

APPENDIX B

ECOLOGICAL EXCLUSION SCREENING

**ECOLOGICAL EXCLUSION CRITERIA WORKSHEET
AND
ECOLOGICAL ASSESSMENT CHECKLIST**

Ecological Screening

Introduction

Region 6 is providing an Ecological Exclusion Criteria Worksheet and Ecological Assessment Checklist to help facilities and regulators determine whether or not further ecological evaluation is necessary at an affected property where corrective action is being pursued. Chapter 2 of the CAS provides additional information on the Ecological Screening process.

Ecological screening under the CAS is a relatively simple process. It involves; 1) collecting general information about the facility, its operation, physical site characteristics, ecological habitats and receptors utilizing the Ecological Exclusion Criteria Worksheet and determining if incomplete or insignificant exposure pathways exist at the affected property that eliminate the need for further ecological evaluation, and 2) if an area cannot be excluded from further evaluation, collecting more detailed information about ecological areas utilizing the Ecological Assessment Checklist to assist in further ecological risk evaluations.

If the affected property meets the exclusion criteria, then the facility should document the site conditions and justification for how the criteria have been met within the risk evaluation report. Upon review and approval of the exclusion by the administrative authority, the facility will not be required to conduct any further evaluation of ecological risk.

If the affected property does not meet the exclusion criteria, then further evaluation is warranted and the facility should address the conduct of additional activities (screening level or detailed risk assessment, interim measures) within the risk management plan. Additional ecological risk screening/assessment should be conducted following EPA's *Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments* dated June 5, 1997 and *Guidelines for Ecological Risk Assessment (EPA/630/R-95/002F)* dated April 1998 or a state approved guidance for ecological risk evaluation. Natural Resources Trustees should also be notified to see if they choose to participate, in order to ensure that natural resources under their jurisdiction are adequately protected.

Additional references and sources of information to aid further ecological assessment follows:

- U.S. EPA. 1999. *Ecological Risk Assessment and Risk Management Principles for Superfund Sites*, Final. OSWER Directive 9285.7-28 P. <http://www.epa.gov/superfund/programs/risk/ecorisk/final99.pdf>
- U.S. EPA. 1999. *ECOTOX Version 2.0*. Office of Research and Development, National; Health and Environmental Effects Lab, Mid-Continent Ecology Division. <http://www.epa.gov/ecotox>
- U.S. EPA. 1998. *Guidelines for Ecological Risk Assessment*, Final. EPA/630/R-95/002F. <http://www.epa.gov/ncea/ecorsk.htm>
- U. S. EPA. 1997. *Ecological Risk Assessment Guidance for Superfund, Process for Designing and Conducting Ecological Risk Assessments*, Interim Final. EPA 540-R-97-006, OSWER Directive # 9285.7-25.

- <http://www.epa.gov/superfund/programs/risk/ecorisk/ecorisk.htm>
- U.S. EPA. 1996. *ECOTOX Thresholds*. ECO Update, Interim Bulletin, Volume 3, Number 2. Washington, D.C. Office of Emergency and Remedial Response, Hazardous Site Evaluation Division; Publication 9345.0-12Fsi EPA/540/F-95/038; NTIS PB95-963324.
 - U.S. EPA. 1996. *Ecological Significance and Selection of Candidate Assessment Endpoints*. ECO Update, Interim Bulletin, Volume 3, Number 1. Washington, D.C. Office of Emergency and Remedial Response, Hazardous Site Evaluation Division; Publication 9345.0-11Fsi; EPA/540/F-95/037; NTIS PB95-963323.
 - U.S. EPA. 1994. *Selecting and Using Reference Information in Superfund Risk Assessments*. ECO Update, Interim Bulletin, Volume 2, Number 4. Washington, D.C. Office of Emergency and Remedial Response, Hazardous Site Evaluation Division; Publication 9345.10; EPA/540/F-94/050; NTIS PB94-963319.
 - U.S. EPA. 1994. *Field Studies for Ecological Risk Assessment*. ECO Update, Interim Bulletin, Volume 2, Number 3. Washington, D.C. Office of Emergency and Remedial Response, Hazardous Site Evaluation Division; Publication 9345.05I; EPA/540/F-94/014; NTIS PB94-963305.
 - U.S. EPA. 1994. *Catalogue of Standard Toxicity Tests for Ecological Risk Assessment*. ECO Update, Interim Bulletin, Volume 2, Number 2. Washington, D.C. Office of Emergency and Remedial Response, Hazardous Site Evaluation Division; Publication 93450-05I; EPA/540/F-94/013; NTIS PB94-963304.
 - U.S. EPA. 1994. *Using Toxicity Tests in Ecological Risk Assessment*. ECO Update, Interim Bulletin, Volume 2, Number 1. Washington, D.C. Office of Emergency and Remedial Response, Hazardous Site Evaluation Division; Publication 9345.05I; EPA/540/F-94/012; NTIS PB94-963303.
 - U.S. EPA. 1992. *Briefing the BTAG: Initial Description of Setting, History and Ecology of a Site*. ECO Update, Interim Bulletin, Volume 1, Number 5. Washington, D.C. Office of Emergency and Remedial Response, Hazardous Site Evaluation Division; Publication 9345.0-05I.
 - U.S. EPA. 1992. *Developing a Work Scope for Ecological Assessments*. ECO Update, Interim Bulletin, Volume 1, Number 4. Washington, D.C. Office of Emergency and Remedial Response, Hazardous Site Evaluation Division; Publication 9345.0-05I.
 - U.S. EPA. 1992. *The Role of the Natural Resource Trustees in the Superfund Process*. ECO Update, Interim Bulletin, Volume 1, Number 3. Washington, D.C. Office of Emergency and Remedial Response, Hazardous Site Evaluation Division; Publication 9345.0-05I.
 - U.S. EPA. 1991. *Ecological Assessment of Superfund Sites: An Overview*. ECO Update, Interim Bulletin, Volume 1, Number 2. Washington, D.C. Office of Emergency and Remedial Response, Hazardous Site Evaluation Division; Publication 9345-0-05I.
 - U.S. EPA. 1991. *The Role of BTAGs in Ecological Assessment*. ECO Update, Interim Bulletin, Volume 1, Number 1. Washington, D.C. Office of Emergency and Remedial Response, Hazardous Site Evaluation Division; Publication 9345-0-05I.

ECOLOGICAL EXCLUSION CRITERIA WORKSHEET

The Exclusion Criteria Worksheet is intended to aid facilities and regulators in determining whether or not further ecological evaluation is necessary at an affected property where a response action is being pursued utilizing the CAS. Exclusion criteria refer to those conditions at an affected property which preclude the need for a formal ecological risk assessment (ERA) because there are incomplete or insignificant ecological exposure pathways due to the nature of the affected property setting and/or the condition of the affected property media. The person completing the worksheet should be familiar with the affected property but need not be a professional scientist in order to respond, although some questions will likely require contacting a wildlife management agency (U.S. Fish and Wildlife Service, etc.). The worksheet is designed for general applicability to all affected property; however, there may be unusual circumstances which require professional judgement in order to determine the need for further ecological evaluation (e.g., cave-dwelling receptors). In these cases, it is strongly encouraged to contact your state regulatory agency for additional guidance before proceeding.

The worksheet consists of three major parts. Part 1, identification of the affected property and background information, Part 2, the actual exclusion criteria and supportive information, and Part 3, a qualitative summary statement and certification of the information submitted. Answers to the worksheet should reflect existing conditions and should not consider future remedial actions at the affected property. Completion of the worksheet should lead to a logical conclusion as to whether further ecological evaluation is warranted. Definitions of terms used in the worksheet are provided and users are encouraged to review these definitions before completing the worksheet.

The Exclusion Worksheet has been adapted from and follows the Texas Natural Resources Conservation Commission (TNRCC) Texas Risk Reduction Program (TRRP) Tier 1 Checklist. TNRCC has developed some additional information regarding the use of their Tier 1 Checklist which should also be consulted in completing the CAS Ecological Exclusion Criteria Worksheet. This information can be found in Chapter 2 of TNRCC's Guidance for Conducting Ecological Risk Assessments at Remediation Sites in Texas, Draft Final, August 2000; http://www.tnrcc.state.tx.us/permitting/remed/techsupp/erag8_00.pdf

Part 1. Affected Property Identification and Background Information

- 1) Provide a description of the specific area of the response action and the nature of the release. Include estimated acreage of the affected property and the facility property, and a description of the type of facility and/or operation associated with the affected property. Also describe the location of the affected property with respect to the facility property boundaries and public roadways.

Attach available USGS topographic maps and/or aerial or other affected property photographs to this form to depict the affected property and surrounding area.

Topo map Aerial photo Other _____

- 2) Identify the environmental media known or suspected to contain chemicals of concern (COCs) at the present time. Check all that apply:

<u>Known/Suspected COC Location</u>	<u>Based on sampling data?</u>	
<input type="checkbox"/> Soil ≤ 5 ft below ground surface	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Soil > 5 ft below ground surface	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Groundwater	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Surface Water/Sediments	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Explain (previously collected information may be referenced):

- 3) Provide the information below for the nearest surface water body which has become or has the potential to become impacted from migrating COCs via surface water runoff, air deposition, groundwater seepage, etc.

Exclude: wastewater treatment facilities and stormwater conveyances/impoundments authorized by permit.

Also exclude: conveyances, decorative ponds, and those portions of the process facilities which are:

- a. Not in contact with surface waters of the State or other surface waters which are ultimately in contact with surface waters of the State; and
- b. Not consistently or routinely utilized as valuable habitat for natural communities including birds, mammals, reptiles, etc.

The nearest surface water body is _____ feet/miles from the affected property.

The surface water body is named _____

The surface water body is best described as a:

<input type="checkbox"/> Freshwater stream:	<input type="checkbox"/> perennial (has water year round)
	<input type="checkbox"/> intermittent (dries up completely for at least one week per year)
	<input type="checkbox"/> intermittent with perennial pools

Freshwater swamp/marsh/wetland

- Saltwater or brackish swamp/marsh/wetland
- Reservoir, lake or pond; approximate surface acres _____
- Drainage ditch
- Tidal stream
- Other (specify) _____

Is the water body listed as a State classified segment?

- Yes Segment # _____ Use classification: _____
- No

If the water body is not a State classified segment, identify the first downstream classified segment.

Name: _____

Segment #: _____

Use classification _____

As necessary, provide further description of surface waters in the vicinity of the affected property:

Part 2. Exclusion Criteria and Supportive Information

Subpart A. Surface Water/Sediment Exposure

- 1) Regarding the affected property where a response action is being pursued, have COCs migrated and resulted in a release or imminent threat of release to either surface waters or to their associated sediments via surface water runoff, air deposition, groundwater seepage, etc.

Exclude: wastewater treatment facilities and stormwater conveyances/impoundments authorized by permit.

Also exclude: conveyances, decorative ponds, and those portions of the process facilities which are:

- a. Not in contact with surface waters of the State or other surface waters which are ultimately in contact with surface waters of the State; and
- b. Not consistently or routinely utilized as valuable habitat for natural communities including birds, mammals, reptiles, etc.

- Yes No

Explain: _____

If the answer is Yes to Subpart A above, the affected property does not meet the exclusion criteria. (However, complete the remainder of Part 2, to determine if there is a complete and/or significant soil exposure pathway, then complete Part 3, Qualitative Summary and Certification).

If the answer is No to Subpart A above, go to Subpart B.

Subpart B. Affected Property Setting

In answering Yes to the following question, it is understood that the affected property is not attractive to wildlife or livestock, including threatened or endangered species (i.e., the affected property does not serve as valuable habitat, foraging area, or refuge for ecological communities). May require consultation with management agencies.

- 1). Is the affected property wholly contained within contiguous land characterized by: pavement, buildings, landscaped area, functioning cap, roadways, equipment storage area, manufacturing or process area, or other surface cover or structure, or otherwise disturbed ground?
 Yes No

Explain: _____

If the answer is Yes to Subpart B above, the affected property meets the exclusion criteria, assuming the answer to Subpart A was No. (Skip Subparts C and D and complete Part 3, Qualitative Summary and Certification).

If the answer is No to Subpart B above, go to Subpart C.

Subpart C. Soil Exposure

- 1) Are COCs which are in the soil if the affected property solely below the first 5 feet beneath ground surface or does the affected property have a physical barrier present to prevent exposure to receptors to COCs in the surface soil?
 Yes No

Explain: _____

If the answer is Yes to Subpart C above, the affected property meets the exclusion criteria, assuming the answer to Subpart A was No. (Skip Subpart D and complete Part 3, Qualitative Summary and Certification).

If the answer is No to Subpart C above, go to Subpart D.

Subpart D. DeMinimus Land Area

In answering Yes to the question below, it is understood that all of the follow conditions apply:

- The affected property is not known to serve as habitat, foraging area, or refuge to threatened/endangered or otherwise protected species. (Will likely require consultation with wildlife management agencies).
 - Similar but unimpacted habitat exists within a half-mile radius.
 - The affected property is not know to be located within one-quarter mile of sensitive environmental areas (e.g., rookeries, wildlife management areas, preserves). (Will likely require consultation with wildlife management agencies).
 - There is no reason to suspect that the COCs associated with the affected property will migrate such that the affected property will become larger than one acre.
- Using human health protective concentration levels as a basis to determine the extent of the COCs, does the affected property consist of one acre or less and does it meet all the conditions described above?

_____ Yes _____ No

Explain how the conditions are/are not met: _____

If the answer is Yes to Subpart D, then no further ecological evaluation is needed at the affected property, assuming the answer to Subpart A was No. (Complete Part 3, Qualitative Summary and Certification).

If the answer is No to Subpart D, Proceed to an Ecological Risk Evaluation.

Part 3. Qualitative Summary and Certification (Complete in all cases)

Attach a brief statement (1 page or less) summarizing the information you have provided in this form. This summary should include sufficient information to verify that the affected property meets or does not meet

the exclusion criteria. The facility should make the initial decision regarding the need to conduct further ecological evaluation based on the results of this worksheet. However, the State will make a final determination on the need for further ecological assessment.

Note : the facility has the continuing obligation to re-enter the ERA process if changing circumstances result in the affected property not meeting the exclusion criteria requirements presented in this worksheet.

Completed by: _____ (Typed Name)
_____ (Title)
_____ (Date)

I believe that the information submitted is true, accurate, and complete, to the best of my knowledge.
_____ (Typed Name of Person)
_____ (Title of Person)
_____ (Signature of Person)
_____ (Date Signed)

Definitions (applicable to Exclusion Worksheet)

Affected property - The entire area (i.e., on-site and off-site; including all environmental media) which contains releases of chemicals of concern at concentrations equal to or greater than the assessment level applicable for the land use (i.e., residential or commercial/industrial) and groundwater classification.

Assessment level - a critical protective concentration level for a chemical of concern used for affected property assessments where the human health protective concentration level is established by State regulation or guidance .

Bedrock - the solid rock (i.e., consolidated, coherent, and relatively hard naturally formed material that cannot normally be excavated by manual methods alone) that underlies gravel, soil, or other surficial material.

Chemicals of concern - any chemical that has the potential to adversely affect ecological or human receptors due to its concentration, distribution, and mode of toxicity.

Community - an assemblage of plant and animal populations occupying the same habitat in which the various species interact via spatial and trophic relationships (e.g., a desert community or a pond community).

Complete exposure pathway - an exposure pathway where a human or ecological receptor is exposed to a chemical of concern via an exposure route (e.g., incidental soil ingestion, inhalation of volatiles and particulates, consumption of prey, etc).

De Minimus - the description of an area of affected property comprised of one acre or less where the ecological risk is considered to be insignificant because the small extent of contamination, the absence of protected species, the availability of similar unimpacted habitat nearby, and the lack of adjacent sensitive environmental areas.

Ecological protective concentration level - the concentration of a chemical of concern at the point of exposure within an exposure medium (e.g., soil, sediment, groundwater, or surface water) which is determined to be protective for ecological receptors. These concentration levels are intended to be protective for more mobile or wide-ranging ecological receptors and, where appropriate benthic invertebrate communities within waters of the State. These concentration levels are not intended to be directly protective of receptors with limited mobility or ranges (e.g., plants, soil invertebrates, and small rodents), particularly those residing within active areas of a facility, unless these receptors are threatened/endangered species or unless impacts to these receptors result in disruption of the ecosystem or other unacceptable consequences for the more mobile or wide-ranging receptors (e.g., impacts to an off-site grassland habitat eliminate rodents which causes a desirable owl population to leave the area).

Ecological risk assessment - a process that evaluates the likelihood that adverse ecological effects may occur or are occurring as a result of exposure to one or more stressors; however, as used in this context, only chemical stressors (i.e., COCs) are evaluated.

Environmental medium - a material found in the natural environment such as soil, (including non-waste fill materials), groundwater, air, surface water, and sediments, or a mixture of such materials with liquids, sludges, gasses or solids, including hazardous waste which is inseparable by simple mechanical removal processes, and is made up of primarily of natural environmental material.

Exclusion criteria - those conditions at an affected property which preclude the need to establish a protective concentration level for an ecological exposure pathway because the exposure pathway between the chemical of concern and the ecological receptors is not complete or is insignificant.

Exposure medium - the environmental medium or biological tissue in which or by which exposure to chemicals of concern by human or ecological receptors occurs.

Facility - the installation associated with the affected property where the release of chemicals of concern have occurred.

Functioning cap - a low permeability layer or other approved cover meeting its design specifications to minimize water infiltration and chemical of concern migration, and prevent ecological or human receptor exposure to chemical of concern, where design requirements are routinely maintained.

Landscaped area - an area of ornamental, or introduced, or commercially installed, or manicured vegetation, which is routinely maintained.

Off-site property - all environmental media which is outside the legal boundaries of the on-site property.

On-site property - all environmental media within the legal boundaries of a property that has become

subject to corrective action, either through voluntary action, permit or order.

Physical barrier - any structure or system, natural or manmade, that prevents exposure or prevents physical migration of chemicals of concern to points of exposure.

Point of exposure - the location within an environmental medium where a receptor will be assumed to have a reasonable potential to come into contact with chemicals of concern. The point of exposure may be a discrete point, plane, or an area within or beyond some location.

Protective concentration level - the concentration of a chemical of concern which can remain within the source medium and not result in levels which exceed the applicable human health risk based exposure limit considering cumulative risk and hazard index for both carcinogenic and non-carcinogenic effects respectively, or ecological protective concentration level at the point of exposure for that exposure pathway.

Release - any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment, with the exception of:

- a release that results in an exposure to a person solely within a workplace, concerning a claim that the person may assert against the persons employer;
- an emission from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel, pipeline pumping station engine;
- a release of source, by product, or special nuclear material a nuclear incident, as those terms identified by the Atomic Energy Act of 1954, as amended (42 USC 2201 et. seq.); if the release area is subject to requirements concerning financial protection established by the Nuclear Regulatory Commission under Section 170 of that Act;
- for the purpose of the environmental response law Section 104, as amended, or other response action, release of source, by-product, or special nuclear material from a processing site designated under Section 102(a)(1) for Section 302(a) of the Uranium Mill Tailings Radiation Control Act of 1978 (42 USC Section 7912 and Section 7942) as amended; and
- the normal application of fertilizer.

Sediment - non-suspended particulate material lying below surface waters such as bays, the ocean, rivers, streams, lakes, ponds, or other similar surface water body (including intermittent streams). Dredged sediments which have been removed from surface water bodies and placed on land shall be considered soils.

Sensitive environmental areas - areas that provide unique and often protected habitat for wildlife species. These areas are typically used during critical life stages such as breeding, hatching, rearing of young, and overwintering. Examples include; critical habitat for threatened and endangered species, wilderness areas, parks and wildlife refuges.

Source medium - an environmental medium containing chemicals of concern which must be removed, decontaminated and/or controlled in order to protect human health and the environment. The source medium may be the exposure medium for some exposure pathways.

Stressor - any physical, chemical, or biological entity that can induce an adverse response; however, as used in this context, only chemical entities apply.

Subsurface soil - for human health exposure pathways, the portion of the soil zone between the base of the surface soil and the top of the groundwater-bearing unit(s). For ecological exposure pathways, the portion of the soil zone between 0.5 feet and 5 feet in depth.

Surface cover - a layer of artificially placed utility material (e.g., shell, gravel).

Surface soil - for human health exposure pathways, the soil zone extending from ground surface to 15 feet in depth for residential land use and from ground surface to 5 feet in depth for commercial/industrial land use; or to the top of the uppermost groundwater-bearing unit or bedrock, whichever is less in depth. For ecological exposure pathways, the soil zone extending from ground surface to 0.5 feet in depth.

Surface water - any water meeting the definition of surface water as defined by the authorized State.

ECOLOGICAL ASSESSMENT CHECKLIST

The evaluation associated with the checklist is intended to be a screening-level survey of the developed and undeveloped/ecological portions of the site. The checklist is patterned after ERAGS Appendix A - Checklist for Ecological Assessment/Sampling, June 1997 and consists of five major sections: 1 - Site Description, 2 - Terrestrial Habitat Checklist, 3 - Aquatic Habitat Checklist (non-flowing systems), 4 - Aquatic Habitat Checklist (flowing systems), and 5 - Wetlands Habitat Checklist. Answers to the checklist should reflect existing conditions and should not consider future remedial actions at the site.

In general, the checklist is designed for applicability to all sites, however, there may be unusual circumstances which require professional judgement in order to determine the need for further ecological evaluation. Sources and general information available for the identification of ecological receptors and habitats may include: the U.S. Fish and Wildlife Service (<http://www.fws.gov>), State Game and Fish Conservation Services, United States Geological Service (USGS), National Wetland Inventory Maps (<http://nwi.fws.gov>) National Audubon Society, National Biological Survey, national and local wildlife clubs, National and State Heritage Programs, State and National Parks System, and tribal organizations.

Section 1. Site Description

1. Site Name: _____
Location: _____

County/Parish: _____ City: _____ State: _____
Type of Facility: _____

2. Latitude: _____ Longitude: _____

3. What is the approximate area of the site? _____

4. Is this the first site visit? Yes ____ No ____ . If no, attach trip report of previous site visit(s), if available. Date(s) of previous site visit(s): _____

5. Please attach to the checklist USGS topographic map(s) of the site, if available.

6. Are aerial or other site photographs available? Yes ____ No ____ . If yes, please attach any available photo(s) to the site map at the conclusion of this section.

7. The land use on the site is:	The area surrounding the site is:
_____ % Urban	_____ mile radius
_____ % Rural	_____ % Urban
_____ % Residential	_____ % Rural
_____ % Industrial __ light __ heavy	_____ % Residential
_____ % Agriculture	_____ % Industrial __ light __ heavy
(Crops: _____)	_____ % Agriculture
_____ % Recreational	(Crops: _____)
(Describe; note if it is a park, etc.)	_____ % Recreational
_____	(Describe; note if it is a park, etc.)
_____	_____
_____ % Undisturbed	_____ % Undisturbed
_____ % Other	_____ % Other

8. Has any movement of soil taken place at the site? Yes ____ No ____ . If yes, please identify the most likely cause of this disturbance:

_____ Agricultural Use	_____ Heavy Equipment	_____ Mining
_____ Natural Events	_____ Erosion	_____ Other

Please describe: _____

9. Do any potentially sensitive environmental areas exist adjacent to or in proximity to the site, e.g., Federal and State parks, National and State Monuments, wetlands, prairie potholes? *Remember, flood plains and wetlands are not always obvious; do not answer "no" without confirming information.*

10. What type of facility is located at the site?
_____ Chemical _____ Manufacturing _____ Mixing _____ Waste Disposal
_____ Other (specify) _____

11. What are the suspected contaminants of concern at the site? If known, what are their maximum concentration levels? _____

12. Check any potential routes of off-site migration of contaminants observed at the site:
____ Swales ____ Depressions ____ Drainage ditches
____ Runoff ____ Windblown particulate ____ Vehicular traffic
____ Other (specify) _____

13. If known, what is the approximate depth to the water table? _____

14. Is the direction of surface runoff apparent from site observations? Yes ____ No ____ . If yes, to which of the following does the surface runoff discharge? Indicate all that apply.
____ Surface water ____ Groundwater ____ Sewer ____ Collection impoundment

15. Is there a navigable waterbody or tributary to a navigable waterbody? Yes ____ No ____ .

16. Is there a waterbody anywhere on or in the vicinity of the site? If yes, also complete Section 3: Aquatic Habitat Checklist - non-flowing systems and /or Section 4: Aquatic Habitat Checklist - flowing systems.
Yes ____ (approximate distance _____) No ____ .

17. Is there evidence of flooding? Yes ____ No ____ . *Wetlands and flood plains are not always obvious; do not answer "no" without confirming information.* If yes, complete Section 5: Wetland Habitat Checklist. _____

18. If a field guide was used to aid any of the identifications, please provide a reference. Also, estimate the time spent identifying the fauna. (Use a blank sheet if additional space is needed for text).

19. Are any threatened and/or endangered species (plant or animal) known to inhabit the area of the site? Yes ____ No ____ . *If yes, you are required to verify this information with the U.S. Fish and Wildlife Service.* If species identities are known, please list them in the text. _____

20. Record weather conditions at the time this checklist was prepared:
Date: _____
____ Temperature (°C /°F) ____ Normal daily high temperature
____ Wind (direction/speed) ____ Precipitation (rain,snow)
____ Cloud cover

Section 1A. Summary of Observations and Site Setting

Completed by _____ Affiliation _____

Additional Preparers _____

Site Manager _____

Date _____

Section 2. Terrestrial Habitat Checklist

Section 2A. Wooded

1. Are there any wooded areas on the site? Yes ____ No _____. If no, go to Section IIB: Shrub/Scrub.

2. What percentage of the area of the site is wooded? (____ % ____ acres). Indicate the wooded area on the site map which is attached to a copy of this checklist. Please identify what information was used to determine the wooded area of the site. _____

3. What is the dominant type of vegetation in the wooded area?
(Circle one: Evergreen/Deciduous/Mixed) Provide a photograph if available.
Dominant plant, if known: _____

4. What is the predominant size of the trees at the site? Use diameter at breast height.
____ 0-6 inches ____ 6-12 inches ____ > 12 inches

5. Specify type of understory present, if known. Provide a photograph, if available. _____

Section 2B. Shrub/scrub

1. Is shrub/scrub vegetation present at the site? Yes ____ No _____. If no, go to Section IIC: Open Field.

2. What percentage of the site is covered by shrub/scrub vegetation? (____ % ____ acres). Indicate the acres of shrub/scrub on the site map. Please identify what information was used to determine this area.

3. What is the dominant type of shrub/scrub vegetation, if known? Provide a photograph if available.

4. What is the approximate average height of the shrub/scrub vegetation?
_____ 0-2 feet _____ 2-5 feet _____ > 5 feet
5. Based on site observations, how dense is the shrub/scrub vegetation?
_____ Dense _____ patchy _____ Sparse

Section 2C. Open Field

1. Are there open (bare, barren) field areas present at the site? Yes _____ No _____. If yes, please indicate the type below:
_____ Prairie/plains _____ Savannah _____ Old field _____ Other (specify) _____

2. What percentage of the site is open field? (_____ % _____ acres). Indicate the open field areas on the site map.
3. What is/are the dominant plant plants? Provide a photograph if available. _____

4. What is the approximate average height of the dominant plant? _____
5. Describe the vegetation cover: _____ Dense _____ Sparse _____ Patchy

Section 2D. Miscellaneous

1. Are other types of terrestrial habitats present at the site, other than woods, shrub/scrub, and open field? Yes _____ No _____. If yes, identify and describe below. _____

2. Describe the terrestrial miscellaneous habitat(s) and identify these areas on the site map.
3. What observations, if any, were made at the site regarding the presence and/or absence of insects, fish, birds, mammals, etc? _____

4. Review the questions in Section I to determine if any additional habitat checklists should be completed for this site. _____

Section 3. Aquatic Habitat Checklist – Non-flowing Systems

Note: Aquatic systems are often associated with wetland habitats. Please refer to Section 5, Wetland Habitat Checklist.

1. What type of open-water, non-flowing system is present at the site?

- Natural (pond or lake)
- Artificially created (lagoon, reservoir, canal, impoundment)

2. If known, what is the name(s) of the waterbody(ies) on or adjacent to the site?

3. If a waterbody is present, what are its known uses (e.g., recreation, navigation, etc.)?

4. What is the approximate size of the waterbody(ies)? _____ acre(s).

5. Is any aquatic vegetation present? Yes No . If yes, please identify the type of vegetation present, if known.

- Emergent
- Submergent
- Floating

6. If known, what is the depth of the water? _____

7. What is the general composition of the substrate? Check all that apply.

- Bedrock
- Sand
- Muck (fine/black)
- Boulder (>10 in.)
- Silt (fine)
- Debris
- Cobble (2.5-10 in.)
- Marl (shells)
- Detritus
- Gravel (0.1-2.5 in.)
- Clay (slick)
- Concrete
- Other (specify) _____

8. What is the source of water in the waterbody?

- River/Stream/Creek
- Groundwater
- Other (specify) _____
- Industrial discharge
- Surface runoff

9. Is there a discharge from the site to the waterbody? Yes No . If yes, please describe this discharge and its path. _____

10. Is there a discharge from the waterbody? Yes No . If yes, and the information is available, identify from the list below the environment into which the waterbody discharges.

- River/Stream/Creek
- onsite
- offsite
- Distance _____
- Groundwater
- onsite
- offsite
- Wetland
- onsite
- offsite
- Distance _____
- Impoundment
- onsite
- offsite

11. Identify any field measurements and observations of water quality that were made. For those parameters for which data were collected provide the measurement and the units of measure below:

- _____ Area
- _____ Depth (average)
- _____ pH
- _____ Dissolved oxygen
- _____ Salinity
- _____ Turbidity (clear, slightly turbid, turbid, opaque) (Secchi disk depth _____)
- _____ Other (specify)

12. Describe observed color and area of coloration. _____

13. Mark the open-water, non-flowing system on the site map attached to this checklist.

14. What observations, if any were made at the waterbody regarding the presence and/or absence of benthic macroinvertebrates, fish, birds mammals, etc.? _____

Section 4. Aquatic Habitat Checklist – Flowing Systems

Note: Aquatic systems are often associated with wetland habitats. Please refer to Section 5, wetland Habitat Checklist.

1. What type(s) of flowing water system(s) is (are) present at the site?

- | | | |
|---|-----------------------------|------------------|
| _____ River | _____ Stream | _____ Creek |
| _____ Dry wash | _____ Arroyo | _____ Brook |
| _____ Artificially created
(ditch, etc.) | _____ Intermittent stream | _____ Channeling |
| | _____ Other (specify) _____ | |

2. If known, what is the name of the waterbody? _____

3. For natural systems, are there any indicators of physical alteration (e.g., channeling, debris, etc.)? Yes _____ No _____. If yes, please describe indicators that were observed. _____

4. What is the general composition of the substrate? Check all that apply.

- | | | |
|-----------------------------|---------------------|-------------------------|
| _____ Bedrock | _____ Sand | _____ Muck (fine/black) |
| _____ Boulder (>10 in.) | _____ Silt (fine) | _____ Debris |
| _____ Cobble (2.5-10 in.) | _____ Marl (shells) | _____ Detritus |
| _____ Gravel (0.1-2.5 in.) | _____ Clay (slick) | _____ Concrete |
| _____ Other (specify) _____ | | |

5. What is the condition of the bank (e.g., height, slope, extent of vegetative cover)? _____

6. Is the system influenced by tides? Yes ____ No _____. What information was used to make this determination? _____

7. Is the flow intermittent? Yes ____ No _____. If yes, please note the information that was used in making this determination. _____

8. Is there a discharge from the site to the waterbody? Yes ____ No _____. If yes, please describe the discharge and its path. _____

9. Is there a discharge from the waterbody? Yes ____ No _____. If yes, and the information is available, please identify what the waterbody discharges to and whether the discharge is onsite or off site.

10. Identify any field measurements and observations of water quality that were made. For those parameters for which data were collected, provide the measurement and the units of measure in the appropriate space below:

- _____ Width (feet)
- _____ Depth (feet)
- _____ Velocity (specify units)
- _____ Temperature (depth of the water at which the temperature was taken)
- _____ pH
- _____ Dissolved oxygen
- _____ Salinity
- _____ Turbidity (clear, slightly turbid, turbid, opaque)
(Secchi disk depth _____)
- _____ Other (specify) _____

11. Describe observed color and area of coloration. _____

12. Is any aquatic vegetation present? Yes ____ No _____. If yes, please identify the type of vegetation present, if known.

_____ Emergent _____ Submergent _____ Floating

13. Mark the flowing water system on the attached site map.

14. What observations were made at the waterbody regarding the presence and/or absence of benthic macroinvertebrates, fish, birds, mammals, etc.? _____

Section 5. Wetland Habitat Checklist

1. Based on observations and/or available information, are designated or know wetlands definitely present at the site? Yes ____ No ____.

Please note the sources of observations and information used (e.g., USGS Topographic maps, National Wetland Inventory, Federal or State Agency, etc.) to make this determination.

2. Based on the location of the site (e.g., along a waterbody, in a floodplain) and site conditions (e.g., standing water; dark, wet soils; mud cracks; debris line; water marks), are wetland habitats suspected? Yes ____ No ____.

If yes, proceed with the remainder of the wetland habitat identification checklist.

3. What type(s) of vegetation are present in the wetland?

____ Submergiment ____ Emergent
____ Shrub/scrub ____ Wooded
____ Other (specify) _____

4. Provide a general description of the vegetation present in and around the wetland (height, color, etc.). Provide a photograph of the known or suspected wetlands, if available. _____

5. Is standing water present. Yes ____ No ____.

If yes, is this water: Fresh ____ Brackish ____

What is the approximate area of the water (sq. ft.)? _____

Please complete questions 4, 11, 12 in Checklist 3 - Aquatic Habitat -- Non-Flowing Systems.

6. Is there evidence of flooding at the site? What observations were noted?

____ Buttressing ____ Water marks ____ Mud cracks
____ Debris line ____ Other (describe below)

7. If known, what is the source of water in the wetland?

____ Stream/River/Creek/Lake/Pond ____ Groundwater
____ Flooding ____ Surface runoff

8. Is there a discharge from the site to a known or suspected wetland? Yes ____ No _____. If yes, please describe. _____

9. Is there a discharge from the wetland? Yes ____ No _____. If yes, to what waterbody is the discharge released?

_____ Surface stream/River _____ Groundwater _____ Lake/pond _____ Marine

10. If a soil sample was collected, describe the appearance of the soil in the wetland area. Circle or write in the best response.

Color (blue/gray, brown, black, mottled) _____

Water content (dry, wet, saturated/unsaturated) _____

11. Mark the observed wetland area(s) on the attached site map.