoon

#2: Top view of Horned Grebe carcass as found, looking down and southwest. Note weathered left primary and secondaries, worn spots on legs, matted and soiled feathers, skeletal vertebrae, and skull beside left breast.

ROUGE STEEL COMPANY
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 6, 2004 - afternoon

#3: Horned Grebe carcass as found, looking northwest at left side. Note weathered left secondaries, worn spots on legs, matted and soiled feathers, skeletal vertebrae (overexposed), and posterior view of skull.

ROUGE STEEL COMPANY
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 6, 2004 - afternoon

#1: Slope of Primary Lagoon bank near southwest corner, looking west towards to of bank from approximately 3 feet from water's edge. Note camouflaged, brownish, gray mass near top center is Horned Grebe carcass.

ROUGE STEEL COMPANY
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 6, 2004 - afternoon

#9: Right side of Horned Grebe carcass (turned onto left side). Note white secondaries and epitrichia on right secondaries, light and dark brown colored back feathers, and underside of skull.

ROUGE STEEL COMPANY
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 6, 2004 - afternoon

#8: Underside of Horned Grebe carcass (flipped over from original position) with skull positioned as if attached. Note fluffed breast and flank feathers, belly depression, white right secondaries, and gray plumage of breast.

ROUGE STEEL COMPANY
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 6, 2004 - afternoon

#7: Underside of Horned Grebe carcass (flipped over from original position). Note depression in belly with rust-colored stain, white right secondaries, fluffed breast feathers, and gray plumage of breast.

ROUGE STEEL COMPANY
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
May 6, 2004 - afternoon

#10: Left side of Horned Grebe carcass (turned onto right side). Note rufous coloration of plumage on left flank, secondaries spotted with pale brown, white spots on legs, and depression in belly.

(Rouge Steel)
MID 087 738 431

SEVERSTAL NORTH AMERICA, INC.

3001 Miller Road
P.O. Box 1699
Dearborn, MI 48121-1699

March 26, 2004

Via Certified Mail – Return Receipt Requested

Ms. Diane Sharrow (DE-9J)
Project Manager
Enforcement and Compliance
Assurance Branch
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, IL 60604

Subject: Report on carcass found at Schaefer Road Waste Water Treatment Plan

Reference: Severstal North America, Inc., Administrative Order Docket No R7003-5-00-001

Dear Ms. Sharrow:

This letter confirms our telephone to you of January 20, 2004 about the dead fox that was found on January 19, 2004. The enclosed February 27, 2004 report by our wildlife consultant details the discovery and the basis for identification as a Red Fox. The dead Fox appeared very clean and free of oil/stain and dirt. As noted in the report, the unhealthy condition of the animal may be the cause.
The Ann Arbor Fish & Wildlife office states that they have no interest in this carcass.

If you are interested in further investigating the carcass, please let us know. We will store it until May 10, after which, space considerations dictate that it should be disposed of.

Please contact me at (313) 845-3217 if you have questions on the information in this report.

Very truly yours,

D. S. Windeler

D. S. Windeler, Manager
Environmental Engineering

Enclosures

cc: Mr. John Craig, MDEQ
Ms. Sheila O'Connor, US Fish & Wildlife

MEC ENVIRONMENTAL CONSULTING

February 27, 2004

Mr. Donald S. Windeler
Severstal North America, Inc.
3001 Miller Road – Room 2110 ROB
Post Office Box 1631
Dearborn, MI 48121-1631

Subject: Schaefer Road Wastewater Treatment Plant – Carcass Report (P. N. 00330)

Dear Don:

Please find herein the report on the carcass which was found by the Mark Mahler, SRWWTP operator, on January 19, 2004 at approximately 06:55. This report was prepared in accordance with the procedures outlined in EPA's letter from Diane Sharrow to you, dated December 14, 2001 The carcass is an adult Red Fox (*Vulpes vulpes*).

The carcass was found in a very conspicuous location, approximately 5 feet south of a stand of *Phragmites* near the southeastern edge of the Bermed Area approximately 18 feet northeast of the Diked Lagoon access road opposite the northeast corner of the lagoon. The carcass, which lay partially buried in the snow, appeared to be in a relatively peaceful repose, lying on its right side and left side of the head in essentially an east-west orientation with the anterior pointing west and the posterior pointing east. The ventral side of the carcass faced south and the dorsal side north. The head was turned around such that it faced the tail. The face was buried in snow and ice. Both front legs were somewhat flexed towards the rear, while the hind legs were flexed slightly forwards, suggestive of a running posture. The tail appeared to be turned up. Although almost half of the carcass was encrusted with a thin coat of ice and covered with snow, the animal's coat appeared to be very clean and in good condition with a high luster and very little matting or thin spots.

At least one hundred tracks, all believed to be Red Fox, were evident in the snow around the carcass. Although a number of these tracks appeared to be older based on their being partially obscured and filled by the recent snow, most of the tracks appeared to be fresher. It is possible that the older tracks were made by the animal before it died. The fresher tracks were likely made by a second animal, which was investigating the carcass. (An animal of the same species as the deceased, possibly a mate, is sometimes seen repeatedly walking, or flying, as in the case of a bird, up to and around a freshly dead

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animal, almost as in some sort of mourning ritual.) The latter conclusion is corroborated by the observation of at least two small spots where the fresh snow was stained orange-yellow on either side of the carcass. These spots were most probably urine marks, presumably made by a Red Fox visiting the deceased.

Snow and ice were carefully removed from the exposed surface of the carcass, and from around the four sides of the carcass using an aluminum snow shovel in order to expose the rest of the carcass. The carcass rested on approximately 2 inches of snow. A very small amount of bright red staining was present near the head of the animal on the southwest side of the carcass. This staining appeared to be blood. The left side of the carcass was closely and carefully examined and photographed once the snow was completely removed from around the carcass and snow and ice brushed from the carcass. The carcass, which was frozen solid, was then flipped over such that the ventral side faced north and the dorsal side faced south, and the right side was also closely and carefully examined and photographed.

The coat appeared to be in excellent condition, displaying a healthy luster, especially the animal's legs and head. The coloration and patterning was that of a typical Red Fox, except that there was only a very small amount of white in the tip of the tail. A small amount of matted fur was observed on the left side near the base of the neck and on the torso. This matting appeared to be related to the presence of ice and snow. The left side of the carcass, which appeared more heavily matted than the right, was the side that faced up and was thus subjected to more wind and snow. Several small thin spots were observed on the left side above the haunches.

The animal's coat was very clean and appeared to be free of any mud or dirt. Indeed, even the paws and pads of the feet appeared to be clean. It should be emphasized that there was no evidence of the presence of any substance resembling oil or staining due to such a substance.

No musty or skunky odor was noted. Only a very slight odor, suggestive of decay, was observed while handling the carcass.

With the exception of the tongue being partially pierced by the left incisor (most likely the source of the blood observed earlier), there was no sign of any wound. Nor was there any sign of depredation.

The right eye was completely closed, while the left eye was only partially open. The mouth was partially open, and the relatively short and wide muzzle appeared to be flared as if the animal had been possibly chewing or vocalizing. The front teeth, including the incisors were exposed. The tip of the left incisor appeared to be buried in the tongue of

the animal. The tip of the tongue hung partially out the left side of the mouth.

The torso of the animal appeared to be very lean, with no body fat, particularly the mid-section above the hind legs.

Based on the apparent absence of testes and penis, the apparent absence of a musty or skunky odor to the carcass, as well as relatively short and wide muzzle, as well as its relatively small overall size, the fox was concluded to be a female.

The running-like posture of all four legs and the arched tail in combination with the partially open mouth, and tongue dangle suggest that the animal may have succumbed suddenly and very quickly as it was trotting or frolicking. This conclusion seems to be supported by the relatively peaceful repose of the carcass.

The fox's mouth, including the tooth-pierced tongue and flared muzzle which appeared swollen at the base on the right side, and head position (viz., turned totally such that the head is pointed over the back, with the tip of the muzzle reaching almost to the mid-back) is unusual, and rather unnatural-appearing. These observations suggest that the mammal may have died from canine distemper, a disease which results in encephalomyelitis (i.e., inflammation of the brain and spinal cord). This viral disease frequently causes seizures, and commonly a seizure that affects the head wherein the animal looks as though it is chewing gum. In fact, this seizure, which is unique to canine distemper virus (CDV), is referred to as the "gum-chewing fit". Because of its flared muzzle and swollen base of its jaw, especially on the right side, the fox indeed looks as though it was chewing a wad of gum. The position of the head extended far over the back of the carcass suggests that the animal may possibly had a seizure affecting the head and neck. Such seizures are common in CDV. Moreover, the roughly circular pattern of older tracks around the carcass may also be indicative of CDV because the disease frequently causes aimless circling and staggering. Finally, the very lean torso may possibly have been symptomatic of the loss of appetite that sometimes characterizes CDV.

On the other hand, no pustular lesions on the abdomen, lesions on the foot pads, or discharge from the nose and/or eyes, other symptoms of CDV, were observed. It should be noted, however, that these are only possible symptoms, and that characteristics of CDV in Red Fox is quite varied. Obviously, it is not possible to conclude with any certainty that the fox either had or succumbed to CDV on the basis of field indicators without appropriate necropsy and laboratory analysis.

The Red Fox is highly susceptible to CDV, rabies, canine hepatitis, and mange. Rabies is estimated to cause 60-80% mortality in Red Fox. Although the carcass exhibited several small thin spots in the coat, no bare patches indicative of mange were observed. Red

Foxes are also susceptible to parvovirus, toxoplasmosis, tularemia, leptospirosis, staphylococcal infections, and various other encephalitis viruses. In addition, Red Foxes host a large number of morbidity-causing parasites, e.g., hookworms and roundworms, typical of carnivores that feed on small prey. Largely because of these factors, Red Foxes in the wild generally tend to live only between three to four years at the most, especially in urban areas. Occasionally individuals of this species live six years, and very rarely 8 years.

The fox most probably died at night on January 18. Light snow fell late at night on January 18. The carcass, which was thinly covered with snow, was first discovered at 06:55 on January 19.

If you have any questions regarding this report, please call me at (248) 585-3800. Thank you again for selecting MEC Environmental Consulting for your wildlife management consulting needs.

Sincerely yours,

MEC ENVIRONMENTAL CONSULTING

Michael Carlson
Principal

enclosures (photographs)

ROUGE STEEL COMPANY
SCHAEFER ROAD WWTP

Photographed by Michael Carlson
March 17, 2003 - afternoon

#4: Anterior view of Canvasback carcass looking down and north from approximately 8 feet north of the oil skimmer tray at the Primary Lagoon. Note extensive white of right wing, matted feathers of head and breast.

ROUGE STEEL COMPANY

3001 Miller Road
P.O. Box 1699
Dearborn, Michigan 48121-1699

October 30, 2002

Via Certified Mail – Return Receipt Requested

Ms. Diane Sharrow (DE-9J)
Project Manager
Enforcement and Compliance
Assurance Branch
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, IL 60604

Subject: Report of Possibly Exposed Bird Found September 22, 2002

Reference: Rouge Steel Company, Administrative Order Docket No R7003-5-00-001

Dear Ms. Sharrow:

This letter is intended to provide a report on the possibly exposed bird found September 22, 2002. The bird was observed at about 10:00 AM, by operator Rick Soltez. The bird was found on the west side of the Primary Lagoon, near the fence. The bird was subsequently taken to Southeast Michigan Wildlife Rehabilitation and cared for. It was identified as an immature black-crowned night heron. After stabilization, the bird was released in good condition on September 28. A copy of the rehabilitator's report is enclosed.

A periodic wildlife survey by our expert had been scheduled for September 23, and was conducted that date. With the knowledge that a heron had been found on the 22th, our expert, Michael Carlson, attempted to reconstruct how the bird might have become exposed. This type of heron had not been observed around the treatment pond area. There was evidence (trtacks) that a heron of approximately the same size had been foraging along the Rouge River, roughly 200 ft. due west of the point where the bird was found. A patch of what appeared to be oily scum was observed along the west bank of the river was also roughly opposite the heron tracks location. A copy of Mr. Carlson's report is also enclosed.

Please contact me at (313) 845-3217 if you have questions on the information in this report.

Very truly yours,

D. S. Windeler, Manager
Environmental Engineering

Enclosures

cc: Ms. JoAnn Merrick, MDEQ, Ms. Sheila O'Connor, US Fish & Wildlife Service

MEC ENVIRONMENTAL CONSULTING

October 12, 2002

Mr. Donald S. Windeler
Rouge Steel Company
3001 Miller Road – Room 2110 ROB
Post Office Box 1631
Dearborn, MI 48121-1631

Subject: Schaefer Road Wastewater Treatment Plant – SEMWRI Report on Black-crowned Night Heron (P. N. 00330)

Dear Don:

Please find enclosed the report from Southeast Michigan Wildlife Rehabilitation, Inc. (SEMWRI) for the exposed immature Black-crowned Night Heron which was recovered from the west side of the Primary Lagoon on the morning of September 22, 2002. The bird was successfully rehabilitated and released by SEMWRI on September 28, 2002.

On September 23, 2002 I checked the Rouge River during the monthly wildlife survey at the SRWWTP. I noted and photographed (#1) an oily-looking patch of scum and debris, approximately 8 x 12 feet, that appeared to be snagged near the west side of the Rouge River, upstream of Rouge Steel's outfall and almost due west of the center of the Primary Lagoon. I also observed and photographed (#2) a number of tracks in the sediment along the east edge of the Rouge River opposite the debris slick which appeared to be Black-crowned Night Heron tracks. (These tracks, which appeared to be relatively fresh, were smaller than those of the Great Blue Herons observed there.) One of these tracks measured approximately 4.5 inches. The foot of the immature Black-crowned Night Heron, as measured by SEMWRI was 4.25 inches, but staff reported difficulty in obtaining a measurement of a fully flexed foot. Thus, the actual foot size of the bird recovered was probably much closer to 4.5 inches. It is quite possible that these tracks were made by the same bird especially considering that very few Black-crowned Night Herons have been observed in the vicinity of the SRWWTP. More importantly, however, it is quite possible that the bird recovered at the SRWWTP was exposed at the Rouge River and sought shelter in the fenced area of the Primary Lagoon.

If you have any questions regarding this report, please call me at (248) 585-3800. Thank you again for selecting MEC Environmental Consulting for your wildlife management consulting needs.

Sincerely yours,

MEC ENVIRONMENTAL CONSULTING

Michael Carlson
Principal
enclosures

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SOUTHEAST MICHIGAN WILDLIFE
REHABILITATION, INC./REHABILITATION REPORT
BLACK-CROWNED NIGHT HERON (IMMATURE)
ROUGE STEEL COMPANY
SEPTEMBER 28, 2002

The immature Black-crowned Night Heron was heavily oiled from its head to its feet. It was somewhat hypothermic upon arrival at 11:15 a.m. September 21, 2002. The heron was placed in a well ventilated box on a heating pad with an overhead light. At 11:30 a.m. the eyes were flushed and eye ointment applied. The nasal areas were cleaned and also inside of the mouth. At 11:45 a.m. lactated ringers (rehydration fluid) was administered for the purpose of rehydrating the heron and also in flushing out the digestive tract. At 12:30 p.m. lactated ringers again was administered. At 1:30 p.m. pepto bismol was administered to coat the digestive tract and also to facilitate the elimination of any internal oil.

At approximately 4:00 p.m. the Black-crowned Night Heron appeared to be stable to undergo the washings and rinsings. Dawn liquid detergent was used as the cleaning agent and the heron was washed and rinsed in city water. Four complete washings and four rinsings were done. The first washing was done at 5:00 p.m. and the second washing was done at 5:20 p.m. The heron was allowed to rest for two hours. The third washing was done at 7:30 p.m. and the final washing at 8:00 p.m. The heron was placed in a child's playpen and dried under an infrared heat lamp. Once again lactated ringers was administered at 8:15 p.m. At 9:00 p.m. pepto bismol was administered. Isocal liquid food supplement was tube-fed to the bird at 9:30 p.m.

On Sunday September 22nd, the heron remained in the playpen and was offered large live minnows in a bucket which it promptly caught and devoured. On this date, the bird was watched carefully for any side effects of the oil contamination.

On Tuesday September 24th, the Black-crowned night heron was transferred to Patricia Stimpfl, Highland, Mi. The bird was placed in a large stall in a pole barn with a child's wading pool. Minnows and some small fish were offered to the heron which it promptly caught and devoured. The bird was misted several times with a garden hose and the water beaded on its feathers which indicated that the heron's feathers were waterproofed.

The bird's fecal droppings were monitored for the next few days as well as its behavior. After thoroughly assessing the heron's past few days, it was determined that it would be in the best interest of the heron to release it on Saturday, September 28th.

At approximately 10:00 a.m. on Saturday, September 28th the immature Black-crowned night heron was released at the Highland facility. The Highland facility has perfect habitat in that it is situated on a spring-fed lake with abundant wetland's and other birds of the

same species frequent this area. The heron left this facility in excellent condition showing no repercussions from the oil.

Betty A. King - Federal Permit #758-602-0

Patricia Stimpfl - Federal Permit #748-132-0

ROUGE STEEL COMPANY

3001 Miller Road
P.O. Box 1699
Dearborn, Michigan 48121-1699

November 3, 2001

Via Certified Mail – Return Receipt Requested

Ms. Diane Sharrow (DE-9J)
Project Manager
Enforcement and Compliance
Assurance Branch
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, IL 60604

Subject: Report dead bird found at Schaefer Road WasteWater Treatment Plant. On October 31
Reference: Rouge Steel Company, Administrative Order Docket No R7003-5-00-001

Dear Ms. Sharrow:

During a visit from the US Fish and Wildlife Service ("USF&WS") on October 31, 2001 parts of a dead bird were found on the east bank of the Primary lagoon, about eight feet up from the water's edge. The coloration was very dark and the bird had apparently been preyed upon, since the remains only included a wing, the lower abdomen, a few bones and the tail. No head or feet were found. The bird was not readily identifiable due to the predation. The bird was of medium size (larger than a dove). Some characteristics of the remains suggested a yellow-shafted flicker. The remains were collected exclusively by Lisa Williams of the USF&WS, so determination of exposure to oil was not possible by this writer. However, the remains did not appear to cause a smear on the inside of the sample bag.

Dan Sheill of USF&WS took possession of the remains.

Please contact me at (313) 845-3217 if you have questions on this information.

Very truly yours,

D. S. Windeler

D. S. Windeler
Manager, Environmental Engineering

cc: Ms. JoAnn Merrick, MDEQ
Ms. Sheila O'Connor, US Fish & Wildlife

ROUGE STEEL COMPANY

3001 Miller Road
P.O. Box 1699
Dearborn, Michigan 48121-1699

October 25, 2001

Via Certified Mail – Return Receipt Requested

Ms. Diane Sharrow (DE-9J)
Project Manager
Enforcement and Compliance
Assurance Branch
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, IL 60604

Subject: Report dead bird found at Schaefer Road WasteWater Treatment Plant.
Reference: Rouge Steel Company, Administrative Order Docket No R7003-5-00-001

Dear Ms. Sharrow:

This letter confirms the telephone message left for Sheila O'Connor, US Fish & Wildlife Service on October 25, 2001. The bird was found and reported to us at about 4:40 PM, Wednesday, October 26. ? The bird was found at the base of the inside of the bank at the diked lagoon. This is about 15 feet from the top of the dike. The bird was retrieved because extremely high winds and heavy rain were forecast for the evening. It was believed that those conditions would make future recovery of the carcass extremely difficult, if not impossible. The bird remains have been placed in a small glass jar and refrigerated. The remains will be kept for 45 days and then disposed of, unless other instructions are received from the US Fish and Wildlife Service. The bird was very dirty and was not readily identifiable in that condition. The size (body about 1""long) and beak suggested it may have been a warbler.

We had been refilling the diked lagoon with water following the dredging operations so as to cover any oily sludge surfaces and prevent exposure, and will continue this action.

Please contact me at (313) 845-3217 if you have questions on this information.

Very truly yours,

D. S. Windeler

D. S. Windeler
Manager, Environmental Engineering

cc: Ms. JoAnn Merrick, MDEQ
Ms. Sheila O'Connor, US Fish & Wildlife

ROUGE STEEL COMPANY

3001 Miller Road
P.O. Box 1699
Dearborn, Michigan 48121-1699

July 26, 2001

Via Certified Mail – Return Receipt Requested

Ms. Diane Sharrow (DE-9J)
Project Manager
Enforcement and Compliance
Assurance Branch
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, IL 60604

Subject: Report of Possible Oiled Bird

Reference: Rouge Steel Company, Administrative Order Docket No R7003-5-00-001

Dear Ms. Sharrow:

About 11:50 AM, July 23, 2001, I received a call that a bird coated with mud or sludge had been captured at the west bank of the Diked lagoon. The bird had been captured by a Metropolitan Environmental employee, who brought it to the treatment plant operator. Metropolitan Environmental is a contractor who is presently desludging and dredging ponds at the treatment plant. Metropolitan had been presented with a copy of the Order prior to starting the job, and its employees were aware of the need to act if a bird was observed in distress. Arrangements were made to have the bird picked up for treatment, but a sudden storm delayed the pickup. I delivered the bird to the Grosse Ile, Michigan location of Southeast Michigan Wildlife Rehabilitation, arriving at about 6:30 PM. The bird was identified the bird as a robin.

We received a verbal report that the bird had been cleaned, was recovering, and was expected to be released yesterday. We have requested a written report from the facility. The Diked lagoon is in the process of being refilled with the dredged material from the Primary Lagoon, and should not present an attraction to robins in that state.

Please contact me at (313) 845-3217 if you have questions on this information.

Very truly yours,

D. S. Windeler

D. S. Windeler
Manager, Environmental Engineering

cc: Ms. JoAnn Merrick, MDEQ
Ms. Sheila O'Connor, US Fish & Wildlife

ROUGE STEEL COMPANY

3001 Miller Road
P.O. Box 1699
Dearborn, Michigan 48121-1699

July 26, 2001

SLB 9/20/01 ?
DMS 10/1/01

Via Certified Mail – Return Receipt Requested

Ms. Diane Sharrow (DE-9J)
Project Manager
Enforcement and Compliance
Assurance Branch
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, IL 60604

Subject: Report dead bird found at Schaefer Road WasteWater Treatment Plant.
Reference: Rouge Steel Company, Administrative Order Docket No R7003-5-00-001

Dear Ms. Sharrow:

This letter confirms the telephone message left for Sheila O'Connor, US Fish & Wildlife Service on September 26, 2001. The bird was found by our wildlife expert, Michael Carlson and reported to us at about 6:00 PM, Wednesday, September 26. The bird was missing the head and feet. It appeared that it had been gnawed on by a land animal. Carlson took one feather to inspect for identification. The carcass was left as found in accordance with instructions from Sheila O'Connor. Based on subsequent examination of the feather by Carlson, the bird appeared to be a passerine, possibly a house sparrow. Identification was not conclusive. The location of the carcass was about 15 feet off the road, along the west side of the Secondary lagoon. There was no evidence as to how the carcass got to the location, which suggests that it was carried there and dropped by an animal or bird of prey.

Please contact me at (313) 845-3217 if you have questions on this information.

Very truly yours,

D. S. Windeler

D. S. Windeler
Manager, Environmental Engineering

cc: Ms. JoAnn Merrick, MDEQ
Ms. Sheila O'Connor, US Fish & Wildlife

ROUGE STEEL COMPANY

3001 Miller Road
P.O. Box 1699
Dearborn, Michigan 48121-1699

June 28, 2001

Via Certified Mail – Return Receipt Requested

Ms. Diane Sharrow (DE-9J)
Project Manager
Enforcement and Compliance
Assurance Branch
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, IL 60604

Subject: Report of Possible Oiled Bird

Reference: Rouge Steel Company, Administrative Order Docket No R7003-5-00-001

Dear Ms. Sharrow:

About 8:00 PM, June 26, 2001 a bird acting unusually was observed near the east sludge pond. The bird appeared to have discolored plumage. It was captured at about 9:00 PM. Our wildlife consultant was present and identified the bird as a grebe. The bird was taken to the Grosse Ile, Michigan location of Southeast Michigan Wildlife Rehabilitation, arriving at about 9:50 PM.

We received a verbal report that the bird had been cleaned by about 2:00 AM, on June 27, and later in the morning was feeding and appeared to be recovering. We will develop additional information on condition of the bird and provide it in the monthly report for June.

We have requested recommendations from our consultant and will discuss them in our report for June.

Please contact me at (313) 845-3217 if you have questions on this information.

Very truly yours,

D. S. Windeler

D. S. Windeler
Manager, Environmental Engineering

cc: Ms. JoAnn Merrick, MDEQ
Ms. Sheila O'Connor, US Fish & Wildlife

ROUGE STEEL COMPANY

3001 Miller Road
P. O. Box 1699
Dearborn, Michigan 48121-1699

April 3, 2000

Via Certified Mail – Return Receipt Requested

Ms. Diane Sharrow (DE-9J)
Project Manager
Enforcement and Compliance
Assurance Branch
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, IL 60604

Subject: Report of Possible Oiled Wildfowl

Reference: Rouge Steel Company, Administrative Order Docket No R7003-5-00-001

Dear Ms. Sharrow:

On March 28, 2000 a contractor removing oil from the diked lagoon at the Schaefer Road Waste Water Treatment Plant (SRWWTP) observed a bird in distress nearby and notified SRWWTP operator. The contractor captured the bird and since it at the end of the operator's shift, the operator took the bird to the Dearborn Animal Shelter. The Shelter reports that they called Bird Rescue, who picked up the bird. We are advised that Bird Rescue is a licensed non-profit organization that cares for oiled birds. Bird Rescue identified the bird as a grebe.

We will develop additional information on this incident and provide it in the monthly report as provided in our Workplan.

MEC Environmental Consulting, our wildlife specialist, conducted a survey on Friday morning, March 31. They advise that a specific deterrent for this type of bird would be reducing the space on the water available for takeoffs. We are making arrangements to accomplish this. Please contact me at (313) 845-3217 if you have questions on this information.

Very truly yours,

D. S. Windeler

D. S. Windeler
Manager, Environmental Engineering

cc: Ms. JoAnn Merrick, MDEQ
Ms. Sheila O'Connor, US Fish & Wildlife

ROUGE STEEL COMPANY

3001 Miller Road
P. O. Box 1699
Dearborn, Michigan 48121-1699

March 24, 2000

Via Certified Mail – Return Receipt Requested

Ms. Diane Sharrow (DE-9J)
Project Manager
Enforcement and Compliance
Assurance Branch
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, IL 60604

Subject: Report of Possible Oiled Wildfowl

Reference: Rouge Steel Company, Administrative Order Docket No R7003-5-00-001

Dear Ms. Sharrow:

On March 23, 2000 a contractor removing oil from the diked lagoon at the Schaefer Road Waste Water Treatment Plant (SRWWTP) observed a bird in distress nearby and notified SRWWTP supervision. The contractor captured the bird and it was held until picked up by a Dearborn Animal Control officer. The bird was taken to the Dearborn Animal Shelter. The Shelter reports that they cleaned the bird and they plan to turn it over today to Bird Rescue, a licensed non-profit organization that cares for oiled birds. The bird appeared to be a duck with blue coloring on the bill, and green on the wing, but we have no verified identification at this time. There was a second bird accompanying the captured bird, but it would not allow anyone close enough to examine its condition.

We will develop additional information on this incident and provide it in the monthly report as provided in our Workplan.

We received delivery of a second propane cannon on Wednesday and will move one of the cannons near the diked lagoon to increase deterrence in that area. Please contact me at (313) 845-3217 if you have questions on this information.

Very truly yours,

D. S. Windeler
Manager, Environmental Engineering

cc: Ms. JoAnn Merrick, MDEQ
Ms. Sheila O'Connor, US Fish & Wildlife

(Lesser Scaup)