UNUSUALLY SENSITIVE AREAS FOR ECOLOGICAL RESOURCES: STANDARDS AND BEST PRACTICES FOR DATABASE UPDATES

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List of Acronyms

AIW	Aquatic Isolated Water
AOW	Aquatic Open Water
C.F.R.	Code of Federal Regulations
DMM	Depleted Marine Mammal
DPS	Distinct Population Segments
Eco USA	Ecological Unusually Sensitive Area
ELMR	Estuarine Living Marine Resources
EO	NatureServe Element Occurrence
EORANK	NatureServe Element Occurrence Rank
ESA	Endangered Species Act of 1973
ESI	Environmental Sensitivity Index
ESU	Evolutionarily Significant Units
GBIF	Global Biodiversity Information Facility
GH	NatureServe GRANK – Global Possibly Extinct
GIS	Geographical Information System
GRANK	NatureServe Global Conservation Status Rank
GX	NatureServe GRANK – Global Presumed Extinct
LE	Listed Endangered
LT	Listed Threatened
MMPA	Marine Mammal Protection Act of 1972
MSAA	Multi-Species Assemblage Area
NAD	North American Datum
NHD	National Hydrography Dataset
NHP	National Heritage Program
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NS	NatureServe
PHMSA	Pipeline and Hazardous Material Safety Administration
QA/QC	Quality Assurance/Quality Control
RA	NatureServe Representation Accuracy
RPI	Research Planning, Inc.
SRANK	NatureServe Subnational Conservation Status Rank
SX	NatureServe SRANK - State Presumed Extirpated
TRANK	NatureServe Global Conservation Status Rank for infrataxa
USA	Unusually Sensitive Area
U.S.C.	United States Code
USFWS	U.S. Fish and Wildlife Service
WHSRN	Western Hemisphere Shorebird Reserve Network
XE	Essential experimental population
XN	Non-essential experimental population

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INTRODUCTION

In accordance with pipeline safety laws (49 U.S.C. Section 60109), the Pipeline and Hazardous Materials Safety Administration (PHMSA) is required to identify areas unusually sensitive to environmental damage in the event of a hazardous liquid pipeline accident. Through interactions with various regulatory and resource agencies, pipeline operators, private contractors, non-profit conservation organizations, academia, and the general public, a process was developed and adopted by PHMSA in 2000 to identify unusually sensitive areas (USAs) for ecological resources. The process consists of identifying a set of candidate Ecological USAs (Eco USAs) and subjecting them to the appropriate filter criteria. Using the filter criteria, the final Eco USAs are determined. The initial Eco USA geographic datasets were completed in 2002. PHMSA completed an update to the Eco USA datasets in 2017 and will complete a second update in 2025. This document addresses standards and best practices for Eco USA data development for the recent and future updates, including updated information on the standard contributing data sources.

CANDIDATE ECOLOGICAL RESOURCES

Candidate ecological resources are defined as:

1) Critically imperiled and imperiled species and ecological communities;
2) Threatened and endangered species (federally listed);
3) Depleted marine mammal (DMM) species; and
4) Migratory waterbird concentrations.

FILTERING CRITERIA

The filter criteria used to determine which candidate ecological resources should be considered USAs are listed below:

1) Areas containing critically imperiled species or ecological communities shall be USAs;
2) Areas containing multi-species assemblages are USAs. Multi-species assemblage areas (MSAAs) are areas where three or more different critically imperiled or imperiled species or ecological communities, threatened and endangered species, DMMs, or migratory waterbird concentrations co-occur;
3) Migratory waterbird concentration areas, including Western Hemisphere Shorebird Reserve Network (WHSRN) reserves and Ramsar sites, shall be USAs;
4) Areas containing candidate species and ecological communities that are aquatic or aquatic-dependent, or are terrestrial with a limited range shall be USAs; and

5) Areas containing candidate species (critically imperiled and imperiled species, threatened and endangered species, and DMMs) or ecological communities (critically imperiled and imperiled ecological communities) of excellent quality or good quality (identified using rounded Element Occurrence Ranks [EORANKs] of "A" or "B", respectively) shall be USAs.

DEFINITIONS

In order to more clearly understand the filter criteria and their utility in the identification of Eco USAs, several terms and concepts require further definition. These definitions are provided below (49 C.F.R. 195.6, with minor clarifications).

USA ecological resource means an ecological resource area that is unusually sensitive to environmental damage from a hazardous liquid pipeline release.

Aquatic or Aquatic Dependent Species or Community means a species or community that primarily occurs in aquatic, marine, or wetland habitats, as well as species that may use terrestrial habitats during all or some portion of their life cycle, but that are still closely associated with or dependent upon aquatic, marine, or wetland habitats for some critical component or portion of their life-history (i.e., reproduction, rearing and development, feeding, etc.).

Critically imperiled species or ecological community (habitat) means an animal or plant species or an ecological community of extreme rarity, based on NatureServe's (NS, www.natureserve.org) Global Conservation Status Rank (GRANK, developed in coordination with the NS Network Programs). These species and ecological communities are at very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.

Depleted marine mammal (DMM) species means a species that has been identified and is protected under the Marine Mammal Protection Act of 1972, as amended (MMPA) (16 U.S.C. 1361 *et seq.*). The term "depleted" refers to marine mammal species that are listed as threatened or endangered, or are below their optimum sustainable populations (16 U.S.C. 1362). The term "marine mammal" means "any mammal which is morphologically adapted to the marine environment (including sea otters and members of the orders Sirenia, Pinnipedia, and Cetacea) or primarily inhabits the marine environment (such as the polar bear)" (16 U.S.C. 1362). The order Sirenia includes manatees, the order Pinnipedia includes seals, sea lions, and walruses, and the order Cetacea includes dolphins, porpoises, and whales.

Ecological community means an interacting assemblage of plants and animals that recur under similar environmental conditions across the landscape.

Element occurrence rank (EORANK) means the condition or viability of a species or ecological community occurrence, based on an assessment of estimated viability (species) or ecological integrity (communities), i.e., the probability of persistence. In other words, EORANKs provide an assessment of the likelihood that if current conditions prevail the occurrence will persist for a defined period of time, typically 20-100 years. EORANKs are assigned by the NS Network Programs. An EORANK of A means excellent estimated viability/ecological integrity and an EORANK of B means good estimated viability/ecological integrity.

Imperiled species or ecological community (habitat), based on NS GRANK, are at high risk of extinction or elimination due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.

Migratory waterbird concentration area means a designated Ramsar site or WHSRN site.

Multi-species assemblage area (MSAA) means an area where three or more different critically imperiled or imperiled species or ecological communities, threatened or endangered species, DMMs, or migratory waterbird concentrations co-occur.

Ramsar site means a site that has been designated under The Convention on Wetlands of International Importance Especially as Waterfowl Habitat program. Ramsar sites are globally critical wetland areas that support migratory waterfowl. These include wetland areas that regularly support 20,000 waterfowl; wetland areas that regularly support substantial numbers of individuals from particular groups of waterfowl, indicative of wetland values, productivity, or diversity; and wetland areas that regularly support 1% of the individuals in a population of one species or subspecies of waterfowl. (Currently, Ramsar sites are designated as Wetlands of International Importance if they meet criteria pertaining to the sites containing representative, rare, or unique wetland types or sites that are of international importance for conserving biological diversity, with specific criteria based on species and ecological communities, waterbirds, fish, and other taxa [http://www.ramsar.org/sites/default/files/documents/library/ramsarsites_criteria_eng.pdf]).

Species means species, subspecies, population stocks, or distinct vertebrate populations, including Distinct Population Segments (DPS) and Evolutionarily Significant Units (ESU).

Terrestrial ecological community with a limited range means a non-aquatic and non-aquatic dependent ecological community that covers less than five (5) acres.

Terrestrial species with a limited range means a non-aquatic or non-aquatic dependent animal or plant species that has a range of no more than five (5) acres, typically defined by home range.

Threatened and endangered species means an animal or plant species that has been listed and is protected under the Endangered Species Act of 1973, as amended (ESA) (16 U.S.C. 1531 *et seq*.). "Endangered species" is defined as "any species which is in danger of extinction throughout all or a significant portion of its range" (16 U.S.C. 1532). "Threatened species" is defined as "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range" (16 U.S.C. 1532).

Western Hemisphere Shorebird Reserve Network (WHSRN) site means an area that contains migratory shorebird concentrations and has been designated as a hemispheric reserve, international reserve, regional reserve, or endangered species reserve. Hemispheric reserves host at least 500,000 shorebirds annually or 30% of a species flyway population. International reserves host 100,000 shorebirds annually or 15% of a species flyway population. Regional reserves host 20,000 shorebirds annually or 5% of a species flyway population. Endangered species reserves are critical to the survival of endangered species and no minimum number of birds is required. (Currently, hemispheric reserves host at least 500,000 shorebirds annually or 30% of the biogeographic population for a species, international reserves host at least 100,000 shorebirds annually or at least 10% of the biogeographic population for a species, and regional reserves host at least 20,000 shorebirds annually or at least 1% of the biogeographic population for a species [http://www.whsrn.org/whsrn-sites]).

IDENTIFYING ECO USAS

USAs are identified through a multiple-step process, outlined in the following sections:

1) Data Collection.
2) Data Preparation/Pre-processing.
3) Identification of Eco USA Candidates.
4) Application of the Eco USA Filter Criteria.
5) Generation of Final Eco USA Boundaries.

1. Data Collection

Data used to generate Eco USAs come from datasets that track occurrences of Eco USA candidate species and communities in a standardized manner across the U.S. The data undergoes multiple rounds of quality assurance/quality control (QA/QC) checks as it is compiled and processed. The following data sources comprise the standard input data sources for Eco USA updates:

- NS Element Occurrence (EO) dataset: NS manages a national EO dataset compiled and updated from NS Network Programs (e.g., state, tribal, and regional Natural Heritage Programs [NHPs] and Natural Areas Inventories) on a national scale. This dataset

includes EO records (locations and attributes) and supporting data for threatened, endangered, critically imperiled, and imperiled species and ecological communities (http://www.natureserve.org/conservation-tools/national-species-dataset).

- Environmental Sensitivity Index (ESI) datasets: Biological resource data are used from the ESI datasets, which include data on marine and coastal species sensitive to impacts from an oil spill. ESI datasets are primarily available for coastal U.S. states and territories, as well as for some major rivers and water bodies including the Great Lakes. ESI datasets can be obtained from the National Oceanic and Atmospheric Administration (NOAA) ESI website (https://response.restoration.noaa.gov/esi), as well as from some coastal states, including Texas and Florida (Texas: https://www.glo.texas.gov/land/gis-maps-and-data; Florida: https://myfwc.com/research/gis/terrestrial-resources-gis-map-viewer-trgis/), and from the Bureau of Safety and Environmental Enforcement (BSEE) for offshore areas (https://www.bsee.gov/what-we-do/oil-spill-preparedness/offshore-information-for-coastal-zone-area-contingency-planning).
- For the most recent database update (2025), Global Biodiversity Information Facility (GBIF) observation data for species occurring in Rhode Island, the District of Columbia (DC), and Hawaii was used due to the absence of the most recent EO data for those jurisdictions in the NS Element Occurrence (EO) dataset. This is the first time GBIF information has been used to fill this gap in data. Additional observation data was obtained from the Rhode Island Natural Heritage Survey (https://rinhs.org/) and the Washington Department of Fish and Wildlife (https://wdfw.wa.gov/). The observation data was filtered for species with critically imperiled or imperiled status, which have federal ESA status of Listed Threatened (LT) or Listed Endangered (LE), or are DMM species or population stocks, as defined by the MMPA. New or supplemental data sources such as these must be reviewed and approved by PHMSA prior to use during Eco USA updates.
- Ramsar sites: Ramsar sites can be obtained from the Ramsar Convention website (www.ramsar.org).
- WHSRN sites: WHSRN sites and geographic data can be obtained from the WHSRN website (www.whsrn.org).
- National Hydrography Dataset (NHD): The USGS National Geospatial Program's NHD products, standards, and specifications are used to delineate surface water features that determine Eco USA boundaries. The NHD High Resolution data is mapped at a scale of 1:24,000 or better (1:63,000 or better in Alaska) (https://nhd.usgs.gov/data.html).

Review and QA/QC Steps

The following steps are taken to review data collection for development of the raw dataset:

- Check that all appropriate EO and ESI data for the geographic area are included.
- Check that all applicable Ramsar and WHSRN sites in the geographic area are included.

- Check that field definitions are internally consistent, consistently applied, and consistent with established guidance (herein).

2. Data Preparation/Pre-processing

The following is a list of required attributes needed to develop or update the Eco USA database:

- Scientific name*
- Common name*
- Data source (ESI, NS Species EO, NS Community EO, Ramsar, or WHSRN)
- Rounded GRANK, including infraspecific taxon rank (TRANK), where applicable*
- Rounded Subnational (U.S. State) Conservation Status Rank (SRANK)*
- Federal ESA listing status (at the species level)*
- Applied ESA listing (site-specific record-level attribute)
- EORANK*
- Applied DMM status (site-specific record-level attribute, as different population stocks of the same species may have different DMM status)
- Habitat assignment (required for data originating from point records)*
- Aquatic dependent assignment*
- Terrestrial limited range assignment*
- Representation accuracy (RA) and precision*
- Area (square acres and square miles)*
- Last observation date*
- Unique identifier for each individual EO, ESI record, WHSRN site, and Ramsar site

Many of the above attributes are part of the NS EO data or are generated, at least in part, from related NS databases, as denoted above by asterisks (*). Other attributes are assigned based on other source material, described in further detail below.

The following steps are taken in preparing the raw data for Eco USA candidate selection:

- All spatial data is checked to ensure it is projected into the standard projection for the project (see below).
- Species scientific and common names are cross-walked between the NS and ESI data, and NS-generated attributes are assigned to ESI records where applicable.
    - The NS database is used to assign global element record IDs and to update the ESI species list with the current federal ESA listing status, rounded GRANK, and DMM status.
- All ESI data with geographic source information corresponding to NS Network Program EOs (such as state NHP EO data) are omitted to reduce data duplication, because the NS EO includes up–to-date records from NS Network Program sources. Note that during the

most recent (2025) update, EO data for Hawaii was retained from the ESI dataset due to the fact that the state NHP program is no longer active.

- ESI data that were sourced to NOAA Estuarine Living Marine Resources (ELMR) data based on spatially-modeled salinity polygons are excluded as not representing "specific bounded areas'' (e.g., areas where the specific boundaries of the species occurrence were mapped).
- ESI data from other sources that do not represent "specific bounded areas" may also be excluded based on source or metadata information, where possible.
- In some cases, ESI data from sources based on modeling may be retained, such as where survey and observation point records for offshore or open ocean marine species such as marine mammals and pelagic fish have been spatially modeled to develop polygonal occurrences.
- ESI data with concentration values of "potential", "probable", "possible", "transient", and similar values are excluded as not representing known species occurrences.
- ESI data that are otherwise specified by RPI to not meet data quality criteria are excluded.
- All ESI point data are processed to become polygons using 1-mile buffers (note that complex polygons for certain types of aquatic points are applied later to the final USAs).
- All ESI line data (applies to some anadromous fish runs) are processed to become polygons using 0.25-mile buffers.
- ESI polygon data are "dissolved" by species to merge overlapping or adjacent polygons that share the same species, and any multipart polygons are "exploded" to individual records (but otherwise keep their original polygon extents on a per species basis).
- Attributes are assigned as described below.
- Data quality criteria and QA/QC procedures are applied as described below (note that this may be conducted prior to, or concurrent with, the steps listed above, as eliminating data that does not meet data quality standards may expedite pre-processing).

Projection

During data preparation, the same map projection is used for the contiguous 48 states for consistency among the data: North American Datum (NAD) 1983 Contiguous USA Albers Equal Area. Because Alaska and Hawaii are so far removed physically from the contiguous 48 states and each other, data preparation uses a separate projection for each: Alaska data are projected to Alaska Albers Equal Area Conic, and Hawaii data are projected to Hawaii Albers Equal Area Conic.

For distribution of the dataset, a single projection is used: Albers Equal Area Conic North America, NAD83.

Attribute Assignments

Each species record is assigned an ESA listing status where applicable using the current information from the U.S. Fish and Wildlife Service (USFWS, https://ecos.fws.gov/ecp/), which has jurisdiction over terrestrial, freshwater, and some marine species, and from the National Marine Fisheries Service (NMFS, https://www.fisheries.noaa.gov/species-directory/threatened-endangered), which has jurisdiction over most marine species. A site-specific record-level applied ESA status is assigned for LT and LE species because some species can have partial or multiple ESA listings (for example, when a species is only listed as endangered within part of its range). Because federal listing status may vary geographically, across taxonomic ranking/sub-taxa, or both, information from USFWS and NMFS must be carefully checked for subspecies and population-level ESA listings, including DPS and ESU listings. When cross-walking NS and ESI data, checking for potential mismatches in taxonomic ranking is necessary to avoid errors in assigned ESA listing status.

Additionally, DMM status is assigned for marine mammal population stocks, where applicable, using current information from NMFS (https://www.fisheries.noaa.gov/species-directory/marine-mammals; refer to the species accounts and stock assessment reports). Like ESA listing, an applied DMM status is assigned at the site-specific record-level, because only certain marine mammal population stocks are designated as depleted.

Each species or ecological community is assigned a habitat type, an aquatic dependent designation, and a limited range designation (for terrestrial species/communities only). Habitat, aquatic dependent, and limited range assignments are generated from NS databases and other source materials as needed, including input from project biologists where existing information is limited (NS habitat and related ecology and life-history information can be accessed through the NS Explorer website, http://explorer.natureserve.org/). In some cases, basic rules can be applied for habitat, aquatic dependent, and limited range assignments based on taxonomic or life-history categories. For difficult determinations, information from prior Eco USA database updates can be reviewed for consistency. For point records, habitat assignments are needed to inform the generation of final Eco USA boundaries. For polygonal records, habitat assignments are used only to support aquatic dependent and limited range designations and may not always be recorded in the raw dataset. If it is not recorded in the dataset, information used to inform aquatic dependent and limited range assignments is compiled separately to support external review (see *Review and QA/QC Steps* under Section 4).

For habitat assignments, polygonal records are designated as aquatic or terrestrial. Species known to generally utilize both aquatic and terrestrial habitat types are defined as aquatic. Point records are designated as aquatic open water (AOW), aquatic isolated water (AIW), or terrestrial, which informs later generation of the final Eco USA boundaries. AOW habitats include open and flowing water bodies such as oceans, estuaries, lakes, ponds, pools, streams, and certain wetland types that are typically permanently flooded. The open water look-up table (Appendix F) can be

used to identify hydrography features that have an open water class. AIW habitats include most wetlands, temporary or seasonal ponds and pools, seeps, beaches, bars, flats, floodplain habitats, riparian habitats, and subterranean waters. These habitats are generally intermittently wet or flooded and are often located adjacent to AOW habitats that have relatively permanent standing water or flowing water. Habitats that are described only as "moist" or "mesic" are not included in the aquatic categories and are treated as terrestrial. All other non-aquatic habitats are treated as terrestrial as well. Although most habitat assignments can be made at the species or ecological community level (across all occurrences), for a few types of species, habitat types can vary by occurrence type or location. This situation applies for species such as seabirds and marine turtles (across nesting vs. feeding areas or other in-water concentrations), or for species that might use different habitat types in different parts of their range. Thus, where information is available, habitat assignments are made at the occurrence or record level.

For aquatic dependent assignments, all aquatic species and ecological communities are aquatic dependent (including those with AOW and AIW habitat assignments). Species with occurrences classified as terrestrial are considered aquatic dependent if they are dependent on aquatic habitats during a critical portion of their life-history. As an example, nesting occurrences for a seabird species that uses cliffs or upland forests for nesting would be classified as terrestrial, but the species would be classified aquatic dependent if its feeding areas were in marine waters. Occurrences for terrestrial adult life-stages of insects that have aquatic larvae would also be considered aquatic dependent.

Terrestrial species and ecological communities that are not assigned to the aquatic dependent category are evaluated to determine if they have a limited range. Species with a limited range have individual home ranges of no more than five (5) acres. In cases where home range information is lacking, inferred extent of the occurrence type can be used to define limited range (≤ 5 acres as defined by NS). All plant species occurrences or records are considered to be limited range. Ecological community occurrences with limited ranges occupy areas of less than five (5) acres.

Data Quality Criteria

All data records are examined to ensure they meet data quality criteria for spatial accuracy and extant occurrences. Data records that do not meet the data quality criteria do not continue to later steps of the Eco USA selection process but are retained in the raw dataset for review purposes.

Spatial Accuracy: The first set of data quality criteria are spatial, pertaining to precision or accuracy. NS species and community EO records include an RA attribute that varies based on the area occupied by the element relative to the size of the EO polygon. The following criteria were used to remove polygons from consideration as candidate USAs based on spatial accuracy:

- EOs that are assigned an RA value of "Low", "Very Low", or which do not have an RA value assigned, are larger than 5 square miles in size, and have not been “fuzzed” due to data sensitivity restrictions, with the following exceptions:
    - Community EOs that do not have an RA value assigned are not excluded
    - Species EOs that do not have an RA value assigned are not excluded if the precision of EO polygons in terms of “precision BCD” is assigned a value of S or M.
- Note that “fuzzed” or spatially generalized data are not desirable and may not be acceptable for Eco USA purposes, requiring discussion with and approval from PHMSA for use. If fuzzed data cannot be avoided, fuzzing is to be limited to the degree possible, ideally to no more than 5 square miles. In some cases, individual NHP programs may provide fuzzed data to NS without indicating that data have been fuzzed; such records would therefore not be identified or treated as fuzzed records in the NS analysis. During the 2024-2025 update to Eco USAs, EO data from the following states[1] and Tribal lands were identified as fuzzed (to the grid sizes specified below):
    - Navajo Nation (UT, NM, AZ) – 1 square mile default, 7 square miles for select sensitive resources, using hexagon grid
    - UT, WV – 1 square mile for all records, hexagon grid
    - TN – 1 square mile for select sensitive resources, hexagon grid
    - WY – fuzzed to Public Land Survey System boundaries (prior to delivery to NS)

Extant Occurrences: Data that do not indicate extant records are removed from consideration as candidate USA species. The following criteria are used to remove non-extant records:

- NS EOs that are labeled as “extirpated” are omitted and do not become Eco USAs, including all EOs with rounded GRANK values of GX (globally extirpated), EOs with rounded SRANK values of SX (state extirpated), and EOs with EORANK values of X.
- Data records older than 40 years are also excluded from the dataset, including NS EO records with last observation dates that fall more than 40 years before the current date. In addition, ESI data published more than 40 years ago, as well as data atlases replaced by more recent updates, are also excluded from Eco USA processing.

In contrast, historic records are retained; EOs are not omitted on the basis of having rounded GRANK values of GH (possibly extinct or presumed eliminated), rounded SRANK values of SH (possibly extirpated), or EORANK values of H?, H, F?, F, or X?.

[1] For the state of MA, EO data submitted to NS and used for the 2024-2025 update were not fuzzed but were based on ‘Priority Habitat’ boundaries that could be used for multiple species. These records were considered to have high accuracy because they were precisely delimited and therefore were not excluded on the basis of spatial size (as a data quality criterion).

Review and QA/QC Steps

Note that the data quality criteria described above may be applied prior to, or concurrent with, the other data preparation/pre-processing steps described in this section and/or the identification of candidate Eco USAs. As described in the following section, records retained in the dataset qualify as candidate Eco USAs by meeting at least one of the candidate selection criteria. Data that either does not meet data quality standards, or that will be removed downstream based on not meeting candidate selection criteria, is sometimes identified earlier in the process to help expedite data preparation and pre-processing.

The following steps are taken to review the raw data after pre-processing:

- For species data, the raw dataset is checked to ensure fields are populated for GRANK, federal ESA listing status, DMM status, spatial accuracy (including RA and precision BCD), area (square miles), SRANK, EORANK, last observation date, and "fuzzed" status (if applicable).
- For community data, the raw dataset is checked to ensure fields are populated for GRANK, spatial accuracy (including RA and precision BCD), area (square miles), SRANK, EORANK, last observation date, and "fuzzed" status (if applicable).
- The dataset is checked to ensure only EO records identified as species or ecological communities are included; unique geologic features, species groups or categories, etc. are removed (this includes any ELCODES starting with "O" for "other", if applicable).
- The dataset is checked to ensure community EO data originates only from EO sources (e.g., hexagonal data and other sources are not used, unless exceptions are approved by PHMSA, such as for data that are "fuzzed" to a hexagonal grid).
- The dataset is checked to confirm that the appropriate ESI data have been extracted, processed, and attributed correctly.
- Common and scientific names are checked to ensure they are applied consistently across input datasets (e.g., NS and ESI data), particularly for cases where sub-species and DPS or ESU nomenclature may be used, as well as relationships to GRANKs, TRANKs, and other attributes.
- The assigned applied ESA listings and DMM status values are checked, particularly for species with partial or multiple listings.
- The habitat, aquatic dependent, and limited range assignments are checked for a representative subset of species and ecological communities.
- The dataset is checked to ensure that all Ramsar and WHSRN sites have been included and attributed correctly.
- The dataset is checked to ensure that records that do not meet the data quality criteria have been excluded.
- Field definitions are checked to ensure that they are internally consistent, consistently applied, and consistent with established guidance (herein).

- Data fields that should be consistent at the species or community level are checked to ensure that the dataset does not include variation between records of the same EO type (e.g., GRANK values should be consistent for all records belonging to the same species).
- The dataset is checked to ensure that "N" or similar designations are used where "No" is indicated, rather than leaving such fields blank.

3. Identification of Eco USA Candidates

Occurrences or data records that are identified as critically imperiled, imperiled, threatened or endangered, or depleted (for marine mammal species) are considered candidates. All Ramsar and WHSRN sites are considered candidate USAs. For Eco USA candidate selection, the term "species" includes DPS and ESU under the ESA. A DPS is a portion of a species' or subspecies' population or range and is described geographically. A DPS is discrete from other populations of the species and significant in relation to the entire species. An ESU is a population or group of populations that is substantially reproductively isolated from other conspecific populations and that represents an important component of the evolutionary legacy of the species (www.nmfs.noaa.gov/pr/glossary.htm). Species with the following ESA statuses are included as candidates in the Eco USA candidate selection process: LE, LT, essential experimental population (XE), and non-essential experimental population (XN). Species with the following ESA statuses are not included as candidates in the Eco USA candidate selection process: proposed endangered, proposed threatened, ESA candidate, species of concern, and listed or proposed endangered or threatened because of similarity of appearance. Not including these species in the Eco USA candidate selection process does not affect the ESA process or ESA protections afforded to these species. Additionally, species that have been proposed for DMM status under the MMPA are not included as Eco USA candidates. Ecological community data must match recent nomenclature and conservation status rank conventions based on GRANK. Ecological community data in all or most cases has been based on the International Vegetation Classification and identified at the Association Level. Attributes and values used to identify candidate USAs are summarized in Table 1.

Table 1. Candidate selection criteria.

Description	Criteria Used for Inclusion as a Candidate USA
Critically imperiled and imperiled species and ecological communities	Species/community with rounded GRANK of G1, T1, G2, or T2
Threatened and endangered species	Records with an ESA status of LT, LE, XE, or XN
Depleted marine mammal (DMM) species	Marine mammal species or population stocks categorized as "depleted"
Migratory waterbird concentrations	All Ramsar and WHSRN sites

Review and QA/QC Steps

The following steps are taken to review the candidate Eco USA selections:

- Included and excluded records are checked for proper identification of Eco USA candidates based on rounded GRANKs.
- Eco USA candidates are checked to ensure that ESA-listed species are correctly included.
- Eco USA candidates are checked to ensure that DMMs are correctly included.
- Eco USA candidates are checked to ensure that all Ramsar and WHSRN sites are included.
- Eco USA candidates are checked to ensure that records not meeting at least one of the candidate selection criteria are omitted.
- Records originating from point data are checked to ensure proper conversion to polygons using 1-mile buffers (note that the complex polygons for AOW points are applied later to the final USAs).
- Records originating from lines (applies to some anadromous fish runs, for instance) are checked to ensure buffers of 0.25 miles have been added to create polygons.

4. Application of the Eco USA Filter Criteria

The selection of final Eco USAs from the candidate dataset is based on the application of the five filter criteria, shown in Table 2. Candidate USAs that meet any of the filter criteria become final USAs; once a record is identified as qualifying under a filter criterion, it does not require further evaluation under the remaining criteria. NS may decide to either comprehensively apply all criteria to all records, or to apply each criterion to only those records not yet identified as Eco USAs under previously evaluated criteria; however, once selected, this method is applied consistently throughout the dataset development process. Filter criteria are typically applied in the evaluation order shown in Table 2 for efficiency.

Filter criteria 1, 3, 4, and 5 are applied by selecting the applicable records from the candidate USA dataset and identifying them as Eco USAs.

Filter criteria 2 is applied by identifying areas where MSAAs occur; records with appropriate MSAA overlaps become Eco USAs. The MSAAs are areas where three or more candidate USAs co-occur. All the candidate USAs listed in Table 1 above are included in the process to identify MSAAs.

The MSAA process requires that all candidate USAs are represented as polygonal features. Therefore, all records that are represented as point features are buffered using a 1-mile radius buffer around each point occurrence and all records that are represented as line features are buffered using a 0.25-mile buffer around each line occurrence before the MSAA analysis (note that the complex polygons for AOW points are applied later to the final USAs).

Table 2. Selection criteria applied to generate final USA dataset.

Filter Criteria (FC) Description	Evaluation	Evaluation Order
Critically imperiled species and ecological communities	Candidate records with a rounded GRANK of G1 or T1.	1st
MSAAs	Areas with three or more spatially overlapping Eco USA candidate records (see below for more detail).	5th
Migratory waterbird concentration areas	Candidate records that are Ramsar sites or WHSRN sites.	2nd
Aquatic, aquatic dependent, or limited range species and ecological communities	Candidate records identified as aquatic, aquatic dependent, or terrestrial with a limited range. This includes all records identified as DMMs.	3rd or 4th
High quality species and ecological community occurrences	Candidate records with a rounded EORANK of A (excellent estimated viability) or B (good estimated viability), including (unrounded) A?, AB, AC, B? and BC designations.	3rd or 4th

The basic premise behind the MSAA analysis is to examine each candidate individually to determine if its polygon overlaps any others. If overlap is discovered, a list of "common and/or scientific names" associated with the overlapping polygons is compiled along with the "common and/or scientific name" of the record being examined. If three or more unique names are found in the list, the polygon being examined is flagged as a MSAA contributor along with all the overlapping polygons. This process is repeated until all candidate polygons have been examined. See Figure 1 for an example of the process. On completion, polygons along state borders are checked to verify that the MSAA process worked properly in these areas.

Candidate USAs that are designated as a MSAA contributor are then assigned a USA status. If the MSAA contributor originated from a polygonal feature, then the polygon of the candidate USA becomes a USA. If the MSAA contributor originated from a point feature, then a representative polygon based on the habitat type of the candidate USA is generated and becomes a USA as described in the "Generation of Final Eco USA Boundaries" section below.

There are multiple approaches that can be used for identifying MSAAs. However, all the approaches require identifying the overlapping polygons in a dataset. Determining the overlaps can be achieved via written code that examines each polygon individually, similar to the method used in 2000-2002. Or the overlaps can be determined using any of the overlay analysis tools within ArcGIS, such as Identity, Spatial Join, or Tabular Intersect, along with a series of filter and summary of occurrence queries on the results of the overlay analysis tools.

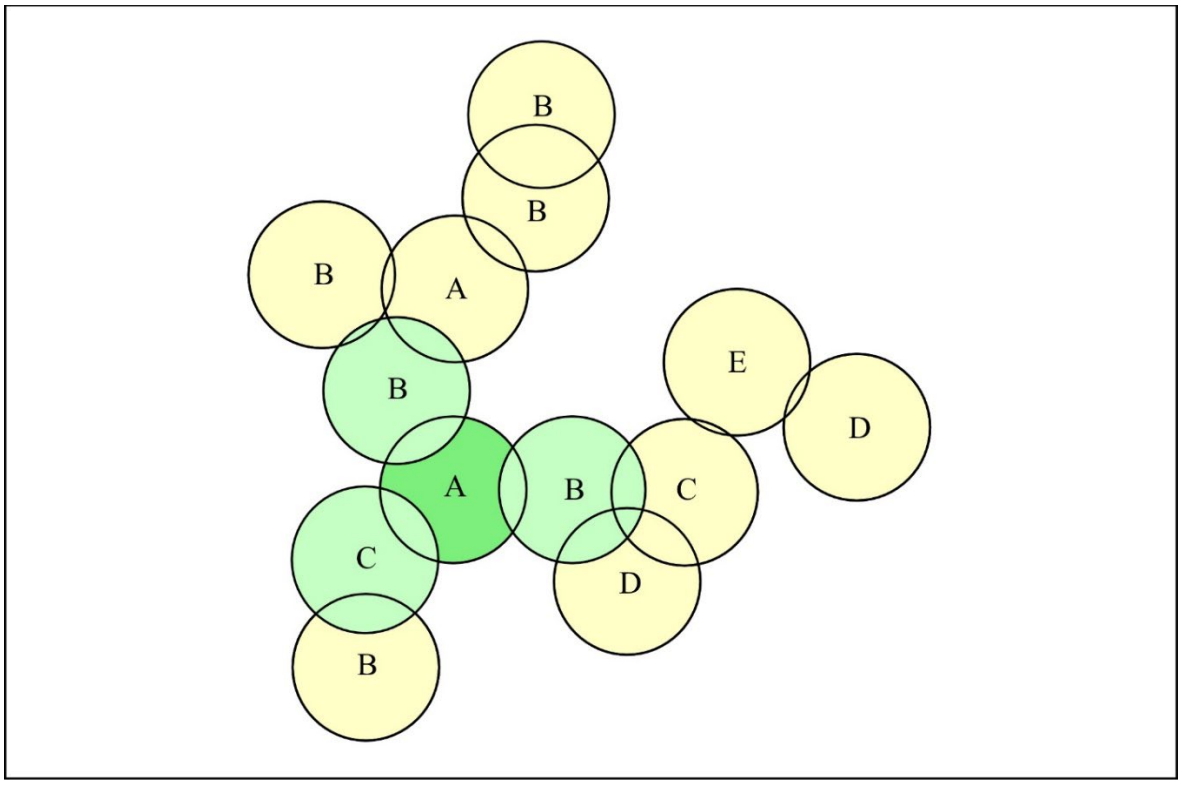


Figure 1. An example of the examination and process used for the MSAA analysis. Candidate USA polygon A (dark green) is being examined. The "species name" list compiled from the overlapping polygons (light green) is "B, B, C, A". Because there are three unique "species names" in the list, all the green candidate USAs are flagged as contributing to a MSAA; hence, all the candidate USA polygons overlapping candidate USA polygon A and A itself become USAs.

Review and QA/QC Steps

A draft version of the final USAs is reviewed by scientific and Geographic Information System (GIS) staff, who check for errors in the application of the five filter criteria using ArcGIS. Records originating from point data are checked to ensure proper conversion to polygons using 1-mile buffers (note that the complex polygons for AOW points are applied later to the final USAs). Records originating from lines are checked to ensure buffers of 0.25 miles have been added to create polygons.

The draft version of the final USAs also undergoes independent external review following the process documented in the Quality Review Process (Appendix G). The following materials are provided to support external review by Research Planning, Inc. (RPI):

- Raw dataset(s) (for species and community EO data, combined or separated);
- Eco USA geodatabase
- Processed Eco USA dataset (included in the geodatabase)

- Data field definitions (for raw and processed datasets)
- Species-level habitat information (may be provided in a separate spreadsheet or file)

All errors, concerns, and weaknesses identified during review, as well as suggested strategies for remediating issues and implementing solutions, are documented and shared with NS. Review comments are delivered to NS following review of Eco USA data for a state or group of states. Upon receiving the review comments, NS returns their responses. RPI then notes the outcome, status, and any follow up needed for resolution of the comments. Review documents and information continues to be exchanged between NS and RPI until all reviews are complete and final resolutions are reached for all comments.

5. Generation of Final Eco USA Boundaries

Candidate USAs that meet any of the filter criteria are included in the final USA dataset. Polygons that originated from source data as polygons are included as their polygonal shapes. USAs that were derived from point occurrences with habitats AIW or terrestrial are included as polygons in the final USA layer using the 1-mile buffers described above. USAs derived from point occurrences that are assigned to the AOW habitat category are converted to complex polygons representing open water within 5 miles of the point. This is done by selecting all NHD open water hydrographic features (see Appendix F) within a 5-mile buffer of each point and buffering these linear and polygonal hydrographic features 0.25 miles to get the final boundaries (Figure 2). USAs derived from line features retain the polygons generated using 0.25-mile buffers of the original line feature.

All final USA polygons are merged to create the final USA dataset for distribution. The final Eco USA dataset includes a unique identifier called ECOUNIQUE that identifies each unique Eco USA. The value format of the ECOUNIQUE field is as follows: ECO-<YYYY>-<######0>, where <YYYY> is the four digit year, and <######0> is a seven-digit unique number for each unique Eco USA. All other attributes are removed from the final Eco USA dataset.

Review and QA/QC Steps

The following steps are taken to review the generation of the final Eco USA boundaries:

- USAs originating from point records are checked to ensure those classified as AIW or terrestrial are buffered with a radius of 1 mile to create final USA polygons.
- USAs originating from point records are checked to ensure those classified as AOW are depicted as complex USA polygons including all open water features from the NHD hydro layer within a 5-mile buffer of the point and with a 0.25-mile buffer overlap along all linear “shoreline” and linear stream features within the 5-mile buffer.
- Any “exploded” multipart EO records that became USAs are checked to ensure they came back together as multipart polygons for the final USAs.

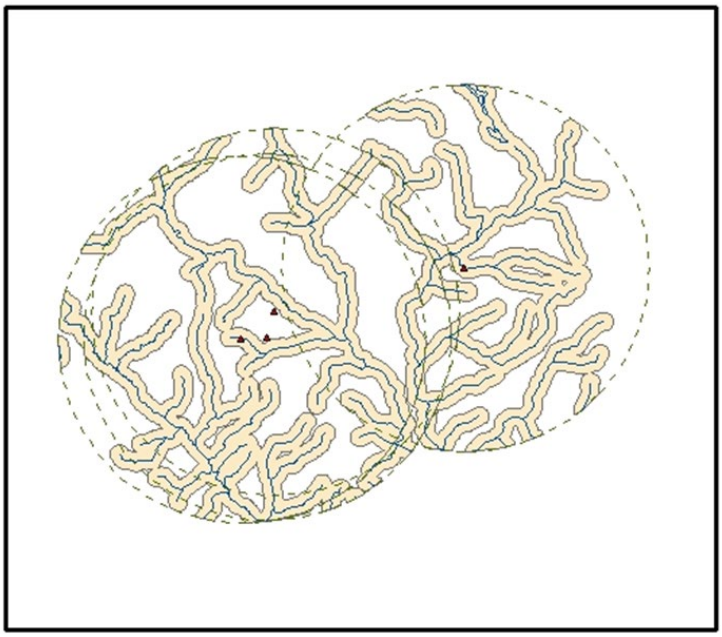


Figure 2. Aquatic open water habitat areas. The solid triangles depict USA point records assigned to the "aquatic open water" habitat category. The dashed circles represent 5-mile buffers of the points. The solid lines represent hydrography features, such as streams, which are classified as open water. The shaded areas indicate the 0.25-mile buffers of the hydrography features. The shaded regions are assigned the attributes from the corresponding USA point records.

ADDITIONAL GUIDANCE DOCUMENTS

The following documents are attached as appendices:

- Appendix A: 49 C.F.R. § 195.6. This is the regulatory definition of USAs.
- Appendix B: “Pipeline Safety; Areas Unusually Sensitive to Environmental Damage; Final Rule,” 65 Fed. Reg. 80530 (December 21, 2000). This is the notice of the final rule defining USAs. It describes public comments received and documents final rule making decisions.
- Appendix C: “Pipeline Safety: Areas Unusually Sensitive to Environmental Damage,” 4 Fed. Reg. 73464 (December 30, 1999). This is the notice of the proposed rule defining USAs. It describes the proposed process for selecting USAs and is referenced in the final rule.
- Appendix D: Unusually Sensitive Areas for Ecological Resources: General Report (2002). U.S. Department of Transportation, Research and Special Programs Administration, Office of Pipeline Safety. Washington, D.C. This document describes the generation of the first USA dataset in 2000-2002; individual state appendices are not reproduced here but may be found in the original.

- Appendix E: RESERVED for NatureServe Technical Approach 2024-2025, when document becomes available.
- Appendix F: National Hydrography Dataset (NHD) Open Water Look-up Table (2025). This table provides open water classifications for the NHD feature codes (FCODE) to identify hydrography features that have an open water class.
- Appendix G: Eco USAs Quality Review Process and Checklist. This is a detailed document that described the external review process conducted during the draft 2025 Eco USA update; document includes an appended Review Process Checklist.
- Appendix H: Summary of Review for the 2024-2025 Update of Ecological USAs. Describes a summary of review comments and outcomes across both detailed reviews and spot check reviews of the draft 2024-2025 Eco USA update.
- Appendix I: Ecological USA Methodology Flowchart. This diagram provides an overview of the general filtering and processing methodology used to identify Eco USAs.

Appendix A

49 C.F.R § 195.6 - This is the regulatory definition of USAs.

[Amdt. 195–22, 46 FR 38360, July 27, 1981; 47 FR 32721, July 29, 1982]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting §195.3, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at www.fdsys.gov.

§ 195.4 Compatibility necessary for transportation of hazardous liquids or carbon dioxide.

No person may transport any hazardous liquid or carbon dioxide unless the hazardous liquid or carbon dioxide is chemically compatible with both the pipeline, including all components, and any other commodity that it may come into contact with while in the pipeline.

[Amdt. 195–45, 56 FR 26925, June 12, 1991]

§ 195.5 Conversion to service subject to this part.

(a) A steel pipeline previously used in service not subject to this part qualifies for use under this part if the operator prepares and follows a written procedure to accomplish the following:

(1) The design, construction, operation, and maintenance history of the pipeline must be reviewed and, where sufficient historical records are not available, appropriate tests must be performed to determine if the pipeline is in satisfactory condition for safe operation. If one or more of the variables necessary to verify the design pressure under §195.106 or to perform the testing under paragraph (a)(4) of this section is unknown, the design pressure may be verified and the maximum operating pressure determined by—

(i) Testing the pipeline in accordance with ASME B31.8, Appendix N, to produce a stress equal to the yield strength; and

(ii) Applying, to not more than 80 percent of the first pressure that produces a yielding, the design factor F in §195.106(a) and the appropriate factors in §195.106(e).

(2) The pipeline right-of-way, all aboveground segments of the pipeline, and appropriately selected underground segments must be visually inspected for physical defects and operating conditions which reasonably could be expected to impair the strength or tightness of the pipeline.

(3) All known unsafe defects and conditions must be corrected in accordance with this part.

(4) The pipeline must be tested in accordance with subpart E of this part to substantiate the maximum operating pressure permitted by §195.406.

(b) A pipeline that qualifies for use under this section need not comply with the corrosion control requirements of subpart H of this part until 12 months after it is placed into service, notwithstanding any previous deadlines for compliance.

(c) Each operator must keep for the life of the pipeline a record of the investigations, tests, repairs, replacements, and alterations made under the requirements of paragraph (a) of this section.

[Amdt. 195–22, 46 FR 38360, July 27, 1981, as amended by Amdt. 195–52, 59 FR 33396, June 28, 1994; Amdt. 195–173, 66 FR 67004, Dec. 27, 2001]

§ 195.6 Unusually Sensitive Areas (USAs).

As used in this part, a USA means a drinking water or ecological resource area that is unusually sensitive to environmental damage from a hazardous liquid pipeline release.

(a) An USA drinking water resource is:

(1) The water intake for a Community Water System (CWS) or a Nontransient Non-community Water System (NTNCWS) that obtains its water supply primarily from a surface water source and does not have an adequate alternative drinking water source;

(2) The Source Water Protection Area (SWPA) for a CWS or a NTNCWS that obtains its water supply from a Class I or Class IIA aquifer and does not have an adequate alternative drinking water source. Where a state has not yet identified the SWPA, the Wellhead Protection Area (WHPA) will be used until the state has identified the SWPA; or

(3) The sole source aquifer recharge area where the sole source aquifer is a karst aquifer in nature.

(b) An USA ecological resource is:

(1) An area containing a critically imperiled species or ecological community;

(2) A multi-species assemblage area;

(3) A migratory waterbird concentration area;

(4) An area containing an imperiled species, threatened or endangered species, depleted marine mammal species, or an imperiled ecological community where the species or community is aquatic, aquatic dependent, or terrestrial with a limited range; or

(5) An area containing an imperiled species, threatened or endangered species, depleted marine mammal species, or imperiled ecological community where the species or community occurrence is considered to be one of the most viable, highest quality, or in the best condition, as identified by an element occurrence ranking (EORANK) of A (excellent quality) or B (good quality).

(c) As used in this part—

Adequate Alternative Drinking Water Source means a source of water that currently exists, can be used almost immediately with a minimal amount of effort and cost, involves no decline in water quality, and will meet the consumptive, hygiene, and fire fighting requirements of the existing population of impacted customers for at least one month for a surface water source of water and at least six months for a groundwater source.

Aquatic or Aquatic Dependent Species or Community means a species or community that primarily occurs in aquatic, marine, or wetland habitats, as well as species that may use terrestrial habitats during all or some portion of their life cycle, but that are still closely associated with or dependent upon aquatic, marine, or wetland habitats for some critical component or portion of their life-history (*i.e.,* reproduction, rearing and development, feeding, etc).

Class I Aquifer means an aquifer that is surficial or shallow, permeable, and is highly vulnerable to contamination. Class I aquifers include:

(1) Unconsolidated Aquifers (Class Ia) that consist of surficial, unconsolidated, and permeable alluvial, terrace, outwash, beach, dune and other similar deposits. These aquifers generally contain layers of sand and gravel that, commonly, are interbedded to some degree with silt and clay. Not all Class Ia aquifers are important water-bearing units, but they are likely to be both permeable and vulnerable. The only natural protection of these aquifers is the thickness of the unsaturated zone and the presence of fine-grained material;

(2) Soluble and Fractured Bedrock Aquifers (Class Ib). Lithologies in this class include limestone, dolomite, and, locally, evaporitic units that contain documented karst features or solution channels, regardless of size. Generally these aquifers have a wide range of permeability. Also included in this class are sedimentary strata, and metamorphic and igneous (intrusive and extrusive) rocks that are significantly faulted, fractured, or jointed. In all cases groundwater movement is largely controlled by secondary openings. Well yields range widely, but the important feature is the potential for rapid vertical and lateral ground water movement along preferred pathways, which result in a high degree of vulnerability;

(3) Semiconsolidated Aquifers (Class Ic) that generally contain poorly to moderately indurated sand and gravel that is interbedded with clay and silt. This group is intermediate to the unconsolidated and consolidated end members. These systems are common in the Tertiary age rocks that are exposed throughout the Gulf and Atlantic coastal states. Semiconsolidated conditions also arise from the presence of intercalated clay and caliche within primarily unconsolidated to poorly consolidated units, such as occurs in parts of the High Plains Aquifer; or

(4) Covered Aquifers (Class Id) that are any Class I aquifer overlain by less than 50 feet of low permeability, unconsolidated material, such as glacial till, lacustrian, and loess deposits.

Class IIa aquifer means a Higher Yield Bedrock Aquifer that is consolidated and is moderately vulnerable to contamination. These aquifers generally consist of fairly permeable sandstone or conglomerate that contain lesser amounts of interbedded fine grained clastics (shale, siltstone, mudstone) and occasionally carbonate units. In general, well yields must exceed 50 gallons per minute to be included in this class. Local fracturing may contribute to the dominant primary porosity and permeability of these systems.

Community Water System (CWS) means a public water system that serves at least 15 service connections used by year-round residents of the area or regularly serves at least 25 year-round residents.

Critically imperiled species or ecological community (habitat) means an animal or plant species or an ecological community of extreme rarity, based on The Nature Conservancy's Global Conservation Status Rank. There are generally 5 or fewer occurrences, or very few remaining individuals (less than 1,000) or acres (less than 2,000). These species and ecological communities are extremely vulnerable to extinction due to some natural or man-made factor.

Depleted marine mammal species means a species that has been identified and is protected under the Marine Mammal Protection Act of 1972, as amended (MMPA) (16 U.S.C. 1361 *et seq.*). The term ''depleted'' refers to marine mammal species that are listed as threatened or endangered, or are below their optimum sustainable populations (16 U.S.C. 1362). The term ''marine mammal'' means ''any mammal which is morphologically adapted to the marine environment (including sea otters and members of the orders Sirenia, Pinnipedia, and Cetacea), or primarily inhabits the marine environment (such as the polar bear)'' (16 U.S.C. 1362). The order Sirenia includes manatees, the order Pinnipedia includes seals, sea lions, and walruses, and the order Cetacea includes dolphins, porpoises, and whales.

Ecological community means an interacting assemblage of plants and animals that recur under similar environmental conditions across the landscape.

Element occurrence rank (EORANK) means the condition or viability of a species or ecological community occurrence, based on a population's size, condition, and landscape context. EORANKs are assigned by the Natural Heritage Programs. An EORANK of A means an excellent quality and an EORANK of B means good quality.

Imperiled species or ecological community (habitat) means a rare species or ecological community, based on The Nature Conservancy's Global Conservation Status Rank. There are generally 6 to 20 occurrences, or few remaining individuals (1,000 to 3,000) or acres (2,000 to 10,000). These species and ecological communities are vulnerable to extinction due to some natural or man-made factor.

Karst aquifer means an aquifer that is composed of limestone or dolomite where the porosity is derived from connected solution cavities. Karst aquifers are often cavernous with high rates of flow.

Migratory waterbird concentration area means a designated Ramsar site or a Western Hemisphere Shorebird Reserve Network site.

Multi-species assemblage area means an area where three or more different critically imperiled or imperiled species or ecological communities, threatened or endangered species, depleted marine mammals, or migratory waterbird concentrations co-occur.

Non-transient Non-community Water System (NTNCWS) means a public water system that regularly serves at least 25 of the same persons over six months per year. Examples of these systems include schools, factories, and hospitals that have their own water supplies.

Public Water System (PWS) means a system that provides the public water for human consumption through pipes or other constructed conveyances, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. These systems include the sources of the water supplies—*i.e.,* surface or ground. PWS can be community, non-transient non-community, or transient non-community systems.

Ramsar site means a site that has been designated under The Convention on Wetlands of International Importance Especially as Waterfowl Habitat program. Ramsar sites are globally critical wetland areas that support migratory waterfowl. These include wetland areas that regularly support 20,000 waterfowl; wetland areas that regularly support substantial numbers of individuals from particular groups of waterfowl, indicative of wetland values, productivity, or diversity; and wetland areas that regularly support 1% of the individuals in a population of one species or subspecies of waterfowl.

Sole source aquifer (SSA) means an area designated by the U.S. Environmental Protection Agency under the Sole Source Aquifer program as the ''sole or principal'' source of drinking water for an area. Such designations are made if the aquifer's ground water supplies 50% or more of the drinking water for an area, and if that aquifer were to become contaminated, it would pose a public health hazard. A sole source aquifer that is karst in nature is one composed of limestone where the porosity is derived from connected solution cavities. They are often cavernous, with high rates of flow.

Source Water Protection Area (SWPA) means the area delineated by the state for a public water supply system (PWS) or including numerous PWSs, whether the source is ground water or surface water or both, as part of the state source water assessment program (SWAP) approved by EPA under section 1453 of the Safe Drinking Water Act.

Species means species, subspecies, population stocks, or distinct vertebrate populations.

Terrestrial ecological community with a limited range means a non-aquatic or non-aquatic dependent ecological community that covers less than five (5) acres.

Terrestrial species with a limited range means a non-aquatic or non-aquatic dependent animal or plant species that has a range of no more than five (5) acres.

Threatened and endangered species (T&E) means an animal or plant species that has been listed and is protected under the Endangered Species Act of 1973, as amended (ESA73) (16 U.S.C. 1531 et seq.). ''Endangered species'' is defined as ''any species which is in danger of extinction throughout all or a significant portion of its range'' (16 U.S.C. 1532). ''Threatened species'' is defined as ''any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range'' (16 U.S.C. 1532).

Transient Non-community Water System (TNCWS) means a public water system that does not regularly serve at least 25 of the same persons over six months per year. This type of water system serves a transient population found at rest stops, campgrounds, restaurants, and parks with their own source of water.

Wellhead Protection Area (WHPA) means the surface and subsurface area surrounding a well or well field that supplies a public water system through which contaminants are likely to pass and eventually reach the water well or well field.

Western Hemisphere Shorebird Reserve Network (WHSRN) site means an area that contains migratory shorebird concentrations and has been designated as a hemispheric reserve, international reserve, regional reserve, or endangered species reserve. Hemispheric reserves host at least 500,000 shorebirds annually or 30% of a species flyway population. International reserves host 100,000 shorebirds annually or 15% of a species flyway population. Regional reserves host 20,000 shorebirds annually or 5% of a species flyway population. Endangered species reserves are critical to the survival of endangered species and no minimum number of birds is required.

[Amdt. 195–71, 65 FR 80544, Dec. 21, 2000]

§ 195.8 Transportation of hazardous liquid or carbon dioxide in pipelines constructed with other than steel pipe.

No person may transport any hazardous liquid or carbon dioxide through a pipe that is constructed after October 1, 1970, for hazardous liquids or after July 12, 1991 for carbon dioxide of material other than steel unless the person has notified the Administrator in writing at least 90 days before the transportation is to begin. The notice must state whether carbon dioxide or a hazardous liquid is to be transported and the chemical name, common name, properties and characteristics of the hazardous liquid to be transported and the material used in construction of the pipeline. If the Administrator determines that the transportation of the hazardous liquid or carbon dioxide in the manner proposed would be unduly hazardous, he will, within 90 days after receipt of the notice, order the person that gave the notice, in writing, not to

Appendix B

"Pipeline Safety; Areas Unusually Sensitive to Environmental Damage; Final Rule," 65 Fed. Reg. 80530 (December 21, 2000). This is the notice of the final rule defining USAs. It describes public comments received and documents final rule making decisions.

Federal Register

Thursday,

December 21, 2000

Part III

Department of Transportation

Research and Special Programs Administration

49 CFR Part 195

Pipeline Safety; Areas Unusually Sensitive to Environmental Damage; Final Rule

DEPARTMENT OF TRANSPORTATION

Research and Special Programs Administration

49 CFR Part 195

[Docket RSPA–99–5455; Amdt. 195–71]

RIN 2137–AC34

Pipeline Safety: Areas Unusually Sensitive to Environmental Damage

AGENCY: Research and Special Programs Administration (RSPA), DOT.

ACTION: Final Rule.

SUMMARY: This final rule defines drinking water and ecological areas that are unusually sensitive to environmental damage if there is a hazardous liquid pipeline release. We refer to these areas as unusually sensitive areas (USAs). RSPA created this definition through a series of public workshops, pilot testing, a technical review of the pilot test results, and extensive collaboration with a wide-range of federal, state, public, and industry stakeholders. This final rule does not require specific action by pipeline operators but will be used in existing and future regulations.

DATES: Effective February 20, 2001.

FOR FURTHER INFORMATION CONTACT: Christina Sames at (202) 366–4561 or christina.sames@rspa.dot.gov. Copies of this document or other material in the docket can be obtained from the Dockets Facility, U.S. DOT, Room #PL–401, 400 Seventh Street, SW, Washington, DC 20590–0001. The Dockets Facility is open from 9:00 a.m. to 5:00 p.m., Monday through Friday, except on Federal holidays when the facility is closed. The public may review material in the docket by accessing the Docket Management System's home page at http://dms.dot.gov. An electronic copy of any document published in the **Federal Register** may be downloaded from the Government Printing Office Electronic Bulletin Board Service at (202) 512–1661.

SUPPLEMENTARY INFORMATION: RSPA began its process to define unusually sensitive areas in 1992, when Congress amended the federal pipeline safety statute. The amended statute (49 U.S.C. 60109) required the Secretary of Transportation (Secretary) to prescribe regulations that establish criteria for identifying each hazardous liquid pipeline facility and gathering line located in an area that the Secretary describes as unusually sensitive to environmental damage if there is a hazardous liquid pipeline accident. We refer to these unusually sensitive areas as USAs for short. In 1996, Congress again amended the statute to require the Secretary to consider areas where a pipeline rupture would likely cause permanent or long-term environmental damage. We described these legislative mandates in more detail in the notice of proposed rulemaking (NPRM) (64 FR 73464; December 30, 1999) to define USAs.

To fulfill the legislative mandate, RSPA began a series of public meetings and workshops to gather information to help us establish criteria for identifying USAs. We held meetings with other federal agencies and the pipeline industry to work out a definition. We held a series of public workshops to openly discuss draft definitions for USAs. These workshops helped develop guiding principles for determining which resources to concentrate on, a model of how the USA process could work, and helped define terms used to describe USAs. The workshops also identified drinking water and ecological resources that are of great importance to the nation and filtering criteria to identify those resources that could sustain permanent or long term damage if affected by a release. Participants at these meetings and workshops included representatives from the U.S. Coast Guard; the Departments of Interior, Agriculture, and Commerce; the Environmental Protection Agency (EPA); the American Waterworks Association; The Nature Conservancy; academia; the hazardous liquid pipeline industry and the public. Greater discussion on these workshops and meetings is found in the NPRM.

Notice of Proposed Rulemaking

On December 30, 1999, RSPA issued a NPRM to define USAs (64 FR 73464). The NPRM focused on drinking water and ecological resources. Cultural resources, recreational resources, and economic resource areas were not considered in the NPRM. RSPA determined that these areas should be addressed as a separate risk factor and under separate regulations.

The NPRM proposed to identify USAs through a process that began by designating and assessing environmentally sensitive areas (ESAs), determining which ESAs are potentially more susceptible to permanent or long term damage from a hazardous liquid release (areas of primary concern), and finally identifying filtering criteria to determine which areas of primary concern can sustain permanent or long-term damage or are necessary for uninterrupted drinking water consumption by the human population. The areas that resulted from this process were the proposed USAs.

Under the proposed USA definition, drinking water areas of primary concern are a subset of all surface intakes and groundwater-based drinking water supplies that provide potable water for domestic, commercial, and industrial users. These include public water systems, wellhead protection areas, and sole source aquifers. Definitions for these resources can be found in the NPRM and at the end of this final rule. Proposed filtering criteria included the depth and geology of a drinking water resource and if the public water system has an adequate alternative drinking water supply. Additional information on the proposed filter criteria can be found in the NPRM.

The proposed ecological USA candidates focused on the characteristics of rarity, imperilment, or the potential for loss of large segments of an abundant population during periods of migratory concentration. These included threatened and endangered (T&E) species, critically imperiled and imperiled species, depleted marine mammals, and migratory waterbird concentration areas. Definitions for these resources can be found in the NPRM and at the end of this final rule. Proposed filtering criteria included the extent to which a species is vulnerable to extinction, areas that are critical to multiple sensitive species, and areas where a large percent of a species population could be impacted. Additional information on the proposed ecological filter criteria can be found in the NPRM.

How RSPA Will Use the USA Definition

RSPA will use the USA definition in current and future pipeline safety regulations. Any regulatory application of this definition will be aimed at ensuring that operators implement appropriate additional protective measures for pipelines that could affect USAs. We anticipate using the USA definition in the following regulations.

• *Integrity Management Rule.* RSPA issued a final rule titled ''Pipeline Safety: Pipeline Integrity Management in High Consequence Areas (Hazardous Liquid Operators with 500 or more miles of pipeline)'' on November 3, 2000, and it was published in the **Federal Register** on December 1, 2000 (65 FR 75378). The rule establishes new requirements to provide additional protection to high consequence areas. High consequence areas include USAs, populated areas, and commercially navigable waterways. The rule requires hazardous liquid pipeline operators who own or operate 500 or more miles

of pipeline to assess, evaluate, repair, and validate through analysis the integrity of any pipeline segment that could affect a high consequence area. Operators must develop and follow an integrity management program that provides for continually assessing the integrity of all pipeline segments that could affect any high consequence area, through internal inspection, pressure testing, or other equally effective assessment means. The program must also provide for periodically evaluating the pipeline segments through comprehensive information analysis, promptly remediating potential problems found through the assessment and evaluation, and ensuring additional protection to the segments and high consequence areas through preventative and mitigative measures.

This integrity management rule was the first in a series of rulemakings that ultimately will require all regulated pipeline operators to have integrity management programs. This initial action covers about 87% of all the hazardous liquid pipelines in the U.S. These pipelines have the greatest potential to adversely affect critical areas, based on the volume they transport. RSPA is now preparing a NPRM with similar requirements for the remaining hazardous liquid pipelines currently regulated under 49 CFR Part 195. RSPA will then issue proposed integrity management program requirements for natural gas pipeline operators.

• *Risk-based Alternative to Pressure Testing Older Hazardous Liquid and Carbon Dioxide Pipelines.* Operators may elect a risk-based alternative in lieu of hydrostatically testing certain older pipelines (49 CFR 195.303). The alternative establishes test priorities based on the inherent risk of a given pipeline segment. One of the risk factors is to determine the pipeline segment's proximity to environmentally sensitive areas. In the preamble to the final rule, RSPA explained that it would consider defining the environmental factor in a future rulemaking once a definition of environmentally sensitive areas was finalized.

• *Response Plans for Onshore Oil Pipelines under 49 CFR part 194.* Operators must consider areas of environmental importance that are in or adjacent to navigable waters for spill response planning. RSPA intends to amend the definition of environmental importance to include USAs. These regulations were mandated by the Federal Water Pollution Control Act as amended by the Oil Pollution Act of 1990 (OPA).

• *Area Contingency Plans.* 49 CFR part 194 also requires operators ensure their spill response plans are consistent with applicable Area Contingency Plans (ACPs). ACPs establish response strategies and priorities for a given area based on a local community assessment of all sensitive zones within that area. ACPs are created by Area Committees that are established under the U.S. Coast Guard in the coastal zone and by the U.S. Environmental Protection Agency in the inland zone. Area Committees base response priority and strategy determinations on environmental sensitivity, along with social, cultural, political, and economic sensitivities. Not all areas identified by the ACPs are USAs. The USA definition is not intended to dictate how a specific response should be undertaken, rather the definition provides a national perspective on environmental sensitivity considerations. We expect that pipeline operators and Area Committees will work cooperatively to consider the USA information when validating existing plans or revising plans during the normal 5-year planning cycle.

• *Low Stress Pipelines.* On July 12, 1999, RSPA issued a final rule extending part 195 regulations to certain pipelines operating at 20% specified minimal yield strength (SMYS) or less (39 FR 35465). In that final rule, RSPA deferred proposing to regulate non-volatile liquid low stress pipelines in rural sensitive areas since these areas had not been defined. We stated that we would reconsider the issue once there was a sensitive area definition.

USA Pilot Test, Public Workshop and Technical Review

RSPA conducted a pilot test to determine if the proposed USA definition could be used to identify and locate unusually sensitive drinking water and ecological resources using available data from government agencies and environmental organizations. Texas, California, and Louisiana were the states chosen to test the proposed USA definition. These states contain approximately 45% of the nation's hazardous liquid pipelines and considerable drinking water and ecological resources.

RSPA collected drinking water, ecological, and base map data for the pilot test. Computer models were created from the proposed USA definition to process the collected data. RSPA used a geographic information system (GIS) to run the computer models and create maps of the USAs. The results of the pilot test can be found on the following web site: http://ops.dot.gov./pilotresults.htm.

The pilot test verified that the proposed USA definition could be used to identify and locate USAs. The pilot helped identify the types of data and the data attributes needed to run the computer models and what data are currently available in the pilot states. The pilot also helped in testing and modifying the model where incomplete data were not available.

On April 27–28, 2000, RSPA conducted a public workshop to discuss the pilot test results and begin a technical review of those results. Workshop participants included drinking water and ecological resource experts from federal and state agencies, academia, environmental groups, and the public. RSPA also solicited drinking water and ecological experts to provide a formal technical review of the pilot results. These technical reviewers included the Department of the Interior's Fish and Wildlife Service, the Department of Agriculture's Forest Service, the Department of Commerce's National Marine Fisheries Service, the U.S. Environmental Protection Agency (EPA) Office of Groundwater and Drinking Water, Louisiana Department of Environmental Quality, Louisiana Natural Heritage Program, Texas Natural Resource Conservation Commission, Railroad Commission of Texas' Environmental Services Division, California Department of Fish and Game, University of California Davis, Colorado State University, University of Alabama, Dartmouth College, and The Nature Conservancy.

Discussions at the workshop included background on the USA initiative, the proposed drinking water and ecological definitions, models that were used to apply the proposed definition, data that was gathered, how the data was processed using a GIS, and maps of the resulting USAs. Presentations from the workshop and a detailed summary of the workshop can be viewed from RSPA's USA Internet page: http://ops.dot.gov/init.htm#usa. Workshop participants also submitted their comments to the docket on this rulemaking.

Discussion of Comments Received From the Public Workshop and Technical Review

The formal technical reviewers and other workshop participants stated the proposed USA definition and the computer model created from the proposed definition are reasonable and a significant start to defining USAs. They offered various suggestions for improving the proposed USA definition,

the computer model created from the proposed definition, and the process used to create USA maps.

Drinking Water Recommendations

1. *Replace wellhead protection areas (WHPAs) with source water protection areas (SWPAs), specifically the areas of primary influence.*

A WHPA is an area surrounding a water well or well field that supplies a public water system through which contaminants are likely to pass and eventually reach the water well or well field. SWPAs are being created under a new EPA program, the Source Water Assessment Program (SWAP). The SWAP expands EPA's Wellhead Protection Program to cover surface water and places where groundwater interacts with surface water, in response to the 1996 Amendments to the Safe Drinking Water Act. State agencies are obtaining additional information than the data used to create the WHPAs in order to create SWPAs.

Under SWAP, state agencies must perform a source water assessment for each public water system to analyze existing and potential threats to the quality of the public water. As part of the assessment, the state must delineate the SWPA for the public water system. All source water assessments and SWPAs must be completed by May 2003.

The NPRM proposed that a WHPA for a community water system or a non-transient non-community water system that obtains its water supply from a Class I or Class IIA aquifer and does not have an adequate alternative source of water for a backup be considered a USA. The NPRM discussed community water systems, non-transient non-community water systems, and Class I and IIA aquifers in detail. Definitions for these terms can be found in the NPRM and at the end of this final rule.

The formal technical reviewers and other workshop participants agreed that RSPA should replace WHPAs with SWPAs. These commenters stated that SWPAs are more appropriate since they are an expansion of the WHPAs and the SWPAs should be more accurate than the WHPAs. In addition, states are focusing their attention away from WHPAs and onto SWPAs. Therefore, the WHPAs may become obsolete over time.

Since the SWAP is a new program, commenters suggested that RSPA continue to use WHPAs where SWPAs have not yet been identified. However, RSPA found that a few SWPAs have already been delineated as of August 2000.

RSPA agrees with the commenters and in the final rule has replaced WHPAs with SWPAs. Where SWPAs have not been created, WHPAs will be used to identify USAs.

2. *Replace the Pettyjohn et al. Aquifer Classification Scheme with SWPAs.*

In the NPRM, RSPA proposed to use the Pettyjohn *et al.* aquifer classification scheme as a way to determine which ground water sources are more susceptible to contamination from a hazardous liquid release. The Pettyjohn *et al.* aquifer classification scheme can be found in EPA Report 600/2–91/043, ''Regional Assessment to Aquifer Vulnerability and Sensitivity in the Conterminous United States,'' August 1991. Under this classification scheme, aquifers are ranked as Class I (a–d), II (a–c), III, or U. Class I aquifers are surficial or shallow, are permeable, and are highly vulnerable to contamination. Class II aquifers are consolidated bedrock aquifers that are moderately vulnerable to contamination. Class III aquifers are consolidated or unconsolidated aquifers that are overlain by more than 50 feet of low permeability material and have a low vulnerability to contamination. Class U aquifers are undifferentiated aquifers where several lithologic and hydrologic conditions exist.

One technical reviewer stated that it may be appropriate to replace the Pettyjohn *et al.* aquifer classification scheme used in the NPRM with SWPAs. Under the Source Water Protection Program, there are three components of source water assessment: (1) Delineating the boundaries of areas providing source waters to public water supplies (the SWPA); (2) identifying, to the extent practical, the origins of certain unregulated contaminants in the water supplies; and (3) determining the susceptibility of the source waters of the public water system(s) to contamination.

For groundwater supplies, the SWPA delineation methods are very similar to the WHPA delineation methods, and many States are using previously delineated WHPAs as SWPAs for groundwater supplies. However, delineation of a SWPA is only the first step in the assessment process. The susceptibility analysis is a critical component of the program to identify those SWPAs that are most susceptible to contamination, and it has not been completed for most of the country.

The Pettyjohn *et al.* aquifer classification scheme is a similar approach to determine the susceptibility of an aquifer to contamination. Since states will not complete their source water assessments until May 2003, RSPA considers it appropriate to continue to use the Pettyjohn approach that was characterized in the NPRM. RSPA will consider replacing the Pettyjohn et al. aquifer classification scheme with completed source water assessment data in the future. If we determine the SWPAs are an appropriate replacement to the Pettyjohn et al. aquifer classification scheme, we will issue a NPRM seeking comment on revising the USA definition.

3. *Make a preliminary drinking water USA a USA unless it is verified that an adequate alternative drinking water source exists. Change the adequate alternative drinking water source definition to extend the amount of time needed for the backup water source from one month to six months for groundwater systems.*

In the computer model created from the proposed USA definition, a drinking water resource passes through a series of filtering criteria to determine if the resource is susceptible to contamination from a pipeline release. Drinking water intakes and WHPAs that pass these filtering criteria are called preliminary drinking water USAs. All preliminary drinking water USAs are put through a final filter criterion—Is there an adequate alternative drinking water source that the preliminary drinking water USA can pull from? The NPRM proposed that an adequate alternative drinking water source be defined as a source of water that currently exists, can be used almost immediately with a minimal amount of effort and cost, will meet the short-term (at least one month) consumptive and hygiene requirements of the existing population of impacted customers, involves no perceptible change in water quality, and is temporary (until a long term alternative can be put in place, if necessary).

During the pilot test, RSPA telephoned public water suppliers to determine if an adequate alternative drinking water source existed for preliminary drinking water USAs. If the public water supplier stated that an adequate alternative drinking water source existed, the drinking water resource did not become a USA. If the public water supplier could not be reached or if the information received from the supplier was too ambiguous to decipher, the preliminary drinking water source stayed as a preliminary drinking water USA and did not become a final USA. In the pilot states, the success rate for determining whether there was an adequate alternative drinking water source varied widely, from only 45 percent for California, to nearly 85 percent for Louisiana.

The formal technical reviewers and workshop participants recommended that RSPA modify how the computer

model created from the proposed USA definition processes adequate alternative drinking water sources. Commenters stated that all preliminary drinking water USAs should be treated as USAs unless the public water supplier states that an adequate alternative drinking water source exists. Most reviewers commented that, if it was not feasible to determine whether there was an adequate alternative drinking water source, the default assumption should be that there is no adequate alternative source.

Participants and reviewers also recommended that RSPA change the proposed adequate alternative drinking water source definition to extend the amount of time needed for the backup water source for groundwater systems. Commenters stated that, in their experience, most spills that have affected surface water intakes resulted in short-term shutdowns of the intakes and that one month would be appropriate for surface water intakes. However, for groundwater systems, one month would not be enough time. Contamination to a groundwater system may take longer than a month to clean up and new wells might have to be drilled and connected to the water distribution system. Therefore, commenters suggested that the backup time be changed from one month to six—twelve months for groundwater systems.

RSPA agrees with both recommendations and has incorporated them into the final rule. RSPA believes that six months is a sufficient amount of time for an adequate alternative drinking water source for a groundwater system.

4. *Remove the doubling of WHPAs in sole source aquifers.*

In the NPRM, RSPA proposed as USAs an area twice that of the WHPAs if the following conditions existed:

- The WHPA was in a sole source aquifer,
- The sole source aquifer was a Class I or IIa aquifer as determined by the Pettyjohn, et al., aquifer classification scheme, and
- There was not an adequate alternative drinking water source available.

EPA defines a sole or principal source aquifer as one which supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer. These areas can have no alternative drinking water source(s) which could physically, legally, and economically supply all those who depend on the aquifer for drinking water.

Workshop participants and technical reviewers stated that RSPA should rely on the analysis conducted by a state and should not second guess a state by doubling the WHPA. Each state has set up delineation programs that include scientific analytical methods to determine the appropriate size of the WHPA. Therefore, the states can most competently determine the correct protection area that should be used.

RSPA agrees with these comments. The final definition does not double the SWPAs or WHPAs in sole source aquifers.

5. *Update the definition for a Community Water System.*

In the NPRM, RSPA proposed to define a community water system as ''a public water system that provides water to the same population year round.'' RSPA agrees that the final USA definition should use EPA's current definition for a community water system, as defined by statute. The current definition is ''A public water system that serves at least 15 service connections used by year-round residents of the area served by the system or regularly serves at least 25 year-round residents.''

6. *Change the Filter Criteria to Consider All Class II Aquifers, Not Just Class IIa.*

In the NPRM, RSPA proposed that the WHPAs for community water systems or non-transient non-community water systems that obtain their water from a Class I or IIa aquifer and do not have an adequate alternative source of water for a backup be considered USAs. Class II aquifers are consolidated bedrock aquifers that are moderately vulnerable to contamination. They include the following sub-classes:

Class IIa: Higher Yield Bedrock Aquifers. Consist of fairly coarse sandstone or conglomerate that contain lesser amounts of interbedded fine-grained clastics and occasionally carbonate units. In general, well yields must exceed 50 gallons per minute (gpm) to be included in this class.

Class IIb: Lower Yield Bedrock Aquifers. Consist of the same clastic rock types present in the higher yield systems. Well yields are commonly less than 50 gpm.

Class IIc: Covered Bedrock Aquifers. Consist of Class IIa and IIb aquifers that are overlain by less than 50 feet of unconsolidated material of low permeability.

One technical reviewer recommended that all Class II aquifers (Pettyjohn *et al.,* 1991) be considered. We are not adopting this recommendation. RSPA believes that class IIb and IIc are not significantly at risk of contamination from a release from a hazardous liquid pipeline. The USA delineation process is intended to identify those resources that are unusually sensitive to damage from a pipeline release. Lower-yield aquifers are at less risk of contamination because response actions should be effective in containing and cleaning up the spilled oil before the well becomes contaminated.

7. *Include sole source aquifers that are karst in nature USAs.*

One technical reviewer recommended that RSPA include all sole source aquifers that are karst in nature as USAs. Another reviewer recommended that the final USA definition include the recharge areas of the sole source aquifers that are karst in nature. Karst aquifers are composed of limestone or dolomite where the porosity is derived from connected solution cavities. They are often cavernous, with high rates of flow. These types of aquifers are very susceptible to contamination and EPA's data show at least one case of significant contamination in a karst aquifer as a result of a hazardous liquid pipeline release in the recharge area of the aquifer.

The recharge area is the area contributing to the groundwater that may flow to the aquifer over a long time. Recharge areas for karst aquifers often include sinkholes, disappearing streams, etc. where surface contaminants can directly enter the aquifer. Even rapid and effective spill response is not likely to prevent groundwater contamination in these areas.

RSPA agrees that the recharge area of karst aquifers are highly susceptible to contamination from a hazardous liquid pipeline release. RSPA does not agree that the entire karst aquifer is unusually sensitive. Although contaminants, once introduced, will flow rapidly within the aquifer, they cannot readily be introduced in non-recharge areas. According to the Pettyjohn et al. aquifer classification system, if there are 50 feet or more of imperious material overlying the aquifer, it is a Class III aquifer and is of low susceptibility of contamination, even if it is karst in nature.

In the NPRM, RSPA proposed that the WHPAs for community water systems or non-transient non-community water systems that obtain their water from a Class I or IIa aquifer and do not have an adequate alternative source of water for a backup be considered USAs. A recharge area of a sole source aquifer that is karst in nature would be considered part of a Class I aquifer. The NPRM proposed that WHPAs be doubled for sole source aquifers to provide additional protection. While RSPA did not propose to include the

entire recharge area for sole source aquifers that are karst in nature, RSPA did show intent to provide these areas with additional protection.

RSPA has conducted a national review of sole source aquifers that are karst in nature and has determined that including the recharge areas for these aquifers would only cause a minor increase in the amount of land mass identified as a USA. Therefore, RSPA has included the recharge areas of sole source aquifers that are karst in nature in the final USA definition.

8. *Where possible, consider artificial penetrations from abandoned wells, injection wells, seismic shot holes, etc.*

Three technical reviewers and several workshop participants expressed concern that artificial penetrations into an aquifer would provide a pathway for aquifer contamination that was unaccounted for in the Pettyjohn et al. aquifer classification. Artificial penetrations include abandoned wells, monitoring wells, injection wells, seismic shot holes, and improperly constructed water wells that allow groundwater interflow among aquifers. Artificial penetrations are of particular concern in many areas, including those with oil and gas exploration and production. In spite of the concern of the technical reviewers and workshop participants, the lack of data on the locations of these artificial penetrations makes it impossible to consider them in state or regional mapping applications or risk assessments at this time.

Ecological Recommendations

1. *Include in the USA definition all resources RSPA was asked to consider in the federal pipeline safety statute.*

One technical reviewer recommended that USAs include all resources that RSPA was asked to consider in 49 U.S.C. § 60109. These resources include critical wetlands, riverine or estuarine systems, national parks, wilderness areas, wildlife preservation areas or refuges, wild and scenic rivers, and critical habitat for threatened and endangered species.

RSPA has determined that not all of these resources should be considered USAs at this time. Congress required RSPA to establish criteria defining locations where unusually sensitive resources might incur permanent or long-term ''environmental'' damage in the event of an oil spill. Congress added the words ''permanent'' and ''long-term'' when it amended the USA identification requirements in 1996 (49 U.S.C. 60109). As we explained in the NPRM, rather than focus on the geographic boundaries of these areas, we focused on particular ecological species and drinking water resources in these areas that could suffer irreparable harm from a hazardous liquid release. We believe that protecting those particular species and resources now will concentrate prevention, mitigation, and response resources on areas that are most susceptible to permanent or long-term damage.

We believe that this approach satisfies the statutory mandate. We ran computer models that tested including various categories of resources, including all resources listed in the statutory mandate, for which existing data bases permitted computer modeling. Based on our analysis of all information currently available, we believe that by focusing on the particular ecological species and drinking water resources that could suffer irreparable harm, we will pick up a substantial extent of resources within the National Parks, National Wildlife Refuges, National Wilderness Areas, National Forests, and other resources that do not meet the filtering criteria being used in this rulemaking. Based on information currently available, it is not possible at this time to determine the extent of coverage in these nationally important resources areas.

Although we have not included these other areas in this rulemaking, RSPA will consider extending protection to other environmentally sensitive and vital resources through future rulemaking. Other areas that will be considered include the National Parks, National Wildlife Refuges, National Wilderness Areas, National Forests, and other cultural and sensitive environmental resources that do not meet the filtering criteria being used in this rulemaking.

The following provides additional information on some of the particular resources listed in the federal pipeline safety statute:

Critical Wetlands

RSPA has not been able to find a strict definition of critical wetlands or a consistent program that identifies critical wetlands that could be applied to the ecological USA program. ''Critical wetland'' in many cases is a generally applied term used in a wide variety of situations.

The most prevalent use of this term is in relation to issuance of permits for impacts to wetlands under Section 404 of the Clean Water Act. Some states have developed special conditions, mainly related to water quality criteria, that limit use of nationwide and other general permits in certain waters. The term ''critical wetland'' is used by a few states in this regard, however, the types of wetlands considered as ''critical'' differ from state to state.

The term ''critical wetland,'' when used in permitting programs, tends to require additional scrutiny to permit applications. It does not preclude the approval of permits. Indeed, permits are approved for these ''critical wetlands,'' subjecting these areas to environmental impacts.

Although the USA definition does not use the term ''critical wetlands,'' the definition does include wetlands that are represented in the Ramsar program (Wetlands of International Importance) and the Western Hemisphere Shorebird Reserve Network (WHSRN) program. These wetlands include the Florida Everglades, the Okefenokee Swamp in Georgia, Cheyenne Bottoms in Kansas, and Ash Meadows in Nevada. The protection of rare and endangered species in ecological USAs also contributes to the protection of wetland habitats. For aquatic and wetland species, the computer model created from the proposed and final USA definition identifies potentially larger polygonal areas as USAs (using a five mile radius around the species occurrence locations, as well as a one-fourth mile buffer into adjacent upland habitats), relative to terrestrial species (using a one mile radius), increasing the amount of wetland or aquatic area protected.

Finally, as a result of technical reviewer and workshop participant comments and other public comments to the NPRM, RSPA has revised the USA definition to include all occurrences of aquatic and aquatic-dependent USA candidate species. This will further increase the number and extent of wetlands captured as USAs. Our discussion about including these species is found later in this document.

Riverine or Estuarine Systems

Rivers and estuaries are extensive geographic features. Although all rivers and estuaries are important national resources, RSPA has decided to focus on the most sensitive portions that contain critically imperiled, imperiled, and threatened and endangered species.

Many rivers and estuaries are captured in whole or part by the final definition. Areas such as the Chesapeake Bay estuary, the Delaware Bay estuary, San Francisco Bay, Florida Bay (in Everglades National Park), the Copper River delta in Alaska and the Altamaha River in Georgia will be captured as USAs due to their recognition in the Ramsar and/or WHSRN programs. USAs formed due to the presence of rare and endangered species also result in the protection of

estuaries and rivers. As an example, many estuaries, rivers, and streams in the California pilot test became ecological USAs because they contained critically imperiled salmon populations. Also, much of the Pearl River in the Louisiana pilot became a USA because it contained three or more occurrences of endangered and imperiled species.

National Parks, Wildlife Refuges, Wildlife Preserves, Wilderness Areas and Wild and Scenic Rivers

We refer to these areas collectively as management areas, since they are managed primarily by the Departments of Interior and Agriculture. All of these areas are very important national resources. Rather than focus on the geographic boundaries of these areas, the proposed USA definition focuses on many areas within the boundaries as potential ecological USAs because of the presence of other protected species or natural communities.

Management areas tend to receive more USA designations because there is more information on the ecological resources in these areas. Endangered and rare species surveys, migratory waterbird surveys and enhancement projects, and detailed natural resource mapping efforts are much more prevalent in management areas compared to lands under other types of ownership and management. Accordingly, under this rule, large portions of our national parks, wildlife refuges, etc. are likely to be identified and protected as USAs even without explicitly including these important national resources as a USA. Based on data currently available for our analysis, it is not possible to determine the exact extent of coverage with the boundaries.

Designated Critical Habitat for Threatened or Endangered Species

During the public workshops that were held to help identify USAs, designated critical habitats (DCH) were considered as possible ecological USA candidates. RSPA chose to focus on the locations of the species rather than DCH because the location is a more focused identification of where the rare species currently exists. RSPA expects large areas of DCH to be USAs based on the presence of rare species. Due to the way in which critical habitats are described for some species, converting the DCH text descriptions to geographic boundaries would be difficult and, in some cases, impossible. We believe that protecting those particular species and resources now will concentrate prevention, mitigation and response resources to areas that are most susceptible to permanent or long-term damage.

As new ecological information becomes available to RSPA and we identify and locate additional USAs, the operator has responsibility to apply this new information in its integrity management program.

2. *Include additional species concentration areas, such as rookeries.*

Four technical reviewers and workshop participants recommended that the USA definition include additional species congregation areas, such as migratory, breeding, calving, spawning, and nursery areas. Congregation areas are currently covered in the proposed definition through inclusion of Ramsar and Western Hemisphere Shorebird Reserve Network (WHSRN) sites. These sites protect highly significant migratory waterbird concentration areas and habitats. In these areas, a very large percent of a water bird species population concentrate, creating a situation where a relatively abundant species might have a large percentage of its population impacted by a petroleum spill. One of the best examples of this type of concentration area is the portion of Delaware Bay where 80–90 percent of the red knot (a shorebird) population stops-over to feed during migration.

RSPA researched additional species aggregation and concentration areas and found standard definitions, classifications, and databases do not exist or are not complete enough to include them in the USA model. Of our three pilot states, only the eastern portion of Louisiana had additional species concentration data.

From our research, we concluded that we should consider adding two programs to the ecological component of the USA definition when complete data is available: Colonial waterbird nesting sites and Important Bird Areas. Colonial waterbirds include seabirds and wading birds, such as herons, egrets, ibises, pelicans, gulls, and terns. Colonial waterbird nesting data are currently collected by many state resource agencies. States collect the data in a relatively standardized way, but the type of information collected and its format, quality, availability, etc. varies widely between states and even within individual states. This variability makes identifying unusually sensitive or highly significant colonies very difficult to impossible on a national or range-wide basis.

To address the variability problem, two related national programs spearheaded by the USGS Biological Resources Division (BRD) are currently under development. One effort is to establish a national monitoring program for colonial waterbirds and a centralized database. The other is to develop a management plan for colonial waterbirds throughout North America. The USGS BRD's Patuxent Wildlife Research Center can be contacted for more information about these programs (http://www.pwrc.usgs.gov/ or phone: 301/497–5753).

Important Bird Areas (IBAs) is a relatively new program headed by the American Bird Conservancy and the National Audubon Society to identify unusual or highly significant concentration bird areas. Criteria established for certain types of sites in the IBA program might be comparable to criteria used in the Ramsar and WHSRN programs. IBAs include wintering, breeding, and migratory sites and also cover additional species groups (IBA is not limited to migratory waterbirds). However, the exact criteria used to determine IBAs are not currently available and supporting data for different sites are still in development, making it difficult to evaluate sites for inclusion in the USA model. Furthermore, geographic information and/or maps to delineate IBA locations do not exist. A published account of the most significant IBAs for each state is expected in the near future. For more information about IBAs, contact the American Bird Conservancy (http://www.abcbirds.org/ or phone: 540/253–5780).

Once complete data are available, RSPA will evaluate the data and determine whether to include these programs in the USA definition. If we determine that these programs should be included as USAs, RSPA will issue a NPRM seeking pubic comment on revising the USA definition.

3. *Add rare ecological communities (habitats), such as California's vernal pools.*

Five technical reviewers and various workshop participants recommended that RSPA add rare ecological communities (habitats) to the USA definition. RSPA carefully considered including rare ecological communities when developing the proposed USA definition. RSPA did not include them in the proposed definition because of the quality of the rare ecological community data at the time these resources were being considered. At that time, data providers indicated that the classification systems, nomenclature, conservation status ranks, etc. for the ecological community data were still in development and were not consistent.

RSPA was concerned that different state groups and other data providers were using different classification

schemes, different naming conventions, inconsistent status ranks, etc. Therefore, RSPA did not include rare ecological communities in the proposed definition. Since that time, data standards for the natural community data have greatly improved.

RSPA agrees that critically imperiled and imperiled rare ecological communities should now be included as ecological USA candidates, with the caveat that the natural community data must match recent nomenclature and conservation status rank conventions. RSPA believes including these resources in the final definition is consistent with our expressed intent to focus on resources that are susceptible to permanent or long term damage if affected by a release. All the same filtering criteria will be applied.

RSPA tested a modification of the proposed definition that included rare communities. In our pilot states, adding rare communities increased the amount of land mass by less than 1% in Louisiana and California. It did not increase the land mass covered in Texas.

4. *Make imperiled, threatened and endangered, and depleted marine mammal species that are aquatic or aquatic dependent or are terrestrial and have a limited range USAs.*

Several technical reviewers and workshop participants recommended that RSPA modify the proposed definition to increase the USA species representation. For USAs, increasing species representation would increase the percent of critically imperiled, imperiled, threatened and endangered, and depleted marine mammal species that are covered as USAs.

Technical reviewers and workshop participants discussed several ways to increase representation. One suggestion was to add as USAs all species that are aquatic or aquatic dependent and species that are terrestrial with a limited range (occupying a small area or can not move far). These species are more susceptible to permanent or long term damage since they are less likely or less able to avoid or leave an impacted area. These species are more likely to have all or a large part of the area they occupy or use as habitat or food sources disturbed, impacted, or destroyed during a spill.

RSPA tested a modified USA definition that included aquatic or aquatic dependent species and species that are terrestrial and have a limited range. For terrestrial species, RSPA reviewed the ecological databases for the pilot states to determine an appropriate value for ''limited range.'' RSPA determined that five acres was an appropriate value. Five acres or less seemed to successfully discriminate between those terrestrial species that have small ranges versus those that are easily recognized as wide-ranging species. Rare terrestrial species with limited ranges include most critically imperiled, imperiled and threatened and endangered plants and invertebrates.

The following table compares the representation statistics that were achieved for imperiled species and threatened and endangered species with the proposed rule and the statistics achieved when we add aquatic, aquatic dependent, and limited range species. The representation statistics for critically imperiled species were 100% for both the proposed definition and the modified definition since all critically imperiled species are USAs.

	Imperiled species	Threatened & endangered species
Proposed rule	TX: 70% representation	TX: 90% representation.
	LA: 30% representation	LA: 60% representation.
	CA: 93% representation	CA: 98% representation.
With changes	TX: 99% representation	TX: 90% representation.
	LA: 97% representation	LA: 92% representation.
	CA: 100% representation	CA: 100% representation.

RSPA agrees with the technical reviewers that these species should be made USAs. Adding these species is consistent with our intent in the proposed definition to provide additional protection to species in or near water. In the computer model created from the proposed USA definition, species that are aquatic or aquatic dependent are given a five mile buffer instead of the one mile buffer given to species that are terrestrial. In the pilot states, adding aquatic, aquatic dependent, and limited range species increased the amount of land mass by less than 2% in Texas, 4% in California, and 13% in Louisiana.

5. *Change multi-species protection areas (MSPAs) from three overlapping species to two overlapping species. Also, change MSPA to ''multi-species assemblage areas.''*

In the proposed USA definition, a MSPA is defined as an area where three or more different critically imperiled or imperiled species, threatened or endangered species, depleted marine mammals, or migratory waterbird concentrations co-occur. Several technical reviewers and workshop participants recommended that MSPAs be changed from three overlapping species to two overlapping species to increase representation.

The following table compares the representation statistics that the proposed rule achieved for imperiled species and threatened and endangered species with the proposed rule and the statistics achieved when we change MSPAs from three overlapping species to two overlapping species. The representation statistics for critically imperiled species were 100% for both the proposed definition and the modified definition since all critically imperiled species are USAs.

	Imperiled species	Threatened & endangered species
Proposed rule	TX: 70% representation	TX: 90% representation.
	LA: 30% representation	LA: 60% representation.
	CA: 93% representation	CA: 98% representation.
With MSPA changes	TX: 84% representation	TX: 96% representation.
	LA: 63% representation	LA: 80% representation.
	CA: 97% representation	CA: 99% representation.

Comparing the representation statistics when adding aquatic, aquatic dependent, and limited terrestrial species with changing MSPAs from three overlapping species to two shows greater representation is achieved by adding aquatic, aquatic dependent, and limited terrestrial species. This modification will result in covering larger assemblage of species vulnerable to extinction and provides greater species protection. Therefore, in the final USA definition, RSPA chose to include the aquatic, aquatic dependent, and limited terrestrial species. RSPA did not change MSPAs from three overlapping species to two.

Various workshop participants and technical reviewers also recommended that we change the term ''multi-species protection area'' to ''multi-species assemblage areas.'' RSPA agrees that this would be a more accurate portrayal of these areas and has changed the term in the final rule.

6. *Add species and ecological community occurrences that are in the best condition and are therefore the most viable, as identified by the Natural Heritage Programs' element occurrence rank (EORANK) or some other measure.*

One technical reviewer recommended that RSPA consider including those rare species and ecological community occurrences that are in the best condition and are therefore the most viable. The Natural Heritage Programs assign EORANKs to species and ecological community occurrences based on a population's size, condition, and landscape context. An EORANK of A means the species or community occurrence is in excellent condition and an EORANK of B means it is in good condition. EORANKs of C and D refer to occurrences that are marginal or poor. EORANKs of H and X refer to historical and extirpated occurrences.

Rare species and ecological community occurrences with an EORANK of C or D are considered in other areas. All critically imperiled species and community occurrences are USAs, regardless of their EORANK. Imperiled species and ecological community occurrences, threatened and endangered species occurrences, and depleted marine mammal species occurrences that have an EORANK of C or D are USAs if the species is aquatic, aquatic dependent, or has a limited terrestrial range, or if it is part of a MSPA or migratory waterbird concentration area.

RSPA agrees that rare species and community occurrences that are in the best condition and are therefore the most viable should be added as USAs. Adding these rare species and community occurrences ensures that the highest quality or most important occurrences for the remaining rare species and community occurrences (those that are not aquatic or aquatic dependent, or part of a multi-species assemblage area) are included as USAs. Accordingly, RSPA has added to the USA definition imperiled, threatened or endangered, or depleted marine mammal species occurrences and imperiled ecological community occurrences that have an EORANK of A or B. All critically imperiled species and community occurrences are already treated as automatic USAs.

RSPA tested a modification of the proposed definition that included the most viable rare species and ecological community occurrences. In our pilot states, adding rare communities increased the amount of land mass by less than 1% in Texas, by 2% in California, and by 4% in Louisiana.

7. *Use the state conservation status ranks (S-ranks) to exclude extinct and historic species.*

One technical reviewer recommended that RSPA use the state conservation status ranks to remove species that are historical or extirpated. RSPA agrees to remove the species and ecological communities with an S-rank of SX in the computer model that will be created from the final USA definition. RSPA will not remove the species or communities with an SH ranking because there is sufficient variability in how this ranking is used and a possibility that the occurrence is still present that RSPA elects to err on the side of including SH occurrences.

8. *Include only occupied habitat for terrestrial species with large ranges.*

One technical reviewer recommended that RSPA include only those areas designated as being occupied for terrestrial species that have large ranges. This concept is already incorporated into the computer model created from the proposed USA definition. For species with large ranges that are mapped as polygons, areas described as ''potentially'' containing a species are not used in the computer model. Also, large polygonal distributions that are not classified as ''occupied habitat'' or ''specific bounded areas'' (*e.g.*, areas where the specific boundaries of the species occurrence were mapped) are not used in the computer model.

9. *Include state listed threatened and endangered species and state priorities.*

Two technical reviewers recommended that RSPA consider including state listed threatened and endangered species and resources that the state considers important. RSPA considered including these species and resources, but found that state listings do not always reflect the nationwide, or range-wide, abundance of a species. In many cases, a species may be ranked or listed in a state because it is near the edge of its range and is therefore rare within that state. The species may be relatively abundant in the adjacent states. State rankings and listings can also be highly variable due to differences among states in ranking and listing procedures and regulations. For these reasons, RSPA does not agree that these resources should be included.

Miscellaneous Recommendations

The technical reviewers and workshop participants also provided recommendations that apply to both the drinking water and ecological portion of the proposed rule, or to items that were not proposed in the NPRM. These include the following:

1. *Include cultural and Indian tribal concerns, economic, and recreational areas as USAs.*

One technical reviewer recommended that RSPA include the above resources as USAs. The proposed definition concentrated on drinking water and ecological resources. The NPRM did not propose to include other sensitive resource areas. Before proposing the USA definition, we sought extensive comment from drinking water experts, ecological resource experts, and interested public parties. We would not want to include these other areas now without an opportunity for public comment and evaluation by experts. RSPA intends to define other sensitive resource areas that need additional protection in a future rulemaking and will consider cultural and Indian tribal concerns, economic and recreational areas as a part of this process.

2. *Update USAs on a periodic basis, possibly every 4–5 years.*

Several technical reviewers and workshop participants stated that USAs need to be updated on a regular basis or they would become obsolete over time. RSPA agrees. RSPA intends to identify the locations of USAs through a comprehensive collection and analysis of drinking water and ecological resource data, contingent on the availability of funding and resources. These areas will be mapped using the National Pipeline Mapping System. Operators, other government agencies and the public will have access to these maps through the Internet. Individuals will be able to view maps of USAs and other high consequence areas nationally or by state, county, zip code, or zooming in or out of a particular area. Operators will then be able to use the maps as a guide to determine which areas of their

pipeline could affect USAs. Operators may need to contact resource agencies to obtain additional information on a particular species or drinking water intake in a USA. Nothing in this mapping, however, changes the definition of an USA in this rule.

RSPA will map USA locations on a state by state basis, beginning with the states that have the largest number of liquid pipeline miles. RSPA expects to complete the first ten states by the end of the year. These states include Texas, Oklahoma, Kansas, Louisiana, Illinois, Wyoming, New Mexico, California, Missouri, and Montana. The remaining states are expected to be completed by the end of 2001.

RSPA recognizes that inventories and maps of USAs have to be updated on a periodic basis to incorporate new information and databases. RSPA intends to update the USA maps every five years, contingent on the availability of funding and resources. RSPA will review new or revised drinking water and ecological programs and databases at that time and will incorporate new databases into the computer model created from the final USA definition at that time. RSPA will announce in the **Federal Register** and through other communication networks when revised USA maps are available.

RSPA will also analyze new, revised, or refined drinking water and ecological programs every five years to determine if other programs should be added to the USA definition. RSPA will propose any revisions to the USA definition in a notice of proposed rulemaking.

3. *Create a petitioning process to correct, add, or remove USA designations.*

The pipeline safety regulations (49 CFR 190.331) allow interested persons to petition the Associate Administrator for Pipeline Safety to establish, amend, or repeal a substantive regulation. There is no need to create a separate process for USAs.

4. *Use regional, state, and local data sets, not just data sets that meet national standards.*

Various technical reviewers and workshop participants recommended that RSPA use regional, state, and local data sets when processing the computer model created from the USA definition. RSPA uses state databases as the primary data source for the USA computer model.

The drinking water USA computer model relies on data solely provided by the states. State aquifer maps are used to determine aquifer classifications. State data on the well location, depth, source, etc. are used to identify the aquifers used by the wells. Source-water and wellhead protection programs are implemented at the state and local level.

The ecological USA computer model uses data from the state Natural Heritage Programs (NHP) on rare and endangered species locations. The Environmental Sensitivity Index (ESI) and related ecological data sets are also used to augment the NHP data in coastal and marine areas. ESI data are developed primarily by federal agencies, although some states have their own ESI programs (*e.g.,* Texas, Maine, Florida, Alabama). Regardless of the managing authority, the content of the ESI data sets are derived primarily from state agency sources.

National programs often provide the guidance for these state-implemented programs. RSPA considers it important that USAs be defined in a consistent manner nationwide. This requires data that conform to some common standard. The NHP and ESI data sources both conform to published national standards. The fact that they are nationally standardized also makes the application of the USA computer model much more uniform across states. Attempting to obtain, organize, and validate data that are not nationally standardized would require significant effort, time, and money well beyond RSPA's limited resources. Each additional data set would need to be evaluated for consistency and accuracy. Independently evaluating a wide variety of local, state, and regional data sets would not be feasible and could impede the creation of USA maps for the nation.

Other local, state, and regional groups may submit their data to the appropriate state NHPs. This would assure that their information will be considered when revised USA maps are generated in future updates. Local, state, and regional groups may also participate in U.S. Coast Guard area planning meetings, or they may contact the NOAA Scientific Support Coordinator or the appropriate state contact in their area so that they can be identified as potential data providers when ESI data sets are developed and updated.

Discussion of Comments in Response to NPRM

In addition to the technical review and workshop comments, RSPA received 24 additional comments to the NPRM. Most of these comments mirrored those received from the technical reviewers. RSPA received comments from ten government agencies (EPA Office of Emergency and Remedial Response; EPA Regions 3 and 8; U.S. Department of the Interior; U.S. Department of Commerce; U.S. Department of Energy; State of Missouri, Department of Natural Resources; State of Wyoming, Department of Environmental Quality; Hill Country Underground Water Conservation District; and the City of Austin), six advocacy groups (The Working Group on Community Right to Know, Environmental Defense, Friends of the Aquifer, Fuel Safe Washington, McHenry County Defenders, and STOP), two trade associations (American Water Works Association and the American Petroleum Institute), three pipeline operators (Equilon, Tosco, and BP Explorer), two separate comments from Argonne National lab, and one additional member of the public (Ruth Ellen Schelhaus). Most commenters expressed support for the proposed rule.

Drinking Water Recommendations

The following briefly discusses the public comments (those not from the technical reviewers or workshop participants) to the drinking water portion of the proposed rule that mirrored those received from technical reviewers and workshop participants. Our rationale for accepting or rejecting these recommendations is discussed in more detail in the previous section on technical reviewer comments.

1. *Replace WHPAs with SWPAs.*

Nine commenters recommended that RSPA replace WHPAs with SWPAs. RSPA agrees and has made this change to the final rule.

2. *Replace the Pettyjohn et al. Aquifer Classification Scheme with SWPAs.*

Two commenters recommended that RSPA consider replacing the Pettyjohn et al. aquifer classification scheme used in the NPRM with SWPAs. Since states will not complete their source water assessments until May 2003, RSPA considers the approach proposed in the NPRM to be appropriate at this time. RSPA will consider replacing the Pettyjohn et al. aquifer classification scheme with completed source water assessment data in the future. RSPA will issue a NPRM seeking comment on revising the USA definition if we determine the SWPAs are an appropriate replacement to the Pettyjohn et al. aquifer classification scheme.

3. *Make a preliminary drinking water USA a USA unless it is verified that an adequate alternative drinking water source exists. Change the adequate alternative drinking water source definition to extend the amount of time needed for the backup water source from one month to six months for groundwater systems.*

Various commenters recommended that RSPA modify how the model processes adequate alternative drinking

water sources. They stated RSPA should treat a preliminary drinking water USA as a USA unless the public water supplier states that an adequate alternative drinking water source exists. Commenters also recommended that RSPA change the adequate alternative drinking water source definition to extend the amount of time needed for the backup water source for groundwater systems from one month to six—twelve months for groundwater systems. RSPA agrees with these recommendations and has incorporated them into the final rule.

4. *Remove the doubling of WHPAs in sole source aquifers.*

Five commenters recommended that RSPA rely on the WHPA analysis conducted by the States and not double the WHPAs. RSPA agrees and has removed the doubling.

5. *Update the Community Water System definition.*

RSPA agrees and has included EPA's most current definition.

6. *Include sole source aquifers that are karst in nature as USAs.*

One commenter recommended that RSPA include all sole source aquifers that are karst in nature as USAs. RSPA does not agree that the entire karst aquifer is unusually sensitive but does agree that the recharge areas of these aquifers are. RSPA has included the recharge areas of sole source aquifers that are karst in nature as USAs.

7. *Where possible, consider artificial penetrations from abandoned wells, injection wells, seismic shot holes, etc.*

One commenter urged us to consider artificial penetrations into the aquifer. RSPA agrees that artificial penetration is a concern, but the lack of data on the locations of these artificial penetrations makes it impossible to consider this factor at the current time. RSPA will reconsider revising the USA definition to include this factor when better information is available.

The following discusses comments on drinking water resources received to the NPRM that the technical reviewers did not address:

1. *Make all drinking water areas of primary concern USAs. Do not use filtering criteria.*

In the proposed USA definition, drinking water areas of primary concern are identified. These areas are a subset of all surface intakes and groundwater-based drinking water supplies that provide potable water for domestic, commercial, and industrial users. Filtering criteria are applied to the areas of primary concern to determine which areas are more susceptible to contamination from a hazardous liquid release. Proposed filter criteria include the depth and geology of a drinking water resource and if the public water system has an adequate alternative drinking water supply.

Eight commenters recommended that RSPA remove the proposed drinking water filter criteria and make all drinking water areas of primary concern USAs. RSPA does not agree with this recommendation. The majority of the technical reviewers and workshop participants agreed that certain drinking water resources are more susceptible to permanent or long term damage than others. Removing the filter criteria would make drinking water resources that have a very low or no probability of becoming contaminated from a release USAs.

2. *Remove the adequate alternative drinking water source filter.*

In the proposed USA definition, drinking water areas of primary concern do not become USAs if an adequate alternative drinking water source exists. Five commenters recommended that RSPA remove this filtering criterion. The commenters stated that these alternatives may not always be available, pipeline operators do not have the expertise to determine if an alternate source exists, and available water supply and demand are subject to dramatic change over time.

Removing this filter criterion would make all water intakes and WHPAs for community water systems and non-transient non-community water systems USAs. RSPA does not agree that this filter should be removed. Drinking water USAs are areas where a hazardous liquid release could represent an imminent threat to human health, due to contamination of community drinking water supplies. If an alternate source of drinking water is available, there is no immediate threat to human health. A community could switch to the alternative source and the alternative water source would provide the same water quality for essential uses.

RSPA will determine if an adequate alternative drinking water supply is available by contacting operators of community water supplies that have been determined to be preliminary USAs. Pipeline operators will not make this determination. RSPA will also re-assess the adequate alternative drinking water supplies when USAs maps are updated.

3. *Add industrial water intakes as drinking water USAs.*

One commenter asked us to consider industrial water intakes as USAs. RSPA does not agree. Threats to industrial water intakes do not, by themselves, pose an imminent threat to human health. Temporary shut-down of an industrial surface water intake poses more of an economic impact than a health impact. While such impacts are real and their avoidance is desirable, economic reasons alone do not justify treating industrial intakes as an unusually sensitive area.

4. *Include all aquifers as drinking water USAs.*

One commenter asked us to consider treating all aquifers as USAs. RSPA researched the impact of including all aquifers as USAs and determined that this addition would make the majority of the United States a USA. This would dilute RSPA's and the industry's ability to focus additional prevention, mitigation, and response measures on those areas most in need of additional protection from a hazardous liquid release. In addition, not all aquifers have the ability to be impacted by a hazardous liquid release. Some aquifers are so deep or are of such geology that a hazardous liquid release could not reach and consequently impact the aquifer. Therefore, RSPA does not agree with the commenter.

5. *Include the entire aquifer of all sole source aquifers as drinking water USAs.*

Two commenters recommended that RSPA include all sole source aquifers as drinking water USAs. RSPA does not agree. RSPA researched EPA's guidance on sole source aquifers. EPA notes that the ground water's vulnerability to contamination can vary considerably within an aquifer. Therefore, EPA does not endorse using sole source aquifer status as the determining factor in making land use decisions that may impact ground water quality. EPA recommends that site-specific hydrogeological assessments be considered along with other factors to determine the vulnerability of the area to contamination.

RSPA has followed EPA's guidance. RSPA has used the EPA aquifer vulnerability classification of Pettyjohn et al. (1991) to identify those ground water wells that are at risk of contamination from a pipeline release. RSPA has defined as USAs the SWPA or WHPA around each well to represent the USA for the vulnerable aquifers. States designate these areas to protect wells from a broad range of chemical contaminants. These state delineations consider the hydrogeological features important in determining the well's vulnerability to contamination. RSPA believes this is the best approach to identify the drinking water intakes most susceptible or unusually sensitive to a pipeline release.

6. *Include aquifer recharge zones as drinking water USAs.*

Three commenters recommended that RSPA include aquifer recharge zones as drinking water USAs. RSPA does not agree. The recharge zone is the entire area contributing to groundwater that may replace water drawn from an aquifer, such as by a community water supply. The time periods for water (and contaminant) transport in this zone can be very long, sometimes on the order of hundreds to thousands of years. RSPA believes that the WHPAs and SWPAs are the more appropriate areas to focus USAs. When designating WHPAs and SWPAs, states consider the ability of contaminants to reach and affect the public water supply within 2–5 years.

RSPA has revised the USA definition to add the recharge zones of sole source aquifers in karst areas. Aquifers in karst areas are very susceptible to contamination if a hazardous liquid release occurs in the area. Sole source aquifers are the sole or primary drinking water source for an area and have no adequate backup water source. Because these areas can suffer long-term damage from a pipeline release, we have included them as USAs.

Ecological Recommendations

The following briefly discusses the public comments (those not from the technical reviewers or workshop participants) to the ecological portion of the proposed rule that mirrored those received from technical reviewers and workshop participants. Our rationale for accepting or rejecting these recommendations is discussed in greater detail in the section on the technical experts' comments.

1. *Include all resources RSPA was asked to consider in the federal pipeline safety statute as USAs.*

Seven commenters recommended that RSPA include all resources listed for consideration in 49 U.S.C. § 60109 as USAs. These resources include critical wetlands, riverine or estuarine systems, national parks, wilderness areas, wildlife preservation areas or refuges, wild and scenic rivers, and critical habitat for threatened and endangered species.

RSPA has not included them. Congress required us to establish criteria defining locations where unusually sensitive resources might incur permanent or long-term environmental damage in the event of an oil spill. Congress added the words ''permanent'' and ''long-term'' when it amended the USA identification requirements in 1996. Not all areas and resources listed in the statute are subject to permanent or long term environmental damage. RSPA believes Congress intended that RSPA focus on protecting those areas where additional prevention, mitigation, and response measures are most needed. Including all areas RSPA was asked to consider in the mandate would divert resources to areas that are not susceptible to permanent or long-term damage. All areas that are sensitive cannot be defined as ''unusually sensitive'' if the expected focusing of attention is to occur. Thus, instead of including all listed areas at this time, we decided to focus on the drinking water and ecological resources within these areas that would likely suffer irreparable harm if affected by a release. Although RSPA has not included these other areas in this rulemaking, we will consider extending protection to other environmentally sensitive and vital resources through future rulemaking.

2. *Include additional species concentration areas, such as rookeries and Important Bird Areas.*

Four commenters recommended that RSPA include additional species congregation areas, such as migratory, breeding, calving, spawning, and nursery areas. RSPA researched additional species aggregation and concentration areas and found standard definitions, classifications, and databases do not exist or are not currently in a format that would support their inclusion in the USA model. Two programs that RSPA will consider in the future are the colonial waterbird nesting sites and Important Bird Areas.

3. *Add rare ecological communities (habitats).*

Five commenters recommended that RSPA add rare ecological communities (habitats) to the USA definition. RSPA agrees and has revised the final rule to add these resources. The natural community data will be treated the same as the rare and endangered species data, in that critically imperiled and imperiled natural communities will be USA candidates and filtering criteria will be applied.

4. *Make species that are aquatic or aquatic dependent and species that are terrestrial and have a limited range USAs.*

One commenter recommended that RSPA modify the proposed rule to increase species representation by adding all aquatic or aquatic dependent species and terrestrial species with a limited ranges as USAs. These species are more susceptible to permanent or long-term damage since they are less likely or unable to avoid or leave an impacted area. These species are more likely to have all or a large part of the area they occupy or use as habitat or food sources disturbed, impacted, or destroyed during a spill. RSPA agrees and has added these species as USAs.

5. *Change multi-species protection areas (MSPAs) from three overlapping species to two overlapping species.*

Three commenters recommended that RSPA modify the NPRM to increase species representation by changing the MSPAs from three overlapping species to two overlapping species. RSPA tested this change and found that the representation statistics improved when we added aquatic, aquatic dependent, and limited terrestrial species as USAs. Therefore, RSPA decided to include the aquatic, aquatic dependent, and limited terrestrial species as USAs and did not change MSPAs from three overlapping species to two.

6. *Add species and ecological community occurrences that are in the best condition and are therefore the most viable, as identified by The Natural Heritage Program's element occurrence rank (EORANK) or some other measure.*

Three commenters recommended that RSPA include rare species and ecological communities that are in the best condition and are therefore the most viable as USAs. RSPA has made this change to the final rule.

7. *Include only the occupied habitat for terrestrial species with large ranges.*

Three commenters recommended that RSPA include only those areas designated as being occupied for terrestrial species that have large ranges. This concept is already incorporated into the computer model created from the proposed USA definition.

8. *Include state listed threatened and endangered species and state priorities.*

Seven commenters recommended that RSPA include state listed threatened and endangered species and resources important to the state. RSPA considered including these species and resources, but state listings do not always reflect the nationwide, or range-wide, abundance of a species. State rankings and listings can also be highly variable due to differences among states in ranking and listing procedures and regulations. For these reasons, RSPA does not agree that these resources should be included.

The following discusses comments on ecological resources received to the NPRM that were not addressed by the technical reviewers:

1. *Include all environmentally sensitive areas.*

Three commenters recommended that RSPA make all environmentally sensitive areas USAs. RSPA does not agree. Environmentally sensitive areas are part of the USA definition and identification process in that we

considered and evaluated these areas to determine USA candidates. Not all environmentally sensitive areas are unusually sensitive. Making all environmentally sensitive areas USAs would divert prevention, mitigation and response resources to areas that are not susceptible to permanent or long-term damage. To do so would not be consistent with the statutory mandate in 49 U.S.C. 60109.

2. *Include all resources in the oil spill Area Contingency Plans (ACPs) and areas subject to soil erosion or subsidence.*

One commenter recommended that RSPA include all ACP resources as USAs. RSPA does not agree and has not included these areas in the final definition. Ecological resources identified in the ACPs comprise all environmentally sensitive areas. Including all environmentally sensitive areas would divert prevention, mitigation and response resources to areas that are not susceptible to permanent or long-term damage. This final rule does not decrease the status of any ecological resource identified in the ACPs, nor does it decrease the amount of protection afforded these areas under the Oil Pollution Act of 1990.

The commenter also recommended that RSPA include all areas subject to soil erosion and subsidence. Soil erosion and subsidence are risk assessment factors that are related to pipeline vulnerability (the likelihood of a pipeline release). They have no direct relationship to ecological sensitivity (how sensitive a resource is to a disturbance or impact).

3. *Make all ecological candidates USAs. Do not use filtering criteria.*

Six commenters recommended that RSPA remove the filtering criteria used to identify ecological USAs. The majority of the technical reviewers and workshop participants agreed that certain species are more susceptible to permanent or long term damage. Likewise, most technical reviewers and workshop participants accepted that all individual occurrences of all candidate species do not need to be USAs. Therefore, RSPA will continue to use filter criteria.

RSPA has not filtered imperiled species since these species are closest to the brink of extinction. RSPA has also not filtered aquatic, aquatic dependent, or limited terrestrial species since they are the most vulnerable and sensitive to spill impacts. In addition, the most viable species occurrences are not filtered. This ensures that the best examples of each candidate species are protected as USAs. Finally, clusters or ''hot spots'' of species vulnerable to extinction are not filtered. The multi-species USAs provide protection to unique areas where groups of species vulnerable to extinction co-occur.

4. *Include vulnerable species as USAs or USA candidates.*

Three commenters recommended that RSPA include vulnerable species as USAs. Vulnerable species are defined by The Nature Conservancy as rare species, typically with 21 to 100 occurrences or 3,000 to 10,000 individuals.

RSPA considered including vulnerable species as USA candidates. RSPA held detailed discussions with experts in the field of conservation biology, including representatives from The Nature Conservancy. Through these conversations, we decided that USA candidates should be limited to critically imperiled and imperiled species. If a pipeline release impacts a critically imperiled or imperiled species, it could eliminate 5% to 100% of the known occurrences for that species. If a pipeline release impacts a vulnerable species, the largest impact would be an elimination of less than 5% of the known occurrences for that species. Vulnerable species are picked up in part by the USA definition since several of these species are also federally listed threatened or endangered species. RSPA will consider including vulnerable species and other sensitive resources in a future rulemaking.

Miscellaneous Recommendations

The following briefly discusses the public comments (those not from the technical reviewers or workshop participants) that mirrored those received from technical reviewers and workshop participants. Our rationale for accepting or rejecting these recommendations is discussed in more detail in the previous section on technical reviewer comments.

1. *Include cultural and Indian tribal concerns, economic, and recreational areas as USAs.*

Eleven additional commenters recommended that RSPA include the above resources as USAs. The proposed definition focused on drinking water and ecological resources that needed additional protection. We would not want to now include other areas not proposed without an opportunity for public comment and technical review. RSPA intends to define other sensitive resource areas that need additional protection in a future rulemaking and will consider cultural and Indian tribal concerns, economic and recreational areas as a part of this process.

2. *Update USAs on a periodic basis, possibly every 4–5 years.*

Six commenters stated that USAs need to be updated on a regular basis or they would become obsolete over time. RSPA agrees. RSPA intends to identify the locations of USAs and to map these areas. RSPA will update the USA maps every five years, contingent on the availability of funding and resources. RSPA will review new or revised drinking water and ecological programs and databases at that time and will incorporate new databases into the computer model created from the final USA definition at that time. RSPA will announce in the **Federal Register** and through communication networks when revised USA maps are available.

RSPA will also analyze new, revised, or refined drinking water and ecological programs every five years to determine if other programs should be added to the USA definition. RSPA will propose any revisions to the USA definition in a notice of proposed rulemaking.

3. *Create a petitioning process to correct, add, or remove USA designations.*

Eight commenters recommended that RSPA create a petitioning process to add, modify, or appeal a USA designation. The pipeline safety regulations (49 CFR 190.331) allow interested persons to petition the Associate Administrator for Pipeline Safety to establish, amend, or repeal a substantive regulation. There is no need to create a separate process for USAs.

4. *Use regional, state, and local data sets, not just data sets that meet national standards.*

Two commenters recommended that RSPA use regional, state, and local data sets when creating USAs. RSPA agrees and uses state databases as the primary data source for the USA computer model created from the proposed definition. However, RSPA considers it important that USAs be defined in a consistent manner nationwide. This requires data that conform to some common standard. Attempting to obtain, organize, and validate data that are not nationally standardized would require significant effort, time, and money well beyond RSPA's limited resources. Each additional data set would need to be evaluated for consistency and accuracy. Independently evaluating a wide variety of local, state, and regional data sets would not be feasible and could impede the creation of USA maps for the nation.

The following discusses miscellaneous comments received to the NPRM that technical reviewers did not address:

1. *Consider short-term damage caused by a release.*

Seven commenters recommended that RSPA consider the short-term effects of

a hazardous liquid pipeline release. Several of these commenters recommended that RSPA specifically consider the short term effects of a release on waterways and fish. Short term effects are those that are reversible or can be mitigated by interim actions.

RSPA does not agree that short term effects should be a major consideration when designating USAs. However, RSPA has placed high priority on protecting human health, even in the short term, in defining an adequate alternative drinking water source as one that must be readily available, of the same water quality, and must be able to supply the community for at least a one month period of time for surface water intakes and for at least six months for ground water wells. In addition, RSPA has added all species vulnerable to extinction that rely on water or are terrestrial and can not move far. Including all resources that could suffer short-term injuries would cover the majority of the U.S.

2. *RSPA should designate and map USAs.*

Four commenters stated that RSPA should designate and map USAs. As mentioned above, RSPA intends to identify, designate, and map the locations of USAs through a comprehensive collection and analysis of drinking water and ecological resource data, contingent on the availability of funding and resources. These areas will be mapped using the National Pipeline Mapping System. Operators, other government agencies and the public will have access to these maps through the Internet. Individuals will be able to view USAs nationally or by state, county, zip code, or zooming in or out of a particular area. Operators will then be able to determine which areas of their pipeline could impact USAs. Operators may need to contact resource agencies to obtain additional information on a particular species or drinking water intake in a USA.

Discussion of Comments and Modifications Received From the Technical Hazardous Liquid Pipeline Safety Standards Committee

On May 3–4, 2000, the Technical Hazardous Liquid Pipeline Safety Standards Committee (THLPSSC) met to discuss and vote on the USA proposed rule. The THLPSSC is RSPA's statutory advisory committee for hazardous liquid pipeline safety. The Committee has 15 members representing industry, government, and the public. Each proposed hazardous liquid pipeline safety standard must be submitted to the THLPSSC for the Committee's view as to its technical feasibility, reasonableness, cost-effectiveness, and practicability. During the May meeting, the THLPSSC deferred from voting on the USA proposed rule stating the members of the committee would like the results of the technical review before voting.

On September 11, 2000, the THLPSSC again convened by teleconference to discuss and vote on the proposed rule. A transcript of the meeting is in the docket. Nine Committee members voted the proposed rule and its regulatory analysis as technically feasible, reasonable, cost-effective, and practical, with modifications. One THLPSSC member abstained from the vote. Most of the suggested modifications mirrored those received from the technical reviewers. RSPA has added to the final rule all of the THLPSSC's recommended changes that passed a majority vote. The following discusses each recommended change:

1. *Modify the NPRM to add the most viable USA candidate occurrences (critically imperiled, imperiled, threatened and endangered, and depleted marine mammals occurrences) as USAs.*

The THLPSSC voted 10 to 1 in favor of this recommendation. The committee member that voted against the proposal stated the vote was negative because she would be voting yes on a motion to include all USA candidates as USAs.

2. *Modify the NPRM to add rare communities.*

The THLPSSC voted unanimously in favor of this recommendation.

3. *Modify the NPRM to make the USA candidate species that are aquatic or aquatic dependent or are terrestrial and have a limited range USAs.*

The THLPSSC voted 7 to 4 in favor of this recommendation. One THLPSSC member abstained from the vote.

4. *Include in the preamble to the final rule that RSPA intends to consider in a future rulemaking the inclusion of vulnerable species as USAs.*

The THLPSSC voted unanimously for RSPA to add to the preamble of this final rule that we will consider adding vulnerable species as USAs in a future rulemaking.

5. Replace WHPAs with SWPAs.

The THLPSSC voted unanimously in favor of this recommendation.

6. *Change the adequate alternative drinking water source definition to extend the amount of time needed for the backup water source from one month to six months for groundwater systems. Make preliminary drinking water USAs interim USAs when it can not be verified that an adequate alternative drinking water source exists. Interim USAs would be treated like all other USAs and this would give a quality code to individuals looking at the data.*

The THLPSSC voted 10 to 2 in favor of this recommendation. One THLPSSC member abstained from the vote. One voter against the proposal stated the vote was negative because she would be voting for the removal of the adequate alternative drinking water filter later.

7. *Modify the adequate alternative drinking water source definition to include the ability of the alternative source to provide fire fighting capabilities.*

The THLPSSC voted 6 to 5 in favor of this recommendation.

8. *Remove the doubling of WHPAs in sole source aquifers.*

The THLPSSC voted unanimously in favor of this recommendation.

9. *Make the recharge areas of sole source aquifers that are karst in nature USAs.*

The THLPSSC voted unanimously in favor of this recommendation.

In addition to the THLPSSC's recommendations that passed a majority vote, the Committee also discussed other recommendations. These include the following:

- Include colonial waterbird data, which are additional species concentration areas,
- Remove the USA filtering criteria,
- Create a simultaneous rule that would cover cultural and other natural resource areas,
- Change the adequate alternative drinking water source definition to extend the amount of time needed for the backup water source from one month to six months for surface water systems,
- Make preliminary drinking water USAs final USAs when it can not be verified that an adequate alternative drinking water source exists.
- Remove the adequate alternative drinking water source filter criterion, and
- Make all sole source aquifer recharge areas USAs.

None of these recommendations passed a majority vote and RSPA has not included them in this final rule.

Resources Not Included in the Final Rule

There are many other resources that government agencies, environmental organizations, and others consider sensitive to a hazardous liquid pipeline release. These include national parks, wetlands, wildlife preservation areas, refuges, fish hatcheries, vulnerable species, cultural resources, recreation areas, and economic resource areas. RSPA currently protects these resources

under 49 CFR parts 194 and 195. RSPA will consider extending protection to other environmentally sensitive and vital resources through future rulemaking and will consider the above listed resources as a part of this process.

Mapping of USAs

RSPA intends to identify the locations of USAs through a comprehensive collection and analysis of drinking water and ecological resource data, contingent on the availability of funding and resources. These areas will be mapped using the National Pipeline Mapping System. Operators, other government agencies and the public will have access to these maps through the internet. Individuals will be able to view USAs and other high consequence areas nationally or by state, county, zip code, or zooming in or out of a particular area. Operators will then be able to determine which areas of their pipeline have the ability to impact USAs. Operators may need to contact resource agencies to obtain additional information on a particular species or drinking water intake in a USA.

As additional ecological and drinking water resource information becomes available, and RSPA identifies and locates additional USAS, the operator has the responsibility to apply this new information in its integrity management program.

RSPA will map USA locations on a state by state basis, beginning with the states that have the largest number of liquid pipeline miles. RSPA expects to complete the first ten states by the end of the year. These states include Texas, Oklahoma, Kansas, Louisiana, Illinois, Wyoming, New Mexico, California, Missouri, and Montana. The remaining states are expected to be completed by the end of 2001.

RSPA recognizes that inventories and maps of USAs have to be updated on a periodic basis to incorporate new information and databases. RSPA intends to update the USA maps at least every five years, contingent on the availability of funding and resources. RSPA will review new or revised drinking water and ecological programs and databases and will incorporate new databases into the computer model created from the final USA definition. RSPA will announce in the **Federal Register** and through other communication networks, including during inspections, when revised USA maps are available.

Regulatory Analyses and Notices

A. Executive Order 12866 and DOT Policies and Procedures

The Department of Transportation considers this action to be a significant regulatory action under section 3(f) of Executive Order 12866 (58 FR 51735; October 4, 1993). Therefore, it was forwarded to the Office of Management and Budget. This final rule is significant under Department of Transportation's regulatory policies and procedures (44 FR 11034; February 26, 1979) because of its significant public and government interest.

This final rule has no cost impact on the pipeline industry or the public because it is only a definition.

The USA definition is used in the ''Pipeline Safety: Pipeline Integrity Management in High Consequence Areas (Hazardous Liquid Operators with 500 or more miles of pipeline)'' (65 FR 75378; December 1, 2000) final rule and potentially other current or future regulations. A cost-benefit analysis has been prepared for the Integrity Management rulemaking. RSPA will perform a cost-benefit analysis on any other rulemakings that require operators to take specific actions on pipelines that could affect USAs.

B. Regulatory Flexibility Act

This final rule will not impose additional requirements on pipeline operators, including small entities that operate regulated pipelines. Based on the above information showing that there is no economic impact of this rulemaking, I certify, pursuant to Section 605 of the Regulatory Flexibility Act (5 U.S.C. 605), that this final rulemaking would not have a significant economic impact on a substantial number of small entities.

C. Federalism Assessment

This final rule has been analyzed in accordance with the principles and criteria contained in Executive Order 13132 (''Federalism''). This final rule does not adopt any regulation that:

(1) has substantial direct effects on the States, the relationship between the national government and the States, or the distribution of power and responsibilities among the various levels of government;

(2) imposes substantial direct compliance costs on State and local governments; or

(3) preempts state law.

Therefore, the consultation and funding requirements of Executive Order 13132 (64 FR 43255: August 10, 1999) do not apply. Nevertheless, RSPA worked with state government representatives from Texas, California, and Louisiana to review our USA pilot test results. RSPA also conducted an aggressive communication plan to notify interested parties, including states, of our USA work.

D. Executive Order 13084

The final rule has been analyzed in accordance with the principles and criteria contained in Executive Order 13084, ''Consultation and Coordination with Indian Tribal Governments.'' Because the final rule does not significantly or uniquely affect the communities of the Indian tribal governments and does not impose substantial direct compliance costs, the funding and consultation requirements of Executive Order 13084 do not apply.

E. Paperwork Reduction Act

On December 30, 1999 (64 FR 73463) RSPA published the USA NPRM. In the NPRM, RSPA stated ''This proposed rulemaking contains no information collection that is subject to review by OMB under the Paperwork Reduction Act of 1995.'' No comments were received on this issue. Therefore, RSPA concludes that this final rule contains no paperwork burden and is not subject to OMB review under the Paperwork Reduction Act of 1995.

This final rule, like the proposed rule, is simply a definition. The USA definition is used in the ''Pipeline Safety: Pipeline Integrity Management in High Consequence Areas (Hazardous Liquid Operators with 500 or more miles of pipeline)'' (65 FR 75378; December 1, 2000) final rule and potentially other current or future regulations. A paperwork burden analysis has been prepared for the Integrity Management rulemaking. RSPA will perform a paperwork burden analysis on any other rulemakings that require operators to take specific actions on pipelines that could affect USAs.

F. Unfunded Mandates Reform Act of 1995

This final rule does not impose unfunded mandates under the Unfunded Mandates Reform Act of 1995. It does not result in costs of $100 million or more to either State, local, or tribal governments, in the aggregate, or to the private sector, and is the least burdensome alternative that achieves the objective of the rule.

G. National Environmental Policy Act

RSPA has analyzed the final rule defining USAs in accordance with section 102(2)(c) of the National Environmental Policy Act (42 U.S.C. Section 4332), the Council on

Environmental Quality regulations (40 CFR Parts 1500–1508), and DOT Order 5610.1D. An Environmental Assessment was prepared for the initial USA definitions proposed in a Notice of Proposed Rulemaking (64 FR 73464). RSPA did not receive any public comment on the Environmental Assessment. We have revised the Environmental Assessment to evaluate the USA definition changes made in response to public and other agency comments. Both the Environmental Assessment and modifications are available in the Docket.

The Environmental Assessment provides sufficient evidence to determine that the provisions of the final rule are expected to have no significant impact on the environment. Therefore, in accordance with 40 CFR Section 1508.13, RSPA has made a Finding of No Significant Impact (FONSI) for the final rule defining USAs. The FONSI is available in the Docket. The basis for arriving at this conclusion is summarized below.

The final rule establishes definitions delineating how specific drinking water and ecological resources that are unusually sensitive to environmental damage will be identified. These definitions alone do not pose any new requirements on pipeline operators, and thus have no impact on the environment. However, in the Environmental Assessment, RSPA examined current and potential future regulations to project what future environmental impacts might be expected.

RSPA has recently published a final rule on Pipeline Integrity Management in High Consequence Areas (65 FR 75378; December 1, 2000). This rule establishes new requirements for operators operating 500 or more miles of hazardous liquid pipeline to provide additional protection for high consequence areas, which include USAs. This rule specifies new requirements to assess, evaluate, repair, and validate the integrity of pipelines that could affect high consequence areas. As part of this rulemaking, RSPA prepared an Environmental Assessment to understand the impacts of these requirements (available in Docket No. 99–6355). RSPA concluded that the combined impacts of the integrity management rule provisions to protect high consequence areas will result in positive environmental impacts. The number of incidents and the environmental damage from failures in and near high consequence areas are likely to be reduced. However, from a national perspective, the impact is not expected to be significant for the pipeline operators covered by the final rule. RSPA has issued a FONSI for the integrity management rule (also available on the Docket).

RSPA also examined other regulatory requirements which could be impacted by the definition and identifications of USAs. These are:

- Integrity Management in High Consequence Areas for Operators Operating less than 500 Miles of Pipeline. This rule is expected to be similar to the new rule for larger pipeline operators described above.
- Risk-based Alternative to Pressure Testing Older Hazardous Liquid and Carbon Dioxide Pipelines (49 CFR 195.303). Environmental sensitivity is a risk factor to be considered in setting pressure test schedules. RSPA may clarify that USAs must be considered in identifying areas of environmental sensitivity.
- Response Plans for Onshore Oil Pipelines (49 CFR 194). Areas of environmental importance are to be addressed in response plans. RSPA may amend the definition of environmental importance to include USAs. Area Committees and OPS may use the USA definition in reviewing and validating response plans and response plan revisions.
- Jurisdiction of Rural Low Stress Pipelines. Currently pipelines operating at low stress in rural areas are exempt from compliance with 49 CFR 195 requirements. RSPA may consider removing this exemption for low stress lines that could impact USAs.

RSPA's initial assessment is that each of the above changes would have some positive environmental impacts in reducing the likelihood of pipeline spills and/or minimizing the consequences should a spill occur. However, without specification of the particular regulatory requirements, projections of the expected benefits are highly uncertain. When RSPA establishes specific requirements in these area, Environmental Assessments will be performed to fully understand the impacts and guide decision-making.

List of Subjects in 49 CFR Part 195

Anhydrous ammonia, Carbon dioxide, Hazardous liquids, Petroleum, Pipeline safety, Reporting and recordkeeping requirements.

In consideration of the foregoing, RSPA hereby amends 49 CFR part 195 as follows:

PART 195—[AMENDED]

1. The authority citation for part 195 continues to read as follows:

Authority: 49 U.S.C. 5103, 60102, 60104, 60108, 60109, 60118; and 49 CFR 1.53.

2. Section 195.2 is amended by adding a new definition in alphabetical order to read as follows:

§ 195.2 Definitions.

* * * * *

Unusually sensitive area (USA) means a drinking water or ecological resource area that is unusually sensitive to environmental damage from a hazardous liquid pipeline release, as identified under § 195.6.

3. Section 195.6 is added to read as follows:

§ 195.6 Unusually Sensitive Areas (USAs).

As used in this part, a USA means a drinking water or ecological resource area that is unusually sensitive to environmental damage from a hazardous liquid pipeline release.

(a) An USA drinking water resource is:

(1) The water intake for a Community Water System (CWS) or a Non-transient Non-community Water System (NTNCWS) that obtains its water supply primarily from a surface water source and does not have an adequate alternative drinking water source;

(2) The Source Water Protection Area (SWPA) for a CWS or a NTNCWS that obtains its water supply from a Class I or Class IIA aquifer and does not have an adequate alternative drinking water source. Where a state has not yet identified the SWPA, the Wellhead Protection Area (WHPA) will be used until the state has identified the SWPA; or

(3) The sole source aquifer recharge area where the sole source aquifer is a karst aquifer in nature.

(b) An USA ecological resource is:

(1) An area containing a critically imperiled species or ecological community;

(2) A multi-species assemblage area;

(3) A migratory waterbird concentration area;

(4) An area containing an imperiled species, threatened or endangered species, depleted marine mammal species, or an imperiled ecological community where the species or community is aquatic, aquatic dependent, or terrestrial with a limited range; or

(5) An area containing an imperiled species, threatened or endangered species, depleted marine mammal species, or imperiled ecological community where the species or community occurrence is considered to be one of the most viable, highest quality, or in the best condition, as

identified by an element occurrence ranking (EORANK) of A (excellent quality) or B (good quality).

(c) As used in this part—

Adequate Alternative Drinking Water Source means a source of water that currently exists, can be used almost immediately with a minimal amount of effort and cost, involves no decline in water quality, and will meet the consumptive, hygiene, and fire fighting requirements of the existing population of impacted customers for at least one month for a surface water source of water and at least six months for a groundwater source.

Aquatic or Aquatic Dependent Species or Community means a species or community that primarily occurs in aquatic, marine, or wetland habitats, as well as species that may use terrestrial habitats during all or some portion of their life cycle, but that are still closely associated with or dependent upon aquatic, marine, or wetland habitats for some critical component or portion of their life-history (*i.e.,* reproduction, rearing and development, feeding, etc).

Class I Aquifer means an aquifer that is surficial or shallow, permeable, and is highly vulnerable to contamination. Class I aquifers include:

(1) Unconsolidated Aquifers (Class Ia) that consist of surficial, unconsolidated, and permeable alluvial, terrace, outwash, beach, dune and other similar deposits. These aquifers generally contain layers of sand and gravel that, commonly, are interbedded to some degree with silt and clay. Not all Class Ia aquifers are important water-bearing units, but they are likely to be both permeable and vulnerable. The only natural protection of these aquifers is the thickness of the unsaturated zone and the presence of fine-grained material;

(2) Soluble and Fractured Bedrock Aquifers (Class Ib). Lithologies in this class include limestone, dolomite, and, locally, evaporitic units that contain documented karst features or solution channels, regardless of size. Generally these aquifers have a wide range of permeability. Also included in this class are sedimentary strata, and metamorphic and igneous (intrusive and extrusive) rocks that are significantly faulted, fractured, or jointed. In all cases groundwater movement is largely controlled by secondary openings. Well yields range widely, but the important feature is the potential for rapid vertical and lateral ground water movement along preferred pathways, which result in a high degree of vulnerability;

(3) Semiconsolidated Aquifers (Class Ic) that generally contain poorly to moderately indurated sand and gravel that is interbedded with clay and silt. This group is intermediate to the unconsolidated and consolidated end members. These systems are common in the Tertiary age rocks that are exposed throughout the Gulf and Atlantic coastal states. Semiconsolidated conditions also arise from the presence of intercalated clay and caliche within primarily unconsolidated to poorly consolidated units, such as occurs in parts of the High Plains Aquifer; or

(4) Covered Aquifers (Class Id) that are any Class I aquifer overlain by less than 50 feet of low permeability, unconsolidated material, such as glacial till, lacustrian, and loess deposits.

Class IIa aquifer means a Higher Yield Bedrock Aquifer that is consolidated and is moderately vulnerable to contamination. These aquifers generally consist of fairly permeable sandstone or conglomerate that contain lesser amounts of interbedded fine grained clastics (shale, siltstone, mudstone) and occasionally carbonate units. In general, well yields must exceed 50 gallons per minute to be included in this class. Local fracturing may contribute to the dominant primary porosity and permeability of these systems.

Community Water System (CWS) means a public water system that serves at least 15 service connections used by year-round residents of the area or regularly serves at least 25 year-round residents.

Critically imperiled species or ecological community (habitat) means an animal or plant species or an ecological community of extreme rarity, based on The Nature Conservancy's Global Conservation Status Rank. There are generally 5 or fewer occurrences, or very few remaining individuals (less than 1,000) or acres (less than 2,000). These species and ecological communities are extremely vulnerable to extinction due to some natural or man-made factor.

Depleted marine mammal species means a species that has been identified and is protected under the Marine Mammal Protection Act of 1972, as amended (MMPA) (16 U.S.C. 1361 *et seq.*). The term ''depleted'' refers to marine mammal species that are listed as threatened or endangered, or are below their optimum sustainable populations (16 U.S.C. 1362). The term ''marine mammal'' means ''any mammal which is morphologically adapted to the marine environment (including sea otters and members of the orders Sirenia, Pinnipedia, and Cetacea), or primarily inhabits the marine environment (such as the polar bear)'' (16 U.S.C. 1362). The order Sirenia includes manatees, the order Pinnipedia includes seals, sea lions, and walruses, and the order Cetacea includes dolphins, porpoises, and whales.

Ecological community means an interacting assemblage of plants and animals that recur under similar environmental conditions across the landscape.

Element occurrence rank (EORANK) means the condition or viability of a species or ecological community occurrence, based on a population's size, condition, and landscape context. EORANKs are assigned by the Natural Heritage Programs. An EORANK of A means an excellent quality and an EORANK of B means good quality.

Imperiled species or ecological community (habitat) means a rare species or ecological community, based on The Nature Conservancy's Global Conservation Status Rank. There are generally 6 to 20 occurrences, or few remaining individuals (1,000 to 3,000) or acres (2,000 to 10,000). These species and ecological communities are vulnerable to extinction due to some natural or man-made factor.

Karst aquifer means an aquifer that is composed of limestone or dolomite where the porosity is derived from connected solution cavities. Karst aquifers are often cavernous with high rates of flow.

Migratory waterbird concentration area means a designated Ramsar site or a Western Hemisphere Shorebird Reserve Network site.

Multi-species assemblage area means an area where three or more different critically imperiled or imperiled species or ecological communities, threatened or endangered species, depleted marine mammals, or migratory waterbird concentrations co-occur.

Non-transient Non-community Water System (NTNCWS) means a public water system that regularly serves at least 25 of the same persons over six months per year. Examples of these systems include schools, factories, and hospitals that have their own water supplies.

Public Water System (PWS) means a system that provides the public water for human consumption through pipes or other constructed conveyances, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. These systems include the sources of the water supplies—*i.e.,* surface or ground. PWS can be community, non-transient non-community, or transient non-community systems.

Ramsar site means a site that has been designated under The Convention on Wetlands of International Importance

Especially as Waterfowl Habitat program. Ramsar sites are globally critical wetland areas that support migratory waterfowl. These include wetland areas that regularly support 20,000 waterfowl; wetland areas that regularly support substantial numbers of individuals from particular groups of waterfowl, indicative of wetland values, productivity, or diversity; and wetland areas that regularly support 1% of the individuals in a population of one species or subspecies of waterfowl.

Sole source aquifer (SSA) means an area designated by the U.S. Environmental Protection Agency under the Sole Source Aquifer program as the ''sole or principal'' source of drinking water for an area. Such designations are made if the aquifer's ground water supplies 50% or more of the drinking water for an area, and if that aquifer were to become contaminated, it would pose a public health hazard. A sole source aquifer that is karst in nature is one composed of limestone where the porosity is derived from connected solution cavities. They are often cavernous, with high rates of flow.

Source Water Protection Area (SWPA) means the area delineated by the state for a public water supply system (PWS) or including numerous PWSs, whether the source is ground water or surface water or both, as part of the state source water assessment program (SWAP) approved by EPA under section 1453 of the Safe Drinking Water Act.

Species means species, subspecies, population stocks, or distinct vertebrate populations.

Terrestrial ecological community with a limited range means a non-aquatic or non-aquatic dependent ecological community that covers less than five (5) acres.

Terrestrial species with a limited range means a non-aquatic or non-aquatic dependent animal or plant species that has a range of no more than five (5) acres.

Threatened and endangered species (T&E) means an animal or plant species that has been listed and is protected under the Endangered Species Act of 1973, as amended (ESA73) (16 U.S.C. 1531 et seq.). ''Endangered species'' is defined as ''any species which is in danger of extinction throughout all or a significant portion of its range'' (16 U.S.C. 1532). ''Threatened species'' is defined as ''any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range'' (16 U.S.C. 1532).

Transient Non-community Water System (TNCWS) means a public water system that does not regularly serve at least 25 of the same persons over six months per year. This type of water system serves a transient population found at rest stops, campgrounds, restaurants, and parks with their own source of water.

Wellhead Protection Area (WHPA) means the surface and subsurface area surrounding a well or well field that supplies a public water system through which contaminants are likely to pass and eventually reach the water well or well field.

Western Hemisphere Shorebird Reserve Network (WHSRN) site means an area that contains migratory shorebird concentrations and has been designated as a hemispheric reserve, international reserve, regional reserve, or endangered species reserve. Hemispheric reserves host at least 500,000 shorebirds annually or 30% of a species flyway population. International reserves host 100,000 shorebirds annually or 15% of a species flyway population. Regional reserves host 20,000 shorebirds annually or 5% of a species flyway population. Endangered species reserves are critical to the survival of endangered species and no minimum number of birds is required.

Issued in Washington, DC December 8, 2000.

Kelley S. Coyner,

Administrator.

[FR Doc. 00–31756 Filed 12–20–00; 8:45 am]

BILLING CODE 4910–60–P

Appendix C

"Pipeline Safety: Areas Unusually Sensitive to Environmental Damage," 4 Fed. Reg. 73464 (December 30, 1999). This is the notice of the proposed rule defining USAs. It describes the proposed process for selecting USAs and is referenced in the final rule.

Coordinates used for this proposal are 33–44–41 NL; 116–59–13 WL.

DATES: Comments must be filed on or before January 31, 2000, and reply comments on or before February 15, 2000.

ADDRESSES: Secretary, Federal Communications Commission, Washington, DC 20554. In addition to filing comments with the FCC, interested parties should serve the petitioner's counsel, as follows: Peter Gutmann, Esq., Pepper & Corazzini, L.L.P., 1776 K Street, N.W., Suite 200, Washington, DC 20006.

FOR FURTHER INFORMATION CONTACT: Nancy Joyner, Mass Media Bureau, (202) 418–2180.

SUPPLEMENTARY INFORMATION: This is a synopsis of the Commission's Notice of Proposed Rule Making, MM Docket No. 99–349, adopted December 1, 1999, and released December 10, 1999. The full text of this Commission decision is available for inspection and copying during normal business hours in the FCC's Reference Information Center (Room CY–A257), 445 Twelfth Street, SW., Washington, DC. The complete text of this decision may also be purchased from the Commission's copy contractor, International Transcription Service, Inc., 1231 20th Street, NW., Washington, DC 20036, (202) 857–3800.

Provisions of the Regulatory Flexibility Act of 1980 do not apply to this proceeding.

Members of the public should note that from the time a Notice of Proposed Rule Making is issued until the matter is no longer subject to Commission consideration or court review, all *ex parte* contacts are prohibited in Commission proceedings, such as this one, which involve channel allotments. See 47 CFR 1.1204(b) for rules governing permissible *ex parte* contacts.

For information regarding proper filing procedures for comments, see 47 CFR 1.415 and 1.420.

List of Subjects in 47 CFR Part 73

Radio broadcasting.

Federal Communications Commission.

John A. Karousos,

Chief, Allocations Branch, Policy and Rules Division, Mass Media Bureau.

[FR Doc. 99–33895 Filed 12–29–99; 8:45 am]

BILLING CODE 6712–01–P

FEDERAL COMMUNICATIONS COMMISSION

47 CFR Part 73

[DA 99–2759; MM Docket No. 99–348; RM–9765]

Radio Broadcasting Services; Tallulah, LA

AGENCY: Federal Communications Commission.

ACTION: Proposed rule.

SUMMARY: This document requests comments on a petition for rule making filed by Joe Kool Broadcasting requesting the allotment of Channel 248A to Tallulah, Louisiana, as that community's second local FM transmission service. Coordinates used for this proposal are 32–25–07 NL; 91–12–15 WL.

DATES: Comments must be filed on or before January 31, 2000, and reply comments on or before February 15, 2000.

ADDRESSES: Secretary, Federal Communications Commission, Washington, DC 20554. In addition to filing comments with the FCC, interested parties should serve the petitioner, as follows: Donald B. Brady, d/b/a Joe Kool Broadcasting, 204 Duncan Avenue, Jackson, MS 39202.

FOR FURTHER INFORMATION CONTACT: Nancy Joyner, Mass Media Bureau, (202) 418–2180.

SUPPLEMENTARY INFORMATION: This is a synopsis of the Commission's Notice of Proposed Rule Making, MM Docket No. 99–348, adopted December 1, 1999, and released December 10, 1999. The full text of this Commission decision is available for inspection and copying during normal business hours in the FCC's Reference Information Center (Room CY–A257), 445 Twelfth Street, SW., Washington, DC. The complete text of this decision may also be purchased from the Commission's copy contractor, International Transcription Service, Inc., 1231 20th Street, NW., Washington, DC 20036, (202) 857–3800.

Provisions of the Regulatory Flexibility Act of 1980 do not apply to this proceeding.

Members of the public should note that from the time a Notice of Proposed Rule Making is issued until the matter is no longer subject to Commission consideration or court review, all *ex parte* contacts are prohibited in Commission proceedings, such as this one, which involve channel allotments. See 47 CFR 1.1204(b) for rules governing permissible *ex parte* contacts.

For information regarding proper filing procedures for comments, see 47 CFR 1.415 and 1.420.

List of Subjects in 47 CFR Part 73

Radio broadcasting.

Federal Communications Commission.

John A. Karousos,

Chief, Allocations Branch, Policy and Rules Division, Mass Media Bureau.

[FR Doc. 99–33896 Filed 12–29–99; 8:45 am]

BILLING CODE 6712–01–P

DEPARTMENT OF TRANSPORTATION

Research and Special Programs Administration

49 CFR Part 195

[Docket RSPA–99–5455]

RIN 2137–AC34

Pipeline Safety: Areas Unusually Sensitive to Environmental Damage

AGENCY: Research and Special Programs Administration (RSPA), DOT.

ACTION: Notice of proposed rulemaking.

SUMMARY: This proposed rule defines drinking water and ecological areas that are unusually sensitive to environmental damage if there is a hazardous liquid pipeline release. We refer to these areas as unusually sensitive areas (USAs). The proposed definition was created through a series of public workshops and our collaboration with a wide-range of federal, state, public, and industry stakeholders. RSPA is working on a pilot test that implements the proposed definition and identifies USAs in three states: Texas, Louisiana, and California. Other government agencies, environmental groups, and academia will evaluate the final results of this pilot test. RSPA will publish the results of the pilot test and technical analysis once they are complete. This proposed rule would not require specific action by pipeline operators. However, this proposed definition would be used as criteria in evaluating requirements by certain existing and future regulations.

DATES: Send written comments by June 27, 2000.

ADDRESSES: Send written comments in duplicate to the Dockets Facility, U.S. Department of Transportation, Room #PL–401, 400 Seventh Street, SW, Washington, DC 20590–0001. Persons who want confirmation of mailed comments must include a self-addressed stamped postcard. Comments may also be e-mailed to

ops.comments@rspa.dot.gov in ASCII or text format. The Dockets Facility is open from 10:00 a.m. to 5:00 p.m., Monday through Friday, except on Federal holidays when the facility is closed. Persons interested in receiving future information, including the final pilot results, should visit the OPS Home Page at http://ops.dot.gov, or send their name, affiliation, address, and phone number to Christina Sames, U.S. Department of Transportation, Office of Pipeline Safety, 400 Seventh Street SW, DPS–11, Washington, D.C. 20590–0001.

FOR FURTHER INFORMATION CONTACT: Christina Sames at (202) 366–4561 or christina.sames@rspa.dot.gov. Copies of this document or other material in the docket, including material from the public workshops, can be obtained from the Dockets Facility. The public may also review material in the docket by accessing the Docket Management System's home page at http://dms.dot.gov. An electronic copy of any document published in the **Federal Register** may be downloaded from the Government Printing Office Electronic Bulletin Board Service at (202) 512–1661.

SUPPLEMENTARY INFORMATION:

Legislative Mandates

In 1992, Congress amended the federal pipeline safety statute to require the Secretary of Transportation (Secretary) to prescribe regulations that establish criteria for identifying each hazardous liquid pipeline facility and gathering line located in an area that the Secretary describes as unusually sensitive to environmental damage if there is a hazardous liquid pipeline accident (USAs). The Secretary was to consider all hazardous liquid pipeline facilities and gathering lines, whether or not they are subject to safety regulation under 49 U.S.C. Chapter 601. The Secretary also had to consult with the Environmental Protection Agency (EPA) in establishing the criteria.

The following were to be considered:

- Earthquake zones and areas subject to substantial ground movements, such as landslides;
- Areas where ground water contamination would be likely in the event of the rupture of a pipeline facility;
- Freshwater lakes, rivers, and waterways; and
- River deltas and other areas subject to soil erosion or subsidence from flooding or other water action, where pipeline facilities are likely to become exposed or undermined.

In 1996, Congress amended the USA identification requirements (49 U.S.C. Section 60109). The Secretary was still required to prescribe standards that establish criteria for identifying each hazardous liquid pipeline facility and gathering line located in an USA. However, in establishing criteria, the Secretary was now to consider areas where a pipeline rupture would likely cause permanent or long-term environmental damage, including:

- Locations near pipeline rights-of-way that are critical to drinking water, including intake locations for community water systems and critical sole source aquifer protection areas; and
- Locations near pipeline rights-of-way that have been identified as critical wetlands, riverine or estuarine systems, national parks, wilderness areas, wildlife preservation areas or refuges, wild and scenic rivers, or critical habitat areas for threatened and endangered species.
- A Presidential memorandum that accompanied the 1996 statute clarified Administration policy on USAs. The memorandum said that the listed examples should be considered, but are not exclusive and that DOT was to accord full protection to all wetlands and other aquatic areas. DOT was also to consider both the potential for short term and permanent or long term injuries to natural resources or the environment.

The Secretary was to use the identification of these unusually sensitive environmental areas in future rulemakings, that include requiring additional prevention and inventory measures in these sensitive areas. For instance, 49 U.S.C. 60109(a)(2) directs the Secretary to require operators to identify unusually sensitive environmental areas through maps and pipeline inventories.

The Secretary is to consider requiring each pipeline in an unusually sensitive environmental area to be inspected periodically and to prescribe when an instrumented internal inspection device should be used to inspect the pipeline (49 U.S.C. 60102(f)(2)). Also, the Secretary is to survey and assess the effectiveness of emergency flow restricting devices and other procedures, systems, and equipment used to detect and locate hazardous liquid pipeline ruptures, and to prescribe regulations on the circumstances under which an operator of a hazardous liquid pipeline facility must use an emergency flow restricting device or such other procedure, system, or equipment (49 U.S.C. 60102(j)).

June 1994 Public Meeting: Consideration of an OPA Approach to USAs

On June 28, 1994, RSPA held a public meeting to gather data that would allow RSPA to establish criteria for identifying environmentally sensitive areas on or near hazardous liquid pipelines. RSPA would then use the established criteria to carry out the requirements of the Oil Pollution Act (OPA) and 49 U.S.C. Section 60109.

Under our regulations that implement OPA requirements for pipelines (49 CFR part 194), an operator of an onshore oil pipeline that, because of its location, could reasonably be expected to cause substantial harm or significant and substantial harm to the environment by a release into or on any navigable waters or adjoining shorelines, must prepare and submit an oil spill response plan. These requirements are intended to improve response capabilities and to reduce the environmental impact of oil discharged from onshore oil pipelines.

The OPA regulations require an operator to identify the areas potentially affected by its pipeline that are of greatest vulnerability to an oil discharge, including navigable waters, public drinking water intakes, and environmentally sensitive areas. Environmentally sensitive areas were defined as ''an area of environmental importance which is in or adjacent to navigable waters.'' These areas included wetlands, national parks, wilderness and recreational areas, wildlife refuges, marine sanctuaries, and conservation areas.

We hoped to create a single definition for environmentally sensitive areas that could be used for OPA spill response planning and for the preventive measures intended by the pipeline safety statute. As previously discussed, these pipeline safety requirements included increased inspection requirements, emergency flow restricting devices, and maps and pipeline inventories of pipelines in unusually sensitive areas.

Participants at the meeting included representatives from the EPA, U.S. Coast Guard, Department of Agriculture, Department of Interior, Department of Commerce, hazardous liquid pipeline industry, and the public. Participants discussed a draft definition that focused on areas where a hazardous liquid release could create significant long-term environmental harm or represent an imminent threat to human health. These areas included community water intakes; freshwater lakes, rivers and waterways; state or Federal wetlands, parks, natural areas, wilderness areas,

wild or scenic rivers, wildlife refuges or wildlife sanctuaries specifically designated, identified, and located by the Area Contingency Plans; and river deltas and other areas subject to soil erosion or subsidence from flooding or other water action, where pipeline facilities are likely to become exposed or undermined. Participants also discussed whether common criteria could be created for both spill response planning and prevention measures.

Meetings With Other Federal Agencies and the Pipeline Industry

RSPA held several meetings with other federal agencies and the pipeline industry following the June 1994 public meeting. The meetings were held to obtain additional information on sensitive resources that should be considered when defining USAs. Participants at the meetings included the EPA; the U.S. Coast Guard; the Departments of Interior, Commerce, and Agriculture; and the hazardous liquid pipeline industry.

Several participants at the meetings stated that it would be better to separate the OPA definition of environmentally sensitive areas from the USA definition. They stated that it would be better to maintain a broad definition within OPA for spill response functions and that a narrow definition should be created for USAs and the prevention measures the USA definition would be applied to.

Participants at the meetings also discussed the resources that should be considered when defining USAs. These included community drinking water intakes, threatened and endangered species, populated areas, economic resources, and commercial water intakes. Participants stated that a decision tree or matrix should be developed to help identify which environmentally sensitive areas were USAs.

RSPA used the information gathered at these meetings to create a revised draft definition for USAs. The definition built upon the values other Federal agencies had established for activities under OPA, but more narrowly identified those areas that were unusually sensitive to damage from a hazardous liquid release. The revised definition focused on areas where a release would reach the sensitive area before the release was contained or before the area was protected.

June 1995 Public Workshop: Consideration of a Three Tier Approach to USAs

On June 15 and 16, 1995, RSPA held a public workshop to openly discuss the revised draft definition for USAs (60 FR 27948, May 26, 1995). Participants included representatives from the U.S. Coast Guard; the Departments of Interior, Agriculture, and Commerce; the EPA; non-government agencies; the hazardous liquid pipeline industry; and the public.

The revised draft definition considered three tiers of USAs. RSPA considered phasing in the three tiers to give operators more time to determine which USAs could be affected by a hazardous liquid pipeline release.

Tier One consisted of areas that could affect human health if contaminated, such as intakes for community drinking water systems and sole source aquifers. Sole source aquifers supply at least half of the drinking water consumed in the area above the aquifer and have no alternative sources that could supply all those who get their drinking water from the aquifer. In the tier model, community drinking water systems and sole source aquifers that could reasonably be expected to be affected by a release would be considered the most sensitive and highest priority areas.

We gave Tier Two, USAs along surface water, the second highest priority. Tier Two took into account the surface water habitat's natural ability to restore itself to the condition that existed before the release, and the biological and human use resources in the body of water and along the water's edge. The habitat, the biological resources, and the human use resources were assigned numerical sensitivity ratings. Combining the numerical ratings of these three resources determined if a particular area was an USA.

Tier Three, USAs within terrestrial environments, was given the third highest priority. Tier Three, like Tier Two, took into account biological resources and human use resources be studied to determine if a given area is an USA. Each was assigned a numerical sensitivity rating; the combination of these ratings determined if a particular area was an USA.

Participants at the workshop discussed the above approach and criteria. Participants stated the tiered approach was complicated and that operators may not be able to carry out the process. Participants requested that additional workshops be held to further discuss this complex topic.

October 1995 Public Workshop: Discussions on the Three Tier Approach Continue and Discussions on the USA Process

On October 17, 1995, RSPA held a second public workshop on USAs (60 FR 44824; August 29, 1995) that focused on developing a process that could be used to determine if an area is an USA. Participants asked that the process include a series of workshops on topics such as guiding principles, defining terms that may be used when referring to USAs, and protecting drinking water sources, biological resources, and human use resources.

The hazardous liquid pipeline industry provided information on its current research on USAs and recommended that a definition consider the resource to be protected, the likelihood of a given pipeline impacting that resource, and what can be done to reduce the risk to the resource. Other participants recommended integrating factors on the likelihood of a rupture occurring and the severity of the consequence into the USA definition. Participants also discussed guiding principles that could be used when determining if a given area is a USA.

January 1996 Public Workshop: Guiding Principles and the Creation of a USA Model

RSPA held a third workshop on January 18, 1996, to further discuss the guiding principles for determining USAs (61 FR 342; January 4, 1996). Participants at the workshop included the EPA; the Departments of Interior, Agriculture, and Commerce; the hazardous liquid pipeline industry, and the public. The participants stated that significant drinking water and ecological resources should be considered USAs, but that economic or recreational areas should not. They maintained that economic and recreational areas could be restored following a hazardous liquid release, but certain drinking water or ecological resources could be irreparable if affected by a release. Several participants also questioned including cultural resources as USAs. These participants stated that most cultural resources can be repaired or replaced if they are impacted by a hazardous liquid release. Indian tribal concerns were also discussed and participants requested that additional research be conducted in this area.

Participants at the workshop identified consensus guiding principles to help RSPA determine which resources we should concentrate on (areas of primary concern), which areas of primary concern are the most sensitive to a hazardous liquid release, and how to collect and process resource data. The following is the list of those guiding principles:

- Human health and safety and serious threat of contamination are always to be considered.

• A functional definition of significant must be developed to determine USAs.

• Only areas in the trajectory of a potential spill, e.g. down gradient, should be considered.

• It is expected that no pipeline operator will be required to collect natural field resource data to determine USAs.

• USAs should be subject to a systematic review process. USAs may change through time as species migrate, change location, or for other reasons. The USA definition should be explicit and practical in application.

• All phases of the USA definition process should be pilot tested for validity, practicality, and workability, to the extent practical.

• The government agencies must describe and identify USAs so that the data will not be subject to various interpretations and will be applied consistently.

• Sources of USA data must be readily available to the public and uniform in criteria and standards.

• The standards and criteria for resource sensitivity should be uniform on a national basis such that equivalent resources receive equivalent sensitivity assessments regardless of regionally based priorities.

In addition to the guiding principles, the following guidelines were created:

• Workshops for each phase of developing a USA definition should include technical experts, representatives, and field personnel with appropriate experience from agencies as well as from industry.

• Public workshops should be used to gather information on the criteria that will determine USAs.

• The USA definition should be complete before its use in a rulemaking.

• The implementation of resource assessment and protection under the USA definition could be phased.

• All terms in the USA definition should be defined.

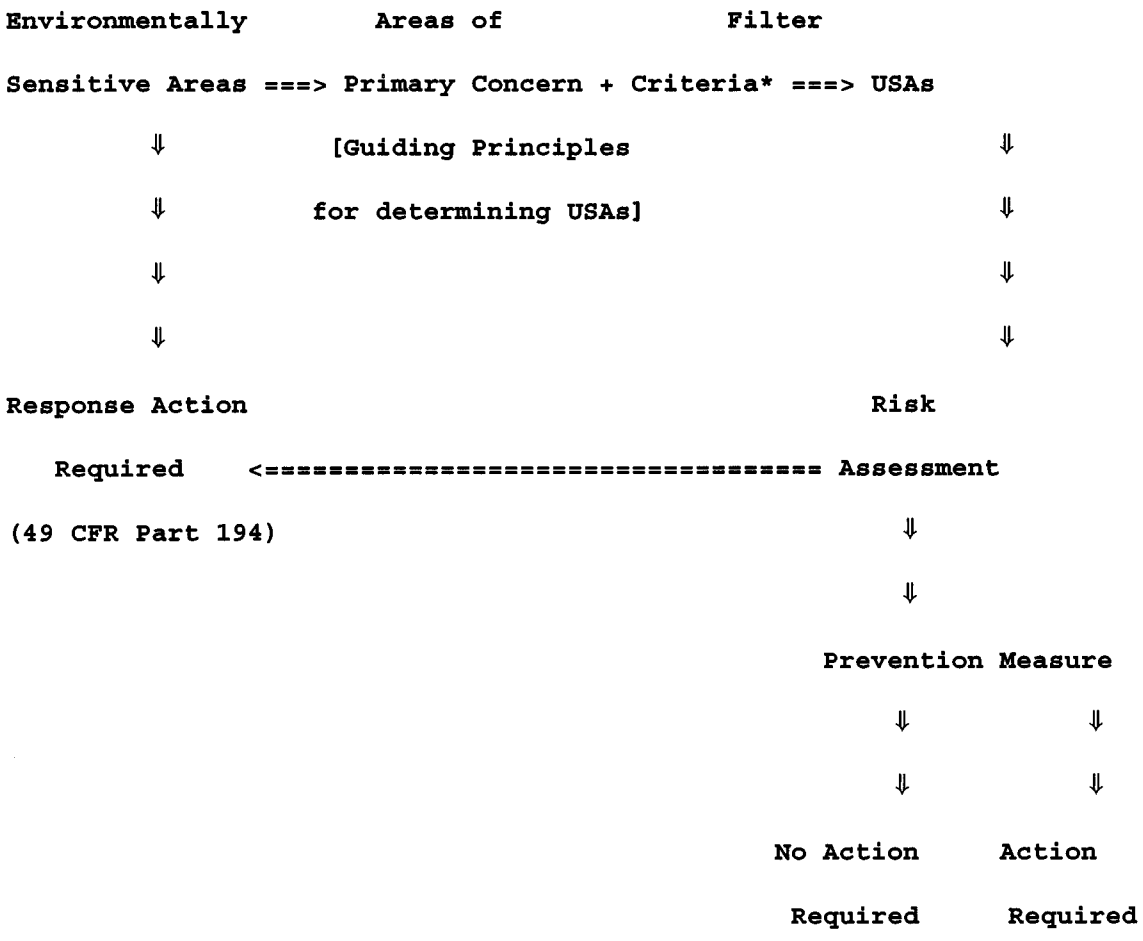
• National consistency in application of the USA definition should be the goal.

• Guidelines for data quality should include consistency, accuracy, and scope.

• Encourage open communication with land or resource managers in USAs.

• The ranking of resources or adding of values of several resources to reach a threshold USA quantity, as discussed in the June 1995 workshop, is not practical for many pipeline operators.

Participants at the workshop also created the following model of how the USA process could work. In this model, all areas that have been designated as environmentally sensitive are considered. From this large set, areas of greater concern due to their sensitivity to a hazardous liquid release are identified. These resource areas are called areas of primary concern. Filter criteria are then applied to the areas of primary concern to determine which areas of primary concern are unusually sensitive to damage from a potential hazardous liquid release. Filter criteria are designed to consider the likelihood that the resource could be impacted by a release, the guiding principles, the sensitivity of the resource, if the resource is irreparable or irreplaceable, if there are substitutes for the resource, and the criticality of the resource.



This model was used in all of the ensuing workshops and technical meetings and continues to be used in the current proposal. Finally, participants considered and identified the USA terms that they thought needed to be clarified.

April 1996 Public Workshop: USA Terms

The fourth public workshop on April 10–11, 1996, (61 FR 13144; March 26, 1996; Docket PS–140(d)), focused on criteria, components, and parameters of terms that have been used when describing USAs. These terms include the following: Significant, Threat of significant contamination, Contamination, Ecological, Drinking water resources, Recreational areas, Economic areas, Cultural areas, Readily available, and Uniform. Participants also discussed the scope and objectives of any additional USA workshops.

API Technical Meeting on Drinking Water Resources

On May 9–10, 1996, the API held a meeting of technical experts to discuss drinking water resources. RSPA and EPA attended this meeting and discussed our draft paper on drinking water resources that RSPA intended to present at its public workshop on drinking water resources. The draft discussed possible resource areas of primary concern and filtering criteria that could be used in determining which drinking water resources are unusually sensitive to damage from a hazardous liquid pipeline release.

June 1996 Public Workshop: Drinking Water Resources

RSPA held a fifth workshop on June 18–19, 1996, (61 FR 27323; May 31, 1996; Docket PS–140(e)) to discuss drinking water resources. Participants at this workshop included the EPA, the American Waterworks Association, Stanford University, the University of Alaska, and the public. This workshop focused on identifying critical drinking water resources (drinking water areas of primary concern) and possible filtering criteria that could be used to identify drinking water resources that are USAs.

Participants identified public water systems, wellhead protection areas, and sole source aquifers as drinking water areas of primary concern. Filtering criteria discussed include the depth of the aquifer, the geology surrounding the drinking water resource, and if the public water system has an adequate alternative drinking water supply.

Additional Technical Meetings

In addition to the five public workshops, we have had over a dozen meetings with other government agencies to discuss drinking water, ecological, and cultural resources. The API has also held meetings of technical experts to discuss unusually sensitive drinking water and ecological resources. RSPA, EPA, the Departments of Interior, Commerce, and Agriculture, The Nature Conservancy, and academia attended the API meetings.

API's technical meetings were on October 23–24, 1996, and June 25–26, 1997. Attendees discussed possible ecological areas of primary concern and filtering criteria that could be used to determine which ecological resources are unusually sensitive to damage from a hazardous liquid pipeline release. The significant ecological resources that were identified during the meetings included threatened and endangered species, critically imperiled and imperiled species, depleted marine mammals, and areas containing a large percent of the world's population of a migratory waterbird species. Filtering criteria focused on the extent to which a species is endangered, areas that are critical to multiple sensitive species, and areas where a large percent of a species population could be impacted. Notes from these technical meetings are in the Docket.

How RSPA Will Use the USA Definition

RSPA will use the definition for identifying USAs in current and future regulations. Any regulatory application of this definition will be aimed at ensuring that operators implement appropriate protective measures for pipelines in USAs.

Regulations where operators may have to identify USAs include the Risk-based Alternative to Pressure Testing Older Hazardous Liquid and Carbon Dioxide Pipelines (63 FR 59475; November 4, 1998), Response Plans for Onshore Oil Pipelines (62 FR 67292; December 24, 1997), Hazardous Liquid Pipelines Operated at 20% or Less of Specified Minimum Yield Strength (49 CFR Part 195), Emergency Flow Restricting Devices, (Docket PS–133), Increased Inspection Requirements, (Docket PS–141) and Pipeline Safety: Enhanced Safety and Environmental Protection for Gas Transmission and Hazardous Liquid Pipelines in High Consequence Areas, (64 FR 56725; October 21, 1999)

Under the ''Risk-based Alternative to Pressure Testing Older Hazardous Liquid and Carbon Dioxide Pipelines'' rule (49 CFR § 195.303), operators may elect a risk-based alternative in lieu of hydrostatically testing certain older pipelines. The alternative establishes test priorities based on the inherent risk of a given pipeline segment. One of the risk factors is to determine the pipeline segment's proximity to environmentally sensitive areas when we issued the final rule (63 FR 59475; November 4, 1998), we explained that until we defined these areas, operators were to use their best judgement in applying this factor. We further said that we may define the environmental factor in a future rulemaking.

Under 49 CFR part 194, ''Response Plans for Onshore Oil Pipelines,'' operators must consider areas of environmental importance that are in or adjacent to navigable waters for spill response planning. These regulations were mandated by the Federal Water Pollution Control Act as amended by the Oil Pollution Act of 1990 (OPA). RSPA intends to amend the definition of environmental importance to include USAs, once USAs are defined.

Hazardous liquid pipelines that operate at 20% of the specified minimum yield strength (SMYS) or less are currently exempt from 49 CFR part 195 regulations if they are in rural areas. When we issued the final rule extending 49 CFR part 195 regulations to certain pipelines operating at 20% SMYS or less (59 FR 35465; July 12, 1994), we deferred proposing to regulate non-hazardous volatile liquid low stress pipelines in rural environmentally sensitive areas. We did this because a definition of environmentally sensitive areas did not exist. We stated that we would revisit the issue once we defined such areas.

In 49 USC 60102(j), we are required to survey and assess the effectiveness of EFRDs and other procedures, systems, and equipment used to detect and locate hazardous liquid pipeline ruptures, and to prescribe regulations on the circumstances under which an operator of a hazardous liquid pipeline facility must use an EFRD or other device. In an EFRD rulemaking (Docket PS–133), we will consider requiring operators to use an EFRD or other procedure or equipment on their pipelines located in USAs to mitigate the extent and impact of a release in the event of a failure.

We must also (49 USC 60102(f)(2)) prescribe, if necessary, additional standards that require the periodic inspection of certain pipelines in USAs using an instrumented internal inspection device or another inspection method that is at least as effective as using the device. RSPA plans to address this mandate in a proposed rule in early CY 2000 (Docket PS–141).

RSPA recently held a public meeting to discuss the need for additional protection in high consequence areas. (Pipeline Safety: Enhanced Safety and Environmental Protection for Gas Transmission and Hazardous Liquid Pipelines in High Consequence Areas, 64 FR 56725; October 21, 1999). We stated that we planned to strengthen current pipeline safety regulations with respect to high consequence areas, including USAs. We will consider increased inspection, enhanced damage prevention, improved emergency response, and other preventive measures for pipelines in these areas.

We recognize that inventories of USAs will have to be updated on a periodic basis to incorporate new information and databases, and to reflect changes in species listings and their locations and the availability of drinking water resources. We intend to identify the locations of USAs through a comprehensive collection and analysis of drinking water and ecological resource data, contingent on the availability of funding and resources. These areas will be mapped using the National Pipeline Mapping System. Operators will have access to these maps through the internet. Operators will then be able to determine which areas of their pipeline intersect USAs. Operators may need to contact resource agencies to obtain additional information on a particular species or drinking water intake.

Existing Protections for Environmentally Sensitive Areas

Currently, pipeline safety regulations on pipeline design, construction, operation, maintenance, emergency and spill response planning generally protect all environmentally sensitive areas, cultural resources, and economic resources. The pipeline design and construction standards specify how pipeline components must be designed, welded together, installed in the ditch, and replaced to ensure the pipeline is constructed in a safe manner. The design and construction standards also cover the design and location of valves and flanges to minimize any potential release. The operation and maintenance standards specify the pipeline's acceptable operating pressure, require personnel training, and require operators to perform inspection, monitoring, and testing to assure that the pipeline continues to operate in a safe manner. Emergency and spill response planning regulations are also in place that require the identification of areas of environmental importance and that operators have response capabilities in place to minimize the release and impact of a pipeline accident on these resources.

In addition to current and intended future pipeline safety regulations, there are many other Federal, state, and local government regulations in place to protect sensitive resources. These include regulations to protect drinking water resources, threatened and endangered species, critical habitats for various species, and spawning areas. Areas have been created and designated to protect and maintain aquatic life, wildlife, various natural resources, and water resources. Permits from various Federal, state, and local agencies are needed before a pipeline can be installed or construction to modify or repair an existing line take place. Environmental reviews and consultations with resource experts are routinely conducting as part of the permit process. RSPA's existing and planned regulations complement these other Federal, state, and local government regulations on sensitive drinking water and ecological resources.

Our Current Proposal for Identifying USAs

We have developed our current proposed process for identifying USAs after extensive consultation with drinking water experts, conservation biologists, government agencies, and other stakeholders. This identification uses a process that begins by designating and assessing environmentally sensitive areas (ESAs), determining which of these ESAs are potentially more susceptible to permanent or long term damage from a hazardous liquid release (areas of primary concern), and finally identifying filtering criteria to determine which areas of primary concern can be reached by a release and sustain permanent or long-term damage. The areas that result are USAs.

RSPA has considered, but has not included, everything listed in the pipeline safety statute and the Presidential memorandum that accompanied the 1996 statute. RSPA has focused on the resources that could suffer permanent or long-term environmental damage if affected by a hazardous liquid release. RSPA has looked beyond the boundaries of the national parks, wetlands, wildlife preservation areas, refuges, etc. to the ecological species and drinking water resources that could suffer irreparable harm if affected by a hazardous liquid release.

Cultural resources, recreational resources, and economic resource areas are not being considered in this NPRM. These areas should be addressed as a separate risk factor and under separate regulations. We also believe that drinking water and ecological resources that do not qualify as USAs should also be addressed as a separate risk factor and under separate regulations. RSPA currently protects these resources under OPA's spill response plan requirements and will consider if additional measures are needed to better protect these areas. RSPA will issue additional regulations to protect these resources if it is determined that additional protections are needed.

The following discusses the areas of primary concern and filtering criteria that RSPA proposes as standards for drinking water and ecological resources.

Drinking Water Resources: Areas of Primary Concern

Drinking water resource areas of primary concern are a subset of all surface intakes and groundwater-based drinking water supplies that provide potable water for domestic, commercial, and industrial users. Drinking water resource areas of primary concern include drinking water resources for permanent communities such as cities and towns, transient communities such as campgrounds, or individual domestic supplies for residential consumption. As defined by the EPA, the drinking water areas of primary concern that we are proposing include the following:

A. *Public Water Systems (PWS):* provide piped water for human consumption to at least 15 service connections or serve an average of at least 25 people for at least 60 days each year. These systems include the sources of the water supplies—i.e., surface or ground. PWS can be community, non-transient non-community, or transient non-community systems, as described below:

1. *Community Water System (CWS):* a PWS that provides water to the same population year round.

2. *Non-transient Non-community Water System (NTNCWS):* a PWS that regularly serves at least 25 of the same people at least six months of the year. Examples of these systems include schools, factories, and hospitals that have their own water supplies.

3. *Transient Non-community Water System (TNCWS):* a PWS that caters to transitory customers in nonresidential areas. Examples of these systems include campgrounds, motels, rest stops, and gas stations.

B. *Wellhead Protection Areas (WHPA):* the surface and subsurface area surrounding a well or well field that supplies a public water system through which contaminants are likely to pass

and eventually reach the water well or well field.

C. *Sole Source Aquifers (SSA):* areas designated by the U.S. Environmental Protection Agency under the Sole Source Aquifer program as the ''sole or principal'' source of drinking water for an area. Such designations are made if the aquifer's ground water supplies 50% or more of the drinking water for an area, and if that aquifer were to become contaminated, it would pose a public health hazard.

Drinking Water Resources: Filtering Criteria

Filtering criteria would be applied to the drinking water areas of primary concern to determine which of these areas are USAs. We believe the following filtering criteria would help identify which drinking water areas of primary concern are necessary for uninterrupted consumption by human populations and could be permanently affected, or have long term damage, from a hazardous liquid release.

A. *Filter Criterion #1*: TNCWS intakes would not be designated as USAs.

B. *Filter Criterion #2*: For CWS and NTNCWS that obtain their water supply primarily from surface water sources, and do not have an adequate alternative source of water, the water intakes would be designated as USAs.

C. *Filter Criterion #3*: For CWS and NTNCWS that obtain their water supply primarily from ground water sources, where the source aquifer is identified as a Class I or Class IIa (as identified in Pettyjohn et al., 1991; EPA Document: EPA/600/2–91/043, August 1991; see Attachment A), and do not have an adequate alternative source of water, the WHPAs for such systems would be designated as USAs.

D. *Filter Criterion #4*: For CWS and NTNCWS that obtain their water supply primarily from ground water sources, where the source aquifer is identified as a Class IIb, III, or Class U (as identified in Pettyjohn et al., 1991; EPA Document: EPA/600/2–91/043, August 1991; see Attachment A,) the public water systems that rely on these aquifers would not be designated as USAs.

E. *Filter Criterion #5*: For CWS and NTNCWS that obtain their water supply primarily from ground water sources, where the source aquifer is identified as a Class I or Class IIa (as identified in Pettyjohn et al., 1991; EPA Document: EPA/600/2–91/043, August 1991; see Attachment A), and the aquifer is designated as a sole source aquifer, an area twice the WHPA would be designated a USA.

Ecological Resources: Areas of Primary Concern

On April 10–11, 1996, RSPA held a public workshop to discuss the elements that should define ecological resources (61 FR 13144, March 26, 1996). Participants concluded that ecological resources should include fish, wildlife, plants, biota and their habitats which may include land, air, and/or water. Examples of ecological resources are provided in a National Oceanic and Atmospheric Administration (NOAA) Guidance Document issued in March 1994 (59 FR 14714). Ecological resources include sensitive fish, wildlife, plant, and habitat resources that are at risk from hazardous liquid spills. These include such resources as breeding, spawning, and nesting areas; early life stage concentration and nursery areas; wintering or migratory areas; rare, threatened, and endangered species locations; and other types of high concentration or sensitive areas.

Ecological areas of primary concern are a subset of all ecological resources. These areas of primary concern are areas that contain ecological resources that are potentially more susceptible to permanent or long term environmental damage.

We are proposing four resource categories as ecological areas of primary concern. These categories are susceptible to permanent or long term ecological damage due to inherent characteristics of rarity, imperilment, or the potential for loss of large segments of an abundant population during periods of migratory concentration.

A. *Areas Containing Critically Imperiled and Imperiled Species and Subtaxa:* These areas contain known occurrences of animal and plant species that have such limited distribution that a hazardous liquid pipeline release could affect a significant percentage of the species population. There are a number of species that are at risk of extinction due to their extremely restricted distribution or limited numbers. These resources are identified, ranked, and inventoried by Natural Heritage Programs and Conservation Data Centers in conjunction with The Nature Conservancy (TNC). Under the TNC approach, each species is assigned a Global (or range-wide) Conservation Status Rank. This rank is based on several specific factors, including the number of known occurrences or populations, number of individuals, health of the population, its extinction potential, whether it is experiencing an increasing or decreasing trend, and if there are known threats to the species. Ecological areas of primary concern include occurrences of species and subtaxa with the following Global Ranks:

1. *Critically imperiled:* These species demonstrate extreme rarity (5 or fewer occurrences or fewer than 1,000 individuals) or extreme vulnerability to extinction due to some natural or man-made factor. There are approximately 1,300 species in the United States which are ranked as critically imperiled globally. Rare or extremely vulnerable subtaxa which are critically imperiled are included in this category, despite the conservation status of the species as a whole.

2. *Imperiled:* These species demonstrate rarity (6 to 20 occurrences or 1,000 to 3,000 individuals) or vulnerability to extinction due to some natural or man-made factor. There are approximately 1,800 species in the United States ranked as imperiled. Rare or vulnerable subtaxa which are imperiled are included in this category, despite the conservation status of the species as a whole.

B. *Areas Containing Federally Listed Threatened and Endangered (T&E) Species:* These areas contain known occurrences of animal and plant species that have been listed and are protected under the Endangered Species Act of 1973, as amended (ESA73) (16 U.S.C. 1531 *et seq.*). A summary of these listed species is published annually as the ''List of Endangered and Threatened Wildlife and Plants'' (50 CFR 17.11 and 17.12). There are currently more than 1,000 listed T&E species in the United States.

The term ''endangered species'' is defined as ''any species which is in danger of extinction throughout all or a significant portion of its range'' (16 U.S.C. 1532). The term ''threatened species'' is defined as ''any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range'' (16 U.S.C. 1532). The term species includes species, subspecies, and distinct vertebrate populations.

In addition, a species that has been proposed or is a candidate to become a T&E species will become an ecological area of primary concern upon its final listing as a T&E species in the **Federal Register**.

C. *Areas Containing Depleted Marine Mammal Species:* These areas contain known occurrences of depleted species identified and protected under the Marine Mammal Protection Act of 1972, as amended (MMPA) (16 U.S.C. 1361 *et seq.*). The term ''depleted'' refers to marine mammal species that are listed

as T&E or are below their optimum sustainable populations (16 U.S.C. 1362). The term ''species'' includes species, subspecies, or population stocks. There are currently 18 species listed as ''depleted'' under the MMPA. Eleven of these species are also listed as endangered and three of these species are listed as threatened under the ESA73.

The term ''marine mammal'' is defined as ''any mammal which is morphologically adapted to the marine environment (including sea otters and members of the orders Sirenia, Pinnipedia, and Cetacea), or primarily inhabits the marine environment (such as the polar bear)'' (16 U.S.C. 1362). The order Sirenia includes manatees, the order Pinnipedia includes seals, sea lions, and walruses, and the order Cetacea includes dolphins, porpoises, and whales.

D. *Areas Containing a Large Percentage of the World's Population of a Migratory Waterbird Species:* These areas contain very high concentrations of the world's population of a species for a short time. An example would be those areas of the Delaware Bay where a major portion of the world population of red knot (a shorebird species) stop-over to feed during migration.

Two programs of international significance are responsible for identifying and delimiting areas where significant populations of migratory waterbirds congregate during critical periods. The first program, the Western Hemisphere Shorebird Reserve Network (WHSRN), ranks migratory shorebird concentration areas into four different categories on the basis of biological criteria. These four categories are:

1. Hemispheric reserves—these areas host at least 500,000 shorebirds annually or 30% of a species flyway population;

2. International reserves—these areas host 100,000 shorebirds annually or 15% of a species flyway population;

3. Regional reserves—these areas host 20,000 shorebirds annually or 5% of a species flyway population; and

4. Endangered species reserves—these areas are critical to the survival of endangered species and no minimum number of birds is required.

Eighteen WHSRN sites have been established in the United States (Table 1).

A second program, The Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar), is dedicated to identifying globally critical wetland areas supporting migratory waterfowl. The establishment of a Ramsar site (Ramsar Articles, 1996) includes the following specific criteria for waterfowl:

1. A wetland area that regularly supports 20,000 waterfowl, or

2. A wetland area that regularly supports substantial numbers of individuals from particular groups of waterfowl, indicative of wetland values, productivity, or diversity, or

3. Where data on populations are available, a wetland area that regularly supports 1% of the individuals in a population of one species or subspecies of waterfowl.

There are a total of 17 Ramsar sites in the United States. See table 1 in the appendix to this document.

Additional information on the Ramsar and WHSRN sites is available on the internet or from the U.S. Fish and Wildlife Service, Office of International Affairs.

Ecological Resources: Filter Criteria

Filter criteria would be applied to the ecological resource areas of primary concern to determine which are most susceptible to permanent or long term environmental damage from a hazardous liquid pipeline spill. These resources would be ecological USAs.

We are proposing three ecological filter criteria that are consistent with current trends in conservation ecology to identify areas with critically imperiled species, multi-species protection sites, and migratory waterbird concentrations. The three criteria would be applied in a multi-tiered process where all ecological areas of primary concern receive repetitive consideration for USA status. For example, an ecological area of primary concern is first subjected to filter criterion 1, areas with critically imperiled species, and may be designated an USA at this point. If the ecological area of primary concern does not meet filter criterion 1, it then receives consideration under filter criterion 2, multi-species protection areas, and may be designated an USA at this point. If the ecological area of primary concern does not meet filter criterion 2, it receives consideration under filter criterion 3, migratory waterbird concentration areas, and may be designated an USA at this point. If the ecological area of primary concern does not meet filter criterion 3, it remains an ecological area of primary concern. All ecological areas of primary concern must be periodically reviewed to consider changes in resource information or status. An ecological area of primary concern would become a USA once it meets one of the filtering criteria.

A. Filter Criterion 1: Areas With Critically Imperiled Species

Filter criterion 1 selects those ecological areas of primary concern that contain viable occurrences of species or subtaxa designated as critically imperiled globally to be USAs. These species or subtaxa demonstrate extreme rarity or extreme vulnerability to extinction due to some natural or man-made factor. They typically have five or fewer occurrences or fewer than 1,000 individuals globally. In some cases, species or subtaxa may be identified as critically imperiled because they are subject to an extreme threat of extinction due to factors other than low number of occurrences or individuals.

The critically imperiled designation includes a wide variety of plant and animal species and subtaxa. It includes approximately 64% of the listed threatened and endangered species and 53% of those species currently designated by the Departments of Interior and Commerce as proposed or as candidates for listing under ESA73. This filter criterion also selects an additional number of plant and animal species and subtaxa not designated under ESA73. All ecological areas of primary concern meeting this criterion would be considered USAs. Ecological areas of primary concern that do not meet filter criterion 1 would then be considered under filter criteria 2 and 3.

B. Filter Criterion 2: Multi-species Protection Areas

Filter criterion 2 selects the ecological areas of primary concern that form multi-species assemblages. Multi-species assemblages are defined as areas where three or more different critically imperiled or imperiled species, threatened or endangered species, depleted marine mammals, or migratory waterbird concentrations co-occur. These areas are valuable since they often represent unique ecosystems. Multi-species protection areas also protect a greater number of sensitive resources per site location.

C. Filter Criterion 3: Migratory Waterbird Concentration Areas

Filter criterion 3 selects the ecological areas of primary concern that are designated Ramsar sites. Filter criterion 3 also selects the ecological areas of primary concern that are WHSRN sites ranked as hemispheric, international, or endangered species reserves. These areas are valuable since significant populations of migratory waterbirds congregate in these areas during critical periods. Relatively common species may be at risk at such sites. In some

cases, as much as 80% of the entire North American population of a particular species may occur at one of these sites during critical concentration periods.

Pilot Test

RSPA published a Notice of Intent to Pilot Test (64 FR 38173) on July 15, 1999. This notice announced the commencement of a pilot test to determine if the definition described in this NPRM could be used to identify and locate unusually sensitive drinking water and ecological resources using available data from government agencies and environmental organizations. RSPA is conducting the pilot test using the States of Texas, California, and Louisiana to test this proposed USA definition due to the large number of hazardous liquid pipelines in these states and the considerable drinking water and ecological resources that exist in these states. RSPA and others will use the results to evaluate whether the proposed definition identifies the majority of unusually sensitive areas and whether environmental data is accessible and appropriate to support the proposed definition. The results of this pilot test will be used to create an industry guidance document on unusually sensitive areas.

In this pilot test RSPA is:

- Identifying pertinent drinking water data that have been created and maintained by Federal or state government agencies, environmental groups, or private organizations. This includes data on public drinking water systems, aquifers, sole source aquifers, wellhead protection areas, alternative drinking water resources, and aquifer vulnerabilities.
- Identifying pertinent ecological data that have been created and maintained by Federal or state government agencies, environmental groups, or private organizations. This includes data on threatened and endangered species, critically imperilled and imperilled species, depleted marine mammal species, and areas containing a large percentage of the world's population of a migratory waterbird species.
- Identifying data on land features, such as the location of wetlands, rivers, transportation networks, and water routes (including flow direction).
- Obtaining, where possible, all pertinent drinking water, ecological, and land feature data. All problems encountered in gathering the data are being documented.
- Determining if the obtained data can be used with the proposed USA definition to identify and locate USAs. This includes reviewing the data for accuracy, attributes, format, restrictions on use, and determining if the resources and features were mapped with sufficient precision.
- Processing the data, using a geographic information system (GIS), according to the proposed USA definition. Identifying all problems encountered in processing the data.
- Comparing the USA pilot results to other preservation area identification efforts, where possible, and to all threatened and endangered specie areas.

RSPA will publish a Notice of Availability in the **Federal Register** and put the results of this pilot test on the OPS's Web Page: http://ops.dot.gov for review and comment as soon as the results are available. We currently expect to have the results in April 2000.

Technical Review

Drinking water and ecological resource experts will review the pilot test to determine whether the results identify the majority of unusually sensitive areas within the three pilot states. These experts will come from the Departments of Interior, Agriculture, and Commerce, the Environmental Protection Agency, state Nature Conservancies and Heritage Programs. We will also use experts on drinking water and ecological resources from state agencies, including the Texas Railroad Commission, Texas Parks and Wildlife, the Louisiana Department of Environmental Quality, the Louisiana Department of Wildlife and Fisheries, the California Department of Fish and Game, and the California State Fire Marshals Office.

These peer reviewers will help to identify other data sets that might be utilized and other resources that might be considered, and to improve the capability of the proposed USA definition to identify the majority of USAs within the three states. RSPA will publish a Notice of Availability in the **Federal Register** and the results of this peer review on OPS's Web Page: http://ops.dot.gov as soon as the results are available.

RSPA will also present this NPRM and the USA pilot results to the Technical Hazardous Liquid Pipeline Safety Standards Committee (THLPSSC). The THLPSSC is responsible for reviewing proposed federal hazardous liquid pipeline safety standards and reporting on their feasibility, reasonableness, and practicability. Representatives on the THLPSSC include the Minerals Management Service, City of Fredericksburg Virginia, U.S. Department of Agriculture, U.S. Department of Commerce, Virginia State Corporation Commission, Environmental Defense Fund, The Nature Conservancy, Kenai Peninsula, Atlantic Consultants, Southwest Research Institute, Buckeye Pipe Line, Lakehead Pipe Line, Kinder Morgan Energy Partners, and Mobil Pipe Line.

Regulatory Analyses and Notices

A. Executive Order 12866 and DOT Policies and Procedures

The Office of Management and Budget (OMB) does not consider this proposed rulemaking to be a significant regulatory action under Section 3(f) of Executive Order 12866 (58 FR 51735; October 4, 1993). Therefore, OMB has not reviewed this rulemaking document. DOT does not consider this proposed rulemaking significant under its regulatory policies and procedures (44 FR 11034; February 26, 1979).

This proposed definition will have no cost impact on the pipeline industry or the public because it is only a definition. It requires no immediate action on the part of pipeline operators. Potentially, it could impact current or future regulations but this would require specific rulemaking action. Because there is no accompanying action requiring anything of pipeline operators, there is no need to examine the cost impact. If future rulemakings require that operators take any specific actions on pipelines that are in unusually sensitive areas, then RSPA will perform a cost-benefit analysis to determine any potential impact. Because operators are taking no actions there are also no specific benefits attributable to this proposed definition.

B. Regulatory Flexibility Act

The proposed rule would not impose additional requirements on pipeline operators, including small entities that operate regulated pipelines. Based on the above information showing that there is no economic impact of this proposed rulemaking, I certify, pursuant to Section 605 of the Regulatory Flexibility Act (5 U.S.C. 605), that this proposed rulemaking would not have a significant economic impact on a substantial number of small entities.

C. Executive Order 13084

The proposed rule has been analyzed in accordance with the principles and criteria contained in Executive Order 13084, ''Consultation and Coordination with Indian Tribal Governments.'' Because the proposed rules would not significantly or uniquely affect the Indian tribal governments, the funding and consultation requirements of Executive Order 13084 do not apply.

D. Paperwork Reduction Act

This proposed rulemaking contains no information collection that is subject to review by OMB under the Paperwork Reduction Act of 1995.

E. Unfunded Mandates Reform Act of 1995

This proposed rulemaking would not impose unfunded mandates under the Unfunded Mandates Reform Act of 1995. It would not result in costs of $100 million or more to either State local, or tribal governments, in the aggregate, or to the private sector, and would be the least burdensome alternative that achieves the objective of the rule.

F. National Environmental Policy Act

We have analyzed the proposed rule for purposes of the National Environmental Policy Act (42 U.S.C. 4321 *et seq.*) The information and analysis provided in the Environmental Assessment demonstrate that the proposed action to define USAs in Part 195.2 and 195.6 will not have any significant environmental impact. However, as discussed in the Environmental Assessment, RSPA is considering several rulemakings that will provide additional protection for the USAs that will be identified using this definition. At the time these rulemakings are proposed, RSPA will perform Environmental Assessments to determine the impacts on the environment of these new requirements. The Environmental Assessment document is available for review in the docket.

G. Impact on Business Processes and Computer Systems

Many computers that use two digits to keep track of dates will, on January 1, 2000, recognize ''double zero'' not as 2000 but as 1900. This glitch, the Year 2000 problem, could cause computers to stop running or to start generating erroneous data. The Year 2000 problem poses a threat to the global economy in which Americans live and work. With the help of the President's Council on Year 2000 Conversion, Federal agencies are reaching out to increase awareness of the problem and to offer support. We do not want to impose new requirements that would mandate business process changes when the resources necessary to implement those requirements would otherwise be applied to the Year 2000 Problem. This notice of proposed rulemaking does not propose business process changes or require modifications to computer systems. Because this notice apparently does not affect the ability of organizations to respond to the Year 2000 problem, we do not intend to delay the effectiveness of the regulatory definition proposed in this notice.

H. Executive Order 12612

This action would not have substantial direct effects on states, on the relationship between the Federal Government and the states, or on the distribution of power and responsibilities among the various levels of government. Therefore, in accordance with Executive Order 12612 (52 FR 41685; October 30, 1987), RSPA has determined that the proposed regulation does not have sufficient federalism implications to warrant preparation of a Federalism Assessment.

List of Subjects in 49 CFR Part 195

Anhydrous Ammonia, Carbon dioxide, Hazardous liquids, Petroleum, Pipeline Safety.

In consideration of the foregoing, RSPA hearby proposes to amend 49 CFR Part 195 as follows:

PART 195—[AMENDED]

1. The authority citation for Part 195 continues to read as follows:

Authority: 49 U.S.C. 5103, 60102, 60104, 60108, 60109, 60118, and 49 CFR 1.53.

2. Section 195.2 would be revised by adding the following definition in alphabetical order to read as follows:

§ 195.2 Definitions.

* * * * *

Unusually sensitive area (USA) means a drinking water or ecological resource area that is unusually sensitive to environmental damage from a hazardous liquid pipeline release, as identified under § 195.6.

3. Section 195.6 would be added to read as follows:

§ 195.6 Unusually Sensitive Areas (USAs).

As used in this part, an USA means a drinking water or ecological resource area that is unusually sensitive to environmental damage from a hazardous liquid pipeline release.

(a) For drinking water resources: (1) The water intake for a Community Water System (CWS), as defined under § 195.6(c), or a Non-transient Non-community Water System (NTNCWS), as defined under § 195.6(c), that obtains its water supply primarily from a surface water source and does not have an adequate alternative source of water,

(2) The Wellhead Protection Area (WHPA) for a CWS, as defined under § 195.6(c), or a NTNCWS that obtains its water supply from a Class I or Class IIA aquifer, as defined under § 195.6(c), and does not have an adequate alternative source of water, or

(3) An area twice the WHPA for a CWS or a NTNCWS that obtains its water supply primarily from a sole source Class I or Class IIa aquifer and does not have an alternative source of water.

(b) For ecological resources: (1) An area containing critically imperiled species, as defined under § 195.6(c),

(2) A multi-species protection area, as defined under § 195.6(c), or

(3) A migratory waterbird concentration area, as defined under § 195.6(c).

(c) As used in this part—*Class I Aquifer* means an aquifer that is surficial or shallow, permeable, and is highly vulnerable to contamination. A Class I aquifer may be a:

(1) Unconsolidated Aquifer (Class Ia) that consists of surficial, unconsolidated, and permeable alluvial, terrace, outwash, beach, dune and other similar deposits. These aquifers generally contain layers of sand and gravel that, commonly, are interbedded to some degree with silt and clay. Not all Class Ia aquifers are important water-bearing units, but they are likely to be both permeable and vulnerable. The only natural protection of these aquifers is the thickness of the unsaturated zone and the presence of fine-grained material.

(2) Soluble and Fractured Bedrock Aquifer (Class Ib). Lithologies in this class include limestone, dolomite, and, locally, evaporitic units that contain documented karst features or solution channels, regardless of size. Generally these aquifers have a wide range of permeability. Also included in this class are sedimentary strata, and metamorphic and igneous (intrusive and extrusive) rocks that are significantly faulted, fractured, or jointed. In all cases groundwater movement is largely controlled by secondary openings. Well yields range widely, but the important feature is the potential for rapid vertical and lateral ground water movement along preferred pathways, which result in a high degree of vulnerability.

(3) Semiconsolidated Aquifer (Class Ic) that generally contains poorly to moderately indurated sand and gravel that is interbedded with clay and silt. This group is intermediate to the unconsolidated and consolidated end members. These systems are common in the Tertiary age rocks that are exposed throughout the Gulf and Atlantic coastal states. Semiconsolidated conditions also arise from the presence of intercalated clay and caliche within primarily unconsolidated to poorly consolidated

units, such as occurs in parts of the High Plains Aquifer.

(4) Covered Aquifer (Class Id) that is any Class I aquifer overlain by less than 50 feet of low permeability, unconsolidated material, such as glacial till, lacustrian, and loess deposits.

Class IIa aquifer means a Higher Yield Bedrock Aquifer that is consolidated and is moderately vulnerable to contamination. These aquifers generally consist of fairly permeable sandstone or conglomerate that contain lesser amounts of interbedded fine grained clastics (shale, siltstone, mudstone) and occasionally carbonate units. In general, well yields must exceed 50 gallons per minute to be included in this class. Local fracturing may contribute to the dominant primary porosity and permeability of these systems.

Community Water System (CWS) means a public water system that provides water to the same population year round.

Critically imperiled species means a species of extreme rarity, based on The Nature Conservancy's Global Conservation Status Rank. These species have 5 or fewer occurrences or fewer than 1,000 individuals, or are extremely vulnerable to extinction due to some natural or man-made factor.

Depleted Marine Mammal species means a species that has been identified and is protected under the Marine Mammal Protection Act of 1972, as amended (MMPA) (16 U.S.C. 1361 *et seq.*). The term ''depleted'' refers to marine mammal species that are listed as threatened or endangered, or are below their optimum sustainable populations (16 U.S.C. 1362). The term ''marine mammal'' means ''any mammal which is morphologically adapted to the marine environment (including sea otters and members of the orders Sirenia, Pinnipedia, and Cetacea), or primarily inhabits the marine environment (such as the polar bear)'' (16 U.S.C. 1362). The order Sirenia includes manatees, the order Pinnipedia includes seals, sea lions, and walruses, and the order Cetacea includes dolphins, porposes, and whales.

Imperiled species means a rare species, based on The Nature Conservancy's Global Conservation Status Rank. These species have 6 to 20 occurrences or 1,000 to 3,000 individuals, or are vulnerable to extinction due to some natural or man-made factor.

Migratory waterbird concentration area means a designated Ramsar site or Western Hemisphere Shoreline Reserve Network site ranked as hemispheric, international, or endangered species reserve.

Multi-species protection area means an area where three or more different critically imperiled or imperiled species, threatened or endangered species, depleted marine mammals, or migratory waterbird concentrations co-occur.

Non-transient Non-community Water System (NTNCWS) means a public water system that regularly serves at least 25 of the same people at least six months of the year. Examples of these systems include schools, factories, and hospitals that have their own water supplies.

Public Water System (PWS) means a system that provides piped water for human consumption to at least 15 service connections or serves an average of at least 25 people for at least 60 days each year. These systems include the sources of the water supplies—i.e., surface or ground. PWS can be community, non-transient non-community, or transient non-community systems.

Ramsar site means a site that has been designated under The Convention on Wetlands of International Importance Especially as Waterfowl Habitat program. Ramsar sites are globally critical wetland areas that support migratory waterfowl. These include wetland areas that regularly support 20,000 waterfowl; wetland areas that regularly support substantial numbers of individuals from particular groups of waterfowl, indicative of wetland values, productivity, or diversity; or wetland areas that regularly support 1% of the individuals in a population of one species or subspecies of waterfowl.

Sole Source Aquifer (SSA) means an area designated by the U.S. Environmental Protection Agency under the Sole Source Aquifer program as the ''sole or principal'' source of drinking water for an area. Such designations are made if the aquifer's ground water supplies 50% or more of the drinking water for an area, and if that aquifer were to become contaminated, it would pose a public health hazard.

Species means species, subspecies, population stocks, or distinct vertebrate populations.

Threatened and Endangered Species (T&E) means an animal or plant species that has been listed and is protected under the Endangered Species Act of 1973, as amended (ESA73) (16 U.S.C. 1531 *et seq.*). ''Endangered species'' is defined as ''any species which is in danger of extinction throughout all or a significant portion of its range'' (16 U.S.C. 1532). ''Threatened species'' is defined as ''any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range'' (16 U.S.C. 1532).

Transient Non-Community Water System (TNCWS) means a public water system that caters to transitory customers in nonresidential areas. Examples of these systems include campgrounds, motels, rest stops, and gas stations.

Wellhead Protection Area (WHPA) means the surface and subsurface area surrounding a well or well field that supplies a public water system through which contaminants are likely to pass and eventually reach the water well or well field.

Western Hemisphere Shorebird Reserve Network (WHSRN) site means an area that contains migratory shorebird concentrations and has been designated as a hemispheric reserve, international reserve, regional reserve, or endangered species reserve. Hemispheric reserves host at least 500,000 shorebirds annually or 30% of a species flyway population. International reserves host 100,000 shorebirds annually or 15% of a species flyway population. Regional reserves host 20,000 shorebirds annually or 5% of a species flyway population. Endangered species reserves are critical to the survival of endangered species and no minimum number of birds is required.

Richard B. Felder,

Associate Administrator for Pipeline Safety.

Appendix

Note: This appendix will not appear in the Code of Federal Regulations.

TABLE 1.—CURRENTLY RECOGNIZED MIGRATORY WATERBIRD PROTECTION AREAS IN THE U.S.

Site name	State	Size (ha)	Location coordinates
Ramsar Sites:			
Ash Meadows National Wildlife Refuge	Nevada	9,509	36°25′N 116°20′W
Bolinas Lagoon	California	445	37°55′N 112°41′W

TABLE 1.—CURRENTLY RECOGNIZED MIGRATORY WATERBIRD PROTECTION AREAS IN THE U.S.—Continued

Site name	State	Size (ha)	Location coordinates
Cache-Lower White Rivers	Arkansas	81,376	34°40′N 091°11′W
Cache River-Cypress Creek Wetlands	Illinois	24,281	37°13′N 089°08′W
Caddo Lake	Texas	8,382	32°45′N 094°08′W
Catahoula Lake	Louisiana	12,150	31°30′N 092°06′W
Chesapeake Bay Estuarine Complex	Virginia	45,000	38°00′N 076°20′W
Cheyenne Bottoms State Game Area	Kansas	8,036	38°29′N 098°40′W
Connecticut River Estuary & Tidal Wetland Complex	Connecticut	6,484	41°15′N 072°18′W
Delaware Bay Estuary	Delaware and New Jersey	51,252	39°11′N 075°14′W
Edwin B Forsythe National Wildlife Refuge	New Jersey	13,080	39°36′N 074°17′W
Everglades National Park MR	Florida	566,143	25°00′N 080°55′W
Horicon Marsh	Wisconsin	12,911	43°30′N 088°38′W
Izembek Lagoon National Wildlife Refuge	Alaska	168,433	55°45′N 162°41′W
Okefenokee National Wildlife Refuge	Georgia, Florida	159,889	30°49′N 082°20′W
Pelican Island National Wildlife Refuge	Florida	1,908	27°48′N 080°25′W
Sand Lake National Wildlife Refuge	South Dakota	8,700	45°45′N 098°15′W
WHSRN Sites:			
Copper River Delta	Alaska.		
Kachemak Bay	Alaska.		
Mono Lake	California.		
Grasslands	California.		
San Francisco Bay	California.		
Delaware Bay	Delaware, New Jersey.		
American Falls	Idaho.		
Cheyenne Bottoms	Kansas.		
Quivira	Kansas.		
Barrier Islands	Maryland, Virginia.		
Benton Lake	Montana.		
Stillwater	Nevada.		
Salt Plains	Oklahoma.		
Cape Roman	South Carolina.		
Bolivar Flats	Texas.		
Brazoria Refuge Complex	Texas.		
Great Salt Lake	Utah.		
Gray's Harbor	Washington.		

Attachment A

Recommended Data Source: EPA Report 600/2–91/043. Regional Assessment of Aquifer Vulnerability and Sensitivity in the Conterminous United States. Office of Research and Development. Washington, DC. 319pp.

The following information was obtained from pages 6–8 of the above report:

Class I Aquifers (Surficial or Shallow, Permeable Units; Highly Vulnerable to Contamination)

Unconsolidated Aquifers (Class Ia)

Class Ia aquifers consist of surficial, unconsolidated, and permeable alluvial, terrace, outwash, beach, dune and other similar deposits. These units generally contain layers of sand and gravel that, commonly, are interbedded to some degree with silt and clay. Not all deposits mapped as Class Ia are important water-bearing units, but they are likely to be both permeable and vulnerable. The only natural protection of aquifers of this class is the thickness of the unsaturated zone and the presence of fine-grained material.

Soluble and Fractured Bedrock Aquifers (Class Ib)

Lithologies in this class include limestone, dolomite, and, locally, evaporitic units that contain documented karst features or solution channels, regardless of size. Generally these systems have a wide range in permeability. Also included in this class are sedimentary strata, and metamorphic and igneous (intrusive and extrusive) rocks that are significantly faulted, fractured, or jointed. In all cases groundwater movement is largely controlled by secondary openings. Well yields range widely, but the important feature is the potential for rapid vertical and lateral ground water movement along preferred pathways, which result in a high degree of vulnerability.

Semiconsolidated Aquifers (Class Ic)

Semiconsolidated systems generally contain poorly to moderately indurated sand and gravel that is interbedded with clay and silt. This group is intermediate to the unconsolidated and consolidated end members. These systems are common in the Tertiary age rocks that are exposed throughout the Gulf and Atlantic coastal states. Semiconsolidated conditions also arise from the presence of intercalated clay and caliche within primarily unconsolidated to poorly consolidated units, such as occurs in parts of the High Plains Aquifer.

Covered Aquifers (Class Id)

This class consists of any Class I aquifer that is overlain by less than 50 feet of low permeability, unconsolidated material, such as glacial till, lacustrian, and loess deposits.

Class II Aquifers (Consolidated Bedrock Aquifers; Moderately Vulnerable)

Higher Yield Bedrock Aquifers (Class IIa)

These aquifers generally consist of fairly permeable sandstone or conglomerate that contain lesser amounts of interbedded fine grained clastics (shale, siltstone, mudstone) and occasionally carbonate units. In general, well yields must exceed 50 gpm to be included in this class. Locally fracturing may contribute to the dominant primary porosity and permeability of these systems.

Lower Yield Bedrock Aquifers (Class IIb)

In most cases, these aquifers consist of sedimentary or crystalline rocks. Most commonly, lower yield systems consist of the same clastic rock types present in the higher yield systems, but in the former case grain size is generally smaller and the degree of cementation or induration is greater, both of which lead to a lower permeability. In many existing and ancient mountain regions, such as the Appalachians (Blue Ridge and Piedmont), the core consists of crystalline rocks that are fractured to some degree. Well yields are commonly less than 50 gpm, although they may be larger in valleys than on interstream divides.

Covered Bedrock Aquifers (Class IIc)

This group consists of Class IIa and IIb aquifers that are overlain by less than 50 feet of unconsolidated material of low

permeability, such as glacial till, lacustrian, or loess deposits. It is assumed that most Class V wells are relatively shallow and, therefore, 50 feet or less of fine grained cover could reduce but not necessarily eliminate the vulnerability of underlying Class II systems.

Class III (Consolidated or Unconsolidated Aquifers That Are Overlain by More Than 50 Feet of Low Permeability Material; Low Vulnerability)

Aquifers of this type are the least vulnerable of all the classes because they are naturally protected by a thick layer of fine grained material, such as glacial till or shale. Examples include parts of the Northern Great Plains where the Pierre Shale of Cretaceous age crops out over thousands of square miles and is hundreds of feet thick. In many of the glaciated states, till forms an effective cover over bedrock or buried outwash aquifers, and elsewhere alternating layers of shale, siltstone, and fine grained sandstone insulate and protect the deeper major water bearing zones * * *

Class U (Undifferentiated Aquifers)

This classification is used where several lithologic and hydrologic conditions are present within a mappable area. Units are assigned to this class because of constraints of mapping scale, the presence of undelineated members within a formation or group, or the presence of nonuniformly occurring features, such as fracturing. This class is intended to convey a wider range of vulnerability than is usually contained within any other single class.

Subclass V (Variable Covered Aquifers)

The modifier ''v'', such as Class IIa-v, is used to describe areas where an undetermined or highly variable thickness of low permeability sediments overlie the major water bearing zone. To provide the largest amount of information, the underlying aquifer was mapped as if the cover were absent, and the ''v'' designation was added to the classification. The ''v'' indicates that a variable thickness of low permeability material covers the aquifer and, since the thickness of the cover, to a large degree, controls vulnerability, this aspect is undefined.

[FR Doc. 99–33614 Filed 12–29–99; 8:45 am]

BILLING CODE 4910–60–P

DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

49 CFR Part 531

[NHTSA–99–6676]

Passenger Automobile Average Fuel Economy Standards; Proposed Decision to Grant Exemption

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation (DOT).

ACTION: Proposed decision.

SUMMARY: This proposed decision responds to a petition filed by DeTomaso Automobiles, Ltd. (DeTomaso) requesting that it be exempted from the generally applicable average fuel economy standard of 27.5 miles per gallon (mpg) for model years 2000 and 2001, and that, for DeTomaso, lower alternative standards be established. In this document, NHTSA proposes that the requested exemption be granted to DeTomaso and that alternative standards of 22.0 mpg be established for MY's 2000 and 2001.

DATES: Comments on this proposed decision must be received on or before January 31, 2000.

ADDRESSES: Comments on this proposal must refer to the docket number and notice number in the heading of this notice and be submitted, preferably in ten copies, to: Docket Section, Room 5109, National Highway Traffic Safety Administration, 400 Seventh Street, SW., Washington, DC 20590. Docket hours are 9:30 a.m. to 4 p.m., Monday through Friday.

FOR FURTHER INFORMATION CONTACT: Mr. Sanjay Patel, Office of Planning and Consumer Programs, NHTSA, 400 Seventh Street, S.W., Washington, DC 20590. Mr. Patel's telephone number is: (202) 366–0307.

SUPPLEMENTARY INFORMATION:

Statutory Background

Pursuant to 49 U.S.C. section 32902(d), NHTSA may exempt a low volume manufacturer of passenger automobiles from the generally applicable average fuel economy standards if NHTSA concludes that those standards are more stringent than the maximum feasible average fuel economy for that manufacturer and if NHTSA establishes an alternative standard for that manufacturer at its maximum feasible level. Under the statute, a low volume manufacturer is one that manufactured (worldwide) fewer than 10,000 passenger automobiles in the second model year before the model year for which the exemption is sought (the affected model year) and that will manufacture fewer than 10,000 passenger automobiles in the affected model year. In determining the maximum feasible average fuel economy, the agency is required under 49 U.S.C. 32902(f) to consider:

(1) Technological feasibility.

(2) Economic practicability.

(3) The effect of other Federal motor vehicle standards on fuel economy, and

(4) The need of the United States to conserve energy.

The statute permits NHTSA to establish alternative average fuel economy standards applicable to exempted low volume manufacturers in one of three ways: (1) a separate standard for each exempted manufacturer; (2) a separate average fuel economy standard applicable to each class of exempted automobiles (classes would be based on design, size, price, or other factors); or (3) a single standard for all exempted manufacturers.

Background Information on DeTomaso

DeTomaso Automobiles, Ltd. is a Delaware Corporation under common ownership with DeT. Auto Srl., an Italian corporation that produces DeTomaso automobiles in Italy and distributes them worldwide. These DeTomaso automobiles are produced under a license granted by DeTomaso Modena SpA., an Italian corporation owned by Alejandro DeTomaso. DeT Auto Srl. and DeTomaso Automobiles Ltd. produce fewer than 10,000 cars worldwide each year and are not owned by, or under common control with, any other auto company.

The DeTomaso marque has always provided high performance through technology and weight reduction. DeTomaso vehicles were last exported to the United States in the late 1970's. The number of vehicles imported annually at that time was quite small. DeTomaso traditionally produces fewer than 2000 vehicles each year.

For the 2000 and 2001 model years, DeTomaso's product-line for the U.S. market consists of the DeTomaso Mangusta, a two-seat convertible sports car powered by a 4.6 liter Ford V–8. This model will be the only vehicle imported by DeTomaso and the company projects that it will import 300 vehicles for MY 2000 and 500 vehicles for MY 2001. These projected sales volumes are consistent with its status as a low volume importer.

The DeTomaso Petition

NHTSA's regulations on low volume exemptions from CAFE standards state that petitions for exemption are submitted ''not later than 24 months before the beginning of the affected model year, unless good cause for later submission is shown.'' (49 CFR 525.6(b).)

NHTSA received a joint petition from DeTomaso Automobiles Ltd. (DeTomaso) on June 20, 1998, seeking exemption from the passenger automobile fuel economy standards for MYs 2000–2001. This joint petition was filed less than 24 months before the beginning of MYs 2000 and 2001 and was therefore untimely under 49 C.F.R. 526.6(b). DeTomaso indicates that its decision to enter the U.S. market for MY

Appendix DD

Unusually Sensitive Areas for Ecological Resources: General Report (2002). U.S. Department of Transportation, Research and Special Programs Administration, Office of Pipeline Safety. Washington, D.C. This document describes the generation of the first USA dataset in 2000-2002; individual state appendices are not reproduced here but may be found in the original.

UNUSUALLY SENSITIVE AREAS FOR ECOLOGICAL RESOURCES: GENERAL REPORT

U.S. Department of Transportation
Research and Special Programs Administration
Office of Pipeline Safety

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UNUSUALLY SENSITIVE AREAS FOR ECOLOGICAL RESOURCES: GENERAL REPORT

INTRODUCTION

In accordance with pipeline safety laws (49 U.S.C. Section 60109), the Research and Special Programs Administration (RSPA) is required to identify areas unusually sensitive to environmental damage in the event of a hazardous liquid pipeline accident. Through interactions with various regulatory agencies, pipeline operators, private contractors, non-profit conservation organizations, and the general public, a process has been developed and adopted by RSPA to identify unusually sensitive areas (USAs) for ecological resources. The process consists of identifying a set of candidate ecological resources and subjecting them to the appropriate filter criteria. The candidate resources are listed below:

Candidate Ecological Resources

1) Critically imperiled and imperiled species and ecological communities;
2) Threatened and endangered species;
3) Depleted marine mammal species; and
4) Migratory waterbird concentrations.

Filtering Criteria

The filter criteria used to determine which candidate ecological resources should be considered USAs are listed below:

1) Areas containing critically imperiled species or ecological communities shall be USAs;
2) Areas containing multi-species assemblages are USAs. Multi-species assemblage areas are areas where three or more different critically imperiled or imperiled species or ecological communities, threatened and endangered species, depleted marine mammals, or migratory waterbird concentrations co-occur;
3) Migratory waterbird concentration areas, other than regional Western Hemisphere Shorebird Reserve Network (WHSRN) sites, shall be USAs;
4) Areas containing candidate species (critically imperiled and imperiled species, threatened and endangered species, and depleted marine mammals) or ecological communities (critically imperiled and imperiled ecological communities) of excellent quality and good quality (identified using rounded Element Occurrence Ranks of "A" and "B") shall be USAs; and
5) Areas containing candidate species and ecological communities that are aquatic or aquatic-dependent, or are terrestrial with a limited range shall be USAs.

Definitions

In order to more clearly understand the criteria and their utility in the identification of ecological USAs, several terms and concepts require further definition. These definitions are provided below.

Aquatic and aquatic dependent species and ecological communities - refers to species and ecological communities primarily occurring in aquatic, marine, or wetland habitats, as well as species that may use terrestrial habitats during all or some portion of their life cycle, but that are still closely associated with or dependent upon aquatic, marine, or wetland habitats for some critical component or portion of their life-history (e.g., reproduction, rearing and development, feeding, etc).

Critically imperiled (G1, T1) species and ecological communities - refers to species or ecological communities of extreme rarity, identified using rounded Global Conservation Status Ranks (GRANKs) assigned by the Association for Biodiversity Information (ABI), The Nature Conservancy (TNC), and the Natural Heritage Programs (NHPs) and Conservation Data Centers (CDCs). Critically imperiled species and ecological communities have generally 5 or fewer occurrences, very few remaining individuals (less than 1,000), or a very small remaining area (less than 2,000 acres). These species and ecological communities are extremely vulnerable to extinction due to natural or man-made factors. Master (1991) and Stein et al. (2000) contain additional information concerning GRANK definitions and assignments.

Depleted marine mammal species - refers to species that are listed as depleted under the Marine Mammal Protection Act of 1972, as amended (16 U.S.C. 1361 et seq.). This category includes species that are listed as threatened or endangered, and those determined by the National Marine Fisheries Service (NMFS) to be below their optimum sustainable populations. Species that have been proposed for depleted status are not included in this category.

Ecological community - refers to an interacting assemblage of plants and animals that recur under similar environmental conditions across the landscape (e.g., California vernal pool, swamp blackgum floodplain seepage forest, etc.).

Element - refers to an element of biodiversity, generally a species or ecological community (Stein et al. 2000).

Element Occurrence (EO) - refers to an element at a specific location, generally a delineated species population or ecological community stand. An element occurrence indicates a geographic entity that can be mapped (Stein et al. 2000). This term may at times be shorted to "occurrence" rather than EO.

Element occurrence rank (EORANK) - refers to the condition, quality, or viability of a species occurrence or ecological community occurrence, based on a population's size, condition, and landscape context. An EORANK of "A" means excellent quality, an EORANK of "B" means good quality. EORANKs are assigned to individual species occurrences and community

occurrences by the NHPs or CDCs operating in a state or other jurisdiction. Stein et al. (2000) contains additional information concerning EORANK definitions and assignments.

Imperiled (G2, T2) species and ecological communities - refers to rare species or ecological communities, identified using rounded GRANKs assigned by ABI, TNC, and the NHPs and CDCs. Imperiled species or ecological communities have generally 6 to 20 occurrences, few remaining individuals (1,000 to 3,000), or small remaining area (2,000 to 10,000 acres). These species and ecological communities are vulnerable to extinction due to some natural or man-made factor.

Migratory waterbird concentration areas - locations designated as Ramsar sites or Western Hemisphere Shorebird Reserve Network (WHSRN) sites.

Multi-species assemblage area - an area where three or more different critically imperiled or imperiled species or ecological communities, threatened or endangered species, depleted marine mammals, or migratory waterbird concentrations co-occur.

Ramsar sites - areas designated under The Convention on Wetlands of International Importance Especially as Waterfowl Habitat. Ramsar sites are globally critical wetland areas that support migratory waterbirds. These include wetland areas that regularly support 20,000 waterbirds; wetland areas that regularly support substantial numbers of individuals from particular groups of waterbirds, indicative of wetland values, productivity, or diversity; and wetland areas that regularly support 1% of the individuals in a population of one species or subspecies of waterbirds.

Species - refers to species, subspecies, or distinct vertebrate populations (pertains to critically imperiled, imperiled, threatened and endangered, and depleted marine mammal species). Species also refers to population stocks (primarily pertains to depleted marine mammals). Species can also refer to other subtaxa groupings, such as plant varieties (pertains to critically imperiled and imperiled species).

Terrestrial ecological communities with limited ranges - refers to non-aquatic and non-aquatic dependent ecological community occurrences that cover less than five acres.

Terrestrial species with limited ranges - refers to non-aquatic and non-aquatic dependent species with ranges of no more than five acres. For species, range typically refers to individual home range. In a few cases, range can refer to "inferred extent" of the occurrence type, as defined by TNC and ABI, rather than home range.

Threatened and endangered species (T&E) - refers to animal or plant species that are listed as threatened or endangered under the federal Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.). Essential and non-essential experimental populations are included in this category. Proposed and candidate species are not included in this category.

Western Hemisphere Shorebird Reserve Network (WHSRN) sites - areas that contain migratory shorebird concentrations that have been designated as hemispheric reserves,

international reserves, regional reserves, or endangered species reserves by the WHSRN program. Hemispheric reserves host at least 500,000 shorebirds annually or 30% of a species flyway population. International reserves host 100,000 shorebirds annually or 15% of a species flyway population. Regional reserves host 20,000 shorebirds annually or 5% of a species flyway population. Endangered species reserves are critical to the survival of endangered species and no minimum number of birds is required.

IDENTIFYING USAs FOR ECOLOGICAL RESOURCES

USAs are identified through a multiple step process. The first step is data collection and pre-processing. The second step is the application of USA filter criteria and validation of interim USAs. The third step is the selection of final USAs.

RSPA gathered a multitude of data in order to identify ecological USAs. These include point, polygon, and region species locations and attributes; polygon boundaries for management areas and other features identified as migratory waterbird concentrations; linear and polygonal hydrography; state boundaries; etc. A significant guideline throughout the implementation of the filter criteria was that USAs would be identified using publicly available data.

A Geographic Information System (GIS) was used to integrate the public data and apply the USA filter criteria. GIS technology, and the GIS computer model that was created to integrate the information and automate USA identification, provide a framework into which most publicly available data can be incorporated. The GIS application of filter criteria is the most complex portion of the process. A detailed explanation of the GIS model is provided in RSPA (2002).

The data and methods used to identify USAs are outlined in the following sections. Unique aspects of the data and methods used in the model runs for each individual state are provided in appendices by state. Results for each state are provided in the appendices as well. The results outlined in each appendix will ultimately be combined with a parallel drinking water model to provide a complete description of all USAs in each state.

Data

RSPA acquired various data sets in order to identify ecological USAs. These include a natural heritage "Multi-Jurisdictional Dataset" (MJD); biological resource data from the Environmental Sensitivity Index (ESI) datasets; habitat association and life-history information for each species and ecological community represented in the MJD and the ESIs; descriptions, maps, and spatial data for Ramsar and WHSRN sites; a hydrography data layer depicting surface water features; a digital layer depicting state boundaries; and descriptions, maps, or data delineating the limit of state waters. TNC and ABI worked with the natural heritage network to create the MJD, and RSPA entered into a cooperative agreement with TNC and ABI to obtain the MJD. The MJD compiles and aggregates state heritage data on a national scale. The MJD includes element occurrence records (locations and attributes) and supporting element classification data for threatened and endangered (T&E), critically imperiled, and imperiled species. For more information on natural heritage datasets and programs see Stein et al. (2000) or http://www.natureserve.org/.

The National Oceanographic and Atmospheric Administration (NOAA), the Minerals Management Service (MMS), and various state agencies develop and publish ESI datasets. RSPA obtained the ESI datasets by directly contacting the appropriate agency. For more information on NOAA ESI datasets, see http://response.restoration.noaa.gov/esi/esiintro.html and NOAA (1997). Details concerning ESI-related datasets will be described in the appendices for each state.

RSPA obtained additional information on candidate species habitats and ranges using ABI's NatureServe on-line database (ABI 2000, http://www.natureserve.org/). RSPA also used introductory text, references, and metadata associated with the ESI databases; and various other sources specific to each state (described in the state appendices).

ABI provided updated T&E status by species and occurrence in the MJD. RSPA also checked the status of T&E species using on-line databases maintained by the U.S. Fish and Wildlife Service (USFWS) (http://endangered.fws.gov/; http://www.fws.gov/) and the NMFS Office of Protected Resources (http://www.nmfs.noaa.gov/prot_res/prot_res.html). The NMFS site was also used to obtain depleted marine mammal listings.

RSPA obtained a list of current Ramsar sites and site descriptions from the Ramsar Convention (http://www.ramsar.org/). RSPA contacted the USFWS Office of International Affairs (http://www.fws.gov/) for maps and data on these areas. They provided a list of Ramsar site coordinators or managers for the U.S., who were in turn contacted for digital data depicting Ramsar site boundaries. RSPA obtained hardcopy maps when digital data were not available directly from a Ramsar site contact. Based on the site names and hardcopy maps, RSPA was able to obtain digital site boundaries for some locations from the U.S. Geological Survey (USGS) 1:100,000-scale Digital Line Graph (DLG) Boundary files. The DLG data are digital representations of points, lines, and areas. RSPA digitized hardcopy boundaries when digital boundaries were not available in the DLGs, or when hardcopy maps or site descriptions indicated additional areas not shown in the DLGs. Details on contacts and sources for Ramsar site boundaries for each state are provided in the appendices.

RSPA obtained a list of current WHSRN sites and site descriptions from the Manomet Center for Conservation Sciences (http://www.manomet.org/). The coordinator of the WHSRN program at Manomet was also contacted to obtain maps, data, additional descriptions, and local site managers or contacts. RSPA obtained hardcopy maps for all sites and available digital boundaries from local contacts for a few sites. Based on the site names and hardcopy maps, RSPA was able to obtain site boundaries for some locations from the USGS 1:100,000-scale DLG Boundary files. RSPA digitized hardcopy boundaries when digital boundaries were not available in the DLGs, or when hardcopy maps or site descriptions indicated additional areas not shown in the DLGs. Details on contacts and sources for WHSRN site boundaries for each state are provided in the appendices.

RSPA obtained the hydrography (or surface water features) data from the USGS 1:100,000 scale Digital Line Graph (DLG) (http://edcwww.cr.usgs.gov/products/map/dlg.html). Details on the

use of hydrography and DLG processing are included in the GIS methodology paper (RSPA 2002).

RSPA obtained state and county boundaries from the U.S. Census Bureau TIGER data files (1990 State and Equivalent Areas). Information on TIGER data is available at http://www.census.gov/geo/www/tiger/overview.html. The state boundaries are the same as those used in RSPA's National Pipeline Mapping System, with one exception. For coastal states, the shoreline portion of the state boundary was updated using the DLG hydrographic data because it was much more detailed. State waters boundaries were incorporated for coastal and Great Lakes states as well, based on data available in the DLGs or from digital data available from the U.S. Minerals Management Service. In some cases, state waters were not available digitally and had to be digitized from NOAA nautical charts or USGS maps, or generated using buffers based on boundary descriptions (e.g., state waters extend 3 nautical miles from the shoreline). Sources for state waters boundaries in each state are described in the appendices.

User Interactions, GIS Model, and Selection of Final USAs

RSPA utilized the GIS software ArcInfo to develop the USA model used in this project. A full description of the GIS model is described in RSPA (2002). A brief description of the GIS model and the steps taken to identify USAs will be discussed here.

The ecological USA model has several phases:

1) Prepare data for model entry;
2) Identify records meeting data quality criteria;
3) Identify records meeting candidate criteria;
4) Apply filter criteria;
5) Generate USA boundaries;
6) Final USA QA/QC, maps, and statistics.

Prepare Data for Model Entry

During the data preparation phase, RSPA reviews the original data that has been obtained from all sources to make sure the required data fields are present and there are no peculiarities in the data. Most of the USA ecological data comes from the MJD and the ESI datasets. If any peculiarities are identified, RSPA contacts the entity that provided the data and any questions or difficulties are addressed.

For the ecological model, data from adjacent states can be accepted into the model as well. When data from adjacent states are available, RSPA generates a 5-mile buffer around the state that is being processed. The ecological data contained within this 5-mile buffer are incorporated into the model and processed.

The attributes of the MJD dataset are used to generate a habitat assignment spreadsheet. The spreadsheet is a form containing all species or ecological communities found in the state dataset.

The form is used to assign a habitat type for each species and to indicate which species are classified as aquatic-dependent or limited range. T&E status and depleted marine mammal status are also checked and updated using the spreadsheets. A "notes" section is completed for each species that indicates any questions or difficulties encountered during the assignment of habitat and range, review of T&E information, etc. Source information is noted as appropriate.

The attributes of the ESI dataset(s), particularly common name, scientific name, federal status, GRANK (if available), and a unique identifier are used with the MJD to generate a query that matches species from the ESI data to species tracked by the NHPs. The goal of this process is to assign or update ELCODEs, GRANKS, and other filter criteria attributes to the ESI data, so that they match the MJD in format and are processed through the GIS model appropriately. The results of the species match query are transformed into a spreadsheet that is reviewed by scientific staff. Automated matches are evaluated and either accepted or rejected. If rejected, a more appropriate species match is selected and entered into the spreadsheet manually. Potential species candidates not identified during the automated match are also evaluated and manual matches assigned as appropriate. T&E information for the ESI data is also updated at this time, and habitat and range assignments determined. A "notes" section is completed during this process that indicates any questions or difficulties encountered. Source information is also noted as appropriate.

For point data, habitat assignments are made by scientific staff based on habitat information provided in the MJD and supplemental habitat sources mentioned above and in the appendices. When available information is not sufficient to make a habitat assignment, ABI is contacted to provide assistance or additional information. ABI may in turn contact the state NHP or CDC for assistance. In most cases, habitat assignments are the same for all occurrences of a species. For a few types of species, habitat types can vary by the type of occurrence. Where information is available, assignments are made at the occurrence level. This situation applies for species such as seabirds (nesting vs. feeding areas), marine reptiles (nesting vs. in-water areas), and certain amphibians (breeding/larval vs. adult areas).

Habitat assignments are limited to the following categories: Aquatic Open Water (AOW), Aquatic Isolated Water (AIW), and Terrestrial (TER). AOW habitats include open and flowing water bodies such as oceans, estuaries, lakes, ponds, pools, streams, and certain wetland types that are typically permanently flooded. AIW habitats include most wetlands, temporary or seasonal ponds and pools, seeps, beaches, bars, flats, floodplain habitats, riparian habitats, and subterranean waters. These habitats are generally intermittently wet or flooded, and are often located adjacent to AOW habitats that have relatively permanent standing water or flowing water. Habitats that are described only as "moist" or "mesic" or not included in the aquatic categories, and are treated as terrestrial. All other non-aquatic habitats are treated as terrestrial as well. It is important to differentiate between AOW and AIW/TER habitats, since this determines the spatial area depicted for each USA occurrence. AOW and AIW/TER occurrences are treated differently during the generation of USA polygons, while AIW and TER occurrences are treated the same (described in detail below, under the "Generate USA Boundaries" section). A table containing a species list with AOW and AIW/TER habitat checkboxes is provided for each state (see appendices). Habitat assignments are typically consistent across states. However, habitat assignments may vary where different species occurrence types are found in different states

(breeding/larval sites vs. adult areas) or where a species uses different habitat types in different states (a species nests on cliffs in one state and in wetlands in another state). All habitat assignments are checked by a second biologist prior to the model runs.

Aquatic and aquatic dependent (AD) and terrestrial limited range (LR) assignments needed for Filter Criteria 5 are usually assigned at the species level. Species with occurrences classified as AOW or AIW are always assigned to the AD category. Species with occurrences classified as TER are assigned to the AD category if they are dependent on aquatic habitats during a critical portion of their life-history. As an example, nesting occurrences for a seabird species that uses cliffs or upland forests for nesting would be classified as TER, but the species would be classified AD if its feeding areas were marine waters. Species that are not assigned to the AD category are evaluated to determine if they have a limited range. Species with a limited range have home ranges or inferred extents of no more than five (5) acres. When available information is not sufficient to make an AD or LR determination, ABI is contacted to provide assistance or additional information. ABI may in turn contact the state NHP or CDC for assistance as needed. A table containing a species list with Filter Criteria 5 AD/LR checkbox is provided for each state (see appendices). Aquatic dependent and limited range assignments are checked by a second biologist prior to the model runs.

Model Run: Identify Records Meeting Data Quality Criteria

All data records are examined to determine if they meet certain data quality criteria. Data records that do not meet these criteria do not continue on to later steps of the model and do not become USAs. The first data quality criteria is spatial, pertaining to precision or accuracy. For the MJD, records with precision values of M (minutes) and S (seconds) are retained in the model. Records with G (general) or U (unmappable) precision values are omitted from further consideration and do not become USAs. Polygons or regions from the MJD that are identified as "specific-bounded areas" are retained in the model, while those that are not are omitted and do not become USAs. Specific bounded areas refer to areas with detailed boundaries indicating the spatial extent of a species occurrence. The ESI data are considered to be minutes or better precision and "specific bounded areas" unless otherwise specified in the data or metadata or by the ESI data developers.

The second data quality criteria removes elements or occurrences with that are extirpated. For the MJD, GRANK, state conservation status (SRANK), and EORANK are evaluated. All species with GRANK values of GX (globally extirpated), and all occurrences with SRANK values of SX (state extirpated) or EORANK values of X are omitted and do not become USAs. For the ESI data, all records are considered extent (non-extirpated), unless otherwise specified in the data or metadata or by the ESI data developers.

Model Run (continued): Identify Records Meeting Candidate Criteria

Next, the model determines which occurrences or data records meet the ecological candidate USA criteria. Occurrences that are identified as critically imperiled, imperiled, threatened or endangered, or depleted (for marine mammal species) are considered candidates. The model

treats all Ramsar and WHSRN sites as candidates. The model retains candidate resources for consideration as USAs. Resources not identified as candidates are omitted.

Model Run (continued): Apply Filter Criteria

The model next applies the filter criteria to the candidate resources to identify USAs.

Under Filter Criteria 1, all critically imperiled candidates are USAs. These are identified by a GRANK value of G1 or T1.

The model moves to Filter Criteria 3 next, migratory waterbird concentration areas, where all Ramsar sites are identified as USAs. WHSRN sites are then evaluated, and sites classified as hemispheric, international, and endangered species reserves are identified as USAs. Regional WHSRN sites are not considered USAs, but are retained for evaluation under Filter Criteria 2.

Filter Criteria 4 evaluates the quality of each candidate occurrence. For the MJD, all occurrences with rounded EORANK values of A or B become USAs. The ESI data are not evaluated unless EORANK values are provided in the ESI datasets and described and defined in the metadata.

Under Filter Criteria 5, species that have been classified as aquatic dependent or limited range become USAs.

Filter Criteria 2, multi-species assemblages, is the final filter criteria evaluated by the model. The model generates 1-mile buffers around all candidate data points as a part of this filter process. Data represented as polygons or regions are evaluated using their existing boundaries. Under Filter Criteria 2, all overlapping combinations of three or more different types of candidate occurrences become USAs (e.g., three or more different species that overlap create a USA). Data from adjacent states that are included in the model run can contribute to the multi-species assemblages.

Model Run (continued): Generate USA Boundaries

Polygon occurrences identified as USAs retain their original boundaries. Point occurrences identified as USAs are converted into polygons using buffers. USAs for point occurrences assigned to the AIW and TER habitat categories are circular polygons created using a 1-mile buffer around each point. USAs for point occurrences assigned to the AOW habitat category are complex polygons created by selecting all open-water hydrographic features within a 5-mile buffer of each point. Within the 5-mile buffer, a 0.25-mile wide area along the margin or "shoreline" of each open-water feature is also included in the USA.

Final USA QA/QC, Maps, and Statistics

After the model run, a draft version of the final USAs and interim coverages generated by the model are reviewed by scientific and GIS staff. Scientific staff members check all steps in the process and the final USAs using ArcView. GIS staff members check data content and format using ArcInfo and ArcView. Once the final USAs are approved, a map is produced for each

state using a standardized layout. Statistics include calculating the percentage of each state occupied by ecological USAs. The final USA data, maps and statistics are forwarded to RSPA and ABI.

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STATE APPENDICES

The state appendices are included under separate cover, as individual state reports.

Appendix E

RESERVED for NatureServe Technical Approach 2024-2025, if and when such a document becomes available.

Appendix F

National Hydrography Dataset (NHD) Open Water Look-up Table (2025). This table provides open water classifications for the NHD feature codes (FCODE) to identify hydrography features that have an open water class.

ECOUSA_CLASS	FCODE	DESCRIPTION
OPEN WATER	30700	Area to be Submerged
OPEN WATER	31200	Bay/Inlet
OTHER	31800	Bridge
OTHER	33400	Connector
OPEN WATER	33600	Canal/Ditch
OPEN WATER	33601	Canal/Ditch: Canal/Ditch Type = Aqueduct
OPEN WATER	33603	Canal Ditch: Canal Ditch Type = Stormwater
OTHER	34300	Dam/Weir
OTHER	34305	Dam/Weir: Construction Material = Earthen
OTHER	34306	Dam/Weir: Construction Material = Nonearthen
OPEN WATER	36100	Playa
OPEN WATER	36200	Flume
OTHER	36400	Foreshore
OTHER	36700	Gaging Station
OTHER	36701	Gaging Station Status=Active; Record=Continuous
OTHER	36900	Gate
OTHER	37800	Ice Mass
OPEN WATER	39000	Lake/Pond
OPEN WATER	39001	Lake/Pond: Hydrographic Category = Intermittent
OPEN WATER	39004	Lake/Pond: Hydrographic Category = Perennial
OPEN WATER	39005	Lake/Pond: Hydrographic Category = Intermittent; Stage = High Water Elevation
OPEN WATER	39006	Lake/Pond: Hydrographic Category = Intermittent; Stage = Date of Photography
OPEN WATER	39009	Lake/Pond: Hydrographic Category = Perennial; Stage = Average Water Elevation
OPEN WATER	39010	Lake/Pond: Hydrographic Category = Perennial; Stage = Normal Pool
OPEN WATER	39011	Lake/Pond: Hydrographic Category = Perennial; Stage = Date of Photography
OPEN WATER	39012	Lake/Pond: Hydrographic Category = Perennial; Stage = Spillway Elevation
OTHER	39800	Lock Chamber
OPEN WATER	40300	Inundation Area
OPEN WATER	40307	Inundation Area: Inundation Control Status = Not Controlled
OPEN WATER	40308	Inundation Area: Inundation Control Status = Controlled
OPEN WATER	40309	Inundation Area: Inundation Control Status = Controlled; Stage = Flood Elevation
OTHER	41100	Nonearthen Shore
OTHER	42000	Underground Conduit
OTHER	42001	Underground Conduit: Positional Accuracy = Definite
OTHER	42002	Underground Conduit: Positional Accuracy = Indefinite
OTHER	42003	Underground Conduit: Positional Accuracy = Approximate

ECOUSA_CLASS	FCODE	DESCRIPTION
OTHER	42800	Pipeline
OTHER	42801	Pipeline: Pipeline Type = Aqueduct; Relationship to Surface = At or Near
OTHER	42802	Pipeline: Pipeline Type = Aqueduct; Relationship to Surface = Elevated
OTHER	42803	Pipeline: Pipeline Type = Aqueduct; Relationship to Surface = Underground
OTHER	42804	Pipeline: Pipeline Type = Aqueduct; Relationship to Surface = Underwater
OTHER	42805	Pipeline: Pipeline Type = General Case; Relationship to Surface = At or Near
OTHER	42806	Pipeline: Pipeline Type = General Case; Relationship to Surface = Elevated
OTHER	42807	Pipeline: Pipeline Type = General Case; Relationship to Surface = Underground
OTHER	42808	Pipeline: Pipeline Type = General Case; Relationship to Surface = Underwater
OTHER	42809	Pipeline: Pipeline Type = Penstock; Relationship to Surface = At or Near
OTHER	42810	Pipeline: Pipeline Type = Penstock; Relationship to Surface = Elevated
OTHER	42811	Pipeline: Pipeline Type = Penstock; Relationship to Surface = Underground
OTHER	42812	Pipeline: Pipeline Type = Penstock; Relationship to Surface = Underwater
OTHER	42813	Pipeline: Pipeline Type = Siphon
OTHER	42814	Pipeline: Pipeline Type = General Case
OTHER	42815	Pipeline: Pipeline Type = Penstock
OTHER	42816	Pipeline: Pipeline Type = Aqueduct
OTHER	42820	Pipeline: Pipeline Type = Stormwater
OTHER	42821	Pipeline: Pipeline Type = Stormwater; Relationship to Surface = At or Near
OTHER	42822	Pipeline: Pipeline Type = Stormwater; Relationship to Surface = Elevated
OTHER	42823	Pipeline: Pipeline Type = Stormwater; Relationship to Surface = Underground
OTHER	42824	Pipeline: Pipeline Type = Stormwater; Relationship to Surface = Underwater
OPEN WATER	43100	Rapids
OPEN WATER	43400	Reef
OPEN WATER	43600	Reservoir
OPEN WATER	43601	Reservoir: Reservoir Type = Aquaculture
OPEN WATER	43603	Reservoir: Reservoir Type = Decorative Pool
OPEN WATER	43604	Reservoir: Reservoir Type = Tailings Pond; Construction Material = Earthen
OPEN WATER	43605	Reservoir: Reservoir Type = Tailings Pond
OPEN WATER	43606	Reservoir: Reservoir Type = Disposal
OPEN WATER	43607	Reservoir: Reservoir Type = Evaporator
OPEN WATER	43608	Reservoir: Reservoir Type = Swimming Pool
OPEN WATER	43609	Reservoir: Reservoir Type = Cooling Pond
OPEN WATER	43610	Reservoir: Reservoir Type = Filtration Pond

ECOUSA_CLASS	FCODE	DESCRIPTION
OPEN WATER	43611	Reservoir: Reservoir Type = Settling Pond
OPEN WATER	43612	Reservoir: Reservoir Type = Sewage Treatment Pond
OPEN WATER	43613	Reservoir: Reservoir Type = Water Storage; Construction Material = Nonearthen
OPEN WATER	43614	Reservoir: Reservoir Type = Water Storage; Construction Material = Earthen; Hydrographic Category = Intermittent
OPEN WATER	43615	Reservoir: Reservoir Type = Water Storage; Construction Material = Earthen; Hydrographic Category = Perennial
OPEN WATER	43617	Reservoir: Reservoir Type = Water Storage
OPEN WATER	43618	Reservoir: Construction Material = Earthen
OPEN WATER	43619	Reservoir: Construction Material = Nonearthen
OPEN WATER	43621	Reservoir: Reservoir Type = Water Storage; Hydrographic Category = Perennial
OPEN WATER	43623	Reservoir: Reservoir Type = Evaporator; Construction Material = Earthen
OPEN WATER	43624	Reservoir; Reservoir Type = Treatment
OPEN WATER	43625	Reservoir: Reservoir Type = Disposal; Construction Material = Earthen
OPEN WATER	43626	Reservoir: Reservoir Type = Disposal; Construction Material = Nonearthen
OTHER	44100	Rock
OTHER	44101	Rock: Relationship to Surface = Abovewater
OPEN WATER	44102	Rock: Relationship to Surface = Underwater
OPEN WATER	44500	Sea/Ocean
OPEN WATER	45000	Sink/Rise
OTHER	45401	Special Use Zone: Special Use Zone Type = Dump Site; Operational Status = Operational
OTHER	45402	Special Use Zone: Special Use Zone Type = Dump Site; Operational Status = Abandoned
OTHER	45403	Special Use Zone: Special Use Zone Type = Spoil Area; Operational Status = Operational
OTHER	45404	Special Use Zone: Special Use Zone Type = Spoil Area; Operational Status = Abandoned
OPEN WATER	45500	Spillway
OPEN WATER	45800	Spring/Seep
OPEN WATER	46000	Stream/River
OPEN WATER	46003	Stream/River: Hydrographic Category = Intermittent
OPEN WATER	46006	Stream/River: Hydrographic Category = Perennial
OPEN WATER	46007	Stream/River: Hydrographic Category = Ephemeral
OPEN WATER	46100	Submerged Stream
OPEN WATER	46600	Swamp/Marsh
OPEN WATER	46601	Swamp/Marsh: Hydrographic Category = Intermittent
OPEN WATER	46602	Swamp/Marsh: Hydrographic Category = Perennial
OPEN WATER	46800	Drainageway
OTHER	47800	Tunnel

ECOUSA_CLASS	FCODE	DESCRIPTION
OTHER	48300	Wall
OPEN WATER	48400	Wash
OTHER	48500	Water Intake/Outflow
OPEN WATER	48700	Waterfall
OTHER	48800	Well
OPEN WATER	49300	Estuary
OTHER	50300	Sounding Datum Line
OTHER	50301	Sounding Datum Line: Positional Accuracy = Approximate
OTHER	50302	Sounding Datum Line: Positional Accuracy = Definite
OPEN WATER	53700	Area of Complex Channels
OTHER	55800	Artificial Path
OTHER	56600	Coastline
OTHER	56700	Shoreline
OTHER	56800	Levee
OTHER	57001	Streamgage: Streamgage Status=Active; Record=Continuous
OTHER	57002	Streamgage: Streamgage Status=Active; Record=Partial
OTHER	57003	Streamgage: Streamgage Status=Inactive
OTHER	57004	Water Quality Station
OTHER	57100	Dam
OTHER	57201	Flow Alteration=Addition
OTHER	57202	Flow Alteration=Removal
OTHER	57203	Flow Alteration=Unknown
OTHER	57300	Hydrologic Unit Outlet

Appendix G

Eco USAs Quality Review Process and Checklist. This is a detailed document that describes the external review process conducted during the draft 2025 Eco USA update; document includes an appended Review Process Checklist.

Note: Revised on August 8, 2025 to specify that records with EORANK values of 'X?' (presumed extirpated) are not automatically excluded from the dataset.

UNUSUALLY SENSITIVE AREAS FOR ECOLOGICAL RESOURCES: QUALITY REVIEW PROCESS

Task Order No. 693JK324F00009N

Prepared for:
U.S. Department of Transportation
Pipeline and Hazardous Materials Safety Administration
Washington, D.C.

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List of Acronyms

AD	Aquatic Dependent
AIW	Aquatic Isolated Water
AOW	Aquatic Open Water
Aq	Aquatic or Aquatic Dependent
AQ_TLR	Aquatic Terrestrial Limited Range Assignment
AqLR	Aquatic or Aquatic Dependent, Limited Range
AQLR_IND	Aquatic Terrestrial Limited Range Indicator
BOEM	Bureau of Ocean Energy Management
C.F.R.	Code of Federal Regulations
CONC	Concentration Assignment
DATA_SOURCE	Data Source Assignment
DMM	Depleted Marine Mammal
DMM_STATUS	Depleted Marine Mammal Status Assignment
DPS	Distinct Population Segments
Eco USA	Ecological Unusually Sensitive Area
ECOS	(USFWS) Environmental Conservation Online System
EGT_ID	Element Global ID Assignment
ELMR	Estuarine Living Marine Resources
EO	NatureServe Element Occurrence
EO_USESA	NatureServe Element Occurrence USESA Indicator
EORANK	NatureServe Element Occurrence Rank
EORANK_AB_IND	NatureServe Element Occurrence Rank A or B Indicator
ESA	Endangered Species Act of 1973
ESI	Environmental Sensitivity Index
EST_REP_ACC	Estimated Representational Accuracy
ESU	Evolutionarily Significant Units
FC	Filter Criteria
FCODE	Feature Code
FWC	Florida Fish and Wildlife Conservation Commission
G_SOURCE	Element Data Source Assignment
G1T1_IND	NatureServe GRANK Critically Imperiled Indicator
GH	NatureServe GRANK – Global Possibly Extinct
GIS	Geographical Information System
GRANK	NatureServe Global Conservation Status Rank
GX	NatureServe GRANK – Global Presumed Extinct
IPaC	(USFWS) Information for Planning and Consultation tool
LE	Listed Endangered
Low_Acc	Low Accuracy Indicator
LR	Limited Range
LT	Listed Threatened
MAJ_GRP1	Major Taxonomic Group 1 Assignment
MMPA	Marine Mammal Protection Act of 1972
MSAA	Multi-Species Assemblage Area
NHD	National Hydrography Dataset
NHP	Natural Heritage Program

NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOS OR&R	(NOAA) National Ocean Service Office of Response and Restoration
NS	NatureServe
PHMSA	Pipeline and Hazardous Material Safety Administration
PREC_BCD	Precision in the Biological and Conservation Database system (legacy)
QA/QC	Quality Assurance/Quality Control
RA	NatureServe Representation Accuracy
RPI	Research Planning, Inc.
RSPA	Research and Special Programs Administration
SRANK	NatureServe Subnational Conservation Status Rank
SX	NatureServe SRANK - State Presumed Extirpated
T&E	Threatened and Endangered Species
TE_IND	Threatened and Endangered Indicator
TER	Terrestrial
TerrLR	Terrestrial Limited Range
Texas GLO	Texas General Land Office
TRANK	NatureServe Global Conservation Status Rank for infrataxa
U.S.C.	United States Code
USA	Unusually Sensitive Area
USESA	U.S. Endangered Species Act
USFWS	U.S. Fish and Wildlife Service
WHSRN	Western Hemisphere Shorebird Reserve Network
XE	Essential experimental population
XN	Non-essential experimental population

UNUSUALLY SENSITIVE AREAS FOR ECOLOGICAL RESOURCES: A QUALITY REVIEW PROCESS FOR VALIDATING THE ACCURACY OF THE DATASET

INTRODUCTION

In accordance with pipeline safety laws (49 U.S.C. Section 60109), the Pipeline and Hazardous Materials Safety Administration (PHMSA) is required to identify areas unusually sensitive to environmental damage in the event of a hazardous liquid pipeline accident. Through interactions with various regulatory and resource agencies, pipeline operators, private contractors, non-profit conservation organizations, academia, and the general public, a process was developed and adopted by PHMSA in 2000 to identify unusually sensitive areas (USAs) for ecological resources. The process consists of identifying a set of candidate Ecological USAs (Eco USAs) and subjecting them to the appropriate filter criteria. Using the filter criteria, the final Eco USAs are determined. The initial Eco USA geographic datasets were completed in 2002. PHMSA completed an update of the Eco USA datasets in late 2017 and has initiated a new update as of this year (2024). Reviews for ongoing updates to Eco USA datasets commenced in October 2024. This document describes the proposed quality review process for validating the accuracy of updated Eco USA datasets.

DEFINITIONS

USA ecological resource means an ecological resource area that is unusually sensitive to environmental damage from a hazardous liquid pipeline release.

Aquatic or Aquatic Dependent Species or Community means a species or community that primarily occurs in aquatic, marine, or wetland habitats, as well as species that may use terrestrial habitats during all or some portion of their life cycle, but that are still closely associated with or dependent upon aquatic, marine, or wetland habitats for some critical component or portion of their life-history (i.e., reproduction, rearing and development, feeding, etc.).

Critically imperiled species or ecological community (habitat) means an animal or plant species or an ecological community of extreme rarity, based on NatureServe's (NS, www.natureserve.org) Global Conservation Status Rank (developed in coordination with the NatureServe Network Programs). These species and ecological communities are at very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.

Depleted marine mammal (DMM) species means a species that has been identified and is protected under the Marine Mammal Protection Act of 1972, as amended (MMPA) (16 U.S.C. 1361 *et seq.*). The term "depleted" refers to marine mammal species that are listed as threatened or endangered, or are below their optimum sustainable populations (16 U.S.C. 1362). The term "marine mammal" means "any mammal which is morphologically adapted

to the marine environment (including sea otters and members of the orders Sirenia, Pinnipedia, and Cetacea), or primarily inhabits the marine environment (such as the polar bear)" (16 U.S.C. 1362). The order Sirenia includes manatees, the order Pinnipedia includes seals, sea lions, and walruses, and the order Cetacea includes dolphins, porpoises, and whales.

Ecological community means an interacting assemblage of plants and animals that recur under similar environmental conditions across the landscape.

Element occurrence rank (EORANK) means the condition or viability of a species or ecological community occurrence, based on an assessment of estimated viability (species) or ecological integrity (communities), i.e., the probability of persistence. In other words, EORANKs provide an assessment of the likelihood that if current conditions prevail the occurrence will persist for a defined period of time, typically 20-100 years. EORANKs are assigned by the NatureServe Network Programs. An EORANK of A means excellent estimated viability/ecological integrity and an EORANK of B means good estimated viability/ecological integrity.

Imperiled species or ecological community (habitat), based on NatureServe's Global Conservation Status Rank, are at high risk of extinction or elimination due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.

Migratory waterbird concentration area means a designated Ramsar site or Western Hemisphere Shorebird Reserve Network (WHSRN) site.

Multi-species assemblage area (MSAA) means an area where three or more different critically imperiled or imperiled species or ecological communities, threatened or endangered species, depleted marine mammals, or migratory waterbird concentrations co-occur.

Ramsar site means a site that has been designated under The Convention on Wetlands of International Importance Especially as Waterfowl Habitat program. Ramsar sites are globally critical wetland areas that support migratory waterfowl. These include wetland areas that regularly support 20,000 waterfowl; wetland areas that regularly support substantial numbers of individuals from particular groups of waterfowl, indicative of wetland values, productivity, or diversity; and wetland areas that regularly support 1% of the individuals in a population of one species or subspecies of waterfowl. (Currently, Ramsar sites are designated as Wetlands of International Importance if they meet criteria pertaining to the sites containing representative, rare, or unique wetland types or sites that are of international importance for conserving biological diversity, with specific criteria based on species and ecological communities, waterbirds, fish, and other taxa [http://www.ramsar.org/sites/default/files/documents/library/ramsarsites_criteria_eng.pdf]).

Species means species, subspecies, population stocks, or distinct vertebrate populations, including Distinct Population Segments (DPS) and Evolutionarily Significant Units (ESU).

Terrestrial ecological community with a limited range means a non-aquatic and non-aquatic dependent ecological community that covers less than five (5) acres.

Terrestrial species with a limited range means a non-aquatic or non-aquatic dependent animal or plant species that has a range of no more than five (5) acres.

Threatened and endangered species (T&E) means an animal or plant species that has been listed and is protected under the Endangered Species Act of 1973, as amended (ESA) (16 U.S.C. 1531 *et seq*.). "Endangered species" is defined as "any species which is in danger of extinction throughout all or a significant portion of its range" (16 U.S.C. 1532). "Threatened species" is defined as "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range" (16 U.S.C. 1532).

Western Hemisphere Shorebird Reserve Network (WHSRN) site means an area that contains migratory shorebird concentrations and has been designated as a hemispheric reserve, international reserve, regional reserve, or endangered species reserve. Hemispheric reserves host at least 500,000 shorebirds annually or 30% of a species flyway population. International reserves host 100,000 shorebirds annually or 15% of a species flyway population. Regional reserves host 20,000 shorebirds annually or 5% of a species flyway population. Endangered species reserves are critical to the survival of endangered species and no minimum number of birds is required. (Currently, hemispheric reserves host at least 500,000 shorebirds annually or 30% of the biogeographic population for a species, international reserves host at least 100,000 shorebirds annually or at least 10% of the biogeographic population for a species, and regional reserves host at least 20,000 shorebirds annually or at least 1% of the biogeographic population for a species [http://www.whsrn.org/whsrn-sites]).

GENERAL GUIDANCE

Refer to the PDF report *Unusually Sensitive Areas for Ecological Resources: Standards and Best Practices for Database Updates* (March 2018) for useful information. An updated version will be available in 2025. Appendices to the report include:

- Appendix A: 49 C.F.R § 195.6. This is the regulatory definition of USAs.
- Appendix B: "Pipeline Safety; Areas Unusually Sensitive to Environmental Damage; Final Rule," 65 Fed. Reg. 80530 (December 21, 2000). This is the notice of the final rule defining USAs. It describes public comments received and documents final rule making decisions.
- Appendix C: "Pipeline Safety: Areas Unusually Sensitive to Environmental Damage," 4 Fed. Reg. 73464 (December 30, 1999). This is the notice of the proposed rule defining USAs. It describes the proposed process for selecting USAs and is referenced in the final rule.
- Appendix D: RSPA, 2002. Unusually Sensitive Areas for Ecological Resources: General Report. U.S. Department of Transportation, Research and Special Programs

Administration, Office of Pipeline Safety. Washington, D.C. This document describes the generation of the first USA dataset in 2000-2002; individual state appendices (not included) may also be helpful.

- Appendix E: NS technical approach. This is a detailed document that describes the technical process taken in the 2017 Eco USA update. This workflow could be modified in future updates and still meet the requirements of USA selection, but this document serves as a useful guide for the current update.
- Appendix F: NHD open water look-up table that classifies the NHD feature codes, FCODE, with an open water classification. Used to identify open water features in the Open Water Habitat process to identify all hydrography features that have an open water class.
- Appendix G: Eco USAs Review Process Checklist. This is a detailed document that lists the checks made to the draft 2017 Eco USA update. An updated checklist for the 2024 review process is included as a separate Appendix A to this report, included below.
- Appendix H: Summary of 5-State Detailed Review from the 2017 Update of Ecological USAs. Describes the outcome of the detailed review of the draft 2017 Eco USA update for five pilot states. This file includes comments and suggested changes to the process for nationwide Eco USA generation.
- Appendix I: Ecological USA Methodology Flowchart. This diagram provides an overview of the general filtering and processing methodology used to identify Eco USAs.

See also the Eco USA GIS Model Report (2002).

Refer to NS Explorer (and NS Explorer Pro) as a primary source for species and ecological community attributes, but realize these sources may be slightly out of date in some cases relative to what NS staff are using.

Refer to the ESI introductory pages, maps, data, and metadata for specifics on individual ESI datasets. For additional information about the ESI data, refer to the NOAA ESI Guidelines Version 4.0, NOAA Technical Memorandum NOS OR&R 52 and the updated Appendix B (ESI GIS Data Dictionary). Use the link below to download the ESI Guidelines or contact the NOAA ESI data manager, http://response.restoration.noaa.gov/esi_guidelines. An update to the NOAA ESI Guidelines is currently underway and may be available in 2025.

Always consider both errors of omission and commission while checking the data.

IDENTIFYING ERRORS, CONCERNS, AND WEAKNESSES IN THE ECO USA DATASET: STEPWISE APPROACH

The process of reviewing Eco USA datasets consists of a multi-stage approach outlined in the following sections:

1. Reviewing data preparation
2. Reviewing the application of data quality criteria
3. Reviewing the application of Eco USA candidate criteria

4. Reviewing the application of Eco USA filter criteria
5. Reviewing the generation of final Eco USA boundaries

1. Reviewing Data Preparation

The following steps are taken to ensure that the necessary review materials have been provided, to confirm that standard input data sources are fully represented, and to verify the accuracy of compiled data fields.

Check that the required materials have been provided for review

Check that the data and information needed to conduct the review have been provided, including:

- Raw dataset(s) (for species and community EO data, combined or separate)
- Eco USA geodatabase
- Processed Eco USA dataset (included in the geodatabase)
- Data field definitions (for raw and processed datasets)
- Species-level habitat information (may be provided in a separate spreadsheet)

If ESI data is available for the geographic area, verify that it is included in the provided datasets. Check that the processed Eco USA dataset includes all applicable Ramsar and WHSRN sites in the geographic area, cross-referencing information from the websites of the respective programs to verify that all appropriate sites and correct boundaries are included in the dataset. Also check that provided field definitions are both internally consistent and are consistent with the final rule definitions.

Check that the EO data have the required data fields

The processed Eco USA dataset should include the following fields:

- Scientific name*
- Common name*
- Data source (ESI, NS Species EO, NS Community EO, Ramsar, or WHSRN)
- Rounded Global Conservation Status Rank (GRANK), including infraspecific taxon rank (TRANK) where applicable*
- Rounded Subnational (U.S. State) Conservation Status Rank (SRANK)*
- Federal T&E status (at the species level)*
- Applied T&E status (site-specific record-level attribute)
- Element Occurrence Rank (EORANK)*
- Applied Depleted Marine Mammal (DMM) status (site-specific record-level attribute, as different population stocks of the same species may have different DMM status)
- Aquatic, aquatic dependent, and terrestrial limited range assignments*
- Representational accuracy (and/or related fields)*
- Area (square acres and square miles)*
- Last observation date*
- Unique identifier for each individual EO, ESI record, WHSRN site, and Ramsar site.

Many of the above attributes are part of the NS EO data or are generated, at least in part, from related NS databases, as denoted above by asterisks (*).

For species data, check that the raw dataset includes all fields required for pre-processing, including the following: GRANK, federal T&E status, DMM status, representational accuracy (including fields for EST_REP_ACC and PREC_BCD), area (square miles), SRANK, EORANK, last observation date, and "fuzzed" status (if applicable).

Note that "fuzzed" or generalized data are not desirable and may not be acceptable for Eco USA purposes, requiring discussion with and approval from PHMSA for use. If "fuzzed" data cannot be avoided, fuzzing should be limited to the degree possible, ideally to no more than 5 square miles.

For community data, check that the raw dataset includes the following fields required for pre-processing: GRANK, representational accuracy (including fields for EST_REP_ACC and PREC_BCD), area (square miles), SRANK, EORANK, last observation date, and "fuzzed" status (if applicable).

Check that ESI data are properly processed and required data fields appended

Replicate and compare results for the following data processing steps:

- Download the most recent Environmental Sensitivity Index (ESI) dataset and associated metadata documents from NOAA's ESI download page at http://response.restoration.noaa.gov/maps-and-spatial-data/download-esi-maps-and-gis-data.html, or from other sources such as the Bureau of Ocean Energy Management (BOEM), the Florida Fish and Wildlife Conservation Commission (FWC), and the Texas General Land Office (TGLO).
- Cross-walk the ESI species list to NatureServe global scientific and common names. The NatureServe database will be used to assign NatureServe global element record ID (EGT_ID) and update the ESI species list with the current:
    - U.S. Endangered Species Act (USESA) status,
    - Global Conservation Status Rank (GRANK, TRANK if applicable), and
    - NOAA Depleted Marine Mammal (DMM) status.
- Carefully check that taxonomic crosswalks, ESA-listing status, and DMM status were properly applied to the ESI data.

Check that EO data is internally consistent

Many of the following review steps are best supported by generating a summary table for the processed Eco USA dataset to capture unique entries at the species and community level (i.e., excluding record identifiers and other data fields that may vary between occurrences for the same species/community, such as EORANK).

For data fields that should be consistent at the species or community level, ensure that the dataset does not include variation between records of the same element occurrence type. For example, GRANK values should be consistent for all records belonging to the same species. Check for

consistency between species that occur in both Natural Heritage Programs (i.e., NatureServe data) and ESI, including consistency for sub-species and distinct population nomenclature and relationships to GRANKs, TRANKs, and federal T&E and DMM status. Crosswalk species and communities represented in the dataset with those expected to occur in the region based on external reference data. Any species or community occurrence types that were expected to occur but are not represented in the dataset should be tracked and revisited during later steps of the review (described in Section 2).

Check the accuracy of EO data

Data in the processed dataset should be crosschecked against reference information to verify its accuracy. Reference data can be compiled from online sources including NatureServe Explorer, NatureServe Explorer Pro, and federal ESA listing and DMM status information platforms. The full raw dataset alone is not used to review accuracy due to the fact that a large portion of the records may be excluded after processing. Data processing steps are reviewed under Section 2.

Comparing values in the Eco USA Dataset with reference information, confirm the accuracy of the following data field entries at the species or community level (including as applied to ESI data): GRANK, federal T&E status, and DMM status. For GRANK, reviewers should also check that TRANK is assigned where appropriate. For federal T&E status, review should primarily focus on the EO_USESA field, and reviewers should carefully check listings for subspecies, distinct populations, etc.

Using reference information as well as subject matter expertise, review the aquatic and aquatic dependent status assignments at the species and community level. Check the limited range assignments for species that are neither aquatic nor aquatic dependent to ensure those with home ranges of no more than five acres are designated as limited range. All plant species are considered to be limited range. For communities, check the taxonomic groupings (e.g., MAJ_GRP1) and community type definitions to verify the accuracy of aquatic and aquatic dependent designations.

When checking ESA-listing status, be sure to consider that federal listing status may vary geographically, across taxonomic ranking/sub-taxa, or both. Carefully check for subspecies and population-level ESA listings, including listings for Distinct Population Segments (DPS) and Evolutionarily Significant Units (ESU). When cross-walking NS data (including ESI data) with information retrieved from USFWS and NMFS resources, be sure to check for potential mismatches in taxonomic naming, and any resulting errors in assigned ESA-listing status. Consult both USFWS and NMFS resources for national, state, regional, and project-specific information. For USFWS, resources include the Environmental Conservation Online System (ECOS, https://ecos.fws.gov/) which can be used to reference Species Reports (https://ecos.fws.gov/ecp/species-reports), including reports on listed species with spatial current range believed to or known to occur in each state (https://ecos.fws.gov/ecp/report/species-listings-by-state-totals?statusCategory=Listed). ECOS can also be used to conduct species

searches (https://ecos.fws.gov/ecp0/reports/ad-hoc-species-report-input) and access the ECOS Data Explorer (https://ecos.fws.gov/ecp/report/adhocCreator?catalogId=species&reportId=listedSpecies). Another USFWS resource is the Information for Planning and Consultation (IPaC, https://ipac.ecosphere.fws.gov/) tool, which can be used to generate species lists for user-defined geographic areas. For species under NMFS jurisdiction, key resources include the NMFS Species Directory (https://www.fisheries.noaa.gov/species-directory/threatened-endangered) and regional web applications and species lists provided by NOAA's regional offices, such as the West Coast Region Species and Habitat Application (https://www.fisheries.noaa.gov/resource/map/species-and-habitat-app), the Southeast Region ESA Section 7 Mapper (https://www.fisheries.noaa.gov/resource/map/southeast-region-esa-section-7-mapper), and the state and regional species lists for the southeast (http://www.fisheries.noaa.gov/southeast/consultations/threatened-and-endangered-species-and-critical-habitats). Check the other NMFS regions for similar resources.

When checking Depleted Marine Mammal (DMM) status, reviewers should carefully check which population stocks apply. See the NMFS Species Directory, https://www.fisheries.noaa.gov/species-directory; NMFS Stock Assessment Reports by Species and Populations, https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports-species-stock#pinnipeds---otariids%C2%A0eared-seals-or-fur-seals-and-sea-lions; and the U.S. Marine Mammal Commission Status of Marine Mammal Species and Populations, https://www.mmc.gov/priority-topics/species-of-concern/status-of-marine-mammal-species-and-populations/.

At the level of individual community occurrences, check the limited range assignments for communities that are neither aquatic nor aquatic dependent to ensure those records which cover less than five acres are designated as limited range.

To support subsequent review of the generation of final Eco USA boundaries (described in Section 5), check that aquatic open water (AOW) vs. aquatic isolated water (AIW) designations are correctly assigned for point records (noting that these may vary by type of occurrence).

2. Reviewing the Application of Data Quality Criteria

Examine all raw data records to ensure data quality criteria for spatial accuracy and extant occurrences were appropriately applied. Following the steps below, check that records which do not meet data quality standards are excluded from the remainder of the Eco USA selection process.

First, distinguish which records were retained and which were removed during processing by analyzing the raw dataset in comparison to the processed Eco USA dataset. Then, verify that data quality criteria were correctly applied by replicating the evaluation process. Apply each criterion in sequence to the records which have not yet been flagged for removal, and flag those which should be removed under the criterion. Once a record is flagged for removal it no longer needs to

be evaluated against subsequent criteria. When evaluation is complete, use the results to identify any records which were retained in the processed dataset that should have been removed, or which were removed but should have been retained.

The following criteria are used to identify raw dataset records to exclude from the processed Eco USA dataset:

- Records which do not meet any of the candidate selection criteria (see Table 1)
- Species/community EOs that are assigned an RA value of "Low" or "Very Low", or <Null> (not assigned), are larger than 5 square miles in size, AND have not been "fuzzed" due to data sensitivity restrictions, with the following exceptions:
    - Communities lacking an assigned RA value should not be excluded
    - Records which lack an RA value but have a PREC_BCD value of S or M should not be excluded (and should have an assigned Low_Acc value of N).
- Species/community EOs that are labeled as "extirpated", including:
    - Occurrences with rounded GRANK values of GX (globally extirpated)
    - Occurrences with rounded SRANK values of SX
    - Occurrences with EORANK values of X

  Note: Do not eliminate species/community EOs based on having rounded GRANK values of GH (possibly extinct), rounded SRANK values of SH (possibly extirpated), or EORANK values of X?, H, H?, F, or F?.
- Records over 40 years old, including EO records that were last observed more than 40 years ago. ESI data published more than 40 years ago, as well as data atlases replaced by more recent updates are also excluded from Eco USA processing.

In addition, check that only EO records identified as species or ecological communities are included (unique geologic features, species groups or categories, etc. are removed – this includes any ELCODES starting with "O" for "other", if applicable). The ecological community data should only originate from EO sources (e.g., hexagonal data and other sources are not used, unless exceptions are approved by PHMSA).

For ESI data, check that records with G_SOURCE from original State NHP EO data sources or NOAA ELMR data sources are removed, and records with CONC = "potential", "possible", "transient", "probable", or similar variants that indicate potential rather than confirmed occurrence are removed. Check that any other ESI data that are specified by RPI to not meet data quality criteria are removed.

Finally, for any species and communities that were expected to occur in the geographic area but were not found in the processed data, check whether they were present in the raw dataset and appropriately excluded. If they were not, note the missing species/communities in the review comments for NatureServe and PHMSA awareness, including any relevant background information about the distribution, life history, and why it may have been excluded or missing. Note that in some cases both NS and the NOAA ESI may lack information on candidate species.

Table 1. Candidate selection criteria

Criteria Description	Raw Data Evaluation
Critically imperiled and imperiled species and ecological communities	ROUNDED_G_RANK = (G1,G2,T1,T2)
Threatened and endangered species	EO_USESA = (T,E,LT,LE,XN,XE)
Depleted marine mammal species	DMM_STATUS = <"Depleted">
Migratory waterbird concentrations	DATA_SOURCE = (Ramsar, WHSRN)

3. Reviewing the Application of Eco USA Candidate Criteria

Building on the results of the review steps carried out under Section 1 to verify that the raw dataset was correctly processed, the following checks are conducted for the processed Eco USA dataset to re-confirm the correct application of Eco USA candidate criteria:

- Check that records meeting any of the candidate selection criteria are identified as candidates, including:
    - Records with rounded GRANK (or TRANK) of G1, G2, T1, or T2
    - Records designated as federally listed T&E species (LT, LE, XN, XE) (candidate, proposed, similarity of appearance, and special concern species are not included as T&E USA candidates)
    - Records designated as depleted marine mammals
    - Records for Ramsar and WHSRN sites
- Check that records that do not meet the above criteria are not retained as candidates

The following checks are then used to ensure spatial boundaries were correctly generated for occurrences identified as Eco USAs:

- Check that records originating as ESI polygon data match their original polygon extents on a per species basis, with the exception that overlapping polys for the same species are dissolved and that any multipart polygons have been "exploded" to individual records (note that no multipart ESI polygons should appear in the dataset, including in the final USAs)
- Check that records originating as point data are converted to polygons using 1-mile buffers (note that the complex polygons for AOW points are applied later to the final USAs)
- Check that records originating as line data (applies to some anadromous fish runs) are buffered by 0.25 miles to create polygons

4. Reviewing the Application of Eco USA Filter Criteria

The application of Eco USA filter criteria and selection of final Eco USAs from the candidate dataset is reviewed by repeating the evaluation process and comparing results. Filter criteria should be applied as shown in Table 2. Once a record is identified as qualifying under a filter criterion, it does not necessarily require further evaluation under the remaining criteria, other than for the Mult-Species Assemblage Areas. The decision to either comprehensively apply all criteria to all records, or to apply each criterion to only those records not yet identified as Eco USAs under previously evaluated criteria, is up to NS; however, the selected method should be applied consistently throughout the dataset development process.

The following steps are carried out to replicate and review the application of Eco USA filter criteria:

- Check that all candidate records with rounded GRANK (or TRANK) of G1 or T1 are identified as USAs (this is Filter Criteria #1 [FC1]).
- Check that all candidate records with rounded EORANKs of A or B are identified as USAs (this is FC5).
- Check that all candidate records classified as Aquatic Dependent (AD) or Limited Range (LR) are identified as USAs (this is FC4).
- Check that all depleted marine mammal records are identified as USAs under the Aquatic Dependent criteria (part of FC4).
- Check that all Ramsar and WHSRN sites are identified as USAs (part of FC3).

To review the MSAA evaluation process:

- Spot check that the MSAA process has been applied properly across candidate records to identify USAs based on overlapping combinations of 3 or more different types of candidates. See visual aids that demonstrate this process (this is FC2).
- Re-run all or part of the NS MSAA process with the input data and check for agreement with the final USAs from NS.
- Spot check that the MSAA process worked properly along state borders, where applicable.
- Review candidate records that can only become USAs under the MSAA filter criteria. These include G2, T2, LT, LE records that do not meet other filter criteria (not G1, T1; not EORANK A, B; not AD; not LR). Check that these records with appropriate MSAA overlaps became USAs

Table 2. Eco USA filter criteria

Criteria Description	Candidate Record Evaluation	Evaluation Order
1) Critically imperiled species and ecological communities	ROUNDED_G_RANK = (G1,T1)	1

2) Multi-species assemblage areas	Areas with three or more spatially overlapping Eco USA candidate records (see below for more detail)	5
3) Migratory waterbird concentration areas	DATA_SOURCE = (Ramsar, WHSRN)	2
4) Aquatic, aquatic dependent, or limited range species and ecological communities	AQ_TLR = Aq, AqLR, TerrLR *	4
5) High quality species and ecological community occurrences	EORANK = (A or B; including A?, AB, AC, B, B?, BC)	3

* Should include all records with DMM_STATUS = <"Depleted">

5. Reviewing the Generation of Final Eco USA Boundaries

All final USA polygons are reviewed according to the following steps:

- Check that USAs originating from point records classified as AIW and TER are buffered with a radius of 1 mile to create final USA polygons.
- Check that USAs originating from point records classified as AOW are depicted as complex USA polygons including all open water features from the NHD hydro layer within a 5-mile buffer of the point and with a 0.25-mile buffer overlap along all linear "shoreline" and linear stream features within the 5-mile buffer.

DOCUMENTING AND REPORTING ON FINDINGS AND RECOMMENDATIONS

An important component of the review is to advise on potential solutions to resolve identified issues. All errors, concerns, and weaknesses identified during review, as well as suggested strategies for remediating issues and implementing solutions, are documented and shared with NatureServe and PHMSA.

Documentation is provided in a spreadsheet consisting of the following fields:

- Comment Number
- State(s)
- Detailed RPI Comment
- NatureServe Response
- Notes/Resolution
- Follow Up Needed for Resolution (Y/N)
- Final Resolution for Current Update

Review comments are delivered to NatureServe following review of Eco USA data for a state or group of states. Upon receiving the review comments, NatureServe populates and returns their responses. RPI then notes the outcome, status, and any follow up needed for resolution of the comments. This document continues to be exchanged between NatureServe and RPI until all reviews are complete and final resolutions are reached for all comments.

Data and Information Requested to Support the Quality Review Process

In developing the 2024 review process captured by this document, the following data and information requests have been made:

- Raw EO datasets – NS to provide moving forward. This data is not in the same format as those of the draft Eco USAs. In particular the indicator fields (e.g., Low_Acc, G1T1_IND, TE_IND, EORANK_AB_IND, FC1, FC3, etc.) have not been calculated, though the raw attributes they are based on are available. Information for AQ_TLR is also not available here.
- Field definitions for the raw datasets – NS to provide moving forward.
- Last observation date – NS to provide for both raw and processed datasets moving forward.
- "N" designations where "No" is indicated rather than <Null> – NS to provide moving forward.
- Additional habitat information – NS to provide at the species level and in a separate spreadsheet. NS will also provide additional information on the calculation of AQLR_IND to help with the QA/QC process.
- A data field to denote "fuzzing" in the raw dataset.

APPENDIX A: 2024-2025 ECO USAS REVIEW PROCESS CHECKLIST

1. General Guidance

- ☐ Refer to *Unusually Sensitive Areas for Ecological Resources: Standards and Best Practices for Database Updates* (March 2018) and its appendices as a comprehensive resource. Appendices to this resource include other Eco USA guidance materials, as listed below.
- ☐ Refer to Appendix A, 49 C.F.R § 195.6, for the regulatory definition of USAs.
- ☐ Refer to Appendices B and C, the FR Final (2000) and Proposed Rules (1999) defining USAs for guidance, definitions, etc. (refer to the long versions with comments, responses, discussion, etc. for nuances.)
- ☐ Refer to Appendix D, the Eco USA General Report (2002), and the Eco USA GIS Model Report (2002) for guidance and definitions used to generate the first USA dataset; individual state appendices may help provide additional details on this process.
- ☐ Refer to Appendix E, the NS Proposed Eco USA Tech Approach (latest version, 10-2-2017), or subsequent versions as they are developed, for NS approach and updates.
- ☐ Review the comments and resolutions generated during the 5-state Eco USA detailed review (2017), summarized in Appendix H.
- ☐ Refer to Appendix I, the Ecological USA Methodology Flowchart (2017), for a diagrammatic overview of the general filtering and processing methodology used to identify Eco USAs.
- ☐ Refer to NS Explorer (and NS Explorer Pro) as a primary source for species and ecological community attributes, but realize these may be slightly out of date in some cases relative to what NS staff are using.
- ☐ Refer to the ESI introductory pages, maps, data, and metadata for specifics on individual ESI datasets.
- ☐ Refer to the processing documentation and metadata provided by NS.
- ☐ Always consider both errors of omission and commission while checking the data.

2. Check that the data have been prepared properly for Eco USA processing

- ☐ Check that all data and metadata materials needed for review have been provided by NS, including available ESI data.
- ☐ Check that Ramsar and WHSRN sites are included.
- ☐ Check that the EO data have the required data fields.
- ☐ Check that ESI data are properly processed and required data fields appended.
- ☐ Check rounded GRANKs and TRANKs, including those applied to ESI data.
- ☐ Check federal T&E status, particularly the EO_USESA field (carefully check listings for subspecies, distinct populations, etc.; check that ESI data are updated correctly).
- ☐ Check depleted marine mammal status (carefully check which population stocks apply).
- ☐ Check habitat assignments – aquatic / aquatic dependent vs. terrestrial (at species or element level).
- ☐ Check limited range (LR) assignments for records that are not aquatic or aquatic dependent; recall that all plant species are considered LR and that the definition of LR differs for species vs. ecological communities.
- ☐ Check scientific names for species that occur in both NHP and ESI data for consistency, including sub-species and distinct population nomenclature and relationships to GRANKs, TRANKs, and federal T&E status.
- ☐ Check aquatic open water (AOW) vs. aquatic isolated water (AIW) assignments for point records (these may vary by type of occurrence).

3. Check that data quality criteria have been applied per Eco USA process

- ☐ Check that records which do not meet the Eco USA candidate selection criteria have been removed.
- ☐ Check that only EO records identified as species or ecological communities are included (unique geologic features, species groups or categories, etc. are removed – this includes any ELCODES starting with "O" for "other", if applicable). Reminder that the ecological community data should only originate from EO sources (e.g., hexagonal data and other sources are not used, unless specifically approved by PHMSA).
- ☐ Check Representation Accuracy (RA) – if "Low" or "Very Low" and the record is larger than 5 square miles in size without having been "fuzzed", the record should have been removed (applies to EO data). If the RA value is <Null> (not assigned) and the record is larger than 5 square miles in size (not "fuzzed"), it should be removed unless it is a community or it is assigned a PREC_BCD value is S or M.
- ☐ Check that extirpated records are removed (GRANK = GX; SRANK = SX; EORANK = X; or last observed date older than 40 years [see LOBS_Y = 1984/1985 or later are retained]).
- ☐ Check that ESI records with G_SOURCE from original State NHP EO data sources are removed.
- ☐ Check that ESI records with G_SOURCE from NOAA ELMR data sources are removed.
- ☐ Check that ESI records with CONC = "potential", "possible", "transient", "probable", and similar variants that indicate potential rather than confirmed occurrence are removed.
- ☐ Check that any other ESI data that are specified by RPI to not meet data quality criteria are removed.
- ☐ Check that there are no potentially missing species or communities, i.e. those expected to occur in the geographic area are present in the dataset or were appropriately removed per the data quality criteria.

4. Check the application of Eco USA candidate criteria

- ☐ Check that records with rounded GRANKs or TRANKs of G1, G2, T1, T2 are identified as candidates.
- ☐ Check that federally listed T&E species (LT, LE, XN, XE) are identified as candidates (candidate, proposed, similarity of appearance, and special concern species are not included as T&E USA candidates).
- ☐ Check that depleted marine mammals are identified as candidates.
- ☐ Check that all Ramsar and WHSRN sites are identified as candidates.
- ☐ Check that records that do not meet the above criteria are not retained as candidates.
- ☐ Check that records originating as ESI polygon data match their original polygon extents on a per species basis, with the exception that overlapping polys for the same species are dissolved and that any multipart polygons have been "exploded" to individual records (note that no multipart ESI polygons should appear in the dataset, including in the final USAs).
- ☐ Check that records originating as point data are converted to polygons using 1-mile buffers (note that the complex polygons for AOW points are applied later to the final USAs).
- ☐ Check that records originating as line data (applies to some anadromous fish runs) are buffered by 0.25 miles to create polygons.

5. Check the application of Eco USA filter criteria

- ☐ Check that all candidate records with rounded GRANKs or TRANKs of G1, T1 are identified as USAs (this is Filter Criteria #1 [FC1]).
- ☐ Check that all Ramsar sites are identified as USAs (part of FC3).
- ☐ Check that all WHSRN sites are identified as USAs (part of FC3).
- ☐ Check that all candidate records with rounded EORANKs of A or B are identified as USAs (this is FC5).
- ☐ Check that all candidate records classified as Aquatic Dependent (AD) or Limited Range (LR) are identified as USAs (this is FC4).
- ☐ Check that all depleted marine mammal records are identified as USAs under the Aquatic Dependent criteria (part of FC4).
- ☐ Spot check that the MSAA process has been applied properly across candidate records to identify USAs based on overlapping combinations of 3 or more different types of candidates. See visual aids that demonstrate this process (this is FC2).
- ☐ Re-run all or part of the NS MSAA process with the input data and check for agreement with the final USAs from NS.
- ☐ Spot check that the MSAA process worked properly along state borders, where applicable.
- ☐ Review candidate records that can only become USAs under the MSAA filter criteria. These include G2, T2, LT, LE records that do not meet other filter criteria (not G1, T1; not EORANK A, B; not AD; not LR). Check that these records with appropriate MSAA overlaps became USAs

6. Check the generation of final Eco USA boundaries

- ☐ Check that USAs originating from point records classified as AIW and TER are buffered with a radius of 1 mile to create final USA polygons.
- ☐ Check that USAs originating from point records classified as AOW are depicted as complex USA polygons including all open water features from the NHD hydro layer within a 5-mile buffer of the point and with a 0.25-mile buffer overlap along all linear “shoreline” and linear stream features within the 5-mile buffer.

Appendix H

Summary of Review from the 2024-2025 Update of Ecological USAs. Describes a summary of review comments and outcomes across both detailed reviews and spot check reviews of the draft 2024-2025 Eco USA update.

Summary of Review for the 2025 Update of Ecological USAs

Research Planning, Inc.

12 August 2025

Research Planning, Inc. (RPI) is under contract to the Pipeline and Hazardous Materials Safety Administration (PHMSA) to assist NatureServe (NS) in the 2025 update of Ecological Unusually Sensitive Areas (Eco USAs). One of the tasks was to conduct detailed reviews of the Eco USAs generated by NS for a subset of states and regions. RPI completed detailed reviews for KS, ND, WY, CA, NY, TX, and the offshore Gulf and submitted comments to NS in sequence between October 2024 and February 2025. This was followed by correspondence between RPI, NS, and PHMSA until resolution was reached on comments raised by reviews. A subsequent task was to conduct spot check reviews of the Eco USA dataset generated by NS for all 50 states and Puerto Rico. RPI completed the spot check reviews and submitted a final set of comments to NS on May 19, 2025. During both review processes, RPI submitted major comments as they arose and worked through these with NS. The following is a summary of major review comments and how they were resolved.

Comments fell under the following general categories:

1. Missing and erroneous Endangered Species Act (ESA) listing status assignments
2. Taxonym discrepancies affecting attribute assignments, multi-species assemblage areas, and filter criteria evaluations
3. Erroneous depleted marine mammal (DMM) status assignments
4. Use of subnational conservation ranks in place of global conservation status ranks for ecological communities
5. Alternative habitat and limited range assignments
6. Exclusion of records with sufficient spatial accuracy
7. Exclusion of other records qualifying as candidates
8. Inclusion of records not meeting data quality criteria
9. Inclusion of formerly excluded ‘presumed extirpated’ records
10. Inconsistent field definitions leading to misapplication of filter criteria evaluations
11. Use of fuzzing for spatial data
12. Omitted migratory waterbird concentration areas
13. Steps to perform during packaging of spatial data for final delivery
14. Overlooked Environmental Sensitivity Index data sources
15. Additional materials and information requested to support external reviews
16. Other feedback and items of note

Comments from these categories are discussed in more detail below.

1. Missing and erroneous Endangered Species Act (ESA) listing status assignments

A large portion of comments on issues that affected the identification of candidates and Eco USAs fell under this category. For many records, ESA listing status was left blank or designated 'N' in the processed datasets, as was the indicator flag for federally threatened and endangered species (TE_IND), as applicable. Per NS, this was due to an issue with ESA values having been nulled out for many Environmental Sensitivity Index (ESI) records. This issue was resolved for the development of the national draft Eco USAs dataset. However, even beyond this specific issue, correctly resolving ESA status (and other attributes) during ESI data processing was a major challenge for NS.

Issues with ESA listing status assignments frequently arose for species or taxa that had partial or multiple ESA listings and/or differences in taxonomic resolution or naming conventions (hereafter collectively referred to as variation in 'taxonyms') across data sources or between regions. This most affected taxa with sub-specific taxonyms and listings (e.g., for a subspecies, distinct population segment [DPS], or evolutionarily significant unit [ESU]). Where mismatches in taxonomic resolution occurred, taxa were sometimes incorrectly excluded from the dataset based on erroneous ESA-listing statuses (e.g., some taxa tracked by NS at the species level but ESA-listed at the subspecies level should have been included but were not). Mismatches also led to species being incorrectly retained in the dataset and evaluated against Eco USA filter criteria (FC). In both cases, taxonomic resolution often differed between records depending on data source (NS vs. ESI), leading to differing ESA listing status assignments and evaluation outcomes for records representing the same taxon.

The overall recommendation was to be consistent in the application of ESA listing status at the element occurrence (EO) or record level using the EO_USESA data field. Entries should be checked carefully against federal ESA listing definitions, especially for species with partial statuses and for cases in which ESA listing alone would determine whether or not a record would become an Eco USA candidate. NS agreed to this concept and to specific corrections identified in the deep dive and spot check reviews.

External reviewers should continue to carefully check ESA listing statuses and assist NS with ESA listing assignments for ESI data during future updates. Similar comments were made regarding depleted marine mammal status, which should be treated similarly to the federal ESA listings in terms of checks and tracking at the record level (detailed below). It may be advisable to have RPI process the ESI data and provide an Eco USA candidate dataset to NS or other organizations conducting future Eco USA updates, particularly as new ESI datasets become available and as ESA status and other candidate attributes change over time.

Finally, there were many instances of ESI data not being assigned listing status within the Eco USA data. Specifically, listing status was often omitted for species having a global conservation status rank (G-rank) of G1 or G2 and/or recognized as depleted marine mammals; i.e., cases for which the ESA listing status would not change the outcome of Eco USA evaluation. However, for continuity purposes it is recommended that ESA listing status be included for all species where applicable. Per NS, this was done if the time and effort needed would not negatively impact other needs. Going forward for future updates, RPI recommends resolving ESA-listing status in all cases, even if it would not affect Eco USA outcome.

2. Taxonym discrepancies affecting attribute assignments, multi-species assemblage areas, and filter criteria evaluations

Many comments fell under this category, as alluded to above. The dataset contained both parent and sub-specific records that should be identified as the same taxon. Discrepancies also arose due to simple naming convention mismatches, where slight spelling or wording variation was found. In addition, reviewers identified records that were designated Eco USAs but belonged to taxa no longer recognized as valid, with G-rank no longer applying. For the latter cases, NS concurred and reassigned records to the recognized taxa, after which they no longer prequalified and were excluded from database. There were some exceptions where deference was given to data owner/program tracking the species, and a taxon was kept despite no longer being recognized as such by NS or U.S. Fish and Wildlife Service (USFWS).

Mismatched taxonyms were found in crosswalks between NS and ESI common and scientific names, but also for NS data between states, e.g., due to different state programs tracking species at different taxonomic ranks. This sometimes affected ESA listing status assignments, as discussed above, but also the assignment of other attributes like rounded G-rank, which can similarly affect Eco USA outcomes (e.g., if sub-specific taxa would be identified as candidate or as final Eco USAs based on T-rank when the species as a whole would not qualify).

Many of these cases also had the potential to affect the multi-species assemblage area (MSAA) assignment process. When different records in close proximity to each other are tracked using different taxonyms but, at the most detailed level of taxonomic resolution, really represent the same taxon, the number of co-occurring taxa may be artificially inflated. This could cause polygons to qualify as MSAAs that should not, potentially leading to erroneous designation of Eco USAs. To address this concern, NS indicated that they would update the MSAA process to be based on full species only, thereby avoiding any double counting of a species in that analysis. While MSAAs would be resolved at the species level, other data would continue to be assigned and assessed at sub-specific ranks as applicable. On this basis, NS did not update the taxonomic treatment of individual records to support MSAA evaluation. Corrections to mismatches in species-level taxonyms would still be warranted.

In all cases, RPI recommends resolving taxonomy to the most specific rank applicable.

3. Erroneous depleted marine mammal (DMM) status assignments

Several comments fell under this category. Many records were assigned an incorrect depleted DMM status, often leading to issues with Eco USA evaluation. Comments mainly applied to taxa that had multiple DMM listing statuses across different populations/stocks. Misassignments resulted from misunderstanding where different population stocks occurred and failing to match records with appropriate stocks. Accurate assignments may require deeper understanding of reference information via reliance on RPI or other experts.

Moving forward, RPI recommends that DMM assignments be checked for taxa with variation across different stocks. DMM assignments can be checked by referring to the latest National Marine Fisheries Service (NMFS) marine mammal stock assessment reports for each species/stock; suggested sources are the NMFS Species Directory, https://www.fisheries.noaa.gov/species-directory; NMFS Stock Assessment Reports by Species and Populations, https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-

assessment-reports-species-stock; and the U.S. Marine Mammal Commission Status of Marine Mammal Species and Populations, https://www.mmc.gov/priority-topics/species-of-concern/status-of-marine-mammal-species-and-populations/. Note that stock assessment reports for different stocks may be updated in different years.

4. Use of subnational conservation ranks in place of global conservation status ranks for ecological communities

Reviews identified ecological community records that used subnational conservation status ranks (S-ranks) of S1 or S2 in place of rounded G-ranks for communities that would not qualify as Eco USA candidates based on their raw G-rank assignments. These records were removed at RPI's recommendation, with NS concurrence, based on the USA Final Rule (Federal Register, 2000) definition of imperiled and critically imperiled ecological communities. The Final Rule text states "RSPA (now PHMSA) agrees that critically imperiled and imperiled rare ecological communities should now be included as ecological USA candidates, with the caveat that the natural community data must match recent nomenclature and conservation status rank conventions."

NS noted that the inclusion of S1/S2 communities was something that had been approved by PHMSA; however, after additional internal discussion NS was comfortable accepting RPI's suggestion to exclude them (provided PHMSA agreed and no technical complications arose that would cause delays).

5. Alternative habitat and limited range assignments

A few comments fell under this category. Some species and ecological communities were assigned aquatic/aquatic-dependent or limited range designations that should not have been, and vice versa. With NS's concurrence, these designations were changed, which sometimes affected the outcome of Eco USA evaluations. Cases which may not have affected Eco USA evaluations nonetheless provided examples indicating that more detailed analysis needs to be paid to the habitat and limited range assignments.

Per subsequent correspondence, NS is also reviewing the criteria used for species in populating the AQ_TLR field, paying special attention to species such as Canada lynx, Mexican wolf, gray wolf, black bear, brown bear, wolverine, cougar, mountain lion, bats, bighorn sheep, pronghorn, and aplomado falcon. This review includes possible exceptions to species-level assignments, such as where EOs are defined as hibernacula or maternity colonies for bats, making assignments at the EO level when appropriate. As another example, RPI noted that in some cases, certain brown bear populations or occurrences could be considered aquatic-dependent if relying consistently on salmon runs as food source, with intensive use of rivers, creeks, and riparian habitats. Similar rationale may apply for wide-ranging terrestrial mammals with comparable life-histories that use denning sites. Across such species, consideration and application of limited range assignments should be treated consistently. However, data will often be limited or unavailable for these types of exceptions.

In addition, RPI noted that for a few states, rules defining the use of the AQ_TLR field changed, in that communities were given 'Y'/'N' assignments rather than more specific aquatic/aquatic-dependent and terrestrial limited range designations. NS explained that this was done for process efficiency; nonetheless, RPI recommends consistency in how fields are defined and used as a general best practice for dataset development.

6. Exclusion of records with sufficient spatial accuracy

Some comments addressed the disuse of PREC_BCD information for evaluating spatial accuracy when Estimated Representational Accuracy (EST_REP_AC) data were not available (EST_REP_AC generally replacing PREC_BCD, when available). One of the data quality steps applied was to screen out EO records with low accuracy (in regard to spatial resolution). During the previous update, it was agreed that records with 'minutes' precision (translating to an area approximately 5 square miles) would be retained in the dataset, and that this practice was consistent with the original identification of Eco USAs. After observing that records with PREC_BCD = 'M' were excluded during this update when EST_REP_AC data were not available, RPI made the recommendation to include them and, with agreement from NS, the governing attributes were changed accordingly. The data quality criteria evaluation process was updated to assign Low_Acc = 'N' if EST_REP_AC is <null> and PREC_BCD is ('S','M'). Per further recommendation from RPI, the field definitions were updated to reflect this change in procedure.

As an example of a comment that raised a related issue for further discussion, all records of whooping crane, black-footed ferret, Canada lynx, North American wolverine (wolverine), and grizzly bear (brown bear) occurrences in MT were excluded based on data quality criteria. All such records in the raw dataset had Est_Rep_Ac and Prec_BCD as <null>, meaning these data were not provided or these attributes are not used by the MT data providers. For wide-ranging species such as these, occurrences greater than 5 square miles may not be uncommon and may accurately reflect the locations and distributions of these occurrences. However, given that no records for these 5 ESA-listed species became Eco USAs across an entire state—where in at least some cases important populations are known to occur—this raises additional concerns on how Low_Acc is being applied to exclude occurrences from Eco USA status. Similar comments raised similar concerns for other states. RPI recommends re-evaluating the application of the Low_Acc field prior to future dataset updates.

RPI also noted that cases in which EST_REP_ACC was assigned 'Unknown' status were not treated as <null>, as expected, but were treated as if 'Low'. Per NS, this was intended to allow the 'Unknown' value to take precedence over any PREC_BCD value because EST_REP_ACC is currently the primary field for designating accuracy. As such, if a program has taken the time to fill it out, even with a value of 'Unknown' that is taken as the final value. RPI agreed with NS that this could be reconsidered in future phases if deemed worthwhile.

Other RPI comments identified records that were incorrectly excluded which should have been retained because they did not exceed 5 square miles in area. NS agreed, and the record evaluations were corrected. For some of these cases, the issue arose because the record was flagged as Low_Acc = 'Y' based on the area of the full EO prior to being split into single part polygons—each of which were under 5 square miles, while the full aggregated EO was not. RPI suggested applying the area threshold to the single parts in all cases. Per NS, there were not any immediate concerns with that approach, and it would be adopted moving forward.

In addition, some ESI data was designated as EST_REP_ACC = 'Low' based on polygon size, leading to its exclusion when it should have been retained. ESI data is always considered to have acceptable spatial accuracy unless otherwise specified by RPI or the data providers. After this feedback was provided, NS agreed to adjust their process accordingly.

Finally, during back-and-forth communications on review comments, discussion arose around the use of specifically defined ('delimited') boundaries as an indicator of spatial accuracy. With concurrence from RPI, NS resolved not to use delimited boundaries as an indicator of greater precision due to reliability issues.

7. Exclusion of other records qualifying as candidates

Numerous comments identified records that were missing or excluded for no clear reason, many of which were added back to the dataset by NS following reviews. For example, the CA review led to at least 824 records being added to the draft dataset. This occurred mostly for records with G-rank G1, G2, T1, or T2, but also for some records assigned qualifying ESA listing statuses. In many instances, NS attributed the issue to a script error (that merged various input layers) that was subsequently resolved. This highlights the importance of reviewing the raw data for potential errors of omission. For other cases, back-and-forth discussion sometimes confirmed that records had been appropriately excluded for reasons not initially disclosed in the review materials (e.g., at the request of state heritage programs or Canadian programs, or because the program was not able to confirm the species identification [ID_CONF = 'N']).

8. Inclusion of records not meeting data quality criteria

Some comments found that prequalification (i.e., data quality) criteria were not always uniformly applied, sometimes resulting in errors in the Eco USA dataset. For example, one of the data quality criteria is intended to remove EOs that are extirpated by omitting occurrences with S-rank values of 'SX' or element occurrence rank (EO-rank) values of 'X', yet such occurrences were sometimes retained in the dataset. Other comments identified instances of community EOs being retained that should have been excluded based on having last observation dates > 40 years before present. One comment identified a species (shovelnose sturgeon) that was retained in the dataset, with records becoming Eco USAs, despite not qualifying because species that are ESA-listed due to similarity of appearance do not meet the candidate criteria. Not applying the data quality criteria uniformly resulted in USAs being incorrectly identified for records that did not meet the USA data quality standards and could have affected the generation of MSAA USAs. NS made the appropriate corrections and agreed to ensure that prequalification criteria would be applied appropriately for all data (including community data) during processing.

As a minor point of clarification, after back-and-forth discussion NS and RPI concurred that low accuracy records (Low_Acc = 'Y') do not need to be removed from the dataset/layer prior to MSAA analysis as long as they are properly excluded during evaluation of MSAAs.

9. Inclusion of formerly excluded 'presumed extirpated' records

Review comments revealed a difference in how 'presumed extirpated' data records—identified by EO-rank = 'X?'—were handled in the current update compared to previous work developing the Eco USA dataset. In the final updated dataset, records that are presumed extirpated based on EO-rank were retained, while records denoted as extirpated or extinct continued to be excluded. Per discussion with NS, this conservate approach is appropriate for records with 'X?' designations based on the fact that there is some doubt about extirpation in these cases. This is also consistent with the handling of other historic or presumed extirpated attribute assignments (e.g., S-rank = 'SH', EO-rank = 'H', 'H?', 'F', and 'F?'). RPI concurred with this explanation and agreed that the change should be adopted in procedures and documentation moving forward.

10. Inconsistent field definitions leading to misapplication of filter criteria evaluations

RPI found disagreement in the field definitions related to FC evaluation, which in some cases led to conflicting information across indicator fields and FC evaluations within records, and inconsistently populated field information across records. In resolving this issue, NS confirmed that FC4 should be based on AQLR_IND = 'Y' and FC5 should be based on EORANK_AB_IND and agreed to update all field definitions accordingly.

NS also agreed to RPI's request to indicate 'N' in data fields where 'No' is indicated and reserve <null> entries for data fields lacking data, where applicable. Originally <null> was often used in both cases, which sometimes resulted in unclear or uncertain information. Following the initial deep dive state reviews, NS agreed to use Y or N entries for EORANK_AB_IND and all other appropriate indicator fields and FC fields.

In addition, after discussion it was confirmed that FC4 and FC5 pertain to G2/T2, ESA-listed, or designated DMM species/communities, not G1/T1. The definition for Eco USAs (put forward in the Final Rule) implies that G1/T1 species do not need to be considered under FC4 and FC5. At the suggestion of NS, RPI agreed that once a record evaluates as a candidate under a criterion, it does not need to be evaluated under each subsequent criterion. While such specifics may be left up to NS discretion, the steps taken should be clearly documented in the field definitions and should be followed consistently for all records.

11. Use of fuzzing for spatial data

'Fuzzing' is the practice of artificially expanding the spatial area of an EO, e.g., by adding a specified buffer area or adopting an overlying cell area from a predefined spatial grid, in order to obscure the precise location of a sensitive resource. Some data owners/Natural Heritage Programs require fuzzing for their records to be used, and fuzzed data were used during the previous Eco USA update. Nonetheless, fuzzing was not what was intended or anticipated for the development of Eco USAs and may present various challenges for use of the data. RPI recommended that for cases in which it could not be avoided, fuzzing should be limited to the degree possible, preferably ≤5 square miles. After discussion, PHMSA concurred. As part of the resolution, NS was able to coordinate and reduce the degree of fuzzing for records from various data providers. RPI further recommended retaining this as a key topic for discussion in the lead up to future updates.

In the initial deep dive reviews the fuzzing flag was not always used, leading to issues with implementing (and reviewing) the evaluation of data quality criteria. To resolve this item, NS agreed to share information on fuzzing (including how and to what extent data were fuzzed) and to include fuzzing indicator fields in the raw and processed datasets. Nonetheless, in spot check reviews for the final draft Eco USA, RPI found instances where it was not clear whether fuzzing information was appropriately indicated. For example, most of the EO spatial representations in some states (AR, WA) appeared to be based on hexagonal or rectangular grid systems similar to other fuzzed datasets, despite not being indicated as fuzzed data. Per NS, such instances may arise when individual NHP programs provide fuzzed data to NS without indicating that data have been fuzzed; such records would therefore not be identified or treated as fuzzed records in the NS analysis. Moving forward, such anomalies should always be addressed and clarified in the dataset or in other materials provided to support reviews.

12. Omitted migratory waterbird concentration areas

A couple of comments noted migratory waterbirds concentration areas that were not included in the dataset or were not fully captured by their spatial polygons. NS agreed that two new WHSRN sites that were omitted would be added to the dataset during the next refresh (i.e., not during the 2024-2025 update). These new sites were: International WHSRN Site 'Deveaux Bank' in South Carolina, designated in July 2024 (see https://whsrn.org/whsrn_sites/deveaux-bank/); and Regional WHSRN Site 'Port Aransas Nature Preserve at Charlie's Pasture' in Texas, designated in October 2024 (see https://whsrn.org/whsrn_sites/port-aransas-nature-preserve-at-charlies-pasture/). Both these sites qualify as Eco USAs. Similarly, one Ramsar site was identified as having large spatial gaps and missing areas; NS added a note to their documentation to correct this site in the next refresh. This latter site was the Caddo Lake Ramsar site in Texas (see https://rsis.ramsar.org/RISapp/files/26444892/pictures/US633map.pdf). The polygon for this site in the Eco USA data does not match the map of the site on ramsar.org, including large gaps and missing pieces that extend south and to TX/LA state line. This discrepancy was noted after other edits and corrections to the Ramsar site data layers had been completed.

13. Steps to perform during packaging of spatial data for final delivery

RPI noted that breaking polygons up into single parts (which is done for the MSAA calculation) might cause polygons to have 'slivers' or 'gaps'. Review comments acknowledged that while this may not be a problem, it should be considered and discussed for cases where it occurs. NS confirmed that the issue was examined and no problems were found.

In response to comments recommending that the geographic projection(s) used for the dataset(s) be checked for consistency, it was confirmed that the projection used for draft Eco USAs may differ while data from AK, HI, PR, and the lower 48 states are combined in a single feature class, as long as appropriate projections are used when data is broken out during packaging for final delivery.

14. Overlooked Environmental Sensitivity Index data sources

RPI found at least one ESI Data Source that had been overlooked for the initial development of the draft dataset (Lower Coast TX ESI data from TGLO). NS resolved the issue by delivering an updated dataset which included the missing records, and agreed that moving forward, all ESI data available within the established timeframes will be included for all states and regions.

15. Additional materials and information requested to support external reviews

Several additional materials and data fields were requested by RPI to support external reviews over the course of this Eco USA update. This information aided in the USA generation process and in the review of the data. NS agreed to provide the requested data fields and documentation, listed below.

Raw EO data - Needed to review potential data omissions related to various review steps, such as checking taxonomic treatments, species versus subspecies or other sub-specific taxa use, conservation status ranks, and especially ESA-listing resolutions. One of the review steps is to check for species expected to be included within the geographic area under review. Early in the review process, because RPI did not have raw data available to confirm, many comments asked for

verification that expected species were not present in dataset. NS responded by providing separate raw datasets for reviews (PreQ_IND = 'Y' and 'N') with accompanying field definitions.

Field definitions – At RPI's request, NS agreed to ensure field definitions included EO-rank definitions (for ranks that do and do not 'round' to 'A' or 'B'). As mentioned above, NS also agreed to update the low accuracy field definitions (as described above) and to ensure consistency in definitions across data fields (including specifying the order and process for FC evaluation, as described above).

Last observation date – After initially omitting it for some deep dive reviews, NS agreed to ensure that this information was provided in raw and processed datasets to support the review process.

Null vs. 'N' clarification – As mentioned in the FC evaluation comments above, RPI requested that NS indicate 'N' in data fields where 'No' is intended and reserve <null> entries for data fields lacking data. Originally <null> was often used in both cases, which sometimes resulted in unclear or uncertain information. NS agreed to use 'Y' or 'N' entries for EORANK_AB_IND and all other appropriate indicator fields and FC fields.

Fuzzing indicator – Comments requested that the raw and processed EO datasets both provide a field indicating if records were fuzzed or not. Without this information reviewers are unable to assess whether records may have been omitted from the dataset in error. NS confirmed that fuzzing information would be provided.

Habitat information – Comments observed that changes in AQ_TLR categorization were not always reflected in the data fields, causing apparent inconsistencies in evaluation results. For example, some species occurrences that correctly designate AQ_TLR as terrestrial limited range or aquatic/aquatic-dependent were designated as AQLR_IND = 'N' based on expert review. NS agreed to make sure the AQ_TLR and AQLR_IND fields were cleaned up, and this issue was considered resolved. In addition, the dataset lacked or provided minimal information on the basis of AQ_TLR determinations, particularly for cases that relied on expert opinion. During back-and-forth discussion, NS explained that aquatic/aquatic-dependent and terrestrial limited range assignments may not be able to be broken out separately based on the process followed (for efficiency), which RPI agreed was reasonable. The issue was resolved by confirming that NS would provide available habitat information at the species level in a separate spreadsheet, with additional information on the calculation of the AQLR_IND field, to help in the review process.

Sub-setting rules/State boundary clarification – Many comments questioned exclusion of records found in the raw dataset on the assumption that they were within state boundaries, when in fact they were outside the perimeter. Per NS, "records not intersecting with the deep dive state boundary are only meant to be used to QC the handling of records that do intersect" for the purposes of MSAA generation. It would help support the review process if NS could provide some way of distinguishing these records moving forward (e.g., by separating layers or adding an attribute flag), but this may or may not be feasible. This could similarly help avoid back and forth discussions clarifying artifacts of sub-setting procedures. Additional discussion may be helpful preceding the next dataset refresh.

16. Other feedback and items of note

- A large number of comments identified potential data gaps based on species and communities expected to occur in particular regions for which there are no records in the dataset.

- RPI noted discrepancies between information available via NatureServe Explorer (NSE) and the draft Eco USA dataset due to recent updates published online. This was resolved by confirming that data in the extracted dataset would be used as-is rather than making individual changes to reflect subsequent updates to the source data. For clarity and consistency NS would prefer not to make one-off changes of this nature unless needed to fix data errors, which RPI concurs with.

- There were a number of records in the dataset that did not match with species or communities on NSE despite DATA_SOURCE = 'NS_BLD', or that only matched with provisional or nonstandard taxonyms. Per NS, these differences are common when the data owner tracks the species/community under a different concept than the standard accepted by NS. These data meet the same standards as those with standard names, including maintenance of G-ranks and ESA listing statuses (e.g., applicable records fall under an International Vegetation Classification [IVC] Association that satisfies the definition in the Final Rule). Nonetheless, NS conducted a review of related elements to look for any records that might slip through the cracks due to various types of status differences.

- Similarly, RPI noted differences in rankings and element global IDs between NSE and the dataset. This was resolved by confirming that the data used in NS analyses would continue to follow the treatment used by the programs tracking the species. Classification concepts used by source programs may be narrower or broader in some cases, leading to different extinction risks and potentially different G-ranks, as observed in review comments. Per NS, analyses will follow the treatment used by data owners even if NSE treats the taxa as no longer valid.

- For some cases in which taxonomic refinements (based on crosswalks or reference information) would not affect the application of the prequalification (data quality) or filter criteria, NS stated that taxonomy would not be updated. Nonetheless, RPI recommends aligning/resolving taxonyms where feasible.

- NS was notified about a potential misassignment of 'SX' to a species known to still occur (stopover) in the state (Whooping Crane, ND), though this did not affect processing due to other data quality criteria. NS agreed to pass this along to the program.

- Regarding an S-rank discrepancy between NSE and the dataset, RPI commented that the NSE account and the USFWS 5-year review for Karner blue butterfly (*Plebejus samuelis*) state that the species is extirpated in MN. NS observed that records in MN are likely based on a small, isolated colony within a DNR Wildlife Management Area (https://www.dnr.state.mn.us/rsg/profile.html?action=elementDetail&selectedElement=IILEPG5021). The data agreement between NS and regional programs does not allow NS to make S-rank updates, so analyses followed the treatment used by data owners (as

captured above). Nonetheless, NS zoologists reached out to MN to check on this species and agreed to make any updates they determine are needed to the species data on NSE.

- There was a single ESI data record for Menzies' wallflower (*Erysimum menziessi*) in WI, despite the fact that this species is endemic to CA (per USFWS, NSE, etc.). In response to comments, NS filtered the record out from Eco USA evaluation. A similar comment was resolved by recategorizing a tree boa species outside of its endemic range (within Puerto Rico).

- Following discussion, NS indicated that because ESI data will often differ from NS based on differences in methodology, S-rank exclusions are not applied to ESI data.

- RPI observed that ESI data were missing from some regions in the dataset, which caused potential candidate and final Eco USAs to be omitted (e.g., for piping plover and rufa red knot EOs in IL and IN). RPI observed that the relationship between the biological resources table and the species table may not have worked properly for the ESI datasets in question. NS responded that the Southern Lake Michigan (SMICH) data are in an old and unsupported E00 format that is difficult to access. A review of the biofile table in the SMICH geodatabase showed three piping plover records and two red knot records, which NS added to the Eco USA analysis. However, NS was not sure whether the biofile table also contained errors. Accordingly, NS requested that RPI assist with affected ESI datasets (e.g., SMICH, NMICH, and SUPERIOR) by providing a species lists for each, with RARNUMs, if possible, while NS continued working to address the issue. Similar comments identified missing ESI data from other regions, such as the ESI Alaska North Slope dataset (2005).

- In one comment, RPI noted that ecological community classification and mapping has been conducted by/for USGS, NPS, TNC, NS, and perhaps others in SC and other states using the U.S. National Vegetation Classification (which appears to align with the IVC) with assigned G-ranks, and these community types and descriptions often appear in NSE; however, these data did not appear to have been included in the SC EO data, perhaps because they have not been brought into the SCNHP EO databases. This comment may have applied to other states as well, as these mapping programs have been conducted regionally and nationally for NPS units and perhaps other DOI properties and locations. This may be an item for coordination with the State NHPs and for future Eco USA updates.

- For regions where there is no NS_BLD data or there are gaps in NS_BLD data due to inactive NHP programs, RPI recommended that NS consider retaining NHP/EO data from the ESIs rather than excluding them (as long as full taxa names are available and can be cross-walked to current NS taxonomy and information). For example, in Hawaii this allowed the inclusion of EOs from the prior NHP that are not covered by GBIF and would otherwise be missing as Eco USAs. This seems to be a reasonable exception to the processing steps.

Overall, the draft Eco USAs were in relatively good condition and the comments and resolution items identified do not represent or require major changes in methods or approaches. These comments and resolution items were used to help inform the 2024-2025 standards and best practices documentation.

Appendix I

Ecological USA Methodology Flowchart.

[NOTE: Red indicates changes from the 2017 version; other minor edits have been made for clarity.]

Ecological USA Methodology Flowchart
Based on USA Final Rule
USDOT 49 CFR 195.6 dated 12/08/2000

Revised Aug. 7, 2025

Legend:
Process / Decision | Query | Interactive / Subjective Research

START
Environmentally Sensitive Areas (ESAs)
Ecological resources as generally described by NOAA.

USA Candidate Data Sources
All element occurrences (EOs) in the state Natural Heritage Program (NHP) database and the state Environmental Sensitivity Index (ESI) databases.

All Western Hemisphere Shorebird Reserve Network (WHSRN) sites and Wetlands of International Importance (Ramsar) sites in the state.

Prequalification Criteria
1) EOs must meet criteria for candidacy and must be identified as either species or ecological communities (not, e.g., geographic features, species groups or categories, or ELCODES starting with "O" for "other"); community data must originate from EO sources.
2) EOs that are > 5 square miles (and are not "fuzzed") cannot have an assigned Representation Accuracy (RA) value of "Low" or "Very Low".
3) Species EOs that have neither an assigned RA value nor an assigned precision (PREC_BCD) of 'S' or 'M' cannot be > 5 square miles (unless "fuzzed").
4) EOs cannot be designated as extirpated in their global conservation ranks, state element occurrence ranks, or state conservation ranks; and cannot be designated as potential or similar in their ESI-ranked concentration value.
5) EOs cannot have a last observation date > 40 years before present.

No → ***POSSIBLE OUTCOME #1*** **Ecological USA**

Yes

Filter Criterion #1
Critically-imperiled EOs

Yes → EO habitat represented by a resource-based polygon?

Yes → **Ecological USA**

No → EO is associated with an open-water habitat, or if EO type is not known, the element (species) is dependent on open-water habitat during at least part of its life cycle?

Yes →
1) Buffer the EO point to 5 miles.
2) Select all open water features, (e.g., streams, water bodies, etc.), that fall within the 10-mile diameter buffer circle.
3) Generate 1/4 mile buffers around the selected set of open water features.
4) Limit the extent of the open water features and their 1/4-mile buffers to the boundaries of the 10-mile diameter buffer circle. The resulting polygon represents the habitat of the open water element (species).

→ **Ecological USA**

No → EO is associated with an isolated-water or terrestrial habitat or the element is considered an isolated-water or terrestrial species.

→ Buffer the EO point to 1 mile. The resulting 2-mile diameter circle represents the EO habitat.

→ **Ecological USA**

No → ***Filter Criterion #5***
EO has a viability ranking of excellent or good?

Yes → EO habitat represented by a resource-based polygon?

Yes → **Ecological USA**

No → EO is associated with an open-water habitat, or if EO type is not known, the element (species) is dependent on open-water habitat during at least part of its life cycle?

Yes →
1) Buffer the EO point to 5 miles.
2) Select all open water features, (e.g., streams, water bodies, etc.), that fall within the 10-mile diameter buffer circle.
3) Generate 1/4 mile buffers around the selected set of open water features.
4) Limit the extent of the open water features and their 1/4-mile buffers to the boundaries of the 10-mile diameter buffer circle. The resulting polygon represents the habitat of the open water element (species).

→ **Ecological USA**

No → EO is associated with an isolated-water or terrestrial habitat or the element is considered an isolated-water or terrestrial species.

→ Buffer the EO point to 1 mile. The resulting 2-mile diameter circle represents the EO habitat.

→ **Ecological USA**

No → ***Filter Criterion #4***
EO habitat considered aquatic, aquatic dependent, or terrestrial with a limited range?

Yes → EO habitat represented by a resource-based polygon?

Yes → **Ecological USA**

No → EO is associated with an open-water habitat, or if EO type is not known, the element (species) is dependent on open-water habitat during at least part of its life cycle?

Yes →
1) Buffer the EO point to 5 miles.
2) Select all open water features, (e.g., streams, water bodies, etc.), that fall within the 10-mile diameter buffer circle.
3) Generate 1/4 mile buffers around the selected set of open water features.
4) Limit the extent of the open water features and their 1/4-mile buffers to the boundaries of the 10-mile diameter buffer circle. The resulting polygon represents the habitat of the open water element (species).

→ **Ecological USA**

No → EO is associated with an isolated-water or terrestrial habitat or the element is considered an isolated-water or terrestrial species.

→ Buffer the EO point to 1 mile. The resulting 2-mile diameter circle represents the EO habitat.

→ **Ecological USA**

No → ***Filter Criterion #2***
Multi-Species Assemblage
(EOs that are Critically-Imperiled, Imperiled, Federally-Listed Threatened or Endangered Species, Essential or Non-Essential Experimental Populations, and Depleted Marine Mammal Species)

Yes → EO habitat represented by a resource-based polygon?

Yes → Resource-based polygon represents the EO habitat.

No → Buffer the EO point to 1 mile. The resulting 2-mile diameter buffer circle represents the EO habitat for the MSAA Determination.

→ ***Filter Criterion #2***
MSAAs
Determination of Multi-Species Assemblage Areas (MSAAs)

1) The habitat area of each EO is examined individually to determine if it overlaps any other EO habitats (including those already determined to qualify as Eco USAs).

2) If overlap exists, a list of species associated with all overlapping habitats is compiled. The species of the habitat being examined is also added to the list.

3) If 3 or more unique species are found in the list, the habitat being examined is assigned USA status and all habitats that overlap it are assigned USA status, too.

4) Once an EO habitat has been assigned USA status, it maintains its status throughout the cyclical process, regardless of the outcome of its individual examination.

5) This process is repeated until all EO habitats have been examined.

→ EO habitat has been assigned USA status?

Yes → EO habitat originated from a resource-based polygon?

Yes → Resource-based polygon represents the EO habitat. → **Ecological USA**

No → EO is associated with an open-water habitat, or if EO type is not known, the element (species) is dependent on open-water habitat during at least part of its life cycle?

No → 1-mile buffer circle represents the EO habitat. → **Ecological USA**

No → ***Filter Criterion #3***
Migratory Waterbird Concentration Areas
Migratory Waterbird Concentration Area is a Ramsar site or a WHSRN site?

Yes → Each site is considered an individual EO habitat. The name of the site is used as the "species name". → **Ecological USA**

No → ***POSSIBLE OUTCOME #2***
USA Candidate / ESA
To be reevaluated in subsequent reviews.