



August 1, 2011

Mr. Jim Zelenak
U.S. Fish and Wildlife Service
West Virginia Field Office
694 Beverly Pike
Elkins, West Virginia 26241

Dear Mr. Zelenak:

Subject: Request for Concurrence on Indiana Bat Survey Results and
Effect Determination
Proposed Mitchell Landfill
Cresap, Marshall County, West Virginia
CEC Project No. 110-416

Civil & Environmental Consultants, Inc. (CEC) is requesting concurrence with the results of Indiana bat (*Myotis sodalis*) surveys conducted within the proposed American Electric Power (AEP) Mitchell Landfill project area (the Project Area). The Indiana bat surveys were conducted from July 13 through July 17, 2011 (see attached report). No Indiana bats were captured during the surveys. Therefore, on behalf of AEP, CEC is requesting written concurrence that the proposed project is not likely to adversely affect the Indiana bat and that AEP may proceed with clearing trees within the Project Area.

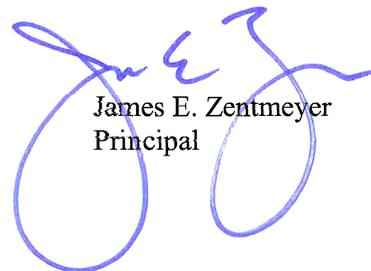
Please reply via email to dgodec@cecinc.com and rslack@cecinc.com with your concurrence or with any additional requests needed for concurrence. If you have any questions or require additional information please contact me at (513) 985-0226.

Respectfully,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.



Daniel J. Godec
Project Manager



James E. Zentmeyer
Principal

cc: Ms. Aimee Toole – AEP
Mr. Tom Cooper – AEP

Civil & Environmental Consultants, Inc.

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Cincinnati, Ohio 45242
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Detroit 866/380-2324

Export 800/899-3610
Indianapolis 877/746-0749
Nashville 800/763-2326
N. Central PA 877/321-2324
Phoenix 877/231-2324
St. Louis 866/250/3679



INDIANA BAT (*Myotis sodalis*) SURVEY REPORT

AMERICAN ELECTRIC POWER
PROPOSED MITCHELL LANDFILL PROJECT
CRESAP, MARSHALL COUNTY, WEST VIRGINIA

Prepared for:

AMERICAN ELECTRIC POWER

Prepared by:

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
CINCINNATI, OHIO

CEC Project No. 110-416

August 1, 2011

Civil & Environmental Consultants, Inc.

Cincinnati	4274 Glendale Milford Road Cincinnati, Ohio 45242 Ph: 513/985-0226 / Fx: 513/985-0228 Toll Free 800/759-5614 E-mail cincinnati@cecinc.com Corporate Web Site http://www.cecinc.com	Pittsburgh	800/365-2324	Export	800/899-3610
		Austin	855/365-2324	Indianapolis	877/746-0749
		Chicago	887/963-6026	Nashville	800/763-2326
		Cleveland	866/507-2324	N. Central PA	877/321-2324
		Columbus	888/598-6808	Phoenix	877/231-2324
		Detroit	866/380-2324	St. Louis	866/250/3679



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1.0 INTRODUCTION

This report presents the findings of an Indiana bat (*Myotis sodalis*) mist net survey conducted within the American Electric Power (AEP) proposed Mitchell Landfill Project Area (the Project Area) located in Cresap, Marshall County, West Virginia. The Project Area is located on Gatts Ridge Road west of its intersection with Taylors Ridge Road (Figure 1) and consists of a proposed coal combustion byproducts landfill and adjacent areas that may be impacted by soil borrow and other construction and operation activities.

The irregularly-shaped Project Area is approximately 251 acres in size and consists of residential and undeveloped areas consisting of old field vegetation and mixed second growth/early successional forest (Figure 2). There are currently two options under consideration by AEP for the footprint of the proposed landfill and operation areas, as shown on Figure 2. For the study documented herein, the overall acreage of the combined options was surveyed for the Indiana bat. The actual limits of disturbance within the Project Area will likely be the same as the Option 1 limits of disturbance (152 acres) shown on Figure 2. Some of the forested areas within the Project Area contain a dense understory of bushes and vines, while other forested areas contain an open understory. Two intermittent streams and several ephemeral streams are present within the Project Area.

The Indiana bat survey was conducted by Civil & Environmental Consultants, Inc. (CEC) on July 13 through 16, 2011. The purpose of the study was to confirm the presence or probable absence of the Indiana bat within the Project Area. The survey was based on CEC's professional judgment, interpretation of the technical criteria outlined in the U.S. Fish and Wildlife Service (USFWS) document Indiana Bat (*Myotis sodalis*) Draft Recovery Plan: First Revision, dated April 2007, and correspondence with the USFWS.



2.0 METHODOLOGY

CEC biologists traversed the Project Area on foot to identify potential bat habitat (roosting areas, feeding areas, drinking pools, and flight corridors) within the Project Area. The initial field reconnaissance was completed in order to establish mist net sites that would increase the probability of capturing bats during the mist net survey. Given the size, shape, and amount of forested habitat within the Project Area, two mist net sites were selected per USFWS recommendations. Refer to Appendix A for correspondence relating to the number of proposed mist net sites and number of proposed net nights.

CEC identified sites within the Project Area that contained at least two of the following bat habitat features: roosting areas, feeding areas, drinking pools, and/or flight corridors. The locations of the sites identified during reconnaissance and interpreted by CEC to have potential to capture an Indiana bat are shown on Figure 2.

CEC sampled a total of 8 net nights (2 survey sites x 2 nights x 2 net sets per site = 8 net nights) from July 13 through 16, 2011. Each mist net survey site included two mist net sets placed a minimum of approximately 30 meters apart. Each site was to be sampled for a minimum of 2 nights, beginning at sunset and lasting for a minimum of 5 hours.

The Indiana bat mist net survey was completed in accordance with the protocol outlined in the USFWS Indiana Bat (*Myotis sodalis*) Draft Recovery Plan: First Revision (2007) and was authorized by the USFWS West Virginia Field Office (Appendix A). All captured bats were identified by a West Virginia Department of Natural Resources (WVDNR) Scientific Collection Permit subpermittee and Federal Fish and Wildlife Permit subpermittee (Ms. Mary Gilmore of CEC). CEC's applicable Federal Fish and Wildlife Permit and WVDNR Scientific Collection Permit are provided in Appendix A. Information about bats captured during the surveys was recorded on field data sheets, which are provided in Appendix B. Representative photographs are included in Appendix C.



3.0 RESULTS

Mist net Site 1 was sampled on July 13 and 14, 2011. On each of the survey nights, two mist net sets were erected over an unnamed tributary to Little Tribble Creek in the eastern portion of the Project Area. Net A (6 m wide x 5.2 m high) was located in the downstream portion of Duck Creek. Net B (6 m wide x 5.2 m high) was approximately 30 m southeast of Net A (Figure 2). Two bats (two species) were captured during the 2 nights of surveys at Site 1. Limited bat activity was observed within and around the mist net areas during the survey. No Indiana bats were captured at this site. A table summarizing the survey results for Site 1 is provided below.

Mist net Site 2 was sampled on July 15 and 16, 2011. On each of the survey nights, two mist net sets were erected over a dirt road/driveway in the central portion of the Project Area. Net A (6 m wide x 5.2 m high) and Net B (6 m wide x 5.2 m high) were both located along this dirt road/driveway, approximately 100 m apart (Figure 2). Twelve bats (three species) were captured during the 2 nights of surveys at Site 2. No Indiana bats were captured at this site. A table summarizing the survey results for Site 2 is provided below.



TABLE 1
INDIANA BAT MIST NET SURVEY SUMMARY
American Electric Power
Proposed Mitchell Landfill Project
Cresap, Marshall County, West Virginia

Common Name	Scientific Name	Date	Site Number	Net	Total No. of Bats	Federal Status	State Status
Big brown bat	<i>Eptesicus fuscus</i>	7.13.11	Site 1	A	1	NA	NA
Eastern red bat	<i>Lasiurus borealis</i>	7.14.11	Site 1	A	1	NA	NA
Northern long-eared bat	<i>Myotis septentrionalis</i>	7.15.11	Site 2	A	2	NA	NA
Eastern red bat	<i>Lasiurus borealis</i>	7.15.11	Site 2	A	1	NA	NA
Northern long-eared bat	<i>Myotis septentrionalis</i>	7.15.11	Site 2	B	6	NA	NA
Eastern red bat	<i>Lasiurus borealis</i>	7.16.11	Site 2	A	2	NA	NA
Big brown bat	<i>Eptesicus fuscus</i>	7.16.11	Site 2	A	1	NA	NA

NA = Not Applicable



4.0 CONCLUSIONS

On July 13 through 16, 2011, CEC conducted Indiana bat (*Myotis sodalis*) mist net surveys within the approximate 251-acre Project Area located in Cresap, Marshall County, West Virginia. A total of fourteen bats representing three species were captured and identified at two mist net sites within the Project Area. The survey consisted of 8 net nights. All bats captured were identified, weighed, measured, and released alive. No Indiana bats were captured during the surveys.

Lastly, no open portals (i.e., caves or mines which could provide suitable Indiana bat hibernacula habitat) were observed within the Project Area during the field reconnaissance and none are known to exist in the Project Area.



5.0 LEVEL OF CARE

The Indiana bat survey services performed by CEC were conducted in a manner consistent with the criteria outlined in the USFWS document Indiana Bat (*Myotis sodalis*) Draft Recovery Plan: First Revision (2007) and with the level of care and skill ordinarily exercised by members of the environmental consulting profession practicing contemporaneously under similar conditions in the locality of the project.

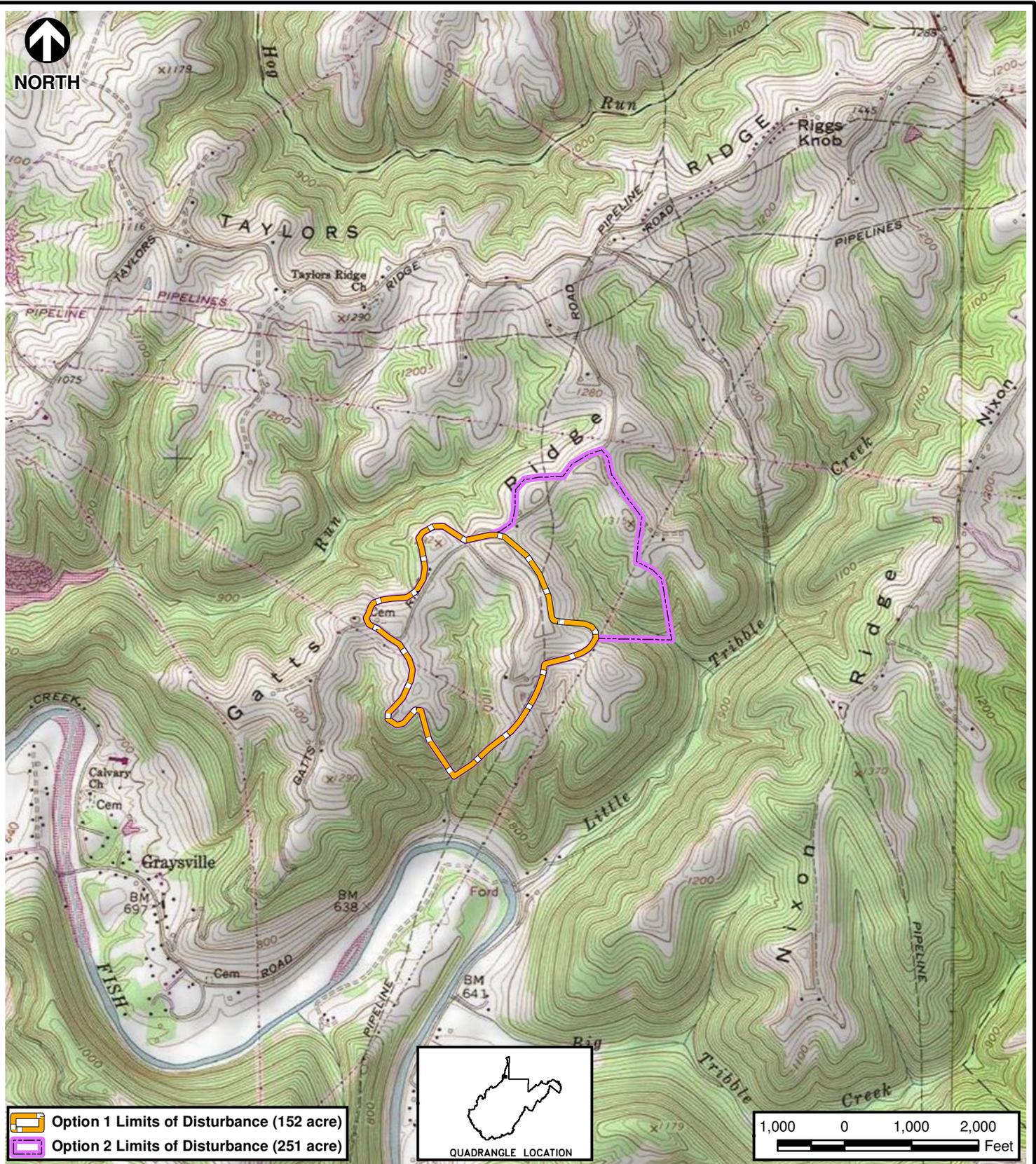
The findings and opinions presented are relative to the dates of CEC's site services and should not be relied on to represent conditions at substantially later dates. The opinions included herein are based on information obtained during the study and CEC's experience. If additional information becomes available that might impact CEC's conclusions, CEC requests the opportunity to review the information, reassess the potential concerns, and modify CEC's opinions, if warranted.



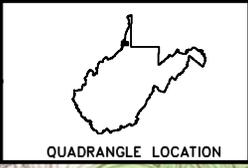
FIGURES



NORTH



- Option 1 Limits of Disturbance (152 acre)
- Option 2 Limits of Disturbance (251 acre)



SOURCE: PORTION OF THE USGS 7.5-MINUTE SERIES TOPOGRAPHIC QUADRANGLE MAP - GLEN EASTON, WV - 1978 AND POWHATAN POINT, WV - 1978.



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CRESAP, MARSHALL CO., WEST VIRGINIA

SITE LOCATION MAP

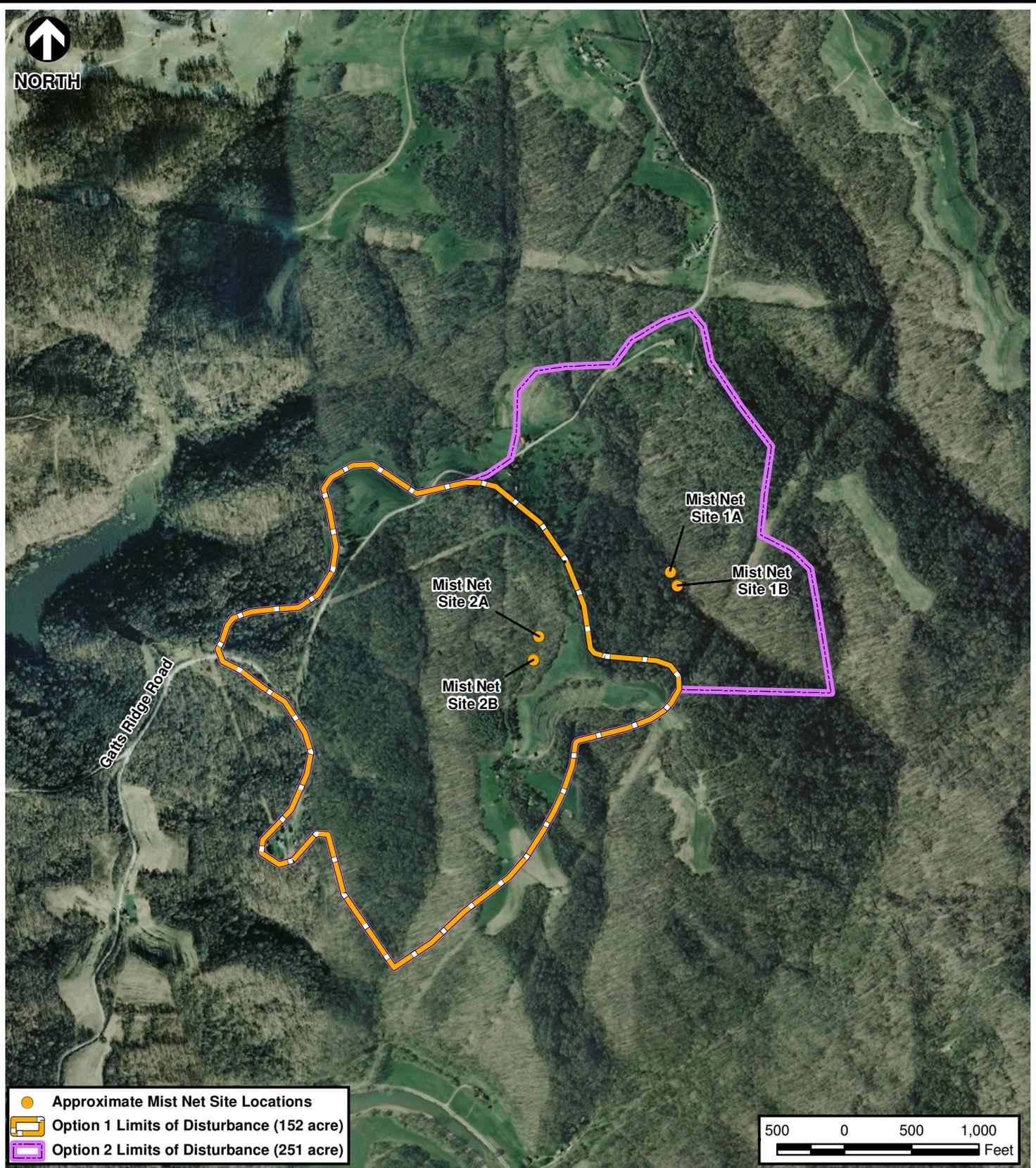
DRAWN BY: MJB	CHECKED BY: DJG	APPROVED BY: AMA*	FIGURE NO: 1
DATE: JULY 26, 2011	DWG SCALE: 1" = 2,000'	PROJECT NO: 110-416.8000	

Signature on File *

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NORTH



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AMERICAN ELECTRIC POWER
 MITCHELL LANDFILL PROJECT
 GATTS RIDGE ROAD
 CRESAP, MARSHALL CO., WEST VIRGINIA

MIST NET SITE LOCATIONS MAP

DRAWN BY:	MJB	CHECKED BY:	DJG	APPROVED BY:	JEZ*	FIGURE NO:	2
DATE:	JULY 26, 2011	DWG SCALE:	1" = 1,000'	PROJECT NO:	110-416.8000		

Signature on File *

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APPENDIX A

AGENCY CORRESPONDENCE AND PERMITS



United States Department of the Interior



FISH AND WILDLIFE SERVICE

West Virginia Field Office
694 Beverly Pike
Elkins, West Virginia 26241

Concurrence Form for Indiana Bat Mist Net Study Plans

Contact Name: Mr. Ryan Slack

Email Address or Fax Number: rslack@cecinc.com

Project: AEP Mitchell Landfill Project, Marshall County, West Virginia

The Service has reviewed the plans you submitted on June 29, 2011 and concurs with the methods being proposed. You propose to conduct sampling at 2 net sites within a 149-acre project area from which potentially-suitable Indiana bat habitat will be cleared. Each net site should have two net sets and be sampled for two nights. Therefore, this project would have a total effort of 8 net nights.

Should female and/or juvenile Indiana bats (*Myotis sodalis*) be captured during this effort, we strongly recommend that you conduct additional surveys including radio-tracking, roost tree identification, and emergence counts. This additional information will assist the Service and your client(s) in any consultations conducted under Section 7 of the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U. S. C. 1531 *et seq.*). Additional surveys also may be recommended if any other Federally-listed endangered bats, including male Indiana bats, are located.

We request that the following be provided in the final survey reports:

- 1) Name, permit number, and location (latitude, longitude) of the proposed project;
- 2) A map with the project boundary and net sites indicated;
- 3) A description of the survey effort, including number of nets used at each site, distance between net sets, and selection of net sites;
- 4) Color photos of the net sites;
- 5) Copies of the data sheets; and
- 6) Any additional information that may be relevant, such as weather conditions, habitat conditions, etc.

Reports may be submitted on CD. Please be aware these survey activities require a valid West Virginia Scientific Collectors Permit, which can be acquired from the West Virginia Division of Natural Resources (DNR), Elkins Operation Center, Ward Road, Elkins, West Virginia 26241 (contact Barbara Sargent at 304-637-0245). Please provide a copy of your valid permit with your final report. **All Federally-listed species captured must be reported to the Fish and Wildlife Service, West Virginia Field Office, within 24 hours.** If you have any questions regarding these comments, please contact Jim Zelenak at (304) 636-6586, jim_zelenak@fws.gov, or at the letterhead address.

Biologist James R. Zelenak Date: 7/13/2011

Deborah Carter Date: 7/15/2011
Deborah Carter, Field Supervisor



FEDERAL FISH AND WILDLIFE PERMIT

1. PERMITTEE

CIVIL AND ENVIRONMENTAL CONSULTANTS, INC.
1 NORTH PENNSYLVANIA ST.
SUITE 1100
INDIANAPOLIS, IN 46204
U.S.A.

2. AUTHORITY-STATUTES
16 USC 1539(a)

REGULATIONS
50 CFR 17.22

50 CFR 13

3. NUMBER
TE07358A-2

AMENDMENT

4. RENEWABLE
 YES
 NO

5. MAY COPY
 YES
 NO

6. EFFECTIVE
04/20/2011

7. EXPIRES
12/31/2011

8. NAME AND TITLE OF PRINCIPAL OFFICER (If #1 is a business)

RYAN A SLACK
PROJECT MANAGER

9. TYPE OF PERMIT

NATIVE ENDANGERED SP. RECOVERY - E WILDLIFE

10. LOCATION WHERE AUTHORIZED ACTIVITY MAY BE CONDUCTED

ON LANDS SPECIFIED WITHIN THE ATTACHED SPECIAL TERMS AND CONDITIONS

11. CONDITIONS AND AUTHORIZATIONS:

A. GENERAL CONDITIONS SET OUT IN SUBPART D OF 50 CFR 13, AND SPECIFIC CONDITIONS CONTAINED IN FEDERAL REGULATIONS CITED IN BLOCK #2 ABOVE, ARE HEREBY MADE A PART OF THIS PERMIT. ALL ACTIVITIES AUTHORIZED HEREIN MUST BE CARRIED OUT IN ACCORD WITH AND FOR THE PURPOSES DESCRIBED IN THE APPLICATION SUBMITTED. CONTINUED VALIDITY, OR RENEWAL, OF THIS PERMIT IS SUBJECT TO COMPLETE AND TIMELY COMPLIANCE WITH ALL APPLICABLE CONDITIONS, INCLUDING THE FILING OF ALL REQUIRED INFORMATION AND REPORTS.

B. THE VALIDITY OF THIS PERMIT IS ALSO CONDITIONED UPON STRICT OBSERVANCE OF ALL APPLICABLE FOREIGN, STATE, LOCAL OR OTHER FEDERAL LAW.

C. VALID FOR USE BY PERMITTEE NAMED ABOVE.

C.1. VALID FOR USE BY RYAN SLACK, JENNIFER DIETZEN, MARY GILMORE, AND BRENT MOCK. ASSISTANTS MAY WORK UNDER THE DIRECT AND ON-SITE SUPERVISION OF NAMED PERMITTEES. **AT LEAST ONE NAMED PERMITTEE MUST REMAIN PRESENT AT EACH MIST-NET SITE WHILE IT IS BEING OPERATED.**

D. ACCEPTANCE OF THIS PERMIT SERVES AS EVIDENCE THAT THE PERMITTEE AND ITS AUTHORIZED AGENTS UNDERSTAND AND AGREE TO ABIDE BY THE TERMS OF THIS PERMIT AND ALL SECTIONS OF TITLE 50 CODE OF FEDERAL REGULATIONS, PARTS 13 AND 17, PERTINENT TO ISSUED PERMITS. SECTION 11 OF THE ENDANGERED SPECIES ACT OF 1973, AS AMENDED, PROVIDES FOR CIVIL AND CRIMINAL PENALTIES FOR FAILURE TO COMPLY WITH PERMIT CONDITIONS.

E. Permittee is authorized to take (capture and release, band, and radio-track) the Indiana bat (*Myotis sodalis*) and gray bat (*M. grisescens*) for scientific research aimed at recovery of the species.

F. Activities are authorized at the following locations:

F.1. Locations within Oklahoma (Region 2) upon receipt of written concurrence from the U.S. Fish and Wildlife Service (USFWS) Field Supervisor, as outlined in Condition G.

F.2. Locations within Region 3 of the USFWS: Illinois, Indiana, Iowa, Michigan, Missouri, and Ohio upon receipt of written concurrence from the USFWS Field Supervisor, as outlined in Condition G.

ADDITIONAL CONDITIONS AND AUTHORIZATIONS ALSO APPLY

12. REPORTING REQUIREMENTS

ANNUAL REPORT DUE: 01/31

ISSUED BY

TITLE

CHIEF - ENDANGERED SPECIES

DATE

04/20/2011

- F.3. Locations within Region 4 of the USFWS: Alabama, Arkansas, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee upon receipt of written concurrence from the USFWS Field Supervisor, as outlined in Condition G.
- F.4. Locations within Region 5 of the USFWS: Maryland, New Jersey, New York, Pennsylvania, Vermont, Virginia and West Virginia, upon receipt of written concurrence from the USFWS Field Supervisor, as outlined in Condition G.
- G. Permittee shall request authorization from the USFWS Field Supervisor for the state in which activities are proposed to occur at least 15 days prior to conducting any activities. Your notification must be in writing and must indicate:
- G.1. Location of proposed activities, including project site, county, and state.
- G.2. A description of the activities (i.e., surveys, radio-telemetry studies, etc.).
- G.3. Dates when the project is proposed to take place.
- G.4. Evidence that Permittee has received any required contracts to complete the activities.
- G.5. You may proceed with activities upon receipt of written concurrence from the Field Supervisor. *Your concurrence letter must be carried with this permit to authorize locations not named in this permit.*
- H. The attached "Indiana Bat Mist-Netting Guidelines" shall be followed. Permittee shall also adhere to the following conditions involving capture of bats:
- H.1. Bats may be captured with mist nets. The monitoring interval for mist nets may not exceed 15 minutes. Captured bats should be held for a maximum of 30 minutes, unless injured. In extenuating circumstances, bats shall be held for no longer than 45 minutes.
- H.2. Permittees may carry out non-intrusive measurements on captured bats. Celluloid split-ring or lipped metal bands having unique identifier may be applied to the forearms of captured bats prior to release.
- H.3. Holohil Systems, or similar radio transmitters, may be attached during the summer roosting period using nontoxic skin bond adhesive (such as colostomy glue). It is recommended that the total weight of the package (transmitter and adhesive) not exceed 5% of the bat's body weight. The lightest transmitters capable of accomplishing the required task should be used, especially with pregnant females and newly volant juveniles. Under no circumstances shall the total weight of the package exceed 0.8 grams or 10% of the bat's weight, whichever is less. Bats carrying transmitters must be monitored daily for at least three days, or until the transmitter falls off, whichever occurs first.
- H.4. No trapping activities shall occur within 20 meters of a known Indiana bat maternity roost site, either natural or artificial roosts, unless Permittee receives prior written approval from the U.S. Fish and Wildlife Service Field Supervisor for the state in which the activities are proposed to occur.
- H.5. Equipment used to capture and handle bats shall be cleaned and decontaminated according to the attached "Disinfection Protocol for Bat Field Studies." In addition, you are required to use the most recent handling protocols available by checking the protocols posted on the USFWS website at: <http://www.fws.gov/WhiteNoseSyndrome/research.html>. You must visit the web site at least once every six weeks to assure that your activities are conducted according to the most recent USFWS approved protocols.
- I. Upon determination that listed bats are present at previously undocumented sites, Permittee shall notify the USFWS Field Supervisor within the state the survey occurred in within 48 hours.
- J. Death or serious injury to listed bats may not exceed two specimens. Once that number is met, your trapping activities must immediately cease. Mortality or serious injury must be reported in writing within 5 calendar days to the U.S. Fish and Wildlife Service, 5600 American Boulevard W., 10th Floor, Bloomington, Minnesota 55437-1173, and the Service office in Condition M.2.a. Dead or moribund bats may be retained for further study only with the written permission of the USFWS (contact information in Condition M.2.a.). Bats that are not authorized for retention are to be chilled; disposition is to be coordinated with the USFWS (Condition M.2.a.) for potential necropsy and/or contaminants analysis.
- K. A report of all activities conducted under the authority of this permit is due by January 31 following each year the permit is in effect. In addition, copies of all publications and reports resulting from work conducted under this permit must be submitted as they become available. Failure to furnish any reports required by this permit is cause for permit revocation and/or denial of future permit applications. At a minimum, your report must include:

- K.1. The date, time, locations (using UTM, latitude-longitude, section descriptors, or accurately plotted on USGS maps), age, sex, weight of all bats encountered.
 - K.2. Locations surveyed where no bats were encountered.
 - K.3. Band numbers of all bats banded.
 - K.4. Information on any injuries and/or mortalities and disposition of specimens.
 - K.5. Location and characteristics of roost trees and bat colonies.
 - K.6. Copies of any separate reports and/or publications resulting from work conducted under the authority of this permit.
 - K.7. A completed INDIANA BAT SURVEY AND BANDING DATA form.
 - K.8. Copies of all site specific authorization letters required under condition G.
- L. Copies of your reports shall be sent to the offices listed below. When possible, electronic copies shall be submitted in lieu of hard copies in MS Word, Rich Text Format, or other file format that is compatible with the receiving office.
- L.1. Lisa Mandell
U.S. Fish and Wildlife Service
Ecological Services
5600 American Blvd. W.
10th Floor
Bloomington, Minnesota 55437-1173
(612/713-5343; fax 612/713-5292)
permitsR3ES@fws.gov
 - L.2. Cam Shaw
U.S. Fish and Wildlife Service
Attn: Permit Coordinator (AES/TE/P)
1875 Century Boulevard, Suite 200
Atlanta, Georgia 30345-3301
(904/731-3191; fax 404/679-7081)
permitsR4ES@fws.gov
 - L.3. Alex Hoar
U.S. Fish and Wildlife Service
Endangered Species Division
300 Westgate Center Drive
Hadley, Massachusetts 01035-9589
(413/253-8631; fax 413/253-8482)
permitsR5ES@fws.gov
 - L.4. Marty Tuegel
Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service, Region 2
P.O. Box 1306
Albuquerque, New Mexico 87103-1306
(505/248-6651; fax 505/248-6922)
permitsR2ES@fws.gov

M. Additionally, based on geographic area, reports and publications shall be submitted to the following:

M.1. For studies conducted in Illinois:

M.1.a. Jody Millar
Endangered Species Coordinator for Illinois/Iowa
U.S. Fish and Wildlife Service
Ecological Services Field Office
1511 47th Ave.
Moline, Illinois 61265
(309/757-5800, x202; fax 309/757-5807)

M.1.b. Joe Kath
Endangered Species Coordinator
Illinois Department of Natural Resources
Endangered and Threatened Species Program
One Natural Resource Way
Springfield, IL 62702-1271
(217/785-8764; fax 217/785-2438)

M.2. For studies conducted in Indiana:

M.2.a. Lori Pruitt
Endangered Species Coordinator for Indiana
U.S. Fish and Wildlife Service
Ecological Services Field Office
620 S. Walker Street
Bloomington, Indiana 47403-2121
(812/334-4261 x217; fax 812/334-4273)

M.2.b. Katie Gremillion-Smith
Endangered Species Coordinator
Indiana Department of Natural Resources
Division of Fish and Wildlife
Room W273, 402 W. Washington St.
Indianapolis, Indiana 46204-2267
(317/232-8160; fax 317/232-8150)

M.3. For studies conducted in Iowa:

M.3.a. Jody Millar
Endangered Species Coordinator for Illinois/Iowa
U.S. Fish and Wildlife Service
Ecological Services Field Office
1511 47th Avenue
Moline, Illinois 61265
(309-757-5800, x202; fax 309-757-5807)
jody_millar@fws.gov

M.3.b. Daryl Howell
Endangered Species Coordinator
Iowa Department of Natural Resources
Parks, Recreation, and Preserves
Wallace State Office Building
East 9th and Grand Avenue
Des Moines, Iowa 50319-0034
(515/281-8524)

M.4. For studies conducted in Michigan:

M.4.a. Barbara Hosler
Endangered Species Coordinator for Michigan
U.S. Fish and Wildlife Service
2651 Coolidge Road
East Lansing, Michigan 48823
(517/351-6326; fax 517/351-1443)

M.4.b. Christopher Hoving
Michigan Department of Natural Resources
Wildlife Division
5th Floor, Stevens T. Mason Bldg.
P.O. Box 30028
Lansing, Michigan 48909
(517/373-1263; fax 517/373-6705)

M.5. For studies conducted in Missouri:

M.5.a. Amy Salveter
Deputy Project Leader
U.S. Fish and Wildlife Service
Missouri Ecological Services Field Office
101 Park DeVille Drive, Suite A
Columbia, Missouri 65203-2132
(573/234-2132; fax 573/234-2181)

M.5.b. Stephanie Liebi
Scientific Collecting Permit Coordinator
Missouri Department of Conservation
PO Box 180
Jefferson City, MO 65109
573/522-4115 ext. 3574
stephanie.liebi@mdc.mo.gov

M.6. For studies conducted in Ohio:

M.6.a. Angela Boyer
Endangered Species Coordinator for Ohio
U.S. Fish and Wildlife Service
Ohio Ecological Services Field Office
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614/416-8993, x22; fax 614/416-8994)

M.6.b. Carolyn Caldwell
Endangered Species Coordinator
Ohio Department of Natural Resources
Division of Wildlife
2045 Morse Road
Building G
Columbus, Ohio 43229-6693
(614/265-6329)

M.7. For studies conducted in Alabama:

Daphne Field Office
Bill Pearson, Field Supervisor
1208-B Main Street
Daphne, Alabama 36526
(251/441-5181)



DIVISION OF NATURAL RESOURCES

Wildlife Resources Section

Operations Center

P.O. Box 67

Elkins, West Virginia 26241-3235

Telephone (304) 637-0245

Fax (304) 637-0250

Earl Ray Tomblin
Governor

Frank Jezioro
Director

NUMBER 2011.243

SCIENTIFIC COLLECTING PERMIT

Under Authority Conferred by Chapter 20, Article 2, Section 50, Code of West Virginia, As Amended

Ryan Slack

Civil & Environmental Consultants, Inc.

1 N. Pennsylvania Street, Suite 1100

Indianapolis, IN 46204

is hereby permitted to collect specimens according to the attached application and the Special Provisions on the reverse side of this permit.

This permit is not transferable and expires on August 1, 2011.

A complete list of all specimens collected will be kept and reported to the Director of the Division of Natural Resources of West Virginia no later than 45 days after the expiration date of this permit.

PERMIT PROVISIONS

I understand that (1) The privileges granted under this permit are not transferable, and to allow anyone other than myself to use my permit is unlawful and will be considered cause for revocation of said permit; (2) A Federal Scientific Collection Permit issued by the U.S. Department of Interior must be obtained before any migratory birds, or their nests or eggs, are collected or held in captivity; (3) The Federal Permit does not extend the privileges of the permittee beyond those granted by the Division of Natural Resources; (4) Permission must be obtained from either the owner or the custodian of any fenced or posted land before entering same for the purpose of collecting scientific specimens; (5) It is unlawful to carry a revolver or pistol contrary to Article VII, Chapter 61, Code of West Virginia; (6) It is unlawful to collect specimens with a gun on a Sunday; (7) It is unlawful to sell, offer for sale, barter, or offer to barter any wild animals, wild birds, fish or frogs collected; (8) When traps or nets or other devices are used UNATTENDED while exercising the privileges of this permit, said traps, nets, or devices must have attached thereto a tag bearing the name, address and number of the Scientific Collecting Permit; (9) It is unlawful to take or attempt to take any wild animals, wild birds, fish or frogs under said permit except for scientific and propagation purposes; (10) A hunting or fishing license must be obtained before specimens may be taken for sport; (11) Only those species or classes of wild birds, wild animals, fish or frogs listed below, and in the numbers stated, may be lawfully taken under said permit; and (12) I am required by law to carry my Scientific Collecting Permit, on my person while exercising the privileges granted thereunder, and to exhibit the permit to anyone requesting to see the same.

Must be signed before valid.

Signature of permittee

Chief, Wildlife Resources, WVDNR

Date of issue

7-11-11

IMPORTANT

THE ATTACHED APPLICATION FORM INDICATING SPECIES TO BE COLLECTED, LOCATIONS OF COLLECTIONS, MANNER OF COLLECTION, AND PURPOSE OF COLLECTION IS TO BE CONSIDERED A PART OF THIS PERMIT AND SHOULD REMAIN ATTACHED.

YOU ARE SUBJECT TO THE FOLLOWING COLLECTING AND REPORTING PROVISIONS. FAILURE TO MEET THESE CRITERIA IS GROUNDS FOR REVOCATION OF THE PERMIT AND/OR DENIAL OF FUTURE PERMIT APPLICATIONS AND/OR PENALTIES OR OTHER STRICTURES.

SPECIAL PROVISIONS: For the purposes of this study, the permittee is designated as an agent of the State of West Virginia, and therefore covered under the WV Division of Natural Resources' Endangered Species permit as set forth in a cooperative agreement between the WVDNR and the U.S. Fish & Wildlife Service. Violation of the federal Endangered Species Act or Chapter 20 of the WV State Code may lead to arrest and prosecution. Surveys may be conducted only as parts of awarded contracts.

1. Under no circumstances will an endangered bat (*Myotis sodalis*, *Myotis grisescens*, or *Corynorhinus townsendii virginianus*) be killed for scientific purposes or any other reason. No body tissue or blood can be taken from an endangered bat.
2. No *Corynorhinus rafinesquii* or *Myotis leibii*, both Species of Concern, will be killed for scientific purposes or any other reason, nor will body tissues or blood be collected from these species unless specifically stated on the permit. A research proposal must be submitted with the permit application.
3. All *Corynorhinus townsendii virginianus*, *Corynorhinus rafinesquii*, *Myotis sodalis*, *Myotis grisescens*, and *Myotis leibii* will be released immediately (within a few minutes) after capture and at the site of capture.
4. Mortality of bats of the five species noted in #3 above while exercising the provisions of this permit will be reported within 48 hours to the WVDNR. The permittee will take appropriate precautions to preserve the dead animal, and the entire animal will be surrendered to the WVDNR.
5. Bats will not be collected by shooting.
6. No more than two specimens of any species of bat not listed above will be taken from a collection locality.
7. Bats may be banded and released. The band numbers must be both embossed and printed on the bands. All banding numbers and other banding data must be supplied to the WVDNR as part of the permit reporting process. *Myotis leibii* may not be banded. Bands are available from the WVDNR, and only *Myotis sodalis* and *Myotis lucifugus* may be banded with WVDNR bands.
8. Radio transmitters may be placed on bats. Transmitters may not be placed on pregnant or juvenile bats.
9. Mist-net poles shall be labeled with the company's or researcher's name.
10. Notify the U.S. Forest Service one week prior to surveys if mist-netting on their properties. A permit must be obtained from the U.S. Forest Service.
11. To minimize the disturbance to hibernating bats, bats will not be collected from hibernacula containing any endangered bat species or other hibernacula known to be important for any species of bat.

12. In addition to the reporting requirements of the original scientific collecting permit, the permittee will routinely notify the WVDNR (Craig Stihler or Barbara Sargent, P.O. Box 67, Elkins, WV 26241, (304) 637-0245) within five business days of capture or handling any *Corynorhinus* spp. or *Myotis sodalis*. Photographs showing diagnostic characteristics shall be taken of *Myotis sodalis*, *Myotis grisescens*, *Corynorhinus* spp. and *Nycticeius humeralis* and provided to the WVDNR.
13. **REPORTING:** Data will be reported using the Southeastern Bat Diversity Network and Northeast Bat Working Group bat database: http://www.sbdn.org/Bat_DB2006.html. See attachment.

Requests for exemption from any of the above conditions will be reviewed on a case by case basis by the WVDNR. Salvage of dead specimens is permitted and is not covered by the above restrictions, but must be reported to the WVDNR. If dead federally listed species are collected they must be reported to the WVDNR within 48 hours (304/637-0245), and then turned over to the WVDNR.

Subpermittee: Mary Gilmore.

The WVDNR requests a copy of any papers, reports or theses published as a result of this research.

APPLICATION FOR WEST VIRGINIA SCIENTIFIC COLLECTING PERMIT

Name: Ryan Slack

Institution/Affiliation: Civil & Environmental Consultants, Inc.

Street: 1 N. Pennsylvania Street, Suite 1100

City: Indianapolis State: IN Zip: 46204

Telephone: 317-655-7777 Email: rslack@cecinc.com

Profession: Ecological Major professor: N/A

Specific manner of collection
Mist-Net Surveys - Federal Permit # TE07358A-2

Purpose for which specimens are to be collected (attach abstract):

Specimens will be collected to determine the presence of Federally
endangered Indiana Bats (Myotis Sodalis) within the proposed AEP -

Gatt Ridge Landfill Project. See Attached Abstract. ; Mobley Natural Gas Plant;
Coal mine near Brooklyn

How will specimens be disposed?
Specimens will be released immediately after inspection by qualified
biologist.

Date on which collecting is to be: July 1, 2011 August 1, 2011
(Commence) (Terminate)

Location(s) where collections are to be taken (be specific):

County(s) Marshall, Wetzel If aquatic, indicate:

Stream(s): _____ Location (distance to
nearest town, miles from the mouth) Cresap, West Virginia

Attach separate pages if additional space is required.
(Over)

BAT COLLECTING PERMIT REPORTING REQUIREMENTS

April 2010

Beginning in calendar year 2010, persons with Scientific Collecting Permits for bats will be required to provide their data in both hard copy and electronic formats. For the electronic version, use of the SBDN and NEBWG Database is required. This database and instructions can be downloaded at: http://www.sbdn.org/Bat_DB2006.html.

Once your data have been entered into the database, please send copies to of this data to Eric Britzke or Susan Loeb for inclusion in the regional database (with limited access – see details on website) and also send a copy to Barbara Sargent.

Hard copy data must include copies of the original data sheets used in the field (these do not have to be the WVDNR forms required in the past) and copies of the reports generated from these data. If you are working on a long-term project and a final report is not available at this time, please prepare and submit a brief interim report.

Below is a list of the minimum information which must be included in the electronic database to meet reporting requirements of your collecting permit:

Source Data:

Complete all fields, but only if this table is relevant (use only if source data is different than the contact person)

Contact Data:

Complete all fields that are relevant (note: every person listed as a researcher in the Visit Data table will have to Contact Data here)

Site Data:

Complete all fields.

For Site Name use a project prefix and site identifier (i.e., Brooks Mine, Site 1; Brooks Mine, Site 2; etc.).

We recommend using UTM's, NAD 83, Zone 17 for location data.

In the "Notes" field please add comments that would help locate the site without plotting the point (i.e., "along Beech River ~ 2km E of Batsville).

Visit Data:

For "Researcher" enter name of person who actually identified the bats.

In the "Notes" field report the type of net sets used (i.e., single-tier: 1-6m, 1-9m, double-tier: 1-12m)

WEST VIRGINIA SUMMER BAT RESEARCH GUIDELINES ADDRESSING WHITE NOSE SYNDROME JUNE 2011

1. Follow procedures recommended by the US Fish and Wildlife Service unless superseded by more strict recommendations in this document. The current draft of the USFWS guidance is attached. Please check the USFWS web site regularly for updates:

http://www.fws.gov/northeast/white_nose.html

2. To allow active bats more time to “clear” the fungus, which should reduce the likelihood of transmission of WNS to other bats, please conduct mist netting surveys no earlier than 1 June 2009. If you must conduct surveys earlier, please provide written justification to Barbara Sargent (barbara.d.sargent@wv.gov), and the WVDNR and USFWS will review the study and determine if early netting will be permitted.

3. Pendleton, Mercer, Monroe, Pocahontas, Greenbrier, Jefferson, Fayette, Grant, Tucker, Randolph and Hardy are the only affected counties in the state at this time

4. Do not use nets or bat bags which have been used in any affected county in other states in any county in West Virginia.

5. Do not use nets or bat bags or which were used in Pendleton, Mercer, Monroe, Pocahontas, Greenbrier, Jefferson, Fayette, Grant, Tucker, Randolph and Hardy counties in any other WV county.

6. After a mist-netting survey at a site is completed, all equipment, footwear, and clothing must be cleaned and disinfected before the gear is used at another site.

7. Use harp traps as little as possible to minimize bats coming into contact with one another.

8. We recommend using disposable bags to hold and weigh bats.

9. We encourage all researchers to record Wing Score Index on their data sheets for all bats handled. See:

http://www.fws.gov/northeast/PDF/Reichard_Scarring%20index%20bat%20wings.pdf

Prepared by: West Virginia Division of Natural Resources in coordination with the USFWS, West Virginia Field Office

22 June 2011

To avoid cross-contamination of samples, it is imperative to keep holding bags as clean as possible. Each holding bag should be used only once per night of field work and should be washed (following procedures below) and dried between nights of use. Disposable paper bags are also a convenient option for holding bats temporarily. Bats should be kept in bags rather than holding cages.

At all times throughout a field night, only one bat should be in a given bag.

Disposable gloves should be worn over handling gloves and swapped out regularly throughout the night. Smooth leather gloves may be wiped down with disinfectant between bats. After each night of netting (or prior to the next night of use), remove heavy soil deposits from surface of bags and gloves, soak in an appropriate disinfectant, then dry completely.

Options include:

Bleach (sodium hypochlorite – household bleach) - Remove heavy soil deposits from surface. Wash with a detergent as a surfactant (follow directions for bacteria, virus, and fungal sanitization on product label). Rinse thoroughly. Then wet surface or soak in 10% bleach solution (9 parts water to 1 part bleach) for 10 minutes. Rinse and completely dry.

Quaternary Disinfectant Cleaner (Lysol All-purpose Professional Cleaner) - Remove heavy soil deposits from surface. Thoroughly wet surface or soak in disinfectant with solution of 0.5 oz of concentrate per gallon of water. Keep on surface for 10 minutes. Rinse and completely dry. See product warnings for contact with skin and eyes.
<http://drugs.com/vet/lysol-brand-i-c-quaternary-disinfectant-cleaner-concentrate.html>
Are quaternary ammonium compounds the same as the quaternary disinfectant cleaner?

Equipment with Hard Surfaces

Use one of the methods found in the table to sanitize all equipment that comes into contact with a bat's body, including banding pliers, rulers, calipers, scale, etc. Any instrument coming into direct contact with bat skin should be rinsed free of chemical disinfectant using clean water or physiologic (0.9%) saline. Clean items after handling each bat. If using container to weigh bats, separate containers used to weigh tree bats from cave bats, do not place tree bats in the same container previously used for a cave bat. **TREE BATS SHOULD NOT BE HANDLED AT THE SAME TIME/OUTING AS CAVE BATS IN WNS AFFECTED AREAS, INCLUDING ADJACENT STATE.** Containers used to weigh cave bats (film canisters, baggies, cardboard rolls) should be disinfected regularly throughout the night or replaced periodically. Paper lunch bags are an excellent alternative for holding and weighing individual bats, and can be immediately discarded after each use. Plastic baggies can also be used to line weighing containers, and bats can even be held in plastic bags during forearm measurements, reducing contact with wing rulers or calipers. Discard used bags after each bat.

What is known about *Geomyces* sp. viability:

- The fungus survives exposure to mammalian body temperature (38° C/100° F) for at least 3 days but does not remain viable after 8 days. (W. Stone, NY DEC , pers. communication 4/14/09).
- The fungus survives exposure to temperature (30° C/86° F) for at least 15 days. (W. Stone, NY DEC , pers. communication 4/14/09).
- Short-term incubation of fungus at higher temperatures reduces the number of conidia present and alters the morphology of the hyphae which may not inhibit growth once returned to colder temperatures. (W. Stone, NY DEC and D. Blehert, USGS NWHC, pers. communication 4/14/09).
- Clothes dryer heat treatment (49° C/ 120° F) alone increases fungal spore germination and does not kill the fungus. (H. Barton, NKU, pers. communication 4/22/09).

What kills the *Geomyces* sp. fungus:

Method	Conditions	Kill Time	Source	Cautions*
Disinfectant				
5.25% Chlorine bleach	10% bath solution (1 part bleach: 9 parts water)	15 min	over the counter	inactivated by organic material, detergents; corrosive to metals; produces toxic gas if combine with ammonia; skin irritant
Lysol Professional Antibacterial All Purpose Cleaner	1:128 bath solution (1 oz per 1 gal water)	10 min	Janitorial supply	Corrosive; skin & eye irritant
	1:64 bath solution (2 oz per 1 gal water)	5 min		
Promicidal	1:128 bath solution (1 oz per 1 gal water)	10 min	www.chemsearch.com	may require license to obtain; requires special disposal methods
Grenadier	1:64 bath solution (2 oz per 1 gal water)	10 min	www.chemsearch.com	may require license to obtain; requires hazardous waste disposal methods
	1:32 bath solution (4 oz per 1 gal water)	5 min		
Formula 409	??	10 min	over the counter	
70%-95% ethanol	Undiluted bath	2 min	Lab supply distributor	flammable, skin irritant



APPENDIX B

BAT SURVEY DATA FORMS

CEC Bat Capture Data Sheet

Site No. _____	Project Name: MITCHELL LANDFILL PROJECT	Date: JULY 13, 2011
Location: GATTS RIDGE ROAD	State: WV	Client: AEP
County: MARSHALL	Lat/Long (DMS): N	Zone: _____
Observers: M. GILMORE + M. ZIELES		

#	Time	Species	Age	Sex	Repro. Cond.*	RFA (mm)	Mass (g)	Net/Ht	Guano/Hair	Wing Score	Band # Type
1	0020	E. FUSCUS	A	M	TD	46	18.0	12M	—	0	—
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											

Moon Phase: WAXING GIBBONS	% 97
Rise	Set
Moon: 1848	421
Sun: 605	2052

Time	Temp	Sky	Wind	# Bats
2050	20°C	0	2	0
2100	19°C	0	2	0
2200	19°C	0	1	0
2300	18°C	0	1	0
0000	18°C	0	1	0
0100	17°C	0	1	0
0200	17°C	0	1	1
Ave				1 bats

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Smoke or fog
5	Drizzle or light rain
6	Thunderstorm

Beauford Wind Code	
0	Calm (0 mph)
1	Light wind (1-3 mph)
2	Light breeze (4-7 mph)
3	Gentle breeze (8-12 mph)
4	Moderate breeze (13-18 mph)

*Repro. Cond (Reproductive Condition): (P) pregnant; (L) lactating; (PL) post-lactating; (NR) non-reproductive, (TD) testes descended

Nets open - 2050
Nets closed - 0150

CEC Bat Capture Data Sheet

Site No.	Project Name: MITCHELL LANDFILL PROJECT	Date: 7.14.11
Location: GATTS RIDGE ROAD, CRESAP WV		
County: Marshall	State: WV	Client: AEP
Lat/Long (DMS): N	W	Zone:
Observers: M. GILMORE + M. ZIELES		

#	Time	Species	Age	Sex	Repro. Cond.*	RFA (mm)	Mass (g)	Net/Ht	Guano/Hair	Wing Score	Band # Type
1	2100	L. borealis	ESCAPED AS APPROACHED NET					11.5m	NA	0	NA
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											

Moon Phase: WAXING GIBBONS	%
Rise	Set
Moon: 1945	524
Sun: 606	2051

Time	Temp	Sky	Wind	# Bats
2050	21°C	0	1	0
2100	21°C	0	1	1
2200	18°C	0	1	0
2300	18°C	0	1	0
000	17°C	0	1	0
100	17°C	0	1	0
200	16°C	0	1	0
Ave				1 bat escape

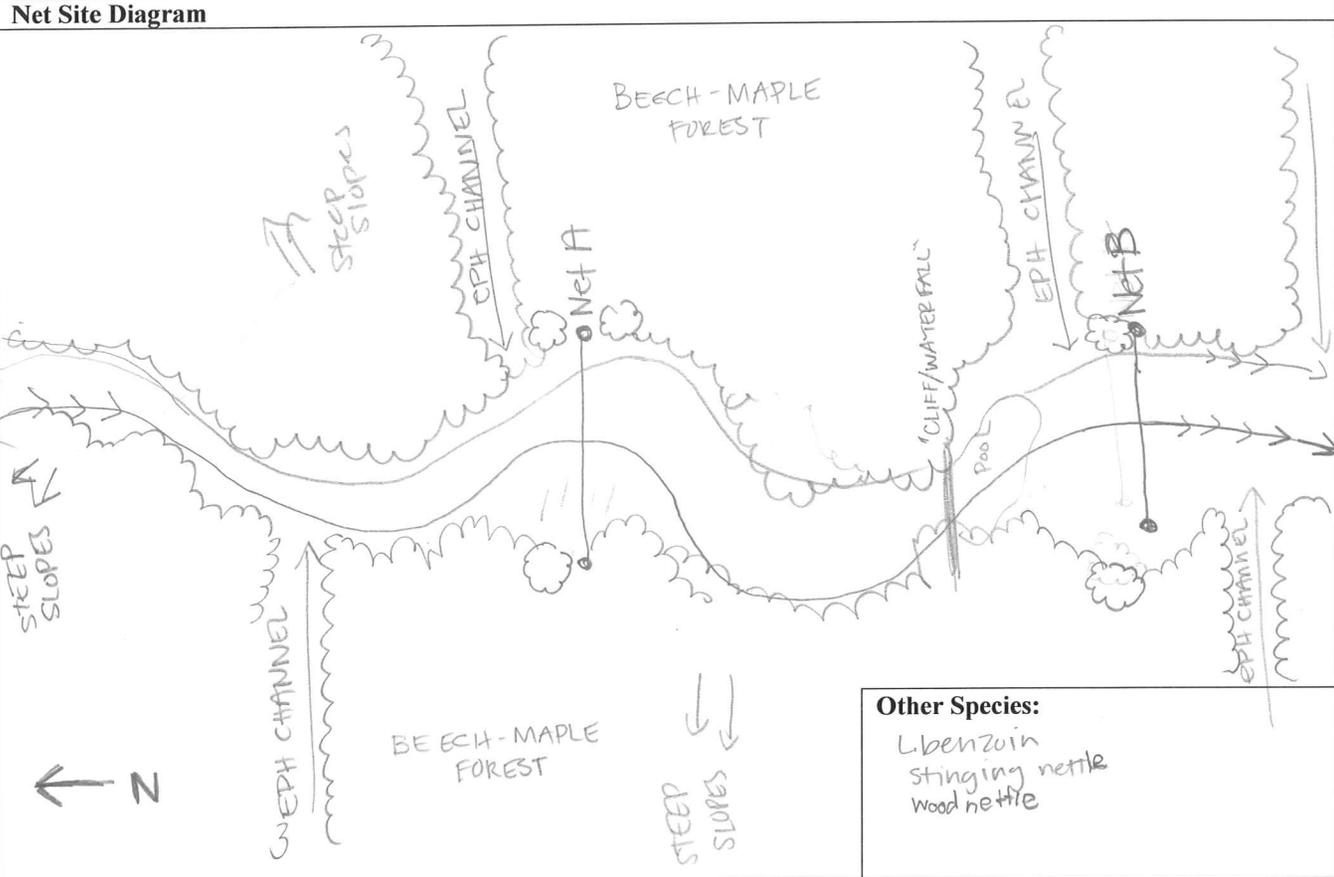
Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Smoke or fog
5	Drizzle or light rain
6	Thunderstorm

Beauford Wind Code	
0	Calm (0 mph)
1	Light wind (1-3 mph)
2	Light breeze (4-7 mph)
3	Gentle breeze (8-12 mph)
4	Moderate breeze (13-18 mph)

*Repro. Cond (Reproductive Condition): (P) pregnant; (L) lactating; (PL) post-lactating; (NR) non-reproductive, (TD) testes descended

Nets open - 2050
Net closed - 150

Site No.: Project Name: Mitchell Landfill Project Date: 7.13.11 / 7.14.11



Dominant Vegetation

1	<i>Fagus grandifolia</i>
2	<i>Acer saccharum</i>
3	<i>Ulmus rubra</i>
4	<i>Quercus rubra</i>
5	<i>Fraxinus pennsylvanica</i>

Net Site(s) by Habitat

Habitat	A	B	C	
River				
Stream	X	X		
Pond				
Road Rut				
Corridor	X			
Cave/mine				
Total				

No. of Poles X Net length

	=		X	
A	=	2	X	6m
B	=	2	X	6m
C	=		X	
D	=		X	

Other Species:
L. benzoin
 stinging nettle
 wood nettle

Comments: Steep banks along creek. mature. Beech-Maple Forest, very thin understory. Dominant canopy cover approximately 75-100%. Heavy stinging nettle along creek banks.

CEC Bat Capture Data Sheet

Site No. 2	Project Name: Mitchell landfill PROJECT	Date: 7/15/11
Location: Gatts Ridge Road, Cresap, WV		
County: Marshall County	State: WV	Client: AEP
Lat/Long (DMS): N	W	Zone:
		Observers: M. GILMORE & M. ZIELES

#	Time	Species	Age	Sex	Repro. Cond.*	RFA (mm)	Mass (g)	Net/Ht	Guano/Hair	Wing Score	Band # Type
1	2115	M. sept	J	M	NR	35	6.0	B 1m	-	0	-
2	2150	L. borealis	J	F	NR	42	9.8	A 3m	-	0	-
3	2150	M. sept	J	F	NR	34	4.8	A 1.5m	-	0	-
4	2220	M. sept	J	F	NR	37	5.6	A 3m	-	0	-
5	2250	M. sept	J	M	NR	35	5.5	B 1m	-	0	-
6	2330	M. sept	J	F	NR	35	6.1	B 2m	-	0	-
7	2330	M. sept	J	M	NR	34	5.2	B 2.5m	-	0	-
8	0010	M. sept	A	M	NR	35	6.7	B 1m	-	0	-
9	0010	M. sept	J	F	NR	36	5.2	B 2m	-	0	-
10											
11											
12											
13											
14											
15											
16											
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28											
29											
30											

Moon Phase: FULL MOON		% 100
	Rise	Set
Moon:	2025	629
Sun:	607	2051

Time	Temp	Sky	Wind	# Bats
2050	23°C	0	0	0
2100	21°C	0	0	0
2200	21°C	0	0	11
2300	21°C	0	0	11
0000	20°C	0	1	11
1000	19°C	2	1	11
2000	19°C	2	1	0
Ave				9 total

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Smoke or fog
5	Drizzle or light rain
6	Thunderstorm

Beauford Wind Code	
0	Calm (0 mph)
1	Light wind (1-3 mph)
2	Light breeze (4-7 mph)
3	Gentle breeze (8-12 mph)
4	Moderate breeze (13-18 mph)

*Repro. Cond (Reproductive Condition): (P) pregnant; (L) lactating; (PL) post-lactating; (NR) non-reproductive; (TD) testes descended

{ Nets open - 2100
 Nets closed - 200

CEC Bat Capture Data Sheet

Site No. 2	Project Name: Mitchell Landfill Project	Date: 7/16/11
Location: Gatts Ridge Road		
County: Marshall County	State: WV	Client: AEP
Lat/Long (DMS): N	W	Zone:
Observers: M. GILMORE + M. ZIELES		

#	Time	Species	Age	Sex	Repro. Cond.*	RFA (mm)	Mass (g)	Net/Ht	Guano/Hair	Wing Score	Band # Type
1	2110	L. borealis	A	M	NR	37	10.3	A2m	-	8	-
2	0000	E. fuscus	A	F	PL	46	21.0	A2.5m	-	8	-
3	0130	L. borealis	A	M	TD	36.5	10.2	A1m	-	8	-
4											
5											
6											
7											
8											
9											
10											
11											
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25											
26											
27											
28											
29											
30											

Moon Phase: Waning Gibbous	% 98
Rise	Set
Moon: 2102	734
Sun: 608	2050

Time	Temp	Sky	Wind	# Bats
2100	22°C	0	0	0
2200	22°C	3	2	0
2300	20°C	1	1	0
0000	21°C	1	1	0
0100	21°C	0	0	0
0130	21°C	0	0	1
0200	20°C	0	0	0
Ave				3 total

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Smoke or fog
5	Drizzle or light rain
6	Thunderstorm

Beauford Wind Code	
0	Calm (0 mph)
1	Light wind (1-3 mph)
2	Light breeze (4-7 mph)
3	Gentle breeze (8-12 mph)
4	Moderate breeze (13-18 mph)

*Repro. Cond (Reproductive Condition): (P) pregnant; (L) lactating; (PL) post-lactating; (NR) non-reproductive, (TD) testes descended

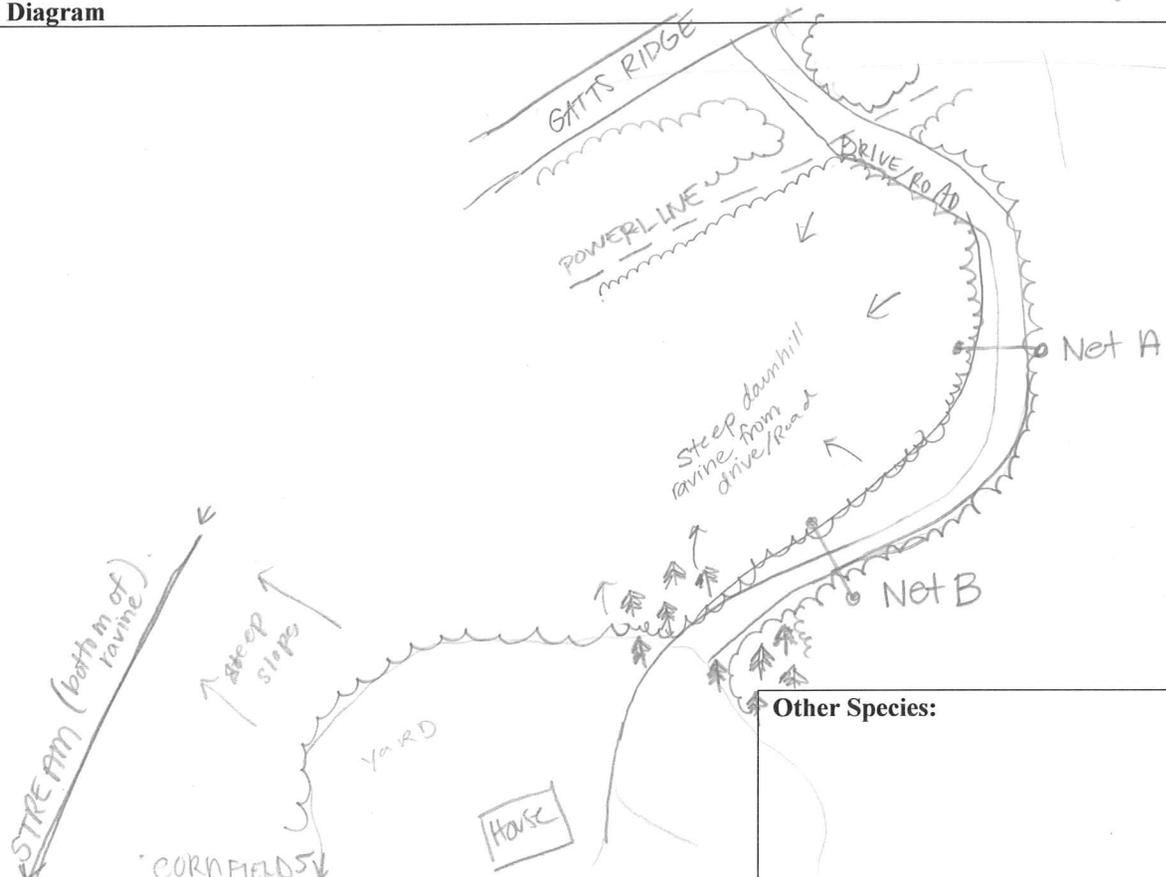
Nets open 2100
Nets closed 200

Site No.: 2

Project Name: Mitchell Landfill Project

Date: 7.16.11 / 7.16.11

Net Site Diagram



Other Species:

Dominant Vegetation

- 1 *Juglans nigra*
- 2 *Vitis americana*
- 3 *Acer saccharum*
- 4 *Fraxinus americana*
- 5 *Prunus serotina*

Net Site(s) by Habitat

Habitat	A	B	C
River			
Stream			
Pond			
Road Rut			
Corridor	X	X	
Cave/mine			
Total	1	1	

No. of Poles X Net length

A	=	3	X	6m
B	=	2	X	6m
C	=		X	
D	=		X	

Comments: Very dense understory w/canopy species and *L. benzoin* heavily present. *Vitis* sp., *Toxicodendron radicans* + *Parthenocissus quinquefolia* present.



APPENDIX C

PHOTOGRAPHS



Photograph 1. View of Net Site 1, Net A. Photo taken facing south.



Photograph 2. View of Net Site 1, Net B. Photo taken facing south.

American Electric Power
Mitchell Landfill Project
Marshall County, West Virginia
CEC Project No. 110-416
Photographs Taken on 7-14-2011 through 7-17-2011



Photograph 3. View of Net Site 2, Net B. Photo taken facing southwest.



Photograph 4. View of Mist Net Site 2, Net A. Photo taken facing north.

American Electric Power
Mitchell Landfill Project
Marshall County, West Virginia
CEC Project No. 110-416
Photographs Taken on 7-14-2011 through 7-17-2011



Photograph 5. View of big brown bat captured in Net Site 1, Net A.



Photograph 6. View of big brown bat captured in Net Site 2, Net A.

American Electric Power
Mitchell Landfill Project
Marshall County, West Virginia
CEC Project No. 110-416
Photographs Taken on 7-14-2011 through 7-17-2011



Photograph 7. View of eastern red bat captured in Net Site 2, Net A.



Photograph 8. View of eastern red bat captured in Net Site 2, Net A.

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Photograph 9. View of northern long-eared bat captured in Net Site 2, Net A.



Photograph 10. View of northern long-eared bat captured in Net Site 2, Net B.

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Photograph 11. View of northern long-eared bat captured in Net Site 2, Net A.



Photograph 12. View of northern long-eared bat captured in Net Site 2, Net B.

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