Public Notice

U.S. Army Corps
of Engineers
Tulsa District

Reply To:

U.S. Army Corps of Engineers
ATTN: Regulatory Office
1645 South 101st East Avenue
Tulsa, OK 74128-4609

SWT-2013-638
Public Notice No.

April 30, 2014
Public Notice Date

May 30, 2014
Expiration Date

PURPOSE
The purpose of this public notice is to inform you of a proposal for work in which you might be interested and to solicit your comments and information to better enable us to make a reasonable decision on factors affecting the public interest.

SECTION 10
The U.S. Army Corps of Engineers is directed by Congress through Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403) to regulate all work or structures in or affecting the course, condition, or capacity of navigable waters of the United States. The intent of this law is to protect the navigable capacity of waters important to interstate commerce.

SECTION 404
The U.S. Army Corps of Engineers is directed by Congress through Section 404 of the Clean Water Act (33 USC 1344) to regulate the discharges of dredged and fill material into all waters of the United States. These waters include lakes, rivers, streams, mudflats, sandflats, sloughs, wet meadows, natural ponds, and wetlands adjacent to other waters. The intent of the law is to protect these waters from the indiscriminate discharge of material capable of causing pollution and to restore and maintain their chemical, physical, and biological integrity.

NOTICE TO PUBLISHERS
This public notice has been provided as a public service and may be reprinted at your discretion. However, any cost incurred as a result of reprinting or further distribution shall not be a basis for claim against the Government.

GENERAL PERMIT: 12
Application No.: SWT-2013-638

JOINT PUBLIC NOTICE
U.S. ARMY CORPS OF ENGINEERS
AND
OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (ODEQ)
(30-DAY COMMENT PERIOD)

In accordance with Title 33 CFR 325.5(c), published November 13, 1986, in the Federal Register, the District Engineer (DE), U.S. Army Corps of Engineers, Tulsa District, proposes to reissue a General Permit (GP) for the construction, maintenance, repair, and protection of utility lines in Outstanding Resource Waters (ORW) and their watersheds and High Quality Waters (HQW) as identified and designated in Oklahoma Water Quality Standards (OWQS), OAC 785: Chapter 45, Appendix A. All ORW and HQW may be referred to as Critical Resource Waters (CRW) unless otherwise specified. This GP will be issued pursuant to Section 404 of the Clean Water Act (33 USC 1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403).

Scope of Work: Work authorized by GP12 will be limited to activities required for the construction, maintenance, repair, and protection of utility lines and associated facilities in waters of the United States. These activities generally include utility lines, foundations for overhead utility line towers and anchors, and access roads.

Location of Work: This GP is applicable to all CRW within the state of Oklahoma, as identified in the GP, excluding: (1) defined archeological and historical sites, (2) sites listed in the National Register of Historic Places, and (3) State historic sites. The list below represents the up to date listing of CRW.

ORW: Waters of the United States designated ORW in Appendix A of the OWQS (July 1, 2013) include the following, and all associated water bodies located in their respective watersheds:
(1) Flint Creek (all) in Adair County and the following tributary: Sager Creek.
(2) Upper Illinois River, upstream from the confluence of the Barren Fork in Cherokee, Adair, and Delaware Counties, east to the Arkansas State line and the following tributaries: Tahlequah Creek and Ballard Creek.
(3) Barren (Baron) Fork in Cherokee and Adair Counties, from its confluence with the Illinois River, upstream to the Arkansas State line, and including the following tributaries: Tyner Creek, Dennison Hollow, Peacheater Creek, Scraper Hollow, England Hollow, Green Creek, Shell Branch, and Evansville Creek.
(4) Upper Mountain Fork River, upstream of the 600 feet above mean sea level (msl) elevation (upstream of Broken Bow Reservoir) in McCurtain and Le Flore Counties, and the following tributaries: Boktuklo Creek, Blue Creek, Big Eagle Creek, Little Eagle Creek, Cucumber Creek, Beech (Beach) Creek, Cow Creek, and Panther Creek.

(5) Big Lee Creek, upstream from 420 feet msl elevation in Sequoyah County, and the following tributaries: Webbers Creek and Briar Creek (Bear Creek).
(6) Little Lee Creek, in Adair and Sequoyah Counties, and the following tributary: Jenkins Creek.

HQW: Waters of the United States designated HQW listed in Appendix A of the OWQS (July 1, 2013) include the following:
(1) Water Quality Management Basin 1: the Illinois River from headwater of Robert S. Kerr Reservoir to Barren Fork confluence, Fourteen Mile Creek, Spring Creek, Snake Creek, Little Spring Creek, Saline Creek, Little Saline Creek, Brush Creek, Beaty Creek, Honey Creek, Cave Springs Branch, and Warren Branch.
(2) Water Quality Management Basin 2: Lee Creek downstream from 420 feet msl elevation, Black Fork upstream from Cedar Creek, Sallisaw Creek upstream from U.S. Route 64.
(3) Water Quality Management Basin 3: Pennington Creek, Guy Sandy Creek, Honey Creek, Crater Creek, Panther Creek, West Cache Creek upstream from Panther Creek.
(4) Water Quality Management Basin 4: Little River from the Arkansas State line to Pine Creek Dam, Mountain Fork River downstream from the Broken Bow Dam, Lukfata Creek, Glover River, Cedar Creek above Glover River, Carter Creek, Pine Creek, West Fork of Glover River, Bluff Creek, East Fork of Glover River, Cedar Creek, Carter Creek, Pine Creek, West Fork, Bluff Creek, East Fork, Cypress Creek, Little River upstream from and including the Pine Creek Reservoir, Pine Creek, Terrapin Creek, Houston Creek, Cloudy Creek, Jack Creek, Black Fork, Cedar Creek, Blue River upstream from State Hwy 48A bridge to State Hwy 7 bridge.
(5) Water Quality Management Basin 7: North Canadian (Beaver) River upstream from Texas State line to New Mexico State line, Cimarron River upstream from the Colorado State line to the New Mexico State line.

Plans and Data: Plans typical for utility line activities are to be submitted with each request. If additional information is desired, it may be obtained from Mr. Bryan Noblitt, U.S. Army Corps of Engineers, Tulsa District, ATTN: Regulatory Office, 1645 South 101st East Avenue, Tulsa, OK 74128-4609, or telephone 918-669-7400.

Purpose and Need for GP: Nationwide Permit (NWP) General Condition 22 provides for the designation of CRW by the Corps. The Tulsa District CRW designation applies to all HQW and ORW specifically listed in the OWQS, OAC 785: Chapter 45, Appendix A; which also includes all waters located in the watersheds of ORW. General Condition 22 prohibits the use of specific NWPs, including NWP for Utility Line Activities, within CRW and adjacent wetlands. If a GP for utility line activities, as proposed herein, is not reauthorized, the regulated public would be required to obtain an individual permit for all those activities requiring a Section 404 permit. The Tulsa District issued four authorizations for utility line activities within CRW since the reauthorization of this GP in September 2009. There is no clear reason that only four GP12 permits were issued for this time frame. GP12 is designed to provide an expeditious review and authorization,

where appropriate, for utility line activities with minimal environmental impacts. By reissuing GP12, the Corps believes that the proposed provisions and conditions address the environmental and water quality issues particular to CRW.

Environmental Considerations: The preliminary determination to reissue GP12 is not expected to affect listed endangered species or their critical habitat. A copy of this notice is being furnished to the U.S. Fish and Wildlife Service (USFWS) and appropriate State agencies. This notice constitutes a request to those agencies for information on whether any other listed or proposed-to-be-listed endangered or threatened species may be present in the areas which would be affected by GP12.

Endangered Species: The following listed species are associated with CRW in Oklahoma:

- Leopard darter (*Percina pantherina*) in Choctaw, Le Flore, Pushmataha, and McCurtain Counties.
- Arkansas darter (*Etheostoma cragini*) in Cherokee, Delaware, Ottawa, and Mayes Counties.
- Neosho madtom (*Noturus placidus*) in Ottawa County.
- Ozark cavefish (*Amblyopsis rosae*) in Delaware and Ottawa Counties.
- Rabbitsfoot (*Quadrula cylindrica cylindrical*) in Adair, Cherokee, Delaware, Le Flore, Pushmataha, and McCurtain Counties.
- Quachita rock pocketbook mussel (*Arkansia wheeleri*) in Le Flore, Pushmataha, and McCurtain Counties.
- Scaleshell mussel (*Leptodea leptodon*) in Le Flore, Pushmataha, and McCurtain Counties.
- Winged mapleleaf mussel (*Quadrula fragosa*) in Le Flore, Pushmataha, and McCurtain Counties.
- Neosho mucket mussel (*Lampsilis rafinesqueana*) in Adair, Cherokee, Delaware, and Ottawa Counties.
- Gray bat (*Myotis grisescens*) in Adair, Cherokee, Delaware, Mayes, Ottawa, and Sequoyah Counties.
- Indiana bat (*Myotis sodalist*) in Choctaw, Delaware Le Flore, McCurtain, and Pushmataha Counties.
- Ozark big-eared bat (*Corynorhinus townsendii ingens*) in Adair, Cherokee, Delaware, Mayes, Ottawa, and Sequoyah Counties.
- American alligator (*Alligator mississippiensis*) in McCurtain and Choctaw Counties.
- Whooping crane (*Grus Americana*) in Adair, Cherokee, Comanche, Delaware, Garvin, Johnston, Mayes, Murray, Pontotoc, and Sequoyah Counties.
- Interior least tern (*Sterna antillarum*) in Adair, Cherokee, Cimarron, Choctaw, Comanche, Delaware, Garvin, Johnston, Le Flore, Mayes, McCurtain, Murray, Ottawa, Pontotoc, Pushmataha, and Sequoyah Counties.
- Piping plover (*Charadrius melodus*) in Adair, Cimarron, Cherokee, Choctaw, Comanche, Delaware, Garvin, Johnston, Le Flore, Mayes, McCurtain, Murray, Ottawa, Pontotoc, Pushmataha, and Sequoyah Counties.

- Sprague's pipit (*Anthus spragueii*) in Adair, Cherokee, Choctaw, Comanche, Delaware, Garvin, Johnston, Le Flore, Mayes, McCurtain, Murray, Pontotoc, Pushmataha, and Sequoyah Counties.
- Black-capped vireo (*Vireo atricapilla*) in Comanche County.
- Red-cockaded woodpecker (*Picoides borealis*) in Choctaw, Le Flore, McCurtain, and Pushmataha Counties.
- Lesser prairie chicken (*Tympanuchus pallidicinctus*) in Cimarron County.
- American burying beetle (*Nicrophorus americanus*) in Adair, Cherokee, Choctaw, Delaware, Garvin, Johnston, Le Flore, Mayes, McCurtain, Murray, Ottawa, Pontotoc, Pushmataha, and Sequoyah Counties.
- Harperella (*Ptilimnium nodosum*) in Choctaw, Le Flore, McCurtain, and Pushmataha Counties.

The USFWS may list additional species or designate additional critical habitat in the future. General Condition 17 of the GP requires that prior to authorizing a discharge under this GP that may affect a listed species or its critical habitat, the Corps will consult with the USFWS in accordance with Section 7 of the Endangered Species Act (ESA). Where any activity under this GP would likely jeopardize the continued existence of a listed or proposed-to-be-listed species, or result in the destruction or adverse modification of designated or proposed critical habitat, the proposed activity: (1) will not be authorized, or (2) will not be authorized to proceed until the ESA Section 7 consultation is concluded.

The decision to reissue GP12 will be based on an evaluation of the probable impacts, including cumulative impacts of the proposed activity and its intended use on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownerships, and, in general, the needs and welfare of the people. The proposed permit will be denied if the GP does not comply with the Environmental Protection Agency's 404(b)(1) guidelines. Subject to the 404(b)(1) guidelines and any other applicable guidelines or criteria, a permit will be granted unless the DE determines that it would be contrary to the public interest.

Comments: The Corps is soliciting comments from the public; Federal, State, and local agencies and officials; Indian tribes; and other interested parties in order to consider and evaluate the impacts of the reissuance of GP12. Comments concerning the reissuance of this permit should be received by the DE no later than 30 days from the date of this public notice. Any comments received will be considered by the Corps to

determine whether to issue, modify, condition, or deny this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity. Any person may request in writing, within the comment period specified in this notice, that a public hearing be held to consider this proposal. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing.

The ODEQ hereby incorporates this public notice and procedure as its own public notice and procedure by reference thereto. Comments concerning water quality impacts will be forwarded to ODEQ for consideration in issuing a water quality certification for the proposed project. A final decision on reissuance of GP12 will not be made until a decision has been made on the required water quality certification pursuant to Section 401 of the Clean Water Act.

Andrew R. Commer
Chief, Regulatory Office

Enclosure

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

GENERAL PERMIT NO. OKOOG30012
FOR UTILITY LINE ACTIVITIES
IN CRITICAL RESOURCE WATERS IN OKLAHOMA

In accordance with Title 33 CFR 325.5(c), as published November 13, 1986, in the Federal Register, the District Engineer (DE), U.S. Army Corps of Engineers (Corps), Tulsa District, has authorized issuance of a general permit (GP) for the construction, maintenance, repair, and protection of utility lines in Critical Resource Waters (CRWs) in Oklahoma defined as, Outstanding Resource Waters (ORWs) and their watersheds and High Quality Waters (HQWs) as identified and designated in Oklahoma Water Quality Standards (OWQS), OAC 785: Chapter 45, Appendix A. This GP is reissued pursuant to Section 404 of the Clean Water Act (33 USC 1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403).

Scope of Work: Work authorized by this GP would be limited to activities required for the construction, maintenance, repair, and protection of utility lines and associated facilities in waters of the United States (U.S.), including adjacent wetlands, as follows:

a. Utility Lines: The construction, maintenance, repair, and protection of utility lines, including outfall and intake structures and the associated excavation, backfill, or bedding for the utility lines, provided there is no change in preconstruction contours. A "utility line" is defined as any pipe or pipeline for the transportation of any gaseous, liquid, liquescent, or slurry substance, for any purpose, and any cable, line, or wire for the transmission for any purpose of electrical energy, telephone, and telegraph messages, and radio and television communication (see Note 1 below). Material resulting from trench excavation may be temporarily sidecast below the Ordinary High Water Mark (OHWM) in dry areas a minimum of 5 feet away from the wetted perimeter of the stream, provided that the material is not placed in such a manner that it is dispersed by currents or other forces. In wetlands, the top 6 to 12 inches of the trench should normally be backfilled with topsoil from the trench. Furthermore, the trench cannot be constructed in such a manner as to drain waters of the U.S. (e.g., backfilling with extensive gravel layers, creating a french drain effect). For example, utility line trenches can be backfilled with clay blocks to ensure that the trench does not drain the waters of the U.S. through which the utility line is installed. Any exposed slopes and stream banks must be stabilized immediately upon completion of the utility line crossing of each waterbody.
b. Foundations for Overhead Utility Line Towers, Poles, and Anchors: The construction or maintenance of foundations for overhead utility line towers, poles, and anchors provided the foundations are the minimum size necessary and separate footings for each tower leg (rather than a larger single pad) are used where feasible.
c. Access Roads: The construction of access roads for the construction, maintenance, and protection of utility lines, including overhead power lines and utility line substations is authorized, provided the discharges do not cause the loss of greater than 1/2 acre of non-tidal waters of the U.S. Access roads shall be the minimum width necessary (see Note 2 below). Access roads must be constructed so that the length of the road minimizes the adverse effects on waters of the U.S. and as near as possible to preconstruction contours and elevations (e.g., at-grade corduroy roads or geotextile/gravel roads). Access roads constructed above preconstruction contours and elevations in waters of the U.S. must be properly bridged or culverted to maintain surface flows.

The following activities are not authorized by this GP:
(1) Utility lines exceeding 500 feet in length in waters of the U.S., excluding overhead lines.
(2) Permanent access roads constructed above grade a distance of more than 500 feet in waters of the U.S.
(3) Permanent access roads constructed in waters of the U.S. with impervious materials.

The permit applicant is required to notify the Corps prior to the use of this GP in accordance with the notification procedures below. For discharges in special aquatic sites (wetlands, stream riffle and pool complexes, sanctuaries and refuges, and vegetated shallows), the notification must include a delineation of the affected special aquatic site.

The term "utility line" does not include activities which drain a water of the U.S., such as drainage tile, or french drains; however, it does apply to pipes conveying drainage from another area. For the purposes of this GP, the loss of waters of the U.S. includes the filled area plus waters of the U.S. that are adversely affected by flooding, excavation, or drainage as a result of the project. Activities authorized by paragraphs a through c may not exceed a total of 1/2-acre loss of waters of the U.S. Waters of the U.S. temporarily affected by filling, flooding, excavation, or drainage, where the project area is restored to preconstruction contours and elevation, are not included in the calculation of permanent loss of waters of the U.S. This includes temporary construction mats (e.g., timber, steel, geotextile) used during construction and removed upon completion of the work. Where certain functions and

values of waters of the U.S. are permanently adversely affected, such as the conversion of a forested wetland to a herbaceous wetland in the permanently maintained utility line right-of-way, mitigation will be required to reduce the adverse effects of the project to the minimal level.

Mechanized land clearing necessary for the construction, maintenance, repair, or protection of utility lines and the construction, maintenance and expansion of utility line substations, foundations for overhead utility lines, and access roads is authorized, provided the cleared area is kept to the minimum necessary and preconstruction contours are maintained as near as possible. The area of waters of the U.S. that is filled, excavated, or flooded must be limited to the minimum necessary to construct the utility line, substations, foundations, and access roads. Excess material must be removed to upland areas immediately upon completion of construction. This GP may authorize utility lines in or affecting navigable waters of the U.S. even if there is no associated discharge of dredged or fill material (See 33 CFR Part 322).

Note 1: Overhead utility lines constructed over Section 10 waters and utility lines that are routed in or under Section 10 waters without a discharge of dredged or fill material require a Section 10 permit; except for pipes or pipelines used to transport gaseous, liquid, liquescent, or slurry substances over navigable waters of the U.S., which are considered to be bridges, not utility lines, and may require a permit from the U.S. Coast Guard pursuant to Section 9 of the Rivers and Harbors Act of 1899. However, any discharges of dredged or fill material associated with such pipelines will require a Corps permit under Section 404.
Note 2: Access roads used for both construction and maintenance may be authorized, provided they meet the terms and conditions of this GP. Access roads used solely for construction of the utility line must be removed upon completion of the work and the area restored to preconstruction contours, elevations, and wetland conditions. Temporary access roads for construction may be authorized by Nationwide Permit 33 for Temporary Construction, Access, and Dewatering.

Location of Work: This GP is applicable to all CRWs, ORWs and HQWs within the Oklahoma portion of the Tulsa District civil works boundary. As shown in Enclosures 3 through 8, excluding:
(1) defined archeological and historical sites,
(2) sites listed, or eligible for listing, in the National Register of Historic Places, and
(3) State Historic Sites.

ORWs: Waters designated ORWs in Appendix A of the OWQS (July 10, 2009) include the following, and all waters located in watersheds of these waters:
(1) Flint Creek (all) in Adair County and the following tributary: Sager Creek.
(2) Illinois River - North from the confluence of the Barren Fork River in Cherokee, Adair, and Delaware Counties, east to the Arkansas State Line, and the following tributaries: Tahlequah Creek and Ballard Creek.
(3) Barren (Baron) Fork River - In Cherokee and Adair Counties, from its confluence with the Illinois River, upstream to the Arkansas State Line, and including the following tributaries: Tyner Creek, Dennison Hollow, Peacheater Creek, Scraper Hollow, England Hollow, Green Creek, Shell Branch, and Evansville Creek.
(4) Mountain Fork River - Upstream of the 600 feet above mean sea level (msl) elevation (upstream of Broken Bow Reservoir) in McCurtain and Le Flore Counties, and the following tributaries: Boktuklo Creek, Blue Creek, Big Eagle Creek, Little Eagle Creek, Cucumber Creek, Beech (Beach) Creek, Cow Creek, and Panther Creek.
(5) Big Lee Creek - Above 420 feet msl elevation in Sequoyah County, and the following tributaries: Webbers Creek and Briar Creek (Bear Creek).
(6) Little Lee Creek, in Adair and Sequoyah Counties, and the following tributary: Jenkins Creek.

HQWs: Waters designated HQW listed in Appendix A of the OWQS (July 10, 2009) include the following:
(1) Water Quality Management Basin 1, Middle Arkansas River: Lower Illinois River from headwater of Robert S. Kerr Reservoir to Tenkiller Dam, Upper Illinois River from Tenkiller dam upstream, Fourteen Mile Creek, Spring Creek, Little Snake Creek, Spring Creek, Brush Creek, Beaty Creek, Honey Creek, Cave Springs Branch, Warren Branch.
(2) Water Quality Management Basin 2, Lower Arkansas River: Lee Creek downstream from 420 feet msl, Black Fork upstream from Cedar Creek, Sallisaw Creek upstream from U.S. Route 64.
(3) Water Quality Management Basin 3, Upper Red River: Pennington Creek, Guy Sandy Creek, Honey Creek, Crater Creek, Panther Creek, West Cache Creek upstream from Panther Creek.
(4) Water Quality Management Basin 4, Lower Red River: Little River from the Arkansas State Line to Pine Creek Dam, Mountain Fork River downstream Broken Bow Dam, Mountain Fork River downstream from
U.S. Highway 70 bridge, Lukfata Creek, Glover River, Cedar Creek above Glover River, Carter Creek, Pine Creek, West Fork of Glover River, Bluff Creek, East Fork of Glover River, Cypress Creek, Little River upstream from and including Pine Creek Reservoir, Pine Creek, Terrapin Creek, Houston Creek, Cloudy Creek, Jack Creek, Black Fork, Cedar Creek above Kiamichi River, Blue River upstream from State Route 48A Bridge.

(5) Water Quality Management Basin 7, Panhandle Region: North Canadian (Beaver) River upstream from Texas State Line to New Mexico State Line, Cimarron River upstream from the Colorado State Line to the New Mexico State Line.

Duration: This GP would be in effect for a period of 5 years from date of issuance, unless it is specifically modified, suspended, or revoked. Upon its expiration, the GP would be considered for renewal. The GP may be modified, suspended, or revoked, in whole or in part, at anytime, if the DE determines that the proposed project or cumulative effects of its activities would have more than minimal adverse environmental impacts or may be contrary to public interest. Work previously authorized by this GP would not be affected by subsequent modification, suspension, or revocation of the GP.

If the DE determines that the adverse effects of the proposed work are more than minimal, then he would notify the applicant either (1) that the project does not qualify for authorization under the GP and instruct the applicant on the procedures to seek authorization under an individual permit; (2) that the project is authorized under the GP subject to the applicant's submitting a mitigation proposal that would reduce the adverse effects to the minimal level; or (3) that the project is authorized under the GP with specific modifications or conditions.

Water Quality Certification: A Section 401 Water Quality Certification has been issued without conditions from the Oklahoma Department of Environmental Quality (ODEQ).

Other Authorizations: Individuals considering work on lands or waters under the jurisdiction of other Federal, State, or local agencies would be responsible for obtaining any permits required by such agencies.

Notification Procedure: Persons desiring to perform work under this GP would furnish notification to the Corps, Tulsa District as early as possible prior to anticipated construction date. The prospective permittee shall not begin the activity:
(1) Until notified by the DE that the activity may proceed under the GP with any special conditions imposed by the District or Division Engineer; or
(2) If notified by the District or Division Engineer that an individual permit is required, until after the individual permit has been evaluated and issued.

The notification must be in writing and may be submitted on a Department of the Army Permit Application (Eng Form 4345). If construction and material placement is to be in a Corps lake, the information must be sent through the appropriate Area/Lake Manager. Information for work in other all locations should be sent directly to the District Engineer, U.S. Army Corps of Engineers, Tulsa District, ATTN: Regulatory Office, 1645 South 101st East Avenue, Tulsa, OK 74128-4609. The content of the notification must include the following information:
(1) Name, address, and telephone number(s) of the prospective permittee.
(2) Location of the proposed project and a vicinity map. The location of the proposed work may be shown on a 7.5 minute USGS quadrangle map.
(3) Brief description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause; any other NWP(s), regional GP(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity.
(4) Delineation of any special aquatic sites (wetlands, stream riffle and pool complexes, sanctuaries and refuges) to be affected by the proposed construction.
(5) A site plan view. This should be drawn to show any delineated wetland, existing embankments, flow direction, property boundaries, adjoining property owners, directional north, the proposed activity with distances and dimensions, excavation and fill areas, and the quantity of excavation and fill.
(6) A cross-section or profile view. This should be drawn to indicate excavation and fill areas, fill types, existing and proposed contours of the stream and embankment, and the water depth.
(7) Information on any temporary features to be constructed (such as a work road) including the location, dimensions, quantities, source of borrow materials, water management design, timing and duration, and removal and restoration parameters.
(8) A description of alternative routes and designs considered for avoiding and minimizing impacts to the aquatic ecosystem. The submitted information should support that the proposed project is the least environmentally damaging practicable alternative.
(9) Mitigation: Permit applicants are responsible for proposing an appropriate compensatory mitigation plan to offset unavoidable impacts. For activities involving any permanent loss of any special aquatic sites or loss of waters of the U.S. greater than 1/10 acre the notification must include a statement describing how impacts to waters of the U.S. are to be avoided and minimized. The application must also include either a statement describing how impacts to waters of the U.S. are to be compensated for or a statement explaining why compensatory mitigation should not be required for the proposed impacts.

(10) A title block should be included on each page of the drawings. The title block should include the proposed activity, applicant, waterbody, and County/State.
(11) If the project is to be located in a lake not operated by the Corps, written approval from the owner/manager must be furnished.

Verification Procedure: Upon receipt of a notification by a prospective permittee, the Corps will expeditiously provide a copy of the applicant's request including project information to the following:
- State Historic Preservation Office (Oklahoma Archeological Survey and Oklahoma Historic Society)
- Oklahoma Department of Environmental Quality
- U.S. Fish and Wildlife Service, if the Corps determines that the proposed project has the potential to affect Federally-listed threatened or endangered species.

These agencies will have 10 days to indicate they will be providing site-specific comments with regard to the proposed project. Their comments must relate to matters within their expertise (i.e., proximity to known archeological or cultural resources, special water quality considerations, endangered species, respectively) and must be provided in writing. Once they notify the Corps they will be providing site-specific comments, the Corps will wait 5 additional days for these comments before proceeding with GP verification. The Corps will fully consider comments provided by these agencies in the determination of whether the project should proceed under the GP.

If the DE determines that the proposed work meets the provisions of the GP, and no extraordinary conditions exist that would warrant filing a formal application, the Corps would notify the applicant by letter that the project falls under this GP.

If the DE determines that the proposed work does not meet the provisions of the GP, or that extraordinary conditions exist, the Corps would notify the applicant that filing a formal application would be necessary. The applicant should be aware that additional evaluation time will be required for a final decision on any individual permit application submitted subsequent to disqualification under the GP.

Wetland Delineations Manual Region Supplements: The Corps Manual provides technical guidance and procedures, from a National perspective, for identifying and delineating wetlands that may be subject to regulatory jurisdiction under Section 404 of the Clean Water Act (33 U.S.C. 1344) or Section 10 of the Rivers and Harbors Act (33 U.S.C. 403). According to the Corps Manual, identification of wetlands is based on a three-factor approach involving indicators of hydrophytic vegetation, hydric soil, and wetland hydrology.

Any wetland delineation performed by a consultant must be completed in accordance with the 1987 Corps of Engineers Wetland Delineation Manual or applicable Regional Supplement. The submitted wetland delineation should be accompanied by appropriate documentation and will be subject to review and validation by this office.

The Tulsa District includes geography that will ultimately be served by four Regional Supplements. Specifically these are:
(1) Great Plains Region,
(2) Midwest Region,
(3) Eastern Mountains and Piedmont Region (formerly known as Mid-Atlantic and Southeast), and
(4) Atlantic and Gulf Coastal Plain Region.

Each of these Regional Supplements addresses regional wetland characteristics and improves the accuracy and efficiency of wetland-delineation procedures. Regional differences in climate, geology, soils, hydrology, plant and animal communities, and other factors are important to the identification and functioning of wetlands.

For a Map of the Regional Supplements Applicable within Tulsa District (See Enclosure 9).

Mitigation: The guidelines are located in Part 332, Compensatory Mitigation for Losses of Aquatic Resources, dated April 10, 2008. Discharges of dredged or fill material into waters of the U.S. must be avoided or minimized to the maximum extent practicable at the project site. Compensation for unavoidable discharge of fill materials may require appropriate mitigation measures. Factors that the DE will consider when determining the acceptability of appropriate and practicable mitigation will include, but are not limited to:
a. The approximate functions and values of the aquatic resource being impacted, such as habitat value, aquifer recharge, sediment conveyance or retention, flood storage, effects special aquatic sites downstream of proposed project, etc.;
b. The permanence of the project's impacts on the resource; and

c. The potential long-term effects of the action on remaining functions and values of the impacted aquatic resource.
To be practicable, the mitigation must be available and capable of being done considering costs, existing technology, and logistics in light of the overall project purposes. A watershed approach to compensatory mitigation must be used to consider how the types and locations of compensatory mitigation projects will provide the desired aquatic resource functions. In general, the required compensatory mitigation should be located within the same watershed as the impact site, and should be located where it is most likely to successfully replace lost functions and services. Restoration is the preferred form of compensatory mitigation for lost of aquatic resource functions. If avoidance and minimization is not practicable then compensatory mitigation, through in-kind rehabilitation, enhancement, or preservation is required since there is a greater uncertainty that these methods of compensation will successfully offset permitted impacts. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing wetland or upland buffer zones to protect aquatic resource values; replacing the loss of aquatic resource values by creating, restoring, or enhancing similar functions and values; or using bioremediation techniques in conjunction with other methods to offset project impacts.

Conditions of GP: All work authorized under this GP would be subject to General Permit 12 Specific Conditions (Enclosure 1) General Conditions (Enclosure 2).

/s/ September 2, 2009

David A. Manning Date of Issuance
Chief, Regulatory Office

Enclosures

GENERAL PERMIT 12
SPECIFIC CONDITIONS

1. Permittee Construction Schedule Notification: Complete and return the enclosed "Permittee Construction Schedule" form. Should construction be initiated prior to 30 days from authorization of this project, please return the completed form as soon as possible. If you prefer, you may telephone 918-669-7400 to inform the U.S. Army Corps of Engineers (Corps) regarding the construction start date.

2. Clearing of Vegetation:
a. The permittee shall minimize to the maximum extent practicable the removal of stream-shading trees when preparing the project site and constructing the crossing.
b. The clearing of vegetation should be kept to a minimum necessary in the right-of-way (ROW). Blanket spraying of broadleaf herbicides in ROW should be avoided.
c. The periodic brush-hogging or mowing is required for ROW maintenance should be performed during the fall and winter months.
d. The periodic removal of tall woody vegetation within the ROW should be performed during the fall and winter months.

3. Erosion Control Measures (ECM): The ECM such as staked hay bales or silt screen barriers shall be implemented and maintained during construction. Barriers shall remain in place and effective until sufficient vegetation coverage on exposed areas is established. Upon inspection of erosion control barriers, if there is any damage to the barrier, it shall be replaced or repaired within 24 hours of discovery. All exposed earthen areas, disturbed or newly created by the construction, shall be seeded immediately, replanted, or provided equivalent protection against subsequent erosion.

4. Riparian Areas and Native Grasses: The permittee shall plant native grasses in all disturbed areas that vegetative cover has been eliminated. Measures should be taken to ensure the survivability of all planted vegetation. The use of non-native or cultivated plant species should be avoided. The use of presoaked willow or river birch stakes should be incorporated into restored banks.

GENERAL CONDITIONS:

1. Navigation:
a. The permittee understands and agrees that, if future operations by the United States (U.S.) require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his/her authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the U.S. Army Corps of Engineers (Corps), to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the U.S. No claim shall be made against the U.S. on account of any such removal or alteration;
b. No activity may cause more than a minimal adverse effect on navigation and;
c. No attempt shall be made by the permittee to prevent the full and free use by the public of all navigable waters at or adjacent to the activity authorized by this permit.

2. Aquatic Life Movements: No activity may substantially disrupt the necessary lifecycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. Culverts placed in streams must be installed to maintain low flow conditions.

3. Spawning Areas: Activities, including structures and work in navigable waters of the U.S. or discharges of dredged or fill material, in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., excavation, filling, or smothering downstream by substantial turbidity) of an important spawning area are not authorized.

4. Waterfowl Breeding Areas: Activities, including structures and work in navigable waters of the U.S. or discharges of dredged or fill material, into breeding areas for migratory waterfowl must be avoided to the maximum extent practicable.

5. Shellfish Beds: No activity, including structures and work in navigable waters of the U.S. or discharges of dredged or fill material, may occur in areas of concentrated shellfish populations.

6. Suitable Material: No activity, including structures and work in navigable waters of the U.S. or discharges of dredged or fill material, may consist of unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.) and material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

7. Water Supply Intakes: No activity, including structures and work in navigable waters of the U.S. or discharges of dredged or fill material, may occur in the proximity of a public water supply

8. Property Rights: This permit does not convey any property rights, either in real estate or material, or any exclusive privileges; and that it does not authorize any injury to property or invasion of rights or any infringement of Federal, State, or local laws or regulations, nor does it obviate the requirement to obtain other Federal, State or local assent required by law for the activity authorized herein.

9. Management of Water Flows: To the maximum extent practicable, the activity must be designed to maintain preconstruction downstream flow conditions (e.g., location, capacity, and flow rates). Furthermore, the activity must not permanently restrict or impede the passage of normal or expected high flows (unless the primary purpose of the fill is to impound waters) and the structure or discharge of dredged or fill material must withstand expected high flows. The activity must, to the maximum extent practicable, provide for retaining excess flows from the site, provide for maintaining surface flow rates from the site similar to preconstruction conditions, and provide for not increasing water flows from the project site, relocating water, or redirecting water flow beyond preconstruction conditions. Stream modification within the right-of-way will be reduced to the minimal amount necessary, and the activity must, to the maximum extent practicable, reduce adverse effects such as flooding or erosion downstream and upstream of the project site, unless the activity is part of a larger system designed to manage water flows. In most cases, it will not be a requirement to conduct detailed studies and monitoring of water flow. This condition is only applicable to projects that have the potential to affect water flows. While appropriate measures must be taken, it is not necessary to conduct detailed studies to identify such measures or require monitoring to ensure their effectiveness. Normally, the Corps will defer to State and local authorities regarding management of water flow.

10. Flood Plain Ordinances: Activities authorized by Department of the Army permits sometimes require flood plain development permits. Communities participating in the National Flood Insurance Program are required by that program to review all proposed development to determine if a flood plain permit is required. The permittee must comply with any applicable FEMA-approved State or local flood plain management requirements.

11. Equipment: Heavy equipment working in wetlands must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls:
a. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the Ordinary High Water Mark or high tide line, must be permanently stabilized at the earliest practicable date.
b. Permittees are encouraged to perform work within waters of the U.S. during periods of low or non-flowing conditions.
c. The areas de-vegetated during construction shall be immediately stabilized after project completion to avoid erosion and the runoff of turbid waters.

13. Removal of Temporary Fills: Any temporary fills must be removed in their entirety and the affected areas returned to their preexisting elevation.

14. Proper Maintenance: Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety.

15. Wild and Scenic Rivers: No activity may occur in a component of the National Wild and Scenic River System; or in a river officially designated by Congress as a "study river" for possible inclusion in the system, while the river is in an official study status; unless the appropriate Federal agency, with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation, or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency in the area (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service (USFWS)).

16. Tribal Rights: No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

17. Endangered Species:
a. No activity is authorized under any General Permit (GP) which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will destroy or adversely modify the critical habitat of such species. If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, the permittee shall not begin work on the activity until notified by the DE that the requirements of the ESA have been satisfied and that the activity is authorized.
b. Authorization of an activity by a GP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the USFWS, both lethal and non-lethal "takes" of protected species are in violation of the ESA. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the office of the USFWS or their World Wide Web pages at http://www.fws.gov/southwest/es/EndangeredSpecies/.

18. Historical Properties:
a. No activity which may affect historic properties listed, or eligible for listing, in the National Register of Historic Places is authorized, until the District Engineer (DE) has complied with the provisions of 33 CFR Part 325, Appendix C. The prospective permittee shall immediately notify the DE, if the authorized activity may affect any historic properties listed, determined to be eligible, or which the prospective permittee has reason to believe may be eligible for listing on the National Register of Historic Places, and shall not begin the activity until notified by the DE that the requirements of the National Historic Preservation Act have been satisfied and that the activity is authorized. Information on the location and existence of historic resources can be obtained from the State Historic Preservation Office and the National Register of Historic Places (see 33 CFR 330.4(g)). For activities that may affect historic properties listed in, or eligible for listing in, the National Register of Historic Places, the notification must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property. The DE may stop work, if he/she determines that archeological investigations are warranted.

b. If you discover any previously unknown historical or archaeological material/remains, you shall stop work and immediately contact the Corps, Regulatory Office at 918-669-7400.

19. Compliance: All activities identified and authorized herein shall be consistent with the terms and conditions of this permit; and that any activities not specifically identified and authorized herein shall constitute a violation of the terms and conditions of this permit which may result in the modification, suspension, or revocation of this permit, in whole or in part, as set forth more specifically in General Conditions Number 24 hereto, and in the institution of such legal proceedings as the U.S. Government may consider appropriate, whether or not this permit has been previously modified, suspended, or revoked in whole or in part.

20. Mitigation: The DE will determine the appropriate and practicable mitigation necessary to offset adverse effects on the aquatic environment by considering the following:
a. The project must be designed and constructed to avoid and minimize adverse effects to waters of the U.S. to the maximum extent practicable at the project site.
b. To be practicable, the mitigation must be available and capable of being done considering costs, existing technology, and logistics in light of the overall project purposes. Examples of mitigation that may be appropriate and practicable include, but are not limited to: (1) Reducing the size of the project; (2) establishing and maintaining wetland or upland vegetated buffers to protect open waters such as streams; (3) and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferably in the same watershed.
c. The permittee will give preference to use of mitigation bank credits as the primary preference hierarchy for mitigation. Where potential impacts are not located in the service area of an approved mitigation bank, or the approved mitigation bank does not have the appropriate number and resource type of credits available to offset those impacts, in-lieu fee mitigation, if available, is generally preferable to permittee-responsible mitigation. Permittee-responsible mitigation, either on-site or off-site, shall be considered if a mitigation bank and/or in-lieu fee program is unavailable or the use of which would be impracticable.
d. Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland impacts, unless the DE determines in writing that some other form of mitigation would be more environmentally appropriate and provides a project specific waiver of this requirement. Consistent with National policy, the DE will establish a preference for restoration of wetlands as compensatory mitigation, with preservation used only in exceptional circumstances.
e. Mitigation in all its forms (avoiding, minimizing, rectifying, reducing or compensating) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

21. Minimization: The permittee agrees to make every reasonable effort to implement the work authorized herein in a manner so as to minimize any degrading of water quality, adverse impact of the work on fish and wildlife habitat, aquatic resources, and other natural environmental values.

22. Inspection: The permittee shall allow the DE or his/her authorized representative(s) or designee(s) to make periodic inspections at anytime deemed necessary in order to assure that the activity being performed under authority of this permit is in accordance with the terms and conditions prescribed herein.

23. Proper Maintenance: The permittee shall maintain the structure or work authorized herein in good condition, including maintenance to include public safety. If and when the permittee desires to abandon the activity authorized herein, unless such abandonment is part of a transfer procedure by which the permittee is transferring his interests herein to a third party, he/she must restore the area to a condition satisfactory to the DE.

24. Modification, Suspension, and Revocation of General Permits (GP):
a. This permit may be modified, suspended, or revoked by the DE in accordance with 33 CFR 1344, Part 325.7(a), (b), (c), (d), and (e).
b. The DE will immediately suspend activities authorized herein, upon finding the immediate suspension would be in the general public interest.
c. The DE upon suspension will provide the permittee of a written notice thereof which shall indicate (1) the extent of the suspension, (2) the reasons for this action, and (3) any corrective or preventative measures to be taken by the permittee which are deemed necessary by the DE to abate imminent hazards to the general public interest. The permittee shall take immediate action to comply with the provisions of this notice. Within 10 days following receipt of this notice of suspension, the permittee may request a meeting with the DE or request a hearing in order to present information relevant to a decision as to whether his/her permit should be reinstated, modified, or revoked.

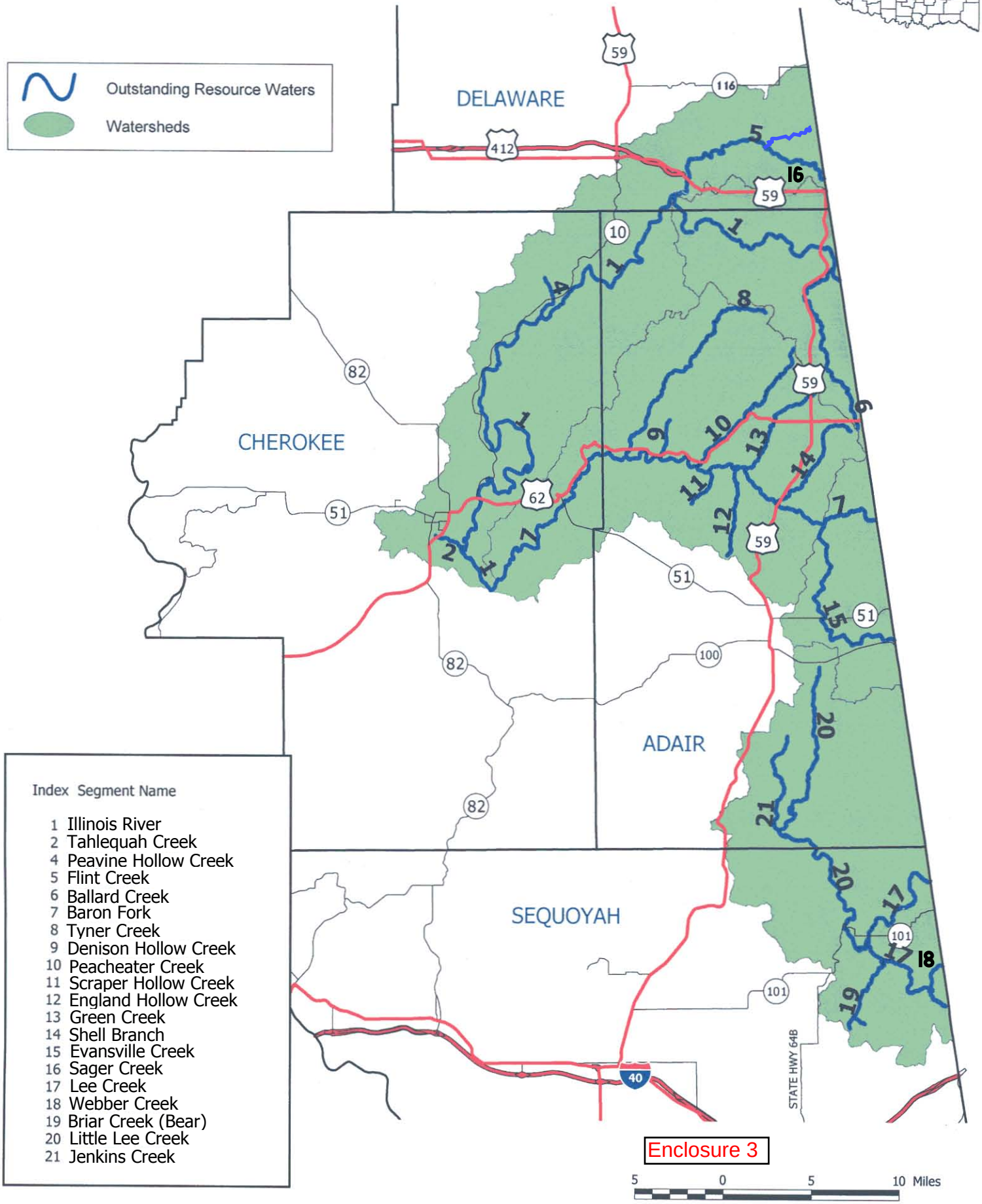
d. This permit may be either modified, suspended, or revoked, in whole or in part, if the Secretary of the Army or his/her authorized representative determines that there has been a violation of any of the terms or conditions of this permit or that such action would otherwise be in the public interest.
e. In issuing this permit, the Government has relied on the information and data, which the permittee has provided in connection with his/her permit application. If subsequent to the issuance of this permit, such information and data prove to be false, incomplete, or inaccurate, this permit may be modified, suspended, or revoked, in whole or in part, and/or the Government may, in addition, institute appropriate legal proceedings.
f. Any modification, suspension, or revocation of this permit shall not be the basis for any claim for damages against the U.S.

25. Real Estate:
a. Real Estate –Deed Restrictions: If the recording of this permit is possible under applicable State or local law, the permittee shall take such action as may be necessary to record this permit with the Register of Deeds or other appropriate official charged with the responsibility of maintaining records of title to and interests in real property.
b. Real Estate Easements-Government Property: A request for an easement on Government property would be sent to the appropriate Area/Lake Manager or the DE along with this GP.

26. Compliance Certification: Every permittee who has received GP verification from the Corps will submit a signed certification regarding the completed work and any required mitigation. The certification form will be provided by the Corps with the authorization letter and will require:
a. A statement that the authorized work was done in accordance with the Corps authorization, including any general or specific conditions;
b. A statement that any required mitigation was completed in accordance with the permit conditions; and
c. The signature of the permittee certifying the completion of the work and mitigation.

27. Disturbed Areas:
a. The clearing of vegetation shall be minimized and limited to the immediate area of impact.
b. Disturbed areas shall be returned as closely as possible to the original topographic contours and reestablished with stabilizing vegetation promptly following completion of construction.

Outstanding Resource Waters - Northeast

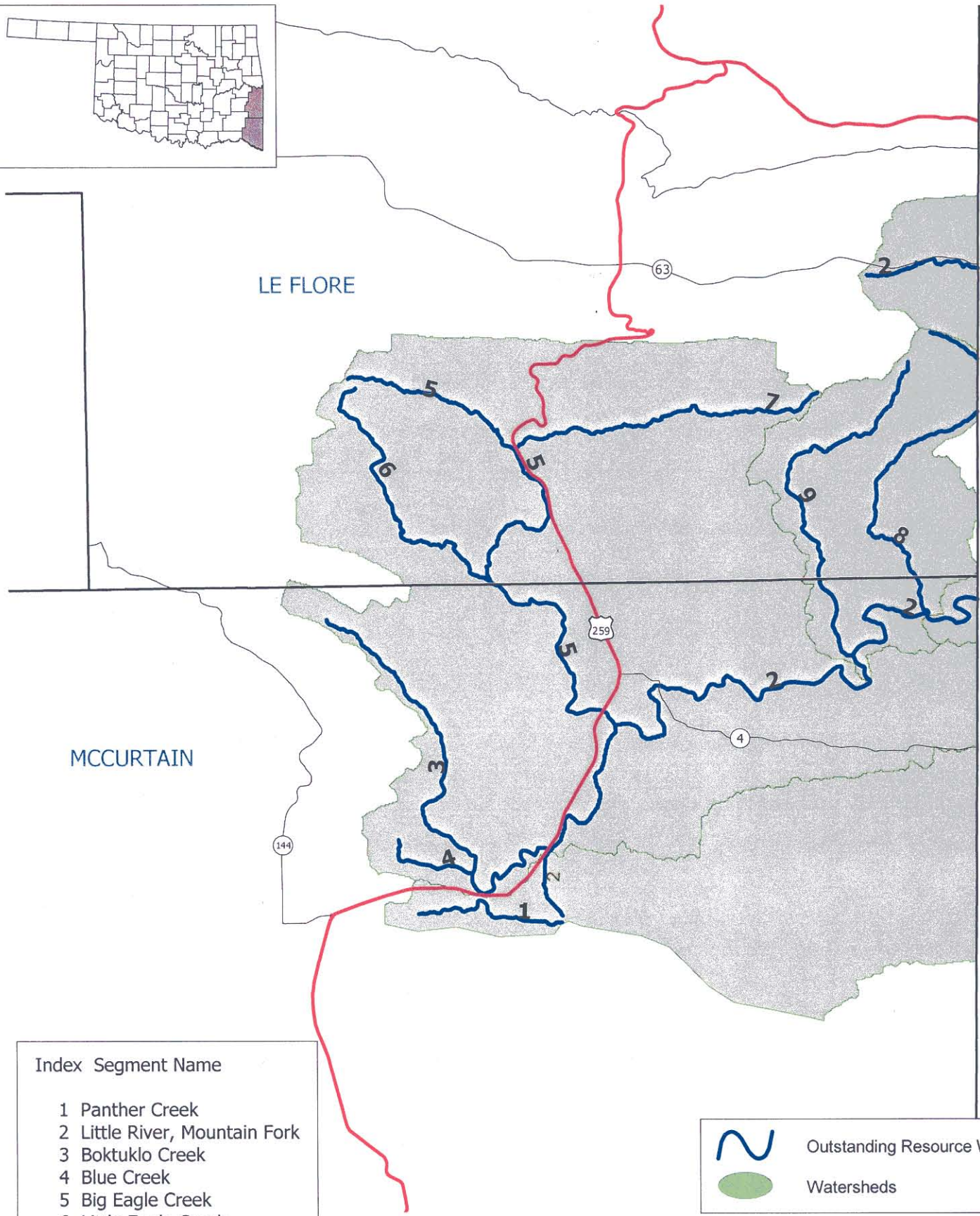


Index Segment Name

1 Illinois River
2 Tahlequah Creek
4 Peavine Hollow Creek
5 Flint Creek
6 Ballard Creek
7 Baron Fork
8 Tyner Creek
9 Denison Hollow Creek
10 Peacheater Creek
11 Scraper Hollow Creek
12 England Hollow Creek
13 Green Creek
14 Shell Branch
15 Evansville Creek
16 Sager Creek
17 Lee Creek
18 Webber Creek
19 Briar Creek (Bear)
20 Little Lee Creek
21 Jenkins Creek

Enclosure 3

Outstanding Resource Waters - Southeast



Index	Segment Name
1	Panther Creek
2	Little River, Mountain Fork
3	Boktuklo Creek
4	Blue Creek
5	Big Eagle Creek
6	Little Eagle Creek
7	Cucumber Creek
8	Cow Creek
9	Beech Creek

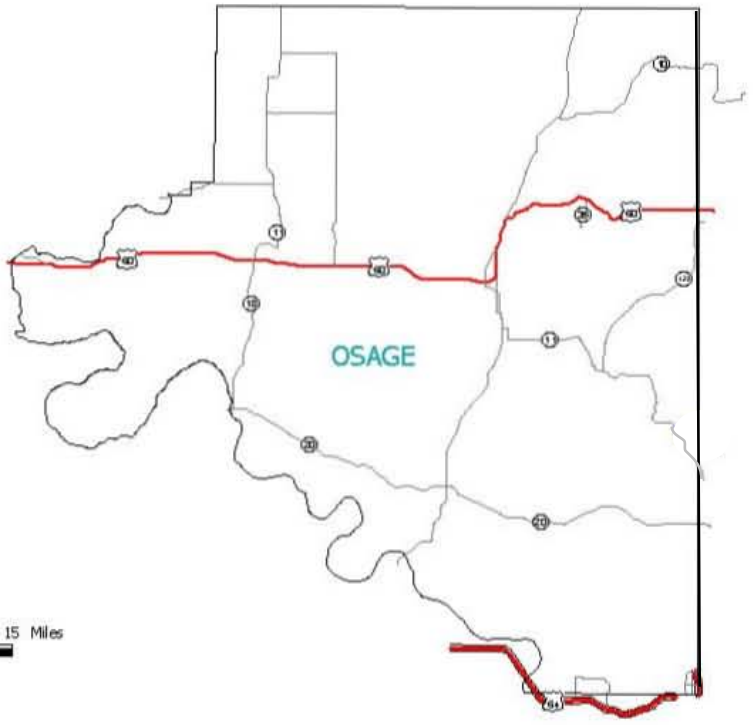
Outstanding Resource Waters

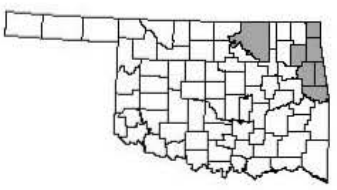
Watersheds

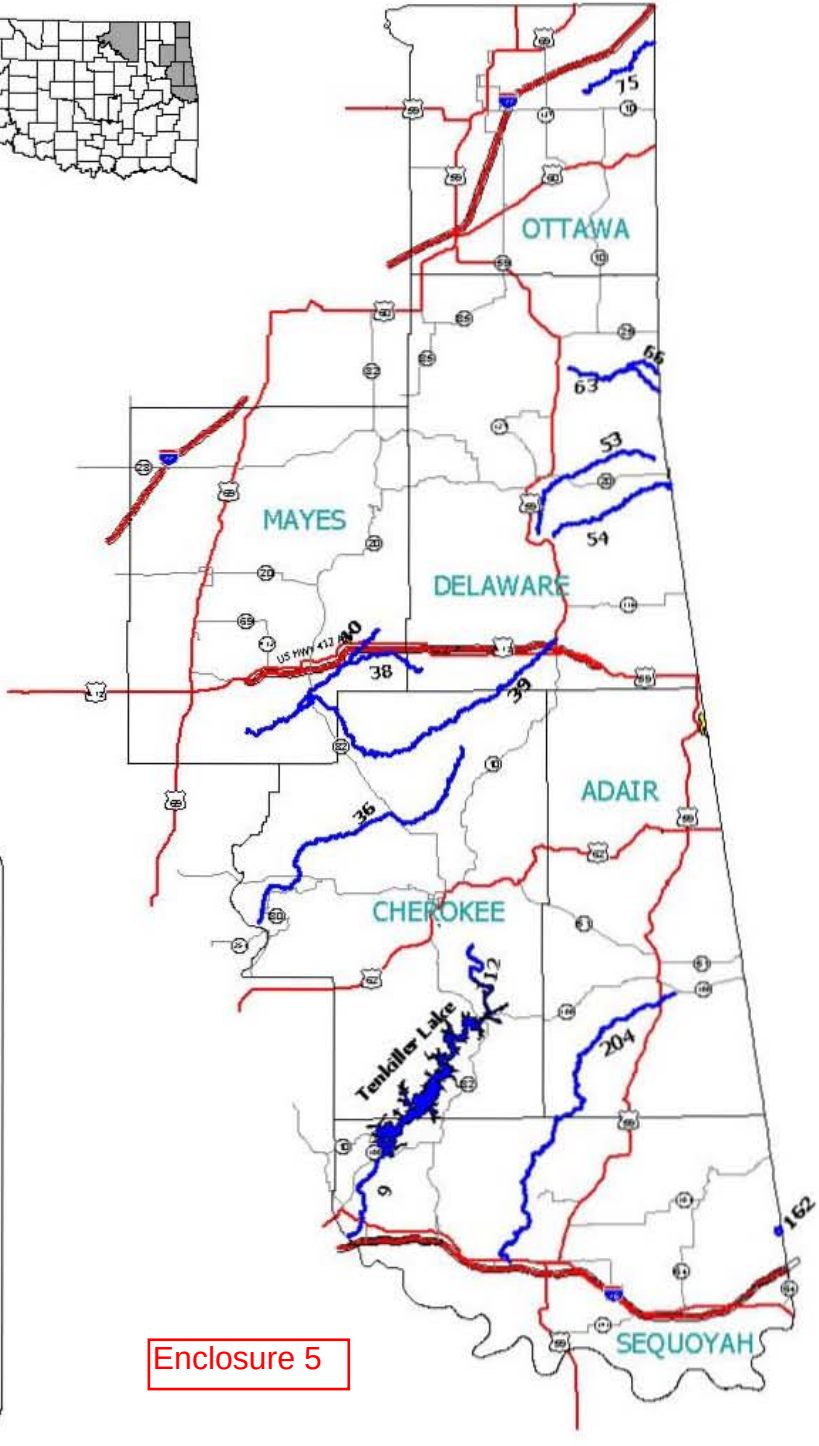
Enclosure 4

5 0 5 10 Miles

High Quality Waters - Northeast







Standard_n	Name
9	Lower Illinois River from headwater of Robert S. Kerr Reservoir to Tenkiller Dam
12	Upper Illinois River from Tenkiller Dam,including Tenkiller Lake, upstream to Barren Fork
36	Fourteen Mile Creek
38	Snake Creek
39	Spring Creek
40	Little Spring Creek
53	Brush Creek
54	Beaty Creek
63	Honey Creek
66	Cave Springs Branch
75	Warren Branch
162	Lee Creek downstream from the 420 ft. elevation level
204	Sallisaw Creek upstream from U.S. Highway 64

Enclosure 5

High Quality Waters - Southeast

Standard_n	Name
188	Black Fork upstream from Cedar Creek
447	Little River from Pine Creek Dam downstream to the Arkansas State Line
449	Mountain Fork River downstream from U.S. Highway 70 bridge
450	Mountain Fork River upstream from U.S. Highway 70 bridge to Broken Bow Dam
469	Lukfata Creek
470	Glover River
471	Cedar Creek
472	Carter Creek
473	Pine Creek
474	West Fork
475	Bluff Creek
476	East Fork
479	Cypress Creek
480	Little River upstream from and including Pine Creek Reservoir
481	Pine Creek
482	Terrapin Creek
483	Houston Creek
484	Cloudy Creek
485	Jack Creek
486	Black Fork
496	Cedar Creek

5 0 5 10 15 20 Miles

LE FLORE

PUSHMATAHA

MCCURTAIN

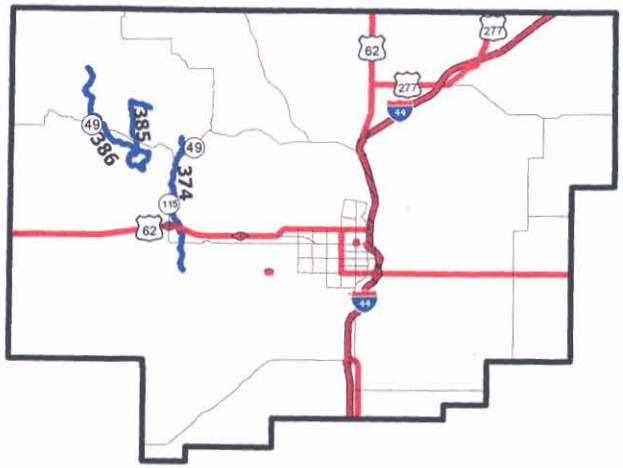
CHOCTAW

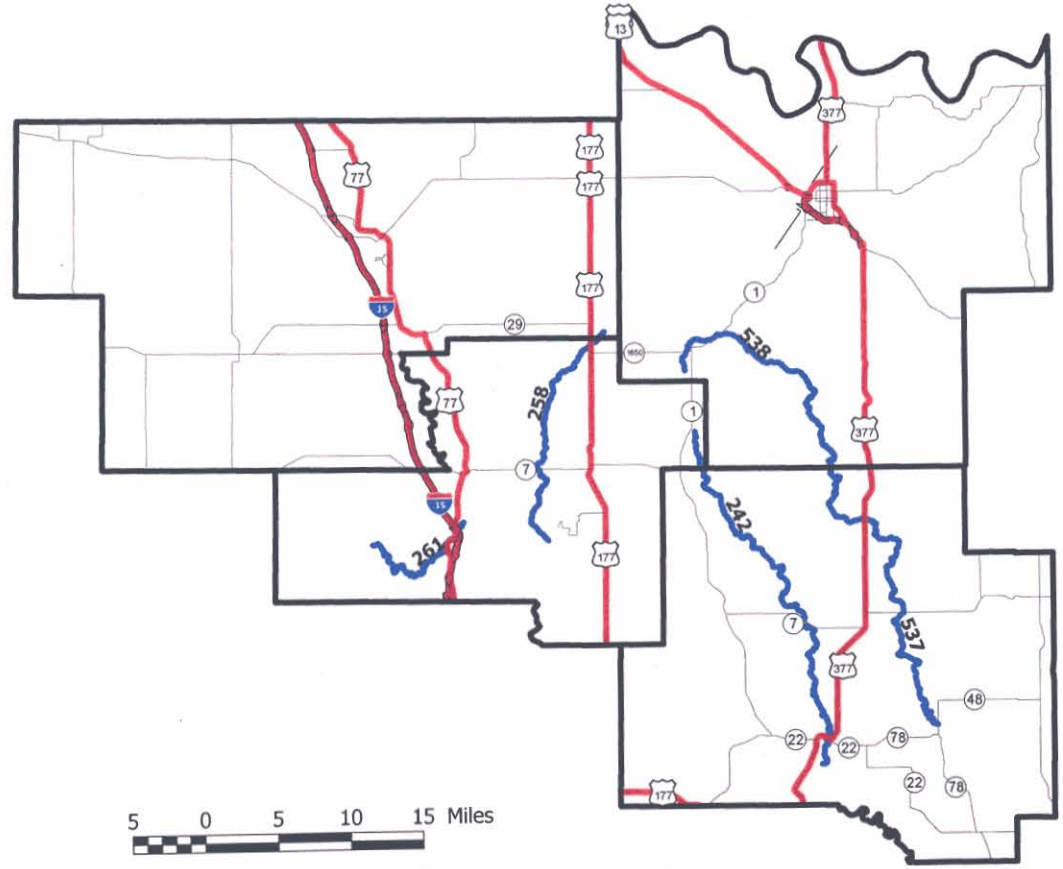
INDIAN NATION TPKE

188 486 480 496 475 476 474 485 484 473 483 482 472 471 479 481 447 470 450 469 449

Enclosure 6

High Quality Waters - Southwest

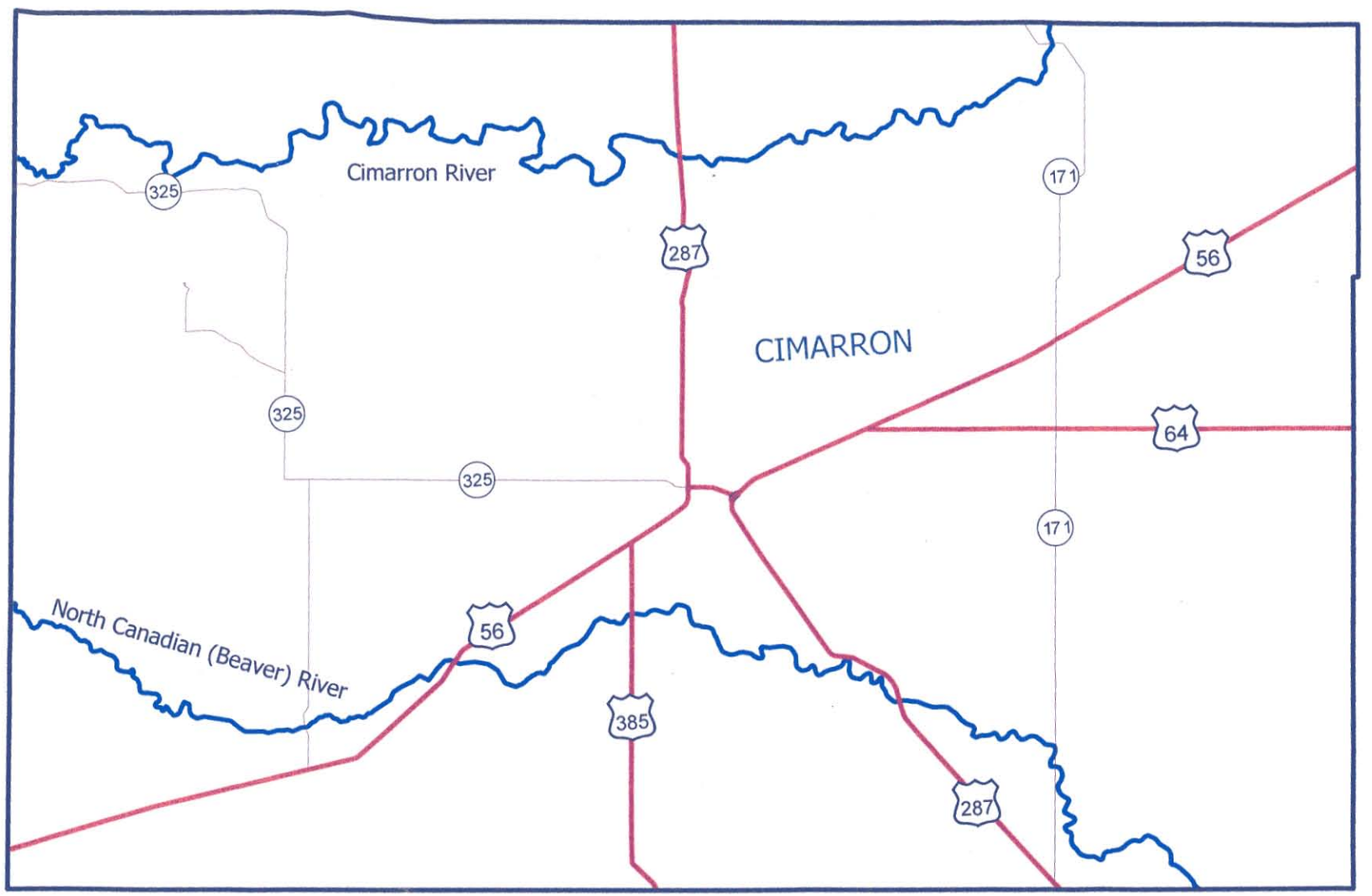




Standard_n	Name
242	Pennington Creek
258	Guy Sandy Creek
261	Honey Creek
374	Crater Creek
385	Panther Creek
386	West Cache Creek upstream from Panther Creek
537	Blue River upstream from State Highway 48A Bridge to State Highway 7 Bridge
538	Blue River upstream from State Highway 7 Bridge

Enclosure 7

High Quality Waters - Panhandle

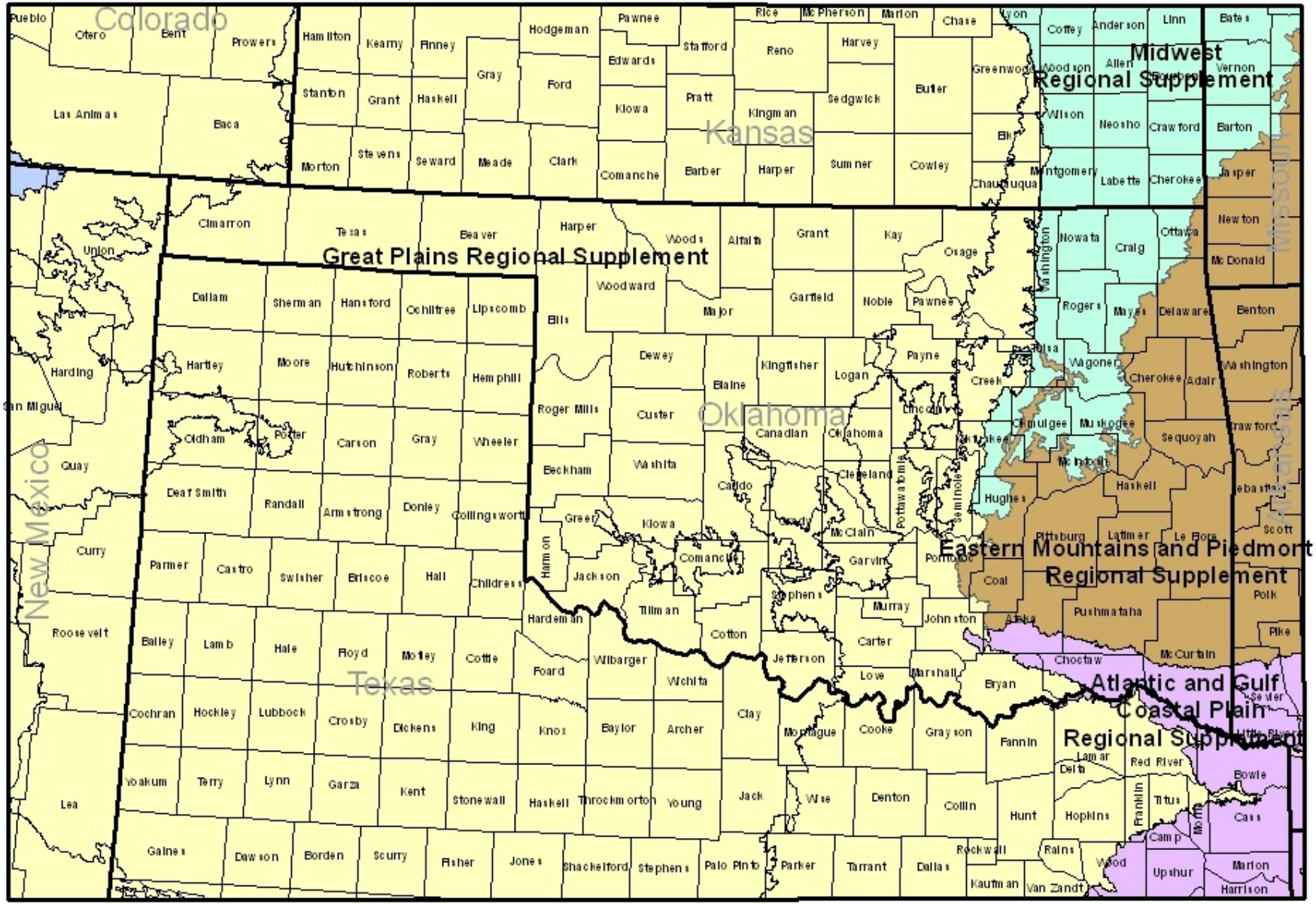


5 0 5 10 Miles

Enclosure 8

U.S. Army Corps of Engineers

Wetland Delineation Manual Regional Supplements



NOTE: Wetland delineation regional boundaries are depicted as sharp lines. However, climatic conditions and the physical and biological characteristics of landscapes do not change abruptly at the boundaries. In reality, regions often grade into one another in broad transition zones that may be tens or hundreds of miles wide. The lists of wetland indicators presented in these Regional Supplements may differ between adjoining regions. In transitional areas, investigators must use experience and good judgment to select the supplement and indicators that are appropriate to the site based on its physical and biological characteristics.

Enclosure 9