

ATTACHMENT A

**SCREENING-LEVEL ECOLOGICAL RISK
ASSESSMENT
SCOPING ASSESSMENT
SITE ASSESSMENT CHECKLIST**



9821

INTRODUCTION

This checklist has been developed as a tool for gathering information about the facility property and surrounding areas, as part of the scoping assessment. Specifically, the checklist assists in the compilation of information on the physical and biological aspects of the site including the site environmental setting, usage of the site, releases at the site, contaminant fate and transport mechanisms, and the area's habitats, receptors, and exposure pathways. The completed checklist can then be used to construct the preliminary conceptual site exposure model (PCSEM) for the site. In addition, the checklist and PCSEM will serve as the basis for the scoping assessment report. Section III of this document provides further information on using the completed checklist to develop the PCSEM.

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 (*e.g.*, cave-dwelling receptors). In addition, some of the questions in the checklist may not be relevant to all sites. Some facilities may have large amounts of data available regarding contaminant concentrations and hydrogeologic conditions at the site, while other may have only limited data. In either case, the questions on the checklist should be addressed as completely as possible with the information available.

Habitats and receptors which may be present at the site can be identified by direct or indirect¹ observations and by contacting local and regional natural resource agencies. Habitat types may be determined by reviewing land use and land cover maps (LULC) which are available via the Internet at <http://www.nationalatlas.gov/mapit.html>. With regard to receptors, it should be noted that receptors are often present at a site even when they are not observed. Therefore, for the purposes of this checklist, it should be assumed that receptors are present if viable habitat is present. The presence of receptors should be confirmed by contacting one or several of the organizations listed below.

Sources of general information available for the identification of ecological receptors and habitats include:

- U.S. Fish and Wildlife Service (<http://www.fws.gov>)
- Biota Information System of New Mexico (BISON-M) maintained by the New Mexico Department of Game and Fish (NMGF) (<http://151.199.74.229/states/nm.htm>)
- U.S. Forest Service (USFS) (<http://www.fs.fed.us/>)
- New Mexico Forestry Division (NMFD) of the Energy, Minerals and Natural Resources Department (<http://www.emnrd.state.nm.us/forestry/index.htm>)
- U.S. Bureau of Land Management (USBLM) (<http://www.blm.gov/nhp/index.htm>) or (http://www.nm.blm.gov/www/new_home_2.html)

¹ Examples of indirect observations that indicate the presence of receptors include: tracks, feathers, burrows, scat

- United States Geological Service (USGS) (<http://www.usgs.gov>)
- National Wetland Inventory Maps (<http://wetlands.fws.gov>)
- National Audubon Society (<http://www.audobon.com>)
- National Biological Information Infrastructure (<http://biology.usgs.gov>)
- Sierra Club (<http://www.sierraclub.org>)
- National Geographic Society (<http://www.nationalgeographic.com>)
- New Mexico Natural Heritage Program (<http://nrmnhp.unm.edu/>)
- State and National Parks System
- Local universities
- Tribal organizations

INSTRUCTIONS FOR COMPLETING THE CHECKLIST

The checklist consists of four sections: Site Location, Site Characterization, Habitat Evaluation, and Exposure Pathway Evaluation. Answers to the checklist should reflect existing conditions and should not consider future remedial actions at the site. Completion of the checklist should provide sufficient information for the preparation of a PCSEM and scoping report and allow for the identification of any data gaps.

Section I - Site Location, provides general site information which identifies the facility being evaluated and gives specific location information. Site maps and diagrams, which should be attached to the completed checklist, are an important part of this section. The following elements should be clearly illustrated: 1) the location and boundaries of the site relative to the surrounding area, 2) any buildings, structures or important features of the facility or site, and 3) all ecological areas or habitats identified during completion of the checklist. It is possible that several maps will be needed to clearly and adequately illustrate the required elements. Although topographical information should be illustrated on at least one map, it is not required for every map. Simplified diagrams (preferably to scale) of the site and surrounding areas will usually suffice.

Section II - Site Characterization, is intended to provide additional temporal and contextual information about the site, which may have an impact on determining whether a certain area should be characterized as ecologically viable habitat or contains receptors. Answers to the questions in Section II will help the reviewer develop a broader and more complete evaluation of the ecological aspects of a site.

Section III - Habitat Evaluation, provides information regarding the physical and biological characteristics of the different habitat types present at or in the locality of the site. Aquatic features such as lakes, ponds, streams, arroyos and ephemeral waters can be identified by reviewing aerial photographs, LULC and topographic maps and during site reconnaissance visits. In New Mexico, there are several well defined terrestrial communities which occur naturally. Typical communities include wetlands, forest (e.g., mixed conifer, ponderosa pine and pinyon juniper), scrub/shrub, grassland, and desert. Specific types of vegetation characterize each of these communities and can be used to identify them. Field

guides are often useful for identifying vegetation types. A number of sites may be in areas that have been disturbed by human activities and may no longer match any of the naturally occurring communities typical of the southwest. Particularly at heavily used areas at facilities, the two most common of these areas are usually described as “weed fields” and “lawn grass”. Vegetation at “weed fields” should be examined to determine whether the weeds consist primarily of species native to the southwest or introduced species such as Kochia. Fields of native weeds and lawn grass are best evaluated using the short grass prairie habitat guides.

The applicable portions of Section III of the checklist should be completed for each individual habitat identified. For example, the questions in Section III.A of the checklist should be answered for each wetland area identified at or in the locality of the site and the individual areas must be identified on a map or maps.

Section IV- Exposure Pathway Evaluation, is used to determine if contaminants at the site have the potential to impact habitat identified in Section III. An exposure pathway is the course a chemical or physical agent takes from a source to an exposed organism. Each exposure pathway includes a source (or release from a source), an environmental transport mechanism, an exposure point, and an exposure route. A complete exposure pathway is one in which each of these components, as well as a receptor to be exposed, is present. Essentially, this section addresses the fate and transport of contaminants that are known or suspected to have been released at the site. In most cases, without a complete exposure pathway between contaminants and receptors, additional ecological evaluation is not warranted.

Potential transport pathways addressed in this checklist include migration of contaminants via air dispersion, leaching into groundwater, soil erosion/runoff, groundwater discharge to surface water, and irradiation. Due to New Mexico’s semi-arid climate, vegetation is generally sparse. The sparse vegetation, combined with the intense nature of summer storms in New Mexico, results in soil erosion that occurs sporadically over a very brief time frame. Soil erosion may be of particular concern for sites located in steeply sloped areas. Several questions within Section IV of this checklist have been developed to aid in the identification of those sites where soil erosion/runoff would be an important transport mechanism.

USING THE CHECKLIST TO DEVELOP THE PRELIMINARY CONCEPTUAL SITE EXPOSURE MODEL

The completed Site Assessment Checklist can be used to construct the PCSEM. An example PCSEM diagram is presented in Figure 1. The CSM illustrates actual and potential contaminant migration and exposure pathways to associated receptors. The components of a complete exposure pathway are simplified and grouped into three main categories: sources, release mechanisms, and potential receptors. As a contaminant migrates and/or is transformed in the environment, sources and release mechanisms may expand into primary, secondary, and tertiary levels. For example, Figure 1 illustrates releases from inactive lagoons (primary sources) through spills (primary release mechanism), which migrate to surface and subsurface soils (secondary sources), which are then leached (secondary release

mechanism) to groundwater (tertiary source). Similarly, exposures of various trophic levels to the contaminant(s) and consequent exposures via the food chain may lead to multiple groups of receptors. For example, Figure 1 illustrates groups of both aquatic and terrestrial receptors which may be exposed and subsequently serve as tertiary release mechanisms to receptors which prey on them.

Although completing the checklist will not provide the user with a readymade PCSEM, a majority of the components of the PCSEM can be found in the answers to the checklist. It is then up to the user to put the pieces together into a comprehensive whole. The answers from Section II of the checklist, Site Characterization, can be used to identify sources of releases. The answers to Section IV, Exposure Pathway Evaluation, will assist users in tracing the migration pathways of releases in the environment, thus helping to identify release mechanisms and sources. The results of Section III, Habitat Evaluation, can be used to both identify secondary and tertiary sources and to identify the types of receptors which may be exposed. Appendix B of the NMED's *Guidance for Assessing Ecological Risks Posed by Chemicals: Screening-Level Ecological Assessment* also contains sample food webs which may be used to develop the PCSEM.

Once all of the components have been identified, one can begin tracing the steps between the primary releases and the potential receptors. For each potential receptor, the user should consider all possible exposure points (e.g., prey items, direct contact with contaminated soil or water, etc.) then begin eliminating pathways which are not expected to result in exposure to the contaminant at the site. Gradually, the links between the releases and receptors can be filled in, resulting in potential complete exposure pathways.

For further guidance on constructing a PCSEM, consult the NMED's *Guidance for Assessing Ecological Risks Posed by Chemicals: Screening-Level Ecological Assessment* (2000), and EPA's Office of Solid Waste and Emergency Response's *Soil Screening Guidance: User's Guide* (1996).

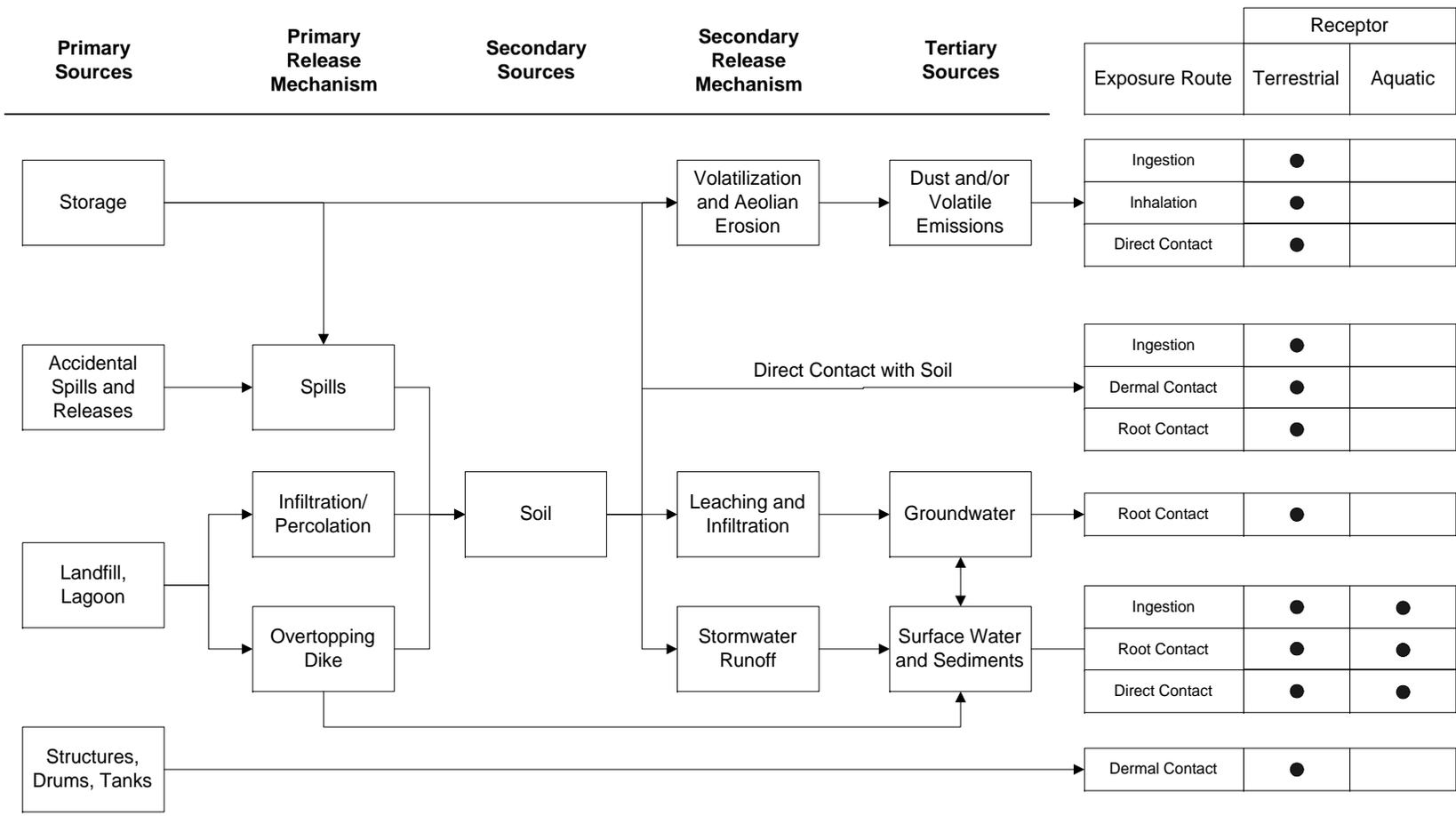


Figure 1. Example Preliminary Conceptual Site Exposure Model Diagram

**NEW MEXICO ENVIRONMENT DEPARTMENT
SITE ASSESSMENT CHECKLIST**

I. SITE LOCATION

1. Site
Name: _____
US EPA I.D.
Number: _____
Location: _____
County: _____
City: _____ State: _____
2. Latitude: _____ Longitude: _____
3. Attach site maps, including a topographical map, a diagram which illustrates the layout of the facility (e.g., site boundaries, structures, etc.), and maps showing all habitat areas identified in Section III of the checklist. Also, include maps which illustrate known release areas, sampling locations, and any other important features, if available.

II. SITE CHARACTERIZATION

1. Indicate the approximate area of the site (i.e., acres or sq. ft)

2. Provide an approximate breakdown of the land uses on the site:

_____ % Heavy Industrial	_____ % Light Industrial	_____ % Urban
_____ % Residential	_____ % Rural	_____ % Agricultural ^b
_____ % Recreational ^a	_____ % Undisturbed	_____ % Other ^c

^aFor recreational areas, please describe the usage of the area (e.g., park, playing field, etc.):

^bFor agricultural areas, please list the crops and/or livestock which are present:

^cFor areas designated as “other”, please describe the usage of the area:

3. Provide an approximate breakdown of the land uses in the area surrounding the site. Indicate the radius (in miles) of the area described: _____

_____ % Heavy Industrial _____ % Light Industrial _____ % Urban
_____ % Residential _____ % Rural _____ % Agricultural^b
_____ % Recreational^a _____ % Undisturbed _____ % Other^c

^aFor recreational areas, please describe the usage of the area (e.g., park, playing field, golf course, etc.):

^bFor agricultural areas, please list the crops and/or livestock which are present:

^cFor areas designated as “other”, please describe the usage of the area:

4. Describe reasonable and likely future land and/or water use(s) at the site.

5. Describe the historical uses of the site. Include information on chemical releases that may have occurred as a result of previous land uses. For each chemical release, provide information on the form of the chemical released (i.e., solid, liquid, vapor) and the known or suspected causes or mechanism of the release (i.e., spills, leaks, material disposal, dumping, explosion, etc.).

6. If any movement of soil has taken place at the site, describe the degree of the disturbance. Indicate the likely source of any disturbances (e.g., erosion, agricultural, mining, industrial activities, removals, etc.) and estimate when these events occurred.

7. Describe the current uses of the site. Include information on recent (previous 5 years) disturbances or chemical releases that have occurred. For each chemical

release, provide information on the form of the chemical released and the causes or mechanism of the release.

8. Identify the location or suspected location of chemical releases at the site. Provide an estimate of the distance between these locations and the areas identified in Section III.

9. Identify the suspected contaminants of concern (COCs) at the site. If known, include the maximum contaminant levels. Please indicate the source of data cited (e.g., RFI, confirmatory sampling, etc.).

10. Identify the media (e.g., soil (surface or subsurface), surface water, air, groundwater) which are known or suspected to contain COCs. _____

11. Indicate the approximate depth to groundwater (in feet below ground surface [(bgs)]).

12. Indicate the direction of groundwater flow (e.g., north, southeast, etc.)

III. HABITAT EVALUATION

III.A Wetland Habitats

Are any wetland² areas such as marshes or swamps on or adjacent to the site?

Yes No

If yes, indicate the wetland area on the attached site map and answer the following questions regarding the wetland area. If more than one wetland area is present on or adjacent to the site, make additional copies of the following questions and fill out for each individual wetland area. Distinguish between wetland areas by using names or other designations (such as location), and clearly identify each area on the site map. Also, obtain and attach a National Wetlands Inventory Map (or maps) to illustrate each wetland area.

Identify the sources of the observations and information (e.g., National Wetland Inventory, Federal or State Agency, USGS topographic maps) used to make the determination that wetland areas are or are not present.

If no wetland areas are present, proceed to Section III.B.

²Wetlands are defined in 40 CFR §232.2 as “ Areas inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” Examples of typical wetlands plants include: cattails, cordgrass, willows and cypress trees. National wetland inventory maps may be available at <http://nwi.fws.gov>. Additional information on wetland delineation criteria is also available from the Army Corps of Engineers.

Wetland Area Questions

Onsite Offsite

Name or Designation: _____

1. Indicate the approximate area of the wetland (acres or ft²) _____

2. Identify the type(s) of vegetation present in the wetland.

- Submergent (i.e., underwater) vegetation
- Emergent (i.e., rooted in the water, but rising above it) vegetation
- Floating vegetation
- Scrub/shrub
- Wooded
- Other (Please describe): _____

3. Estimate the vegetation density of the wetland area.

- Dense (i.e., greater than 75% vegetation)
- Moderate (i.e., 25% to 75% vegetation)
- Sparse (i.e., less than 25% vegetation)

4. Is standing water present? Yes No

If yes, is the water primarily: Fresh or Brackish

Indicate the approximate area of the standing water (ft²): _____

Indicate the approximate depth of the standing water, if known (ft. or in.) _____

5. If known, indicate the source of the water in the wetland.

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

6. Is there a discharge from the facility to the wetland? Yes No

If yes, please

describe: _____

Wetland Area Questions (Continued)

7. Is there a discharge from the wetland? Yes No
If yes, indicate the type of aquatic feature the wetland discharges into:

- Surface stream/River (Name: _____)
- Lake/Pond (Name: _____)
- Groundwater
- Not sure

8. Does the area show evidence of flooding? Yes No
If yes, indicate which of the following are present (mark all that apply):

- Standing water
- Water-saturated soils
- Water marks
- Buttressing
- Debris lines
- Mud cracks
- Other (Please describe): _____

9. Animals observed in the wetland area or suspected to be present based on indirect evidence or file material:

- Birds
- Fish
- Mammals
- Reptiles (e.g., snakes, turtles)
- Amphibians (e.g., frogs, salamanders)
- Sediment-dwelling invertebrates (e.g., mussels, crayfish, insect nymphs)

Specify species, if known:

III.B Aquatic Habitats

III.B.1 Non-Flowing Aquatic Features

Are any non-flowing aquatic features (such as ponds or lakes) located at or adjacent to the site?

Yes No

If yes, indicate the aquatic feature on the attached site map and answer the following questions regarding the non-flowing aquatic features. If more than one non-flowing aquatic feature is present on or adjacent to the site, make additional copies of the following questions and fill out for each individual aquatic feature. Distinguish between aquatic features by using names or other designations, and clearly identify each area on the site map.

If no, proceed to Section III.B.2.

Non-Flowing Aquatic Feature Questions

Onsite Offsite

Name or Designation: _____

1. Indicate the type of aquatic feature present:

- Natural (e.g., pond or lake)
- Man-made (e.g., impoundment, lagoon, canal, etc.)

2. Estimate the approximate size of the water body (in acres or sq. ft.) _____

3. If known, indicate the depth of the water body (in ft. or in.). _____

Non-Flowing Aquatic Feature Questions (Continued)

4. Indicate the general composition of the bottom substrate. Mark all sources that apply from the following list.

- | | | |
|--|--|-----------------------------------|
| <input type="checkbox"/> Bedrock | <input type="checkbox"/> Sand | <input type="checkbox"/> Concrete |
| <input type="checkbox"/> Boulder (>10 in.) | <input type="checkbox"/> Silt | <input type="checkbox"/> Debris |
| <input type="checkbox"/> Cobble (2.5 - 10 in.) | <input type="checkbox"/> Clay | <input type="checkbox"/> Detritus |
| <input type="checkbox"/> Gravel (0.1 - 2.5 in.) | <input type="checkbox"/> Muck (fine/black) | |
| <input type="checkbox"/> Other (please specify): _____ | | |

5. Indicate the source(s) of the water in the aquatic feature. Mark all sources that apply from the following list.

- River/Stream/Creek
- Groundwater
- Industrial Discharge
- Surface Runoff
- Other (please specify): _____

6. Is there a discharge from the facility to the aquatic feature? Yes No
If yes, describe the origin of each discharge and its migration path:

7. Does the aquatic feature discharge to the surrounding environment? Yes No
If yes, indicate the features from the following list into which the aquatic feature discharges, and indicate whether the discharge occurs onsite or offsite:

- | | |
|--|--|
| <input type="checkbox"/> River/Stream/Creek | <input type="checkbox"/> onsite <input type="checkbox"/> offsite |
| <input type="checkbox"/> Groundwater | <input type="checkbox"/> onsite <input type="checkbox"/> offsite |
| <input type="checkbox"/> Wetland | <input type="checkbox"/> onsite <input type="checkbox"/> offsite |
| <input type="checkbox"/> Impoundment | <input type="checkbox"/> onsite <input type="checkbox"/> offsite |
| <input type="checkbox"/> Other (please describe) _____ | |

Non-Flowing Aquatic Feature Questions (Continued)

8. Animals observed in the vicinity of the aquatic feature or suspected to be present based on indirect evidence or file material:

- Birds
- Fish
- Mammals
- Reptiles (e.g., snakes, turtles)
- Amphibians (e.g., frogs, salamanders)
- Sediment-dwelling invertebrates (e.g., mussels, crayfish, insect nymphs)

Specify species, if known:

III.B.2 Flowing Aquatic Features

Are any flowing aquatic features (such as streams or rivers) located at or adjacent to the site?

Yes No

If yes, indicate the aquatic feature on the attached site map and answer the following questions regarding the flowing aquatic features. If more than one flowing aquatic feature is present on or adjacent to the site, make additional copies of the following questions and fill out for each individual aquatic feature. Distinguish between aquatic features by using names or other designations, and clearly identify each area on the site map

If no, proceed to Section III.C.

Flowing Aquatic Feature Questions

Onsite Offsite

Name or Designation: _____

1. Indicate the type of flowing aquatic feature present.

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

2. Indicate the general composition of the bottom substrate.

- | | | |
|--|--|-----------------------------------|
| <input type="checkbox"/> Bedrock | <input type="checkbox"/> Sand | <input type="checkbox"/> Concrete |
| <input type="checkbox"/> Boulder (>10 in.) | <input type="checkbox"/> Silt | <input type="checkbox"/> Debris |
| <input type="checkbox"/> Cobble (2.5 - 10 in.) | <input type="checkbox"/> Clay | <input type="checkbox"/> Detritus |
| <input type="checkbox"/> Gravel (0.1 - 2.5 in.) | <input type="checkbox"/> Muck (fine/black) | |
| <input type="checkbox"/> Other (please specify): _____ | | |

3. Describe the condition of the bank (e.g., height, slope, extent of vegetative cover) of the aquatic feature.

4. Is there a discharge from the facility to the aquatic feature? Yes No

If yes, describe the origin of each discharge and its migration path:

5. Indicate the discharge point of the water body. Specify name, if known.

Flowing Aquatic Feature Questions (Continued)

6. If the flowing aquatic feature is a dry wash or arroyo, answer the following questions.

- Check here if feature is not a dry wash or arroyo

If known, specify the average number of days in a year in which flowing water is present in the feature: _____

Is standing water or mud present? Check all that apply.

- Standing water
- Mud
- Neither standing water or mud

Does the area show evidence of recent flow (e.g., flood debris clinging to vegetation)?

- Yes
- No
- Not sure

7. Animals observed in the vicinity of the aquatic feature or suspected to be present based on indirect evidence or file material:

- Birds
- Fish
- Mammals
- Reptiles (e.g., snakes, turtles)
- Amphibians (e.g., frogs, salamanders)
- Sediment-dwelling invertebrates (e.g., mussels, crayfish, insect nymphs)

Specify species, if known:

III.C Terrestrial Habitats

III.C.1 Wooded

Are any wooded areas on or adjacent to the site? Yes No

If yes, indicate the wooded area on the attached site map and answer the following questions. If more than one wooded area is present on or adjacent to the site, make additional copies of the following questions and fill out for each individual wooded area. Distinguish between wooded areas by using names or other designations, and clearly identify each area on the site map.

If no, proceed to Section III.C.2.

Wooded Area Questions

On-site Off-site

Name or Designation: _____

1. Estimate the approximate size of the wooded area (in acres or sq. ft.) _____
2. Indicate the dominant type of vegetation in the wooded area.
 - Evergreen
 - Deciduous
 - Mixed

Dominant plant species, if known: _____

3. Estimate the vegetation density of the wooded area.
 - Dense (i.e., greater than 75% vegetation)
 - Moderate (i.e., 25% to 75% vegetation)
 - Sparse (i.e., less than 25% vegetation)
4. Indicate the predominant size of the trees at the site. Use diameter at chest height.
 - 0-6 inches
 - 6-12 inches
 - >12 inches
 - No single size range is predominant
5. Animals observed in the wooded area or suspected to be present based on indirect evidence or file material:
 - Birds
 - Mammals
 - Reptiles (e.g., snakes, lizards)
 - Amphibians (e.g., toads, salamanders)

Specify species, if known:

III.C.2 Shrub/Scrub

Are any shrub/scrub areas on or adjacent to the site? Yes No

If yes, indicate the shrub/scrub area on the attached site map and answer the following questions. If more than one shrub/scrub area is present on or adjacent to the site, make additional copies of the following questions and fill out for each individual shrub/scrub area. Distinguish between shrub/scrub areas, using names or other designations, and clearly identify each area on the site map.

If no, proceed to Section III.C.3.

Shrub/Scrub Area Questions

Onsite Offsite

Name or Designation: _____

1. Estimate the approximate size of the shrub/scrub area (in acres or sq. ft.). _____

2. Indicate the dominant type of shrub/scrub vegetation present, if known.

3. Estimate the vegetation density of the shrub/scrub area.

- Dense (i.e., greater than 75% vegetation)
- Moderate (i.e., 25% to 75% vegetation)
- Sparse (i.e., less than 25% vegetation)

4. Indicate the approximate average height of the scrub/shrub vegetation.

- 0-2 feet
- 2-5 feet
- >5 feet

5. Animals observed in the shrub/scrub area or suspected to be present based on indirect evidence or file material:

- Birds
- Mammals
- Reptiles (e.g., snakes, lizards)
- Amphibians (e.g., toads, salamanders)

Specify species, if known:

III.C.3 Grassland

Are any grassland areas on or adjacent to the site? Yes No

If yes, indicate the grassland area on the attached site map and answer the following questions. If more than one grassland area is present on or adjacent to the site, make additional copies of the following questions and fill out for each individual grassland area. Distinguish between grassland areas by using names or other designations, and clearly identify each area on the site map.

If no, proceed to Section III.C.4.

Grassland Area Questions

Onsite Offsite

Name or Designation: _____

1. Estimate the approximate size of the grassland area (in acres or sq. ft.). _____
2. Indicate the dominant plant type, if known.

3. Estimate the vegetation density of the grassland area.
 - Dense (i.e., greater than 75% vegetation)
 - Moderate (i.e., 25% to 75% vegetation)
 - Sparse (i.e., less than 25% vegetation)
4. Indicate the approximate average height of the dominant plant type (in ft. or in.)_
5. Animals observed in the grassland area or suspected to be present based on indirect evidence or file material:
 - Birds
 - Mammals
 - Reptiles (e.g., snakes, lizards)
 - Amphibians (e.g., toads, salamanders)

Specify species, if known:

III.C.4 Desert

Are any desert areas on or adjacent to the site? Yes No

If yes, indicate the desert area on the attached site map and answer the following questions. If more than one desert area is present on or adjacent to the site, make additional copies of the following questions and fill out for each individual desert area. Distinguish between desert areas by using names or other designations, and clearly identify each area on the site map.

If no, proceed to Section III.C.5.

Desert Area Questions

Onsite Offsite

Name or Designation: _____

1. Estimate the approximate size of the desert area (in acres or sq. ft.). _____

2. Describe the desert area (e.g., presence or absence of vegetation, vegetation types, presence/size of rocks, sand, etc.)

3. Animals observed in the desert area or suspected to be present based on indirect evidence or file material:

- Birds
- Mammals
- Reptiles (e.g., snakes, lizards)
- Amphibians (e.g., toads, salamanders)

Specify species, if known:

2. Are any areas on or near (i.e., within 0.5 miles) the site which are owned or used by local tribes? If yes, describe. *Contact the Tribal Liason in the Office of the Secretary (505)827-2855 to obtain this information.*

4. Does the site serve or potentially serve as a habitat, foraging area, or refuge by rare, threatened, endangered, candidate and/or proposed species (plants or animals), or any otherwise protected species? If yes, identify species. *This information should be obtained from the U.S. Fish and Wildlife Service and appropriate State of New Mexico division.*

5. Is the site potentially used as a breeding, roosting or feeding area by migratory bird species? If yes, identify which species.

6. Is the site used by any ecologically⁴, recreationally, or commercially important species? If yes, explain.

4 Ecologically important species include populations of species which provide a critical (i.e., not replaceable) food resource for higher organisms and whose function as such would not be replaced by more tolerant species; or perform a critical ecological function (such as organic matter decomposition) and whose functions will not be replaced by other species. Ecologically important species include pest and opportunistic species that populate an area if they serve as a food source for other species, but do not include domesticated animals (e.g., pets and livestock) or plants/animals whose existence is maintained by continuous human interventions (e.g., fish hatcheries, agricultural crops, etc.)

IV. EXPOSURE PATHWAY EVALUATION

1. Do existing data provide sufficient information on the nature, rate, and extent of contamination at the site?

- Yes
- No
- Uncertain

Please provide an explanation for your answer: _____

2. Do existing data provide sufficient information on the nature, rate, and extent of contamination in offsite affected areas?

- Yes
- No
- Uncertain
- No offsite contamination

Please provide an explanation for your answer: _____

3. Do existing data address potential migration pathways of contaminants at the site?

- Yes
- No
- Uncertain

Please provide an explanation for your answer: _____

4. Do existing data address potential migration pathways of contaminants in offsite affected areas?

- Yes
- No
- Uncertain
- No offsite contamination

Please provide an explanation for your answer: _____

5. Are there visible indications of stressed habitats or receptors on or near (i.e., within 0.5 miles) the site that may be the result of a chemical release? If yes, explain. Attach photographs if available.

6. Is the location of the contamination such that receptors might be reasonably expected to come into contact with it? For soil, this means contamination in the soil 0 to 5 feet below ground surface (bgs). If yes, explain.

7. Are receptors located in or using habitats where chemicals exist in air, soil, sediment or surface water? If yes, explain.

8. Could chemicals reach receptors via groundwater? Can chemicals leach or dissolve to groundwater? Are chemicals mobile in groundwater? Does groundwater discharge into receptor habitats? If yes, explain.

9. Could chemicals reach receptors through runoff or erosion? Answer the following questions:

What is the approximate distance from the contaminated area to the nearest watercourse or arroyo?

- 0 feet (i.e., contamination has reached a watercourse or arroyo)
- 1-10 feet
- 11-20 feet
- 21-50 feet
- 51-100 feet
- 101-200 feet
- > 200 feet
- > 500 feet
- > 1000 feet

What is the slope of the ground in the contaminated area?

- 0-10%
- 10-30%
- > 30%

What is the approximate amount of ground and canopy vegetative cover in the contaminated area?

- < 25%
- 25-75%
- > 75%

Is there visible evidence of erosion (e.g., a rill or gully) in or near the contaminated area?

- Yes
- No
- Do not know

Do any structures, pavement, or natural drainage features direct run-on flow (i.e., surface flows originating upstream or uphill from the area of concern) into the contaminated area?

- Yes
- No
- Do not know

10. Could chemicals reach receptors through the dispersion of contaminants in air (e.g., volatilization, vapors, fugitive dust)? If yes, explain.

11. Could chemicals reach receptors through migration of non-aqueous phase liquids (NAPLs)? Is a NAPL present at the site that might be migrating towards receptors or habitats? Could NAPL discharge contact receptors or their habitat?

12. Could receptors be impacted by external irradiation at the site? Are gamma emitting radionuclides present at the site? Is the radionuclide contamination buried or at the surface?

TABLE 1
EXAMPLES OF SENSITIVE ENVIRONMENTS

National Parks and National Monuments

Designated or Administratively Proposed Federal Wilderness Areas

National Preserves

National or State Wildlife Refuges

National Lakeshore Recreational Areas

Federal land designated for protection of natural ecosystems

State land designated for wildlife or game management

State designated Natural Areas

Federal or state designated Scenic or Wild River

All areas that provide or could potentially provide critical habitat¹ for state and federally listed Threatened or Endangered Species, those species that are currently petitioned for listing, and species designated by other agencies as sensitive or species of concern

All areas that provide or could potentially provide habitat for state protected species as defined in the Wildlife Code, Chapter 17 of the New Mexico Statutes

All areas that provide or could potentially provide habitat for migratory birds as protected by the Migratory Bird Treaty Act (16 U.S.C. §§ 703-712)

All areas that provide or could potentially provide habitat for bald eagles and golden eagles as protected by the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d)

1 Critical habitats are defined by the Endangered Species Act (50 CFR §424.02(d)) as:

- 1) Specific areas within the geographical area currently occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (i) essential to the conservation of the species and (ii) that may require special management considerations or protection, and
- 2) Specific areas outside the geographical area occupied by a species at the time it is listed upon a determination by the Secretary [of Interior] that such areas are essential for the conservation of the species.

All areas that provide or could potentially provide habitat for song birds as protected by the State of New Mexico statute (New Mexico Statute, 1978, Chapter 17, Game and Fish, 17-2-13)

All areas that provide or could potentially provide habitat for hawks, vultures and owls as protected by the State of New Mexico statute (New Mexico Statute, 1978, Chapter 17, Game and Fish, 17-2-14)

All areas that provide or could potentially provide habitat for horned toads and Bullfrogs as protected by the State of New Mexico statute (New Mexico Statute, 1978, Chapter 17, Game and Fish, 17-2-15 and 16, resp.)

All perennial waters (e.g., rivers, lakes, playas, sloughs, ponds, etc)

All ephemeral drainage (e.g., arroyos, puddles/pools, intermittent streams, etc) that provide significant wildlife habitat or that could potentially transport contaminants off site to areas that provide wildlife habitat

All riparian habitats

All perennial and ephemeral wetlands (not limited to jurisdictional wetlands)

All areas that are potentially important breeding, staging, and overwintering habitats as well as other habitats important for the survival of animals during critical periods of their life cycle.

ATTACHMENT B

ECOLOGICAL SITE EXCLUSION CRITERIA CHECKLIST AND DECISION TREE

1. NEW MEXICO ECOLOGICAL EXCLUSION CRITERIA CHECKLIST

The following questions are designed to be used in conjunction with the Ecological Exclusion Criteria Decision Tree (Figure 1). After answering each question, refer to the Decision Tree to determine the appropriate next step. In some cases, questions will be omitted as the user is directed to another section as indicated by the flow diagram in the Decision Tree. For example, if the user answers “yes” to Question 1 of Section I, he or she is directed to proceed to Section II.

I. Habitat

In the following questions, “affected property” refers to all property on which a release has occurred or is believed to have occurred, including off-site areas where contamination may have occurred or migrated.

1. Are any of the below-listed sensitive environments at, adjacent to, or in the locality¹ of the affected property?
 - National Park or National Monument
 - Designated or administratively proposed Federal Wilderness Area
 - National Preserve
 - National or State Wildlife Refuge
 - Federal or State land designated for wildlife or game management
 - State designated Natural Areas
 - All areas that are owned or used by local tribes
 - All areas that are potentially important breeding, staging, and overwintering habitats as well as other habitats important for the survival of animals during critical periods of their life cycle
 - All areas that provide or could potentially provide habitat for state and federally listed Threatened or Endangered Species, those species that are currently petitioned for listing, and species designated by other agencies as sensitive or species of concern
 - All areas that provide or could potentially provide habitat for state protected species as defined in the Wildlife Code, Chapter 17 of the New Mexico Statutes
 - All areas that provide or could potentially provide habitat for migratory birds as protected by the Migratory Bird Treaty Act (16 U.S.C. §§ 703-712)
 - All areas that provide or could potentially provide habitat for bald eagles and golden eagles as protected by the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d)

1 *Locality* of the site refers to any area where an ecological receptor is likely to contact site-related chemicals. The locality of the site considers the likelihood of contamination migrating over time and places the site in the context of its general surrounding. Therefore, the locality is typically larger than the site and the areas adjacent to the site.

- All areas that provide or could potentially provide habitat for song birds as protected by the state of New Mexico statute (New Mexico Statute, 1978, Chapter 17, Game and Fish, 17-2-13)
- All areas that provide or could potentially provide habitat for hawks, vultures and owls as protected by the state of New Mexico statute (New Mexico Statute, 1978, Chapter 17, Game and Fish, 17-2-14)
- All areas that provide or could potentially provide habitat for horned toads and bullfrogs as protected by the state of New Mexico statute (New Mexico Statute, 1978, Chapter 17, Game and Fish, 17-2-15 and 16, respectively)

2. Does the affected property contain land areas which were not listed in Question 1, but could be considered viable ecological habitat? The following are examples (but not a complete listing) of viable ecological habitats:

- Wooded areas
- Shrub/scrub vegetated areas
- Open fields (prairie)
- Other grassy areas
- Desert areas
- Any other areas which support wildlife and/or vegetation, excluding areas which support only opportunistic species (such as house mice, Norway rats, pigeons, etc.) that do not serve as prey to species in adjacent habitats.

The following features are not considered ecologically viable:

- Pavement
- Buildings
- Paved areas of roadways
- Paved/concrete equipment storage pads
- Paved manufacturing or process areas
- Other non-natural surface cover or structure

3. Does the affected property contain any perennial or ephemeral aquatic features which were not listed in Question 1?

II. Receptors

1. Is any part of the affected property used for habitat, foraging area, or refuge by any rare, threatened, or endangered species (plant *or* animal), or otherwise protected species (e.g., raptors, migratory birds)?
2. Is any part of the affected property used for habitat, foraging area, or refuge by any species used as a recreational (e.g., game animals) and/or commercial resource?
3. Is any part of the affected property used for habitat, foraging area, or refuge by any plant or animal species? This includes plants considered “weeds” and opportunistic insect and animal species (such as cockroaches and rats) if they are used as a food source for other species in the area.

III. Exposure Pathways

1. Could receptors be impacted by contaminants via direct contact?

Is a receptor located in or using an area where it could contact contaminated air, soil³, or surface water?

For Questions 2 and 3, note that one must answer “yes” to all three bullets in order to be directed to the “exclusion denied” box of the decision tree. This is because answering “no” to one of the questions in the bullet list indicates that a complete exposure pathway is not present. For example, in Question 2, if the chemical cannot leach or dissolve to groundwater (bullet 1), there is no chance of ecological receptors being exposed to the chemical through contact with contaminated groundwater. Similarly, the responses to the questions in Question 4 determine whether a complete pathway exists for exposure to NAPL.

2. Could receptors contact contaminants via groundwater?
 - Can the chemical leach or dissolve to groundwater⁴?
 - Can groundwater mobilize the chemical?
 - Could (does) contaminated groundwater discharge into known or potential receptor habitats?

³ For soil, this means contamination less than 5 feet below ground surface (bgs).

⁴ Information on the environmental fate of specific chemicals can be found on the Internet at <http://www.epa.gov/opptintr/chemfact/> or at a local library in published copies of the *Hazardous Substances Data Bank*.

3. Could receptors contact contaminants via runoff (i.e., surface water and/or suspended sediment) or erosion by water or wind?
 - Are chemicals present in surface soils?
 - Can the chemical be leached from or eroded with surface soils?
 - Is there a receptor habitat located downgradient of the leached/eroded surface soil?

4. Could receptors contact contaminants via migration of non-aqueous phase liquids (NAPL)?
 - Is NAPL present at the site?
 - Is NAPL migrating toward potential receptors or habitats?
 - Could NAPL discharge impact receptors or habitats?

Figure 1 -Ecological Exclusion Criteria Decision Tree

(Refer to corresponding checklist for the full text of each question)

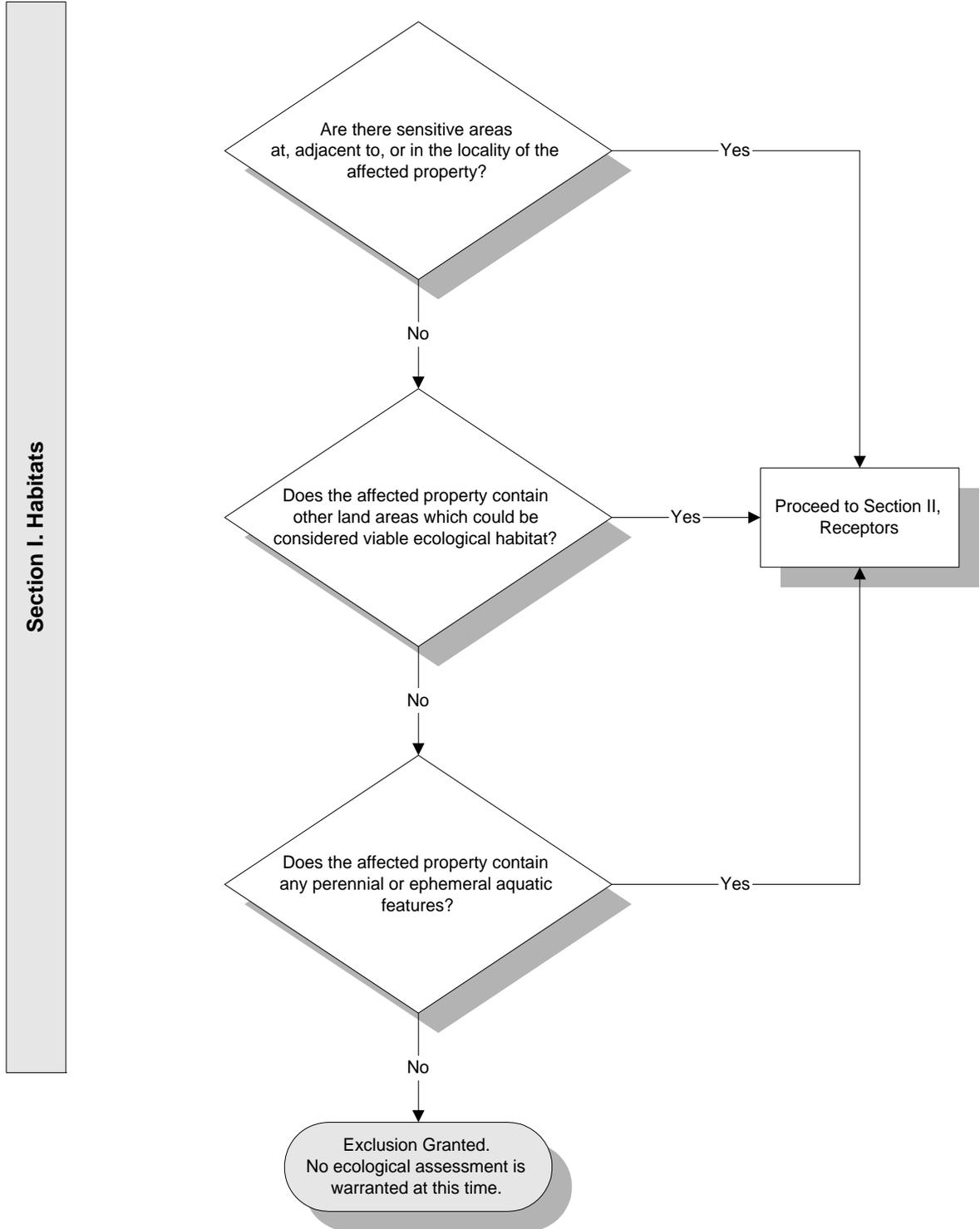


Figure 1 - Exclusion Criteria Decision Tree (continued)

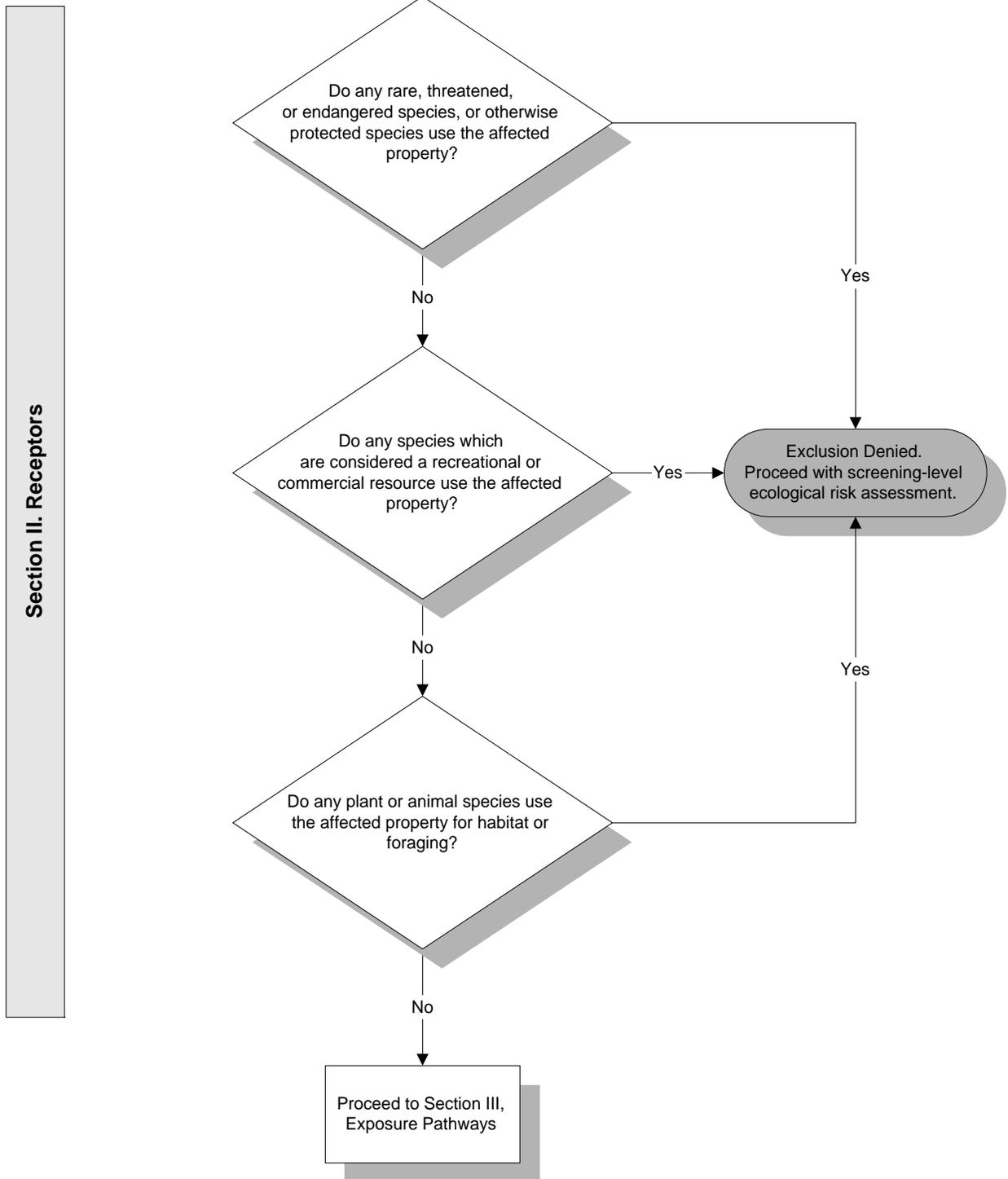


Figure 1 - Exclusion Criteria Decision Tree (continued)

