

**FINAL
RESTORATION PLAN
for the
MARATHON ASHLAND PIPELINE COMPANY
Oil Spills in the Embarras, Little Wabash, and
Kaskaskia Watersheds**

Prepared by:

Illinois Natural Resources Trustees:
Illinois Department of Natural Resources and
Illinois Environmental Protection Agency

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FACT SHEET

FINAL RESTORATION PLAN for the Marathon Ashland Pipeline oil spills in the Embarras, Little Wabash, and Kaskaskia watersheds.

LEAD AGENCY FOR THE FINAL RESTORATION PLAN:
Illinois Department of Natural Resources

COOPERATING AGENCIES:
Illinois Environmental Protection Agency

ABSTRACT:
This final Restoration Plan (final RP) has been prepared by the state Natural Resource Trustees to address restoration of natural resources and resource services injured as a result of the Marathon Ashland Pipeline oil spills affecting the Embarras, Little Wabash, and Kaskaskia watersheds.

CONTACT PERSON:
Illinois Department of Natural Resources
Attn: Tom Heavisides
One Natural Resources Way
Springfield, IL 62702-1271

COPIES:

Copies of the final RP are available at the address listed above or available for download at http://dnr.state.il.us/orep/contaminant_assessment/

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List of Acronyms and Abbreviations

CERCLA	Comprehensive Environmental Response, Compensation & Liability Act
CERP	Comprehensive Environmental Review Process
CWA	Clean Water Act
IDNR	Illinois Department of Natural Resources
IEMA	Illinois Emergency Management Agency
IEPA	Illinois Environmental Protection Agency
Marathon	Marathon Ashland Pipeline Company
NOAA	National Oceanic & Atmospheric Administration
NRDA	Natural Resource Damage Assessment
OPA	Oil Pollution Act
RP	Restoration Plan
State	State of Illinois
Trustees	Natural Resource Trustees
USFWS	United States Fish and Wildlife Service

1.0 Introduction: Purpose of and Need for Restoration

1.1 Summary

This final Restoration Plan (RP) has been prepared for the restoration of natural resources and natural resource services injured by releases from Marathon Ashland Pipeline Company (Marathon) petroleum pipeline over a period of 22 years. Marathon has either directly or indirectly, through subsidiaries or affiliates, operated common carrier pipelines for the transportation of crude oil and refined products within the State of Illinois (State) as well as pipelines to collect crude oil from production wells. During this period there were a number of un-permitted spills, leaks, discharges, and/or releases of oil and/or refined products from these lines. The releases resulted in soil and surface water contamination, and injury to aquatic life, wildlife, flora and fauna. The objective of this restoration plan is to compensate the public for injuries to natural resources and natural resource services resulting from these incidents by returning the injured natural resources and natural resource services to their baseline conditions and compensating for interim losses of those resources and services. This restoration effort is compensatory only, and therefore is not designed to be a punitive action toward Marathon, nor is it intended to address loss of private property, other personal losses, or individual claims.

Pursuant to the authorities generally found in of Section 107(f) of the Federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9607(f), Section 311(f) of the Clean Water Act (CWA), 33 U.S.C. § 1321(f), and Section 1002(b) of the Oil Pollution Act of 1990 (OPA), 33 U.S.C § 2702(b), Natural Resource Trustees have the authority to determine the nature and extent of natural resource injuries, select appropriate restoration projects, and implement or oversee restoration. The Natural Resource Trustees (Trustees) for the State are the Illinois Department of Natural Resources (IDNR), and the Illinois Environmental Protection Agency (IEPA). This final RP documents the information and analyses that support the Trustees' evaluation of:

- injuries to natural resources and natural resource services caused by the incidents;
- restoration alternatives and the Trustees' preferred restoration alternatives to compensate for the injuries and losses; and
- the rationale for the Trustees' preferred alternatives.

In developing these restoration alternatives, the Trustees solicited comments from IDNR and IEPA regional restoration experts. The Trustees published a draft RP available for public review. The primary purpose of the draft RP was to inform the public of, and to solicit public comment on, the Trustees' restoration proposal (the Preferred Alternative) outlined in Section 5. There were no written comments received during the 30-day public comment period, therefore the RP became finalized effective October 2006 (see section 1.9 Public Participation.).

1.2 Natural Resource Trustees and Authorities

Federal laws establish liability for natural resource damages in order to compensate the public

for the injury, destruction, and loss of such resources and/or their services. These authorities are found generally in Section 107(f) of the Federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9607(f), Section 311(f) of the Clean Water Act (CWA), 33 U.S.C. § 1321(f), and Section 1002(b) of the Oil Pollution Act of 1990 (OPA), 33 U.S.C. §2702(b), the National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300, the Oil Pollution Act Natural Resource Damage Assessment (NRDA) regulations, 15 C.F.R. Part 990, and the CERCLA and CWA NRDA regulations, 43 C.F.R. Part 11. This final RP has been prepared by the IDNR and the IEPA. As designated Trustees, the IEPA and IDNR are each authorized to act on behalf of the public, to assess and recover natural resource damages and to plan and implement actions to restore natural resources and resource services injured or lost as the result of a discharge or threat of a discharge of oil or hazardous substance.

1.3 Coordination with the Responsible Party

Under Section 1002 of OPA (33 U.S.C. § 2702), each party responsible for a facility from which oil is discharged is liable for natural resource damages resulting from the incident involving such discharge or threat of a discharge. The responsible party for these spills is the Marathon Ashland Pipeline Company, an Ohio corporation. Marathon Pipeline Company and the State of Illinois entered into a Consent Decree which resolved the Trustees claims for injuries to natural resources. *Illinois v. Marathon Oil Company, 01-4169-JPG (S.D. Ill., entered June 1, 2001)*. The Consent Decree required Marathon to pay a total of \$263,000.00 as compensation for injuries to and lost use of natural resources for all the incidents. These settlement funds were deposited in the Natural Resource Restoration Trust Fund. Marathon was also ordered to pay \$25,000 to IDNR to fund environmental education activities involving natural resource restoration activities in and around the counties impacted by the incidents. Furthermore, Marathon was ordered to pay \$12,000 to IDNR for reimbursement of costs incurred in investigating and evaluating the impact of the incidents on the State's natural resources. Instead of engaging in a protracted natural resource damage assessment and restoration planning and implementation process, Marathon chose to resolve their liability through the entry of the Consent Decree.

Although responsible parties and Trustees are often engaged in a protracted natural resource damage assessment and restoration process, the OPA regulations provide for flexibility allowing Trustees and responsible parties to settle claims for natural resource damages at any point in the process (15 C.F.R. § 990.25). This flexibility is necessary in order to allow Trustees and responsible parties to proceed as expeditiously as possible to restore lost services resulting from injuries to natural resources. The OPA regulations require the Trustees to invite responsible parties to participate in the damage assessment and restoration process (15 C.F.R. § 990.44(d)). However, in this matter Marathon's involvement terminated after compliance with the Consent Decree which called for payment to compensate for injuries and lost use of natural resources instead of involvement in the assessment and restoration process. Marathon settled the matter for the purpose of avoiding transaction and litigation costs and time in responding to the releases. Marathon took steps to reduce the extent of its gathering lines from over 600 miles of pipelines to less than 180 miles, upgraded those portions of the system remaining in operation, and performed cleanups of releases. The Consent Decree recognized Marathon also engaged in

continuing efforts to address environmental impacts associated with the incidents and have been diligent in attempting to comply with the requirements of the OPA, CWA, and the Illinois Environmental Protection Act.

The Trustees considered long-term assessment studies to evaluate the injuries resulting from the releases and the need for natural resource restoration. The Trustees recognized the value of additional information in planning and scaling restoration actions, but also recognized the cost and time delays (in terms of restoration implementation) that would result from long-term studies. It was uncertain whether the additional information gained from those studies would justify the increased costs or that the results would substantially change the type and scale of the potential restoration action. The Trustees agreed that the time and money would be better spent identifying and developing restoration projects to address the injuries to natural resources. The Trustees believe it is in the public's interest to focus on the planning and implementation of restoration projects in lieu of undertaking lengthy, and potentially costly, assessment studies. When faced with uncertainties, the Trustees attempted to resolve those in favor of more extensive, rather than less extensive, restoration projects. As a result, the Trustees are confident that the restoration projects proposed in this final RP will compensate for the injuries to natural resources.

1.4 Overview of the Oil Pollution Act of 1990 Requirements

OPA allows designated Trustees to recover the cost of restoring, rehabilitating, replacing, or acquiring the equivalent of the injured natural resources ("primary restoration"), the diminution in value of those injured natural resources pending restoration ("compensatory restoration"), and reasonable assessment costs. The National Oceanic & Atmospheric Administration (NOAA) promulgated regulations as guidance for natural resource damage assessments resulting from oil spills at 15 C.F.R. Part 990. The following provides a summary of the steps taken by the Trustees to address the natural resource injuries associated with these incidents and to develop a restoration plan that address damages caused by natural resource injuries.

The Trustees initial determination found that the legal jurisdiction to pursue recovery for natural resource injuries is consistent with federal authority. The pipeline ruptures and spills constitute "incidents" pursuant to OPA Section 1001(14) (33 U.S.C. § 2701(14)). Because the discharges were not authorized by a permit issued under federal, state, or local law and did not originate from a public vessel or from an onshore facility subject to the Trans-Alaska Pipeline Authorization Act, the incidents are not an "excluded discharge" within the meaning of OPA Section 1002(c) (33 U.S.C. § 2702(c)). Further the Trustees determined that natural resources under the authority of the Trustees have been injured as a result of the incidents. These factors established jurisdiction to proceed with an OPA NRDA claim.

Natural resources are defined as "land, fish, wildlife, biota, air, water, ground water, drinking water supplies and other such resources belonging to, managed by, held in trust by, appertaining to or otherwise controlled by the United States (including the resources of the exclusive economic zone), any State or local government or Indian tribe or any foreign government" (33 U.S.C. § 2701(20)). Injury is defined as "an observable or measurable adverse change in a natural resource or impairment of a natural resource service" (15 C.F.R. § 990.30). A NRDA

consists of three phases: preassessment, restoration planning, and restoration implementation. Based on information collected during the preassessment phase, the Trustees make a preliminary determination as to whether natural resources and/or services have been injured and/or are likely to be injured by the release. Through coordination with response agencies (e.g., the IEPA) the Trustees next determine whether the oil spill response actions will eliminate the injury or the threat of injury to natural resources. If injuries are expected to continue, and feasible restoration alternatives exist to address such injuries, the Trustees may proceed with the restoration planning phase. Restoration planning may also be necessary if injuries are not expected to continue or endure but are nevertheless determined to have resulted in interim losses of natural resources and/or services from the date of the incident until the date of recovery (15 C.F.R. § 990.30).

The purpose of the restoration planning phase is to evaluate the potential injuries to natural resources and services and to use that information to determine the need for and scale of associated restoration actions (15 C.F.R. § 990.51-990.56). This phase provides the link between injury and restoration and has two basic components: injury assessment, and restoration selection.

The goal of injury assessment is to determine the nature and extent of injuries to natural resources and services, thus providing a factual basis for evaluating the need for, type of, and scale of restoration actions. If the Trustees determine that the information gathered during preassessment is sufficient to provide a basis for restoration, they may proceed directly to the restoration planning phase without completing a formal damage assessment. As the injury assessment is being completed, the Trustees develop a plan for restoring the injured natural resources and services. The Trustees must identify a reasonable range of restoration alternatives, evaluate and select the preferred alternative(s), develop a draft restoration plan presenting the alternative(s) to the public, solicit public comment on the draft restoration plan, and consider public comments into a final restoration plan (15 C.F.R. § 990.55).

During the restoration implementation phase, the restoration plan is presented to responsible parties to implement or to fund the Trustees' costs for assessing damages and implementing the restoration plan. This provides the opportunity for settlement of damage claims without litigation. Should the responsible parties decline to settle, the Oil Pollution Act authorizes Trustees to bring a civil action against the responsible parties for damages or to seek reimbursement from the Oil Spill Liability Trust Fund administered by the United States Coast Guard.

In this case, the Trustees and Marathon have already settled claims for natural resource damages. This final RP demonstrates that the settlement is adequate to restore, replace, rehabilitate, or acquire the equivalent of the injured natural resources and services. The Trustees, acting on behalf of the public, weighed the benefits of early settlement versus delayed recovery of natural resources that might result from long-term studies and protracted litigation. Section 1.3 of this final RP discusses the approach taken by the Trustees to conduct an assessment whereby the benefits of an early settlement clearly outweighed long-term studies to more accurately determine injury.

1.5 Marathon Incidents and Overview of Sites

Marathon operates common carrier pipelines for transporting crude oil and refined products within the State as well as pipelines to collect crude oil from the production wells where it is produced. From December 27, 1977 to December 31, 1999, there were a number of spills, leaks, discharges, and/or releases of oil and/or refined products from the pipelines in twenty-nine (29) counties within the State. Sixteen (16) of those 29 counties sustained the most injury, including Bond, Champaign, Clark, Clay, Crawford, Fayette, Hamilton, Iroquois, Jasper, Lawrence, Madison, Marion, Richland, Wabash, Wayne, and White Counties (See map on Page 8). These releases are documented in the Illinois Emergency Management Agency's (IEMA) incident reports.

The releases resulted in adverse impacts to natural resources within the counties listed. Natural resources affected are, but are not limited to, the following: fish, amphibians, and reptiles; aquatic and terrestrial mammals; migratory birds, including waterfowl, raptors, and others; aquatic and terrestrial plants and microorganisms; and surface waters and sediments.

1.6 Overview of Natural Resource Injuries

The incidents resulted in significant adverse impacts to the watersheds of the Embarras, Little Wabash, and Kaskaskia Rivers and their tributaries, including Shoal Creek, Horse Creek, Ramsey Creek, Howe Creek (**Kaskaskia**), Brushy Slough, Bonpas Creek, and Brouilletts Creek (**Little Wabash**), and Mill Creek, Muddy Creek, Little Embarras Creek, Deer Creek, and Greasy Creek (**Embarras**). The areas in the Embarras, Little Wabash, and Kaskaskia watersheds provide habitat for numerous species of plants, fish, mussels, crustaceans, birds, mammals, amphibians, reptiles, and invertebrates. Human uses, including wildlife viewing, hiking, fishing, biking, and other outdoor activities, also rely on the natural resources of the three watersheds.

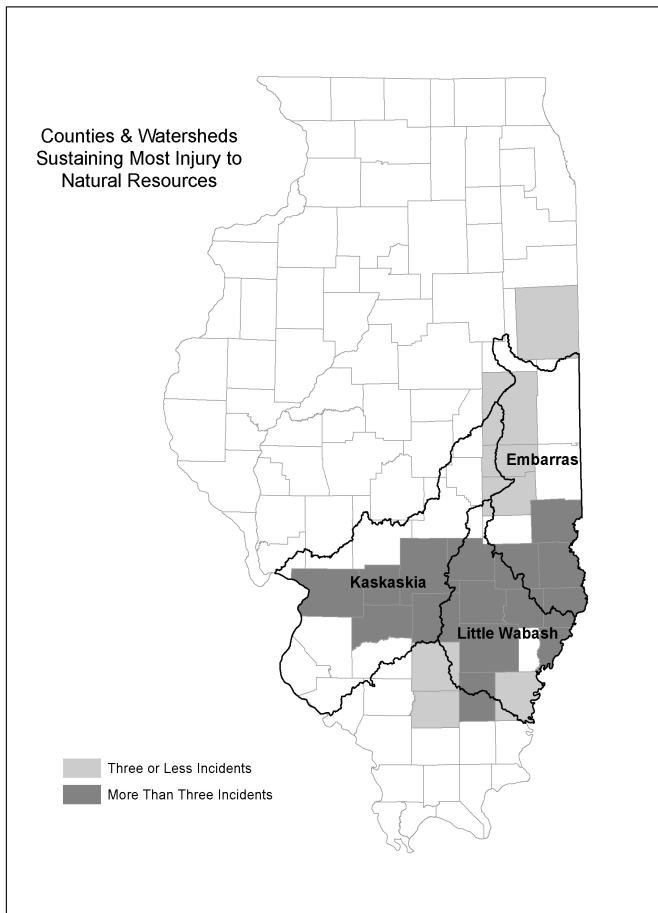


Fig. 1. Watershed boundaries defined by the Illinois Streams Information System (ISIS).

Note: ISIS initially defines the Embarras area as the Embarras and Vermillion Watershed area, but since the majority of incidents that occurred within this boundary were closer to the Embarras River, the watershed boundary is only marked as Embarras. Further part of the Embarras and Little Wabash Watershed areas are located in the Wabash Watershed area, although ISIS does not identify them this way.

1.7 Summary of Findings

As described in Section 1.4, the Trustees typically make several determinations or findings during the course of the NRDA process. For these incidents, the Trustees have determined that:

- a number of releases of oil or hazardous substances occurred;
- natural resources were injured as a result of the incidents;
- response actions were not sufficient to compensate fully for injuries and losses of services; and
- feasible primary and compensatory restoration alternatives are available.

1.8 Summary of the Natural Resource Damage Claim

The goal of the NRDA process, as stated in 15 C.F.R. § 990.10, is to "make the environment and public whole for injuries to natural resources and services resulting from an incident involving a discharge or substantial threat of a discharge of oil." The natural resource damages claim for the incidents seek restoration of the following natural resources and services:

1. **Vegetation**-Riparian and terrestrial vegetation;
2. **Fisheries**-Anadromous and resident fish, stream invertebrates, and their habitats;
3. **Water Quality**-Surface and ground waters;
4. **Wildlife**-Birds, aquatic and terrestrial wildlife, and their habitats; and
5. **Human Use**-Fishing and other outdoor recreational activities.

As described in more detail in Section 4.3 below, the proposed restoration actions seek to: 1) restore prairie; 2) re-establish resident amphibian and reptile habitat such as vernal ponds; 3) restore forest and forest barrens; 4) create wetlands; 5) control invasive plant species; and 6) implement other management activities to restore and sustain the native natural communities of Southeastern Illinois.

1.9 Public Participation

Public review of the draft RP is an integral component of the restoration planning process. Through the public review process, the Trustees seek public comment on the approaches used to define and assess natural resource injuries and the projects being proposed to restore injured natural resources or replace services provided by those resources.

Public review of the draft RP is consistent with all federal and state laws and regulations that apply to the NRDA process. Following public notice, the draft RP becomes available to the public for a 30-day comment period. Written comments received during the public comment period are considered by the Trustees in preparing the final RP.

Public comments and suggestions on the proposed restoration alternatives are an important part of the public participation process. Anyone who reviews the draft RP is encouraged to evaluate and comment on any part of the draft RP, including descriptions of the affected areas, injury determination procedures, the proposed restoration projects, and/or the restoration selection process. The public is further encouraged to evaluate and comment on the feasibility of the proposed restoration projects themselves. If additional restoration alternatives are proposed by the public, a description of how the additional restoration alternatives meet the evaluation criteria contained in Section 4.2 below must be submitted.

An additional opportunity for public review is provided in the event that the Trustees decide to make significant changes to the draft RP based on the public comments. No comments were received for the draft RP, thus the RP became finalized effective October 2006.

2.0 Affected Environment

2.1 Aquatic Habitat

The pipeline releases affected the Embarras, Little Wabash, and Kaskaskia watersheds. The Embarras watershed includes the area from the headwaters south of Champaign-Urbana, IL to its confluence with the Little Wabash watershed near Lawrenceville, IL. The Little Wabash watershed includes the area around the Little Wabash River, Bonpas Creek, and other small tributaries draining directly into the Wabash River. The Kaskaskia watershed includes the area around the Kaskaskia River. The Kaskaskia River rises six miles northwest of Champaign-Urbana in the Champaign morainic system. It flows southwest across the State for 270 miles and empties into the Mississippi River.

The Embarras River itself has a wide variety of habitats such as gravel bars, gravel-sand raceways, sandbars, riffles, and deep pools. The river has ninety-two species of fish, forty-three species of mussels, and eighteen species of crustaceans present. (Page, 1992) (IDNR, 1996)

The Little Wabash River itself has been affected by oil, salt water, municipal, industrial, and agricultural pollution. The river contains eighty-two species of fish, forty-seven species of mussels, and nineteen species of crustaceans. (Page, 1992) (IDNR, 1996)

The Kaskaskia River itself has a heavy silt load due to farming and agricultural activities that have taken place in the area, and the color of the water depends on the nature of the soil. The river has one hundred and thirteen species of fish, forty-two species of mussels, and twenty-five species of crustaceans. (Page, 1992) (IDNR, 1996)

The tributaries to each watershed have also been affected by the releases. Tributaries to the Embarras River include Mill Creek, Muddy Creek, Little Embarras Creek, Deer Creek, and Greasy Creek. The Little Wabash watershed's tributaries are Brushy Slough, Bonpas Creek, and Brouilletts Creek. Tributaries to the Kaskaskia River watershed include Shoal Creek, Horse Creek, Ramsey Creek, and Howe Creek. Many species of fish, crustaceans, and mussels occupy these streams. (Page, 1992)

The total amount of wetland area in the Embarras River watershed consists of 1,160.49 acres. The wetland areas in the Little Wabash River watershed total 1,862.78 acres. The wetlands located in the Kaskaskia River watershed total 1,447.51 acres. (IDNR, 1996) (IDNR, retrieved February 24, 2005)

2.2 Terrestrial Habitat

The Embarras River watershed area consists of cropland, bottomland forest, old growth forest, and grasslands that support prairie chickens and other grassland-dependent species. The total acreage for bottomland forests and old growth forests are 69,863.89 acres. The Little Wabash watershed area is underlain by coal and one-third of the oil produced in Illinois comes from this area. The prominent landcover in the area is cropland, with some wooded areas. The total acreage for the upland and bottomland forests is 66,749.11 acres. The Kaskaskia River

watershed area consists of cropland, followed by upland and bottomland woods. The total acreage of the upland and bottomland forests is 42,282.58 acres. (Page, 1992) (IDNR, 1996) (IDNR, retrieved February 24, 2005)

2.3 Threatened and Endangered Species

Each watershed contains a variety of animal and plant species. A few of these species have been classified as threatened or endangered by both the Federal Government (50 C.F.R. Parts 222-227) and the State of Illinois (17 Ill. Adm. Code Sections 1010.10-1010.30). A complete list of Federal listed species can be found at www.nmfs.noaa.gov, and www.fws.gov. A complete list of State listed species can be found at <http://www.ilga.gov/commission/jcar/admincode/017/01701010sections.html>. Aquatic species in each watershed that have been classified as endangered or threatened include the western sand darter (*Etheostoma clarum*), redspotted sunfish (*Lepomis miniatus*), harlequin darter (*Etheostoma histrio*), eastern sand darter (*Etheostoma pellucidum*), fat pocketbook (*Potamilus capax*), spectaclecase (*Villosa lianosa*), snuffbox (*Epioblasma triquetra*), kidneyshell (*Ptychobranhus fasciolaris*), purple lilliput (*Toxolasma lividus*), amphipod (*Gammarus acherondytes*), and crayfish (*Orconectes indianensis*) (Page, 1992) (IDNR, Illinois Endangered Species Protection Board, 2004). The Embarras watershed area contains four plant species and fourteen animal species that are threatened or endangered, the Little Wabash watershed area has two plant species and thirteen animal species that are threatened or endangered, and the Kaskaskia watershed area has one plant species and five animal species that are threatened or endangered. (IDNR, 1996) (IDNR, retrieved February 24, 2005)

2.4 Human Use Services

State Parks

The Embarras watershed area contains five state parks: Fox Ridge, Sam Parr, Walnut Point, Crawford County Conservation Area, and Red Hills. The Little Wabash watershed area contains six state parks: Beall Woods, Newton Lake Fish and Wildlife Area, Sam Dale, Wildcat Hollow State Habitat Area, Steven A. Forbes State Park, and Prairie Ridge State Natural Area. The Kaskaskia watershed has two state parks, South Shore, and Ramsey Lake; two state fish and wildlife areas, Kaskaskia and Carlyle Lake; and an area of federal land; Carlyle Lake. (IDNR, 1996) (IDNR, retrieved February 24, 2005) (IDNR, 2003)

Nature Preserves

The nature preserves in the Embarras watershed area include Chauncey Marsh, Jasper County Prairie Chicken Sanctuary, Red Hills Woods Nature Preserve, Red Hills Seep Springs Land & Water Reserve, Graber Grasslands Land & Water Reserve, and the Upper Embarras Woods. Nature preserves in the Little Wabash watershed area include Beall Woods, Miler Shrub Swamp Nature Preserve, Marion County Prairie Chicken Sanctuary Nature Preserve, Robert Ridgway Nature Preserve, Karl Bartels Wildlife Sanctuary Land & Water Reserve, Padgett's Brothers Land & Water Reserve, Martin T. Synder Memorial Nature Preserve, Prairie Ridge Land & Water Reserve, Marjorie J. Brines White Oak Woods Land & Water Reserve, and Robeson Hills. The Kaskaskia watershed includes Rock Cave Nature Preserve, Dean Hills Nature Preserve, Ramsey Railroad Prairie Nature Preserve, and Rock Cave Land & Water Reserve. (IDNR, 1996) (IDNR,

retrieved February 24, 2005) (IDNR, 2003)

3.0 Injury Determination and Quantification

Three requirements identified in OPA must be met before restoration planning can proceed: 1) injuries have resulted, or are likely to result, from the incidents; 2) response actions have not adequately addressed, or are not expected to address, the injuries resulting from the incident; and 3) feasible primary and/or compensatory restoration actions exist to address the potential injuries. (15 C.F.R. § 990.42) Information collected by the Trustees during the preassessment phase for the incidents satisfies the three criteria listed above and confirms the need for restoration planning to address impacts from the incidents.

This section describes and quantifies the natural resource injuries resulting from the incidents. The section begins with an overview of the types of information and data collected during the preassessment phase of the damage assessment process, followed by a description of the Trustees' strategy to identify and quantify specific injuries to natural resources.

3.1 Summary of Preliminary Activities

The Trustees reviewed relevant information which indicated that oil and component hazardous substances had been emitted, emptied, discharged, allowed to escape, or otherwise released into the environment. The type and amount of trust resources injured was determined from information in the Illinois Emergency Management Agency (IEMA) database where square feet of land, square feet of a farm pond, and feet of stream lengths as well as brief descriptions of the habitat for some spills were provided.

3.2 Assessment Approach

The goal of injury assessment under OPA is to determine the nature and extent of injuries to natural resources and the services they provide, to provide a basis for evaluating the need for, type of, and scale of restoration actions. The assessment process is a two-step process: injury determination and injury quantification.

Injury determination begins with the identification and selection of potential injuries to be investigated. Consistent with OPA regulations, the Trustees considered several factors when making this determination, including but not limited to, the following:

- the natural resources and services of concern;
- the evidence indicating exposure, pathway and injury;
- the mechanism by which injury occurred;
- the type, degree, and spatial and temporal extent of injury;
- the adverse change or impairment that constitutes injury;
- availability of assessment procedures and their time and cost requirements;
- the potential duration of the natural recovery period; and
- the scope of feasible restoration actions.

The following activities, conducted by the Trustees, were used to help evaluate the potential impacts of the incidents on natural resources. Based on the following information, the Trustees believe the incidents caused significant resource injuries to terrestrial and aquatic habitats.

Injuries were estimated based on a simplified approach using the cost of restoration of injured terrestrial and aquatic habitats. Due to incomplete information on the oil spills, much of the data had to be extrapolated using various assumptions to fill the data gaps. The assumptions used are listed below:

1. All terrestrial habitats reported as injured were assumed to be of forest or grassland habitat based on the ecology of the region in which the majority of the spills occurred.
2. For the database entries indicating injury to a length of stream, the injured habitat was considered as high quality stream habitat to provide the best ecologically conservative approach for restoration.
3. For the database entries indicating injury to a length of ditch, the injured habitat was considered as low quality stream habitat.
4. For the database entries listing the amount of petroleum or hazardous substances released only and no indication of the type or amount injured habitat, the injured habitat was assumed to be terrestrial. For these incidents, it was more probable that injury occurred to terrestrial habitat rather than aquatic habitat or a combination of the two habitats. Terrestrial habitat injury is also considered to be more cost conservative where the estimated cost of restoration for one acre of terrestrial habitat is lower than the estimated cost of restoration for 1 mile of aquatic habitat.

A total of 381 records were listed in the IEMA database as to have occurred since December 1, 1980. Three hundred and five of these records reported only the number of barrels spilled and no indication of the type or amount of habitat injured. For those records, an estimate area injured per barrel was calculated by multiplying the average area injured per barrel by the number of spilled barrels causing injury. This was done with the assumption that terrestrial habitat, rather than aquatic habitat or a combination of both, was the injured habitat. In summary, to determine the average amount of terrestrial habitat injured, the following steps were taken:

1. All records indicating injury to terrestrial habitat were identified. The number of barrels spilled was then correlated to the number of square feet of injured habitat. Records identified as outliers were removed one by one until a significant relationship ($p < 0.05$) resulted between the amount of area injured and the number of barrels spilled. An average size (ft²) of terrestrial habitat injured per barrel of oil spilled was then calculated with those records that caused a significant correlation. This resulted in an average of 357.90 ft² of terrestrial habitat injured per barrel spilled.
2. All records indicating only the number of barrels spilled and not the amount of habitat injured were identified. For these records, the number of barrels spilled affecting the habitat was estimated by subtracting the number of barrels recovered from the number of barrels released.

3.3 Damage Assessment

Once injuries were assessed, damages were estimated for all records. Restoration costs for injured terrestrial habitats and injured aquatic habitats were calculated by converting the units for terrestrial habitats and a farm pond from square feet (ft²) to acres (Affected area (ft²)/43,560 ft², where 1 acre = 43,560 ft²) and converting stream lengths from feet to miles (Affected area (ft²)/5280 ft, where 1 mile = 5280 ft). Damages were calculated by multiplying the amount of injured area by the assumed cost of restoration for the habitat injured. The assumptions for cost of restoration have been determined as illustrated in Table 1:

TABLE 1

Injured Habitat	Restoration Cost
1 Mile of High Quality Stream Habitat	\$10,000
1 Mile of Low Quality Stream Habitat	\$5,000
1 Acre of Terrestrial Habitat	\$1,500
1 Acre of Pond	\$20,000

The estimated calculated damages are presented in Table 2:

TABLE 2

HABITAT TYPE	AREA AFFECTED	ESTIMATED COST
Terrestrial Habitat	82.1515 acres	\$134,504.40
Aquatic Habitat	14.2994 miles	\$106,066.29
Total Costs		\$240,570.69

(Source for Tables 1 and 2: IDNR and IEPA, 1999)

Given uncertainties existed in the initial damage estimates due to lack of data, the final settlement amount stated in the Consent Decree was adjusted to \$263,000.00.

3.4 Injured Natural Resources and Resource Services

It is assumed that the release of oil and component hazardous substances affected soil, streams, and rivers. All injury to land was considered to be injury to terrestrial habitat (e.g., forest or grassland) and all injury to streams and rivers were considered to be injury to aquatic habitat. Natural resources affected or potentially affected under the Trustees are, but not limited to, the following:

1. Fish, amphibians, and reptiles;
2. Aquatic and terrestrial mammals;
3. Migratory birds, including waterfowl, raptors, and others;
4. Aquatic and terrestrial plants and microorganisms; and
5. Surface waters and sediments.

4.0 Restoration Planning

Restoration of the affected resources in the Embarras, Little Wabash, and Kaskaskia watersheds requires an approach that focuses on several interconnected resources, including water quality, fish and wildlife habitat, living resources, and recreational resources. The Trustees have evaluated potential restoration options that will restore the affected natural resources to pre-incident or baseline levels, and compensate for interim losses.

The OPA regulations require that the Trustees state their preferred alternative(s) and explain the basis for their selection or rejection of other alternatives. These Trustee determinations may be modified based on public input and comment.

4.1 Restoration Strategy

The goal of the NRDA process is restoration of the injured natural resources and compensation for the interim lost uses of those resources. Restoration actions under OPA regulations are either primary or compensatory. Primary restoration is action taken to return the injured natural resources and services to baseline on an accelerated time frame by directly replacing the resource or service. As one form of primary restoration, the OPA regulations require that Trustees consider natural recovery of the resource. Trustees may select natural recovery under three conditions: 1) if feasible; 2) if cost-effective primary restoration is not available; or 3) if injured resources will recover quickly to baseline without human intervention. Primary restoration alternatives can range from natural recovery, to actions that prevent interference with natural recovery, to more intensive actions expected to return injured natural resources and services to baseline faster or with greater certainty than natural recovery alone.

Compensatory restoration includes actions taken to compensate for the interim losses of natural resources and/or services pending recovery. The type and scale of compensatory restoration depends on the nature of the primary restoration action and the level and rate of recovery of the injured natural resources and/or services, given the primary restoration action. When identifying compensatory restoration alternatives, Trustees must first consider actions that provide services of the same type and quality and that are of comparable value as those lost. If a reasonable range of compensatory actions of the same type and quality and comparable value cannot be found, Trustees then consider other compensatory restoration actions that will provide services of at least comparable type and quality as those lost.

Compensatory restoration alternatives must be scaled to ensure that the size or quantity of the proposed project reflects the magnitude of the injuries from the spills. The Trustees selected different scaling approaches for the lost ecological and human uses, which are explained with the proposed restoration alternatives in Section 5.

Because the Trustees have not finalized restoration planning, several of the restoration alternatives included in Section 4.3 are based on conceptual designs rather than detailed engineering design work or operational plans. Therefore, details of specific projects may require additional refinements or adjustments to reflect site conditions or other factors. Restoration project designs also may change to reflect public comments and additional Trustee analysis.

4.2 Evaluation Criteria

The OPA regulations discuss six evaluation criteria for Trustees to consider when developing a range of restoration alternatives. The Trustees then use those criteria to identify preferred restoration alternatives:

- (1) cost to carry out the alternative;
- (2) extent to which each alternative is expected to meet the Trustees' goals and objectives in returning the injured natural resources and services to baseline and/or compensating for interim losses;
- (3) likelihood of success of each alternative;
- (4) extent to which each alternative will prevent future injury as a result of the incident and avoid collateral injury as a result of implementing the alternative;
- (5) extent to which each alternative benefits more than one natural resource and/or service; and
- (6) effect of each alternative on public health and safety.

4.3 Summary of the Restoration Alternatives

The Trustees evaluated a range of primary and compensatory restoration alternatives intended to enhance the recovery of the impacted areas located in the Embarras, Little Wabash, and Kaskaskia watersheds and/or to provide additional resource services to compensate the public for losses pending natural recovery.

These alternatives are summarized below in Table 3.

TABLE 3: Summary of the Restoration Alternatives

Alternative	County	Projected Cost	Project Description
No Action			Allow natural recovery to occur to compensate for all and/or specific lost resources and/or services. This alternative is proposed as part of some preferred alternatives.
Vernal Pond Creation and Enhancement Project	All affected counties in the Embarras River Watershed on both public & private lands.	\$15,000.00	Construct vernal ponds for reptiles & amphibians.
Vernal Pond Creation and Enhancement Project	All affected counties in the Kaskaskia and Little Wabash River Watersheds – on both public & private lands.	\$15,000.00	Construct vernal ponds for reptiles & amphibians.
Prairie Ridge State Natural Area – grassland restoration	Jasper	\$80,000.00	Control invasive woody species and restore grassland habitat not currently being utilized by area sensitive grassland birds.
Prairie Ridge State Natural Area	Jasper	\$5,000.00	Conversion of 100 acres of fescue to desirable grasslands.
Prairie Ridge State Natural Area	Marion	\$10,000.00	Increase soil fertility on 200 acres of managed grasslands.
Prairie Ridge State Natural Area	Marion	\$5,000.00	Conversion of 100 acres of fescue to desirable grasslands.
Karl Bartels Land & Water Reserve	Marion	\$5,000.00	Purchase Illinois ecotype prairie grass & forb seed for prairie restoration.
Beadles Barrens Nature Preserve	Edwards	\$4,000.00	Purchase native prairie grass & forb seed to enhance a rare barrens.
Natural Community Restoration on various Nature Preserves, Land & Water Reserves and INAI sites – Red Hills Woods NP, Red Hills LWR, Chauncey Marsh NP, Pings & 12 mile prairie	Marion, Clay, Fayette, Effingham, and Lawrence Counties	\$20,000.00	Invasive woody and exotic species control in forest barrens and prairie communities.

Alternative	County	Projected Cost	Project Description
Natural Community Restoration on various public lands – Steven A. Forbes State Park, Red Hills State Park, Sam Parr State Park, Wildcat Hollow & Crawford County Conservation Area	Marion, Jasper, Effingham and Crawford Counties	\$25,000.00	Invasive woody and exotic species control in forest barrens and prairie communities.
Beall Woods State Park and Nature Preserve	Wabash	\$20,000.00	Control autumn olive in reforestation areas and reforest areas with RPM trees.
Carlyle Lake Wildlife Management Area	Fayette	\$10,000.00	Willow removal in moist soil management areas to benefit migratory waterfowl, marsh birds and shorebirds.
Chauncey Marsh State Natural Area	Lawrence	\$5,000.00	Purchase Illinois ecotype prairie grass and forb seed for 27 acres of prairie restorations.
Sam Parr State Park	Jasper	\$5,000.00	Construct a shallow water wetland for marsh birds, shorebirds, and waterfowl.
Ballard Nature Center	Effingham	\$11,000.00	Natural Community Restoration – purchase forb seed for prairie and savanna restorations, control invasive woody and exotic species in forest communities.
Prairie Restoration	Kaskaskia	\$17,700.00	Concentrated around the Kingbury Park District. Establishes high quality habitat, plant natural ground cover, and connect habitats.

5.0 Preferred Restoration Alternatives

The total amount of the Marathon settlement for restoration projects was \$263,000. Listed above in Table 3 the preferred on-the-ground restoration projects are projected to cost \$252,700.00.

The alternatives listed in Table 3 are expected to benefit various natural resources and services associated with Southeastern Illinois natural communities through enhancement and restoration (see criteria 5, Section 4.2). The alternatives are expected to satisfactorily compensate for losses sustained by the incidents and benefit public health and safety (see criteria 2 and 6, Section 4.2). Therefore, Trustees, based on the criteria in Section 4.2, have selected to implement all the projects listed in Table 3 (except the No Action Alternative). The Trustees considered that the cost to carry out each alternative was clearly feasible given the settlement claim (see criteria 1,

Section 4.2). Further each project addresses the goals and objectives in compensating for interim losses, and these alternatives collectively benefit more than one natural resource and/or service (see criteria 2 and 5, Section 4.2). For these reasons, the Trustees believe the alternatives will be suitable to use for restoration. The remaining \$10,300.00 will cover IDNR technical oversight for project implementation which is being done to increase the likelihood of a successful restoration effort, as well ensure further protection of public health and safety (see criteria 3 and 6, Section 4.2).

The Preferred Restoration Alternatives listed in Table 3 are expected to be implemented and completed by the end of calendar year 2007. If any of the projects are deemed infeasible or undesirable prior to implementation, alternative projects, similar in nature (i.e. restoring like resources and services to those that were injured or lost as a result of the incidents in the impacted watersheds previously described in this plan), will be identified and implemented. For example, if purchasing Illinois ecotype prairie grass and forb seed for prairie restoration is no longer feasible or desirable at Karl Bartels Land and Water Reserve, then another area in the impacted watersheds in need of such seeding would be identified and such seed would be purchased for that newly identified area.

5.1 Evaluation of Performance of Preferred Alternatives

Under the No Action alternative, the Trustees would take no direct action to restore injured natural resources or compensate for lost services pending environmental recovery. Instead, natural processes for recovery of the injured natural resources would be relied on. While natural recovery would occur over varying time scales for the injured resources, the interim losses suffered would not be compensated under the No Action alternative.

The Trustees decided to propose restoration projects planned for various public areas located in the three affected watersheds as compensation for injuries caused by Marathon. Initially, the Trustees considered proposing and implementing a large restoration project that would address the ecological and human-use losses from the incidents and compensate for injuries. However, a large project satisfying the criteria identified in Section 4.2 could not be identified.

The preferred restoration alternatives listed in Table 3 were selected based on expected benefits to natural resources and services, location of the proposed projects, and IDNR's overall familiarity with the projects. The projects have been proposed by IDNR for future implementation and are expected to successfully benefit the natural areas they will be implemented in. Specifically, they will involve restoring prairies, re-establishing resident amphibian and reptile habitat such as vernal ponds, restoring forest and forest barrens, creating wetlands, and controlling invasive plant species. All of the preferred restoration alternatives will be implemented within the affected watershed areas, and nearly all of them will be implemented on public lands. The Trustees believe these factors will make the projects beneficial for compensating the public as a whole for lost services resulting from the incidents. In addition, IDNR has successfully implemented and completed past projects that involved activities similar to those described in Table 3, so the Trustees are confident that IDNR will be able to complete the proposed projects based on knowledge and experience gained.

The preferred alternatives are expected to compensate for lost services by providing ongoing benefits to the various natural resources and services associated with Southeastern Illinois natural communities through enhancement and restoration. These projects will include the development of simple ecological performance measures. Performance measures can provide a quantitative basis for evaluating how well projects are adhering to delivering the intended benefits. While quantitative measures are preferred, various means to evaluate the effectiveness of these projects will be considered throughout all stages of planning and implementation of a project. The performance measures will be used to monitor the success of the preferred alternative projects over an extended period of time. There are many approaches to evaluation, and no one approach is appropriate for all projects. The Trustees will implement performance measures which will address natural resource management goals and objectives, including:

- quantifiable results, where feasible;
- addressing the landscape, ecosystem, and individual species while maintaining applicability over varying scales in time;
- establishing cooperative performance measures with partners and knowledgeable resource experts; and
- using performance measures to quantify and track changes from baseline measurements.

5.2 Fiscal Procedures

Restoration funds for the Marathon settlement total \$263,000.00 and are located in the Natural Resource Restoration Trust Fund (NRRTF), administered by the IDNR. The NRRTF was established as a State Trust Fund for the purpose of receipting and disbursing settlements under the Clean Water Act, Comprehensive Environmental Response, Compensation and Liability Act and the Oil Pollution Act.

It is the intention of IDNR to release funds in Fiscal Year 2007 to begin restoration activities. Once funds are released, restoration activities can begin. IDNR will oversee all restoration activities. IDNR may need to contract with local businesses to complete restoration activities. The IDNR Springfield headquarters will handle all fiscal transactions. All billings with supporting documentation shall be submitted to the IDNR Springfield Office for review and payment. IDNR fiscal agents will be responsible for the approval and payment of all expenses, obligations, and contracts in accordance with the State of Illinois fiscal and procurement procedures.

6.0 Coordination with Other Programs, Plans, and Regulatory Authorities

6.1 Overview

The major federal laws guiding the restoration of the injured resources and services are the Oil Pollution Act, the Comprehensive Environmental Response, Compensation, and Liability Act, and the Clean Water Act. Overall these statutes provide the basic framework for natural resource damage assessment and restoration. In addition, the State laws relevant for guiding the restoration of injured resources are the Illinois Environmental Protection Act (415 ILCS 5/1, et

seq.), the Illinois Natural Areas Preservation Act (525 ILCS 30/1, et seq.), the Illinois Endangered Species Protection Act (520 ILCS 10/1, et seq.), the Interagency Wetland Policy Act of 1989 (20 ILCS 830/1-1, et seq.), and the Comprehensive Environmental Review Process (CERP). The Trustees must comply with other applicable laws, regulations and policies at the federal and state levels.

In addition to laws and regulations, the Trustees must consider relevant environment or economic programs or plans that are ongoing or planned in or near the affected environment. The Trustees propose to work with the sponsors of the ongoing restoration projects to ensure that proposed restoration activities for the incidents neither impede nor duplicate such programs or plans. By coordinating restoration with other relevant programs and plans, the Trustees can enhance the overall effort to improve the environment of the three watershed areas.

6.2 Key Statutes, Regulations, and Policies

There are a number of federal and state statutes, regulations, and policies that govern or are relevant to damage assessment and restoration. The potentially relevant laws, regulations, and policies are set forth below.

Oil Pollution Act of 1990, 33 U.S.C. §§ 2701, et seq.

The Oil Pollution Act establishes a liability regime for oil spills that injure or are likely to injure natural resources and/or the services that those resources provide to the ecosystem or humans. Federal and state agencies and Indian tribes act as Trustees on behalf of the public to assess the injuries, scale restoration to compensate for those injuries, and implement restoration. The National Oceanic and Atmospheric Administration promulgated regulations for the conduct of natural resource damage assessments at 15 C.F.R. Part 990. Natural resource damage assessments are intended to provide the basis for restoring, replacing, rehabilitating, and acquiring the equivalent of injured natural resources and services. The Trustees actions are substantially consistent with the regulations found at 15 C.F.R. Part 990.

Clean Water Act (Federal Water Pollution Control Act), 33 U.S.C. §§ 1251, et seq.

The Clean Water Act is the principal law governing pollution control for water quality of the nation's waterways. Section 404 of the law authorizes a permit program for the disposal of dredged or fill material into navigable waters. The U.S. Army Corps of Engineers administers the program. In general, restoration projects that move significant amounts of material into or out of water or wetlands (e.g., hydrologic restoration of marshes) require Section 404 permits. - Under Section 401 of the CWA, restoration projects that involve discharge or fill to wetlands or navigable waters must obtain certification of compliance with state water quality standards (section 401).

Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§ 9601, et seq. This Act provides the basic legal framework for cleanup and restoration of the nation's hazardous-substances sites. Generally, parties responsible for contamination of sites and the current owners or operators of contaminated sites are liable for the cost of cleanup and restoration. CERCLA establishes a hazard ranking system for assessing the nation's contaminated sites with the most contaminated sites being placed on the National Priorities List.

Illinois Environmental Protection Act, 415 ILCS 5/1, et seq. The Environmental Protection Act is the state law that prohibits most forms of pollution occurring on land, in water, or in the air. It also establishes a liability regime, including enforcement and penalties, for entities that violate the provisions of the Act. The Environmental Protection Act was developed for the purpose of establishing a unified state-wide program for environmental protection and cooperating with other states and with the United States in protecting the environment. It was also developed to restore, protect and enhance the quality of the environment and to assure that adverse effects upon the environment are fully considered and borne by those who cause them.

Illinois Natural Areas Preservation Act, 525 ILCS 30/1 et.seq. The Act serves to protect any area in Illinois that has been designated as a nature preserve, including the species of plants and animals in each habitat. Any endangered plant and animal species found in designated nature preserves are also protected under this Act. Dedicating and holding an area for natural preserves is also encouraged in this Act.

Illinois Endangered Species Protection Act, 520 ILCS 10/1 et seq. This Act gives protection to any plant and animal species on the endangered or threatened list from being moved or destroyed. Any species that the Secretary of the Interior of the United States lists as endangered or threatened is also included on Illinois's endangered and threatened species list. The Act also provides rules of law for searching any premises suspected of illegally keeping goods, merchandise, or animals, plants, or animal or plant products subject to the Act and seizing such products.

Interagency Wetland Policy Act of 1989, 20 ILCS 830/1 et seq. This Act states that state agencies are responsible for preserving, enhancing, and creating wetland areas for the purpose of increasing quality and quantity of the State's wetland resource base. The goal behind the Act is that there shall be no overall net loss of the State's existing wetland acres or their functional value due to State supported activities.

Comprehensive Environmental Review Process. All internal Department (IDNR) projects, permits, and plans related to construction development, or other activities that will result in a change to existing environmental conditions shall be reviewed by the CERP staff to ensure compliance with relevant state and federal environmental statutes and to ensure the greatest protection of all natural and cultural resources to the extent possible.

7.0 References

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