

# Ecological Compliance Assessment Management Plan

Prepared for the U.S. Department of Energy  
Assistant Secretary for Environmental Management  
Pacific Northwest National Laboratory for the  
U.S. Department of Energy under Contract DE-AC05-76RL01830



**United States**  
**Department of Energy**  
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Date Published  
September 2006

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# Executive Summary

This document describes the procedures by which the U.S. Department of Energy (DOE) Richland Operations Office (RL) implements the ecological compliance review process. This process ensures that the potential ecological impacts of Hanford Site projects and programs are understood and documented. This process also is intended to ensure compliance with a variety of laws, regulations, executive orders, DOE Orders, and other Hanford Site natural resource management guidance.

The *Ecological Compliance Assessment Management Plan* (ECAMP) is one of the implementing documents for the overall Site-wide guidance provided in the *Hanford Site Biological Resources Management Plan*. For most Hanford Site projects and staff, the ecological compliance review process is the first, and only, interaction with the overall resource management guidance policies.

This document identifies and describes the organization, requirements, and procedures that are to be used to implement the ecological compliance assessment process on the Hanford Site. The process described in this document has been in place since the mid 1990s. This revision provides updates and clarifications to the original ECAMP that was published in 1995. No significant changes to the overall review process have been made since 1995.

## The ECAMP

- Identifies and describes the regulatory and other bases for ecological compliance reviews (ECRs) for activities by RL and its contractors.
- Describes the substantive and procedural requirements for ECRs.
- Describes the scope of the ECR.
- Defines the role of impact assessment within the overall context of natural resource management on the Hanford Site.
- Describes the process for incorporating biological mitigation recommendations and requirements, including impact avoidance and minimization, into project development.
- Defines the role of the ECR and impact assessment process in the site selection process for individual projects.

## Abbreviations and Acronyms

BGEPA	<i>Bald and Golden Eagle Protection Act</i>
BRMaP	<i>Biological Resources Management Plan</i>
BRMiS	<i>Biological Resource Mitigation Strategy</i>
CERCLA	<i>Comprehensive Environmental Response, Compensation, and Liability Act</i>
CFR	Code of Federal Regulations
CWA	<i>Clean Water Act</i>
CX	categorical exclusion
DNR	Washington Department of Natural Resources
DOE	U.S. Department of Energy
ECAMP	<i>Ecological Compliance Assessment Management Plan</i>
ECR	ecological compliance review
EFH	Essential Fish Habitat
ERC	Environmental Restoration Contractor
EPA	U.S. Environmental Protection Agency
ESA	<i>Endangered Species Act</i>
ESU	evolutionarily significant unit
FWS	U.S. Fish and Wildlife Service
HCLUP	<i>Hanford Comprehensive Land Use Plan</i>
MBTA	<i>Migratory Bird Treaty Act</i>
MSA	<i>Magnuson-Stevens Fishery Conservation and Management Act</i>
NEPA	<i>National Environmental Policy Act</i>
NMFS	National Marine Fisheries Service
PNNL	Pacific Northwest National Laboratory
RCC	River Corridor Contractor
RCRA	<i>Resource Conservation and Recovery Act</i>
RL	Richland Operations Office
WDFW	Washington Department of Fish and Wildlife

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## 1.0 Introduction

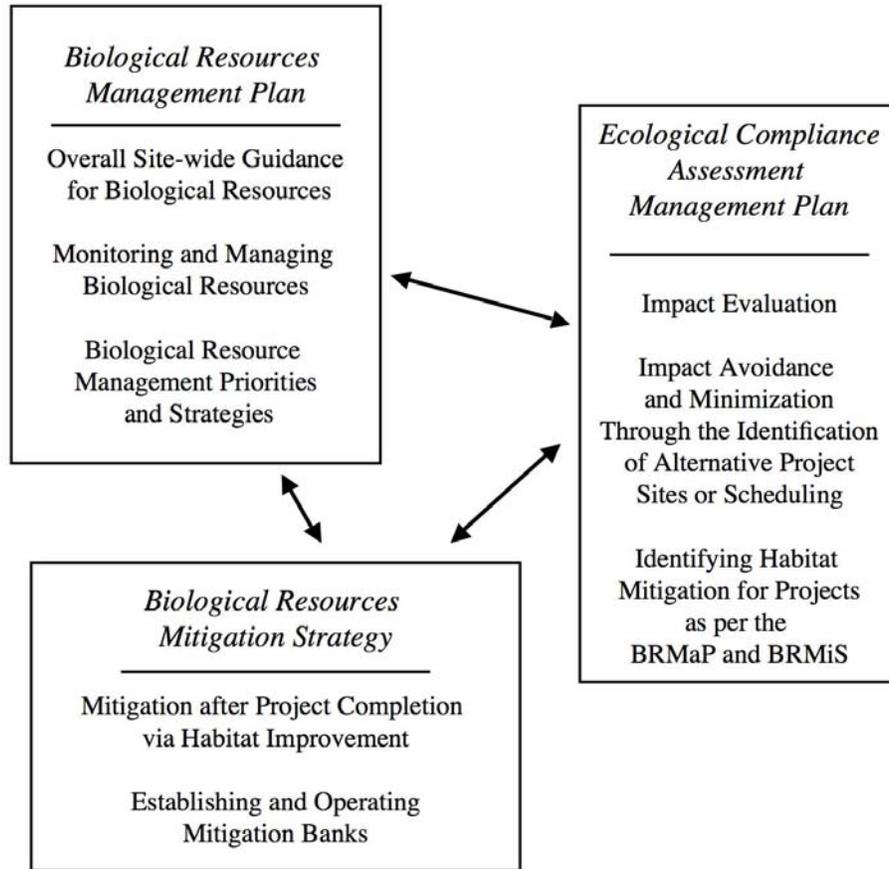
Managing the biological resources of the Hanford Site is an essential part of the overall mission for the Hanford Site and an important component of the U.S. Department of Energy (DOE) Richland Operations Office (RL) resource trust responsibilities. To meet these responsibilities, RL has developed a set of guidance documents that provide consistent, effective, and efficient protection of the ecological resources on the Hanford Site while allowing the other critical Site missions, such as waste management and environmental remediation, to move forward.

Effective resource management requires three key elements: 1) resource monitoring for status and trends, 2) impact assessment and management, and 3) focused resource improvement. Overall guidance for the management of biological resources on the Hanford Site is provided in the *Hanford Site Biological Resources Management Plan* (BRMaP) (DOE 2001). The BRMaP also defines resource monitoring needs and provides a perspective for resource improvement. Impact assessment and management are the focus of the *Ecological Compliance Assessment Management Plan* (ECAMP) and the *Hanford Site Biological Resources Mitigation Strategy* (BRMiS) (DOE 2003). The relationships between these three documents are shown in Figure 1.

Impact assessment is accomplished by evaluating potential impacts before they occur. Impact management is accomplished by mitigation of adverse impacts. Mitigation is a series of prioritized actions that, taken together, reduce or eliminate adverse project impacts to biological resources. The ECAMP focuses on mitigation actions that rely on changes to project timing or location to avoid or minimize impacts. The BRMiS focuses on mitigation actions that rely on replacement or improvements to habitat. For any specific project, the need for mitigation actions of any type is determined via the ecological compliance review (ECR) process described in this document.

The objectives of the ECAMP are to

- Identify and describe the regulatory and other bases for ECRs for activities performed by RL and its contractors.
- Describe the substantive and procedural requirements for ECRs.
- Describe the scope of the ECR.
- Define the role of impact assessment within the overall context of natural resource management on the Hanford Site.
- Describe the process for incorporating biological mitigation recommendations and requirements, including impact avoidance and minimization, into project development.
- Define the role of the ECR and impact assessment process in the site selection process for individual projects.



**Figure 1.** Hanford Site Biological Resource Guidance Documents

This document identifies and describes the organization, requirements, and procedures that are to be used to implement the ecological compliance assessment process on the Hanford Site. For most Hanford Site projects and personnel, the ECR process described in this document is the first, and likely the only, interaction with the Hanford Site biological resources management guidelines.

## 1.1 Background

The DOE offices at the Hanford Site are required by federal laws, regulations, and DOE Orders to protect certain ecological resources, to evaluate the potential for such resources to be adversely affected by DOE activities, and to conduct such activities in a manner that ensures the long-term maintenance and enhancement of such resources.

Analyses of the ecological effects of major federal actions have a long history at the Hanford Site, particularly as implemented through compliance with the *National Environmental Policy Act* (NEPA). In 1993, to further ensure that such analyses are applied uniformly, RL issued direction to all Hanford Site contractors that all actions with the potential for resulting in impacts to the biological environment must obtain an evaluation of potential effects on ecological resources before initiating such action.<sup>1</sup> The scope of projects requiring such evaluations included those being considered for functional equivalence under

<sup>1</sup> Letter from JD Wagoner, Manager, DOE-RL, to all Hanford contractors, dated April 9, 1993.

the *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA) and/or the *Resource Conservation and Recovery Act* (RCRA) and NEPA reviews for categorical exclusion (CX), as well as those for which a full NEPA evaluation is being prepared.

Since 1994, the responsibility for conducting ECRs has been assigned to the Pacific Northwest National Laboratory (PNNL) for all Hanford Site activities<sup>2</sup> except those conducted by the River Corridor Contractor (RCC)<sup>3</sup> (formerly the Environmental Restoration Contractor [ERC]). Washington Closure Hanford, LLC performs the ECRs for the RCC.

The original version of the ECAMP was published in the mid 1990s (DOE 1995). The current document provides revisions to the original plan and clarifies some of the bases and policy guidelines. However, no significant changes have been made to the overall ECR process.

## 1.2 Applicable Guidance and Requirements

Applicable requirements for evaluation of ecological resource impacts include the following federal laws:

- *Endangered Species Act*
- *National Environmental Policy Act*
- *Migratory Bird Treaty Act*
- *Bald and Golden Eagle Protection Act*
- *Comprehensive Environmental Response, Compensation, and Liability Act*
- *Resource Conservation and Recovery Act*
- *Clean Water Act*
- *Sikes Act*
- *Magnuson-Stevens Fishery Conservation and Management Act.*

Pertinent regulations that implement these laws include those promulgated by the regulatory agencies with responsibility for enforcement, as well as guidelines promulgated by DOE defining DOE responsibilities under NEPA (10 CFR 1021) and other federal executive orders and DOE Orders. The key factors of these laws as they apply to the ECR process are briefly described here. Additionally, the roles of the ECR process in supporting various executive and DOE Orders, the *Hanford Comprehensive Land Use Plan* (HCLUP; DOE 1999), and the *Hanford Site Biological Resource Management Plan* (DOE 2001) are described.

### 1.2.1 Endangered Species Act

The *Endangered Species Act* (ESA) provides for the designation and protection of wildlife, fish, and plant species that are in danger of becoming extinct because of natural or human-made factors and the conservation of the ecosystems upon which they depend. Under Section 7 of the ESA, federal agencies

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<sup>2</sup> Letter from JD Wagoner, Manager, DOE-RL, to TM Anderson, Westinghouse Hanford Company, dated August 18, 1993, and letter from RD Larson, DOE-RL, to President, Westinghouse Hanford Company, dated December 3, 1993.

<sup>3</sup> Letter from RD Freeberg, Director, Environmental Programs Division, to President, Westinghouse Hanford Company, dated April 5, 1994.

are required to evaluate actions that they perform, fund, or permit, to determine if any species listed as endangered or threatened at 50 CFR 17.11 and 50 CFR 17.12 may be affected by the proposed action. Consultation with the U.S. Fish and Wildlife Service (FWS) or the National Marine Fisheries Service (NMFS) is required if the action may affect a listed species. The ECR process is the primary means by which DOE determines if any listed species may be affected by a proposed action.

### **1.2.2 National Environmental Policy Act**

As stated in the implementing regulations of the *National Environmental Policy Act* (NEPA), “The NEPA process is intended to help public officials make decisions that are based on an understanding of environmental consequences, and take actions that protect, restore, and enhance the environment” (40 CFR 1500.1c).

Executive Order 11514, “Protection and Enhancement of Environmental Quality,” and Executive Order 11991, “Relating to Protection and Enhancement of Environmental Quality,” further define the role of federal agencies in implementing NEPA. Executive Order 11514 establishes that federal agencies shall “Monitor, evaluate, and control on a continuing basis their agencies’ activities so as to protect and enhance the quality of the environment. Such activities shall include those directed to controlling pollution and enhancing the environment and those designed to accomplish other program objectives which may affect the quality of the environment.” Executive Order 11991 requires federal agencies to “...comply with the (NEPA) regulations issued by the Council (on Environmental Quality) except where such compliance would be inconsistent with statutory requirements.”

Proper application of the NEPA process requires a thorough understanding of the resources present, the potential impacts to those resources of a proposed action, and the ultimate consequences of those actions. Biological resources are one of many resource areas considered under NEPA, and the ECR process provides the basic biological information needed to determine if adverse impacts to ecological resources may occur due to a proposed project and, thus, provides important information directly to the NEPA decision-making process. The ECR process helps to ensure that a proposed action meets the basic assumptions of no adverse impacts underlying a CX if a more comprehensive NEPA analysis is not planned.

### **1.2.3 Migratory Bird Treaty Act**

The *Migratory Bird Treaty Act* (MBTA) makes it illegal to take, capture, or kill any migratory bird, or to take any part, nest, or egg of any such birds, included in the terms of the conventions (covered species are listed at 50 CFR 17.13). The ECR process aids in compliance with the MBTA by identifying species that are present and thus could be affected by a proposed action at a specific site.

Executive Order 13186, “Responsibility of Federal Agencies to Protect Migratory Birds,” further clarified federal agency responsibilities under the MBTA and other regulations by requiring, among other things, that they “identify where unintentional take reasonably attributable to agency actions is having, or is likely to have, a measurable negative effect on migratory bird populations, focusing first on species of concern, priority habitats, and key risk factors.” The ECR process is the primary means by which RL is able to determine whether unintentional take is likely and the potential effects of such take.

#### **1.2.4 Bald and Golden Eagle Protection Act**

The *Bald and Golden Eagle Protection Act* (BGEPA) makes it illegal to take (i.e., pursue, wound, kill, molest, or disturb), as applicable, any bald or golden eagle, or any part, nest, or egg of these eagles. The ECR process provides assurance that a proposed action will not adversely affect bald or golden eagles.

#### **1.2.5 Comprehensive Environmental Response, Compensation, and Liability Act**

The primary purpose of the *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA or Super Fund) is to provide for liability, compensation, cleanup, and emergency response for hazardous substances released into the environment, as well as the cleanup of inactive hazardous waste disposal sites.

Section 107(f) of CERCLA identifies and defines natural resource trustees. Trustees are authorized to act in the public interest in regard to natural resources. The CERCLA process requires evaluation of natural resources, including biological resources, on the Site and in the area potentially affected by the release. The DOE is one of the trustees for the Hanford Site and, as owner, has primary responsibility for these evaluations. The ECR process is the means by which resources that may be injured by a cleanup action are identified; the evaluation of injuries due to contaminant release will likely be performed separately from the ECR process. Additionally, the CERCLA planning and evaluation process can be used in place of a NEPA evaluation; in those cases, the ECR supports the CERCLA process in the same way that it would support a NEPA review.

#### **1.2.6 Resource Conservation and Recovery Act**

The primary purpose of the *Resource Conservation and Recovery Act* (RCRA) is to ensure the safe and environmentally acceptable management of solid wastes. RCRA outlines the framework of national programs to achieve environmentally sound management of both hazardous and non-hazardous wastes. Waste site operation activities and RCRA compliance activities may have significant adverse impacts to biota. RCRA activities must comply with other federal statutes that do not deal directly with control and abatement of solid waste or hazardous waste disposal—for example, NEPA and ESA. The ECR process provides data in direct support of RCRA permits, helps to ensure that RCRA activities are not adversely affecting biota and that these activities are in compliance with other applicable laws.

#### **1.2.7 Clean Water Act**

Section 404 of the *Clean Water Act* (CWA) authorizes the U.S. Army Corps of Engineers to issue permits for the discharge into or dredging of wetlands (33 CFR 320, et seq.). The U.S. Environmental Protection Agency (EPA) guidelines (40 CFR 230) require that potential impacts on physical, chemical, and biological characteristics of the aquatic systems be considered in the permit process. The ECR process allows DOE to determine if any wetlands may be affected by a proposed action.

#### **1.2.8 Sikes Act**

The *Sikes Act* (Public Law 86-797) originally provided for cooperation by the U.S. Department of the Interior and the U.S. Department of Defense with state agencies in “planning, development, maintenance and coordination of wildlife, fish and game conservation and rehabilitation” on military reservations

throughout the United States. An amendment (Public Law 93-452) in 1974 authorized conservation and rehabilitation programs on lands managed by DOE, National Aeronautics and Space Administration, U.S. Forest Service, and Bureau of Land Management. These programs are carried out in cooperation with the states by the Secretary of the Interior. Information required to support effective interagency cooperation is obtained, in part, via the ECR process.

### **1.2.9 Magnuson-Stevens Fishery Conservation and Management Act**

Federal agencies are obligated, under Section 305(b)(2) of the *Magnuson-Stevens Act* (MSA) and its implementing regulations (50 CFR 600, Subpart K), to consult with the NMFS regarding actions that are authorized, funded, or undertaken by those agencies, that may adversely affect Essential Fish Habitat (EFH). The MSA defines EFH as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” The purpose of the procedures is to promote the protection of EFH in the review of federal and state actions that may adversely affect EFH. Activities in or near the Columbia River may affect EFH for anadromous salmonids. The ECR process helps to identify EFH resources and contributes to the evaluation of impacts to EFH.

### **1.2.10 Executive Order 13112**

Executive Order 13112, “Invasive Species,” requires all executive agencies to identify actions that may affect the status of invasive species; prevent the introduction of such species; detect, monitor, and control populations of invasive species; restore native species and habitats that have been invaded; and conduct research on the prevention and control of invasive species. Additionally, executive agencies are prohibited from authorizing or funding activities that are likely to cause or promote the introduction or spread of invasive species (unless the benefit of such an action clearly outweighs the potential harm from the invasive species). The ECR process provides information on the locations of invasive species populations and helps to identify situations that lead to the establishment or spread of invasive species.

### **1.2.11 Executive Orders 11988 and 11990**

Executive Order 11990, “Protection of Wetlands,” and Executive Order 11988, “Floodplain Management,” require federal agencies to minimize the loss or degradation of wetlands on federal lands and account for floodplain management when developing water- and land-use plans, respectively. The DOE implements the requirements of these two executive orders via 10 CFR 1022, “Compliance with Floodplain and Wetlands Environmental Review Requirements.” It is DOE policy to 1) restore and preserve natural and beneficial values served by floodplains; 2) minimize the destruction, loss, or degradation of wetlands; and 3) preserve and enhance the natural and beneficial value of wetlands. As with the wetland provisions of the *Clean Water Act*, the ECR process helps to identify wetlands and floodplains within a proposed project area and helps to identify the impacts of the proposed action to those wetlands and floodplains.

### **1.2.12 Presidential Proclamation 7319**

Proclamation 7319 established the Hanford Reach National Monument within the portions of the Hanford Site. Portions of these lands were to be managed by the FWS under existing agreements with DOE, and other portions of the designated lands would be managed by DOE until they are suitable for transfer to the FWS. Adverse impacts to important ecological resources within the Hanford Reach

National Monument are avoided or minimized via the ECR process to protect the unique character of the monument. Additionally, in an accompanying memorandum to the Secretary of Energy, dated June 9, 2000, President Clinton ordered that the habitat and other resources within the central portions of the Hanford Site be protected to the degree practical. The ECR process directly contributes to this protection.

### **1.2.13 DOE Order 450.1 – Environmental Protection Program**

One of the objectives of DOE Order 450.1 is to “implement sound stewardship practices that are protective of the air, water, land, and other natural and cultural resources,” and this Order requires that DOE sites “meet or exceed compliance with applicable environmental, public health, and resource protection laws, regulations, and DOE requirements.” This Order specifically spells out “protection of other natural resources including biota.” The ECR process directly supports the implementation of this Order by identifying resources that may be affected by Site activities and that therefore may be in need of protection.

### **1.2.14 Comprehensive Land Use Plan**

The *Final Hanford Comprehensive Land Use Plan Environmental Impact Statement (HCLUP)* (DOE 1999) provides integrated guidance for Hanford Site programs regarding conduct and objectives for activities with impacts on the ecological and cultural environment. Management and disposition of waste materials at Hanford is considered the focal point for Site planning. As such, the HCLUP documents the results of an integrated planning process, which provides the basis for directing Hanford activities to be consistent with an overall land-use objective.

The HCLUP is intended to implement the December 1994 Secretary of Energy *Land- and Facility-Use Policy* (DOE 1994), which states that DOE will manage all of its land and facilities as valuable national resources by integrating mission, economic, ecological, social, and cultural factors in a comprehensive plan. The ECR process is one of the ways that enable DOE to pursue and document compliance with this comprehensive plan.

### **1.2.15 Hanford Site Biological Resources Management Plan**

The *Hanford Site Biological Resources Management Plan (BRMaP)* (DOE 2001) provides DOE and its contractors with a consistent approach for managing and protecting biological resources, as well as for monitoring, assessing, and mitigating impacts to those resources where impacts arise from Hanford Site activities. This plan has the following functions:

1. Supports DOE’s Hanford missions.
2. Provides a mechanism for ensuring compliance with laws protecting biological resources.
3. Provides a framework for ensuring that appropriate biological resource goals, objectives, and tools are in place to make DOE an effective steward of Hanford’s biological resources.
4. Implements an ecosystem management approach at the Hanford Site.

The ECAMP is one of the principal components for implementing the overall resource management structure described in the BRMaP.

## 2.0 Ecological Compliance Reviews

Effective management of the biological resources under RL's stewardship requires integrating biological information and a variety of management needs across diverse Hanford Site programs. Hanford Site programs include waste management, research and development, environmental monitoring, natural resource management, and facilities/operations management, as well as environmental cleanup. The ECR process supports all of these programs and missions and helps to ensure that the objectives of all programs are met in a timely and cost-effective manner while at the same time ensuring protection of the Site's resources and compliance with applicable laws, regulations, and executive and DOE Orders.

The ECR process

- Serves the biological and ecological compliance needs of the various Hanford programs.
- Provides some of the basic information necessary to formulate biological resource management requirements as defined in the BRMaP.
- Provides an avenue for integrating biological resource management objectives into the early planning phases of the various Hanford programs, including the site selection and evaluation process for individual projects.
- Provides mitigation recommendations and requirements to reduce or eliminate adverse project impacts to biological resources.
- Provides a traceable basis for evaluating biological impacts using appropriate environmental baseline data before a proposed action is initiated.
- Provides an avenue to audit Site activities to ensure compliance with relevant and appropriate requirements that apply to the preservation and management of biological resources.

ECRs are intended to assist RL and its contractors in managing impacts to species and habitats of concern. Assistance is provided through collection and dissemination of information on project-specific impacts to biological resources, consultation with Site project managers in making planning decisions, identification of mitigation requirements and options, and compilation of cumulative impacts to biological resources as a result of Hanford Site activities.

Although RL recognizes that adverse impacts to biological resources cannot always be eliminated, the potential for impacts must be considered during the early phases of project development, and their consequences incorporated in decision making. ECRs allow project managers, during the early phases of projects, to develop approaches that will avoid and/or minimize adverse impacts to ecological resources. Project impacts can be avoided or minimized by following such steps as

- implementing alternatives that would result in fewer adverse impacts
- locating projects at a less ecologically sensitive site

- reducing project footprint or land-use requirements
- scheduling project activities so that disruption of key species and functions is minimized.

In the unusual cases when impacts cannot be reasonably avoided or minimized, an ECR will identify potential subsequent mitigation requirements involving onsite and/or offsite habitat improvements. Implementation of these latter requirements will be in accordance with the requirements and procedures defined in the BRMaP and BRMiS.

Impacts to ecological resources will be evaluated through a traceable process that relies on field assessments of the presence of species and/or habitats of concern within a project region. Where habitats will be destroyed or altered as a consequence of a project, the floral and faunal characteristics of the habitat will be described based on the field review. These descriptions will be used to identify appropriate mitigation actions, if necessary.

Impact assessments will consider direct and simple indirect effects. Direct effects include mortality, disturbance of sensitive wildlife during reproduction, and habitat alteration or destruction. Simple indirect effects include factors such as habitat fragmentation, increased edge effects, and the introduction of potential competitors or predators. Indirect effects will often be considered qualitatively, but as quantitative tools are developed, such as habitat suitability models, they may be incorporated quantitatively into the effects evaluation.

Coordination and consultation with federal and Washington State biological resource management agencies with regard to impact assessment and management are integral to successful resource management and protection. Procedures for coordination and consultation with federal agencies will follow those outlined by the agencies and by DOE through its regulations on interagency consultation and cooperation. Consultations will be initiated as required under the ESA and as needed to facilitate impact analyses and to define mitigation needs.

The ECR process assures RL that actual and potential impacts of Hanford Site operations on biological resources of concern are identified and evaluated, and that impacts to protected species are evaluated and documented in the manner required by NEPA and the ESA. In addition, the ECRs provide RL with information it needs to interact with federal, state, and tribal agencies on ecological resource issues, thereby helping RL maintain positive working relationships with other governmental organizations, tribes, and nongovernmental organizations concerned with the ecological resources of the Hanford Site. The ECR process also provides RL with the information it needs to evaluate the cumulative impacts of all Hanford projects on the ecological resources of the Site.

## **3.0 Requirements and Process for Ecological Compliance Reviews**

Projects requiring ECRs are those that have the potential for adversely affecting the biological resources of concern on the Hanford Site. Resources of concern include those categories of species or their habitats that are identified under DOE's NEPA implementing procedures, as well as state candidate, sensitive, and monitor species. Additionally, migratory birds, floodplains, wetlands, and other unique habitats are considered resources of concern on the Hanford Site. The BRMaP categorizes all species and habitats on the Hanford Site as to various levels of concern. Each level has specific management and mitigation requirements.

### **3.1 Ecological Compliance Review Objectives**

The objectives of the ECR are to

- Assess the potential for proposed Hanford projects, including maintenance activities, to adversely impact biological resources of concern using methods that ensure that such resources are identified and located in a potentially affected area.
- Document the results of the assessment for the proposed project and RL.
- Retain the documentation in a format that can be reviewed by RL or other stakeholders.

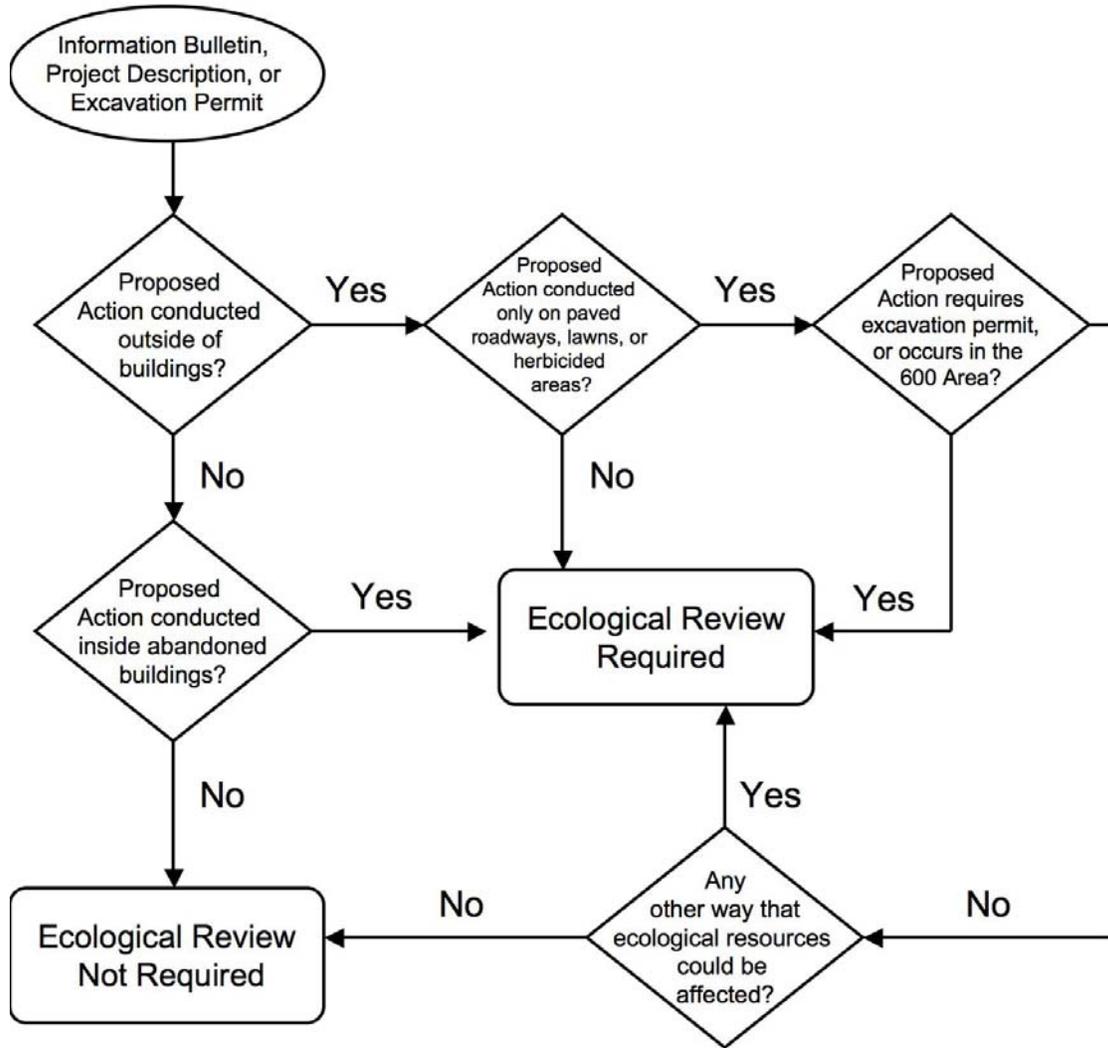
### **3.2 Actions Requiring an Ecological Compliance Review**

The decision methodology for determining the need for an ECR is outlined in Figure 2. The fundamental decision criteria are whether the project will occur outside buildings, whether biota are present at the affected site, and whether an excavation permit is required for the action. Some proposed actions inside buildings may require an ECR if the building has been previously abandoned and could, therefore, contain nesting or roosting sites for migratory birds or bat species of concern. Excavation permits require an ECR to evaluate the potential for negatively affecting bird species of concern that may be nesting nearby, even when the excavation is performed in areas with seemingly little biological activity.

### **3.3 Biological Resources of Concern**

Resources that are considered during the ECR process are those that are identified as Level I, II, III, or IV in the BRMaP. These include

- federal endangered, threatened, proposed, or candidate species
- Washington State endangered, threatened, candidate, sensitive, monitor, review, or watch list species
- bird species listed under the MBTA



**Figure 2.** Logic Diagram and Decision Criteria for Determining the Need for an Ecological Compliance Review

- rare or sensitive habitats, including terrestrial vegetation associations identified by Washington State as element occurrences, wetlands, floodplains, riparian communities, and mid- and late-successional sagebrush steppe
- anadromous fish spawning areas
- bald eagle night roost and attempted nest locations
- ferruginous hawk nest locations
- other features related to habitat, community, or species, as described in the BRMaP.

Protection of species of concern and their habitats on the Hanford Site is central to effective resource management on the Site. This requires maintaining an up-to-date database on species known to use the Hanford Site and the status of those species with regard to federal and state species protection laws.

Species protected by federal regulations are identified and updated in the *Federal Register* and other agency publications on a regular basis. Species listed under the ESA as threatened or endangered, or candidates for such listing, are published in 50 CFR 17, “Endangered and Threatened Wildlife and Plants.” A list of migratory birds covered by the MBTA is maintained at 50 CFR 10.13. The FWS and the NMFS also maintain web sites with up-to-date information about species of concern that potentially occur on the Hanford Site. Wetlands delineation and permitting procedures under the *Clean Water Act* are published by the U.S. Army Corps of Engineers (33 CFR 320–330).

Species and habitats protected by Washington State laws, regulations, or guidance are published by the Washington Department of Fish and Wildlife (WDFW) and Washington Department of Natural Resources (DNR). The ecological compliance staff is on distribution from these agencies to receive revisions or additions to the special species publications noted above. The information is retained in the project database and is updated as changes in listings are publicly available from the listing agencies.

Specific management plans have been developed for each of the species on the Hanford Site that are protected under the ESA. The Upper Columbia River spring-run Chinook salmon (*Oncorhynchus tshawytscha*) evolutionarily significant unit (ESU) uses the Hanford Reach of the Columbia River as rearing habitat and as a migration corridor. The Upper Columbia River steelhead (*Oncorhynchus mykiss*) ESU uses the Hanford Reach as spawning and rearing habitat. The Middle Columbia River steelhead ESU uses the Yakima River at the southern border of the Hanford Site as a migration corridor. Impact management for these species is defined in the *Threatened and Endangered Species Management Plan, Salmon and Steelhead* (DOE 2000), which has been reviewed by the NMFS. The bald eagle (*Haliaeetus leucocephalus*) uses the Hanford Reach area during the winter months, and impact management is defined in the *Hanford Site Bald Eagle Site Management Plan* (Fitzner and Weiss 1994), which was prepared in consultation with the FWS.

Species distributions on the Hanford Site have been reviewed at various times—for example, all wildlife (Fitzner and Gray 1991; Rickard and Poole 1989); birds (Landeem et al. 1991); plants (Sackschewsky and Downs 2001); and habitats and associated wildlife (Downs et al. 1993). Additional documentation on species occurrence and habitat use patterns is available for some species from student research (e.g., Poole 1992) and research and other special monitoring performed by Hanford Site staff (e.g., Neitzel and Frest 1992; Landeem et al. 1993).

### **3.4 Ecological Compliance Review Methodology**

Requests for ECRs are received on forms available in hard copy (Appendix) and over the Hanford Intranet or the Ecological Monitoring and Compliance web site (<http://www.pnl.gov/ecomon/compliance/CERRreqform.doc>). The ECR request form is combined with the Cultural Resources Review Request Form; therefore, one form, sent initially to the Cultural Resources Review Contact, will trigger both reviews. Once the ECR request is received, it is logged into the database and given a unique identification number.

First, an initial determination is made using the logic in Figure 2 to determine whether the proposed activity has the potential to affect biological resources and therefore requires an ECR. There are cases in which a project will require a cultural review but not an ecological review and vice-versa. Second, a determination is made regarding the sufficiency of information presented in the request. If the information is insufficient to support a field survey or to analyze the project impacts, the requester is contacted for additional information. For instance, the requestor may be asked to provide better maps of the project area or to better describe the type and scale of disturbance. Third, the project database is queried to determine whether a field survey has been performed for the area within the past biological year (either as part of the baseline or for another proposed action). When such data exist, the ECR letter can be based on this information as well as other pertinent information from the Ecological Monitoring and Compliance Project database or other available data sources. If sufficient direct funding is available, ECRs can be prepared based on the baseline field data; however, programmatic budgets may dictate that supplemental funding will be required for any or all reviews. Field surveys will be completed as appropriate, and the ECR letter will be sent to the requestor to complete the process.

The ECR methodology relies upon the use of field data that are specific to the site where the proposed action is to occur. To be useful, field data must be obtained at the biologically appropriate times of year (i.e., the time period when the species of concern can be expected to be present and in an identifiable condition). For example, several milkvetch species (*Astragalus* spp.) occur in the upland areas of Hanford. One, Columbia milkvetch (*A. columbianus*), is a Washington State sensitive species; three others are state watch-list species. These species can best be differentiated from each other and from other milkvetch species in the early to late spring when flowers or fruit are present. Other species, such as the bald eagle (*Haliaeetus leucocephalus*), may be found on the Hanford Site only during the fall and winter months. Consequently, no single time period will be sufficient to assess all species occurrences at all surveyed sites.

Project managers will not always be able to determine their need for an ECR at the biologically appropriate times. To limit the schedule impact for such projects, baseline field surveys will be performed during the biologically appropriate times and season in the areas where the majority of activities occur, including 200 East, 200 West, 300, and some of the 100 Areas. Baseline field surveys will be repeated on an annual basis, and ECRs based on these results will be predicated on the use of current data. ECR reviews will normally be valid for one biological year, April to April, unless otherwise noted in the ECR. Results of the baseline field surveys will be entered into the project database.

There are times when photographic evidence provided by the requestor can partially substitute for an onsite inspection by the ecological compliance review staff if the photographs clearly indicate the location of the proposed project and the specific area that will be disturbed, and that the site contains no biological resources (e.g., a paved parking lot).

The ecological compliance staff will use the results of the field surveys to evaluate the potential impacts of the proposed project on species or habitats of concern. Impacts to species of concern are assumed to arise primarily from direct mortality, habitat loss (reproductive, cover/roosting, foraging habitat), nest or den destruction, or disturbance during nesting/reproduction/foraging (e.g., visual or noise impacts causing disruption of nesting) (Table 1).

**Table 1.** Evaluation of Impacts to Biological Resources of Concern

Source of Impact	Likelihood of Impact
Direct mortality	Potential is defined as high for plants in the areas to be disturbed; low for mobile species
Habitat loss	Potential is evaluated on basis of species/habitat associations and foraging/home range radii
Nest/den destruction	Potential is defined as high for nests/dens found in the area
Disturbance during sensitive periods	Potential is defined as high within one home range radius, or as defined by management plans/biological assessments

Information necessary to complete the analysis of impact is based on whether a species of concern is present or uses the area where the proposed action is to occur, and on whether the proposed action would result in any of the above effects if and when the species is present. Use of an area by a species of concern is determined on the basis of the field survey as well as an assessment of foraging use areas by species with relatively large home ranges, such as Swainson's hawks (*Buteo swainsoni*) and bald eagles. Home range sizes are determined from previous field studies (e.g., Poole et al. 1988) or monitoring programs under other Site resource monitoring projects (e.g., for bald eagles).

Additional data in the Ecological Monitoring and Compliance Project database, which have been collected from many other sources, may also be used to evaluate the impacts of proposed actions. Monitoring data of interest to an ECR review include information about the distribution and abundance of important biological resources, any observed changes in the distribution and abundance of these resources, the most recent Site-wide vegetation or habitat maps, data from studies that examine the biology or life history of specific species, and data concerning the effects of specific activities or types of disturbance on important biological resources.

Information on the sensitivity of various species to disturbance has been compiled in some cases (e.g., Poole et al. 1988). Exclusion areas and times have been identified for federally listed birds on the Hanford Site (Fitzner and Weiss 1994; Fitzner et al. 1994), and the FWS has concurred with these requirements.<sup>4</sup> For other species, such as the loggerhead shrike, few or no data exist on disturbance radii. The approach taken in such cases is to assume the animal will be disturbed by any prolonged activity taking place within its territory or home range. For those species where site-specific territory or home range size data are lacking, home range sizes may be determined from body size using published regression equations (e.g., Calder 1984).

### **3.5 Ecological Compliance Review Reporting and Documentation**

ECR reporting consists of ECR letter reports documenting the ECRs and their findings. Contents of the ECR reports will vary according to the type of action under review (Table 2). All ECR letter reports contain the action title and description, the assigned action number (e.g., 2003-200-043), the objectives of the review, and the findings.

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<sup>4</sup> Letter from DC Frederick (U.S. Fish and Wildlife Service) to RD Hildebrand (U.S. Department of Energy), dated November 14, 1994.

**Table 2.** Contents of Ecological Compliance Review Letter Reports

Type of Action	Contents
Minor disturbance in paved, graveled, or other nonhabitat areas	Action title Action description Reference to physical survey(s) Date and personnel on survey(s) ECR Action Number Findings of the review
Will disturb habitat that does not require mitigation	Above plus: Habitat description Species of concern in action area Migratory bird species observed Mitigation requirements (i.e., action timing restrictions or footprint minimization)
Will disturb habitat that does require mitigation	Above plus: Habitat quantification Recommendations for mitigation via habitat improvement if disturbance is above BRMaP defined threshold

**3.5.1 Environmental Compliance Review Letters**

ECR letter reports for projects that will not result in loss of habitat that would require mitigation (as defined in the BRMaP and/or BRMiS) include 1) a reference to the physical field survey performed as the basis for the review; 2) a description of the affected habitat, the primary plant and animal species that could be affected by the action, and any species of concern or migratory birds that are present that could be affected; and 3) any mitigation requirements associated with the siting or timing of proposed actions or other actions that can serve to avoid or minimize impacts.

ECR reports for proposed actions that will result in the loss of habitat that would require mitigation (such as mature shrub-steppe, wetlands, or other habitats defined as mitigable in the BRMaP and BRMiS) also include quantitative descriptions of the habitat, including plant cover by species, and recommendations for mitigation via habitat improvement, either at the site of the proposed action or elsewhere (Table 2). Any necessary habitat improvements that are required would be implemented in accordance with the BRMiS.

The ECR letter report is forwarded to the requester, and copies are sent to the environmental compliance organizations of the contractor and RL and are available from DOE-RL upon request. Copies of the letters, request forms, field data, and all supporting documents are retained in the project file.

**3.5.2 Blanket Ecological Compliance Reviews**

Specific areas on the Hanford Site have been identified as qualifying for blanket ecological compliance reviews. These reviews are issued on an annual basis and allow a prescribed scope of work, such as routine operations and maintenance activities, to proceed without ECRs for each individual action. These

blanket reviews save paperwork and time for both the ecological compliance assessment staff and the requestor organization. An area must meet the following criteria to qualify for a blanket ecological compliance review:

- Habitats within the area must already be highly disturbed or present little to no value for flora or fauna.
- The area must have clearly defined boundaries.
- The probability of adverse ecological impacts must be low.
- It is an area with considerable project activity that would require numerous individual reviews per year.

Areas that currently receive blanket ecological compliance reviews include the tank farms in the 200 Areas, the Plutonium Finishing Plant, the active portions of the solid waste burial grounds in the 200 Areas, and 100 K Area. Additional areas that qualify for blanket reviews may be identified in the future. Blanket ecological compliance reviews expire on April 30 of each year, unless otherwise specified in the letter. Each review will be updated annually, based on current-year field survey data, prior to expiration.

### **3.6 Cumulative Impact Reporting**

As funding permits, the ecological compliance assessment staff will prepare an annual summary of projects reviewed. This summary may be included as part of the annual environmental report for the Hanford Site (e.g., Poston et al. 2006). The summary will detail potentially significant activities during the year, including

- number of review requests received and processed (by type of action and action contractor)
- breakdown of review requests by area of the Hanford Site (e.g., 100, 200), affected habitat, and affected species
- acreage of habitats converted into other uses
- summary of actions affecting federal- or state-listed species
- summary of interactions with projects that limit impacts to species of concern and habitats (i.e., implementation of measures to avoid or minimize impacts)
- summary of mitigation recommendations involving necessary habitat improvement onsite or offsite (these recommendations are implemented and the results reported in accordance with the BRMiS)

- summary of interactions with the FWS, NMFS, or WDFW regarding action impacts on Hanford Site plants, fish, and wildlife
- assessment of cumulative impact (e.g., habitat fragmentation, change from previous environmental baseline).

### **3.7 Coordination with the Environmental Restoration/River Corridor Contractor**

The River Corridor Contractor (RCC) conducts ECRs in support of its own activities based on internal procedures developed to meet the applicable guidance and requirements listed in Section 1.2. Data are shared between the PNNL and the RCC natural resources staff in a two-way flow, and the staff of each organization receive copies of each other's ECRs to enhance the flow of natural resources information among contractors.

During years when funding permits the preparation of an annual summary report, the RCC will provide input either in the form of a section describing RCC compliance activities or as copies of reviews and other summary information that can be incorporated into the report by PNNL.

PNNL or Washington Closure Hanford, LLC (as appropriate) performs ECRs for DOE activities that take place within the boundaries of the Hanford Reach National Monument, including those areas currently managed by the FWS. The FWS evaluates and manages impacts resulting from its own activities on the Hanford Reach National Monument.

## 4.0 Impact Management

Management of impacts to biological resources is achieved using a hierarchy of mitigation actions that is identified through both the ECR process and early interaction between ecological compliance assessment staff and the project engineers and Hanford site development planners.

The hierarchy of mitigation ranges from impact avoidance to compensation (Table 3). Means to accomplish impact avoidance or minimization are identified through the ECR and project site selection processes before implementation of a proposed project. These two types of mitigation are the preferred means of mitigation because they avoid the expense of habitat replacement and minimize the risk of causing a decline in the managed biological resources at Hanford. Habitat manipulations encompassed by the third and fourth types of mitigation are less preferred. The need for these types of mitigation is identified in the ECR report for an individual project, and recommended mitigation actions should be implemented in accordance with the BRMiS.

**Table 3.** Hierarchy of Mitigation for Biological Resource Impacts

Mitigation	Utilization Preference	Description of Mitigation Means
Avoid impact	1st	Alter proposed project (timing, location, or implementation) to avoid injury to managed biological resources
Minimize impact	2nd	Alter proposed project to minimize injury to managed biological resources
Rectify the impact	3rd	Restore the biological resources on the site to be disturbed
Compensate for the impact	4th	Restore or protect biological resources away from the site to be disturbed

The ecological compliance assessment staff will meet with other Hanford project staff (both DOE and contractors) to

- Provide information on potentially significant biological issues pertinent to a specific project.
- Assist in identifying alternatives to the proposed action that could minimize or avoid adverse biological consequences.
- Provide information on the location of important biological resources to assist, as necessary, in the Hanford Site selection process for individual projects.
- Present information on Hanford policy with regard to mitigation.
- Develop a common schedule for conducting an ECR that would minimize impacts to the schedule of the proposed project

These interactions will be performed on an as-needed basis. Ecological compliance assessment staff will attempt to initiate interactions in a proactive manner when informed of upcoming major actions. These efforts and resulting recommendations will be reported to RL in the regular monthly project reports.

## 5.0 References

10 CFR 1021. “National Environmental Policy Act Implementing Procedures.” U.S. Department of Energy, *Code of Federal Regulations*.

10 CFR 1022. “Compliance with Floodplain and Wetland Environmental Review Requirements.” U.S. Department of Energy, *Code of Federal Regulations*.

33 CFR 320. “General Regulatory Policies.” U.S. Army Corps of Engineers, *Code of Federal Regulations*.

40 CFR 230. “Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material.” U.S. Environmental Protection Agency, *Code of Federal Regulations*.

40 CFR 1500.1c. “Purpose, Policy, and Mandate.” U.S. Environmental Protection Agency, *Code of Federal Regulations*.

50 CFR 10. “General Provisions.” U.S. Fish and Wildlife Service, *Code of Federal Regulations*.

50 CFR 17. “Endangered and Threatened Wildlife and Plants.” U.S. Fish and Wildlife Service, *Code of Federal Regulations*.

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Executive Order 11988. May 24, 1977. "Floodplain Management." 42 *Federal Register* 26951.

Executive Order 11990. May 24, 1977. "Protection of Wetlands." 42 *Federal Register* 26961.

Executive Order 11991. May 24, 1977. "Relating to Protection and Enhancement of Environmental Quality." 42 *Federal Register* 26967.

Executive Order 13112. February 3, 1999. "Invasive Species." 64 *Federal Register* 6183.

Executive Order 13186. January 10, 2001. "Responsibilities of Federal Agencies to Protect Migratory Birds." 66 *Federal Register* 3853.

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## **Appendix**

### **Cultural and Ecological Resources Review Request Form**

RL-655	<b>REQUEST FOR CULTURAL AND/OR ECOLOGICAL RESOURCES REVIEW FOR THE HANFORD SITE</b>	<b>Review Tracking Number</b>
<b><u>RCC Projects</u></b> (WCH) Direct Form and Cultural Resource Questions To: Tom Marceau Phone: <b>375-4663</b> Fax: <b>372-9292</b> MSIN <b>H4-22</b> e-mail: <b>temarceau@wch-rcc.com</b>  Direct Form and Ecological Resource Questions To: Ken Gano Phone <b>372-9295</b> Fax <b>372-9654</b> MSIN <b>H0-23</b>		<b><u>All Other Hanford Projects</u></b> (PHMC, PNNL, Other) Direct All Forms and Cultural Resource Questions To: Ellen Prendergast-Kennedy Phone <b>376-4626</b> Fax <b>376-2210</b> MSIN <b>K6-75</b>  Direct Ecological Resource Questions To: Mike Sackschewsky Phone <b>376-2554</b> Fax <b>372-3515</b> MSIN <b>K6-85</b>
<b>Date Sent:</b>		<b>Date Findings Requested By:</b>
Primary Contact:	Company/Organization:	
E:mail:	Fax:	
Telephone:	MSIN:	
Secondary Contact:	Company/Organization:	
E:mail:	Fax:	
Telephone:	MSIN:	
Project Name:		
Project Number/COA:		
RL Project Manager:		
<b>REQUESTOR SHOULD SUBMIT A COPY OF THIS REQUEST TO THE RL PROJECT MANAGER UNDER WHOM THEIR PROJECT FALLS WITHIN 5 DAYS.</b>		
Project Description, including time period over which proposed action will occur:		
Project Dimensions:		
Depth of Excavation(s):		
Project Location:		
<input type="checkbox"/> 100 Area	<input type="checkbox"/> 200 West Area	<input type="checkbox"/> 400 Area
<input type="checkbox"/> 200 East Area	<input type="checkbox"/> 300 Area	<input type="checkbox"/> 600 Area
<input type="checkbox"/> 700 Area	<input type="checkbox"/> Other:	
Township _____ N	Range _____ E	UTM: Easting _____ Northing: _____
Please also provide the following:		
1. Overview map showing project location (or other suitable map to assist in finding the project site)		
2. Map or scale drawing showing all excavation areas (including water, sewer, and power lines, etc.), parking, topsoil storage areas, equipment staging areas, access roads, and utility corridors.		
Submitted By:		Telephone:
Revised September 2006		