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Sandia National Laboratories, California Environmental Planning and Ecology Program Annual Report 2007

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Sandia National Laboratories, California Environmental Planning and Ecology Program Annual Report 2007

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ABSTRACT

The annual program report provides detailed information about all aspects of the Sandia National Laboratories, California (SNL/CA) Environmental Planning and Ecology Program for a given calendar year. It functions as supporting documentation to the *SNL/CA Environmental Management System Program Manual*. The 2006 program report describes the activities undertaken during the past year, and activities planned in future years to implement the Planning and Ecology Program, one of six programs that supports environmental management at SNL/CA.

Contents

Figures

Tables

Summary of Document Changes

Significant changes made to the 2007 edition of the Environmental Planning and Ecology Program Report are marked with a sidebar within the document and summarized in Table 1.

Table 1 Summary of Significant Changes to Environmental Planning and Ecology Program Report, 2006

Section	Page	Change
1.2	8-14	Ecology section updated to address habitat and wildlife management and monitoring requirements specified in the Biological Opinion.
1.4	15	Removed the corporate ES&H report input and Environmental Scorecard from the Environmental Reporting section. During 2006, the Environmental Scorecard was transferred to a department-level assignment.
1.5	15	Added coordination of ISO 14001 registration to EMS Core Team Responsibilities.
2.0	16	Two regulatory changes that occurred in 2006 are summarized and included in Table 3.
5.2	23	The Program Technologist position was removed. This position was changed to a department-level assignment.
5.1.5	23	A supporting role from an Environmental Management Department Technologist was added.
5.2	23	A section on specialized certifications and assignments was added.
6.1	24	Performance measures for exceptional environmental management were added and include lead time for NEPA reviews and pre-activity survey process.
6.2.1	25	A new performance measure for enhancements in Arroyo Seco was added.
6.2.2	25	A new performance measure for enhancements in grassland habitat was added.
6.2.3	26	Species richness section expanded to include notable increases in abundance for select species.
7.1	27	Updated risk assessment for 2007.
8.1	28	This section describes follow-up on results from 2005 Line performance assessment.
8.2	29	Moved the program document review form from Appendix C to Section 8.2.
8.3	30	Summarizes the results of the 2006 Line Performance assessment on nesting bird survey process.
8.5	30	Included the Organization 12870 audit on environmental permitting into this section.
9.0	30	Updated accomplishments to reflect 2006 activities.
10	31	Updated trends in wildlife and ecology awareness, and movement towards use of CDs and web-links instead of printing and distribution of paper reports.
11	32-34	Added targets and actions for land use environmental aspect under enhancing the natural environment.
App C	38-43	Includes an updated Program Risk Assessment completed in January 2007.

1 Program Description

The Environmental Planning and Ecology Program (Planning and Ecology) is one of six programs under the Environmental Management Department at Sandia National Laboratories, California (SNL/CA). The program oversees activities associated with the National Environmental Policy Act (NEPA), wildlife and habitat management, and cultural resources. Planning and Ecology is part of the SNL/CA Environmental Management System (EMS), and maintains responsibility for general environmental reporting that spans all six program areas. It is an indirectly funded program, supported through the Integrated Enabling Services Strategic Management Unit.

This program report provides detailed information about all aspects of Planning and Ecology operations. It functions as supporting documentation to the *SNL/CA EMS Program Manual.* The Program Report is updated annually to reflect the dynamic nature of program operations, accomplishments, and goals.

1.1 NEPA

Under NEPA, all Federal agencies are required to evaluate the impacts of their proposed actions on the environment. In 2003, the Department of Energy (DOE), National Nuclear Security Administration, Sandia Site Office (NNSA/SSO) issued the *Final Site-Wide Environmental Assessment of the Sandia National Laboratories, California* (SWEA) and Finding of No Significant Impact (FONSI). The SWEA evaluates the impacts of site operations over a ten-year period, and the FONSI concludes that continuation of site operations is not a major federal action significantly affecting the quality of the human environment.

Each year, Planning and Ecology evaluates the bounding impact scenario presented in the SWEA for continued applicability to site operations. Actual site data is compiled and compared against the projected impacts. Where actual operations exceed, or are close to, projected operations, relevant impact areas are further evaluated to determine if impacts have occurred or are projected to occur in future years. The information from this comparison can then be used to change site activities and minimize or eliminate environmental impacts resulting from site operations. This comparison is presented in the annual site environmental report.

At SNL/CA, new projects or programs and significant changes in existing projects or programs are subjected to an internal NEPA review. All NEPA reviews are accomplished electronically, using the ISMS NEPA Module (http://www-irn.sandia.gov/iss/isms_software/runnepa.htm). The member of the workforce responsible for NEPA compliance (e.g., the principle investigator or action owner) completes the electronic project information form and submits it for review to the NEPA Subject Matter Expert (SME). The NEPA SME determines if the project falls within the scope of an existing NEPA document or if it requires an NNSA/SSO NEPA review. The majority of projects proposed at SNL/CA fall within the scope of the SWEA. Actions that are not covered by existing NEPA documentation are submitted electronically to the NNSA/SSO for a NEPA determination. Planning and Ecology can provide a recommendation for the NEPA determination, but NNSA/SSO makes the final determination.

The NEPA review process supports identification of potential environmental impacts associated with proposed actions. Through the ISMS NEPA Module, an action owner is directed to answer a series of questions specifically designed to identify impacts. Because NEPA reviews are conducted during project planning, mitigation measures can be implemented to minimize or eliminate impacts before an action begins.

1.2 Ecological Resources

At SNL/CA, wildlife and habitat management focuses on stewardship and enhancement of the ecological resources found on site. Under the EMS program, objectives and targets are established for enhancing the natural habitat and maintaining compliance. Routine and project-specific monitoring activities provide data needed to evaluate our progress towards meeting site objectives. Objectives and targets applicable to Planning and Ecology are provided in Section 11.

1.2.1 Site Ecology

SNL/CA is located at the boundary of an urban/rural interface in eastern Alameda County. The main campus occupies approximately 160 of a total 410 acres in the center of the property and is surrounded on the west, south, and east with open, undeveloped space. This open space (outer perimeter area) and the site's location create a localized haven for wildlife in the region.

The plant community at SNL/CA is typical of the surrounding region, consisting primarily of non-native grassland. Localized areas of coyote brush scrub, willow riparian woodland, and wetland habitat are also present. Figure 1 shows habitat types found on site. No threatened, endangered, proposed, or candidate plant species are present at SNL/CA.

SNL/CA provides habitat for a range of wildlife species and maintains a 106-acre wildlife reserve. The wildlife-reserve was designated as part of the Endangered Species Act consultation process with the US Fish and Wildlife Service (USFWS) (commonly referred to as Section 7 Consultation). The wildlife reserve is shown on Figure 2. Disturbance in the wildlife reserve is minimal and includes routine mowing and weed control for fire management, and access by Planning and Ecology to conduct wildlife surveys.

Arroyo Seco, which traverses SNL/CA from southeast to northwest, is another ecological resource at the site. An established riparian area containing native trees and other vegetation is present along the eastern stretch of the arroyo within the wildlife reserve. Arroyo improvements and habitat enhancements are underway as part of an Arroyo Seco Improvement Program expected to be completed over a ten-year period.

Two threatened species, the California red-legged frog *(Rana aurora draytonii)* and the California tiger salamander *(Ambystoma californiense),* are present at SNL/CA. California ground squirrels (*Spermophylis beecheyii*), native to the area, create extensive burrow systems on site that supply retreat and estivation habitat for these two threatened species. The Arroyo

Seco serves as a potential travel corridor for both species, and provides a temporary water source for red-legged frogs that use shallow pools during spring and early summer months.[1]

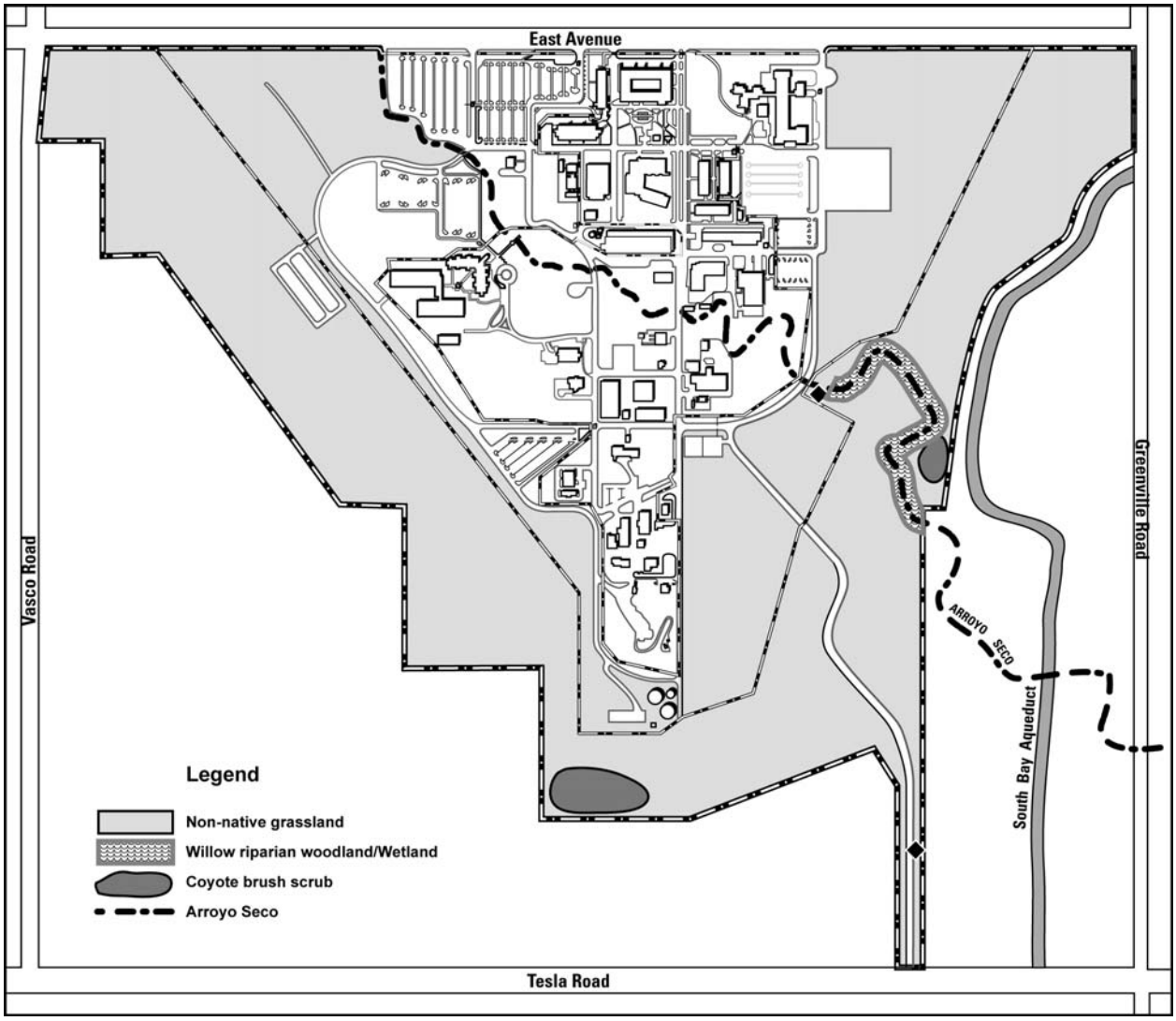


Figure 1 Habitat Types at SNL/CA

Numerous bird species nest or forage on site, most of which are protected under the Migratory Bird Treaty Act. Several species observed at SNL/CA in recent years are also special concern species. The Cooper's hawk *(Accipiter cooperii)* is a California species of special concern. The white-tailed kite *(Elanus leucurus)* and the golden eagle *(Aquila chrysaetos)* are California fully protected species. The loggerhead shrike *(Lanius ludovicianus),* tri-colored blackbird *(Agelaus tricolor)*, and Western burrowing owl *(Athene cunicularia)* are Federal birds of conservation concern and California species of special concern.

[1] California red-legged frogs have been observed in Arroyo Seco on the east side of SNL/CA. However, no eggs or tadpoles have been seen.

SNL/CA is located within the range of the mountain lion (*Puma concolor*), a "specially protected mammal" under California law. Deer, considered the primary prey of the mountain lion, frequently forage in the wildlife reserve on the east side of the property (Figure 2). Smaller mammals, such as ground squirrels, rabbits, foxes, and feral cats, are also a potential food source for a mountain lion.

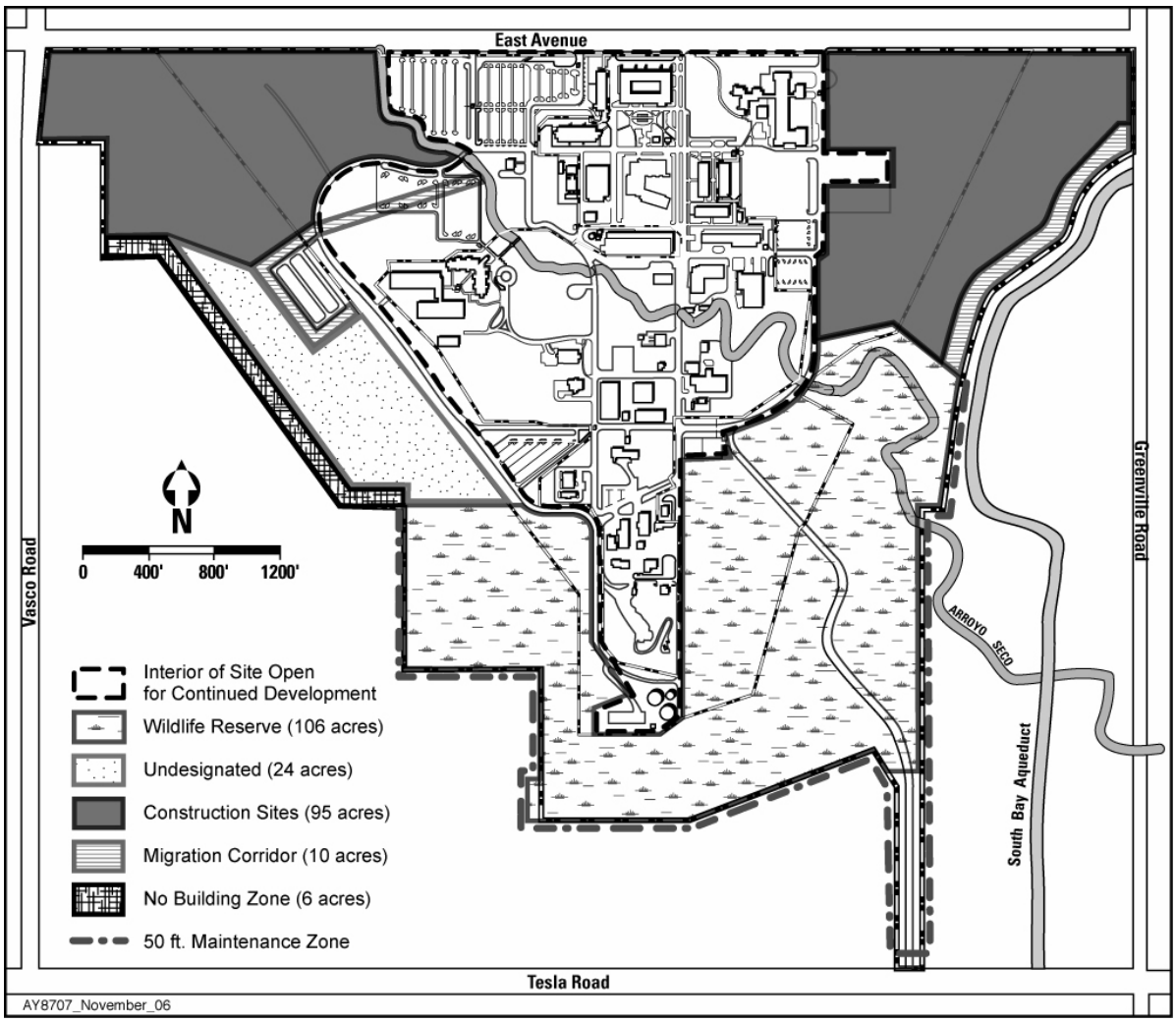


Figure 2 SNL/CA Site Land Use Designations from Biological Assessment

1.2.2 Wildlife and Habitat Management

In 2000, SNL/CA established an integrated approach to wildlife and habitat management that merges long-term management of ecological resources with site planning and operations. This integrated approach included an analysis through the NEPA process of future land uses, a maximum level of site operations, and planned improvements to Arroyo Seco. Parallel with the NEPA analysis, Sandia initiated the Section 7 Consultation process with the U.S. Fish and Wildlife Service (USFWS) to address potential affects to listed species from proposed activities and maximum operations. As part of the consultation process, NNSA/SSO and SNL/CA agreed to prepare a wildlife and habitat management plan that includes provisions for surveys,

monitoring, and control/management of wildlife and plant species. Section 1.2 (and subsections) of this report functions as the SNL/CA Wildlife and Habitat Management Plan.

Through the Section 7 Consultation process, NNSA/SSO and Sandia also agreed to identify success criteria for the following.

- habitat restoration in Arroyo Seco
- distribution and abundance of ground squirrel burrows in grasslands that may provide habitat for red-legged frogs and tiger salamanders.

1.2.3 Minimizing Effects to Wildlife and Habitat

Consistent with routine environmental review processes, Planning and Ecology staff evaluate site activities to identify potential effects to wildlife and habitat, to determine if proposed activities are compliant with requirements, and to identify opportunities for minimizing effects and enhancing the existing environment. Figure 3 summarizes the review process as it relates to wildlife and habitat management.

SNL/CA is required by the Biological and Conference Opinion issued by the USFWS for site operations to implement measures to minimize the potential for harassment, harm, or mortality of California red-legged frogs and California tiger salamanders. The biological opinion identifies the following ten non-discretionary terms and conditions to minimize potential effects to these listed species.

1. SNL/CA operations will be implemented as described in the biological opinion and associated documents, including all conservation measures. See Appendix A for a complete list of requirements.
2. New buildings and infrastructure shall be confined to the minimum area necessary to achieve their purpose.
3. Where construction areas abut the wildlife preserve, SNL/CA shall install fencing to prevent workers from entering the preserve.
4. Landscaping in new construction areas shall be designed to minimize water consumption to reduce irrigation runoff to Arroyo Seco.
5. A USFWS-approved SNL/CA employee or contractor will conduct a training session for all construction, landscape, and maintenance personnel prior to any construction, landscaping, or maintenance activities that may affect the red-legged frog or tiger salamander. Training will include a description of the red-legged frog and tiger salamander, their habitats, and the protective measures to be implemented for these species.
6. Plastic mono-filament erosion control matting shall not be used where red-legged frogs and tiger salamanders may become entangled or trapped in it, particularly in Arroyo Seco.
7. Any individuals handling red-legged frogs or tiger salamanders shall hold a valid 10(a)(1)(A) Scientific Collection Permit from the Service. All capturing and relocation protocols utilized shall be approved by the Service and California Department of Fish and Game prior to implementation.
8. The SNL/CA shall appoint a representative who will be the contact source for any employee or contractor who might inadvertently kill or injure a red-legged frog or tiger salamander or who finds a dead, injured or entrapped individual. The representative shall be identified during the employee education program. The representative's name and telephone number shall be provided to the Service prior to the initiation of ground disturbance activities.
9. Within five days prior to de-watering and/or other construction related activity, all suitable red-legged frog and tiger salamander aquatic habitat shall be surveyed. All size classes of red-legged frogs and tiger salamanders will be moved out of the work area to a suitable pool away from the construction site. No

more than 14 days prior to construction, SNL/CA shall notify the Service of the location and condition of this pool habitat. No frogs or salamanders shall be moved before the Service has approved the relocation site.

10. SNL/CA shall initiate a bullfrog control program. All potential bullfrog breeding habitat shall be surveyed annually for bullfrog egg masses, larvae, juveniles, and adults. All age classes of bullfrogs shall be removed and killed.

1.2.4 Wildlife and Habitat Monitoring and Surveys

Planning and Ecology conduct wildlife and habitat monitoring to document species diversity and richness at the site, and to keep abreast of listed and sensitive plants and animals that may be present at SNL/CA. Early identification of threatened, endangered, and sensitive species allows Planning and Ecology to evaluate appropriate protections that will minimize or eliminate impacts to these species and their habitats. Planning and Ecology uses monitoring data to establish requirements and address potential project-specific short-term effects as well as potential long-term effects from site activities. SNL/CA also uses monitoring information to enhance campus safety for personnel and visitors by reducing the potential for wildlife/human encounters.

Wildlife monitoring is conducted year-round to document species living and foraging on site. Monitoring is accomplished with field surveys, track stations, fence line checks, and the use of trail cameras. SNL/CA uses a variety of field survey methods including visual observation, digital photography, bird counts, transect surveys, protocol surveys, and nest/den identification. SNL/CA also monitors specifically for areas where mountain lions could access the developed areas of the site. When identified, access points are closed to reduce the potential for a lion to enter human occupied areas.

Annually from April through September, Planning and Ecology complete pre-activity surveys for nesting birds before shrubs or trees are trimmed or removed. These pre-activity surveys support compliance with the Migratory Bird Treaty Act by ensuring that birds, nests, or eggs are not disturbed during routine site operations.

Planning and Ecology visually monitors habitat conditions throughout the year while conducting field surveys. Changes in habitat conditions and wildlife use are tracked. This information, together with wildlife monitoring data, is used to identify habitat enhancement measures in appropriate areas at the site.

Plant surveys at SNL/CA are completed every five to ten years, as needed for updating site-wide NEPA impact analyses. Because there are no threatened or endangered plant species at SNL/CA, annual surveys are not done. The most recent plant survey was completed in 2001.

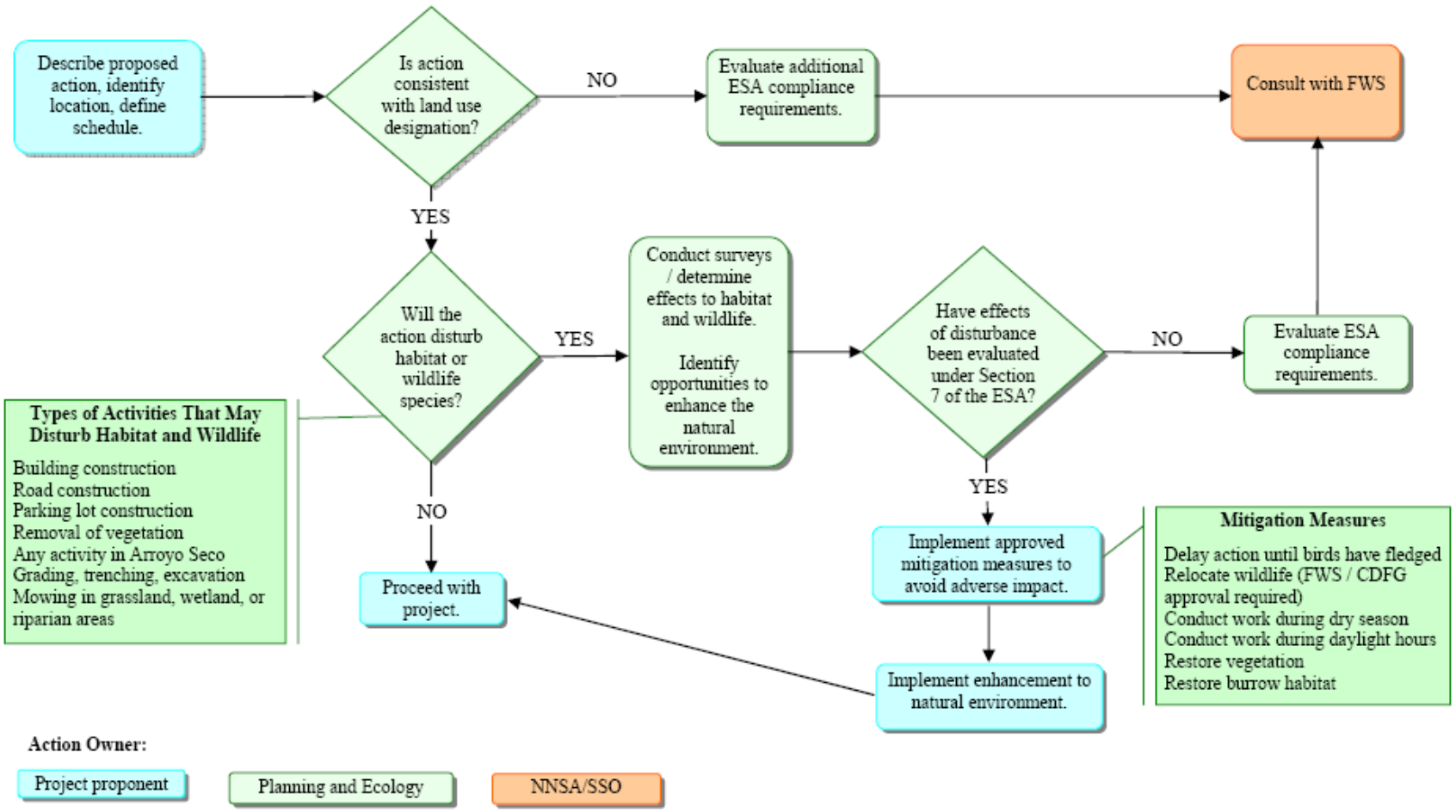


Figure 3 Review Process for Wildlife and Habitat Management

1.2.5 Arroyo Seco Restoration

Success criteria for habitat restoration in Arroyo Seco are presented in Table 2. Criteria for survival, growth, presence of native plants, and habitat use are included. Planning and Ecology staff will monitor restored areas annually for potential restoration failures. Monitoring data will be used to identify preventive and corrective actions necessary to ensure restoration success.

Table 2 Arroyo Seco Habitat Restoration Success Criteria

Metric	Success Criteria	Monitoring
Overall survival of trees and shrubs planted (includes replants)	85%	Monitoring will continue until criteria met for 5 consecutive years - Running count of trees planted - Running count of shrubs planted - Annual count of number of trees surviving - Annual count of number of shrubs surviving
Tree cover (at 2 years)	40%	Sampling of random plots using densiometer
Tree cover (at 5 years)	60%	Sampling of random plots using densiometer
Tree cover (at 10 years)	75%	Sampling of random plots using densiometer
Shrub cover (at 2 years)	20%	Sampling of random plots using line intercept method
Shrub cover (at 5 years)	30%	Sampling of random plots using line intercept method
Shrub cover (at 10 years)	45%	Sampling of random plots using line intercept method
Native trees	75%	Annual count of native trees
Native shrubs	75%	Annual count of native shrubs
Riparian grass / ground cover (native)	90%	Sampling of random plots using Daubenmeyer technique
Wildlife and avifauna use	species richness and density comparable to other site areas along Arroyo Seco	Annual wildlife survey for types and numbers of individuals and nest / den sites

1.2.6 Burrow Habitat

During 2007, Planning and Ecology will complete a literature review to better understand conditions that may affect distribution and abundance of ground squirrel burrows and their use by red-legged frogs and tiger salamanders. Also in 2007, wildlife staff will prepare an estimate of existing burrow colonies in the grassland area at SNL/CA. The information obtained in 2007 will be used to establish success criteria for distribution and abundance of burrow habitat as required under the Biological Opinion.

1.3 Cultural Resources

Two cultural resource assessments have been conducted at SNL/CA. A complete site assessment for historic resources was completed in 1990. No historic or prehistoric resources were identified during the 1990 assessment. In 2001, SNL/CA completed an historic building survey. None of

the buildings at SNL/CA were identified as historically significant or eligible for the National Register of Historic Places.

Although there are currently no known cultural resources present on site, the 1990 assessment did identify the potential for buried resources at SNL/CA that could be unearthed during construction and excavation activities. Sandia's construction specifications outline special procedures for preservation of cultural resources should any be unearthed during a project. In 2005, Sandia prepared a Cultural Resources Management Plan (CRMP) to outline, in general, the process that would be followed for inadvertent discovery of buried resources.

1.4 Environmental Reporting

Planning and Ecology maintains responsibility for preparing and distributing the annual site environmental report (a DOE requirement). The annual report provides environmental information, compliance status, and results of environmental monitoring activities to DOE and NNSA/SSO, Sandia personnel, and external stakeholders. Additional information about this report is provided in Section 4.

1.5 EMS Core Team Responsibilities

Planning and Ecology is responsible for documenting EMS program development, implementation, and improvement in the *SNL/CA EMS Program Manual*, which is updated annually. The Planning and Ecology Program Lead is an active member of the EMS Core Team, coordinates semi-annual surveillance audits to maintain ISO 14001:2004 registration, assists in setting environmental objectives and targets, and maintains responsibility for developing and updating project schedules.

2 Program Drivers

Environmental compliance drivers include laws, regulations, orders, directives, and other corporate and site-specific requirements. Drivers that are applicable to Planning and Ecology are listed and summarized in Table 3.

Planning and Ecology uses a variety of sources to stay current on applicable compliance drivers. The primary source used is the Sandia corporate notification service provided by the legal staff. Sandia legal monitors DOE requirements and federal, state, and local government publications for regulatory issues applicable to SNL operations. Planning and Ecology receives notifications weekly, which are then reviewed for applicability to SNL/CA operations. Planning and Ecology also receives and reviews the *California Environmental Insider*, a California-specific publication, issued twice per month, which summarizes current regulatory issues and changes that affect activities in the state. Both federal and state issues of concern are addressed in this publication. Additional sources of information on regulatory changes include direct communication with NNSA/SSO and regulating agencies, and periodic review of agency web sites. New requirements are incorporated into program activities and communicated to the site

through electronic notifications, the Site Interdisciplinary Team (IDT) process, self-assessments, and targeted presentations.

During 2006, several changes occurred in compliance drivers applicable to Planning and Ecology responsibilities. In April 2006, the USFWS issued the final rule designating critical habitat for the California red-legged frog. Under the final rule, SNL/CA is excluded from critical habitat for the species. There are no changes to site operations as a result of this regulatory change.

On October 17, 2006, a settlement agreement was reached between the U.S. Environmental Protection Agency (EPA) and the Center for Biological Diversity. The agreement imposes restrictions on the use of 66 active pesticide ingredients in California red-legged frog habitat. Planning and Ecology is working with the Hazardous Material Management Program and Maintenance Engineering Department to establish a process to monitor restricted pesticides and ensure appropriate use in areas of the site that contain aquatic and upland habitat for the red-legged frog.

Table 3 Compliance Drivers for Environmental Planning and Ecology Program

Driver / Effective Date	Summary	Regulating Authority
Federal Laws		
National Environmental Policy Act (NEPA) / 1969	National charter for protection of the environment, requires all federal agencies to evaluate the affects of agency actions on the human environment (physical, socioeconomic, and cultural)	Council on Environmental Quality, Executive Office of the President (CEQ)
National Historic Preservation Act / 1966	Requires federal agencies to consider potential effects of agency actions on cultural resources	National Park Service
Archaeological Resources Protection Act / 1979	Provides for protection of archaeological resources and to prevent looting and destruction of resources	Department of Interior
Endangered Species Act / 1973	Provides for the designation and protection of wildlife and plant species, requires federal agencies to consult on projects with the potential to affect threatened and endangered species	USFWS
Migratory Bird Treaty Act / 1916	Provides for protection of migratory bird species	USFWS
Federal Insecticide, Fungicide, and Rodenticide Act / 1972	Provides for control of pesticide distribution, sale, and use	EPA delegated to State agency - California Department of Pesticide Regulation
Federal Regulations[a]		
10 CFR 1021 DOE NEPA Implementing Procedures	NEPA procedures for DOE facilities	DOE
40 CFR 1500 – 1508, CEQ Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act	Provides requirements for federal agencies to implement NEPA	CEQ
36 CFR 800, Protection of Historic Properties	Procedures define how federal agencies meet statutory responsibilities for historic preservation	Delegated to State Historic Preservation Office

Driver / Effective Date	Summary	Regulating Authority
50 CFR 17, Endangered and Threatened Wildlife and Plants	Identifies protected species and habitat	USFWS
50 CFR 402, Interagency Cooperation – Endangered Species Act	Procedures for consultation process with Fish and Wildlife Service	USFWS
10 CFR 1022, Compliance with Floodplain and Wetlands Environmental Review Requirements	DOE procedures for complying with Executive Order 11988 and 11990, DOE policy regarding consideration of floodplain/wetlands factors in planning and decision-making	DOE
Executive Orders (EO)		
EO 11593, Protection and Enhancement of the Cultural Environment / 1992	Details the responsibilities of federal agencies to preserve, restore, and maintain the historic and cultural environment	DOE as responsible federal agency for SNL facilities
EO 11988, Floodplain Management / 1977	Directs federal agencies to reduce the risk of flood loss, minimize impact to human safety, preserve natural value of floodplains, requires federal agencies to evaluate affects of agency actions on floodplains	DOE as responsible federal agency for SNL facilities
EO 11990, Protection of Wetlands / 1977	Directs federal agencies to minimize destruction, loss, or degradation of wetlands and to evaluate affects of agency actions on wetlands	DOE as responsible federal agency for SNL facilities
EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations / 1994	Requires federal agencies to consider the affects of agency actions on minority and low-income populations	DOE as responsible federal agency for SNL facilities
EO 13186, Responsibilities of Federal Agencies to Protect Migratory Birds / 2001	Details the responsibilities of federal agencies to protect migratory birds	DOE as responsible federal agency for SNL facilities
DOE Directives		
Order 450.1, Environmental Protection Program / 2005	Outlines the basic strategy for environmental compliance at DOE facilities, requires DOE facilities to implement an EMS that addresses protection of site resources and long-term stewardship of these resources	DOE
Policy 141.1, Management of Cultural Resources / 2001	Establishes requirement for Cultural Resources Management Plan for all DOE sites	DOE
Order 231.1A, Environment, Safety, and Health Reporting / 2004	Requires collection, reporting, analysis, and dissemination of information on ES&H issues at DOE facilities	DOE
California Laws and Regulations[a]		
California Endangered Species Act / 1984	Provides for the designation and protection of wildlife and plant species in California	California Department of Fish and Game
California Fish and Game Code	Details the requirements related to all aspects of native wildlife and habitat in California, includes protections for mountain lions, California ground squirrels, and other native species	California Department of Fish and Game
14 CCR Division 1, Subdivision 3, Chp. 6 / 1998	Implementing regulations for the California Endangered Species Act	California Department of Fish and Game
California Environmental Quality Act / 1970	Requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, applicable to SNL/CA operations through state and local agency permitting processes	State / local agencies issuing permits or approvals

Driver / Effective Date	Summary	Regulating Authority
Other Requirements		
CPR 400.1.2, Integrated Safety Management System Description / 2006	Defines the requirement to implement ES&H at all SNL locations	SNL
Biological and Conference Opinion for SNL/CA Operations / 2004	Details the requirements for protection of listed species and critical habitat at SNL/CA established through consultation under Section 7 of the Endangered Species Act	USFWS
SNL/CA Requirements for Interacting with Wildlife / 2003	Defines the do's and don'ts of interacting with wildlife at SNL/CA to ensure safety of the workforce and respect for wildlife	SNL/CA VP
No-till policy / 2000	Ensures protection of ground-dwelling amphibians in the outer perimeter areas of SNL/CA	NNSA/SSO
Survey protocol for California red-legged frog / 2005	To avoid and minimize the potential of harassment or harm to red-legged frogs, no additional surveys will be conducted in an area once occupancy has been established The Service should be notified in writing by the surveyor within three (3) working days once a red-legged frog is detected.	USFWS
Arroyo Seco Improvement Program authorization / 2005	Authorization under Nationwide Permit 13 for Bank Stabilization to conduct tasks 1, 3, 10, 12, and 13 of Arroyo Seco improvements. Valid through March 2007.	US Army Corp of Engineers
U.S. District Court, Northern District of California, Stipulated Injunction and (Proposed) Order, Case No. C-02-1580-JSW	Settlement agreement between EPA and Center for Biological Diversity, requires EPA to consult with the USFWS over a three-year period on the impacts of 66 pesticide ingredients to the red-legged frog, agreement imposes restrictions on the use of these pesticides in red-legged frog habitat until consultations are complete and biological opinions are issued by the USFWS	EPA, USFWS

[a] For federal and state regulations, the current year is the applicable effective date.

Planning and Ecology is audited occasionally by NNSA/SSO, Sandia Corporation, and Lockheed Martin, Sandia's parent company. There are no recurring audits of the program from external regulating agencies. Sandia's internal audit organization, (Organization 12870 ES&H, Quality, and Safeguards & Security Audits Department) initiated an audit of corporate environmental permitting processes in October 2006. The audit included permitting processes as they relate to NEPA and ecological resources. Additional information about this audit is presented in Section 8.

The Program Lead communicates with NNSA/SSO counterparts regularly to keep them informed of issues and trends of importance to the program. Program staff works side-by-side with NNSA/SSO to resolve concerns and to develop effective approaches to program implementation. Planning and Ecology and NNSA/SSO maintain an open and cooperative working relationship.

3 Operational Controls

Planning and Ecology uses technical work documents, administrative and engineered controls, and specialized equipment as operational controls. Table 4 lists the technical work documents applicable to Planning and Ecology operations. They include the corporate ES&H manual, operating procedures, preliminary hazard screening documents, hazard assessments, and other site-specific requirements. Fences function as engineered controls to minimize contact between the site population (visitors and employees) and wildlife. Administrative controls include access lists to the outer perimeter areas where potential encounters with wildlife are highest. Trail cameras gather information on wildlife that is used to assess safety conditions in the outer perimeter areas of the site and to support decisions to delay or proceed with wildlife surveys during night hours.

Sandia also includes an administrative control in many project-funding processes to trigger a NEPA review before a project starts. NEPA triggers are included in processes for work-for-others, laboratory directed research and development, cooperative research and development agreements, integrated contract orders, defense programs, and construction programs.

Table 4 Technical Work Documents for the Environmental Planning and Ecology Program

Title	Current Version
OP471343, Operating Procedure for Conducting NEPA Reviews at SNL/CA	Issue I, 2005
PHS SNL3A00248-004, Environmental Planning and Ecology Program at SNL/CA	January 2007
Hazard Assessment, Wildlife Surveys	2004
OP471793, Operating Procedure for Safely Conducting Wildlife Surveys and Habitat Monitoring at SNL/CA	Issue D, 2006
ES&H Manual, Section 10B, NEPA, Cultural Resources, and Historic Properties	March 2006
ES&H Manual, Section 10C, Migratory Birds, Protected Species, and Other Biota	March 2006
SP473544, Standard Operating Procedure for Roof Access	Issue A, 2005
Mountain Lion Action Plan	April 19, 2004
SNL/CA Requirement for Interacting with Wildlife	June 17, 2003

4 Documents Produced

Table 5 identifies the documents and reports generated by Planning and Ecology. In 2006, the Corporate ES&H Report was discontinued, therefore eliminating the reporting requirement for SNL/CA. Responsibility for preparing the Environmental Scorecard was transferred to a department-level function; therefore, it has been removed from Table 5. There were no significant changes to other documents or reports in 2006.

Table 5 Environmental Planning and Ecology Program Documents and Reports

Document / Reporting Requirement	Due Date	Frequency of Distribution	Distribution	Purpose
Site-wide Environmental Assessment of SNL/CA: provides bounding impact scenario for site operations for ten years	None	Every 10 years	Unlimited public release	DOE requirement
Biological Assessment for Continued Operation of SNL/CA: Analysis of impacts to protected wildlife and habitat	None	Every 10 years	USFWS, NNSA/SSO	Regulatory requirement
Cultural Resources Management Plan: Identifies the process that will be followed if cultural resources are found	November 30	Every 5 years	NNSA/SSO	DOE requirement
Planning and Ecology Program Report: Summary of program elements	February 15	Annual	Site	EMS Program
EMS Program Manual: Concise description of the overall EMS Program	April 15	Annual	Site	Supports EMS Program
Wildlife Survey Report: Documents results of annual wildlife monitoring	March 30	Annual	EP Program	Informational
SNL/CA Site Environmental Report (final draft): Summary of environmental compliance, environmental program performance, and monitoring activities	June 1	Annual	Unlimited public release	DOE requirement
NEPA Report: Documents NEPA project reviews	15 days after month end	Monthly	NNSA/SSO	Informational
California Natural Diversity Database	As needed	As species are identified	State of California and NNSA/SSO	Regulatory requirement, informational
California red-legged frog observations	Within 3 days of observation	As needed	USFWS and NNSA/SSO	Regulatory requirement

5 Approved Job Descriptions, Qualifications, and Job-Specific Training

5.1 Planning and Ecology Job Assignments

Job assignments in Planning and Ecology include Program Lead, Wildlife Biologist, Wildlife Technologist, and Wildlife Biology Intern. Job descriptions and qualifications for each assignment follow. Appendix B provides a list of personnel supporting each job assignment. An Environmental Management Department Technologist also supports various elements of Planning and Ecology. A general description of activities supported by this position are also included.

Sandia views training, development, and education as a strategic investment in Sandia's future. The policy of Sandia Corporation is to maintain a high level of technical and administrative competence in support of its mission. In support of this policy, Sandia maintains a set of general corporate training requirements that cover a wide range of areas such as security (physical,

information, computer), business ethics and diversity, general ES&H, and general business processes. Standard corporate requirements are identified for each individual in the online Corporate Education, Development, and Training database at https://hrprod.sandia.gov/cfdocs/prod/hris/ctd/apps/cedtweb/cedtmain/index.cfm. The online database tracks completion status for all corporate training requirements and provides electronic reminders when a course is due. Sandia training coordinators and department managers identify corporate training requirements for new hires. Sandia has developed online training courses to meet many of these requirements.

In addition to corporate training requirements, each program assignment has job-specific training requirements. These training requirements address safety as well as specific job functions. The Environmental Management Department Manager, Program Lead, or Department ES&H Coordinator may identify job-specific training requirements. Most of these requirements are tracked in the online database. Table 6 presents job-specific training requirements for Planning and Ecology.

5.1.1 Planning and Ecology Program Lead

The Program Lead is responsible for management and oversight of all program activities, interacting with the NNSA/SSO on all NEPA, ecological, and cultural resource issues, interacting with state and federal regulatory agencies, and participating on the IDT. Management and oversight responsibilities encompass a range of activities including budgeting, monitoring costs, identifying investments needs, task assignment and oversight, contract management, conducting program self assessments, maintaining the program website, reporting, developing operational controls, and participating in special site events and department projects. The Program Lead serves as the NEPA subject matter expert for SNL/CA. The Lead is responsible for monitoring changes in program compliance drivers and for communicating these changes to the site.

At a minimum, the Program Lead is required to hold a Bachelor of Art degree with at least 10 years experience in an environmental field, or a Bachelor of Science degree in an engineering, environmental, or science field with three years of related work experience. Desirable qualifications for this position include proficiency in technical writing, project management skills, and NEPA expertise. Registration as an environmental manager is optional, but encouraged, for the Program Lead position.

5.1.2 Wildlife Biologist

The Wildlife Biologist is responsible for all aspects of wildlife monitoring, conducting wildlife surveys, documenting the results of monitoring and surveys, and providing training to maintenance personnel to meet requirements established in the Biological and Conference Opinion for SNL/CA operations. The Wildlife Biologist serves as the contact for SNL/CA workers to report observations of California red-legged frogs, California tiger salamanders, and other wildlife.

The Wildlife Biologist is required to hold, at a minimum, a Bachelor of Science degree in wildlife biology or ecology. The physical demands of this position include walking off-path in steep terrain, riparian habitat, and grassland areas. Consequently, the Biologist must be physically capable of withstanding the physical demands of the job. Regulatory standards for conducting surveys and training require that a qualified field biologist (as determined by the USFWS) hold this position. Desirable qualifications for this position include familiarity with California fauna and experience with Federal and state regulations related to wildlife.

5.1.3 Wildlife Technologist

The Wildlife Technologist assists the Wildlife Biologist with wildlife monitoring and surveys. This position supports the two-person rule for access to the outer perimeter area.

The physical demands of this position include walking off-path in steep terrain, riparian habitat, and grassland areas. Consequently, the Wildlife Technologist must be physically capable of withstanding the physical demands of the job. Desirable qualifications for this position include three years work experience in an engineering, environmental, or science field, and an interest in wildlife or ecology.

5.1.4 Wildlife Biology Intern

The Wildlife Biology Intern assists with wildlife monitoring and surveys under the direction of the Wildlife Biologist. The intern position also assists the Program Lead with distributing wildlife posters and other informational materials to the site. This position supports the two-person rule for access to the outer perimeter area.

Student interns at SNL/CA must be currently enrolled full-time students (12 units or more) with a grade point average of 3.2 or better. This intern position also requires a college student with coursework in biology, ecology, or a related field. The physical demands of this position include walking off-path in steep terrain, riparian habitat, and grassland areas. Consequently, the Wildlife Biology Intern must be physically capable of withstanding the physical demands of the job. Desirable qualifications for this position include an interest in wildlife or ecology.

5.1.5 Environmental Management Department Technologist Support Role

The Department Technologist is a valuable resource for Planning and Ecology. This position serves as the back-up NEPA subject matter expert responsible for completing NEPA reviews and attending IDT meetings during the Program Leads absence. The Department Technologist also provides technical editing on reports generated by Planning and Ecology and assistance with technical writing.

Table 6 Environmental Planning and Ecology Program Training Matrix

Training Requirement	Training Method	Program Lead	Wildlife Biologist	Wildlife Technologist	Wildlife Biology Intern	Department Technologist
ENV120 NEPA Awareness	Online	●				●
FRP106 Fire Extinguisher Training Hands-On	SNL classroom	●	●	●	●	
SBS700 Sandia Delegated Reps: What SDRs Need to Know	SNL classroom	●				
FPP105CA Fall Protection and Prevention	SNL classroom	●	●	●	●	
CNF105 Confined Space	SNL classroom		●	●		
CNF107 Confined Space	SNL classroom		●	●		
Animal Track Identification	Outside expert	●	●			
Animal Track Awareness (provided by Wildlife Biologist)	On the job training			●	●	
ESH300 Self Assessment	Online	●				
ESH100 ES&H Awareness	Online	●	●	●	●	●
Overview of Program PHS and OP for Conducting Wildlife Surveys (provided by Program Lead)	Program meeting		●	●	●	
ENV112C Hazardous Waste Generator Trainer	Online			●		

5.2 Specialized Assignments / Certifications

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) requires persons that use or supervise the use of restricted pesticides to be certified pesticide applicators. To meet this requirement, SNL/CA's Maintenance Engineering Department employs a certified pesticide applicator. Certification is valid for a two-year period and requires 20 hours of continuing education for renewal. Certification for the Sandia pesticide applicator is valid through December 31, 2007. Training and renewal for this certification is tracked by Maintenance Engineering.

6 Performance Measures

EMS objectives that are applicable to Planning and Ecology include providing exceptional environmental management and enhancing the natural habitat.

6.1 Exceptional Environmental Management

Planning and Ecology provides exceptional environmental management through involvement in site projects early in the planning stage. The goal of early involvement is to minimize project delays and ensure that site actions do not result in program-related violations, fines, or environmental occurrences. In 2006, there were no violations, fines, or environmental occurrences related to Planning and Ecology program elements.

One measure of early involvement in project planning is lead-time for completing NEPA reviews. Planning and Ecology considers eight days, or more, adequate lead-time to complete routine NEPA reviews. For projects outside the scope of the SWEA, additional lead-time is required for an NNSA/SSO NEPA determination. Figure 4 presents lead-time data for fiscal year 2006. As shown, Planning and Ecology received adequate lead-time for only 50 percent of NEPA reviews completed in FY 2006. The NEPA module automatically calculates lead-times for NEPA reviews. Data reflect the number of days between project start-date and date that a NEPA review is completed. Data quality is dependent on accurate start dates. Often times, start dates are reported as the date that NEPA is initiated, or start dates are back-dated to the initial funding date on a modified or amended project. Although most reviews were completed before the start of project activities (other than planning), lead-time statistics indicate that improvements are needed in initiating the NEPA process early and identifying accurate project start dates.

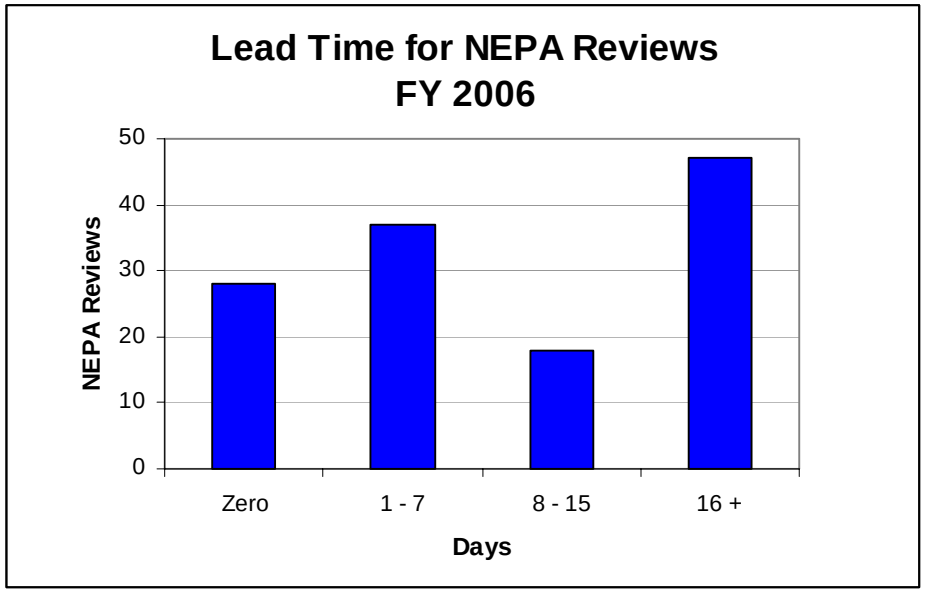


Figure 4 NEPA Lead-Time, FY 2006

Planning and Ecology also measures early involvement in project planning by tracking the number and results of pre-activity surveys for nesting birds. During the 2006 nesting season (May through September), Planning and Ecology completed 29 pre-activity surveys resulting in schedule modifications for three routine maintenance actions. Using the pre-activity survey process, SNL/CA is able to avoid disturbance to nesting birds and ensure compliance with requirements.

6.2 Enhance the Natural Habitat

6.2.1 Arroyo Seco Improvement Program

In 2006, SNL/CA initiated the Arroyo Seco Improvement Program to enhance the natural habitat of the arroyo. Five of twenty tasks were completed during the year including planting of approximately 0.05 acres of riparian habitat. To evaluate success of restoration activities,

Planning and Ecology will monitor plant survival and growth, presence of native plants, and habitat use in restored areas. Success criteria are presented in Table 2, Section 1.2.5. Restoration success will be documented in future reports.

6.2.2 Grassland Habitat

In 2006, SNL/CA experienced an increase in the growth of Italian thistle, an invasive plant species, in grassland habitat in the eastern portion of the site. In 2006, there were approximately 12 acres of thistle compared to 5 acres in 2005 (Figure 5). The increase in thistle is attributed to late rains during April, May, and June that likely supported increased germination of dormant seeds. SNL/CA will continue to mow grassland areas before thistle species go to seed as a way of minimizing spread of this invasive species. Planning and Ecology will continue to monitor the effectiveness of mowing to reduce thistle in grassland habitat.

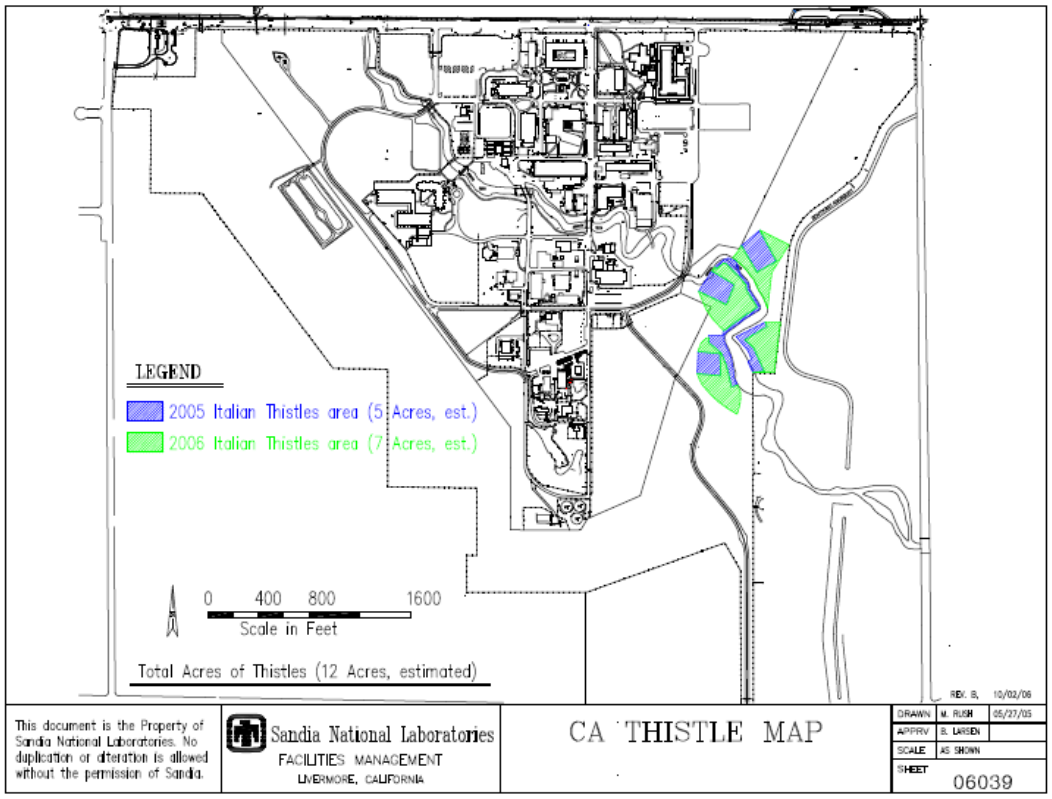


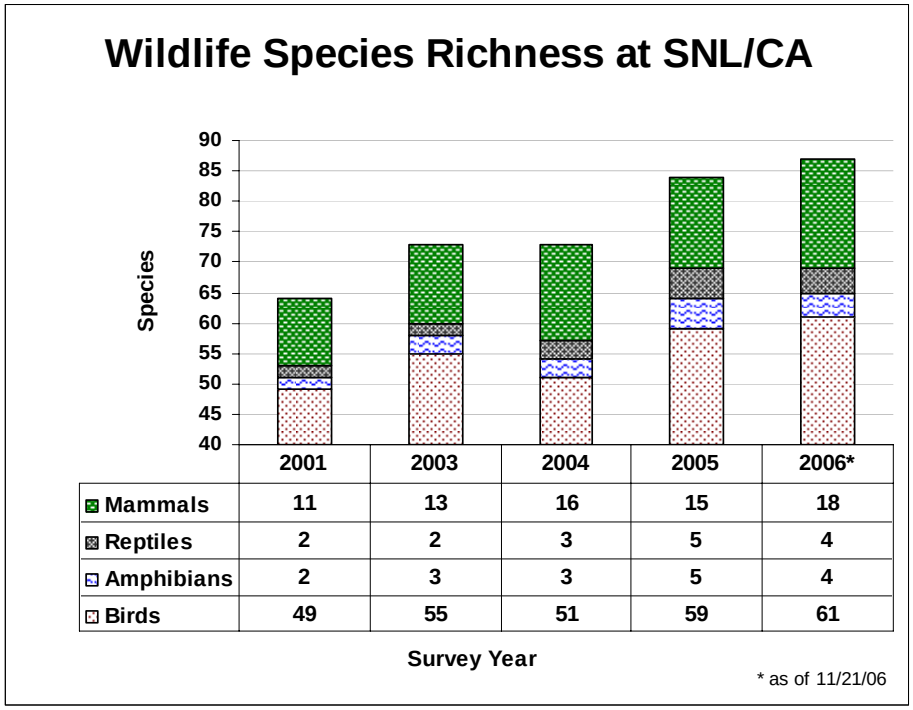
Figure 5 Italian Thistle in Grassland Habitat at SNL/CA

6.2.3 Species Richness and Abundance

Planning and Ecology collects data on wildlife species richness as a qualitative measure of ecological health at SNL/CA. Figure 6 presents species richness data by type of animal since 2001. While the data show that the total number of species observed on site has increased over time, this measure cannot be used as a complete indicator of ecological health. However, at a minimum, the data suggests that the health of the ecosystem at SNL/CA is not declining.


Coyote Pups at Den Site

In 2006, the site experienced an increase in the abundance of several species. A coyote pair denned in the wildlife reserve on the east side of the property and successfully raised three pups. Site personnel observed an increase in the abundance of California ground squirrels and Audubon rabbits during the year. The SNL/CA workforce also observed an increase in gopher snakes on site in 2006. Planning and Ecology received numerous reports of gopher snake hatchlings within the site interior from August through October.



	2001	2003	2004	2005	2006*
Mammals	11	13	16	15	18
Reptiles	2	2	3	5	4
Amphibians	2	3	3	5	4
Birds	49	55	51	59	61

Figure 6 Species Richness at SNL/CA

In November 2006, a Western burrowing owl was observed among a cluster of ground squirrel burrows in the southern portion of the site. One burrow appeared to be in use by the owl.

Burrowing owls are protected under the Migratory Bird Treaty Act and are a California Species of Special Concern. Burrowing owls have not been seen on site since 1995.

7 Quality Assurance

7.1 Program Risk Assessment

In January 2007, Planning and Ecology updated the program risk assessment and identified four potential risks related to program activities. Table 7 lists each risk and the calculated risk category. The complete risk assessment is included in Appendix C.

Table 7 Planning and Ecology Program Risks 2007

Risk #	Risk	Risk Category
1	Failure to receive approval for recharge basin restoration project	high
2	Deviation or exceedance of boundaries established in the SWEA	low
3	Taking of a protected species	medium
4	Reduction in program funding by 10%	medium

In October 2006, Program staff met with the USFWS and NNSA/SSO to discuss the recharge basin restoration project. The USFWS indicated that a mitigation set-aside would be required for this project. Because the mitigation costs (land set-aside or contribution to a mitigation bank) are high, the risk of not receiving SNL/CA management approval to proceed with the project was calculated as high. In response to the high risk category for Risk 1, Planning and Ecology Program staff will continue discussions over the next year with SNL/CA management and NNSA/SSO to determine the best course of action.

In response to the medium risk category for Risk 3, Planning and Ecology worked with the Maintenance Engineering Department to schedule trimming of trees and large shrubs during the winter to avoid disturbing nesting birds during spring and summer months. Winter trimming typically begins in October. For occasional trimming needed during spring and summer, Maintenance arranges for a pre-activity survey for nesting birds with the Wildlife Biologist. If a nest is present, the Wildlife Biologist determines if it is active and, therefore, requires a project delay until the young have fledged. During 2006, three projects were delayed to protect nesting birds. The 2006 Wildlife Survey Report presents the complete results of pre-activity surveys conducted throughout the year.

In response to the medium risk category for Risk 4, Planning and Ecology implemented a review of program activities that could be streamlined. The NEPA review process was identified for potential streamlining. The Planning and Ecology Program Lead has initiated discussions with the NNSA/SSO NEPA Compliance Officer to seek agreement on a pilot streamlining effort of the NEPA review process at SNL/CA.

7.2 Maintaining Program Quality

Planning and Ecology applies the following program-specific elements to assure quality is maintained in data collection, analyses, and reporting.

- Online tools ensure that a standard process is followed for collection and evaluation of project information for all NEPA reviews.
- Internal reports and documents are subjected to internal review and technical editing before finalizing.
- Published reports are reviewed by NNSA/SSO, applicable SNL/CA staff, and technical editors before finalizing.
- Standard industry and regulatory protocols are followed for conducting wildlife surveys.
- Wildlife survey forms are completed by the Wildlife Biologist in the field.

8 Program Assessments

Planning and Ecology conducts two routine self-assessments annually. The program self-assessment is focused on individual elements of program operations. The line performance assessment addresses line implementation of program requirements.

8.1 Follow-up on 2005 Program Assessments

In 2005, Planning and Ecology assessed implementation of NEPA requirements for LDRD projects. The assessment found that eight of 32 new LDRD projects had not initiated a NEPA review before start of the fiscal year. Enhanced notification about NEPA requirements was implemented in 2006 to increase awareness among LDRD project managers. As a result, NEPA reviews were completed for all but one, new LDRD project prior to start of fiscal year 2007 (October 1, 2006). For the one exception, a NEPA review was initiated in mid-October and is expected to be completed by November 30, 2006. Planning and Ecology will continue the notification process in future years.

8.2 Program Self-Assessment

In 2006, Planning and Ecology completed a program self-assessment that reviewed all technical work documents, processes, and web pages. The results of this assessment are documented on a Program Document Review form (Figure 7).

8.3 Line Performance Assessment

Planning and Ecology completed a line performance assessment during September and October 2006. The 2006 line performance assessment focused on implementation of the nesting bird pre-activity survey process. Results of the assessment show that the nesting bird pre-activity survey process is functioning as intended to ensure that nesting birds, eggs, and young are not disturbed, harmed, or harassed during site operations. SNL/CA is compliant with the Migratory Bird Treaty Act. Over the last year, the survey process was improved through implementation of winter

trimming and through changes in documenting survey results. A copy of the line performance assessment report is included in Appendix D.

8.4 Environmental Program Representative Assessment

For 2006, Planning and Ecology did not request assessment support from the Environmental Program Representative.

8.5 Corporate / Line Self Assessment

During 2006, the Planning and Ecology Program was included in one corporate audit focused on environmental permitting processes. This audit was initiated in October. Results are pending.

Program Document Review

Document Type	Document Title	Review Complete	Changes Made
Operating Procedure	NEPA Reviews of Proposed Projects at SNL/CA (OP471343)	☒ 8/29/06	☐ Yes ☒ No
	Safely Conducting Wildlife Surveys in the Outer Perimeter Area (OP471793)	☒ 2/23/06	☒ Yes ☐ No
PHS	SNL3A00248-002 Wildlife Surveys at SNL/CA	☒ 1/11/06	☒ Yes ☐ No
ES&H Manual	Section 10B - NEPA, Cultural Resources, and Historic Properties	☒ 3/1/06	☒ Yes ☐ No
	Section 10C – Migratory Birds, Protected Species, and other Biota	☒ 3/16/06	☒ Yes ☐ No
Other Program Documents	Program Report	☒ Feb. 2006	☒ Yes ☐ No
	Cultural Resources Management Plan	☒ 8/29/06	☐ Yes ☒ No
	Mountain Lion Action Plan	☒ 8/30/06	☐ Yes ☒ No
	Site Requirements for Interactions with Wildlife	☒ 8/30/06	☐ Yes ☒ No
	Biological Assessment (and Addendum) for Continued Operation of SNL/CA	☒ 8/30/06	☐ Yes ☒ No
	Biological and Conference Opinion for continued operation of SNL/CA	☒ 8/30/06	☐ Yes ☒ No
Web Pages	Env Planning and Ecology Web pages	☒ 8/29/06	☒ Yes metrics ☐ No
	Wildlife website	☒ 8/29/06	☒ Yes survey ☐ No data
	ASER on external website	☒ 8/29/06	☐ Yes ☒ No
Self-assessment Standards	NEPA	☒ 8/29/06	☐ Yes ☒ No
	Wildlife	☒ 8/29/06	☐ Yes ☒ No

Organization: 8516

Program: Environmental Planning and Ecology

Date: Calendar Year 2006

Signature: Barbara Larsen
Program Lead

Figure 7 Environmental Planning and Ecology Program Document Review Form

9 Accomplishments

In 2006, Planning and Ecology supported the following accomplishments.

- On May 16, 2006, NNSA/SSO approved the SNL/CA Site Environmental Report for 2005. Planning and Ecology completed the annual report more than 30 days ahead of SSO's already aggressive schedule that identified completion of the final draft by June 1, 2006.
- In September 2006, SNL/CA's EMS received certification to ISO 14001:2004. Planning and Ecology coordinated a desk audit, an onsite readiness review, and a complete system audit to support certification.
- Enhancements completed in 2006 to the online NEPA module support greater access controls on project information. Updated functionality allows a project owner to designate restricted access to projects with business sensitive information.
- Coordination activities between SNL/CA and SNL/NM on NEPA reviews for projects that include work at both sites improved significantly in 2006. NEPA reviews for joint projects are completed in a timely manner without project delay.
- During 2006, Planning and Ecology and NNSA/SSO prepared and submitted a request to the USFWS to backfill the recharge basin located on the west side of the Sandia site. A site visit and meeting with USFWS is scheduled for December 13, 2006.

10 Trends

Issuance of the SWEA in 2003 (see Section 1.1) provided the site with a broad envelope for operations over a ten-year period. With the SWEA, Planning and Ecology has the ability to review more than 95 percent of site projects internally, without the need for an NNSA/SSO NEPA determination. Internal reviews are completed quickly (usually within a few hours). Customers experience fewer project delays as a result of the NEPA process, and potential ES&H issues are surfaced early for further evaluation through the IDT process. These trends are likely to continue as long as the SWEA impact analyses remain valid.

Interactions between the Wildlife Biologist and site personnel are generating increased awareness of ecology and wildlife issues. As a result of greater awareness, Facility and Maintenance organizations work closely with the Wildlife Biologist to plan projects and implement processes in a manner that will minimize effects to habitat and wildlife. Increased awareness and cooperation is expected to continue.

In general, DOE sites appear to be moving away from printed copies of annual site environmental reports towards compact disk (CD) or online distribution. Since 2003, SNL/CA has distributed CDs of it's annual environmental report along with printed copies. Planning and

Ecology is currently seeking NNSA/SSO approval to distribute CDs and online links to the majority of report recipients instead of printed copies.

Planning and Ecology is not aware of any upcoming state or federal regulatory changes affecting wildlife or plant species present at SNL/CA.

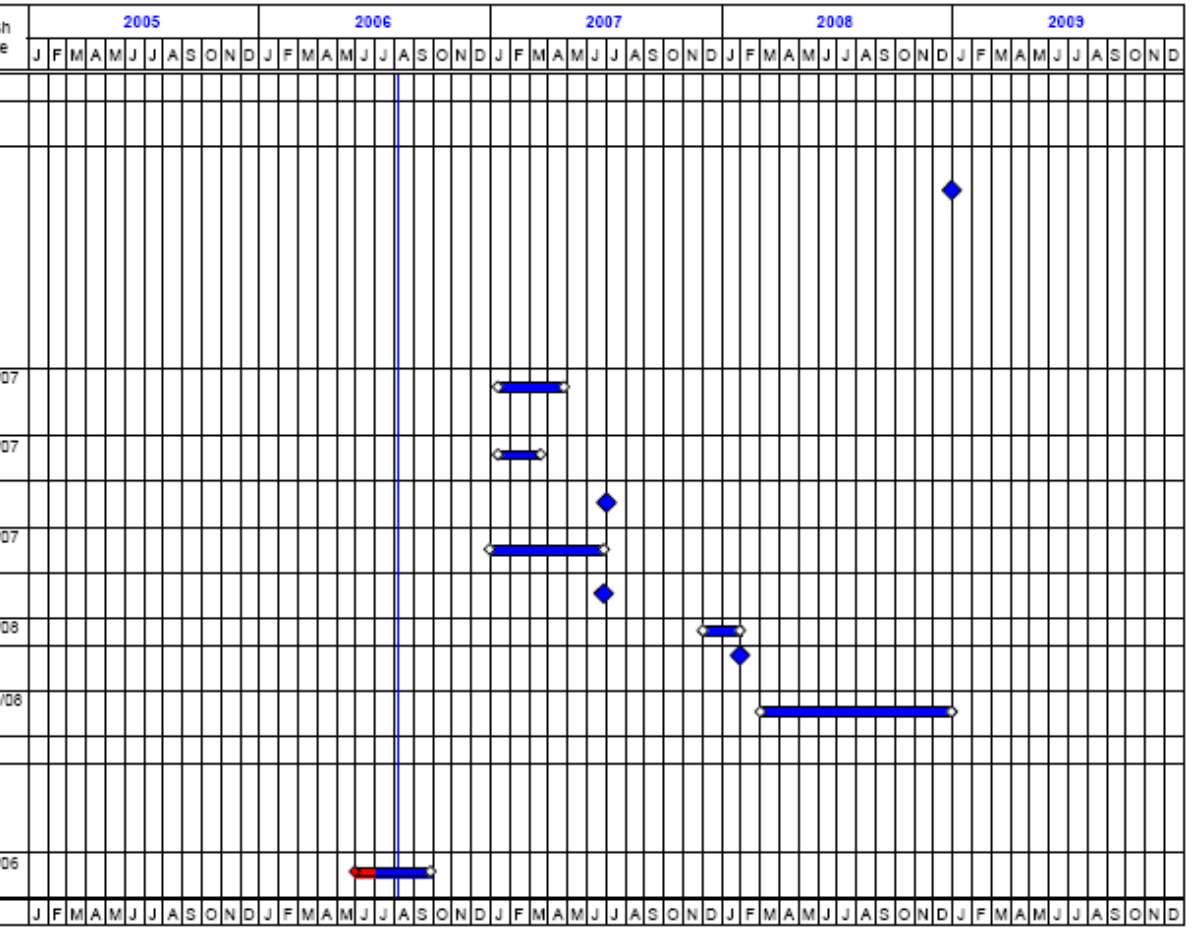
11 Goals and Objectives

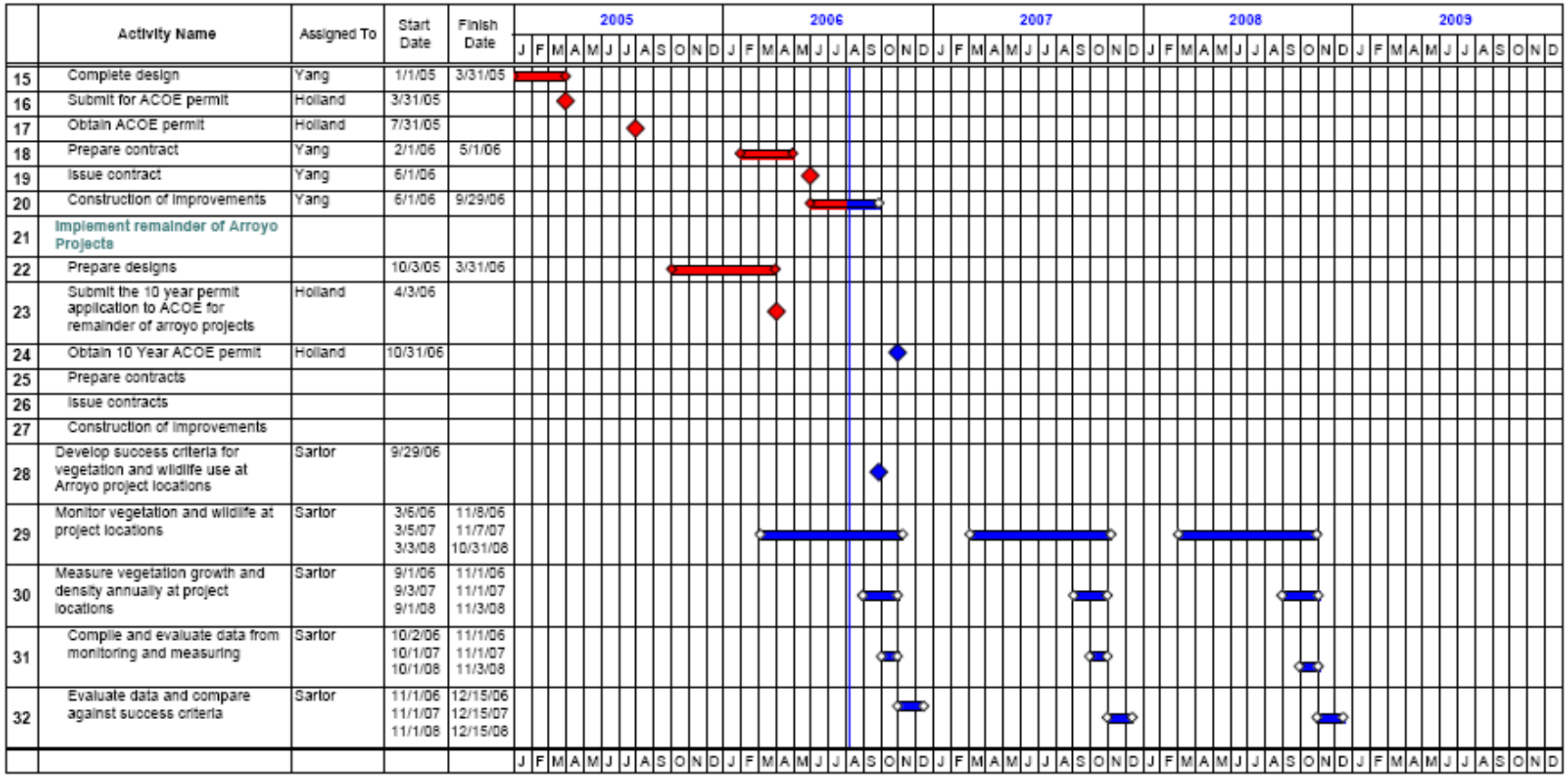
Planning and Ecology goals and objectives are to support exceptional environmental management and enhance the natural environment. To support exceptional environmental management, Planning and Ecology participates in site planning activities to integrate environmental objectives. The program also supports efforts to increase published communications and outreach efforts for EMS, another target for this objective. Planning and Ecology supports this target through communicator articles and email notices, annual wildlife presentations to Maintenance Engineering, and participation in pre-construction meetings.

Targets and action items established for the objective to enhance the natural environment are presented in Figure 8. Actions to meet this objective extend out to 2009. This objective supports the land use environmental aspect, one of the significant aspects under the site's EMS Program.

Figure 8 Targets and Actions Supporting Enhancement of Natural Habitat

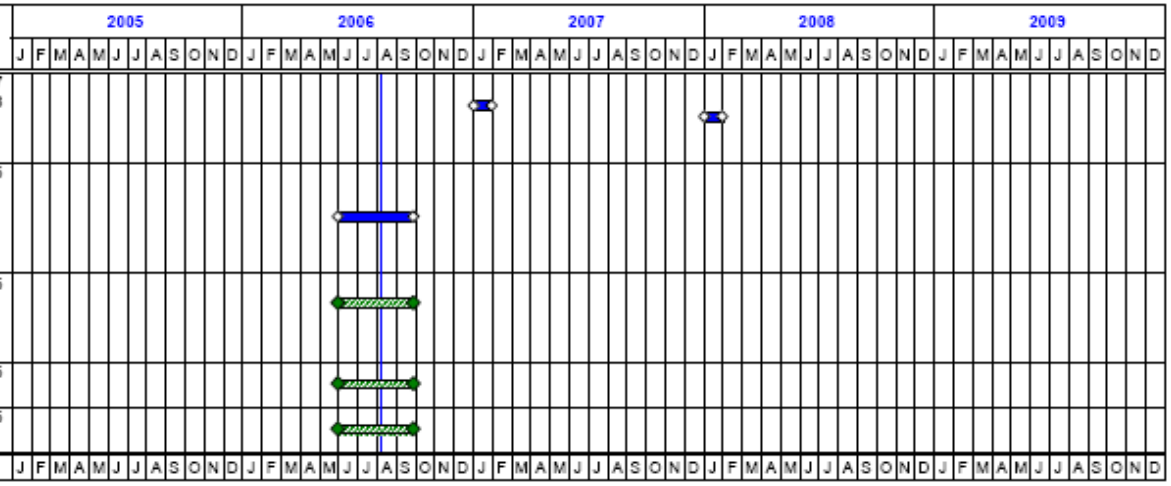
	Activity Name	Assigned To	Start Date	Finish Date
1	Land Use			
2	Objective: Enhance the natural habitat			
3	Target: Update the site Landscape Master Plan to integrate improved environmental design elements including the greater use of native plants, the incorporation of storm water runoff controls, erosion controls and natural shading, etc. (December 31, 2008)	Garcia	12/31/08	
4	Develop environmental design criteria to be incorporated into plan.	Shamber	1/15/07	4/26/07
5	Develop facilities design criteria to be incorporated into plan.	Garcia	1/15/07	3/21/07
6	Obtain preliminary cost estimate to update master plan	Garcia	7/2/07	
7	Seek funding to update master plan	Garcia	1/1/07	6/29/07
8	Prepare request for bid to update master plan	Garcia	6/29/07	
9	Review bids	Garcia	12/3/07	1/31/08
10	Select landscape architect and award contract	Garcia	2/1/08	
11	Work with contractor to develop Landscape Master Plan	Garcia	3/3/08	12/31/08
12				
13	Target: Complete the most critical actions identified in the Arroyo Seco Improvement Program by September 30, 2014			
14	Implement projects at locations 1, 3, 10, 12, and 13	Yang	6/1/06	9/29/06





	Activity Name	Assigned To	Start Date	Finish Date
15	Complete design	Yang	1/1/05	3/31/05
16	Submit for ACOE permit	Holland	3/31/05	
17	Obtain ACOE permit	Holland	7/31/05	
18	Prepare contract	Yang	2/1/06	5/1/06
19	Issue contract	Yang	6/1/06	
20	Construction of Improvements	Yang	6/1/06	9/29/06
21	Implement remainder of Arroyo Projects			
22	Prepare designs		10/3/05	3/31/06
23	Submit the 10 year permit application to ACOE for remainder of arroyo projects	Holland	4/3/06	
24	Obtain 10 Year ACOE permit	Holland	10/31/06	
25	Prepare contracts			
26	Issue contracts			
27	Construction of Improvements			
28	Develop success criteria for vegetation and wildlife use at Arroyo project locations	Sartor	9/29/06	
29	Monitor vegetation and wildlife at project locations	Sartor	3/6/06 3/5/07 3/3/08	11/8/06 11/7/07 10/31/08
30	Measure vegetation growth and density annually at project locations	Sartor	9/1/06 9/3/07 9/1/08	11/1/06 11/1/07 11/3/08
31	Compile and evaluate data from monitoring and measuring	Sartor	10/2/06 10/1/07 10/1/08	11/1/06 11/1/07 11/3/08
32	Evaluate data and compare against success criteria	Sartor	11/1/06 11/1/07 11/1/08	12/15/06 12/15/07 12/15/08

	Activity Name	Assigned To	Start Date	Finish Date
33	If needed to meet success criteria, prepare recommendations for additional actions	Sartor	1/2/07 1/2/08	1/31/07 1/31/08
34	Communicate progress on Arroyo Seco Improvement Program to the workforce by posting updates on the ES&H website	Schermesser	6/1/06	9/29/06
35	Obtain updates on arroyo projects from Project Managers at least once per month	Schermesser	6/1/06	9/29/06
36	Periodically photograph progress	Schermesser	6/1/06	9/29/06
37	Post photos and updates on web monthly	Schermesser	6/1/06	9/29/06



Appendix A

Requirements from Biological and Conference Opinion and Associated Documents

Summary of Wildlife and Habitat Mitigation Measures
Biological and Conference Opinion for Sandia National Laboratories, California
December 8, 2004

General mitigation measures

- This opinion applies to site operations as designated on the Figure 2.
- The 106-acre wildlife reserve is not available for public access or recreational use.
- Only individuals with a valid Scientific Collection Permit can handle (capture and release) California red-legged frogs or California tiger salamanders.
- Provide training to all construction, landscape, and maintenance personnel conducting activities that may affect red-legged frogs or tiger salamanders. Training to include species description, habitat description, and protective measures for the species. The trainer must be approved by the Fish and Wildlife Service (i.e. qualified wildlife biologist).
- Capture and relocation protocols shall be approved by the Fish and Wildlife Service and the California Department of Fish and Game prior to implementation.
- Prior to relocating individual red-legged frogs or tiger salamanders, the Fish and Wildlife Service must approve the relocation site.
- Report to the Fish and Wildlife Service immediately when:
    - any listed species is found onsite
    - accidental take or injury of a red-legged frog or tiger salamander occurs
    - a dead red-legged frog or tiger salamander is found onsite
- SNL/CA shall appoint a representative to serve as a contact for site personnel on all red-legged frog and tiger salamander related issues.
- Report all new sightings of red-legged frogs and tiger salamanders to both the Fish and Wildlife Service and California Natural Diversity Database.
- SNL/CA shall initiate a bullfrog control program, including annual surveys for potential breeding habitat, egg masses, larvae, juveniles, and adults, and removal of all age classes.
- Notify the Fish and Wildlife Service of conservation measures that have been implemented to benefit the red-legged frog and tiger salamander.
- Monitor survival and growth of riparian vegetation planted along Arroyo Seco.
- Prepare a wildlife and habitat management plan.

Construction-related mitigation measures

- Stockpiling of soil can occur in the 95-acre construction zone.
- Annual and pre-activity surveys for California red-legged frogs and California tiger salamanders are required prior to construction activities.
- Planting in and along Arroyo Seco will use only native riparian vegetation. Plants will be a mixture of riparian species commonly found at SNL/CA such as arroyo willow, Gooding's black willow, red willow, Fremont cottonwood, western sycamore, valley oak, mugwort, rush, and native grasses.
- Construction activities within and along Arroyo Seco will be conducted from June 1 through September 30.
- Construction activities will occur during daylight hours.
- New buildings and infrastructure shall be confined to the minimum area necessary to achieve their purpose.
- Where construction areas abut the wildlife reserve, fencing shall be installed to prevent workers from entering the reserve.
- Landscaping in new construction areas shall be designed to minimize water consumption and reduce irrigation runoff to Arroyo Seco.
- Plastic mono-filament erosion control matting shall not be used where red-legged frogs and tiger salamanders may become entangled or trapped, particularly in Arroyo Seco.
- Maintenance-related mitigation measures
- Composting of landscape debris can occur in the 95-acre construction zone.
- Ground squirrel control will not occur in the wildlife reserve.
- Ground squirrel control on the site interior will consist only of trapping and removing.
- Feral cats will be trapped and removed, as needed.
- Maintenance activities within and along Arroyo Seco will be conducted from June 1 through September 30.
- Wetland or riparian vegetation will not be mowed.
- Individual animals will not be sprayed with Round-up or other herbicides.
- Areas within the arroyo channel will not be sprayed with Round-up or other herbicides.
- Ground squirrel burrows will be surveyed for California red-legged frogs and California tiger salamanders prior to backfilling. Surveys will be done by site wildlife biologist using an infrared optical probe.

Appendix B

Personnel Assignments

Job Assignment	Personnel	Back-Up
Program Lead	Barbara Larsen	Leslee Gardizi
Wildlife Biologist	Joanne Mount-Sartor	None
Wildlife Technologist	Rebeccah Schermesser	John Chavarria
Wildlife Biology Intern	Summer Intern to be determined	None
Environmental Management Department Technologist	Sandy Leo	None

Appendix C

Environmental Planning and Ecology Program Risk Assessment – January 2007

The risk assessment process for the Environmental Planning and Ecology Program follows the general steps of

1. Identify the risk
2. Identify the probability of the event occurring
3. Identify the consequence if the event occurs.

The following tables will be used to assign a numeric value to the probabilities and consequence categories.

Likelihood/Probability Of Occurrence Level	Likelihood/Probability Criteria
Very High	• Everything points to this occurring
High	*• High chance • Lack of relevant processes or experience contribute to a high chance of occurrence*
Medium	*• Even chance*
Low	*• Not much of a chance*
Negligible	• Negligible chance this will occur

CONSEQUENCE/ SEVERITY LEVEL	CONSEQUENCE/SEVERITY CRITERIA
High	*damage (e.g., ozone depletion, rad soil contamination) • Serious environmental impact resulting in recovery actions lasting 5 years or more (e.g., TCE in aquifer) • Results in General Emergency (affects both onsite and offsite) • Unsatisfactory rating by external regulators or cease and desist order • Affects lab leadership, including prime contract • Actions, inactions or events that pose the most serious threats to national security interests and/or critical DOE assets, create serious security situations, or could result in deaths in the workforce or general public (i.e., IMI-1) 1 • Actions, inactions or events that pose threats to national security interests and/or critical DOE assets or that potentially create dangerous situations (i.e., IMI-2) † • Unallowable costs or fines >$1M • Adverse public opinion – high interest/widespread open public attention or debate (lasting weeks to months) • Customer dissatisfaction results in permanent loss of lab customer • Catastrophic failure to meet internal requirements* • Loss of major program within the division (>$10M)

Medium	*• Has the potential for adverse impact on Sandia's programmatic performance or the achievement of corporate strategic or operational objectives • Significant injury/illness -fully recoverable with a long recovery time • Significant environmental impact resulting in recovery actions lasting up to 5 years (e.g., major oil spill) • Results in Site/Area Emergency (affects multiple onsite facilities) • One of regulator "hot buttons" (e.g., NNSA, NMED) • Results in increased oversight of limited number of functions • Actions, inactions, or events that pose threats to DOE security interests or that potentially degrade the overall effectiveness of DOE's safeguards and security protection program (i.e., IMI-3) † • Unallowable costs or fines >$500K and <$1M • Adverse public opinion – moderate interest, limited PR problems of short duration (days) • Customer dissatisfaction results in partial loss of program • Significant failure to meet internal requirements* • Loss of program within division (>$1M)
Low	*• Minimal injury/illness – Fully recoverable with a short recovery time • Minimal environmental impact that can be improved within days • Results in increased short-term oversight • Results in an Operational Emergency (affects a single onsite facility) • Actions, inactions, or events that could pose threats to DOE by adversely impacting the ability of organizations to protect DOE safeguards and security interests (i.e., IMI-4) † • Unallowable costs or fines <$500K • Adverse public opinion with short-term local negative publicity or embarrassment*
Negligible	• Little or no attention, might be discussed as lesson learned

The risk level will be graded according to the following matrix. Adapted from DOE O 471.4.

RISK GRADING LEVELS					
		Consequence/Severity			
		Negligible	***Low***	***Medium***	***High***
Likelihood of Occurrence	***Very High***	*Low*	*Medium*	*High*	*High*
	High	*Low*	*Medium*	*High*	*High*
	Medium	*Low*	*Medium*	*Medium*	*High*
	Low	*Low*	*Low*	*Low*	*Medium*
	Negligible	*Low*	*Low*	*Low*	*Low*

Risks Associated with the Environmental Planning and Ecology Program

1. Failure to Receive Approval for Recharge Basin Restoration Project
2. Deviation or Exceedance of Boundaries Established in the Site-Wide Environmental Assessment
3. Taking of a Protected Species
4. Reduction in Program Funding by 10%

1. Failure to Receive Approval for Recharge Basin Restoration Project

a. Identification of Risk

The recharge basin located in the western portion of the SNL/CA outer perimeter area was installed as part of Lawrence Livermore National Laboratory's Environmental Restoration Project. Clean water was discharged to the ponds to help control groundwater flow to a treatment system. Use of the ponds has been discontinued and the area has been returned to SNL/CA for management

SNL/CA proposes to backfill the recharge basin and designate the area for future construction. In 2006, DOE and SNL/CA initiated informal consultation with the US Fish and Wildlife Service. Initial review indicates that mitigation will be required for disturbance of this area interpreted as upland habitat for the threatened California tiger salamander by the US FWS.

The risk associated with this project is a site operations risk. Project may not be feasible if mitigation costs (land setaside or contribution to a mitigation bank) are high. Without mitigation, 32 acres in the west perimeter would not be available for construction to support future site operations and mission.

b. Probability of Occurrence

The probability that mitigation requirements would make this project infeasible are currently high. There are currently no planned construction projects for SNL/CA and thus little push to incur mitigation costs at this time.

c. Consequence of Occurrence

The consequence of an occurrence is rated as medium because the inability to construct on 32 acres in the west perimeter could have a programmatic impact on Sandia's strategic or operational objectives.

d. Overall Risk Category

In accordance with the chart above, for a risk with a probability of High with a Medium consequence, the risk category is **High.**

2. Deviation or Exceedance of Boundaries Established in the Site-Wide Environmental Assessment

a. Identification of Risk

SNL/CA's Site-Wide Environmental Assessment contains several boundaries or upper limits to site operations. These include a maximum biosafety level 2 for activities in Building 968, low-hazard activities (as defined by DOE) in all site facilities, quantities of waste generated for the site as a whole, explosive storage capacity, etc. SNL/CA is required to remain within these boundaries.

b. Probability of Occurrence

Several processes are in place at SNL/CA to prevent such an exceedance. All research and facilities projects are required by site policy to be presented to the Interdisciplinary Team. Such a presentation should make clear to the Environmental Planning and Ecology Program Lead (an IDT member) any chance for a boundary exceedance.

Most project funding processes trigger a NEPA review during the funding process. This is not the case for projects within DOE's Energy and Environment Sector.

The above processes make the probability of exceeding a SWEA boundary Low.

c. Consequence of Occurrence

If a SWEA boundary were exceeded, the consequences would include: 1) the issuance of an Occurrence Report, 2) the possible requirement of a separate Environmental Assessment for the activity in question, and 3) possible program delay while the above were being performed.

The cost of an Occurrence Report is minimal, mainly impact in personnel time. Estimated cost for an EA is $50,000. Program delays could last a few months. For these reasons, the consequence is assigned a category of Low.

d. Overall Risk Category

In accordance with the chart above, for a risk with a probability of Low and a consequence category of Low, the risk category is **Low**.

3. Taking of a Protected Species

a. Identification of Risk

SNL/CA has incidental take permits for the red-legged frog and the California tiger salamander. The risk is the taking of a species for which we do not have an incidental take permit (we have incidental take permits for the California tiger salamander and California red-legged frog). We do not have take permits for any birds covered under the Migratory Bird Treaty Act.

b. Probability of Occurrence

Given the fact that the majority of the birds found on-site are protected by the Migratory Bird Treaty Act, it is considered Very High that at some time a bird or nest will be accidentally taken.

c. Consequence of Occurrence

As discussed above, the fines for the accidental taking of a bird or nest are normally in the $10,000 range. Therefore the consequence is assigned a category of Low.

d. Overall Risk Category

In accordance with the chart above for a risk with a probability of Very High and a consequence of Low, the risk category is **Medium.**

4. Reduction in Program Funding by 10%

a. Identification of Risk

SNL/CA is experiencing pressure to reduce expenses for indirect-funded organizations, including Environmental Management. Because the majority of Environmental Planning and Ecology Program expenditures are for labor, a 10% reduction in funding would impact staffing. A reduction in staffing would result in a reduced level of service to line and facilities organizations.

b. Probability of Occurrence

Increasing constraints on site budgets is expected to continue for the next several years. Consequently the probability that funding for the Environmental Planning and Ecology Program will decrease by 10% from FY 2007 levels is Very High.

c. Consequence of Occurrence

A 10% reduction in program funding would result in decreased staffing, training, and purchases. Only those program activities that are required by regulation, Sandia policy, technical work documents, or DOE/NNSA would be conducted. Discretionary training and travel for program staff would be eliminated. Purchases for replacement equipment and equipment repair would be eliminated. A reduction in wildlife monitoring would occur. Support to Facilities Maintenance organizations with pest and wildlife control on the site interior would be minimized or eliminated. The consultation process for backfilling the recharge basin would stop. Delays in completing NEPA evaluations and pre-activity surveys would occur resulting in delays to site projects.

An occurrence could occur as a result of delayed NEPA evaluations. An increased presence of wildlife in the site interior could occur by reducing monitoring activities and support with wildlife control, increasing the risk of injury to the workforce. For these reasons, the consequence of a 10% reduction in program funding is identified as Low.

d. Overall Risk Category

In accordance with the chart above for a risk with a probability of Very High and a consequence of Low, the risk category is **Medium.**

Appendix D

Line Performance Assessment

Environment, Safety, and Health Assessment Report

Environmental Planning and Ecology Program
Site Implementation of Nesting Bird Pre-Activity Survey Process

October 9, 2006

Submitted by:

Barbara Larsen — 10/09/06

Barbara Larsen, Lead Assessor
Environmental Planning and Ecology Lead

Date

Approved by:

10/10/06

Gary Shamber, Manager
Environmental Management Department

Date

Distribution

Assessed Organizations:

- *John Garcia (8512)*
- *Bob Clevenger (8513)*
- *Craig Taylor (8514)*
- *Ed Cull, Level II Manager 8510*
- *Pat Smith, Director 8500*
- *ES&H Records Center*

Summary of Results

The SNL/CA nesting bird pre-activity survey process is functioning as intended to ensure that nesting birds, eggs, and young are not disturbed, harmed, or harassed during site operations. The results of the survey found that SNL/CA is compliant with the Migratory Bird Treaty Act. Over the last year, the survey process was improved through implementation of spring trimming and through changes in documenting survey results.

Assessment Result Details

1. **Scope**
   a. The 2006 self-assessment of the Environmental Planning and Ecology Program focused on implementation of the site nesting bird pre-activity survey process. Pre-activity surveys are conducted to ensure that nesting birds, eggs, or young are not disturbed, harmed, or harassed during site operations. (Reference – Migratory Bird Treaty Act)
   b. Facilities and Maintenance organizations were included in this assessment.

2. **Methodology**

   Two methods were used for this assessment, a document review and personnel interviews.
   Document Review – Nesting bird survey documentation was reviewed and evaluated for non-compliances with the Migratory Bird Treaty Act.
   Personnel Interviews – Input was requested from individuals overseeing vegetation / tree trimming and removal activities via an email survey. Input was also requested from the site wildlife biologist to assess scheduling issues.

3. **Items in Compliance**

   All operations involving vegetation / tree trimming or removal were compliant with the Migratory Bird Treaty Act in 2006.

4. **Strengths**

a. The Landscape crew implemented a pro-active spring trimming program to ensure completion of routine trimming prior to start of nesting season.

5. **Observations/Recommendations**

Observations resulting from document review –

Documents reviewed for this self-assessment included a pre-activity survey log and tree survey request forms. The tree survey request form was initiated in 2006 by the site wildlife biologist to track requests and document results in the field. Field results are provided to the customer in an email. Results are also transferred to the pre-activity survey log. Tree survey forms provide adequate documentation of survey results and a good description of the location surveyed. This form was found to be an excellent tool for the survey process. Review of the pre-activity survey log found several entries missing the final survey results. When brought to the attention of the wildlife biologist, the log was updated immediately. The results show that no birds, nests, eggs, or young were disturbed from site operations in 2006.

Observations resulting from personnel interviews –

All interviewees noted that the pre-activity survey process for nesting birds was completed in a timely manner, no project delays occurred, and survey results were adequately provided. Interviewees also noted that the requirement for a pre-activity survey had been adequately communicated during the project planning phase. The wildlife biologist noted that occasionally projects were not completed within the two-week timeframe that surveys are valid, requiring repeat of a pre-activity survey.

6. **Findings** – No findings were noted.
   a. **Finding Number:**
      i. **Requirement:**
      ii. **Condition as Noted:**

7. **Participating Personnel**

Doug Vrieling, Anne Yang, Gerald Vincent, Blake MacDonald, Joanne Mount-Sartor

Appendices

1. **Assessment Team**

Barbara Larsen

2. **Schedule**

September 5 – 8, 2006: Developed survey form
September 11 - 29, 2006: Collected input from personnel
October 9- 13, 2006: Follow-up Interviews
October 16 - 31: Reporting

3. Survey Form

The following survey was used for email interviews.

Name:

Assessment Area	Yes	No
Customer Needs		
Was the pre-activity survey scheduled in a timely manner to meet your project schedule?		
Did the survey create project delays?		
Did you receive the survey results in a timely manner?		
Did the survey report / format meet your needs?		
Add comments on customer needs in this space.		
Regulatory Requirements		
Were you aware of the requirement for pre-activity surveys during project planning?		
Was the requirement communicated adequately?		
How did you learn about the requirement for pre-activity surveys? (e.g., IDT or NEPA review, previous experience with the survey process, awareness presentation provided by wildlife biologist, someone outside of the Environmental Planning and Ecology Program)	*Add comment / communication type here*	
From your experience and perception, are site projects routinely delayed to complete pre-activity surveys?		
From your experience and perception, does the survey process adequately protect nesting birds and other wildlife?		
Add comments about regulatory requirements in this space.		
Do you have any suggestions for improving the pre-activity survey process? Please list below.		