

**West Virginia Department of Environmental Protection  
Division of Mining and Reclamation**



**Preface of West Virginia State-Specifics**

and

**“Range-wide Indiana Bat Protection and Enhancement Plan Guidelines”**

*Interim Document, Effective: May 1, 2013*



## Preface

Effective for applications submitted after May 1, 2013, the West Virginia Department of Environmental Protection (DEP) adopts the “Range-wide Indiana bat Protection and Enhancement Plan Guidelines for Surface Coal Mining Operations” (rev. February, 2013). The revised Guidelines immediately follow this Preface in their entirety.

The West Virginia DEP and U. S. Fish and Wildlife Service staff participated in the latest revision of the Range-wide Indiana Bat Guidelines. Interested parties might therefore note the new document’s similarity to the West Virginia Guidelines initially implemented January 1, 2007.

The latest Range-wide document employs the best currently available science. It was jointly drafted by a team representing the U. S. Fish and Wildlife Service, the U. S. Office of Surface Mining and the Interstate Mining Compact Commission (IMCC) on behalf of the States.

As the document sets forth minimum standards while allowing for state discretion per unique and site-specific conditions, this Preface is included to address areas of concern specific to West Virginia. These include:

- 1.) **To Provide State-Specific Acreage Threshold Options-** per the amount of available statewide forest cover habitat.
  - A. Applications of Less than 40 acres of forest containing trees  $\geq$  5 inches in diameter are exempt, provided that no known habitat buffer zone as described in Section 2.2.1 is encroached.
  - B. Applications of 40 acres or more but less than 247 acres of forest containing trees  $\geq$  5 inches in diameter may select either: “Conducting Bat Surveys” or “Assuming Presence,” as described in Sections 2.3.2 and 2.3.3; respectively, and with due consideration of known habitat buffer zones as described in Section 2.2.1.
  - C. Applications of 247 or more of forest containing trees  $\geq$  5 inches in diameter, must select “Conducting Bat Surveys,” as described in Section 2.3.2 and with due consideration of known habitat buffer zones as described in Section 2.2.1.
  - D. Acoustic surveys may begin on May 15 but mist netting surveys may not begin until June 1. (USFWS pers. comm., April, 2013)
  
- 2.) **To Provide the Listing of Qualified Indiana Bat Surveyors-** as approved by the West Virginia Division of Natural Resources (DNR) as follows:

**QUALIFIED INDIANA BAT SURVEYORS\***  
**(December 2012)**

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\* This list includes individuals who are qualified to conduct surveys for Indiana bats, or those who are company contacts, and may not include all individuals qualified to conduct such surveys. Inclusion of names on this list does not constitute endorsement by the WV Division of Natural Resources (WVDNR), the US Fish and Wildlife Service, nor any other government agency. A Scientific Collecting Permit will be required from the WVDNR to survey for bats in WV. Note that various techniques are used to sample/study bats, including mist-netting, AnaBat™ detectors, and radio-telemetry. Some individuals on this list may not be qualified to perform all three techniques.

# Range-wide Indiana Bat Protection and Enhancement Plan Guidelines for Surface Coal-Mining Operations

July 2009

Revised:  
December 2009  
February 2013



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***Range-wide Indiana Bat Protection and Enhancement Plan Guidelines for  
Surface Coal-mining Operations – February 2013 Revisions***

During 2009, representatives from the U.S. Office of Surface Mining Reclamation and Enforcement, the U. S. Fish and Wildlife Service, and Interstate Mining Compact Commission member states (the group or agencies) developed a Range-wide Guidance Document to help applicants for mining permits expedite the permitting process when their activities were within the range of the Indiana-bat. The guidelines represented the “best science” available to the agencies when the guidelines were developed. The Agencies agreed to revisit these guidelines periodically to assess effectiveness and to “consider newer scientific developments relative to the species.” During late 2011 and early 2012, the group surveyed users of the document to determine if the Guidelines required revision. After analyzing the comments received and considering the latest scientific developments, the substantive changes to the *Range-wide Indiana Bat Protection and Enhancement Plan Guidelines for Surface Coal-mining Operations* are as follows:

**Title Page:** We changed the name to clarify that the Guidelines are specific to surface coal-mining operations only.

**Section 2.0 General Process** - Revised Figure 1 eliminates distances to known hibernacula in lieu of using “known Indiana-bat habit” terminology. In addition, changes eliminate references to specific types of surveys i.e. “mist net surveys”, in favor of a more generic reference to “summer survey.”

**Section 2.2.1 Known Habitat** - Changes include clarification that the radii (distances) describing known habitat are minimums and may be modified by Fish and Wildlife field offices based upon site-specific data. In addition, changes clarify that a protection and enhancement plan is required when an applicant assumes presence of the bat, in lieu of conducting surveys.

**Section 2.3.2 Applicant Alternative 2: Conducting Bat Surveys** – Changes eliminated references to “mist net” surveys, in favor of using a broader based “summer survey” terminology. Changes also include addition of a hyperlink to the U.S. Fish and Wildlife’s Region 3 webpage, which describe the approved survey protocols. Use of the webpage allows updating of the survey protocols without revising the “Range-wide Guidance Document.”

**Section 2.4.1.1 Tree Clearing Restrictions** – Clarified the language in Figure 2., Seasonal Tree Clearing Relative to Known and Potential Indiana Bat Habitat Areas, regarding the role that distances and telemetry data play in the selection of tree clearing dates. Now the section includes a recommendation that applicants work closely with the regulatory authority and local USFWS offices to identify “best practices” for tree clearing activities. In addition, a statement previously outside the box is brought inside, to clarify that the seasonal dates themselves can be changed through written agreement based on specific data that supports such a change.

We clarify that while the seasonal dates are requirements, applicants are still supposed to use best management practices to prevent erosion. This change addresses issues where tree clearing caused erosion problems, and applicants alleged the damage was because they were forced to clear trees within the seasonal (winter) date ranges.

**Section 2.4.2.1 Short-term Habitat Measures** – We added a statement advising applicants and/or landowners against removing trees in advance of applying for a mining permit. The statement points out that destruction of habitat and the “take” of protected species may expose the applicant and/or landowner to liability under Section 9 of the Endangered Species Act. Applicants and/or landowners will not benefit from the “incidental take” provisions of the 1996 Biological Opinion on surface mining if the applicant/landowner clears the area before a mining permit is issued.

**Section 2.4.2.2 Long-term Habitat Measures** – Added language clarifying the definition of “reforestation.” The language was added in response to concerns that reforestation may be identified by the applicant as the preferred post mining land-use and mitigation method, even when the applicant knows that the landowner intends to cut the trees after bond release. This section clarifies that if the landowner does not agree to the long term maintenance of the reforested land, the applicant should provide off-site mitigation instead.

**Appendices:** Revised and renumbered the appendices, eliminating specific survey protocols and methodology in lieu of a reference, previously discussed, to the USFWS Region III Webpage for specifics about the bat. (<http://www.fws.gov/midwest/Endangered/mammals/inba/index.html>)

**Appendix E** (formerly N): Added a reporting requirement for acres in proposed Post Mining Forest land use.



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**List of Acronyms Used In This Document**

1996 BO	1996 Biological Opinion
ESA	Endangered Species Act
FWS	U.S. Fish and Wildlife Service
IMCC	Interstate Mining Compact Commission
OSM	U.S. Office of Surface Mining Reclamation and Enforcement
PEP	Protection and Enhancement Plan
PMLU	Post Mining Land Use
SMCRA	Surface Mining Control and Reclamation Act of 1977 (PL-95-87)
RA	Regulatory Authority
RPM	Reasonable and Prudent Measures
AML	Abandoned Mine Lands

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## EXECUTIVE SUMMARY

The purpose of this document is to aid coal-mining applicants and Regulatory Authorities (RAs) in understanding the options and protocols associated with assuring compliance with the 1996 Biological Opinion (BO) on implementation of the Surface Mining Control and Reclamation Act of 1977 (PL-95-87) (SMCRA). In particular, this document addresses implementation of SMCRA as related to surface mining activities that may adversely affect the Indiana bat (*Myotis sodalis*), a federally listed endangered species. This guidance is not intended to cover Abandoned Mine Lands (AML) projects; however portions of this guidance may be used for AML projects as determined by the local FWS office.

A team comprised of representatives from the Office of Surface Mining Reclamation and Enforcement (OSM), the U.S. Fish and Wildlife Service (FWS), and a representative group of RAs on behalf of the Interstate Mining Compact Commission (IMCC) developed this document. This document addresses the concern that agencies are not consistently implementing the 1996 BO, reflects the best efforts of the representatives to address issues associated with use of the 1996 BO, and identifies the measures that must be implemented by RAs and mining applicants to ensure compliance with the 1996 BO. The 1996 BO requires that each State “must implement and require compliance with any species-specific protective measures developed by the FWS field office and the regulatory authority with the involvement, as appropriate, of the permittee and OSM.” This document sets the minimum standards for development of the species-specific protective measures and provides predictability in the SMCRA permitting process relative to the preparation of a Protection and Enhancement Plan (PEP) by an applicant.

The guidance is based on the best information currently available; new research efforts may result in additional knowledge about the species, so future revisions to this document may be necessary. This guidance is not all-inclusive and certain measures may not be practicable for all mining projects. Therefore, discussions between the applicant and RA/FWS are encouraged to identify additional measures, not addressed in this document, which may protect the Indiana bat.

In an effort to improve efficiency of project review, the agencies have agreed that satisfactory coordination and implementation of required measures will satisfy the Section 7 consultation requirement for coal mining-related actions of other Federal agencies, including the U.S. Army Corps of Engineers permitting process for section 404 of the Clean Water Act. This will provide a consistent level of review, avoid redundant review by the FWS, and provide applicants with the reassurance that last-minute changes will not occur.

These guidelines provide recommendations based on the best scientific information available and current mining practices to promote consistency in PEPs among states/regions within the range of the Indiana bat. Due to the variety of bat habitats that have coal reserves, we have identified areas within the document where discretion is available for states/regions to tailor their plans for site-specific needs. Guidance presented in this document can be implemented for all applications regarding new permits, significant revisions, and renewals received on or after the effective date of this document. Utilization of this guidance should occur once out-reach training has been conducted for state permitting and inspection personnel and the coal industry.

## 1.0 INTRODUCTION

The 1996 BO provides an overall framework for OSM's compliance with the Endangered Species Act (ESA) ((87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) for implementation of SMCRA. In particular, the 1996 BO: (a) evaluated SMCRA's potential effects on federally listed species, (b) determined that implementation of SMCRA would not jeopardize the continued existence of any federally listed species, and (c) identified several reasonable and prudent measures (RPMs) that must be met in order for SMCRA-authorized coal-mining programs to maintain compliance with the ESA. To be exempt from section 9 of the ESA, States with delegated SMCRA coal-mining programs and OSM-overseen programs must comply with the specific RPMs and Terms and Conditions found in the 1996 BO.

One of the requirements of the 1996 BO is that each State "must implement and require compliance with any species-specific protective measures developed by the FWS field office and the regulatory authority with the involvement, as appropriate, of the permittee and OSM." This document identifies species-specific protective measures for the Indiana bat and outlines many of the options that are available for applicants to satisfy these requirements. Figure 1 below summarizes the process and its requirements and options. Throughout the SMCRA permitting process, applicants should coordinate directly with the RA. The FWS will provide technical assistance to the RAs and mining applicants on an as needed basis.

While some flexibility is inherent and provided in the guidance, affected RAs and local FWS offices must work together to determine how a particular issue or situation will be addressed if it is not clearly covered by this guidance. For example, mine permit applicants may employ different protective measures or options, depending on the size, location, and other characteristics of the permit area.

## 2.0 GENERAL PROCESS

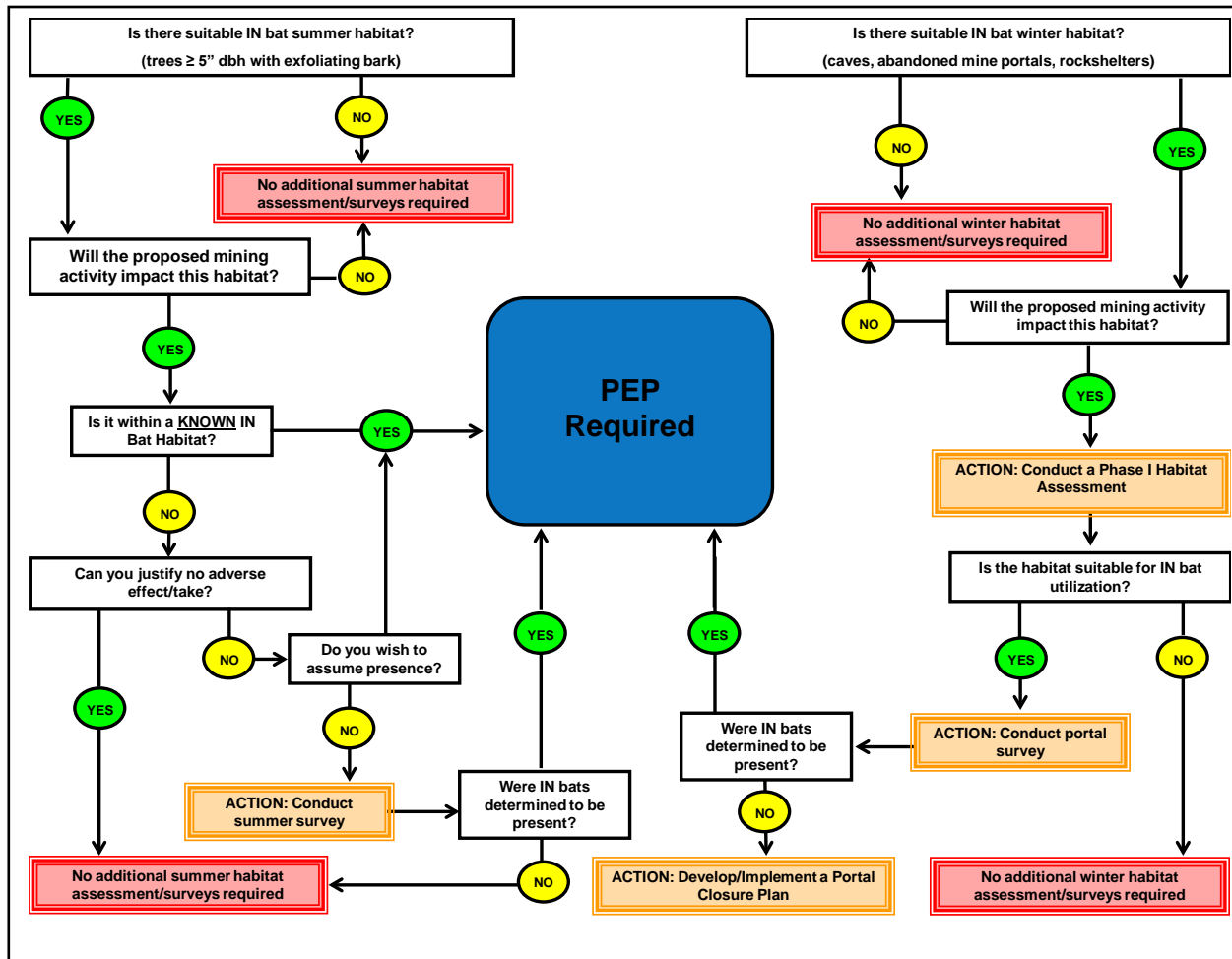
Coal-mining operations may affect the Indiana bat in situations where proposed surface disturbance areas are located near a documented Indiana bat hibernaculum, maternity roost, and/or collection record, or when forested habitat which could serve as foraging, roosting, or travel corridor habitat is cleared to facilitate the mining activity. To adequately avoid and minimize adverse effects to the Indiana bat during mine operations, the appropriate course of action will depend on the size and location of the mining activity, the amount, and type of disturbance(s) that will occur, and the other particular circumstances associated with the mining activity as they relate to the biology and life history of the Indiana bat. The FWS ([www.fws.gov](http://www.fws.gov)) and other public sources maintain information on the Indiana bat's life history.

The general process identified in this guidance involves five primary steps designed to help mining applicants, RAs, and OSM identify when an Indiana Bat Protection and Enhancement Plan (PEP) is required and to develop a PEP that meets both RA and FWS approval. The five primary steps described in detail in the following sections include:

- **Step 1: Initial Habitat Information (Section 2.1)**
- **Step 2: Habitat Determination (Section 2.2)**
- **Step 3: Applicant Alternatives (Section 2.3)**
- **Step 4: PEP Development and Implementation (Section 2.4)**
- **Step 5: Agency Responsibilities/Oversight (Section 2.5)**

The flowchart in Figure 1 is a graphical representation of the steps described in this guidance.

Figure 1



## 2.1 STEP 1: INITIAL HABITAT INFORMATION

During the SMCRA application process, the applicant should provide initial habitat information to the RA to assist in determining if suitable/potential Indiana bat summer or winter habitat is or may be present. This information should describe the current conditions that exist on the permit area and identify any impacts to Indiana bats or their habitat that may occur because of the proposed mining activity. This information should also identify the approximate percent of forested habitat onsite, any structures capable of providing summer or winter habitat for Indiana bats, and any caves, underground mine workings, rock shelters, bridges, tunnels, dams, or other underground openings.

At this time, the applicant may also provide the RA with written justification and photographic or other documentation that sufficiently demonstrates that no suitable/potential Indiana bat habitat exists within the permit area or that the proposed mining activity would not result in negative impacts to Indiana bats or their habitat. The RA is responsible for maintaining the relevant information in the permit application files and for providing that information to the FWS office for review upon the FWS office's request. If the RA determines that no Indiana bat habitat exists within the permit area, the PEP development process ends, and no PEP is required.

Applicants are encouraged to submit this information to the RA prior to submitting an application to expedite the review process. However, the applicant must provide the initial habitat information in order for the SMCRA application to be administratively complete. Information on how to determine presence of suitable/potential Indiana bat summer (maternity), swarming, and winter (hibernacula) habitat is provided in Appendix A and the draft revised Indiana bat recovery plan (USFWS 2007).

## 2.2 STEP 2: HABITAT DETERMINATION

The RA will review available habitat information and make a habitat presence/absence determination for the Indiana bat. For the purposes of this guidance, Indiana bat habitat is categorized as either "known" habitat or "potential" habitat. The local FWS office and/or State Wildlife Agency will provide the RA with the most-recent Indiana bat habitat and occurrence data on a periodic basis to ensure that all habitat determinations are accurate.

### 2.2.1 Known Habitat

Known habitat is habitat occupied by Indiana bats based on capture records, survey information, or other sources. Known habitat includes the following types of habitat:

1. Caves, underground mine workings, rock shelters, bridges, tunnels, dams, and other underground openings where Indiana bats have been recorded. (i.e., "known winter or summer habitat").

2. Forests containing trees  $\geq 5$  inches in diameter with exfoliating bark that lie within a 10 mile radius of a known Priority 1 (P1)<sup>a</sup> or Priority 2 (P2)<sup>b</sup> Indiana bat hibernaculum (i.e., “known swarming habitat”).
3. Forests containing trees  $\geq 5$  inches in diameter with exfoliating bark that lie within a 5 mile radius of a known Priority 3 (P3)<sup>c</sup> or Priority 4 (P4)<sup>d</sup> Indiana bat hibernaculum (i.e., “known swarming habitat”).
4. Forests containing trees  $\geq 5$  inches in diameter with exfoliating bark that lie within a 5 mile radius of an Indiana bat female (reproductive or non-reproductive) or juvenile capture record without a maternity roost tree (i.e., “known summer habitat”).
5. Forests containing trees  $\geq 5$  inches in diameter with exfoliating bark that lie within a 2.5 mile radius of an Indiana bat maternity tree record (i.e., “known summer habitat”).
6. Forests containing trees  $\geq 5$  inches in diameter with exfoliating bark that lie within a 2.5 mile radius of an Indiana bat male record (i.e., “known summer habitat”).

The radii applied to the known habitat areas described above should be considered minimum default radii in the absence of radio telemetry data or other information indicating that summer and/or swarming habitat extends farther than the referenced radius. The local FWS field office may adjust the default radii of known summer and/or swarming habitat around a particular maternity tree area or a hibernaculum based upon site-specific data. Similarly, the FWS may expand the default radii at all maternity areas or hibernacula within a larger geographic area (e.g., a region, State or Recovery Unit) when the best scientific and commercial data indicate Indiana bats are likely to be using the expanded habitat areas.

**Development of a PEP is required if (1) known Indiana bat summer, swarming, and/or winter habitat exists within the permit area and will be impacted by the mining activity or (2) the applicant assumes the presence of the Indiana bat within the permit area in lieu of conducting a presence/absence survey.** Section 2.4 of this guidance (Step 4), describes PEP development, and the specific measures that must be included in a PEP to reduce impacts to Indiana bats.

### 2.2.2 Suitable/Potential Habitat

Suitable/potential habitat is within the range of the species and (a) is currently suitable for habitation by Indiana bats but for which no survey or other data is available showing that Indiana bats are present, or (b) may be suitable pending a definitive analysis of its suitability for Indiana bat use, which is especially relevant for potential winter habitat. Suitable/potential habitat includes the following types of habitat:

1. Caves, underground mine workings, rock shelters, bridges, tunnels, dams, and other underground openings where no Indiana bats have been recorded and where no previous

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<sup>a</sup> Hibernacula with a current or observed historic population  $\geq 10,000$  Indiana bats

<sup>b</sup> Hibernacula with a current or observed historic population of 1,000 or greater Indiana bats, but fewer than 10,000.

<sup>c</sup> Hibernacula with a current or observed historic population of 50-1,000 Indiana bats

<sup>d</sup> Hibernacula with a current or observed historic population of fewer than 50 Indiana bats

surveys and habitat analysis of such habitat have been conducted (i.e., “potential winter or summer habitat”).

2. Forests containing trees  $\geq 5$  inches in diameter with exfoliating bark that lie within a 10 mile radius of any potential hibernaculum where no previous surveys and no habitat analysis of the potential hibernaculum have been conducted (i.e., “potential swarming habitat”).
3. Forests containing trees  $\geq 5$  inches in diameter with exfoliating bark (i.e., “potential summer habitat”).

If the RA determines that suitable/potential Indiana bat summer, swarming, and/or winter habitat exists within the permit area, the applicant has three “Applicant Alternatives” from which to choose. Section 2.3 below explains the applicability of these options.

### **2.2.3 Potential Exemptions**

RAs will work with their local FWS office to determine if permit application acreage or other exemptions to this guidance are appropriate, considering items such as, but not limited to, the amount of habitat altered/removed, the type of permitting action taken, or other appropriate factors. The RA and FWS offices will agree to and document in writing all such exemptions. Permit areas that include known Indiana bat habitat are not eligible for an exemption.

Potential acreage exemptions are entirely dependent upon the amount of available Indiana bat habitat in the state. The amount of forested habitat varies greatly over the range of the Indiana bat. States with abundant suitable habitat may choose to incorporate an exemption, as long as that exemption does not exceed 40 acres, for timber clearing. Likewise, states with small areas of suitable habitat may choose not to incorporate an exemption for timber clearing. The RA, with technical assistance from the FWS and State wildlife agencies, will determine if an exemption is appropriate.

## **2.3 STEP 3: APPLICANT ALTERNATIVES**

Mining applicants have three Applicant Alternatives to choose from if potential Indiana bat summer, swarming, and/or winter habitat exists within the permit area. As stated previously, impacts to known habitat will require the development of a PEP. The Applicant Alternatives listed below are essentially different paths the mining applicant can take toward either developing a PEP or providing additional information that may make development of a PEP unnecessary. The three Applicant Alternatives are:

1. Demonstrating a Lack of Adverse Effects
2. Conducting Bat Surveys
3. Assuming Presence of Indiana bats

Many factors may be involved in choosing an Applicant Alternative. These factors include, but are not necessarily limited to, the mining applicant’s schedule and contractual obligations, the type and location of the Indiana bat habitat present, and any of the other particular circumstances surrounding the mining application.



### 2.3.1 Applicant Alternative 1: Demonstrating a Lack of Adverse Effects

Mining applicants and RAs can justify, in certain situations, that development of a Protection Plan is not necessary when a proposed mining activity will have no adverse effects on Indiana bats. Typically, this type of situation occurs when potential habitat is present within the permit area, but that habitat will not be impacted by the mining activity.

If this Applicant Alternative is used, the RA is responsible for (a) maintaining sufficient information in the permit application files to justify the no adverse effects determination and (b) coordinating and consulting with the FWS office for the no adverse effects determination. If the RA determines that the proposed mining project is not likely to adversely affect the Indiana bat or result in the adverse modification of its federally-designated critical habitat, the PEP development process ends, and no PEP is required.

### 2.3.2 Applicant Alternative 2: Conducting Bat Surveys

Mining applicants can conduct surveys of potential summer and/or winter habitat areas (see section 2.2.2 above for a description of potential summer and winter Indiana bat habitat) according to established protocols to determine if Indiana bats are using the permit area. Summer surveys are appropriate in permit areas containing potential summer habitat and cave/portal surveys are appropriate for permit areas containing potential winter habitat. The survey protocols for these habitats are established by the FWS. FWS offices will provide RAs with the most current summer, swarming, and winter habitat survey protocols on a periodic basis. Survey protocols will also be available on the FWS' Region 3 Indiana bat webpage (<http://www.fws.gov/midwest/Endangered/mammals/inba/index.html>).

A biologist with all required federal and/or state collection permits must conduct the necessary surveys and must provide the data collected during surveys according to the conditions of his/her collection permit(s) and any RA requirements. Applicants are encouraged to provide a survey plan to the RA and/or FWS prior to conducting any survey for Indiana bats. If the most current survey protocols are not used or if the surveys are conducted incorrectly, the RA may consider the survey results invalid, reject the survey results, and require the mining applicant to resurvey or choose another Applicant Alternative. The mining applicant shall provide a survey report that includes sufficient information to justify that surveys were conducted by permitted biologists using current protocols and according to any other RA requirements. The applicant shall provide the RA two copies of the survey results, and the RA will provide a copy to the FWS as requested.

Summer survey results that indicate Indiana bats are not utilizing the permit area shall be valid for a period of 5 years, regardless of the date of issuance of the SMCRA permit. Permit areas that were originally surveyed for the presence/absence of Indiana bats will be required to be resurveyed 5 years after the original survey and every 5 years thereafter if they still contain suitable/potential Indiana bat habitat. Survey requirements will be based on the amount of suitable/potential Indiana bat habitat remaining. The period of survey validity is separate from the period of the SMCRA permit validity to avoid more than 5 years between surveys in the case

of surveys conducted prior to SMCRA permit issuance. The applicant is encouraged to conduct surveys as close as possible to the anticipated date of SMCRA permit issuance.

**If Indiana bats are determined to be present within the permit area during survey efforts, an Indiana bat PEP will be required.** In addition, the permitted biologist and/or applicant must report the capture within 48 hours to the RA, local FWS office, and state wildlife agency (if appropriate) and perform any telemetry or any other follow-up work that is required by the survey guidance and/or the biologist's collection permit(s). While negative results are valid for 5 years, positive results (i.e., the capture of Indiana bats) will change the habitat determination from "potential" to "known" Indiana bat habitat. A summer survey that produces negative results (i.e., no Indiana bats detected/captured) allows the applicant to initiate timber removal and coal extraction within the surveyed area subsequent to permit issuance without further coordination during the 5-year period, at which time the PEP development process ends, and no PEP is required.

As survey guidelines change from time to time based on the best available commercial and scientific data, Indiana bat survey protocols and reporting requirements should be obtained or verified each year from the local FWS office and/or state wildlife agency. Range-wide survey protocols will also be available on the FWS' Region 3 Indiana bat webpage. (<http://www.fws.gov/midwest/Endangered/mammals/inba/index.html>)

### **2.3.3 Applicant Alternative 3: Assuming Presence of Indiana Bats**

Applicants also have the option to assume the presence of Indiana bats if potential habitat occurs within the project area. When Indiana bat presence is assumed, a PEP will be required and a Post Mining Land Use (PMLU) must be chosen that results in reforestation of at least 70 percent of the disturbed Indiana bat habitat, unless off-site mitigation measures are incorporated. PEPs developed under this Applicant Alternative are no different from PEPs that are required when known Indiana bat habitat is present. They must describe the existing habitat, the nature and extent of proposed activities, the impact of those activities on the bat, and methods to avoid and minimize impacts to the bat and its habitat. Section 2.4 (STEP 4) of this document describes PEP development and the specific measures that must be included in a PEP to reduce impacts to Indiana bats.

## **2.4 STEP 4. DEVELOPING A PROTECTION AND ENHANCEMENT PLAN**

Protection and Enhancement Plans (PEPs) are required if (a) any part of the permit area contains known Indiana bat habitat, (b) the permit area contains potential Indiana bat habitat and the mining applicant decides to assume Indiana bat presence, or (c) Indiana bats are captured during survey efforts. Since the purpose of a PEP is to avoid and minimize adverse effects and incidental take of Indiana bats, a PEP must address the types of adverse effects that the mining activity will cause. For instance, many mining activities involve the removal of known or potential Indiana bat summer habitat (e.g., existing forests). Removal of that habitat can cause a wide variety of adverse effects on Indiana bats, which can include, but are not limited to, destruction of summer and maternity roost trees, destruction of foraging habitat, alteration of food sources, modification of Indiana bat behavior patterns, and the injury or mortality of

individual Indiana bats. Therefore, it is important that any avoidance and minimization measures included in a PEP address the many types of adverse effects that could occur. Mining applicants must work with the RA (and FWS office if requested by the mining applicant or RA) to ensure that any adverse effects and incidental take are adequately addressed.

In general, mining applicants must include two primary categories of avoidance and minimization measures in the PEP: (a) measures to avoid potential take of Indiana bats and (b) measures to minimize the potential take of Indiana bats. These types of measures are discussed below; however, these specific measures do not represent all possible ways to avoid or minimize adverse effects and incidental take of Indiana bats. The applicant may propose other avoidance and minimization measures in addition to those herein. The RA and local FWS office will coordinate to determine the suitability of the proposed measures to ensure that they would adequately support the RPMs outlined in the BO.

Please note that a PEP Development Checklist is included in Appendix B to assist the applicant in the development of the PEP. The completed checklist should be included as part of the PEP document.

#### **2.4.1 Avoidance Measures**

Mining applicants can often avoid or minimize certain adverse effects by not disturbing known or potential habitat areas. Mining applicants must address four (4) components in the PEP by identifying the specific habitat areas that will be avoided, if any. These components include: (1) tree clearing restrictions; (2) caves and abandoned underground mines; (3) riparian buffer zones; and, (4) minimization of disturbed area. These components are explained in detail below and must be implemented whenever practicable.

##### **2.4.1.1 Tree Clearing Restrictions**

Seasonal tree clearing restrictions are a **required** avoidance measure that can minimize potential adverse effects to Indiana bats caused by timber removal, or other disruptions of habitat, during Indiana bat occupancy periods. In general and when unavoidable, summer and swarming habitat may be removed when bats are not likely to be present, which is typically the winter months when Indiana bats are hibernating. Tree clearing is defined as the removal of all trees  $\geq 5$  inches dbh and does not include the selective removal of suitable Indiana bat roost trees.

## Figure 2. Seasonal Tree Clearing Dates Relative to Known and Potential Indiana Bat Habitat Areas.

### **October 15 to March 31\***

Tree clearing should occur only from October 15 to March 31 on permit areas that:

- (a) Are within the radius constituting known summer habitat, but not within the radius constituting known swarming habitat of a hibernaculum (see Section 2.2.1); or
- (b) Contain potential summer habitat, and Indiana bat presence is assumed, but are not within the radius constituting known swarming habitat surrounding a hibernaculum (see Section 2.2.1).

*Example (a): The permit area is within 2.5 miles of a known maternity tree, or within 5 miles of a maternity capture record without a known maternity roost tree. No known hibernaculum exists within a 5 or 10 mile default swarming radius, and no telemetry data or other information indicates that the default swarming radii should be expanded. Therefore, tree clearing should occur only from October 15 to March 31.*

*Example (b): The permit area is within potential summer habitat, and presence is assumed rather than choosing to conduct surveys. No known hibernaculum exists within a 5 or 10 mile default swarming radius, and no telemetry data or other information indicates that the default swarming radii should be expanded. Therefore, tree clearing should occur only from October 15 to March 31.*

### **November 15 to March 31\***

Tree clearing should occur only from November 15 to March 31 on permit areas that:

- (a) Contain caves, underground mine workings, rock shelters, bridges, tunnels, dams, and other underground openings where Indiana bats have been recorded; or
- (b) Are within the radius constituting known swarming habitat surrounding a hibernaculum (see Section 2.2.1).

*Example (a): No known hibernaculum or maternity record is within the default radii of the permit area, or within expanded radii based on telemetry data or other information (see Section 2.2.1). However, an Indiana bat record exists from an underground opening within the permit area itself. Therefore, tree clearing should occur only from November 15 to March 31.*

*Example (b): The permit area is within known swarming habitat (either within the default radii of 5 or 10 miles, or within an expanded radius based on telemetry data or other information). Therefore, tree clearing should occur only from November 15 to March 31.*

\*Upon written agreement, the RA and FWS office may modify seasonal clearing dates based on specific data that would support such modifications. The RA and FWS may adjust these dates slightly based on data specific to when the bats emerge from hibernation and swarm during the return to hibernation in their latitude and proximity to known hibernacula.

While seasonal tree-clearing restrictions are a required avoidance measure, mining applicants should coordinate with the RA to identify and implement best practices for tree clearing activities, to minimize erosion or other natural resource impacts to the greatest extent practical within the seasonal restrictions.

#### **2.4.1.2 Buffering Caves and Abandoned Underground Mines**

Caves may provide winter habitat for Indiana bats. Therefore, applicants are required to avoid impacts to caves by establishing appropriate buffers of at least 100 feet and demonstrating that no effects from the mining activity (blasting, fill, etc) will impact the cave. Abandoned underground mines may also serve as winter or roosting habitat for a variety of bat species, including Indiana bats. The applicant may consider choosing to install a bat gate over a portal if a survey indicates that bats use the portal and the portal and/or bat gate do not pose a risk to human health and safety. Winter surveys that document Indiana bat presence in caves or abandoned underground mines that may be directly impacted by mining or indirectly impacted by proposed blasting activities require a permit-specific consultation with the RA and FWS.

#### **2.4.1.3 Riparian Buffer Zone Protection**

Riparian buffer zone protection is a recommended avoidance measure. Indiana bats often forage along streams and wetlands, where they drink water or catch flying insects. The removal of a stream, wetland, and/or associated edges/banks may harm bats by removing their foraging area, causing them to expend energy locating a new foraging area, and potentially engaging in intraspecific (bat to bat) competition. Project plans that avoid impacting streams and wetlands, and leave a minimum 50-foot buffer along the stream edge (total of 100 ft from both stream banks) or wetland, can reduce impacts to foraging bats and are encouraged.

#### **2.4.1.4 Minimization of Disturbed Area**

Minimization of the disturbed area associated with the mining operation is a recommended avoidance measure. Mining operations should not disturb more area than is necessary for mining or facilitation of mining. If forested habitat is avoided, the acreage of habitat avoided should be quantified. Applicants should recognize that on-site avoidance can reduce the number and/or amount of other minimization and short- and long-term replacement measures required for the proposed project.

### **2.4.2 Minimization Measures**

Minimization of potential take of Indiana bats can take many forms, but site characteristics and the type of mining activity proposed will often dictate which minimization measures are necessary. A partial list of potential minimization measures is below, which includes measures that address both the short and long-term replacement of Indiana bat habitat.

### 2.4.2.1 Short-term Habitat Measures

The intent of these measures is to meet some of the short-term habitat needs of Indiana bats that may be adversely affected by the mining activity. These generally involve the conservation, protection, or replacement of certain immediate habitat needs or habitat attributes that help minimize impacts to Indiana bats and that are important to Indiana bat conservation and recovery. At a minimum, a PEP must include short-term habitat measures that either retain and/or create suitable roosting conditions for the life of the mining permit, such as tree girdling, creation of flooded forest areas, and/or the staged removal of forested habitat. These measures are described below:

- 1) Provide roosting habitat: Girdling trees (i.e., cutting of the bark and a portion of the underlying cambium layer to create a ring-like groove encircling the base of the trunk) along the perimeter of the permit area or trees within the undisturbed areas of the permit can create short-term Indiana bat roosting habitat. The need for girdling will be determined on a site-specific basis. Girdling may not be necessary if there is an adequate number (i.e., at least 6 natural snags or girdled trees per acre or 1 natural snag or girdled tree every 500' along the perimeter) of dead trees ( $\geq 9''$  dbh) or other potential roost trees, adjacent to the permit area, that can provide suitable habitat for Indiana bats.

If sufficient trees/snags are not available, it is recommended that applicants girdle one tree per 500 feet of permit perimeter, or at least six trees per acre of unaffected forest habitat. Girdling trees on north-facing slopes is not recommended, as it is unlikely that Indiana bats will utilize these as roost trees in some portions of the Indiana bat's range. Appendix C contains a preferred list of tree species suitable for girdling. If there are not enough species from the tree list of the appropriate size, then other species may be substituted. A biological consultant, forester, or another person with expertise in tree identification must select and mark the trees for girdling. It is important not to girdle every available large tree, and the timing of the girdling should be in advance of or coincide with proposed forest habitat impacts. The applicant should contact the RA if timing is not compatible with the mining plan and determine another appropriate minimization measure.

- 2) Staged tree removal: In order to minimize temporal loss of summer habitat and optimize the availability of suitable habitat on the permit area during mining, applicants should plan timber removal activities so that suitable habitat is removed one tree-clearing season prior to planned mining. This will ensure that forest clearing will occur only as needed to allow for mining that is anticipated to occur in the near future. Clearing large areas ahead of mining is discouraged. Applicants should recognize that any on-site minimization of proposed temporal loss might reduce the number and/or amount of other minimization and short and long-term replacement measures (e.g., tree girdling, off-site mitigation measures) required for the proposed project.

Applicants are discouraged from conducting, or encouraging landowners to conduct, tree removal in advance of making a mining permit application. Such activities are not covered by the 1996 SMCRA biological opinion and the Indiana bat PEP development

process and would, thus, expose applicants and/or landowners to potential ESA liability (i.e., under the ESA section 9 take prohibition) if Indiana bats or other federally listed species were adversely affected. To be authorized under the ESA, private tree clearing actions that are likely to result in adverse effects on Indiana bats (or other federally listed species) would require the applicant or landowner to develop a Habitat Conservation Plan and seek the FWS's issuance of a section 10(a)(1)(B) incidental take permit (ITP). The ITP permitting process (a) can take from one to several years, depending on the complexity of the project, (b) involves a public notice and public comment period, and (c) can be costly, and (d) can result in time delays affecting project implementation. As a result, applicants are strongly encouraged to ensure that all mining-related tree clearing is conducted in association with the SMCRA permitting process and that the staged tree removal recommendation is followed.

- 3) Flooded timber: Flooding timber will kill affected trees within weeks. Eventually, the bark will begin to loosen and exfoliate. This short-term replacement for lost habitat may be created on the mine perimeter, incidental to drainage control structures. Water may back up in the drainage area of fresh water diversions, off channel sediment traps or in the basin of a sediment pond. Leaving small areas of standing timber (<1 acre) in the pool area of a sediment pond is probably the most common method of implementing this technique. Used in conjunction with tree girdling, suitable habitat can be implemented in any number of areas adjacent to affected lands. The RA will determine the appropriateness of this measure on a given mine permit area.

#### 2.4.2.2 Long-term Habitat Measures

The intent of these measures is to meet some of the long-term habitat needs of Indiana bats that may be adversely affected by the mining activity. These generally involve the conservation, protection, or replacement of certain longer-term habitat needs or habitat attributes, especially watering areas and forested roosting, foraging, and travel habitat, which help minimize impacts to Indiana bats and that are important to Indiana bat conservation and recovery. A PEP must address each of the following long-term habitat measures:

- 1) Watering Areas: If suitable water sources are not available on or within ½ mile of the permit area, applicants must attempt to replace previously existing water sources (e.g., ephemeral streams, natural wetlands, shallow water depressions) with water sources that are available throughout a significant portion of the dry months.

Construction techniques described by Biebighauser (2003) may be referenced for use in building these water sources. The techniques described in Thomas R. Biebighauser's "A Guide to Creating Vernal Ponds," published by the USDA Forest Service, are highly recommended for the creation of adequate watering areas

(<http://herpcenter.ipfw.edu/outreach/VernalPonds/VernalPondGuide.pdf>).

- 2) Reforestation: Reclamation activities for the purpose of reforestation means that at least 70 percent of the total Indiana bat forested habitat that will be lost should be replaced unless off-site mitigation measures are used (see section below). To meet this

requirement means that the landowner has agreed to a forested Post-Mining Land Use that meets the reforestation objective and the applicant reasonably believes the landowner understands the purpose of reforestation is to achieve mature forest for Indiana bat habitat. This acreage shall be based on the pre-mining forested acreage of known and/or potential summer habitat. Applicants may choose any PMLU that meets the 70 percent reforestation objective. However, applicants and RAs are strongly encouraged to promote additional reforestation efforts, because the additional reforestation helps minimize the indirect and cumulative effects of range-wide forest losses on the Indiana bat. Applicants and RAs should report any additional reforestation efforts that are accomplished as part of reclamation activities and that are in excess of the 70 percent reforestation objective.

- 3) Herbaceous Ground Cover: The use of native species is required when establishing the herbaceous ground cover in areas with forest and/or wildlife PMLUs. Individual RAs may develop an approved species list according to the ecosystem types in their state. However, if the applicant proposes other species or non-native species, the applicant must demonstrate that the proposed species are compatible with tree planting, non-invasive, slow growing, and beneficial to wildlife.
- 4) Tree Species Selection: When on-site reforestation occurs, the forested habitat must be replaced by planting a minimum of six different tree species from the list found in Appendix C. Species selection should be determined by site-specific characteristics (soil moisture, sun exposure, etc.) and seedling availability. Stocking success at the time of final bond release must meet minimum state-specific program requirement. In order to maximize Indiana bat habitat benefits, however, we recommend a stocking success rate of not less than 300 stems per acre. A minimum of four species identified as ‘Exfoliating Bark Species’ on the Appendix C species list must be planted and equal at least 40 percent of the minimum stems per acre required for final bond release. Tree species should be planted at approximately equal rates. The applicant may select the remaining 60 percent of the minimum stems per acre from any of the tree categories listed in the species list or they can be volunteers. Low compaction grading techniques, such as the Forestry Reclamation Approach, are recommended to increase the survival rate of planted trees (See FRA at: <http://arri.osmre.gov/FRA/FRAApproach.shtm>).
- 5) Travel Corridors: When the PMLU may result in significant fragmentation of suitable Indiana bat habitat; the creation of forested travel corridors is recommended. In general, Indiana bats are reluctant to cross open areas. Travel corridors linking roosting and foraging habitats are an important feature of Indiana bat summer habitat. Therefore, a minimum travel corridor of four rows of trees should be planted to establish a suitable travel corridor at least 50 feet in width.
- 6) Restoring Stream Buffer Zones: Bats rely on streams and other water bodies for drinking water and as sources of prey. Therefore, the applicant is encouraged to reforest impacted intermittent/perennial stream buffer zones during reclamation with a minimum 50-foot riparian corridor on each side of the stream.



### 2.4.2.3 Off-site Habitat Mitigation Measures

For some permit applicants, scheduling and other business requirements may preclude the effective implementation of the short- and long-term habitat measures discussed above. In particular, the guidance requires reforestation of at least 70 percent of Indiana bat habitat disturbed within the permit area as a long-term habitat measure in order to meet the long-term habitat replacement needs of Indiana bats on-site. However, the RAs and FWS are aware that such reforestation may not always match the applicant and/or landowner's intentions for long-term management of the permit area (i.e., a PMLU that does not result in a largely forested area for use by Indiana bats).

In these cases, the applicant has several options that could be implemented and that would result in the necessary forest replacement or protection including, but not necessarily limited to, (a) acquiring or otherwise providing protection to known or potential Indiana bat habitat in fee-simple or through permanent conservation easements, (b) buying credits from an approved Indiana bat conservation bank, or (c) ensuring the protection of other off-permit Indiana bat habitat through land donation, acquisition, easement, or perpetual trust agreement. Although the specific type of action or arrangement may vary, the result of these actions should be permanent protection of conserved, enhanced, and/or restored Indiana bat habitat, with known Indiana bat habitat being the priority. These actions may allow the applicant to accommodate landowner intentions while allowing the applicant to meet the long-term habitat replacement requirements through off-site habitat replacement.

To utilize this option, the applicant will need to incorporate information pertaining to the type of action or arrangement that is proposed, including the time frame for its implementation, the location of the habitat, and any other pertinent information, into the PEP. At that time, the RA will either (a) ensure that the action or arrangement is undertaken and completed by enforcing the provisions of the PEP, or (b) request that the applicant enter into a separate, legally-binding agreement with the FWS office or FWS office's designee that ensures that implementation of the required habitat protection will be accomplished during the effective period of the SMCRA permit. In either case, once the habitat protection measures (and other provisions of the PEP) have been accomplished, the applicant's compliance with the PEP and SMCRA permit will be assured.

Once the RA has reviewed and approved the PEP, it will become an enforceable part of the SMCRA permit. The applicant shall then be responsible for implementing the PEP as written. The applicant should be aware that once a PEP has been approved, is part of the issued SMCRA permit, and the habitat has been disturbed, the applicant may not then ask to perform a survey in lieu of implementing the PEP.

## 2.5 STEP 5: AGENCY RESPONSIBILITIES

RAs are responsible for monitoring the implementation of PEPs by applicants. OSM is responsible for ensuring that RAs comply with the 1996 BO by requiring implementation of this guidance. FWS is responsible for providing technical assistance to RAs and OSM.

### **2.5.1 Changed Circumstances**

PEPs are valid as long as no new information regarding the project or the Indiana bat becomes available. In the event new information becomes available that would affect areas under existing PEPs or areas where previous surveys, etc. led to no PEPs, further consultation may be necessary. RAs will consult with permittees and/or applicants to address any adverse effects stemming from this new information.

### **2.5.2 Incidental Take Monitoring and Reporting**

The FWS will provide guidance on how incidental take is quantified and recorded. The RA will account for the incidental take of Indiana bats on a permit-by-permit basis. The RA will also prepare a report that quantifies the expected amount of incidental take of Indiana bats associated with each permit. Guidance in Appendix E should be used by RAs to meet the reporting requirements of the 1996 BO and to ensure the amount of incidental take is consistently recorded for each permit. The RA and FWS will track all incidental take using the report prepared by the RA. The FWS will also ensure that the cumulative take does not jeopardize the Indiana bat.

## **3.0 DOCUMENT SUBMISSION**

Initial requests for federally-listed species information, copies of survey reports, and PEPs (depending on option utilized) should be submitted to the RA. The applicant will receive notification from the RA regarding the acceptability of the submission. The RA may provide a copy of the submission to FWS for review and comment, depending on the process in each state. Throughout this entire process, the applicant is encouraged to consult with the RA. The RA will coordinate with FWS as necessary.

## **4.0 DISPUTE RESOLUTION**

Appendix D contains a sample dispute resolution procedure that RAs and local FWS offices may tailor to their needs.

**LITERATURE CITED:**

Biebighauser, Thomas R. (2003) A Guide to Creating Vernal Ponds, USDA Forest Service. 33pp. (<http://www.fs.fed.us/r8/boone/documents/resources/vernal.pdf>) or you may contact Tom Biebighauser for a free hard copy: (tombiebighauser@fs.fed.us).

U.S. Fish and Wildlife Service (USFWS). 2007. Indiana Bat (*Myotis sodalis*) Draft Recovery Plan: First Revision. U.S. Fish and Wildlife Service, Fort Snelling, Minnesota. 258 pp. ([http://www.fws.gov/midwest/Endangered/mammals/inba/inba\\_drftrecpln16ap07.html](http://www.fws.gov/midwest/Endangered/mammals/inba/inba_drftrecpln16ap07.html))

## APPENDIX A

### **BASIC INFORMATION FOR EVALUATING SUITABLE/POTENTIAL SUMMER AND/OR WINTER HABITAT FOR INDIANA BATS**

**(Please refer to the Indiana bat recovery plan for additional information)**

The information below is provided to assist applicants, consultants, and/or project proponents (hereinafter termed the “applicant”) in establishing whether suitable/potential summer and/or winter habitat for Indiana bats may exist within the permit area. The applicant is responsible for developing and providing sufficient information as to whether potential summer and/or winter Indiana bat habitat exists within a proposed project area. In order to accomplish this, the applicant must have detailed knowledge of the project area that is sufficient to adequately and accurately describe the potential Indiana bat habitat conditions that may or may not exist on-site.

This knowledge can be derived from any number of sources including, but not limited to, on-site visits, review of aerial photography and other maps, previous mining records (if applicable), forest inventories, previous species survey reports, and the work of the applicant’s consultants or other designees. At a minimum, however, the applicant must determine if potentially suitable Indiana bat summer roosting habitat and/or potentially suitable Indiana bat winter hibernation habitat is present. The following sets of information, which are not all-inclusive, can be useful in determining if either of these two types of Indiana bat habitat is present:

#### 1) Information to Determine if Potential Summer Habitat is Present

- a) Acreage of forests or other lands with roost tree and/or snags  $\geq 5$ ” dbh that are present on project area;
- b) Distance to available water in miles from project area (e.g., ponds, streams, rivers, lakes);
- c) Maps or photographs of the project area (e.g., forested area and water sources); and
- d) Summary of the acreage of potential summer habitat as identified in a-c above (e.g., forested vs. non-forested areas) that adequately and accurately describes the habitat relative to the proposed project (i.e., is habitat present and will it be adversely affected or otherwise impacted?)

#### 2) Information to Determine if Potential Winter Habitat is Present

- a) Review of karst occurrence maps (e.g., Geological Survey);
- b) Mining history of the area (e.g., Do underground mines or quarries exist within or adjacent to the project area?);
- c) Summary of interviews with landowners and/or mineral rights owners regarding presence/absence of potential caves, rock shelters, and/or abandoned underground mines, when available;
- d) Geologic core sample data from exploration, if applicable;
- e) Copy of topographic, mining, and environmental resources information maps; and
- f) Results of field inspections of areas containing potential hibernacula as identified in items a-d above.

**APPENDIX B****PROTECTION AND ENHANCEMENT PLAN CHECK LIST**

This checklist is provided to assist the applicant in the development of an Indiana bat PEP. The completed checklist should be included as part of the PEP.

**Description of Proposed Project**

- \_\_\_ Type and size of project
- \_\_\_ Potential impacts to bat habitat (hibernacula, roost trees)
- \_\_\_ Potential impacts to bat behaviors (feeding, breeding, sheltering, migrating, hibernating)

**Description of Potential Summer Habitat**

- \_\_\_ General description
- \_\_\_ Percent and acres forested with greater than 5 inches DBH of trees on permit area
- \_\_\_ Representative photographs of the permit area
- \_\_\_ Summary acreage of potential summer habitat

**Minimizing Potential Take of an Indiana Bat**

- \_\_\_ Avoidance of identified potential summer and/or winter habitat on-site
- \_\_\_ Appropriate tree clearing dates
- \_\_\_ Portals and caves addressed, if present
- \_\_\_ Protection of aquatic resources, if applicable
- \_\_\_ Other minimization measures

**Short-term Habitat Replacement**

- \_\_\_ Flooded Timber, if applicable
- \_\_\_ Tree girdling, if applicable
- \_\_\_ Staged tree removal
- \_\_\_ Minimization of disturbed area

**Long-term Habitat Replacement**

- \_\_\_ Appropriate herbaceous ground cover
- \_\_\_ Travel corridors
- \_\_\_ Minimum of 6 different tree species, including 4 Exfoliating Bark Species
- \_\_\_ Watering areas
- \_\_\_ Maintenance of stream buffer
- \_\_\_ Off-site compensation, if applicable
- \_\_\_ Other long-term habitat replacement option

**Summary**

- \_\_\_ Summary of potential threats posed to Indiana bats by the proposed action, avoidance and minimization measures selected by the applicant, and final conclusion of affects to the bat population

**APPENDIX C****TREE SPECIES LIST FOR INDIANA BAT PROTECTION AND ENHANCEMENT PLANS****Exfoliating Bark Species**

<i>Acer saccharum</i>	Sugar Maple
<i>Carya cordiformis</i>	Bitternut hickory
<i>Carya glabra</i>	Pignut hickory
<i>Carya laciniosa</i>	Shellbark hickory
<i>Carya ovata</i>	Shagbark hickory
<i>Carya tomentosa</i>	Mockernut hickory
<i>Fraxinus americana</i>	White ash
<i>Fraxinus pennsylvanica</i>	Green ash
<i>Oxydendron arboreum</i>	Sourwood
<i>Pinus echinata</i>	Shortleaf pine
<i>Populus deltoides</i>	Cottonwood
<i>Quercus alba</i>	White oak
<i>Quercus coccinea</i>	Scarlet oak
<i>Quercus falcata</i>	Southern red oak
<i>Quercus imbricaria</i>	Shingle oak
<i>Quercus prinus</i>	Chestnut oak
<i>Quercus rubra</i>	Northern red oak
<i>Quercus stellata</i>	Post oak
<i>Quercus velutina</i>	Black oak
<i>Sassafras albidum</i>	Sassafras
<i>Ulmus americana</i>	American elm
<i>Ulmus rubra</i>	Slippery elm

**Nitrogen-fixing Trees**

<i>Cercis canadensis</i>	Redbud
<i>Robinia pseudoacacia</i>	Black locust

**Other Trees**

<i>Cornus florida</i>	Flowering dogwood
<i>Diospyros virginiana</i>	Persimmon
<i>Morus rubra</i>	Red mulberry
<i>Prunus serotina</i>	Wild black cherry

## APPENDIX D

### **SAMPLE DISPUTE RESOLUTION PROCEDURE UNDER THE 1996 BIOLOGICAL OPINION ON SURFACE COAL MINING AND RECLAMATION OPERATIONS UNDER SMCRA**

In 1996, the U.S. Fish and Wildlife Service (Service) issued its *Formal Section 7 Biological Opinion and Conference Report on Surface Coal Mining and Reclamation Operations Under the Surface Mining Control and Reclamation Act of 1977* to OSM pursuant to Section 7 of the ESA. In that Opinion, the Service concluded that properly implemented Federal and State regulatory programs under SMCRA are not likely to jeopardize the continued existence of federally-listed listed, proposed or candidate species, and are not likely to result in the destruction or adverse modification of designated or proposed critical habitat. This conclusion was based on compliance with, but not limited to, requirements described and codified under 30 CFR, and required that the Service and appropriate regulatory authority must develop species-specific measures to minimize anticipated incidental take.

The Opinion anticipated an unquantifiable amount of incidental take and provided terms and conditions that must be met to be exempt from the prohibitions of Section 9 of the ESA. Terms and Condition 3 states that, “Whenever the regulatory authority decides not to implement one or more of the species-specific measures recommended by the Service, it must provide a written explanation to the Service. If the Service field office concurs with the regulatory authority’s action, it will provide a concurrence letter as soon as possible. However, if the Service does not concur, the issue must be elevated through the chain of command of the regulatory authority, the Service, and (to the extent appropriate) OSM for resolution.”

The following steps will be used to resolve disputes under the 1996 Biological Opinion:

1. The [insert regulatory authority (RA) name] and the Service will make every attempt to resolve any outstanding differences at the staff level. Within [Insert #] days from receiving the Service’s written summary of any unresolved endangered species issue(s), the RA will provide the Service with a written explanation of its decision. The Service will provide its concurrence letter or notice requesting the issue(s) be raised to the next resolution level to the RA within [Insert #] days.
2. If the issue(s) cannot be resolved at the local/field level, the issue(s) will be raised concurrently to the Supervisor of the Service’s local field office and [equivalent peer supervisor] of the RA for resolution. At this point the RA and Service may reach agreement through informal consultation, or if the two agencies cannot reach an agreement, OSM’s [equivalent peer manager of local area or field office] may be invited by either agency to participate in further informal consultation. A meeting between the Service state supervisor(s), appropriate OSM office staff member(s), and the RA supervisor will be held within [Insert #] days from the RA’s receipt of the Service’s request to elevate to this resolution step. Upon conclusion of the meeting and within [Insert #] days there from, a summary of the issue(s) and any resolution of the issue(s) will be prepared by the RA. The Service may, within [Insert #] days from

- conclusion of the meeting, request in writing that any unresolved issue(s) be elevated to the next level.
3. If the issue(s) are unresolved at the Step 2 level, the issue(s) will be raised to the Service State Supervisor and the RA's [equivalent peer supervisor] for resolution. Either party may request the participation of the OSM Field Office Director during the informal consultation process. The respective Directors will meet within [Insert #] days or no later than [Insert #] days of the RA's receipt of the request to elevate the unresolved issue(s). The RA shall prepare a written summary of the issue(s) discussed and any resolution reached within [Insert #] days from the close of the meeting. Should agreement not be reached, the Service may request in writing within [Insert #] days from the close of the meeting to elevate the unresolved issue(s) to the next level.
  4. Upon notice and request for further consultation of unresolved Step 3 issue(s), the Service's Assistant Regional Director and the RA's [equivalent peer manager] will meet within [Insert #] days to try to resolve any outstanding issue(s). Either agency may request that the OSM Regional Director be invited to participate in further informal consultation. Within [Insert #] days from the close of the meeting and consultation process, the RA will render the agency's position regarding the unresolved issue(s).

You may modify this draft document as necessary to address state specific circumstances and chain of command levels.



## APPENDIX E

### Guidance on Incidental Take Monitoring and Reporting

Incidental take is the take of listed fish or wildlife species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by a Federal agency or applicant (50 CFR §402.02). When an applicant chooses to assume presence of Indiana bats, or if presence was confirmed previously, then a statement quantifying the take must be prepared. The RA is ultimately responsible for the quantification of take. Take is defined as; to harm, harass, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct (ESA §3(19)). Harm is further defined by the FWS to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass is defined as: actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering (50 CFR §17.3).

Incidental take can be quantified in several ways but is generally expressed as the number of individuals reasonably likely to be taken or the extent of habitat likely to be destroyed or disturbed. For example, incidental take of Indiana bats can include take of adults, future offspring and/or specific habitat, such as foraging, sheltering or roosting habitat.

The RA, with assistance from FWS if needed, will account for the incidental take of Indiana bats on a permit-by-permit basis. The RA will also prepare a report on an annual basis that contains the table on the following page that quantifies the expected amount of incidental take of Indiana bats associated with each permit, permit amendment, or permit revision. Slight modifications to this table may be warranted but should be made in consultation with the local FWS office. The annual report must be provided in electronic or hardcopy to the local FWS by January 31<sup>st</sup> of each year. All incidental take will be tracked by the FWS using the reports prepared by the RAs.

**Type and amount of incidental take resulting from SMCRA permits issued by the [RA<sup>a</sup>] for [Year or reporting period<sup>b</sup>].**

Permit No. <sup>c</sup>	Forest Habitat <sup>d</sup> (# acres)			Roost Trees <sup>e</sup> (# trees)		Hibernacula <sup>f</sup> (# hibernacula)	Individual Bats <sup>g</sup> (# bats)	Maternity Colonies <sup>h</sup> (# colonies)
	Known	Potential	Proposed PMLU <sup>i</sup>	Known	Potential			
<b>Annual Total:</b>								

<sup>a</sup> Enter the name of the RA that compiled the data for the table in place of “[RA]”.

<sup>b</sup> Enter the year or other period of time for which the table was prepared in place of “[Year or reporting period]”.

<sup>c</sup> Enter the permit number for all permits (including amendments and revisions) where Indiana bat incidental take was expected and used based on known occurrence or when Indiana bat presence is assumed. Additional rows should be added to the table as necessary to include all permits where incidental take occurred in a given year.

<sup>d</sup> Enter the number of acres of known and/or potential habitat that will be cleared, removed, or destroyed by the permitted action. Potential habitat (e.g., assumed habitat) and known habitat must be accounted for separately in the table. Most permits will have at least one acreage entry for Forest Habitat and some permits may have entries for both. Indeterminable entries should be marked as “NA” in the table.

<sup>e</sup> Enter the number of known and/or potential roost trees that will be removed by the permitted action. Potential roost trees and known roost trees must be accounted for separately in the table. Indeterminable entries should be marked as N/A.”

<sup>f</sup> Enter the number of known hibernacula that will be impacted (e.g., changes in air flow, etc.) or destroyed (e.g., mined-through or entrances closed). Indeterminable entries should be marked as “Unknown” in the table.

<sup>g</sup> Enter the number of individual Indiana bats that were adversely affected by the permitted mining activity. For most permits, and especially those permits where Indiana bat presence was assumed, this number will not be known, because sufficient demographic data is unavailable. If no specific information or data is available regarding the number of Indiana bats that were adversely affected, this entry should be marked as “NA”, which will mean that the number of individuals was indeterminable.

<sup>h</sup> Enter the number of maternity colonies that were adversely affected by the permitted mining activity. For most permits, and especially those permits where Indiana bat presence was assumed, this number will not be known because sufficient demographic data was unavailable. If no specific information or data is available regarding the number of Indiana bat maternity colonies that were adversely affected, this entry should be marked as “NA”, which will mean that the number of maternity colonies was indeterminable.

<sup>i</sup> Enter the acreage of the proposed Post Mining Forest land use.