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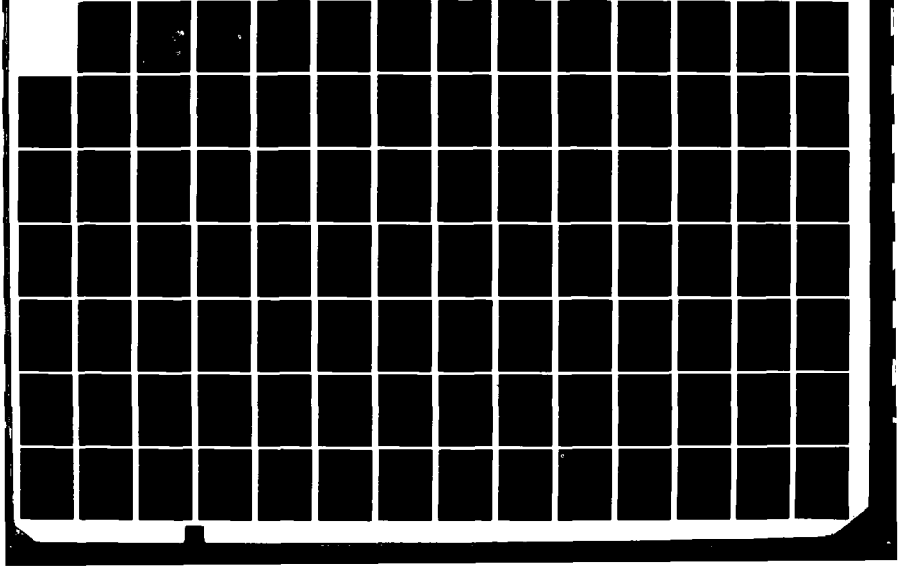

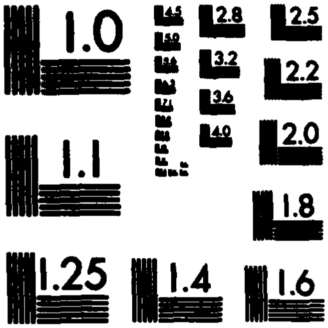

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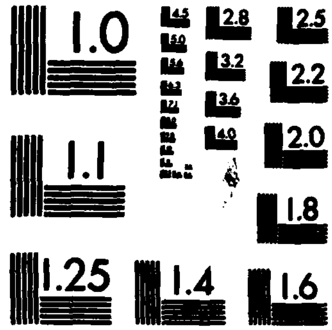

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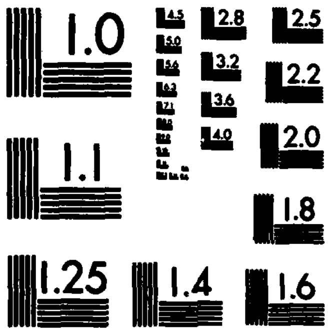

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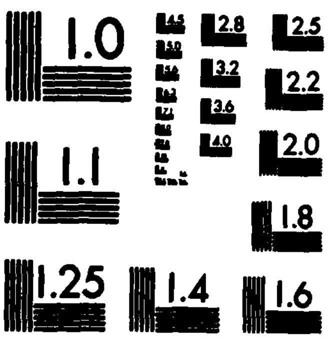

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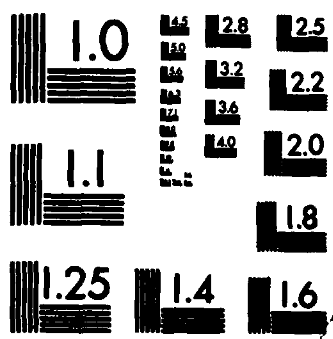

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FINAL ENVIRONMENTAL STATEMENT

(LA FARGE LAKE, KICKAPOO RIVER

VERNON COUNTY, WISCONSIN)

Prepared by

U.S. Army Engineer District, St. Paul, Minnesota

18 February 1972

UNCLASSIFIED
SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

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19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Environmental assessment
Environmental Impact Statements
La Farge Lake

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

The plan consists of a multiple-purpose lake for flood control, fish and wildlife production, and recreation. The damsite would be located on the Kickapoo River about 1 mile north of La Farge.and would be an earth-fill structure. About 1,780 acres of water-surface area and about 8,000 acres of land would be converted to public ownership, and about 1,400 acres of project land would be used for recreational development. Creation of the conservation recreation pool would inundate about 1,780 acres, and nearby areas would be subject to the effects of periodic indundation.

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INTRODUCTION

Governor Patrick J. Lucey of Wisconsin and General Ernest Graves, Division Engineer, North Central Division, U.S. Army Corps of Engineers, have expressed mutual concern that adverse effects upon the environment due to construction of the proposed La Farge Lake must be minimized. Certain tasks necessary to meet this objective were not contemplated at the time the initial environmental impact statement was prepared and submitted to the Council on Environmental Quality in January 1971. Therefore, the Division Engineer, by letter, NCDED-T, 7 June 1971, subject: Plan of Action for Revision of Environmental Impact Statement, La Farge Dam and Lake, called for additional study in the areas of:

a. Existing values of river without the project for recreation use, outstanding unique or significant aesthetic features, botanical and zoological features, and relative significance of the river ecosystem to the region.

b. Larger range of alternatives, including a dry reservoir, smaller dam with a greenbelt floodway and flood insurance.

c. Project effect upon stream fishery above and below the proposed dam.

d. Project effect upon wildlife and wildlife habitat.

e. The effect of construction work on stream fishery below the damsite (sedimentation-turbidity).

A revised draft environmental impact statement was prepared to accommodate the required additional study and it has been coordinated with appropriate public agencies and private organizations and submitted to the Council on Environmental Quality. This final environmental impact statement has been modified to incorporate all comments upon the revised draft.

SUMMARY ENVIRONMENTAL STATEMENT

LA FARGE LAKE, KICKAPOO RIVER, WISCONSIN

( ) Draft (X) Final Environmental Statement

Responsible Office: U.S. Army Engineer District, St. Paul, Minnesota

1. Name of Action: (X) Administrative ( ) Legislative

2. Description of Action: The plan consists of a multiple-purpose lake for flood control, fish and wildlife production, and recreation. The damsite would be located on the Kickapoo River about 1 mile north of La Farge, in Vernon County, southwestern Wisconsin. The dam would be an earth-fill structure with an overall length of 3,960 feet and a maximum height of 103 feet. The conservation or recreation pool at elevation 840 is designed to impound about 33,000 acre-feet of water with a surface area of about 1,780 acres extending about 12 miles upstream. Local flood protection measures for the downstream communities of Gays Mills and Soldiers Grove have been approved; however, these are separate projects which will be treated in separate environmental impact statements. Possible enlargement of the Kickapoo River channel at downstream restrictive points was considered in the past, but, because of plan modifications, it is not presently expected that such channel work would be required.

3. a. Environmental Impacts: The proposed plan would result in the conversion of about 1,780 acres of water-surface area and about 8,000 acres of land to public ownership. About 1,400 acres of project lands would be used for recreational development. Most of the existing floodplain would be submerged in the lake area for a distance of about 12 miles upstream from the dam. The formation of the lake would cause some local changes in the water table and a slight increase in local artesian pressures. As the result of the construction of the recreation facilities, an annual visitation of about 735,000 recreation days would be expected, which would tend to improve business conditions. Plant life would be disturbed including loss of trees and cliff communities. Plans are being prepared which would mitigate the loss of vegetation and wildlife through forestation and possibly the transplanting of certain rare plant species.

b. Adverse Environmental Effects: Creation of the conservation recreation pool would inundate about 1,780 acres which currently provide a part of the existing environmental setting of the area. Reservoir banks between conservation pool level and the top of the flood control pool would be subject to the effects of periodic inundation. On the basis of flooding once in 25 or 100 years, flooding of 370 or 700 acres,

respectively, above conservation pool for a period of 21 days or more could be expected. About 22.5 miles of road would be relocated. This action would result in the removal of 33 existing bridges and the construction of 17 new bridges. About 17.4 miles of power lines would be removed and relocated. In addition, about 13.9 miles of telephone lines would be removed and would be replaced with about 5.2 miles of new line. Losses to existing wildlife habitat are anticipated.

4. Alternatives:

a. No action.
b. Floodplain regulation.
c. Flood insurance.
d. Flood proofing.
e. Flood warning and temporary evacuation.
f. Emergency local protection.
g. Permanent local protection.
h. Channel improvement.
i. Dry reservoir.
j. Permanent relocation of urban buildings to flood-free areas (evacuation).
k. Land management combined with small tributary reservoirs. (Public Law 566).
l. Acquisition of floodplain lands and conversion of these lands to wild river areas, parks, or greenbelt areas.
m. Main stem reservoir.
n. Small dam with greenbelt floodway.
o. Combinations of above plans.
   (1) Alternative No. 1. -
   (b) Floodplain regulation.
   (d) Flood proofing.
   (j) Evacuation.
   (k) Land management and Public Law 566 projects.
   (m) Main stem reservoir.
   (2) Alternative No. 2. -
   (b) Floodplain regulation.
   (d) Flood proofing.
   (j) Evacuation.
   (k) Land management and Public Law 566 projects.
   (3) Adopted plan. -
   (b) Floodplain regulation.
   (k) Land management and Public Law 566 projects.
   (m) Main stem reservoir.

5. Comments Received:

Federal Highway Administration
Environmental Protection Agency
U.S. Bureau of Sport Fisheries and Wildlife
U.S. Geological Survey
National Park Service, USDI
Soil Conservation Service, USDA
Bureau of Outdoor Recreation, USDI
Wisconsin Department of Natural Resources
Wisconsin Department of Transportation, Division of Highways
Wisconsin Department of Health and Social Services
Mississippi River Regional Planning Commission
Natural Resources Council of State Agencies
Sierra Club, John Muir Chapter
Kickapoo Valley Association, Inc.
James A. Villemonte, Professor of Civil and Environmental Engineering, University of Wisconsin

6. Draft statement to CEQ: _____

Final statement to CEQ: _____

ENVIRONMENTAL STATEMENT

LA FARGE LAKE, KICKAPOO RIVER, WISCONSIN

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ENVIRONMENTAL STATEMENT
LA FARGE LAKE, KICKAPOO RIVER, WISCONSIN

1. PROJECT DESCRIPTION

The selected plan was authorized by the Flood Control Act of 1962 (Public Law 87-874). The plan consists of a multiple-purpose lake for flood control, fish and wildlife production, and recreation. The damsite would be located on the Kickapoo River about 1 mile north of La Farge in Vernon County, southwestern Wisconsin. The earth-fill dam would have an overall length of 3,960 feet and a maximum height of 103 feet. The conservation or recreation pool at elevation 840 is designed to impound about 33,000 acre-feet of water with a surface area of about 1,780 acres extending about 12 miles upstream. Local flood protection measures for the downstream communities of Gays Mills and Soldiers Grove have been approved; however, these are separate projects which will be treated in separate environmental impact statements. Possible enlargement of the Kickapoo River channel at downstream restrictive points was considered in the past but, because of plan modifications, it is not presently expected that such channel work would be required.

Regulation of the Kickapoo floodplain below the damsite is recognized as a necessary supplement to the project for two reasons: to prevent flood damage to future developments and to preserve the ecology and aesthetics of the floodplain below La Farge.

The original plan provided for an earth-fill structure with the conservation or recreation pool at elevation 822 and a surface area of about 800 acres. Detailed postauthorization studies led to a series of changes in the initial plan. The conservation pool was enlarged to provide storage for sediment deposition for the full 100-year economic life of the project, rather than the 50-year period used in the project document. In addition, the Wisconsin Department of Resource Development (1) (formerly Conservation Department) urged that La Farge Lake be built with the largest and deepest permanent pool attainable on the basis that the southwestern part of the State is greatly in need of recreational water and that the demand for recreational water in that area of the State will increase at almost twice the statewide rate. As a result, the conservation pool was raised to elevation 840. This higher elevation also obviated the need for several proposed impoundments for fish propagation on Weister Creek as recommended earlier by the Bureau of Sport Fisheries and Wildlife.

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(1) Letter from Wisconsin Department of Natural Resources, 11 July 1966 (see appendix I).

:onomic appraisal of this project, assuming no growth in the
in the floodplain, continued growth on the agricultural land,
ding the recreation benefits, indicates a benefit-cost ratio
ised upon an interest rate at the time of authorization of
:ent and July 1971 price levels. If the project were evaluated
the current interest rate, the benefit-cost ratio would be
1.0.

>roject is currently in a stage of geological testing and
.on planning. One construction contract for stripping the left
t the damsite was completed during the fall of 1971, and con-
of the outlet works is scheduled to begin during the spring of
d acquisition for the project was 45 percent complete as of
r 1971. Many abandoned buildings have been sold and removed
ite. Preparations are being made for the demolition of un-
ildings.

ONMENTAL SETTING WITHOUT THE PROJECT

ON

ickapoo River basin (plate 1) is located in southwestern Wis-
includes an area of 766 square miles in parts of Crawford,
Vernon, and Monroe Counties. The basin is 60 miles long in a
southwest direction and has an average width of 10 to 20 miles.

asin occupies the central portion of a 15,000-square-mile
wn among natural scientists as the "Driftless Area," because
all glaciation. The topography of the river basin is rugged,
of steep-walled valleys separated by narrow, rounded divides.

ommunities of Steuben, Gays Mills, Soldiers Grove, Readstown,
Farge, Rockton, Ontario, Wilton, and Norwalk are located on
of the Kickapoo River northward from the Wisconsin River.
s serve as trading centers for the surrounding farm areas.

ulture, which has declined during recent years, is still the
industry, and food processing plants which operate in the
mmunities throughout the basin are also of prime economic im-
Some manufacturing of furniture, other wood products, and
c machinery is also present.

nt water-based activities include canoeing and some fishing.
ies for motorboating, water-skiing, boat fishing, and swimming
lly nonexistent in the valley due to the absence of suitable
hs.

HY

>ination of rugged topography and temperate climate has made
>o River basin one of the most scenic areas in Wisconsin.
valley walls which rise 300 to 500 feet above the floodplains
tapoo River and its major tributaries are typically wooded
lonal open meadows and are rimmed with rock outcrops and
rock spires or pinnacles. The upland ridges vary from 0.1 to
width.

The Kickapoo River is a south-flowing tributary of the Wisconsin River. The river and its tributaries form a dendritic drainage pattern which is characteristic of a drainage system developed on nearly flat lying rocks in an unglaciated area. Throughout most of its course the Kickapoo River Valley follows a meandering course incised into bedrock and, overall, it is about 106 miles in length. In the lower 65 miles the stream channel is 50 to 100 feet wide and occupies a valley 0.25 to 0.50 mile wide. The river flows through this reach in a meandering channel that occasionally impinges against rock outcrops at the base of the valley walls. The floodplain is marked by swampy areas and oxbow lakes. The location of the proposed dam is 1 mile upstream from La Farge, at river mile 72.0. At this location the river valley is restricted by a low terrace on the inside of an incised horseshoe meander. Immediately upstream of the dam the valley broadens to a width of 0.75 mile and trends north for a distance of 1.5 miles. The west side of the valley in this section is bordered by a steep bluff, but the east valley slope grades gently upward across a low alluvial terrace. At a distance of 1.5 miles upstream of the dam the valley bends sharply to the east, becomes restricted to an average width of 0.25 mile by low rock terraces, and forms a sinuous pattern northward to Ontario, the upstream limit of the full design lake level. Above Ontario the river follows a less tortuous course. From its origin to 4 miles above Ontario the river falls about 400 feet. From this point to the mouth, however, the gradient is much flatter, with a total fall of about 250 feet in 95 miles.

GEOLOGY

The geology of the Kickapoo River basin has had a long but uncomplicated history beginning with sediment deposition in ancient seas followed by an unusually long and continuous period of erosion. The basin lies entirely within the Driftless Area, which is a unique area of approximately 15,000 square miles located primarily in southwestern Wisconsin with minor portions extending into the neighboring States of Minnesota, Iowa, and Illinois. The uniqueness of the area lies in the fact that it remained unglaciated during the Pleistocene Epoch although the lands on all sides were at some time covered by glacial ice. Thus, while the adjacent areas were receiving sediments and being modified by the action of glaciers, the Driftless Area was exposed to the agents of weathering and erosion which carved the present rugged topography.

Ordovician and Cambrian bedrock formations outcrop along the steep valley walls of the Kickapoo River and its tributaries and underlie the alluvial fill of the valleys.(1) Dolomite of the Ordovician Prairie du Chien Formation caps the valley walls in the proposed lake area and most

(1) Revisions have been made in the stratigraphic nomenclature of the formations during the course of the studies for the La Farge Dam and Lake. The nomenclature used in this report does not reflect the revisions in order that continuity with previous reports included in the appendix may be maintained.

of the basin. Throughout its entire length the Kickapoo River has cut through the resistant Prairie du Chien dolomite and into the underlying sandstones and shales of the Trempealeau, Franconia, and Dresbach Formations of the St. Croixan Series of the Cambrian System. The Prairie du Chien Formation is quarried extensively for road aggregate.

The Trempealeau Formation underlies the Prairie du Chien and is the uppermost Cambrian Formation in the region. It is subdivided into the Jordan and St. Lawrence Members. The Jordan Member is a fine-to-medium-grained sandstone that varies from loose and friable to well-cemented. The formation occurs high along the valley walls and has an average thickness of 100 feet. The Jordan has no known economic value except where it has sufficient lateral extent to serve as an aquifer for domestic wells. The St. Lawrence Member is about 30 feet thick in the area and consists of siltstone, shale, and sandstone. The St. Lawrence is used in some areas for road fill.

The Franconia Formation consists of four members: Bad Axe, Hudson, Goodenough, and Ironton. The entire formation consists of sandstone, siltstone, and shale. Shale and fine-grained sandstone predominate in the Bad Axe and Hudson Members which are above the influence of the proposed dam and lake. The lower two members, the Goodenough and Ironton, are present in the proposed embankment abutments and spillway and would be below the conservation pool elevation in the downstream lake area.

The Dresbach is designated a group composed of three formations in some references and a formation composed of three members in others. For the purpose of this report, the Dresbach is considered a formation composed of the Galesville, Eau Claire, and Mt. Simon Members. The Galesville Member is composed of a hard, fine-grained, siliceous sandstone and is exposed at river level along the Kickapoo River Valley where it forms prominent rock terraces and walls within the area of the proposed lake. The sandstone walls bordering the river rise 20 to 70 feet above river level. The sandstone in the rock walls has been eroded irregularly so that the walls vary in appearance from smooth surfaces to craggy, fissured rock masses with prominent overhangs and shallow caves. The sandstone walls also support a growth of wild plants and trees. The Galesville is important regionally as a poor aquifer sufficient only for domestic wells and serves, together with the shaly sandstone Eau Claire Member, as an aquitard for water confined under artesian pressure in the underlying Mt. Simon sandstones.

The Mt. Simon Member is a sandstone that is important regionally as an aquifer. It contains water under artesian pressure and provides water for municipal as well as private water supplies. It is not exposed in the area of the proposed lake.

Older Cambrian or Pre-Cambrian rocks are present below the Mt. Simon but are too deeply buried to warrant discussion in this report.

Except for a regional blanket of loess, a windborne clay and silt, the soils present in the Kickapoo River basin were derived primarily from the weathering and erosion of the local sedimentary bedrock. The highlands are mantled by loess and a thick residual soil formed on the weathered bedrock. The surface materials on the valley floors and lower valley slopes are primarily fine-grained soils derived from local sources and transported and deposited by running water. These soils are generally underlain by coarser materials deposited by the streams when their flows were greater than at present.

Structurally, the geology of the Kickapoo basin is quite simple. Except for local variations in the form of flexures or minor faults, the regional dip of the bedrock is slightly west of south at a magnitude of 15 feet per mile but becomes as much as 30 feet per mile in the extreme southern portion of the basin.

The entire basin is structurally stable and without tectonic disturbances of regional or local magnitude. The steep valley walls are stable and even minor landslides or rock falls are extremely rare. Roads are often cut through the toe of detrital material at the base of steep slopes and require only occasional maintenance to remove fallen debris.

Economic mineral deposits in the Kickapoo River basin are restricted to limestone and dolomite which are quarried for road aggregate with shale and sandstone quarried in minor amounts for road fill material. Although a few small scattered gravel pits have been opened on the lower valley terraces, none can be considered to be a commercial operation.

GROUNDWATER

No comprehensive study of groundwater conditions in the Kickapoo River basin has been made by any Federal or State organization; therefore, a detailed evaluation of the existing conditions is not possible. This apparent lack of interest stems from the fact that groundwater has always been available in sufficient quantities and of sufficient quality to meet the area demands which have been limited to domestic, light industrial, and small municipal water supplies. Nevertheless, a reasonably accurate evaluation of the groundwater conditions can be made from available streamflow data, water-well records, and the general geology of the area.

The Kickapoo River Valley is a discharge area in the regional groundwater system. This means that the river is lower than the regional water table and receives water from the groundwater system. This relationship between the stream and the groundwater is demonstrated by numerous springs

that emanate along the valley walls of the Kickapoo River and its major tributaries and a definite increase in low-flow discharge along the course of the river. U.S. Geological Survey Hydrologic Investigations Atlas HA-390 published in 1971 shows the mean low-flow discharge, or that flow derived from groundwater, for 7 consecutive days for 2- and 10-year periods at La Farge, Gays Mills, and Steuben. The 2-year low flow is shown to increase from 75 cfs (cubic feet per second) at La Farge to 200 cfs at Gays Mills and 240 cfs at Steuben. The 10-year low flow shows a similar increase along the course of the river. Some preliminary low-flow measurements made in August 1970 in the proposed lake area showed substantial flows in the major tributaries together with a significant increase in the discharge along the course of the Kickapoo River.

Cambrian Sandstones provide nearly all of the groundwater used in the basin. The best aquifer in the basin is the Mt. Simon Sandstone. Water in this unit is confined under artesian pressure by the overlying Eau Claire and Galesville Sandstones. The Eau Claire and Galesville Sandstones have sufficient permeability to provide water for domestic supplies. The Franconia along with the overlying St. Lawrence Member of the Trempealeau Formation are considered aquitards which retard the vertical movement of water and in some areas may create a perched water table in the overlying Jordan Sandstone. The Jordan Sandstone is a good aquifer only in those areas where it has a large areal extent and an adequate recharge source. The Ordovician Prairie du Chien dolomite caps the ridges throughout most of the area. It is not a good basin-wide aquifer and must be used with care due to its shallow depth and the ease with which it can become polluted.

The alluvial sands and gravels in the Kickapoo River and tributary valleys are generally not used for water supplies although they contain a considerable amount of water. Wells in the valleys are usually developed in the Dresbach Sandstone and are often flowing wells.

The bedrock geology of the basin is composed of formations that dip to the southwest and are extremely variable in their abilities to transmit water. Therefore, groundwater movement and pressures vary considerably with depth. At many locations in the basin the water table is overlain or underlain by water bearing units which, when penetrated by wells, will supply water with a static level that is different than the water table.

Since the water level in a well at any point in the basin is dependent upon which aquifer it penetrates, it does not always represent the water table at that location. Water-well records must, therefore, be used with care and should be considered only a guide to indicate the configuration of the water table. Water-well data obtained from the U.S. Geological Survey, Wisconsin State Geological Survey, Wisconsin Department of Natural Resources, and local residents indicate that the

water table rises significantly above the level of the Kickapoo River a short distance from the river and that, in most cases, the groundwater divide between drainages is well above the floors of the drainages.

Except for cases of individual wells that have become polluted from local sources, the groundwater in the sandstone aquifers is of good quality. The low population density of the basin and lack of industry in the area have created a situation where little or no unnatural constituents have been added to the groundwater. The water has a natural high iron content that may be objectionable for some uses and is moderately hard so that softening of the water for some purposes may be desired.

SURFACE WATER

The only surface waters available in the Kickapoo River watershed are those of the main stem and tributaries. The main stem has an average flow at La Farge of 164 cfs. Minimum flow recorded there was 36 cfs. The smaller tributaries tend to drop to near zero flow during late summer. While there are no lakes in the watershed, flat pools are available on the Mississippi River located about 30 miles west of La Farge and on the Wisconsin River at a point about 45 miles southeast of La Farge. Redstone Lake and the recreation-oriented surface waters of Devils Lake and Governor Dodge State Park are located within 50 miles of the site proposed for La Farge Lake. More information pertaining to the waters is presented in the recreation section.

The Kickapoo River carries an estimated silt load of 100 acre-feet per year past La Farge. This is one of the heaviest silt loads of any river in Wisconsin. The sediment originates mostly as farmland erosion and forms extensive shifting beds along the stream bottom which have generally degraded the pools and riffles in the main stem Kickapoo River. However, most of the tributaries are usually clear.

Water supplies and water quality control in the Kickapoo River basin have been studied by the U.S. Department of Health, Education and Welfare.(1) The quality of surface waters throughout the basin was found to be sufficient for all uses and the waste discharges of communities, agriculture, and industries along the river were not exceeding the assimilative capacity of the stream at that time. However, the sewage treatment facilities at the community of Wilton were found to be inadequate and waste discharges were possibly sufficient at that time to cause such problems as low dissolved oxygen, high biological oxygen demand (BOD) and nuisance algal blooms in any impoundment as close as the proposed reservoir. The study indicated that no significant benefits to municipal or industrial water supply could be expected from an impoundment in the area.

(1) U.S. Department of Health, Education and Welfare, Water Supply and Water Quality Control Study, La Farge Reservoir Project, Kickapoo River Basin, Wisconsin. January 1965.

Little data are available on the quality of the surface waters. However, so that there will be a base line from which later evaluations and determinations can be made, a water quality data collection program is being initiated. The U.S. Geological Survey is conducting the program which will consist of monitoring the Kickapoo River at two points, one upstream of the proposed damsite and the other below. The determinations made in the upstream area will be more comprehensive and will be composed of the following parameters and performed at the prescribed frequencies:

Frequency	Parameter
Daily	Suspend sediment
	Temperature
Weekly	Conductance
	Turbidity
	pH
	Dissolved oxygen
	B.O.D.
	Coliform
Monthly	Complete chemical analysis
	Nitrogen
	Phosphorous
Quarterly	Pesticides
	Particle size
	Biota
	24-hour dissolved oxygen
Annual	Minor element

Upon completion of this initial program a continuing program will be initiated on a more limited basis after construction is completed to ascertain the impact of the lake on the water quality.

FLOOD DAMAGES

The Kickapoo Valley has experienced many damaging floods since the first European settlers arrived about 1840. Floods have become progressively more damaging as timber and natural vegetation were removed from the steep upland areas. Floods of 1907, 1935, and 1951 have generally been described as the most destructive of record. Soil erosion has been a problem of considerable gravity not only because of the dissection of upland areas but also because the erosion process furnishes a supply of sediment to be deposited by floodwaters on the flat bottomlands and in the stream channels. As a result of this aggradation of the floodplain and channel, which is estimated to be proceeding at the rate of 1 foot in 20 years, the frequency and amount of flood damages on the bottomlands are increasing.

LAND USE

The 9,700 acres of land which would become publicly owned with implementation of the selected plan are divided approximately as follows: 40 percent woodland; 25 percent open grass or pastureland; 25 percent cropland (including tame hay); 2 percent wetland, marsh, and pond. The remainder is committed to cultural uses such as farmsteads, villages, and public roads.

Most of the level land has been farmed for the last 100 years. Cropland is confined primarily to the second-terrace bottom soils and loess soils of the ridge tops and to a lesser extent to the accessible hillsides. Strip cropping is common. Because of the generally rough topography and periodic flooding, few prosperous farms are found in this vicinity.

The bottomland soils adjacent to stream courses are normally too wet to cultivate. They are marked by wet pastures and small lagoons and marshes formed in old river channels. Bottomland hardwood timber is found along the sandstone outcroppings and, in the deeper subvalleys, white pine and hemlock trees are common.

POPULATION

There are now about 24,500 people residing in Vernon County and about 17,100 in Richland County. Populations in the two counties have decreased since 1960 by 1,100 and 600, respectively. Young people tend to leave these areas, especially the Kickapoo Valley, because of job shortages. Currently, there are about 288,000 people living in the 10 Wisconsin counties which lie all or partly within a 50-mile radius of the proposed project. Madison, the largest city in that 10-county area, is about 75 miles east of La Farge.

The present population of the Kickapoo River basin is approximately 24,000 persons with 6,000 persons living in urban areas and 18,000 in rural areas. None of the communities has a population of over 1,000 persons.

Population changes in the basin proper seem to parallel those in Vernon and Richland Counties. Available data indicate that the population of the area peaked some time during the late 1930's and then declined at an increasing rate from 1940 through 1960.(1) Estimates made since 1961 indicate that this downward trend has begun to level off during the last 4 or 5 years.(2)

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(1) Census of the Population. Characteristics of the Population, Wisconsin, Vol. II, No. 7, 1940; Vol I, No. 49, 1950: Vol. I, No. 51, 1960, Census Bureau, U.S. Department of Commerce.

(2) Public Health Statistics, Wisconsin State Board of Health, January-December 1963.

ECONOMY

The economy of the Kickapoo River basin has generally been pararalleled by Vernon and Richland Counties. The basin was originally settled by persons engaged in the mining of zinc and lead. Mineral resources were gradually exhausted and mining became uneconomical; therefore, most people turned to farming. In 1940 agriculture accounted for 58 percent of employment in the area. This figure decreased to 38 percent by 1960. The 1970 average annual farm employment as a percentage of total employment was 32.8 percent in Richland County and 40.2 percent in Vernon County. The number of farms in Richland and Vernon Counties decreased from 5,108 in 1959 to 4,018 in 1969 and the average size of farms in the same area increased from 166.7 acres to 184.8 acres. The changes in agricultural employment and size and number of farms are in keeping with a national trend of farm consolidation caused by advances in farm technology. However, total acreage of farmland in Vernon and Richland Counties decreased by about 4 percent between 1959 and 1969.

Farms within the area that would be directly affected by the development of La Farge Lake are less productive than farms in other parts of Vernon and Richland Counties because of rough topography and regular flooding. Tobacco and dairy products are the main cash crops. Corn, oats, and hay are also produced as silage for dairy herds. Many farmers in the Kickapoo River basin who also hold jobs off their farms have shifted from dairy to beef cattle because of the reduced labor requirements.

The prospect of a reservoir being constructed at La Farge has also had depressing effects upon agriculture in the Kickapoo River basin because much of the required lands have already been purchased and the people have moved away.

Tourist uses of the area contribute to the economy.

La Farge obtains about 90 percent of its electric power from the Vernon County Electric Cooperative in Genoa, Wisconsin. La Farge also operates a small hydro and diesel powered electric generating plant on a standby basis. Because of a structural defect in the hydroelectric dam, reservoir storage is limited to approximately one half of design capacity.

TRANSPORTATION

The Kickapoo River is not commercially navigable and small pleasure craft such as canoes constitute the only waterway traffic in the basin. La Crosse (50 miles northwest of La Farge by highway) is served by one commercial airline, and the communities of Monroe, Cassville, Prairie du Chien, and Richland Center have noncommercial airports. There is no

commercial air traffic within the Kickapoo River basin. The Chicago and North Western Railway serves the villages of Norwalk and Wilton in the northern portion of the basin. The closest railroad connection to La Farge is a branch of the Chicago, Milwaukee, St. Paul and Pacific Railroad which serves Viroqua, about 16 miles to the west. U.S. Highways 14 and 61 cross the basin, and Interstate Routes 90 and 94, when completed, will pass just north and west of the basin. In addition to these routes, several State and county roads are important. Wisconsin State Highway 131 (Federal-Aid Secondary System 327) follows the Kickapoo River main stem from the mouth to the headwaters. Part of this road was nominated by the Wisconsin State Highway Commission as part of the National Scenic Roads Study prepared by the President's Council on Recreation and Natural Beauty. This particular scenic route was designated as Scenic Route 62-1. Of the total 57 miles, 9.6 miles of Highway 131 between La Farge and County Road F south of Ontario are within the area which would be inundated with the implementation of the selected plan.

The approximately 35 miles of State Highway 131 between Readstown and Ontario is a scenic and relaxing travel route; however, the pavement and shoulders are narrow and design (geometrics) does not meet current State highway specifications.

AIR QUALITY

At present the quality of the air in the Kickapoo River Valley is quite good because of the limited amount of manufacturing in the area. Probably the greatest source of pollution is from vehicular emissions. No studies are available to confirm this. Possible sources of industrial pollution are the lumber mills, creameries, cattle producers, and a few other small industries in the area. Other possible sources of air pollutants in the valley are sewage disposal plants, backyard burning, solid waste disposal areas, and dust from gravel roads and open fields, stirred up by passing traffic and the wind. One other possible source of air pollutants, although a remote possibility, is the atomic energy generating station located 30 miles to the west at Genoa.

Climatic conditions leading to temperature inversions which can prevent noxious gases from freely mixing and dissipating in the atmosphere may occur fairly often in the Kickapoo basin on calm, clear nights and during stagnant high pressure situations. The climate of the inner valley surrounding the river creates very different conditions from those in less protected, open sites, i.e., on south and east facing slopes, and on the upland. This microclimate is 10° to 20° cooler, more moist, and less subject to the diurnal and seasonal fluctuations which characterize open locations.

Temperature and moisture are influenced by the evaporation of water from rock cliffs on which water vapor has condensed and from seepage through the porous rock strata. The protection of the cliffs and steep slopes, and the moderating effect due to the high specific heat of water also tend to damp diurnal and seasonal fluctuations. When warmer, still air is superimposed upon this generally cooler air, these inversion conditions may hold airborne pollutants where humans live, and at concentrations which are harmful to them, to other animal life, and to vegetation.

The State of Wisconsin Air Pollution Control Laws are administered by the Division of Environmental Protection, Department of Natural Resources. The basic laws are enumerated in Chapter 83, Laws of 1967. Wisconsin Ambient Air Quality Standards were adopted by the State on 9 July 1970. The air standards are definitions of the characteristics of ambient air quality which, in terms of present day knowledge, need to be maintained in order to adequately protect the public health and welfare and our environment from adverse effects of air pollution.

Because of variation in population, transportation, and industrial densities, in addition to variation in terrain and meteorology, equal air quality may not be achieved throughout a region or area. The Wisconsin standards reflect current scientific data. They are subject to review as knowledge of the effects of air pollution on health, plant and animal life, property, visibility, and our environment increases.

Nothing in the Wisconsin Air Pollution Control Rules or in Chapter 83, Laws of 1967, prohibits a county or local jurisdiction from adopting more restrictive ordinances where local conditions indicate a need. It is the policy of the Wisconsin Department of Natural Resources to seek reasonable uniformity among local air pollution control ordinances in order to make the statewide comprehensive program more effective and less complicated for all persons concerned.

At present the State Air Pollution Control Laws of Wisconsin do not prohibit the burning of small amounts of rubbish or vegetative wastes by private individuals or agencies of government. Solid waste disposal operations are licensed by special burning permits. Emissions of particulates, gases, liquids (mists), odors, and motor vehicles are all governed by the State laws.

SOLID WASTE

Solid waste, as defined by the State of Wisconsin, is "garbage, refuse and all other discarded or salvageable material, including waste material resulting from industrial, commercial and agricultural operations and from domestic use and public service activities, but does not include solid or dissolved material in waste water effluents or other common water pollutants." Regulations governing the disposal of solid waste in

the State of Wisconsin are enforced by the Solid Waste Disposal Section of the Wisconsin Department of Natural Resources. Solid waste in the area of the proposed project consists of domestic and farm items, wrecked automobiles, and waste from sawmills. Some of the latter is found in the Kickapoo River.

The village of Ontario at the upstream end of the proposed lake presently operates a solid waste disposal site with an area of 1 acre located in the N 1/2, SW 1/4, sec 34, T 15 N, R 2 W, Sheldon Township, in Monroe County. The use and maintenance of the site are controlled by the village. The site is located on high ground at approximate elevation 1020.

The residents of Rockton use a newly opened site located at approximate elevation 940 in the NE 1/4, NW 1/4, sec 34, T 14 N, R 2 W, Whitestown Township in Vernon County. A formerly used site in the SE 1/4, NW 1/4, sec 28, just north of the present site, has been abandoned and covered.

The village of La Farge presently uses a disposal site located in the SE 1/4, SW 1/4, sec 33, T 13 N, R 2 W, Stark Township, in Vernon County. The site is 2 acres in size and located on high ground at approximate elevation 1200. A former site located on the Kickapoo River floodplain in section 20 northwest of La Farge has been abandoned and covered.

The villages of Viola, Soldiers Grove, and Steuben operate their own disposal sites. The villages of Readstown and Wauzeka are serviced by the Kickapoo Sanitation Company that operates a disposal site in sec 3, T 9 N, R 4 W, Bell Township, in Crawford County. Disposal of wrecked automobiles is handled primarily by commercial salvage yards at Viola, Viroqua, Kendall, and La Crosse. Farmers in the area dispose of solid waste on their own property or at one of the village sites. Disposal of waste products from sawmills is generally handled by dumping in low areas at the mill site.

PUBLIC HEALTH

No notable public health problems have resulted from past floods. However, the potential for coliform contamination of wells, vermin production in flood debris, and mosquito breeding in urban areas does remain relatively high because of frequent flooding

RECREATION RESOURCES

The scope of recreational activities and opportunities in the Kickapoo River Valley is somewhat limited. At present, the main activities are canoeing, sight-seeing and pleasure driving, picnicking,

camping, and hunting of deer and upland game. Canoeing, bicycling, snowmobiling, and camping are rapidly growing activities in the area. These recreational activities occur at village parks in La Farge and in Rockton, at Wildcat Mountain State Park, and on the Kickapoo River. During the winter months the entire Kickapoo Valley offers snowmobiling, skiing at Gays Mills, and skating ponds throughout the valley.

Canoeing has fast become a popular leisure time activity on the Kickapoo River due to a combination of factors including increased mobility and leisure time of recreation users, the promotion of the river's scenic attributes by such organizations as the Kickapoo Valley Association and Sierra Club, and the recent controversy and resultant publicity over the proposed La Farge Lake project. The Kickapoo River Valley Association reports that canoe rentals by its members have increased approximately 20 times since 1967. Annual canoe days (rental of one canoe for 2 hours = 1 canoe day) for the past 5 years are shown below:

1971	4,000 (estimated)
1970	2,700
1969	1,800
1968	600
1967	200

The Kickapoo River is an ideal canoeing river for canoeists of all abilities.

There is no white water on the river but there are a number of easily negotiated rapids. Much of the river can be waded, especially during the summer months. Canoeing is currently limited to the reach between Wilton and its confluence with the Wisconsin River. The river is generally quite shallow, particularly above Ontario. The Monroe County Director of Natural Resources has proposed clearing the river between Ontario and Wilton of obstructing stones and snags to facilitate canoeing. This would be done informally by local canoeing and conservation groups and it is expected that such an operation would not have any significant impact on the environment of this reach of the river. The clearing of this reach of the river would help compensate somewhat for the losses of river canoeing opportunities that would take place with the construction of La Farge Lake, although it is likely the clearing would be done whether or not the lake was constructed. The scenery in this stretch is beautiful, as is the stretch between Ontario and La Farge. Opportunities abound while canoeing the Kickapoo River to explore flowers, trees, caves, ravines, valleys, and wild game and their habitat. Wildlife to be seen include many species of birds, deer, fox, rabbits, squirrels, raccoon, muskrat, mink, opossum,

beaver, ducks, skunk, and woodchuck. Several species of fish are to be found in the Kickapoo River. Canoe rental and shuttle service in the proposed La Farge Lake area are available at La Farge, Soldiers Grove, and Ontario. The concessionaires provide canoes, including necessary equipment. Some concessionaires also provide camping and picnicking sites and landings along the river. The canoe concessionaires in the area are currently expanding their facilities in the reach of the river between La Farge and Wauzeka. However, more facilities presently exist above the proposed project site than below.

Bicycling is also becoming a popular recreational activity in the Kickapoo Valley. Gently rolling roadways, such as State Highway 131, provide an interesting bicycle route through the area. A major drawback of State Highway 131 is its absence of safe, firm shoulders, thereby endangering the cyclist and the motorist. Presently the lack of defined bicycle tour routes utilizing the road system tends to degrade the value of this recreational experience.

Hunting and fishing pressures in the area of the Kickapoo River are minimal at this time due to the lack of suitable game numbers. Deer, fox, and squirrel are the primary targets of hunters' rifles. Some trout fishing occurs in the tributaries of the Kickapoo. More information on hunting and fishing is presented in the sections on fish and wildlife.

Sight-seeing and pleasure driving probably comprise the majority of the recreational activity in the valley. Stands of white pine and hemlock, intermixed with rock outcroppings, combined with a rural farming atmosphere, provide a most pleasing setting for an automobile sight-seeing trip. The aesthetic features of the area, including the rolling, winding roads and numerous river crossings on old iron truss bridges, serve to transport the visitor into an environment devoid of the everyday hustle and bustle of life so common in the large metropolitan areas.

Picnicking and camping opportunities exist throughout the Kickapoo region, although to a very limited degree and of a quality less than the modern day camper is accustomed to. The lack of quality facilities capable of providing a quality experience is due primarily to the limitations in the resource base. Primitive campsites exist along the Kickapoo River and at Rockton. A state-operated campground is available at Wildcat Mountain State Park and provides the amenities a State park visitor is accustomed to. Numerous private camps such as church and Boy Scout camps are located in the Kickapoo River region. According to local sources, these camps provide many opportunities for youngsters to experience the out-of-doors.

No statistical data are available on the present day usage of the recreational facilities in the Kickapoo River region. Vernon County is currently preparing an Outdoor Recreation Plan which is in a late stage of first draft completion. Richland County, to the south, has prepared its Outdoor Recreation Plan and recognizes the need for water area in this section of the State to accommodate the future demands of recreation users. The plan also notes a serious lack of recreational facilities in this region.

r recreational improvements and items of interest currently
ıce within 50 miles of the proposed La Farge Lake include one
est, one national wildlife refuge, three county forests, nine
ts in Wisconsin and two in Minnesota, and numerous roadside
s, historical markers, and lookout towers. The most signifi-
eation resource within 50 miles of the proposed La Farge Lake
ssissippi River. Associated with the Mississippi River is
sal to establish an Upper Mississippi River National Recreation
ıding from Minneapolis to St. Louis, Missouri. At the present
proposal is being reviewed. Pending the outcome of the re-
roposal will be submitted to Congress to authorize the estab-
of such an area and to provide funds for the development of
l master plan. Other water-based recreation resources within
of the proposed La Farge Lake are the Wisconsin River and
k and Petenwell Flowages.

ICAL AND HISTORICAL

ıeed for archaeological and historical investigation was recog-
he early stages of the study. In November 1958, the National
ice was requested to make investigations of the proposed lake
report, dated 3 November 1961, prepared by the Wisconsin State
l Society under the direction of the National Park Service,
e archaeological findings and indicated the need for addi-
restigations. The preliminary findings are contained in the
rt (see appendix II). Since the initial work, additional
ions were made in 1963, 1964, and 1970. It is the opinion
storical Society that about three more seasons of investigation
sary before the entire proposed lake area is covered sufficiently
ındation. Discussions have been held with the National Park
ıich has agreed to provide the necessary funding for the re-
restigations.

ıvestigation of the area by the Wisconsin State Historical
ıdicates that there are no known features of historical signifi-
hin the project boundaries or in the immediate surrounding area.

L VEGETATION

egetation of the Kickapoo basin is complicated because of
atures that are peculiar to the Driftless Area, disturbance by
vity during the past 100 years, and the presence of unique plants
associations which are the focus of much scientific and aesthetic
The project area presently consists of approximately 40 percent
25 percent cropland, 25 percent pasture, and 2 percent wetlands
ırshes and ponds. The remainder is occupied by cultural develop-
as urbanization, roads, and farmsteads.

It is very difficult to make a general description of vegetation in the area and no definitive study has been made. However, some Patterns do exist, and the following account is intended to generally describe the most important plant communities, discuss the status of those plants which have been identified up to the time of this final environmental impact statement as unique within the area, and explain the extent to which vegetation would be examined during postauthorization studies.

In terms of major terrestrial vegetation forms, the Kickapoo basin is located within the temperate Deciduous Forest Biome of Eastern North America. The dominant life form of the biome and of the Kickapoo basin is the broad-leaved, deciduous tree. Area reconnaissance, literature surveyed to date, and interviews with botanical and conservation personnel indicate that the vegetation may be discussed in terms of the subdivisions of the biome as described in the following paragraphs.

Bottomland Hardwood Forests are found on the floodplain along the river and are subject to periodic inundation. Dominant trees include silver maple (Acer saccharinum), swamp white oak (Quercus bicolar), black ash (Fraxinus nigra), red ash (F. pensylvanica), cottonwood, (Populus deltoides), American elm (Ulmus americana), and several species of willow (Salix spp.). The smaller trees and understory plants include hackberry (Celtis occidentalis), prickly ash (Xanthoxylum americanum), and red osier dogwood (Cornus stolonifera).

Fish and wildlife biologists as well as naturalists and other conservation-oriented persons generally recognize this kind of forest as being highly productive of both game and nongame species of wildlife. Frequent and severe flooding in the Kickapoo Valley has had a paradoxical impact upon this type of forest. In the first place, agricultural development has been precluded from such areas because of the inundations and the result has been a substantial contribution toward preservation of the bottomland hardwoods. Secondly, the flooding has been of sufficient frequency and severity to inhibit production of certain wildlife species by inundating nests, burrows, and cover plants. It is generally recognized that flooding, which impacts adversely upon some plant species and beneficially upon others, is an important ecological factor which contributes to the maintenance of Bottomland Hardwoods.

Marshy areas are present in old oxbow meanders, at some springy seepage areas along cliff bases, and along some of the feeder streams. Sedges (Carex spp.) and various grasses or cattail (Typha spp.) are generally the dominant vegetation in these marshes.

Where woodlands have not been cleared from the better drained, second-terrace bottomlands, they generally tend toward white oak (Quercus alba), white birch (Betula alba), and white pine (Pinus strobus). Much of this and the following type of woodland has been cleared for cropland or heavily grazed.

Lower slopes with north and east facing exposures are characteristically wooded with hemlock (Tsuga canadensis), sugar maple (Acer saccharum), yellow birch (Betula lutea), and white pine (Pinus strobus).

Higher and steeper slopes with north and east facing exposures tend toward sugar maple (Acer saccharum), basswood (Tilia americana), butternut (Junglaus cineria), and black ash (Fraxinus nigra).

Forests of black oak (Quercus velutina), white oak (Quercus alba), and hickory (Carya cordiformes) generally occupy the drier uplands and slopes with south and west facing exposures.

A series of sandstone cliffs which occurs along the Kickapoo River supports a plant community which is significant both scientifically and aesthetically.

Where the cliffs are topped by hemlock, sugar maple, yellow birch, and white pine, the faces tend to be cool, moist, and shaded. The vertical surfaces of such cliffs tend to be covered by a carpet-like layer of liverworts, mosses, and ferns. The relatively common thallose liverworts (Conocephalum conicum) and Marchantia polymorpha), which have flat, ribbon-like body forms, have been reported as well as sword moss (Bryoxiphium sp.) and luminous moss (Schistostega sp.). The sword moss is circumpolar in its distribution but is rare and widely scattered. The luminous moss, which is more specialized in its habitat requirements, is even rarer. A variety of ferns occurs along the cliffs including slender cliff-brake fern (Cryptogramma stelleri), oak fern (Dryopteris disjuncta), long beach fern (Dryopteris phegopteris), and others. Among the flowering plants which are characteristic of these sandstone ledges and faces are the arctic or bird's-eye primrose (Primula mistassinica) and the monkshood (Aconitum noveboracense). This particular primrose, which blooms from the middle of May into June in the Kickapoo basin, is distributed from southern Labrador to eastern Alaska and south to Newfoundland, Nova Scotia, central Maine, northern Vermont, northern Michigan, Wisconsin, central Iowa, southern Alberta, and southern British Columbia. However, the species is generally considered rare in Wisconsin and the specimens which occur in the Driftless Area are widely separated (disjunct) from other populations of Primula mistassinica. The monkshood which occurs in the Kickapoo Valley is also known from southeast New York to Wisconsin and Iowa; however, the species has not been reported from its other 16 known stations in such abundance as has been documented from the Kickapoo basin. Two scientific areas in Wisconsin, Loddes Mill Bluff and Parfrey's Glen, have been established to protect this monkshood. The populations from each of these preserves are reported to number several dozen plants. However, because of the current increase in the number of visitors, their survival is precarious. Several other flowering plants which are generally regarded as rare or of otherwise special interest occur in great numbers upon sandstone cliffs of the Kickapoo basin. The saxifrages, Saxifraga forbesii (included with the species, S. Pensylvanica by some botanists) and Sullivantia renifolia (the species, S. sullivantia of Iowa is included according to some botanists), are generally rare in Wisconsin but each has been reported from other stations in the Driftless Area. Saxifraga forbesii, which is generally recognized as a distinct species, has been reported only from southern Illinois and the Driftless Area. The species is widely distributed within the Driftless Area. The Sullivantia renifolia is also generally recognized as distinct.

It is distributed from southwest Wisconsin and southeast Minnesota to northwest Illinois and northeast Missouri. The cliff goldenrod (Solidago sciaphila) and the death cama (Zigadenus elegans) both occur in other parts of the United States but are relatively abundant in the Driftless Area and especially in the Kickapoo Valley; however, these species are generally regarded as rare in the remainder of Wisconsin. Two cinquefoils, the shrubby (Potentilla fruticosa) and the three-toothed (P. tridentata), are known from several other stations in the Driftless Area and other parts of the United States and Canada, but they are generally regarded as rare in the remainder of Wisconsin. The small purple-fringed orchid (Habenaria psychodes) and Hooker's orchid (Habenaria hookeri), which also occur in the Kickapoo basin, are rare but are known from several parts of the Driftless Area and other parts of the United States. Neither of these orchids is especially rare in southern Wisconsin. The bristly sarsaparilla (Aralia hispida) which is distributed from Canada to Indiana, Illinois, and Minnesota, is regarded as somewhat rare at latitudes as far south as the Kickapoo basin. The trailing arbutus (Epigaea repens) occurs from Florida and Mississippi north to New England, Pennsylvania, and New York. It is not common in Wisconsin but is known from several parts of the Driftless Area. The bluebell or Virginia cowslip (Mertensia virginica) is not rare but is one of the most aesthetically pleasing flowers of the basin.

Approximate locations and elevations of some of the unique plant species have been mapped and recorded for future reference. A tabulated summary of this information is presented in appendix III.

It is realized that the vegetation account presented here is inadequate with respect to both the general community types and the status of rare, disjunct, or otherwise unique species and communities. However, at the time of completing this impact statement, the winter season and dormant stage of most vegetation are not conducive to further field reconnaissance. However, the ecology of the Kickapoo basin will be investigated in detail during appropriate seasons to establish the status of all unique organisms and to fully develop any mitigation measures which would be necessary due to construction of the proposed reservoir and recreation developments.

A provisional list of the flora of the Kickapoo basin is presented in appendix III.

It is recognized that other government agencies and interested private groups are researching vegetation as well as other biota in the Kickapoo basin. Any relevant information which becomes available as a result of such studies and which would concern the selected plan will be incorporated into future impact statement revisions and the planning procedures.

WILDLIFE

The Kickapoo watershed was once a wildlife paradise with abundant elk, bear, wolf, wild turkey, and pinnated grouse. Early settlers supplemented their income by trapping and market hunting. A century of land mismanagement subsequently left much of the watershed in a poor condition for wildlife. Overpasturing and woodland burning were common, accepted practices, and general land denudation resulted in a lack of winter wildlife cover and inferior nesting habitat.

As of 1960, less than 10 percent of the watershed remained in ungrazed woodlands; however, the general trend of land abuse has been stopped. Protection of native vegetation and improved agricultural practices are being promoted by the U.S. Department of Agriculture and are gradually being accepted.

The project area is now producing much less wildlife, both game and nongame, than it is capable of producing under a sound land-use program. Due to insufficient natural foods and cover, the wildlife population in this area is low to medium; however, wooded tracts support considerable numbers of deer, ruffed grouse, squirrels, and other wildlife.

BIG GAME

The white-tailed deer is the only big game animal in the project area. Black bears were present in the watershed until about 1938, but since then only occasional transient animals have been reported.

The present deer population within the project area is much smaller than that of former years and small compared to populations currently found on the better deer range in Wisconsin. Over the years, the lack of woodland understory, intensive pasturing, and increasing human population resulted in a gradual decline in deer numbers. Deer hunting seasons were abolished. Recent changes in land-use practices, especially the introduction of sound forest management measures, have stemmed the downward trend of the deer population. The deer herd has recovered somewhat and is now of sufficient size to support some hunting. A few deer are taken annually by local hunters.

UPLAND GAME

Except for the rather small acreage of protected woodlands and the remnant marsh areas, the reservoir site lacks adequate, good quality upland game habitat. Winter cover and food are especially limited and spring floods take a heavy toll of ground nests, dens, and young.

Ruffed grouse and bobwhite quail, both native game birds, are produced. Neither of these birds is abundant, but in some years they do afford excellent hunting. Grouse occupy the protected wooded slopes and the brushy

fringe areas adjacent to hillside cultivated fields. Although they are largely unaffected by floods, their preferred habitat of mixed hardwoods interspersed with grassy openings and conifer stands is limited. Quail are usually found in the bottomlands where spring floods have a devastating effect on their nesting habitat. Since the project area is located on the northern fringe of their natural range, severe winters frequently take a serious toll of the quail populations.

Pheasants were first introduced in the Kickapoo River valley in 1929. Like quail, they utilize the edge cover of the bottomlands. Winter cover seems sufficient but mowing, burning, and flooding of nesting habitat have combined to limit production. The pheasant population is low and the annual harvest is small.

The cottontail rabbit is the most abundant upland game animal and supports the heaviest hunting pressure. Although they are adversely affected by floods, their reproductive potential insures a fairly high population. Other small game animals include foxes, gray and fox squirrels, raccoons, and opossums. These arboreal species are less affected by floods than the above species, and improved forest management measures in recent years have resulted in a slight population increase.

Almost all of the hunters are from the farms and small communities in the immediate area and hunting pressure on all upland game species combined is not high.

FUR ANIMALS

Red and gray foxes, weasels, and skunks are fairly common but few are trapped. Coyotes have been occasionally reported. Fox and "coon" hunting are popular sports. Foxes at one time received heavy hunting pressure because of the bounty payments available.

Muskrats, mink, and beaver are not as common as the terrestrial fur animals. Muskrats reside primarily along the main stem where den sites are available. They are affected adversely by a scarcity of aquatic plant food, flash floods, and rapidly receding water levels. Those which occasionally build houses in the small remaining marshes seldom survive the winters due to inadequate water depths. Mink are common but not plentiful. They are less affected by fluctuating streamflows since they find suitable habitat around spring holes and flowing feeder streams. Beaver are increasing; however, their proclivity for building dams in stream courses is usually not a desirable characteristic in a farm area. Aquatic fur animal pelts command a higher price than those of the terrestrial furbearers and these animals receive more intensive trapping pressure.

WATERFOWL

A few ducks have always nested in the watershed, and many years ago the marshy areas along the river attracted large numbers of migrating ducks and geese. Agricultural development has destroyed most of the marshes. Today, migratory waterfowl bypass the area for more preferred habitat along the Mississippi River. Small flights utilize the valley only when flooded bottomlands are available. Wood ducks occasionally nest in the valley timber, but the area is not prime nesting habitat. Hunting opportunities are confined to sporadic "jump shooting" along the main stem.

SMALL GAME

The harvest of small game per acre in the Kickapoo Valley exceeds the State average and the harvest of big game is slightly below the State average. The Wisconsin Department of Natural Resources recognizes, within the State, seven planning zones which are roughly equal in area. The proposed La Farge Lake would lie within the most southwestern of these zones.

For the period 1950 to 1960, the average annual percentages of the State's man-days of hunting occurring in the southwest region were:

Deer	5.5 percent
Small game	19 percent
Waterfowl	11 percent

This represented 14 percent of all hunting in the State. For the same period, the average annual small game harvest was 0.27 animal per acre compared to 0.15 for the entire State. The big game harvest was 1.28 animals per square mile of range, compared to 1.92 for all of Wisconsin. About 2 percent of the big game hunting trips were by nonresidents. These figures are considered applicable to the Kickapoo watershed.

NONGAME WILDLIFE

Numerous nongame wildlife species, especially songbirds, occur within the Kickapoo basin. Many recreation visitors to the area are attracted, at least in part, by the prospects of watching wildlife. A provisional list of breeding birds of the Kickapoo basin is included in appendix III.

As of the time of this final environmental impact statement, it is not possible to survey the reptiles, amphibians, and invertebrates of the Kickapoo Valley because of the winter season. Information on these groups will be compiled during postauthorization studies. Any information which becomes available through these studies or through the efforts of other government agencies or private organizations will be incorporated in future statement revisions and will be considered in the project development, if appropriate.

FISH

The surface waters of southern Wisconsin, including the tributaries of the Kickapoo River, support a fertile and highly productive fishery offering the highest catch per fisherman-hour when compared to northern and central areas of the State. Southwest Wisconsin, including the counties of La Crosse, Monroe, Vernon, Crawford, Richland, Sauk, Grant, Iowa, Lafayette, and Green, contains about 4 percent or 46,400 surface acres of the State's surface water which includes 11 percent of the trout waters and 16 percent of the smallmouth bass waters. However, the Kickapoo River main stem is not especially attractive to fisherman because it currently supports a high proportion of rough fish, especially carp. Fishing pressure in the main stem Kickapoo River is presently too light to warrant creel census surveys according to the State Division of Fish, Game, and Enforcement. Numbers of individual resident and nonresident fishing licenses sold in Vernon County are tabulated below for 1965 and 1970, according to data from the license section of the Wisconsin Department of Natural Resources:

Year	Number of resident licenses	Number of non-resident licenses
1965	3,191	1,363
1970	2,584	1,703

The main stem of the Kickapoo River once provided an important bass, catfish, and northern pike fishery which facilitated colonization of the area. However, agricultural and urban developments have resulted in terrestrial erosion, stream turbidity, and extensive beds of shifting sand and silt that cover much of the stream bottom. Aquatic vegetation is sparse. There is little production of aquatic invertebrate animals. Streambank cover necessary to keep water temperatures within the tolerance limit for trout is now insufficient.

The Wisconsin Department of Natural Resources has recently surveyed the fishes of the main stem Kickapoo River between Rockton and La Farge. The fish fauna consists mainly of forage or rough species. The sucker (Catostomidae) and minnow (Cyprinidae) families are represented abundantly including:

Northern redhorse (Moxostoma aureoleum)
Golden redhorse (Moxostoma erythrurum)
White sucker (Catostomus commersoni)
Carp (Cyprinus carpio)
Stone roller minnow (Campostoma anomalum)
Blacknose dace (Rynichthip atratulus)
Sucker mouth minnow (Phenacobius nurabilis)
Creek chub (Semotilus atromacutatus)
Bluntnose minnow (Hyborynchus notatus)
Common shiner (Notropis cornutus)

Game fish were found to be scarce in the main stem Kickapoo River. A few trout including rainbows (Salmo gairdneri) and browns (Salmo trutta) apparently drift into the river from tributary streams, and a few warmouth bass (Chaenobryttus coronarius) are also present. A memorandum of 7 June 1971 from the Wisconsin Department of Natural Resources, which deals with fishery resources in the Kickapoo River, is included in appendix III.

The Kickapoo River above Rockton and such tributary streams as Billings, Warner, Indian, Weister, and Jug Creeks are popular with trout fishermen. Local rod and gun clubs stock approximately 50,000 brown trout fingerlings into the area annually. The Kickapoo River within the proposed Suckers are taken during their spring spawning runs and baitfish are captured for bait shops along the Mississippi River. Much of the fishing is done by children with cane poles and droplines.

Past fishery management of the Kickapoo River between Ontario and La Farge has been minimal.

3. ENVIRONMENTAL IMPACT OF THE PROPOSED ACTION

PHYSIOGRAPHY

The creation of the proposed dam and lake would alter the physiopgraphy of the basin. This alteration would consist of local changes in the topography at the damsite, and the creation of a lake with a normal pool elevation of 840.0 which would inundate the valley from the dam upstream about 12 miles to the vicinity of Wildcat Mountain State Park. The floodplain in most of the lake area would be submerged as well as some of the low rock terraces bordering the river in the area downstream of Rockton. From the area of Rockton northward the walls of the rock terraces would stand above normal lake level. The normal pool would be confined in the river channel in the area of Wildcat Mountain State Park. During times of flood, the lake level would rise and inundate larger areas. The changes in lake levels would affect valleys of the major tributaries, Weister Creek, Jug Creek, Warner Creek, Billings Creek, and the lowlands at the upstream end of the conservation pool on the Kickapoo River.

Fill (borrow) materials for the dam would be taken principally from three areas which correspond approximately to areas B, B-1, and C on plate 2. An additional area, which corresponds approximately to area A on plate 2, is also being considered as a source of fill. All borrow areas used during project construction would be graded, planted, and landscaped to avoid erosion and adverse aesthetic impacts.

An estimated 100 acre-feet per year of suspended sediments would be deposited at the mouths of the major tributaries and in the upstream pool area where the flowing streams join the lake. Deltas would eventually be built at and above normal lake level and encroach into the lake.

Shoreline erosion would occur in some areas due to wave action. The long, sinuous shape of the lake would preclude the buildup of destructive waves in the upstream three fourths of the lake. Therefore, the main area of erosive wave action would occur within 3 miles of the dam. The west shoreline in this area would be protected from the prevailing winds and would consist of steep valley slopes with bedrock at or near the surface. Thus, erosion should not be a problem. The clayey and sandy soils of the east shoreline would be subject to erosion by wave action.

A low vertical face would probably be cut into the shore. It should be expected that the east shoreline for a distance of 1.5 miles upstream of the dam would suffer some erosion and would recede for a few years and eventually stabilize as a low vertical bank.

The water discharging from the reservoir would be relatively clear and would have a potential for greater streambank erosion than does the present river. However, no significant increase in streambank erosion is expected because the frequency and severity of flood flows which occur under present conditions would be reduced.

GEOLOGY

Items to be considered in the evaluation of the impact of the proposed dam and lake on the geology of the area are as follows:

a. Effect on mineral resources.

b. Inundation of unique geologic features.

c. Creation of geologic hazards.

d. The effect of the lake on the regional groundwater system.

The proposed dam and lake would have no significant effect on known mineral resources. The construction of the dam would consume considerable quantities of clay, cement, concrete aggregate, and rock for stone protection. The clay and rock for stone protection are available locally in unlimited quantities so that the amount consumed would be insignificant. The required cement and concrete aggregate would be supplied from commerial sources outside of the Kickapoo basin. No existing or potential commercial mineral deposits are known to occur in the lake area; therefore, inundation of that area would have no effect on present or future mineral production.

Scenic sandstone exposures border the river intermittently throughout the lake area and constitute the only unique geologic feature that would be flooded. The permanent pool would cover some of the lower exposures completely. It is estimated that 40 to 50 percent of the sandstone presently exposed would stand above the normal pool level. If the lake should ever reach the maximum possible level, nearly all of the exposures would be temporarily submerged.

The creation of an artificial lake carries with it the potential for the simultaneous creation of geologic hazards. These hazards may occur as local earthquakes, earth slides in the lake area, leakage from the lake, earth slides outside of the lake area caused by seepage from the lake, and the saturation of surface areas due to seepage from the lake or changes in the groundwater flow systems.

Earthquakes, or more specifically earth tremors, induced or triggered by the filling of artificial lakes have been reported and are attributed to the release of stored stress due to the weight of the water, the lubrication of planes of weakness, or the buildup of fluid pressure along major discontinuities. The reported cases were associated with deep reservoirs in unstable areas. The proposed shallow lake and the stable regional setting do not constitute a potentially dangerous combination.

Earth slides in a lake that can cause dangerous waves that may overtop the dam or create sudden, high fluctuations along the shoreline must be considered in the evaluation of geologic hazards. Such slides are caused by failure of the rimrock after saturation along major discontinuities such as faults or by the saturation of loose material when lake levels are high followed by a rapid drop in lake level. The facts that bedrock is close to the surface throughout the lake area and major structural irregularities are uncommon to the area indicate that any slides in the lake area would be small in size, infrequent in occurrence, and not hazardous.

Leakage from a lake can be considered harmful or hazardous when it occurs in large uncontrolled quantities. These conditions are generally considered most likely to occur with off-channel reservoirs, a lake contained by narrow drainage divides, lakes located in fissured limestone country, the presence of large buried channels, or the presence of fissures under the dam which could result in damage to or loss of the dam. Investigations for the proposed project indicate that the only area where leakage may occur is at the actual dam and spillway sites. The design of the dam calls for a monitoring system to detect leakage so that corrective measures could be taken before it would become critical.

The possibility of earth slides outside of the lake area caused by seepage from the lake has been considered, but no critical area has been identified.

GROUNDWATER

Items to be considered in the evaluation of the impact of the proposed dam and lake on the groundwater system of the area are as follows:

a. Adverse changes in water table levels.

b. Effect on artesian pressures.

c. Contamination of the groundwater.

d. Creation of wet areas due to seepage.

e. Creation of unstable areas due to seepage.

The present water levels in the Kickapoo River and its major tributaries constitute the base level or low point in the groundwater system. The permanent water level at elevation 840 proposed for the La Farge Lake would raise this base level approximately 45 feet at the dam. This increase would diminish upstream to the north end of the lake.

Temporary retention of floodwaters would, of course, raise the lake to higher levels; but it is the permanent pool that would have the greatest and most noticeable effect on the regional water table. Available water-well data indicate the regional water table to be above the maximum possible lake level; therefore, the lake should remain the low point in the regional water table and should have no adverse effect on the level of the regional water table.

In evaluating the impact of the lake on the water table, it is advisable to consider possible areas where adverse local changes in the water table may occur. A study of topographic maps of the area indicates that local areas to be considered are the villages of La Farge, Rockton, and Ontario, as well as an occasional individual dwelling upstream of the Government purchase line. The possible detrimental effects in these areas are considered to be limited to the flooding of existing basements and the preclusion of building new homes with basements. The creation of wet areas at ground surface adjacent to the lake is not considered likely due to the steepness of the terrain.

An adverse rise in the water table at La Farge due to unconfined seepage from the lake is unlikely due to the distance between the village and the lake and the fact that the village is separated from the lake by the Kickapoo River channel which should serve to cut off any excessive seepage. Direct transmission of water from the lake to La Farge through confined sandstone beds is unlikely due to a relatively low permeability of the sandstone units involved and the fact that the sandstone is open to the eroded river channel between the lake and the village. Thus, the necessary confinement is lacking. Another possible cause of a detrimental rise in the water table at La Farge to be considered is a shift in the groundwater divide between the lake and Bear Creek. Available water-well data show that the water table in this divide area is above elevation 900. It is not anticipated that water at this level would be affected by the lake; therefore, no shift in the divide should occur. Although the limited available data indicate that no adverse groundwater level changes would occur in La Farge, it cannot be accepted as absolutely conclusive. Consideration is, therefore, being given to installing a system of observation wells to study the effects of the lake at the village.

The village of Rockton would be on the shoreline of the proposed lake. Groundwater levels in the village should be considered the same as the level of the lake. The Government plans to purchase the land below approximate elevation 875. Therefore, the only time that the water table would reach a harmful level would be on rare occasions when the lake level would exceed elevation 865.

The entire village of Ontario is located well above the level of the permanent lake, and the water table should not be affected by this pool. During times when the flood pool would extend to the village, groundwater levels should be considered to be the same as the level of the lake. Rises in lake level of this magnitude are expected to be rare and affect only the lower-lying dwellings or about one fifth of those in the village.

Individual dwellings in the village located upstream of the Government purchase line should be affected by a high water table only during rare instances when the lake is extremely high.

The proposed lake is expected to increase artesian water levels near the lake and possibly for some distance southwest of the lake in the direction of the dip of the rock formations. The changes are not expected to be significant and should be beneficial rather than harmful.

The possibility of the contamination of groundwater by the lake is an extremely important consideration. Wells inundated by the lake would be sealed according to State regulations. Contamination of the groundwater by direct infiltration through these wells would thereby be eliminated. The present river valley is a discharge area in the regional groundwater system. The available data indicate that the lake should remain a discharge area with regard to the regional system and should not be a source of regional contamination. The major exception to this pattern would occur in the vicinity of the dam where water from the lake is expected to migrate to the wells located along the lower reach of Plum Run Creek and the Kickapoo River. The low permeability of the sandstone in this area should prohibit rapid migration and provide a good filtering action and a long resident life in the sandstone for contaminants in the migrating water. Another area where lake water would probably migrate to wells is at Rockton. Here, as below the dam, migration through the sandstone aquifer should be slow. It is recognized that any well developed near the lake may receive water directly from the lake. It is, therefore, advisable for individuals or organizations using wells near the lake to check the wells periodically for contaminants. The best way to insure against contamination of groundwater would be by controlling the quality of the lake water with a well-planned and enforced program.

No major wet or swampy areas are expected to develop as a result of seepage from the lake. Some seepage is expected below the dam but it should be manifested merely as an increase in discharge from existing small drainages.

The creation of unstable areas due to seepage is considered a potential minor problem in the immediate vicinity of the dam and spillway due to the narrow width of the drainage divides. A comprehensive system of piezometers and observation wells is planned for that area so that any potentially dangerous seepage can be identified and corrective action taken before a hazardous situation develops.

SURFACE WATERS

Implementation of the project would result in the formation of a 1,780-acre lake (at conservation elevation) with simultaneous loss of about 12 linear miles of free-flowing river. Since the primary purpose of the reservoir would be flood control, fluctuating water levels would be unavoidable, but discharge rates of the Kickapoo River below the dam would be stabilized. Present discharge rates at La Farge vary from

36 cfs to 6,750 cfs. With implementation of the proposed reservoir, the discharge rates would range from the minimum inflow of 65 cfs to a maximum of about 1,600 cfs. The stage-frequency duration curves for proposed La Farge Lake are included in the main text of this impact statement as plate 3. Interpretation of the curves are as follows: elevation 850 can be expected to be equaled or exceeded for a duration of 4 days with an annual frequency of 10 percent or once in 10 years. Elevation 850 will be equaled or exceeded for a duration of 14 days once in about 25 years. Special ecological impacts would prevail in those areas subject to periodic inundation. These impacts are discussed under Vegetation in this section.

Present levels of nitrogen and phosphorus in the Kickapoo River are sufficient to permit algal blooms in a standing water body such as the proposed impoundment.(1) However, Governor Patrick J. Lucey of Wisconsin has instructed the Wisconsin Department of Natural Resources to extend sewage abatement funds to the villages of Ontario, Norwalk, and Wilton so that the sewage treatment can be improved. Improved sewage treatment at these communities would contribute to improving the water quality in the reservoir. A letter of 20 May 1971 from Governor Patrick J. Lucey to Lester P. Voigt, Secretary, Wisconsin Department of Natural Resources, is included in appendix XI. Chemical fertilizers which are used on farms in the basin also result in some nitrogen and phosphorus pollution. However, the acquisition of project lands is expected to remove approximately 5,000 acres from agricultural production and Soil Conservation Service personnel are continually promoting improved land management in the area. At current rates of erosion and sedimentation, La Farge Lake would also trap an estimated 100 acre-feet of silt. However, the removal of 5,000 acres of land from agriculture and continuing Soil Conservation Service activity are expected to reduce the rate of sedimentation.

LAND- AND WATER-USE CHANGES

The proposed plan would convert approximately 9,800 acres of land from private to public ownership. Within this area, 12 linear miles of free-flowing stream which generally amounts to about 100 surface acres would be converted to a reservoir of 1,780 surface acres. The project lands consist of floodplains, cliffs, valley slopes, and ridge tops which are presently utilized for agriculture, hunting, and aesthetic recreation. With implementation of the project, land use would change to land- and water-based recreation, wildlife production, and flood control. The approximately 5,000 acres of farmland which are included among the project lands would be converted to wildlife habitat.

(1) U.S. Department of Health, Education and Welfare. Water Supply and Water Quality Control Study, La Farge Reservoir Project, Kickapoo River, Wisconsin, January 1965.

80 acres of water area would be available for public use such boating, water-skiing, and swimming. Approximately 1,400 acres ct lands would be used for recreational development for day use Day use would include picnicking facilities, parking, and ng facilities. The remaining lands exclusive of the small red for the structure and its maintenance would be devoted to improved wildlife habitat. The Wisconsin Department of Natural s indicated its intent to manage the lands, water, and recrea- ies. Some of the lands within the project boundary which are ld be reforested. Only tree species native to the area would be the program would be coordinated with the Wisconsin Department esources. The State has agreed to participate in the planning ture and would manage the areas in conjunction with the lands e habitat.

ject lands would extend several thousand feet downstream of this area adjacent to the stream would be improved to provide a fishery that is expected to develop as the result of de- flows from the lake and possible stocking by the Wisconsin Fisheries. The increase in the water depth and the interest could be responsible for increased recreational use of the er downstream from the proposed project.

e implementation of flood control by means of the proposed he Kickapoo floodplain downstream from the project area ject to increased agricultural, urban, and industrial develop- also possible that the Wisconsin Department of Natural Re- d promote floodplain regulation which would help maintain aesthetics and ecology of the floodplain in this area. Local ters have stated on numerous occasions that a more dependable r during the summer would increase the interest in canoeing . Floodplain regulation is recognized as a necessary supple- proposed project if the natural ecology and aesthetics of in below La Farge are to be preserved.

ree to which upstream lands will continue to remain in an status will depend upon economic conditions. With the of the proposed lake, some of the fringe lands could be enhance in value due to the proximity of the water area and development of home sites on private lands. Any development of ould tend to produce beneficial economic impacts and adverse mpacts upon the area. However, Wildcat Mountain State Park the project lands which would result in no private holdings adjacent to the lake on the Kickapoo River in the vicinity

CONOMIC IMPACT

itation of the proposed La Farge Lake project would have sig- ects upon the economy and sociology of the Kickapoo Valley. asis in the lake area would shift from agriculture to tourism r by possible industrial development. As a number of resi- te to accommodate the inundated area, the population would ral toward urban; and if young people remain in the area, the r group would increase locally.

The proposed lake and associated recreation areas could handle 8,500 visitors per day (expected peak load on a normal summer Sunday) in an area where lake-oriented recreation is not currently available. Economic improvements for small local communities may be expected as new businesses develop and existing businesses expand to accommodate tourism. Any business that caters to the recreationist can expect to benefit substantially. Such private recreation facilities as riding stables, driving ranges, golf courses, and private camping facilities may also develop to complement or supplement the La Farge Lake project. With a lake and recreational base, the Kickapoo Valley might expect some development of vacation and retirement homes. Any such private development can be expected to increase the tax base for both the town and the county.

Because of La Farge Lake and associated developments, employment prospects for Kickapoo Valley residents are expected to improve. Many of the seasonal jobs would benefit students in the area. Permanent jobs would result from maintenance of the structure and the recreation areas.

Spending by construction personnel and employment of local labor during the building of La Farge Dam would contribute substantially to the local economy. The sales would largely involve goods and services associated with food and lodging. This type of business would be similar to that expected during the recreation season. It is expected that the decrease in business after construction would be offset by the increase in tourism.

Elimination of flooding would remove a major impediment to new private construction and thus encourage industrial and residential development. Within a few years there could be enough industry to hold some young people in the area. This would modify population structure which is currently deficient in the 18- to 65-year age group; however, any growth in residual population would result in increased stress upon natural resources, especially with respect to waste disposal.

The La Farge project could result in a decrease in canoeing, bicycling, and pleasure driving through the scenic valley between La Farge and Ontario. The losses would depend upon the extent to which a more regular streamflow below the dam improves the lower Kickapoo River for canoeing and the extent to which relocated roads are aesthetically located. The Wisconsin Department of Natural Resources is currently cooperating with the State's Division of Highways to select aesthetic routes for all required road relocations, and appropriate floodplain zoning by the State could result in suitable canoeing water downstream from the project.

Essential economic losses resulting from the Kickapoo project would be related to land use. Approximately 5,000 acres of the land to be taken for public ownership is now marginal crop and pastureland which would be permanently removed from agricultural production, and one mink farm would be taken. However, farmers below La Farge would be free of periodic summer floods and thus would be able to intensify agricultural efforts on the fertile alluvial floodplain. Cash crops should become more important than they are now and dairy farming might also respond favorably. The net effect upon agricultural activities below La Farge would be essentially dependent on the policy taken by the State of Wisconsin with respect to floodplain zoning and regulations.

Some tax base would be lost to the valley as about 9,800 acres of privately owned land would become public domain. This may place a short-term hardship on local residents. However, after the tourist industry becomes established and private developments begin, the area is expected to develop an enlarged tax base.

The proposed dam would eliminate considerable human suffering and risk to human life due to flooding. However, with the increase in recreation activities and associated traffic in the area, an increase in the casualty rate can be anticipated. Other public health hazards associated with water sport recreation are anticipated but proper management may be expected to keep this to a minimum.

The direct public health impact of the project would not be significant because flood-related public health problems have not been serious in the past. However, with the implementation of flood control, the potential for coliform contamination of wells, mosquito breeding, and vermin reproduction in flood debris would be removed.

The solid waste and sewage generated by recreation visitors to the area would require definite provisions, which would be incorporated into the recreation plan for the project.

ROAD AND UTILITY RELOCATIONS

Roads which would be affected by implementation of the selected plan include Wisconsin State Trunk Highways 131 and 33 (also known as Federal-Aid Secondary System 327 and 332, respectively), Vernon County Trunk Highways F and P (also known as FAS 607 and 609, respectively) and several township roads. STH 131 between La Farge and Ontario runs generally along the valley floor. This is the only north-south State highway in the townships of Whitestown and Stark. STH 33 runs diagonally across the northeast corner of Whitestown Township through Wildcat Mountain State Park to Ontario. CTH P is an east-west road following essentially the border between the two townships. STH 82 is an east-west road located in the southern half of Stark Township and routed through the village of La Farge. The embankment for the dam would be constructed across STH 131 approximately 1 mile north of La Farge. A large portion of the highway upstream of the dam would be submerged by the impounded water while the section immediately downstream of the dam would be terminated at an access ramp to the top of the dam. The conservation pool at elevation 840.0 would submerge permanently 3.9 miles of the 4.75 miles of STH 131 between the dam and Rockton. An additional 0.45 mile of STH 131 upstream of Rockton would be inundated by the permanent pool. The conservation pool would also inundate 1.2 miles of CTH P from its junction with STH 131 in section 9 of Stark Township westward to section 6. Another 1-mile-long reach of CTH P in sections 34 and 35 of Whitestown Township would be submerged by the conservation pool. These permanent inundations would affect through-traffic in both

the north-south and east-west directions of the two townships. STH 131 and CTH P are bituminous-surfaced roads, and rerouting of traffic without complete relocation would have to be on earth, farm-type local roads on either side of the reservoir. In addition to roads inundated by the conservation pool, the full flood control pool would submerge an additional 3.2 miles of STH 131, 0.8 mile of STH 33, 3.3 miles of CTH P, 0.9 mile of CTH F, and several miles of township roads.

Project plans include new highways to serve the residents of the area in a manner comparable to that of the existing roads. New roads are also planned to provide access to the recreation areas included in the project. State Highway 131 between La Farge and County Road F south of Ontario have been nominated by the Wisconsin State Highway Commission as part of a National Scenic Roads study prepared by the President's Council on Recreation and National Beauty. The Wisconsin Department of Natural Resources is now working closely with the State Division of Highways to select a corridor for relocating all roads, particularly Highways 131 and 33, in the project area which would have the least adverse impact on the environment and which would enhance recreational opportunities. Studies of alternative routes revealed that the most desirable relocation for STH 131 would be along a route primarily adjacent to the eastern border of the reservoir. This route is generally along high ground and would provide a scenic alignment as well as a more economical alignment than other alternatives considered. This route would also lessen the number of township road relocations required. Studies made by the Wisconsin Division of Highways concerning STH 33 indicated that necessary work for this highway along its present location through Wildcat Mountain State Park to meet established criteria would not be feasible because of very poor horizontal and vertical alignment. STH 33 would therefore be relocated from near the southeast entrance to Wildcat Mountain State Park for a distance of approximately 2 miles due west to join relocated STH 131 about 2 miles south of Ontario. The proposed relocation of CTH P would be generally along high ground along the north side of branches of the reservoir. The required lengths of roads to be relocated include 14.72 miles of STHs 131 and 33, 6.3 miles of CTHs P and F, and 7.78 miles for 32 segments of township roads. A detailed discussion of the proposed road relocations is presented in Design Memorandum No. 6, Relocations, La Farge Reservoir.

The construction of the road relocations would be accomplished by the Division of Highways, Wisconsin Department of Transportation. The Division of Highways includes landscaping features in all new construction to improve project aesthetics. All areas disturbed during construction operations would be covered with suitable topsoils and fertilized and seeded. Straw mulch would be employed on slopes where erosion is anticipated, to check erosion and encourage the growth of grasses. All back slopes would be streamlined and rounded to blend into the surrounding terrain. Portions of old highways not incorporated into the relocated roadways and which would otherwise be exposed to view would be entirely obliterated and treated as indicated above for the areas disturbed by construction.

The relocated roads would provide improvements in road surface, width, alignment, grade, and bridge structures over those of the existing road system, thereby eliminating many of the existing hazardous road conditions in the area. The relocated road system would also result in an improved system of roads for traffic through the area. In some cases the road distance between local points would be lengthened, but no resident would be

isolated or forced to use roads of poorer quality than are presently available. The relocation of the roads on higher ground would require the grading of new roadways through land that is presently wooded or used primarily for pasture or cultivation. Of the 28.8 miles of proposed new roadway, 13.8 miles would require clearing with the resulting loss of trees and wildlife habitat. Of lands that would be crossed, it is estimated that approximately 48 percent is woodland or brush woodland, 27 percent is grassland or pasture, 23 percent is cropland, and 2 percent is used for other purposes. It is also estimated that the relocation of roads would cause displacement of five dwellings.

Thirty-three existing bridges would be removed and 17 new bridges would be constructed. The existing bridges are old and of obsolete design and would be completely removed from the site. Numerous old culverts would be abandoned and about 143 new culverts would be installed.

About 17.4 miles of power lines would be removed and relocated. The relocation would reduce the mileage to about 10.4 miles but would require clearing rights-of-ways. Where the lines would be located along roads, no additional clearing may be necessary. Where clearing would be required, every consideration would be given to keeping the adverse environmental effects to a minimum. Routes along abandoned lines would be permitted to revert to existing adjacent conditions. Where necessary, some grading and leveling would be done.

About 13.9 miles of telephone line would be removed. In order to service customers it would be necessary to construct about 5.2 miles of new line of which about 1 mile of line would be buried underground. The relocations and abandonments would be handled in the same manner as the power lines.

The small dam at La Farge, which supplies supplemental electrical power, might lose some part of its capacity as a result of implementing the project. However, the dam has developed structural defects and can presently be filled only to approximately one half of capacity.

HISTORICAL AND ARCHEOLOGICAL

Without the development of the proposed project, it is doubtful if the archeological investigation would ever have been made in this area in view of the large number of historic and prehistoric remains in the southwestern part of the State. Under these conditions if no investigation or study were ever made, the information obtained to date would never have been brought to light. During the earlier investigations it was determined that about 181 sites within the project boundaries should be investigated. Of this number, about 48 were initially scheduled to be excavated. The Wisconsin State Historical Society has performed the excavation and investigation of sites under the direction of the National Park Service. It is the opinion of the Historical Society that a total of about 121 sites should be excavated and that this remaining work could be accomplished prior to inundation provided the necessary funds are made available. Recent communications with the National Park Service indicated that investigation funds will be available in fiscal year 1973. There are no known significant historical sites in the project area or the adjacent area. Thus, this project is not expected to have an impact on any such features.

In connection with development of the recreational area, certain appropriate interpretive measures are planned. The exact location and the degree of interpretation will be based on coordination with and recommendations of the Wisconsin State Historical Society.

RECREATION

With implementation of the selected plan, as shown on plate 2, about 1,780 acres of water surface and about 8,000 acres of land would become publicly owned for the benefit of present and future generations. Currently, 13 recreation areas are planned involving approximately 1,400 acres including access points. However, the actual number of sites and acreage will be dependent upon the proposals made by the Wisconsin Department of Natural Resources, which has indicated its intent to maintain and operate the recreation sites and manage the project lands in conjunction with the adjacent Wildcat Mountain State Park. Further, the State proposes to manage the other project lands for wildlife and reforestation purposes. A plan for reforestation, development, and management will be coordinates with the State when the Master Plan for Resource Management is prepared.

A summary of the 13 tentative recreation areas, their acreage, and planned usages appears below:

Area	Acreage	Planned Activities
A	145	Overlook, picnicking, bank fishing, parking access
B	580	Boating, fishing, swimming, picnicking, camping
B	580	Group camping
C	60	Overlook, picnicking
D	80	Boat access, picnicking, camping
E	200	Boating, fishing, water-skiing, swimming, picnicking, camping
F	15	Picnicking, overlook
G	35	Boat access, picnicking
H	120	Boat access, picnicking, camping
J	40	Boating, picnicking, camping
K	70	Boat access, picnicking, camping
L	25	Boat access, parking
M	30	Boat access, parking
Total	1,400	

The effect of these additional recreational facilities in the Kickapoo River Valley will be to meet a part of the lake-type recreation needs in southwestern Wisconsin. Initial visitation to the recreation facilities within 3 years of project completion is expected to approximate 185,000 recreation days per year. Ultimate visitation to the project area is estimated at 735,000 recreation days per year. Estimated annual visitation to the areas will average about 475,000 recreation days per year. These estimates of recreation days were developed

using standard accepted planning techniques. Accordingly, a recreation day is a standard unit of use consisting of a visit by one individual for recreation purposes during all or a reasonable portion of a 24-hour period. The actual effect recreation developments would have on environmental values would depend to a great extent on facility quality, design, location, and adequacy of facilities to satisfy demands. Every effort would be made to design, locate, and construct adequate facilities which would be aesthetically pleasing, functional, and which would have a minimum impact on the environment. These facilities would include provision for disposal of the wastes generated by recreation visitors.

Not much impact is expected on the 6,600 acres of land not scheduled for intensive recreational development. The majority of the recreation users tend to stay close to the developed area. This may not be as true in the future as hiking, bicycling, and canoeing become more popular activities and the recreationist is encouraged to associate with his surroundings and to seek out the peace and solitude of secluded areas as well as to develop an appreciation for nature.

Detrimental effects on the environment which are likely to occur with a large influx of visitors to the area include degrading of the vegetation in recreational areas and on adjacent project lands, increased noise and air pollution levels, increased water pollution, and the frightening off of desirable wildlife species. Heavy traffic and campfires would increase air pollution and noise levels. Motorboats and fishermen would tend to raise the levels of pollution in the lake by depositing motor fuel and litter. Wildlife would have a tendency to vacate those areas heavily utilized by man. Conversely, the visitors would enhance the economy of the area.

Beneficial effects of establishing recreation areas would include providing a water-based recreation resource, which is greatly needed in southwestern Wisconsin. La Farge Lake would be available to satisfy the recreational demands of people from a large population area. Visitors from cities such as Madison, Milwaukee, and Chicago would be expected to utilize the facilities at La Farge Lake for weekends and vacations. The recreation users would avail themselves of well developed and well operated facilities, thus tending to preserve the area for future generations, rather than overcrowding present facilities in other locations and thereby degrading them.

The impact upon existing natural resources resulting from the establishment of recreation areas at La Farge Lake would be detrimental in terms of strict ecological considerations. The local Kickapoo Valley Association favors building the reservoir. Most of the canoe concessionaires in the Association believe that the project would draw additional people into the area who would then avail themselves of the opportunity of canoeing those reaches of the river which would remain free-flowing. The recreational facilities would not compete with existing facilities since existing facilities are few in number and are inadequate to meet the present demands. The proposed lake would provide local residents with recreational opportunities that never existed before in the region.

The proposed lake would inundate approximately one tenth of the total length of the Kickapoo River, thereby precluding free-flowing canoeing in the reservoir area but presenting the opportunity for boating, water-skiing, and lake fishing. A free-flowing stream, its associated ecosystems, and terrestrial floodplain resources would be displaced by a static, lacustrine environment. Visual perceptions associated with a scenic river valley would be replaced by those associated with an attractive reservoir setting.

ECOSYSTEM LOSSES AND GAINS

Implementation of the selected plan would impact adversely upon local ecosystems by replacing 780 acres of land and 12 linear miles of free-flowing stream with a standing body of water.

VEGETATION

The area proposed for impoundment would be cleared of vegetation in coordination with the Wisconsin Department of Natural Resources, Division of Forestry. This agency has been contacted by a number of people who are interested in salvaging some of the wood. Much of this vegetation is Bottomland Hardwoods Forest or grass and sedge marshes, and part of the area to be inundated is now crop or wet pasture land.

Controls for clearing trees, brush, and structures from the La Farge Lake have been established to provide for maximum benefits to recreation, fish and wildlife habitat, and general appearance and minimal hazard to public health, maintenance, and operations.

Within the vertical limits the reservoir slopes would be cleared to within 6 inches of the ground except for the embayment areas. These areas would be left uncleared for fish and wildlife habitat. The upper vertical limit of complete clearing varies from near zero to 3 feet above the conservation pool elevation 840. In reaches where the reservoir side slopes are steep, the controlling elevation is 843. In other reaches the elevation found 20 feet horizontally outside the conservation pool is the control. These limits are adopted for the following reasons:

a. Generally the reservoir slopes would be steep with clayey soil close to rock. Anticipated saturation and sloughing coupled with frequent flooding would cause collapse of trees in the zone of complete clearing.

b. Ice action would contribute to tree kill in the clearing zone.

c. Initial clearing of growth and continuation of kill action described above would minimize maintenance clearing of regrowth during project life.

The lower vertical limit of complete clearing to within 6 inches of the ground would be at elevation 835. Horizontal limits of clearing would be controlled by the vertical limits except for the embayment areas and the area below elevation 835 from the dam embankment to 1 mile upstream which would be cleared to within 30 inches of the ground. In the remainder of the reservoir, trees and brush which extend above elevation 835 would be felled.

Certain areas would be reforested under the supervision of the Wisconsin Department of Natural Resources, Division of Forestry. Only native tree species would be planted, and the program would be oriented toward creating and improving wildlife habitat.

The impact of the project upon the approximately 50 sandstone cliffs which occur along the Kickapoo River within the area to be inundated is of critical importance because of the unique plant communities found here, as described in section 2 of this statement. Some of the cliffs would be completely inundated and others would be either partly inundated or subject to the effects of periodic inundation and microhabitat changes.

Where the cliffs would be completely inundated, their aesthetic value and the plants which occupy the faces, crevices, and overhangs would be unavoidably lost. Specific information on these plant communities has been accumulated through preliminary field reconnaissance and from available literature. The comments of various Government agencies, private organizations, and interested individuals have also been carefully considered. Information available as of the time of this environmental impact statement does not indicate that any plant species would become extinct because of project impacts. However, the monkshood (Aconitum noveboracense) and possibly some of the other species named on page 18 would be significantly reduced in number because they are more abundant in the area proposed for the La Farge project than in any of the other stations from which they have been reported.

Some of the cliffs which now support the various unique plants and plant communities would be inundated, partly or periodically. The effects to be expected in these cases are not definitely known; however, the vegetation which occupies such areas is known to be very specific in its ecological requirements. The safest conclusion as of this time is to anticipate severe adverse impacts, even possible extermination, of unique cliff vegetation where cliffs would be subjected to partial or periodic inundation or microhabitat changes.

Some sandstone cliffs upstream from the reservoir would be unaffected by impounded waters and vegetation upon them would not be affected. However, the expected increase in numbers of recreational visitors to the area would increase the probability of disturbance.

Since floodwaters would be stored in La Farge Lake to protect downstream areas, water levels would fluctuate at times. Runoff storage for 2-, 5-, and 25-year floods would raise the water 5, 9, and 13 feet, respectively above conservation pool elevation. The land surface areas above conservation pool that can be expected to be inundated for periods as long as 21 days are shown below for selected frequencies.

Frequency	Lake elevation (in feet above msl)	Area above conservation pool elevation in acres
Every year	840.0	0
Once in 25 years	846.5	370
Once in 100 years	851.5	700
Once in 200 years	853.2	820

Land areas subject to periodic inundation would undergo substantial changes in vegetation if spring or summer flooding were of sufficient duration to kill native plants. Periodic inundations from water level fluctuations would have effects upon vegetation similar to the periodic flooding which prevails now, and many such areas are likely to tend toward riparian vegetation such as elm, willow, and cottonwood trees.

Where the shoreline of the new lake tends to be gradual with shallow water, emergent vegetation such as cattails, bulrush, arrowhead, bur reed, spike rush and pickerelweed can be expected to develop.

As of the time of this environmental statement, the winter season and dormant stage of most plants preclude further field reconnaissance. When circumstances permit, any further required study of vegetation and animal life in the project area will be made.

WILDLIFE

Theoretically, flood control should result in improved habitat conditions for upland game between La Farge and the confluence of the West Fork of the Kickapoo River. In reality, however, such benefits do not always occur in bottomlands protected from floods, because elimination of downstream valley floor flooding results in intensification of agricultural development. Timber and brush, wet-pasture vegetation and annual weed patches, all of which contribute greatly to the game-habitat complex, are usually replaced by row crops and clipped hayland of little wildlife value. Consequently, it is anticipated that the net effect of reservoir operation could result in a loss of upland game habitat downstream from the dam.

It is recognized that floodplain regulation by the State of Wisconsin will be necessary if the natural ecosystem of the Kickapoo River floodplain between La Farge and the confluence with the Wisconsin River is to be preserved.

The conservation pool would destroy some stream course habitat presently used by mink, muskrats, and beavers. This loss would be fully offset by creation of aquatic habitat on the periphery of the conservation pool.

Construction of La Farge Dam would eliminate about 800 acres of marginal terrestrial wildlife habitat below elevation 840. Above this level, an additional 700 to 800 acres of a better quality wildlife habitat would be reduced in value due to periodic inundation. This flooding would have adverse effects on wildlife populations of the valley.

The impoundment would not provide valuable waterfowl production habitat. A few mallards and blue-winged teal may nest near the periphery of the pool and raise their broods in the flooded zone. Wood ducks would continue to nest in the rmaining areas of timber, but no increase in nesting wood ducks is expected. Generally, waterfowl would not winter in the project area. However, it is expected that some duck movement between the reservoir and the Mississippi River would occur.

Deer losses would not be significant. Some of their range would be inundated, but this loss would not have a permanent effect on the present deer herd. No reduction in the deer hunting pressure in the valley between La Farge and Ontario is anticipated.

Bobwhite quail, cottontail rabbits, and pheasants would be most affected by reservoir construction. Although the land to be inundated is not high quality upland game habitat, its loss should be recognized even though upland game hunting would not be significantly reduced as a result of the project.

Squirrels, opossums, raccoon, and ruffed grouse would be least affected by the reservoir. Their habitat is confined largely to the valley slopes above the conservation pool level. Conditions may develop, however, whereby temporary flooding in this zone would result in a serious loss of habitat. Mature trees cannot withstand a long period of inundation in the growing season, especially during the early spring months when most floods occur. Two or three consecutive years of flooding would have a severe effect on arboreal habitat. If this situation develops, temporary flooding in the area above elevation 840 would actually have a greater adverse effect on the overall wildlife populations than permanent flooding within the conservation pool area.

There is little demand for long-haired pelts and a better economic outlook for these furs is not expected. Trapping pressure and trapping success probably would not be significantly affected.

FISH

The Kickapoo River downstream from the damsite would be subject to unavoidable turbidity and sedimentation during project construction and for some time afterward. Photosynthetic production by aquatic plant life would be decreased because turbidity would reduce light penetration into the water. Aquatic invertebrate animals and their habitat would be buried under sediments, and fishes which depend upon the invertebrates for foood would be reduced in numbers and diversity. Subsequent to construction, the Kickapoo River below La Farge would receive generally clear water from the reservoir and stream bottom sediments would begin to move downstream into the Wisconsin and Mississippi Rivers and eventually would be deposited in pool 10 in the Mississippi River. In time, the Kickapoo River below La Farge should improve in terms of bottom substrate suitable for production of a fishery forage base of aquatic invertebrate animals. Considerable improvement in the local stream fishery can be expected if populations of rough fish are controlled.

Approximately 12 linear miles of existing modest warmwater stream fishery in the Kickapoo River main stem and some trout habitat in the lower reaches of tributaries would be inundated and converted to standing water with implementation of the selected plan. However, fishery benefits expected to accrue from the new reservoir would result in a net improvement in fishery resources if populations of rough fish can be controlled.

Trout habitat lost in the lower reaches of some of the tributaries within the impoundment area would not be replaced because there seems to be no practical means whereby additional trout habitat could be established with implementation of the selected plan.

The conservation pool would provide a potentially valuable and heavily utilized lake-type fishery in an area now lacking this resource. However, problems in fish management may occur as a result of the water level fluctuations necessitated by flood control operation. These problems are difficult to predict since pool levels would be dictated largely by runoff conditions rather than by fish management objectives.

It is expected that game fish such as largemouth bass, crappies, sunfish, and catfish would be suitable for introduction and management in the reservoir. Since the reservoir waters would be quite fertile and largely unaffected by municipal or industrial pollutants, the rate of fish growth should be good. On the other hand, there would be a lack of both shallow water area and aquatic vegetation which may limit production. Siltation and water level fluctuations are other factors which could adversely affect spawning success. However, a series of poor spawning years in succession is highly unlikely and during the expected life of the reservoir, a good supply of catchable-sized pan fish would be available.

It is believed also that the impoundment would support northern pike. However, since northern pike in particular require shallow waters and weed beds for spawning, natural reproduction may not be sufficient to maintain an adequate population. Periodic stocking of northerns may be necessary and would be justified since they are a preferred species.

A large rough fish population including carp, bullheads, drum, suckers, and probably buffalo fish would tend to develop in the La Farge Reservoir. Control of these undesirable fish would be necessary in the interest of sustaining a good fishery for the game species.

Fishery management would also be complicated by algal blooms with present levels of nitrogen and phosphorus in the Kickapoo River. However, the Wisconsin Department of Natural Resources has been instructed to take action toward improving sewage treatment in the Kickapoo River basin.

The outlet structure to the reservoir would be designed in coordination with the Wisconsin Department of Natural Resources, Division of Fisheries so that outlet waters from the reservoir could be taken from selected levels. This would provide some control over temperature of the

tail waters because normal summer lake stratification results in colder water at lower levels. Temperature of the discharge would be controlled so that maximum possible fishery benefits will be provided.

MITIGATION

The plan of flood control, recreation, and wildlife habitat improvement which has been proposed for the Kickapoo River basin would include specific features to mitigate adverse impacts upon vegetation, wildlife, and aesthetics.

The acquisition of about 6,600 acres of land for wildlife management and a reforestation program are integral parts of the proposed project which are designed to create and improve wildlife habitat. With a good overall management program, the wildlife habitat losses may be fully mitigated. With floodplain regulation to protect the floodplain downstream from La Farge, an overall improvement in quality and quantity of wildlife habitat can reasonably be expected.

Foresting of certain appropriate areas would compensate some of the losses due to clearing in the conservation pool. In compliance with the State's request, a large number of native trees and other vegetation would be planted along the shoreline and in other areas considered most suitable for their survival and growth. Some plantings along the shoreline would be delayed until after the project has been in operation for several years so that the areas affected by the fluctuating water levels could be identified and planted with species of trees and vegetation which can withstand inundation. This matter has been discussed with representatives of the Wisconsin Department of Natural Resources, Division of Forestry, who have prepared a preliminary report indicating their proposals with regard to the location and the types and species of trees and vegetation. This office expects to prepare a supplement to the existing preliminary master plan for resource management recommending reforestation in accordance with the State proposal so that planting could be started during the spring of 1972.

In conjunction with the tree planting, plans would also be prepared to fence, where appropriate, along the boundary line not only to protect the new planting from grazing cattle but also to keep the cattle out of other project lands scheduled for wildlife management. It is expected that this action may improve the overall existing habitat through regeneration of native vegetation.

Mitigation of the likely adverse impacts of the project upon unique plant communities and rare plants which are characteristic of sandstone cliffs in the project area would be attempted. Professional advice would be sought for the transplanting effort. Transplanting of several plants of each designated species to new locations considered most likely to permit and sustain their survival and growth is being considered carefully, if locations suitable for appreciation of their aesthetic and

scenic qualities in a natural setting can be located. The transplanting program would be coordinated with the Wisconsin Department of Natural Resources. Plants which are rare usually have low tolerance for changing conditions, narrow ecological requirements, and are susceptible to competition. Since these plants would not respond well to being moved from their original sites, this attempt would be carried out well in advance of the filling of the impoundment in order to ascertain the viability of the transplants before the remaining individuals of the species in the Kickapoo Valley would be inundated. It is realized that the possible success of transplanting is doubtful, and it may not be possible to locate suitable areas for the transplanting. Mrs. Jeanne Smith, a naturalist in the La Farge area and contributor to appendix III of this report, transplanted monkshood and the arctic primrose to her residential garden during the summer of 1971.

During the discussions with the Wisconsin Department of Natural Resources regarding management of the project lands, consideration would be given to establishing a scientific area or areas.

Fishery benefits expected from the project would more than mitigate the anticipated loss of 12 linear miles of modest warmwater fishery which exists in the project area now.

Approximately 21.02 miles of State and county roads and 7.8 miles of township roads would be relocated. In addition to these relocations, additional roads would be required for access and circulation in the proposed recreation areas, and several utility lines would be relocated. Construction of the relocations would involve clearing of the road rights-of-ways, construction of a number of bridges, and cut or fill to obtain desirable grades. In all cases, aesthetics would be considered. All disturbed areas would be topsoiled and fertilized, and appropriate ground cover would be planted. In suitable areas, landscaping would be stressed to improve the aesthetics. Portions of old highways not incorporated into the new relocation roadways and which would otherwise be exposed to view would be obliterated and planted.

4. ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED SHOULD THE PROJECT BE IMPLEMENTED

SOCIOECONOMIC

The necessary acquisition of lands for the project would result in the relocation of about 73 families of which about 67 are operating relatively small farmsteads, including one mink farm. About six families would be relocated in the village of Ontario. Under the existing liberal Federal acquisition policy, no economic losses to the private property owners are foreseen. However, the attendant disruptions of family and community life would be unavoidable.

loss of agricultural production would be expected because farm-
ıded in the project would either be inundated or converted to
ıds for wildlife or recreation. The possibility of agricultural
ıg made up due to other lands below the dam being placed in
would depend upon the manner in which the State of Wisconsin
regulate the floodplain.

of tax base would be expected as an unavoidable but temporary
the project. The economic benefits of recreation would be ex-
more than make up for lost tax base as recreation use of the
ops.

AND AESTHETICS

am and reservoir would be regarded as adverse topographic
some persons but the impounded waters would be regarded
improvement by others. This is a highly personal matter
only with the individual; however, since economic feasibility
posal is based partially upon recreation benefits, it may be
ajority opinion in the case would rest in favor of the reser-
does not mitigate the unavoidable adverse impact upon persons
prefer the existing scenery.

tion is expected to be a concern in the upper end of the reser-
the high silt load carried by the Kickapoo River. A delta
to form where the faster moving river water meets the slack
ıe reservoir.

ıdverse environmental effects are anticipated in the area of
ne of the proposed La Farge Lake. The reservoir banks be-
conservation pool level and the top of the flood control pool
ıbject to the effects of periodic inundation. Runoff storage
, and 25-year floods would raise the water 5, 9, and 13 feet,
y, above conservation pool level; however, the water-surface
not increase significantly. Even for a 25-year flood, areas
ıore above conservation pool elevation would be inundated less
s. Periodically inundated areas located above conservation
ıre usually subject to either the development of riparian vege-
he formation of mud banks. With La Farge Lake, most of the
ould be too steep or rocky to be affected. However, any areas
mud bank formation would be unavoidable adverse impacts until
on or vegetation prevailed.

ng vegetation in areas subject to periodic inundation that
ithstand approximately 21 days of inundation would be elimi-
s probably includes essentially everything that is character-
e better drained slopes and plateaus. ..vever, there is very
ific information available on this vegetation problem which
to the climatic conditions of the area. For some shoreline
rally at the upper end of the lake, the slope is so gradual

hat water level would involve several hundred feet of lateral water ovement. In these areas which are generally at stream inlets where ilt is deposited, shallow silt banks could develop and such emergent quatic vegetation as sedge, cattail, and arrowhead would take hold.

LIMATE

An additional effect of the proposed reservoir would be its effect pon local climate. Heat stored in the water during summer would be eleased during the fall. Heat lost during fall and winter would be re- bsorbed in the spring. The temperature lags may be significant for djacent areas as well as those that lie in the path of prevailing winds rom the reservoir. The effect upon microhabitats along limestone cliffs ould be especially great as temperature would remain cold much longer nto the spring. Reproduction and growth of many biota are inherently timulated by seasonal changes in day length. Therefore, any shift in he usual coincidence of temperature with day length could be detri- ental to the biota around the lake, especially to its reproduction.

EGETATION

Unavoidable losses of natural vegetation would be realized mainly n terms of Bottomland Hardwoods Forest and the unique communities of imestone cliffs.

The mitigation of inundated Bottomland Hardwoods would not be pos- ible because no areas suitable for this kind of vegetation are available. he reforestation program is expected to involve exclusively native up- and species.

The inundation of substantial portions of the sandstone cliffs in he project area could not be avoided with implementation of the selected lan and portions of unique plant communities which occupy these areas ould be lost. Some portions of these plant communities would also be ubject to the effects of periodic inundation (many of these plant com- unities are periodically inundated during floods which are presently haracteristic of the area) and changes of microhabitat (the plants ould occur above standing water instead of running water).

Portions of animal populations including numerous songbirds would e drowned or displaced by the inundation of the area. This would in- rease stress and competion especially within and among territorial pecies, and would reduce total populations. The dam and lake may also estrict the mobility of many land and aquatic animals resulting in re- uced reproductive contact. Many established daily travel routes of imals in the area would also be abolished and new routes would have to e established.

ISTORICAL AND ARCHEOLOGICAL

Although excavation of the 121 suitable archeological sites is pected to be completed before proposed inundation of the area, it is cognized that the flooding of the site would render them practically

inaccessible during the future. However, development of proposed interpretive measures would provide information regarding the culture of prehistoric man, which was previously unknown, available to the public.

RECREATION

Recreation areas to accommodate the public would result in personal enjoyment of the scenic beauty by many people who would be able to enjoy the valley and woodland environment. One of the options which may be precluded by the proposed works would be the opportunity to fully realize the inherent recreation potentials of the Kickapoo River valley as it now exists. The potentials referred to could be partially realized by adopting a river corridor resource management plan that emphasizes discriminate recreation development, resource preservation, and reclamation of degraded environments, including the water resource base. The end result would be a resource that could conceivably provide quality recreation benefits beyond the functional limits of the reservoir project. This plan would not accomplish the primary objectives of the project, nor would it in all probability provide the same recreation benefits.

Approximately 12 miles of canoeing stream with attendant aesthetic values in scenery, vegetation, and wildlife would be lost. Canoeists who now are able to enjoy the scenic values of the high rock bluffs would lose some of the effects through inundation of the lower portions of the bluffs. A relatively short reach of the bluffs near the dam would be entirely covered by the lake. However, establishment of the lake would permit canoe access to several tributary streams not presently accessible. Thus, many more scenic bluffs would be accessible to the visitor, somewhat compensating for scenic losses along the main channel. Furthermore, a proposed portage trail around the dam would permit canoeists to move to and from the lake. Local interests are also proposing clearing the river of snags and boulders between Ontario and Wilton to provide an additional reach of free-flowing stream for canoeing.

5. ALTERNATIVES TO THE PROPOSED ACTION

A number of alternatives to the proposed plan have been studied, both independently and in various combinations during formulation of the project plan. Twelve independent alternatives and three combinations of plans are listed as follows:

a. No action.
b. Floodplain regulation.
c. Flood insurance.
d. Flood proofing.
e. Flood warning and temporary evacuation.
f. Emergency local protection.
g. Permanent local protection.
h. Channel improvement.
i. Dry reservoir.

j. Permanent relocation of urban buildings to flood-free areas (evacuation).
k. Land management combined with small tributary reservoirs (Public Law 566).
l. Acquisition of floodplain lands and conversion of these lands to wild river areas, parks, or greenbelt areas.
m. Main stem reservoir.
n. Smaller dam with greenbelt floodway.
o. Combinations of above plans. -
(1) Alternative No. 1. -
(b) Floodplain regulation
(d) Flood proofing
(j) Evacuation
(k) Land management and Public Law 566 projects.
(m) Main stem reservoir.
(2) Alternative No. 2. -
(b) Floodplain regulation.
(d) Flood proofing.
(j) Evacuation.
(k) Land management and Public Law 566 projects.
(3) Adopted plan. -
(b) Floodplain regulation.
(k) Land management and Public Law 566 projects.
(m) Main stem reservoir.

Additional information and data relative to the various alternatives as listed are contained in table 1, Review Analysis - Water Resource Problems and Alternative Solutions - Kickapoo River Basin, Wisconsin, which was prepared for the intensive review held in Madison, Wisconsin, on 27 April 1971 (see appendix IV).

a. The "no action" alternative would allow flooding and valley aggradation to continue and would lead to continued economic decline in the region. Personal incomes would decline, unemployment would increase, community development plans would be adversely affected and emigration out of the region especially by the young would continue. Also, there would be no reduction in flood damages except to abandoned properties. Beneficial aspects of the "no action" alternative would result from a possible increase in wildlife habitat and the potential for a wild and scenic river area. If most of the farms in the area are finally abandoned, a possibility exists for watershed improvement as native vegetation becomes reestablished. This alternative has not been selected for the Kickapoo River because it does not seem compatible with man's current state of cultural, technological, and ecological development to ignore an adverse situation which can undoubtedly be modified to the benefit of cultural and ecological interests.

b. Floodplain regulation would limit development on flood-prone lands through zoning, building codes, subdivision regulations, and other similar restraints. This alternative would prevent losses to potential

future development, estimated at approximately $50,000 annually, and would provide open-space opportunities including the preservation of natural aspects of floodplain ecology. Individual freedom of land use would be restricted but human suffering and hazard to life would be reduced. However, flooding and valley aggradation would continue as under existing conditions. The detrimental effects of this policy would be similar to those actions resulting from the "no action" policy and the reasons for rejection are stated under that discussion. However, floodplain regulation is recognized as a necessary supplement to the selected plan if damages to future cultural developments are to be avoided and if portions of the floodplain ecosystem are to be preserved.

c. Flood insurance would eliminate severe flood losses to the individual and also recognize individual responsibility for losses. However, the flood losses would be spread nationally and no reduction in overall average annual flood losses would be effected. The detrimental effects of this policy would be similar to those actions resulting from the "no action" policy and which are stated under that discussion and would not assist in attacking the problem of watershed management.

d. The flood proofing alternative, achieved by providing structural adjustment to properties subject to flooding, would reduce flood losses to existing structures suitable for flood proofing. This reduction is estimated at about $15,000 annually. This plan would also reduce human suffering and avoid some dislocation. However, it would result in only a relatively small reduction in the overall flood damages. Again, the main problems related to watershed management, recreation needs, and flood control would go unchallenged; therefore, this plan is not recommended for the Kickapoo River.

e. A plan comprising a flood warning system combined with temporary evacuation would result in reduced damages to portable personal belongings and in reduced human suffering and hazard to loss of life. No other benefits would accrue from this plan. Further, the plan would offer no solution to the overall flood problem and would have to be effective during every flood occurrence. The flash characteristics of the flood problem in the Kickapoo River Valley would make this plan unworkable for floods resulting from rainfall. Since the detrimental effects of this policy would be similar to those actions resulting from the "no action" policy and which are stated under that discussion and would not assist in attacking the major problems related to watershed management, this plan has not been recommended.

f. Emergency local protection, consisting of levees, channel work, and similar construction, as authorized under the provisions of Public Law 99, would reduce flood losses in protected areas but might increase flood stages in other unprotected areas. Such work would reduce human suffering but might create a false sense of security and thus result in a potential for catastrophic damages from flooding. Therefore, this plan has not been recommended. As noted in the preceding paragraph,

the flash characteristics of flooding would preclude this means of protection from floods resulting from rainfall. Emergency or permanent protection for local areas would tend merely to redistribute the flood damages. Some areas would be protected at the expsne of others, and again nothing would be done to halt degradation of the watershed. These measures would also destroy the aesthetic qualities and fish habitat of the Kickapoo River at certain points.

g. Permanent local protection consisting of levees, floodwalls, and interior drainage facilities adequate to assure an appropriate degree of protection (100-year design) would reduce flood losses by an amount estimated at about $340,000 annually. Thus, human suffering would be reduced as well as the hazard to human life. This plan would also increase the attractiveness of the area to industry. On the negative side, the scenic beauty and natural ecology of the stream would be further impaired and remaining flood damages would be substantial in rural areas since such a plan would not be economically feasible for the rural section of the valley. Emergency or permanent protection for local areas would tend merely to redistribute the flood damages. Some areas would be protected at the expense of others, and again nothing would be done to halt the degradation of the watershed. These measures would also destroy the aesthetic qualities and fish habitat of the Kickapoo River at certain points. This plan is not acceptable because it does not contribute significantly toward a solution of the basic problems and needs in the area.

h. Continuous channel improvement for a limited degree of protection (10-year design) would reduce flood losses by about $590,000 annually. Thus, human suffering would be reduced. This plan would be detrimental to the aesthetics, periodically disrupt wildlife habitat along the river corridor, and destroy the natural character of the stream throughout the length of improvement as well as tend to further depreciate the mediocre existing fishing. Remaining average annual flood damages would be large due to the relatively low degree of protection. Further, the plan could not be justified economically because of the low average annual flood damages per acre, high annual maintenance costs, and the narrow width of the floodplain. Furthermore, it is believed that the rate of watershed erosion would tend to accelerate. However, this plan is expected to generate redevelopment benefits amounting to about $58,000 annually. This plan is economically feasible and it is recognized as the second most desirable plan for the Kickapoo River.

i. A dry reservoir could provide the flood control aspect of water resource management needs for the Kickapoo Valley. However, with present downstream channel capacity of 1,000 cfs, control of the 200-year frequency flood would require a reservoir capacity of 45,000 acre-feet and 31 days would be required for drawdown.(1) However, the time period of 31 days to empty the reservoir is considered excessive because of the

(1) Department of the Army, St. Paul District, Corps of Engineers, Design Memorandum No. 2, General, Flood Control, Kickapoo River, Wisconsin, March 1967.

possibility of large storms and heavy inflow to the reservoir during this period, and the severe ecological impacts resulting from flooding the bottomlands. Two alternatives are available to accommodate this possibility: one, to increase the downstream channel capacity to 4,000 cfs and thus reduce the reservoir drawdown time to a more reasonable value of 8 days; and two, to provide equivalent additional reservoir storage to control a second large flood event and produce the same flood control effect as the supplementary channel enlargement. The reservoir storage required for the two alternatives would be 45,000 and 91,000 acre-feet, respectively. With enlargement of downstream channel capacity to 4,000 cfs, the duration of storage would be reduced to 8 days. The benefit-cost ratio of a dry dam alternative would be approximately 1.1 using the 3 1/8 percent interest rate. If the current 5 3/8-percent interest rate were used, the benefit-cost ratio would be less than unity. The ecological impacts upon the bottomlands and the socioeconomic impacts upon farming and recreation would be severely adverse and completely unmitigated with a dry reservoir. With channel enlargement and reduction of the duration of inundation to 8 days, the ecological and socioeconomic impacts upon the bottomlands might become amenable. However, the ecological and aesthetic impacts of required channel enlargement would also be adverse. This alternative has not been selected for the Kickapoo Valley because of anticipated adverse ecological, aesthetic, and socioeconomic impacts and because major potential water resource benefits related to public recreation and economy would not be considered.

j. Permanent relocation of urban buildings to flood-free areas would eliminate flood losses estimated at about $320,000 annually and would reduce human suffering and the hazard to human life. Also, the land from which buildings are removed could be used for open space or recreation activities. However, relocation of residences has been found socially unacceptable and generally opposed by a sizable majority of residents in this area. Further, the economic use of the floodplain would be lost and some individuals and businesses forced to relocate might leave the region. This plan would also result in relatively high remaining average annual flood damages on agricultural lands. This permanent relocation could be aesthetically unacceptable since the action could reduce the wooded areas and also in some instances accelerate erosion.

k. A plan combining land management practices with small tributary reservoirs (Public Law 566 and related watershed programs of the Department of Agriculture) would result in a reduction of flood damages of about $92,000 annually. Land management practices would improve wildlife habitat and reduce erosion and the small reservoirs would provide fishery and water-based recreation. The recreation facilities would also stimulate economic growth. The reservoir areas would require dislocation of people from these areas and also relocation of roads and utility lines. There would also be a loss of tax base on lands acquired for the reservoirs. Remaining average annual flood damages would remain high with this alternative. The combination of these

two actions would tend to solve some of the problem of the Kickapoo watershed. This plan has not been recommended because it does not contribute adequately to alleviating flood damages in the basin.

l. A plan comprising acquisition of floodplain lands (exclusive of existing urban areas) for future conversion to wild river areas, parks, or greenbelts would effectively reduce flood losses to agricultural areas of the order of $300,000 annually but would not benefit urban areas, thus leaving a high remaining average annual damage. This plan would remove the river valley lands from crop production and would result in a loss of tax base on the lands acquired. The economy would be seriously affected since the urban communities are supply centers for the rural areas and dependent upon them for existence. Residents of the rural areas would also be dislocated and some farm units having both valley and uplands would become less economic. This plan would allow lands of unique character to be preserved for public use and appreciation, would increase recreational opportunities, and could enhance fish and wildlife habitat through wise management of the stream and lands involved. Also, the scenic beauty of the river corridor could be preserved. Simple acquisition of floodplain lands would allow parts of the watershed to recover slowly as native vegetation becomes reestablished, but the bulk of the area would remain subject to deleterious erosion without proper land management practices. However, the plan is not economically feasible.

m. The main stem reservoir alternative would reduce average annual flood damages in urban and rural areas by about $793,000 annually. A water-based recreational potential would be developed in a lake-deficient area. Human suffering and hazard to human life would be reduced, and the area would become more attractive for residency by the youth of the region due to increased recreational and employment possibilities. There would be an improved traffic pattern in the adjacent Wildcat Mountain State Park. Residual flood damages would be the lowest of any of the plans considered independently. There would be a loss of upland game habitat (1,780 acres), loss of timberland (700 acres), loss of scenic beauty in the reservoir area, loss of free-flowing stream (12 miles), and loss of tax base in the reservoir area. The impacts of a main stem reservoir only upon fish and wildlife would be practically identical to the impact of the proposed project. This plan is also economically feasible. However, the degenerated conditions in the watershed above and below the dam would tend to supply nutrients which might result in unwanted production of algal blooms.

n. The plan consisting of a small dam for conservation purposes only (conservation pool elevation approximately 822.0) with a greenbelt floodway would not provide flood control protection nor would it provide for other water resource needs of the area during its normal economic life. The reservoir capacity of about 10,000 acre-feet could be expected to be filled with sediment during a period of 100 years. The greenbelt floodway would require acquisition or control of urban and agricultural lands downstream so that the floodway could be used to the maximum

during periods of high water and not increase the flood damages due to encroachment. The plan was not pursued vigorously since it appeared that it would not contribute significantly toward a solution of the basic flood problems and the needs of the area.

o. Combinations of the above plans were considered. The combination providing an economically feasible plan and the best overall flood damage reduction resulting from locally acceptable measures, recreation value, and improved waterfowl and fish habitat included a main stem reservoir, floodplain regulation, and land management with related facilities available through the provisions of Public Law 566. This combination plan was therefore adopted as the project plan for the Kickapoo River. This plan results in an overall reduction of average annual flood damages from $1,147,000 under present conditions to $199,200 under proposed project conditions.

6. SHORT-TERM USES OF MAN'S ENVIRONMENT AS COMPARED TO MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Insofar as we of this generation are a trustee of the environment for succeeding generations, full and careful consideration should be given to the relationship of actions taken in this generation to the needs of future generations. Thus, it is appropriate to evaluate the gains obtainable from the structural measures proposed for the Kickapoo River basin and to weigh such gains against other options which may be precluded by the proposed work.

In the case of the proposed La Farge Lake, about 1,800 acres of valley bottomland would be inundated and an additional 800 acres would be subject to periodic inundation for extended periods. Economically, the gains in flood damages prevented and other benefits offset the costs. The approximately 12 miles of free-flowing river and the lower portions of some of the scenic bluffs lining the river, which would be replaced by a lake, represent a valuable, long-term use of man's environment. However, socioeconomic productivity, as well as appreciation of natural ecology, must be considered in any evaluation of long-term uses of man's environment. Since the 5,000 acres of crop and pastureland that would be taken out of production are considered of marginal value agriculturally, the future need for the crops grown on these lands is not likely to be great. However, the proposal does not impair any decision by future generations to return project lands to agriculture or even to breach the dam and reclaim the floodplain.

On a short-term basis the removal of farmlands from crop production would reduce the scenic appearance of the cleared areas. However, in a few years, native vegetation would become reestablished, a forest environment would develop, and the erosion and silt contribution to the river would decrease. This reestablishment of the natural woodland environment is a valuable long-term gain which, under good land and forest management practices made possible by public ownership, would benefit both man and wildlife.

Canoeists who now are able to enjoy the scenic values of the high rock bluffs would lose some of the effects through inundation of the lower portions of the bluffs. A relatively short reach of the bluffs near the dam would be entirely covered by the lake.

7. IRREVERSIBLE OR IRRETRIEVABLE COMMITMENTS

Certain irretrievable commitments of labor, construction materials, and natural resources would be required if the selected plan is implemented. These particular commitments are of national concern.

Natural resources, in terms of 12 linear miles of free-flowing stream and the attendant scenic attractions of geology, vegetation, and wildlife would also be essentially irretrievable, but would not be complete.

The 12 miles of river to be affected between Kickapoo and La Farge is a special kind of recreation asset. Scenic appreciation of this area depends heavily on geology and botany which are unique to the Driftless Area. Sandstone cliffs rising 50 to 200 feet above the water surface provide a microhabitat for unique plants and plant associations. This special aesthetic situation is appreciated by a considerable number of naturalists, hikers, and canoeists.

Inundation by the La Farge project would cause irreversible and irretrievable changes to a variety of ecological communities and habitats. Although some project lands would benefit from intensive wildlife management practices, lost habitat would not be replaced. Reservoir habitat would be created, which would replace a free-flowing river segment, river edge and bottoms, and adjacent terrestrial units.

8. COORDINATION WITH OTHER AGENCIES

PREVIOUS COORDINATION IN CONNECTION WITH ORIGINAL STATEMENT

Planning for this project has been coordinated closely with other Federal, State, and local interests throughout both preauthorization and preconstruction phases. A public meeting was held in the area prior to initiating planning studies, thus providing opportunity for participation by all interests from the beginning of planning. Public meetings were also held immediately prior to report completion and again on several occasions during the course of preconstruction planning to inform the public and allow for comment. During preconstruction planning, notable assistance was provided by the Bureau of Sport Fisheries and Wildlife, the National Park Service, the Wisconsin Department of Natural Resources, and the Wisconsin Highway Commission. Contributions were also made by utility company representatives and by other interested local groups.

Attached is a list of the reviews made by various Federal, State, and local agencies along with a statement of the agencies' positions regarding the project. Also included is a list of replies from other agencies concurring in the proposed project along with pertinent comments. (See appendix V.)

Draft of the original environmental statement prepared 13 November 1970 was coordinated with the Bureau of Outdoor Recreation, the Bureau of Sport Fisheries and Wildlife, the National Park Service, the Soil Conservation Service, and the Wisconsin Department of Natural Resources. Comments received are attached and, where appropriate, suggestions have been incorporated in the text of the statement (see appendix VI).

Review comments from the previously referenced agencies indicated general acceptance of the project plan (see appendix VI). Copies of these affidavits are attached. In addition, there is attached a copy of the report, "An Analysis of Water Resource Planning in the Kickapoo River Valley, Wisconsin," prepared by University of Wisconsin graduate students in August 1970. (See appendix VII.) The purpose of the papers was to explore and weigh the total effects of the projected water resource development. The attempt was to identify the effects and place them in a comprehensive perspective in order to assist the planners and decision makers in determining the most appropriate alternatives. Since the papers make assumptions and rationalizations based on raw data and not on study, the conclusions should be evaluated cautiously.

Later, concern regarding the project was expressed by Sierra Club representatives, several resident landowners, and former residents of the area. The John Muir Chapter of the Sierra Club notes, in a letter dated 5 November 1970 and also a position paper (see appendix VIII), that the Corps planning process has failed to consider the full range of alternatives for management of Kickapoo River and environmental values involved. However, preauthorization and preconstruction planning studies have given substantial consideration to the alternatives and the environmental aspects that were questioned by the Sierra Club. The project plan is considered to represent the most reasonable and practical use of natural resources within the Kickapoo basin for present and future benefit to the general public.

The issues raised by the various conservation groups were presented to Wisconsin Governor Patrick J. Lucey, who requested that an independent review be made of the proposed project with participation by locally affected citizens, the Wisconsin Department of Natural Resources, University of Wisconsin specialists, the Sierra Club, Wisconsin conservation groups, and the Corps of Engineers. The contributions made by participants at the intensive review held in Madison, Wisconsin, on 27 April 1971, are attached (see appendix IX).

Following the intensive review is a letter from the Governor removing any objection to the project construction, provided certain recommendations were complied with in order to minimize the environmental impact.

These recommendations and the reply to the Governor indicating proposed compliance are attached. (See appendix I.) Copies are attached of the Governor's letters to the Vernon County Board of Supervisors, the people of the Kickapoo Valley, Wisconsin Division of Health, and the Wisconsin Department of Natural Resources. (See appendix XI.)

Shortly after the intensive review and receipt of the Governor's letter, the Sierra Club, the Citizens Natural Resources Association, and several local residents filed an injunction against the Corps of Engineers in the U.S. District Court for the Western District of Wisconsin on 4 June 1971. The date for the hearing was rescheduled from 11 June to 8 July 1971. The purpose of the hearing was to show cause why the Corps of Engineers should not be refrained from:

a. "Entering into any contracts, opening bids for contracts, undertaking land purchases, site preparation development, construction, or other activities relating to their proposed Kickapoo dam project."

b. "Further activities relating to the Kickapoo dam project until such time as the defendants have complied with the law, regulations, executive orders and policies set out in the complaint."

c. "Implementing any plan of construction of their Kickapoo dam project which would alter the land and waters in the Kickapoo River valley above La Farge, Wis."

Copies of the injunction, reschedule of hearing, and the court findings are attached (see appendix XII).

During the hearing, affidavits were entered from persons associated with the Corps of Engineers, who were connected with the preparation of design memorandums, from those who prepared the original environmental impact statement, and from persons who were expected to assist in the preparation of the revised statement. An affidavit was prepared by William B. Lord, Professor of Agricultural Economics and Forestry at the University of Wisconsin, and submitted in support of the plaintiffs' motion. (See appendix XIII.)

COORDINATION OF THE REVISED DRAFT ENVIRONMENTAL IMPACT STATEMENT

This revised environmental impact statement was coordinated with the various Federal and State agencies, conservation interests, citizen groups, and interested local residents. All the views expressed were considered and where relevant and appropriate were incorporated in the statement. All views expressed concerning the environmental effects of the proposal were set forth in comment and appropriately discussed in a response. Copies of all correspondence concerning this statement are attached. Reference to page and paragraph numbers noted in the comments pertains to those pages and paragraphs contained in the revised draft dated 17 September 1971.

COMMENTS ON THE REVISED DRAFT WERE REQUESTED FROM THE FOLLOWING:

Federal Highway Administration
U.S. Department of Housing and Urban Development
Environmental Protection Agency
U.S. Fish and Wildlife Service
U.S. Geological Survey
National Park Service, USDI
Soil Conservation Service, USDA
Bureau of Outdoor Recreation, USDI
Governor Patrick J. Lucey, Wisconsin
Wisconsin Department of Natural Resources
Wisconsin Department of Transportation, Division of Highways
Wisconsin Department of Agriculture
Wisconsin State Geological Survey
Vernon County Clerk, Viroqua, Wisconsin
Mayor of La Farge, Wisconsin
Natural Resources Committee of State Agencies
Southwestern Wisconsin Regional Planning Commission
Sierra Club, John Muir Chapter
People of Kickapoo Valley/ Citizens Natural Resources, Ronald A. Rich, Baraboo, Wisconsin
William B. Lord, Professor of Economics and Forestry, University of Wisconsin

COMMENTS ON THE REVISED DRAFT WERE RECEIVED FROM THE FOLLOWING:

Federal Highway Administration
Environmental Protection Agency
U.S. Bureau of Sport Fisheries and Wildlife
U.S. Geological Survey
National Park Service, USDI
Soil Conservation Service, USDA
U.S. Bureau of Outdoor Recreation, USDI
Wisconsin Department of Natural Resources
Wisconsin Department of Transportation
Wisconsin Department of Health and Social Services
Mississippi River Regional Planning Commission
Natural Resources Council of State Agencies, Wisconsin Department of Administration
Sierra Club
Kickapoo Valley Association, Inc.
Mr. James R. Villemonte, Professor of Civil and Environmental Engineering, University of Wisconsin

a. Federal Highway Administration. -

Comment. - Federal-Aid Secondary system numbers are given for roads to be affected by the project. Wisconsin State Highway 131 in the project area is one of the scenic highways nominated by the State as part of the National Scenic Roads study. The draft statement does not clearly indicate the proposed improvement, topography, or natural growth existing now or anticipated after the improvement. Final statement should present sufficient information to ascertain the scenic highway. Lengths of road relocations do not correspond in paragraph 4, page 34 and last paragraph, page 27. Old bridges will not be salvaged for reuse, but will probably be sold as scrap.

Response. - The final statement has been corrected to accommodate the comment, and the proposed relocation of Highway 131 has been detailed. Information regarding the scenic highway nomination was not available during preparation of the revised draft, but has been acknowledged as the result of the current comments on the basis of information supplied by the Wisconsin Department of Transportation.

b. U.S. Department of Housing and Urban Development. -

No comments received.

c. Environmental Protection Agency. -

Comment. - A report on water supply and quality was prepared in February 1965. The program to transplant certain rare plant species will be watched with interest. No environmental issues are anticipated with respect to water supply or air quality; however, no reference is made to the solid wastes which would be generated by 735,000 annual visitations. A program to prevent degradation of water quality in the reservoir should be stressed in the statement. The program must include a reevaluation of the water quality standards program for the upper reaches of the Kickapoo River.

Response. - Appropriate Federal and State agencies have been contacted indicating the need for an enforcement program to prevent pollution as well as develop water quality standards for the upper reaches of the Kickapoo River. As programs and standards are developed, efforts will be made to incorporate the proposed features in the project resources management plan.

d. U.S. Bureau of Sport Fisheries and Wildlife. -

Comment. - The current interest rate should be changed from 5 1/8 to 5 3/8 percent.

Response. - The current interest rate is 5 3/8 percent. The statement has been revised.

mment. - Channel work proposed by Monroe County Director of ources will not improve the scenic quality of the Kickapoo anoeists.

sponse. - We concur. The statement on the mitigation effect oe proposal has been deleted.

mment. - "Noxious emissions" by conifers is questioned.

sponse. - Reference to noxious emissions has been deleted.

mment. - The sentence, "This latter fact offsets the desir- southern Wisconsin for fishing" reflects only an opinion not ed by fact.

sponse. - We concur and have revised the statement.

mment. - The Bureau considers the information on the per- fishing by residents of the various States "misleading" and d erroneously". It also suggests revision of the data.

sponse. - The figures used to illustrate fisherman origins re- from the Mississippi River. License sales in Vernon County would more valid. However, current figures indicate some 30 to 60 es to nonresidents and not 14 percent as indicated by the port Fisheries and Wildlife. The statement has been revised.

mment. - Indicates reasons why "marginal wildlife habitat" is te and suggests revision.

sponse. - The paragraph has been revised.

mment. - Many of the wooded areas provide excellent food and eer, grouse, and squirrels.

sponse. - We concur; the problem may have been overstated. nt has been revised.

mment. - Depreciation of crops by wildlife may be difficult

sponse. - The statement has been revised in accordance with from the Bureau of Sport Fisheries and Wildlife and from in Department of Natural Resources.

mment. - Temporary flooding does not necessarily destroy bitat. The paragraph should be deleted, since it is a justi- r flood control as a means of benefiting wildlife.

sponse. - There is no real disagreement or contradiction with . However, the paragraph has been deleted. According to the

1961 Bureau of Sport Fisheries and Wildlife report, flooding does destroy some habitat, nests, and food; this information has been added. The paragraph is not considered a justification but a statement of fact. After the dam, more habitat will be flooded upstream and less downstream. The habitat reduction resulting from both of these effects is discussed in the revised statement.

Comment. - Page 16, paragraph 3, sentence 1. - This sentence conflicts with paragraph 2, page 15; delete it.

Response. - Paragraph 2, page 15 refers to the southwest area as a whole; paragraph 3 refers to the Kickapoo Valley portion. The two paragraphs have been revised.

Comment. - Page 16, paragraph 4. - This information is included elsewhere and could be deleted.

Response. - The paragraph has been deleted.

Comment. - Damage to fish habitat throughout Wisconsin from pollution and urban development would be difficult to substantiate and is perhaps not a necessary prelude to a discussion of Kickapoo River problems. Silt problems exist in the Kickapoo River but game fish are still present. Aquatic invertebrates important to a river system are bottom dwellers and aquatic vegetation is not a requisite to the existence of many such organisms. Streambank vegetation is not absent.

Response. - The sentence on pollution of fish habitat throughout Wisconsin is not necessary and has been deleted. Cause and effect relationships, as stated, are not ecologically sound and they have been appropriately modified. The following sentence from the Bureau's 1961 report has been added: "Streambank cover necessary to keep water temperatures within the tolerance limit for trout is now insufficient."

Comment. - Page 16, paragraph 6. -Should be reworded as follows: 'Carp are abundant in the main stem of the Kickapoo River. Other relatively abundant fish species are northern redhorse. . ."

Response. - The statement has been revised to state relative fish abundance.

Comment. - Page 16, paragraph 7. - Suggest rewording the paragraph as follows: "The Kickapoo River supports a modest warmwater stream fishery. In the tributaries and upper reaches, trout are still included in the catch. Channel catfish are more widely distributed and are the most important game fish for most anglers."

Response. - The statement has been revised.

Comment. - Floodplains and bluffs are ecologically valuable and should not be called unproductive.

Response. - The reference to productivity of floodplain and bluffs has been deleted.

Comment. - Portions of the Kickapoo River could have more dependable canoeing water; however, 12 miles of the river will be transformed into reservoir with much different qualities from the canoeist standpoint.

Response. - Change of canoeing qualities is referenced and discussed

Comment. - Is delta formation understated? At least 160 acre-feet of silt come down the Kickapoo River annually.

Response. - Concur; "some" and "small" have been deleted.

Comment. - "Might" weakens the premise regarding clarity of dam outlet water and possible downstream channel erosion.

Response. - Concur; the statement has been revised.

Comment. - Page 25, paragraph 1. - Change sentence 2 to read, "a man-made reservoir will flood 1,780 acres of land which features a combination of agriculture, woodland, pasture, and wildlife habitat with associated flora and fauna."

Response. - Appropriate changes have been made in the text.

Comment. - Page 25, paragraph 2. - Change "probably will be affected" to "will be reduced in extent." Last sentence is questionable because vegetation which occupies mud flats following flooding offers very little for wildlife.

Response. - The statement has been revised as suggested.

Comment. - Page 25, paragraph 3. - This paragraph should be deleted because it does not contribute directly to the La Farge project.

Response. - The statement has been revised.

Comment. - Page 25, paragraph 4. - Rewording is suggested as follows: "Displaced terrestrial animals will compete with adjacent populations for food and space. This will increase stress, reduce survival, and reduce total population."

Response. - The statement has been revised to incorporate the suggested population impacts.

Comment. - The meaning of "some permanent-type habitat" and "partial reproductive isolation" is not clear. Suggest: "Considerable wildlife habitat below La Farge Dam is expected to be lost to more intensive cultivation and expanded agriculture, once flood prevention is assured. The dam and reservoir will restrict the mobility of many land and aquatic animals."

Response. - The statement has been revised.

Comment. - Page 25, paragraph 6. - Omit "and day length".

Response. - "Day length" cannot be omitted because "synchronization of temperature" by itself is meaningless. The phrase has been revised.

Comment. - Page 26, paragraph 2. - The sentence, "However, there may be an overall gain of wildlife depending on the management of about 8,000 acres of land which will be publicly owned." is conjectural and opinion. There can be no gain in wildlife until all losses accruing to the reservoir have been compensated. We hope that intensive management of reservoir lands will restore wildlife populations to their original levels. Any "overall gain of wildlife" is highly optimistic.

Response. - Concur; appropriate changes have been made.

Comment. - The Bureau suggests changes in the botanical description.

Response. - These have been made.

Comment. - Serious fishery management problems are inherent and control of rough fish in this reservoir will likely be very difficult.

Response. - A new paragraph summarizing fishery problems has

Comment. - Page 32, paragraph 2. - Suggest rewriting this paragraph.

Response. - Concur; the statement has been revised.

Comment. - The Bureau questions that foresting plans will replace and enhance wildlife habitat.

Response. - Concur; foresting will be a partial compensation of this loss. The statement has been modified.

Comment. - Doubts success of rare species transplantation and suggests Wisconsin Department of Natural Resources coordination.

Response. - Concur in the comment. However, this matter will be coordinated further with the Wisconsin Department of Natural Resources.

Comment. - Page 33, paragraph 2. - Doubts expertise qualification of local residents and suggests deletion of these sentences.

Response. - The species were identified by Mrs. Jeanne Smith who conducts plant identification field trips for Knox College, Galesburg, Illinois.

Comment. - Page 33, paragraph 4. - Delete "the existing marginal" and substitute "any remaining".

Response. - The revision has been made.

Comment. - Page 35, paragraph 3. - Suggests deleting "marginal" and rewording sentence 2 as follows: "The Kickapoo River presently supports a modest warmwater fishery. Its present condition is the result of siltation, sedimentation, and other degradation brought about by agricultural or urban development."

Response. - The word "marginal" has been deleted. The recent Wisconsin Department of Natural Resources survey does not indicate a modest fishery; "mediocre and insignificant" has been changed to "utilized very little". "Its present ... development" has been said before.

Comment. - Suggests sentences be reworded as follows: "The Kickapoo Valley now provides only average quality wildlife habitat, due to its deterioration from improper land management during the past 100 years. The 1,780 acres to be inundated by La Farge Reservoir now features a combination of agricultural land, woodlots, river bottoms, and pasture with associated flora and fauna. The loss of this area will eliminate considerable "edge" with resultant loss of wildlife habitat. Nongame species, including songbirds, will be affected in addition to game species already noted." Delete "insects" from sentence 4. The last sentence of the quoted paragraph adds little or nothing to this section on Fish and Wildlife Habitat Losses and should be deleted.

Response. - The paragraph has been reworded to reflect the comments. "Insects" will not be deleted because they will be present, are essential food for many birds and some mammals, and some insects can be a recreational asset for those who would take an interest. Concur that the last sentence does not belong with Habitat Loss. This section has been revised.

Comment. - The sentence "Under these circumstances, fish and wildlife habitats would continue to remain mediocre or even depreciate." is open to question. No further depreciation of fish and wildlife habitat is expected under a "no action" alternative. We suggest this sentence be rewritten as follows: "Under these circumstances, fish and wildlife habitats would remain essentially the same."

Response. - The sentence has been deleted.

Comment. - The proposal to maintain nutrient productivity in the reservoir as it ages raises some questions. Such a proposal can be a good management tool, when needed. The chances for early aging from eutrophication are far greater, however. Overfertilization may be the greatest danger to the reservoir. Before any plan to increase nutrients is put into effect it should be coordinated with the Wisconsin Department of Natural Resources and the Bureau of Sport Fisheries and Wildlife. It is extremely unlikely that added nutrients will be needed.

Response. - The paragraph on nutrients as related to fishery management has been relocated and clarified.

Comment. - Labor required to construct the project is not a natural resource. Labor is a human activity providing goods or services. We suggest you rewrite this sentence deleting references to labor.

Response. - The reference to labor has been deleted.

Comment. - It is indicated that a loss "might be" irretrievable if the rare plant transplant program fails. The "might be" should be replaced with "will likely be".

Response. - Concur; the statement has been revised.

Comment. - Page 43, paragraph 2. - Appears to be an attempt to minimize project-incurred losses of natural resources. If this paragraph is retained in the final impact statement, the following should be added to the discussion: "Inundation by La Farge Reservoir will have irreversible and irretrievable commitments on 1,780 acres of land supporting a variety of ecological communities and habitats. Although some project lands will benefit from intensive wildlife management practices, lost habitat will not be replaced. Reservoir habitat will be created, which will replace a free-flowing river segment, river edge and bottoms, and adjacent terrestrial units."

Response. - A new paragraph has been prepared and incorporated in the revised statement.

Comment. - Appendix III, The Vegetation and Flora of the Driftless Area, Including the Kickapoo Valley. - Many plants included in the list would not be expected to occur in the project area. If a list is deemed necessary, we suggest appropriate revision to make it apply to the more local area, rather than all or portions of a 20-county area.

Response. - Concur; it has been revised.

e. U.S. Geological Survey

Comment. - The Survey does not concur with text statement (pages 21-23) that the reservoir will raise groundwater levels only near the lake and that no shift would occur in groundwater divide. Water quality changes resulting from the proposed reservoir and its secondary effects would be monitored at U.S. Geological Survey-Corps of Engineers sites above and below the dam. An evaluation of water system changes caused by the proposed reservoir would be best made from data collected before, during, and after reservoir development. Surface water flow monitoring should be expanded.

Response. - We concur that there would be a shift in the groundwater divide with an associated rise in groundwater level. These changes should be neutral as regards environmental effects. The establishment of a program for monitoring water levels in existing wells in the area to determine actual changes is being considered.

Comment. - A U.S. Geological Survey gaging station will monitor changes in streamflow and site changes in the stream channel below the proposed reservoir site.

Response. - Concur.

Comment. - Water quality changes resulting from dam construction, land-use changes, and reservoir filling will be monitored at U.S. Geological Survey-Corps of Engineers monitoring site located above and below the proposed dam.

Response. - Concur.

f. National Park Service. -

Comment. - The Park Service is concerned with the impact of the project on the archeological, scenic, ecological, and geologic resources of the area and trusts that some measures will be devised to perpetuate them.

Response. - The Corps of Engineers is also concerned and proposes to perpetuate the features mentioned in the comment through coordinated planning and development of the recreation areas including pertinent road networks and the possible establishment of archeological interpretive measures. Some historic areas lie within or adjacent to the river corridor and could be inundated permanently by the conservation pool. It would be difficult to associate directly with these areas or sites. If other areas lend themselves to interpretation, every effort will be made in cooperation with the Wisconsin Department of Natural Resources, manager for the proposed recreation areas, to develop appropriate interpretive measures.

Comment. - Evidence of consultation with the State Liaison Officer for historic preservation should be included in the statement.

Response. - Additional liaison will be conducted with representatives of the Wisconsin State Historical Society to discuss the feasibility of developing interpretive measures. Results of the discussions will be incorporated in the statement.

g. U.S. Department of Agriculture. - Soil Conservation Service. -

Comment. - A fair and equitable statement has been made concerning the environment. Effects and studies of Public Law 566 projects have been adequately covered. Second paragraph of page 97 should be corrected to read that projects authorized under the Watershed Protection and Flood Prevention Act of 1954 are limited to ". . . watershed or subwatershed areas not exceeding 250,000 acres and not including any single structure which provides more than 25,000 acre-feet of total capacity" instead of 5,000 acre-feet.

Response. - The indicated correction has been recognized; however, the alleged error is not in a document prepared by the Corps of Engineers but in the document entitled "An Analysis of Water Resource Planning in the Kickapoo River Valley, Wisconsin," which was prepared as an independent study effort by students working within the Department of Agricultural Economics, University of Wisconsin, Madison, Wis.

h. U.S. Bureau of Outdoor Recreation. -

Comment. - Project Description. - Channelization and local flood protection measures referred to in the statement should either be discussed in more specific terms or covered in a separate impact statement.

Response. - A separate impact statement will be prepared regarding the local flood protection measures.

Comment. - Some mention should be made of the popularity of sight-seeing and pleasure driving activities in the Kickapoo River Valley.

Response. - Mention of these activities has been added.

Comment. - Land Use. - The stream system is not a land use as this section implies. The condition of the stream system, however, is related to past and present land use within the watershed.

Response. - Concur; an appropriate change has been made.

Comment. - The current economic trends related to declining agricultural activity are generally caused by a variety of interrelated socioeconomic conditions; the statement that the agricultural decline in the Kickapoo Valley is due to flooding over the past 15 years should be documented to evidence objectivity.

Response. - Concur; flooding is one of many possible causes for the decline; an appropriate change has been made.

Comment. - Provides a suggestion for improving the clarity of paragraph 2, page 8.

Response. - A reworking and modification of the sentence has been made.

Comment. - The description of the Kickapoo River as a canoeing river needs some clarification. The last sentence on page 8 refers to the river as "generally quite shallow." Apparently, this describes the reach between Ontario and Wilton, which the Monroe County Director of Natural Resources proposes to deepen. The reference to this reach of the river should be more specific. The proposed deepening below the damsite could disrupt the stream ecology of that reach. While the deepening is not a part of the La Farge Lake project, it apparently is being proposed to replace the loss of one of the more canoeable stretches of river. Since that loss is due to the project, the deepening and subsequent environmental impact will be an indirect result of the project and should be discussed more thoroughly in the impact section.

Response. - The description of the Kickapoo River as a canoeing river has been expanded. There was a misunderstanding as to the work to be performed on the river between Ontario and Wilton. Informal clearing of rocks and snags is to be performed to facilitate canoeing. It is not expected that this will have much of an effect on the existing ecology.

Comment. - Page 9. - Last paragraph, first sentence. - Makes reference to the limited opportunities for camping and picnicking in the Kickapoo River Valley and the poor quality of the experience, but there is no indication whether the quality of the experience is related to poor facilities, limitation in the resource base, or both.

Response. - The sentence has been expanded to elaborate on the causes of a poor quality recreation experience in the Kickapoo River Valley.

Comment. - The list of other recreational opportunities should include the Mississippi River and a comment on the Upper Mississippi River National Recreation Area proposal.

Response. - Information has been added and the list has been expanded.

Comment. - The reference to the "normal noxious emissions" of conifers appears to be inappropriate and misleading.

Response. - Concur; reference has been deleted.

Comment. - Page 16. - Paragraphs 4 and 7. - Make essentially the same point. Further, paragraphs 4 and 5 should be reversed for continuity.

Response. - Paragraph 4 has been deleted.

Comment. - Page 17, third paragraph. - The statement that "Riparian vegetation . . . is very disturbed because of flooding . . ." should be qualified. Some plant species are dependent on periodic flooding.

Response. - The qualification has been made.

Comment. - Page 18. - In the first paragraph it is stated that "Most of the floodplain and bluffs are nonproductive except for some timber." This statement does not acknowledge the value of these and associated resources as wildlife habitats, recreational areas, and complementing features of the valley landscape.

Response. - The statement has been deleted.

Comment. - Page 18, second sentence of paragraph 2. - Contains a reference that the value of fringe lands could be expected to be enhanced due to the proximity of the water area and development of homesites. The development of homesites should be considered an environmental loss as well as an economic asset.

Response. - Comment has been incorporated.

Comment. - Under Physiography there should be a brief discussion on changes which could be expected to physiographic features below the impoundment. Biotic communities dependent on periodic flooding for their survival would be adversely affected by regulated flows. This would constitute one example of physiographic change. The first sentence of the last complete paragraph mentions that water discharged from the reservoir might be clear; however, the next sentence implies that the water would be clear. Perhaps there should be a discussion to explain why the waters discharged from the impoundment would be clearer than existing waters. This discussion should be separate from what we assume to be the major point of the paragraph which is that discharged waters from the reservoir have a potential to produce greater streambank erosion than that which takes place under present conditions.

Response. - A discussion of changes below the impoundment has been added including mention of adverse effects to biota dependent on periodic flooding. An explanation of improved water clarity has been added.

Comment. - Pag

Comment. - Page 20. - In both the first and last sentence of paragraph 1, the reference should be to known minerals or mineral deposits.

Response. - The statement has been clarified to answer the comment.

Comment. - Page 23, last paragraph. - Suggests adding "in an area where lake-oriented recreation is not currently available."

Response. - The change has been made.

Comment. - The expected increase in industrial and residential development may result in air and water pollution and unwise land use. Floodplain zoning below the damsite may be required to protect the resource from the expected cultivation and residential and industrial development which will encourage vegetation removal and reduce the amount of land available for recreation and open-space purposes. The environmental impact of the expected industrial and residential development should be analyzed in section 4, Adverse Environmental Effects.

Response. - The necessity for floodplain zoning below the damsite is recognized and discussed in appropriate sections in the impact statement. The addition to section 4 has been made.

Comment. - Page 26. - In the first paragraph there should be a statement on the adverse effects of mud flats on aesthetic values.

Response. - The statement has been added.

Comment. - Page 28. - The third sentence of the last paragraph should be deleted or accompanied by a more complete explanation, including a reference to when historic and prehistoric remains would disappear.

Response. - The sentence has been deleted.

Comment. - The actual effect recreation developments will have on environmental values will depend to a great extent on facility quality, design, and location, and adequacy of facilities to satisfy demands imposed by recreationists.

Response. - The comment was expanded and incorporated into the statement.

Comment. - Page 30. - An addition to the last paragraph is suggested. "A free-flowing stream, its associated ecosystems, and terrestrial floodplain resources would be displaced by a static, lacustrine environment. Visual perceptions associated with a scenic river valley will be replaced by those associated with an attractive reservoir setting."

Response. - The comment has been incorporated into the statement.

Comment. - The sentence "The proposed La Farge Lake impoundment is considered to have value as a potential scientific area" is not in accordance with the Scientific Areas Preservation Council statement.

Response. - Concur; the paragraph has been deleted.

Comment. - Page 32. - The second sentence of the second paragraph is confusing and appears somewhat contradictory to previous statements of the Scientific Areas Preservation Council. It would be helpful if the third paragraph would provide details on when, where, or how these scientific areas will be established and whether or not they will be coordinated with the Scientific Areas Preservation Council.

Response. - The second paragraph has been deleted. Establishment of scientific areas is yet to be determined.

Comment. - Page 33. - Has the vegetation survey referred to in paragraph 2 been coordinated with Scientific Areas Preservation Council and do they agree with the conclusions set forth in this paragraph?

Response. - Paragraph 2 on page 33 of the revised draft environmental impact statement refers to a vegetation survey which was done by St. Paul District, Corps of Engineers. The information gathered by the Scientific Areas Preservation Council of Wisconsin has been incorporated into appendix III of the final impact statement. Professor Hugh N. Iltis, University of Wisconsin, Department of Botany,has commented that none of the unique plants, characteristic of cliff communities, are transplantable. A report of 9 June 1971 by Professor Iltis is included in appendix III.

Comment. - Adverse Environmental Effects which Cannot be Avoided Should the Proposal be Implemented. - The subsection on Land Use Changes should provide a discussion on resort, cottage, and permanent home construction which can be expected. Commercial developments supporting the tourism and recreation industry will also affect land-use patterns.

Response. - The suggested discussion has been added.

Comment. - The Bureau doubts that wildlife habitat is of marginal value and suggests that the potential to restore the wildlife habitats as well as other values in the valley without the project should be discussed under Habitat Losses and elsewhere.

Response. - "Marginal" has been changed to "average quality". This statement is also discussed in section 7, Irreversible or Irretrievable Commitments.

Comment. - The project would create certain hardships for people who are unable to replace lands lost as a result of the La FFarge Reservoir project.

Response. - Concur; the comment has been incorporated.

Comment. - One of the options which may be precluded by the proposed works would be the opportunity to fully realize the inherent recreation potentials of the Kickapoo River Valley as it now exists. The potentials referred to could be partially realized by adopting a river corridor resource management plan that emphasizes discriminate recreation development, resource preservation, and reclamation of degraded environments, including the water resource base. The end result would be a resource that could conceivably provide quality recreation benefits beyond the functional life of the reservoir project. This plan would not accomplish the primary objectives of the project, nor would it in all probability provide the same recreation benefits; however, the potentials as well as desirability of a corridor management program should be discussed so that environmental impact can be determined.

Response. - Comment was expanded upon and incorporated into the statement.

Comment. - The determination as to whether or not a river or portions thereof are to remain free-flowing should be made before a reservoir is constructed.

Response. - The Kickapoo River is not one of the streams which have been considered by the Wisconsin Department of Natural Resources as a potential wild and scenic river.

Comment. - It is stated that "review comments from previously referenced agencies indicated general acceptance of the project plan (see appendix VI)." A letter of 26 October 1970 from the Bureau of Outdoor Recreation, included in this appendix, was the Bureau's response to a request for review comments concerning the environmental aspects of the Kickapoo River Reservoir. The review comments were based on the draft environmental statement and should not be construed to imply acceptance or rejection of the project plan. Neither should the comments included herein be thought to imply acceptance or rejection of the project.

Response. - This is understood.

Comment. - Although there may have been some basis for repeated references to the degraded quality of the Kickapoo River, its fishery, and wildlife habitats of the valley, similar effort should have been devoted to a discussion of the programs that could be implemented to either reclaim those resources which have been devalued or destroyed or to realize the potentials of the existing resource base. With more intensive fishery management efforts, including a possible fish eradication program, plus improvements in water quality conditions, the stream fishery could conceivably become a viable part of the Kickapoo River Valley's recreation resource base. Complementing these efforts could be a program or plan that would provide for the management of the Kickapoo River and associated terrestrial resources as an environmental corridor or valley preserve.

Such a plan could give consideration to environmentally compatible recreation developments, preserving valuable resource features, and restoring degraded environments. This does not suggest that these programs would provide greater recreation benefits than programs related to La Farge Reservoir project; however, these potentials should be discussed in order to provide a basis to determine net environmental impact. It is further noted that many of the measures being considered to improve the quality of the reservoir setting would also improve the quality of the Kickapoo River Valley without the project.

Response. - Recreation development and its related impact on the environment were considered in the statement in conjunction with a reservoir plan. An investigation has not been made to determine what measures could be taken to provide recreation experiences if the reservoir were not constructed and Federal monies were made available. Authorization does not exist which would permit the Corps of Engineers to develop a river valley for a single-purpose recreation enhancement. The analysis made in this impact statement is for a reservoir project and its associated programs.

Comment. - If the project is built, the implementation of effective zoning regulations is essential to protect the natural integrity of the reservoir setting.

Response. - A land management plan including zoning particular areas for particular uses will be prepared prior to project construction in cooperation with the Wisconsin Department of Natural Resources.

Comment. - There was little discussion in the statement on procedures used in clearing woodlands within the reservoir pools or whether or not these trees would be removed at all. This should be given attention in appropriate segments of the report.

Response. - Timber clearing will be done in the conservation pool area prior to inundation except in those areas designated as fish propagation areas by the Wisconsin Department of Natural Resources.

Comment. - There is an apparent need for further editing to improve continuity and eliminate such ambiguous phrases as "normal noxious emissions," page 11. Portions of the draft statement could be interpreted as an attempt to justify the project, rather than objectively discuss the environmental effect.

Response. - The statement has been reedited and the quote has been deleted.

isconsin Department of Natural Resources. -

omment. - Paragraphs on hunting pressure, natural food and life populations, and damage to farm crops are misleading be revised as indicated.

esponse. - The sections on fishing, wildlife, and hunting evised.

omment. - Trout streams tributary to proposed La Farge Lake nt need of flood control. Public Law 566 structures on ms should be incorporated into the overall plan to reduce ad of waters entering the reservoir and extend its useful Such structures, properly placed, would also encourage ment of prime trout fishing and more than mitigate the ss of trout habitat on lower reaches of some tributaries.

esponse. - The feasibility of incorporating Public Law 566 into the La Farge project has not been resolved as of the final impact statement. However, such structures will be during future stages of project development.

omment. - The section on vegetation does not take into relationships of plant communities in the project area or fects of the impoundment upon these communities. The pro- gional plant list in appendix III should be revised to more reflect the plant communities of the La Farge area.

esponse. - The vegetation description and plant list have been the degree possible at the time of the final environmental Because of the winter season, it is not possible to do field at this time; however, any additional required study of the in the project area will be undertaken when circumstances permit. cations and references to coordination have been added. Concur ating success possibilities. Reforestation will be coordinated.

omment. - The Wisconsin Department of Natural Resources is sely with the Division of Highways to select road relocation enhance recreation.

esponse. - The coordination between the Department of Natural id the Division of Highways has been noted in the final environ- ement.

omment. - The design of the outlet structure to La Farge Dam ie specifications and approval of the Department of Natural

Response. - The design of the outlet structure is being ordinated with the Department of Natural Resources.

Comment. - The La Crosse area office of the Wisconsin partment of Natural Resources would like to review the clearing plan r the proposed impoundment area. Several people have expressed terest in salvaging some of the wood.

Response. - The clearing plan will be coordinated with the sconsin Department of Natural Resources.

Comment. - Habitat loss for nongame wildlife species has t been adequately discussed.

Response. - The final impact statement has been revised to corporate a more detailed consideration of nongame wildlife. The rds "wildlife" and "animal" include those that are not considered game.

Comment. - Water quality of the Kickapoo River and possibilities r premature eutrophication of La Farge Reservoir have not been adeately discussed.

Response. - The section on surface waters has been expanded th respect to water quality and possible implications for the proposed servoir.

Comment. - Land-use controls throughout the project area and pecially downstream from the proposed dam would be required to insure se use of the floodplain.

Response. - Floodplain zoning, as a necessary supplement to e project, has been discussed in this final statement.

j. Wisconsin Department of Transportation. -

Comment. - State of disrepair of Highway 131 in Vernon County attributable to substandard geometrics and pavement and shoulder widths d not to inadequate maintenance. Highway structures to be removed will t be reused.

Response. - Suggested corrections have been made.

k. Wisconsin Department of Agriculture. -

No comments received.

l. Wisconsin State Geological Survey. _

No comments received.

m. Wisconsin Department of Health and Social Services. -

Comment. - Draft revised environmental statement on La Farge Lake, Kickapoo River, Wisconsin has been forwarded to Mr. Michael Lovejoy, Chairman, Statewide Riverbasin Coordinating Subcommittee. Mr. Lovejoy is expected to furnish comments concerning the outcome of their review.

Response. - Reply is acknowledged and comments of the subcommittee will be incorporated into the statement. (See attached letter from Natural Resources Council of State Agencies, 14 October 1971.)

n. Mississippi River Regional Planning Commission. -

Comment. - The Mississippi River Regional Planning Commission (MRRPC) will not study the revised draft in detail because of immediate project scheduling and extreme length of publication. Arguments regarding environmental effects of the La Farge project do not warrant further discussion. The MRRPC and Wisconsin Department of Local Affairs should have been given an opportunity to take formal action upon the project at an earlier date. The MRRPC concurs with stipulations and special concerns expressed by Governor Patrick J. Lucey as a result of his intensive review of the project held in Madison on 27 April 1971. The MRRPC agrees with certain safeguards recommended by the Wisconsin Department of Natural Resources through Vernon County Recreation Plan: (1) control of upper reaches of watershed through small dams on minor tributaries, improved agricultural practices, shoreline protection; (2) implementation of land-use regulations in advance of actual development.

Response. - Comments were requested upon the revised draft so that future planning could reflect current environmental considerations. The original draft was made available to agencies and citizen groups which expressed interest in the project or had expertise or governmental jurisdiction at that time, pertinent to the project or its effects. Correspondence which elucidates the state of cooperation between Governor Patrick Lucey and the Corps, and between the Wisconsin Department of Natural Resources and the Corps is included in appendix X and in the environmental impact statement section on current coordination.

o. Vernon County Clerk, Viroqua, Wisconsin. -

No comments received.

p. Mayor of La Farge, Wisconsin. -

No comments received.

q. Natural Resources Council of State Agencies, Wisconsin Department of Administration. -

Comment. - Letter is on behalf of Natural Resources Council of State Agencies and it has been determined that a combined State agency response to the revised statement, under auspices of NRCSA, is not feasible at this time. However, certain member agencies are reviewing the draft.

Response. - Reply is acknowledged and comments of member agencies have been incorporated into final statement.

r. Southwestern Wisconsin Regional Planning Commission. -

No comments received.

s. Sierra Club. -

Comment. - Club acknowledges receipt of revised statement and request for comment but indicates that the Corps of Engineers is making no attempt to comply with the National Environmental Policy Act. The project is scheduled for construction and the Corps failure to fulfill its duties in preparation of an environmental statement makes constructive review impossible. The Corps affirmation to complete the Kickapoo project (paragraph No. 55 of answer filed in pending litigation) clarifies its attitude toward compliance with NEPA. The Corps "mind" is not going to be changed by "facts" or contents of the environmental statement. NEPA embodies congressional communication of the peoples' will. Only courts appear able to make some Federal agencies follow congressional mandates. Elucidation of shortcomings in the revised statement would be futile at this time and would meet the same fate as experienced by Professor Lord's affidavit. The above-expressed views are shared by Professor William Lord and Mr. Ronald Rich.

Response. - See attached letters of 18 and 19 October 1971, respectively. No further comments have been furnished by the Sierra Club.

t. People of Kickapoo Valley/Citizens Natural Resources, Ronald A. Rich, Baraboo, Wisconsin. -

No comments received. See attached letter from the Sierra Club, 15 October 1971.

u. William B. Lord, Professor of Economics and Forestry, University of Wisconsin. -

No comments received. See attached letter from the Sierra Club, 15 October 1971.

Response. - Shortly after the intensive review meeting in Madison, Wisconsin, on 27 April 1971, and prior to submission of the revised environmental statement on 17 September 1971, Professor Lord prepared an affidavit (copy attached as appendix XIII). Date of the instrument is 6 July 1971. The purpose of the affidavit was to analyze, review, and criticise the then existing impact statement as well as the Corps of Engineers planning procedures. The instrument was thoroughly studied and the comments and suggestions noted. These comments and suggestions were considered and incorporated in the revised statement. Further consideration was given to the contents

of the affidavit in the preparation of the current final draft. Regarding the economic feasibility, the current regulations for preparation of impact statements including the Council on Environmental Quality Guidelines preclude a detailed discussion in the statement. Furthermore, we believe that the economic feasibility used to justify project authorization was a valid determination.

v. Kickapoo Valley Association, Inc. -

Comment. - Association states that Mr. Ronald Rich does not represent the "People of the Kickapoo Valley." (Comments on revised environmental statement were requested from People of Kickapoo Valley/Citizens Natural Resources, Ronald A. Rich, Baraboo, Wisconsin). The Association is concerned about anything that might be done to get the project finished in the shortest possible time.

Response. - Mr. Ronald A. Rich, in a letter of 24 April 1971 to the Governor of Wisconsin, identified himself as follows:

> "I am representing the People of the Kickapoo Valley and the Citizens Natural Resources Association . . ."

A copy of the letter is ncluded in appendix IX. Scheduling information and our plans are basically as follows: Present schedule calls for award of the outlet works contract in April 1972. Rock Island District indicated that they anticipate the first eminent domain proceedings to be initiated in May 1972 and would seek possession of those lands by 1 March 1973.

w. Mr. James R. Villemonte, Professor of Civil and Environmental Engineering, University of Wisconsin. -

Comment. - Appreciates the opportunity to review the statement and will furnish comments soon.

Response. - No further comments have been received.

CONCLUSION

I have reviewed and evaluated pertinent data and comments attendant to and referenced in this environmental impact statement. I have also reviewed and evaluated the views of other agencies and of the general public relative to various alternatives which must be considered as making up the composite balance of values relative to accomplishing the ends of flood protection and recreational benefits for the Kickapoo River basin. I have studied and analyzed the possible and probable consequences of the various alternatives to include consideration of engineering feasibility, environmental effects, economic factors, and social well-being. In connection with the proposed main stem reservoir, I have considered the cost and the means of eliminating, minimizing or ameliorating adverse environmental, social, and economic effects including:

a. Water pollution.

b. Destruction or disruption of man-made and natural resources and aesthetic values.

c. Adverse effects on employment and tax on property value losses.

d. Injurious displacement of people, businesses, and farms and disruption of desirable community and regional growth.

In reaching my conclusions and recommendations, I have and do recognize:

a. Engineering considerations.

b. Ecological considerations.

c. Economic considerations.

d. Social considerations.

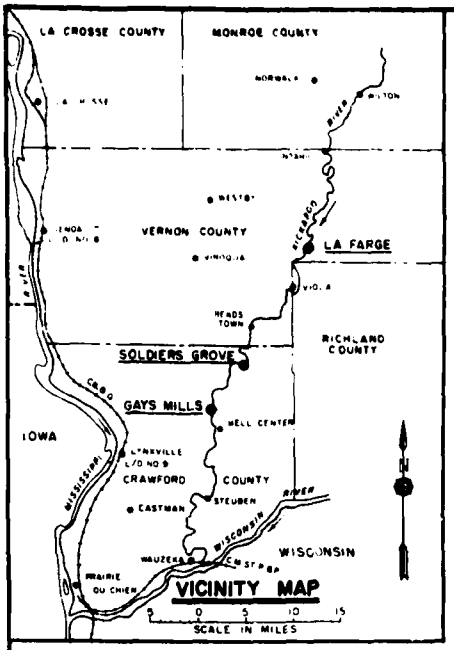
Wherever adverse effects have been found to be involved, consideration has been given to mitigating measures. In some instances, mitigation has been found to be feasible and will be undertaken. In other instances, adverse environmental effects cannot be avoided by following reasonable alternatives which will achieve the intended project purposes. Recognizing that evaluation of the intended project purposes does involve certain adverse consequences which have been explained and analyzed in this statement, I find that the action leading to such adverse effects is nonetheless justified by other considerations as discussed above.

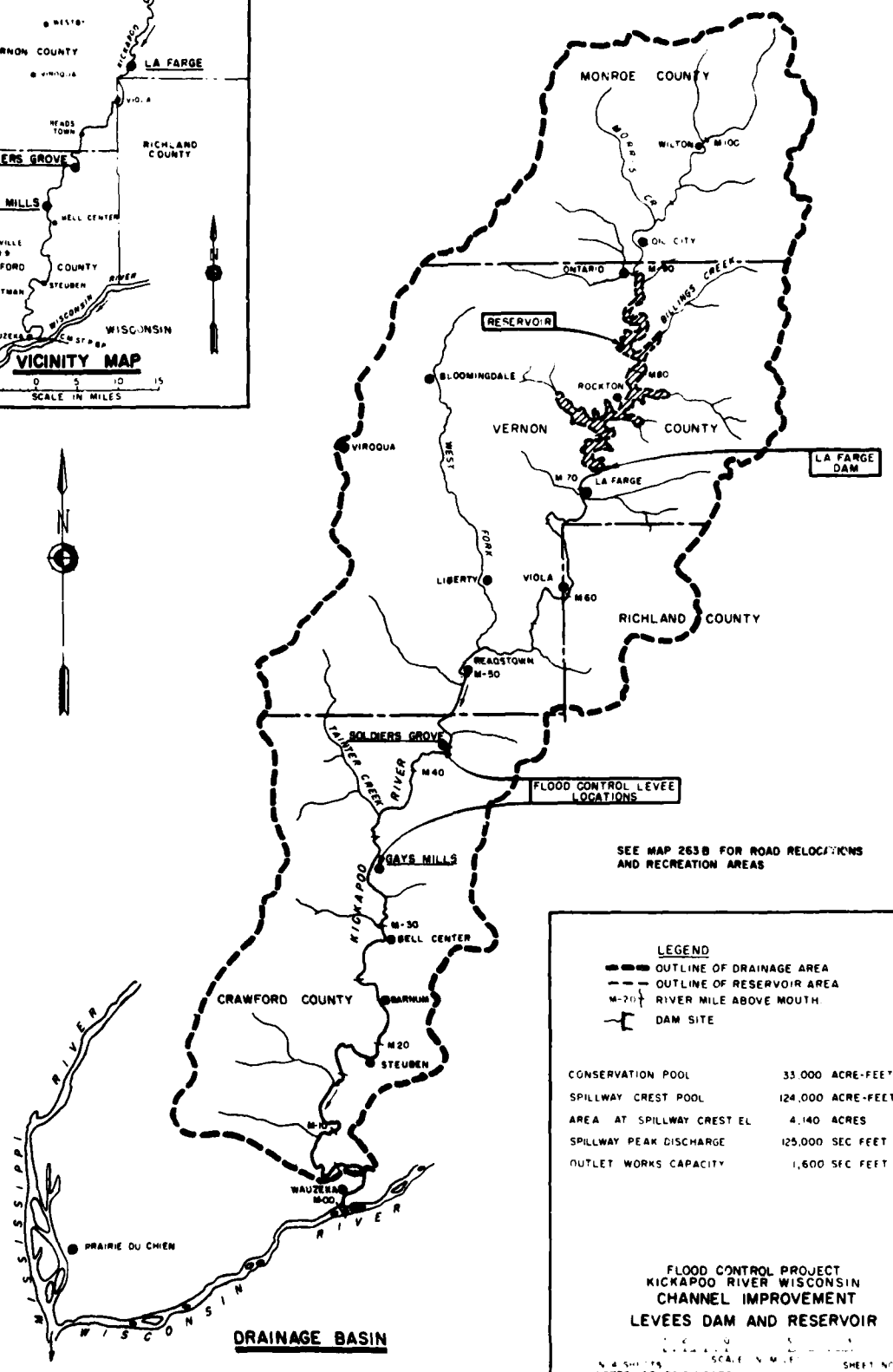
In light of these findings, I am convinced that the action as proposed in this recommendation is based upon consideration of all appropriate alternative courses of action for achieving the stated objectives; that the action is fully consistent with national policy, laws, and administrative directives; and that the total public interest is best served by its implementation.

RODNEY E. COX
LTC, Corps of Engineers
District Engineer

CORPS OF ENGINEERS U S ARMY

263





SEE MAP 263B FOR ROAD RELOCATIONS AND RECREATION AREAS

LEGEND

- OUTLINE OF DRAINAGE AREA
- OUTLINE OF RESERVOIR AREA
- M-70 RIVER MILE ABOVE MOUTH
- DAM SITE

CONSERVATION POOL	33,000 ACRE-FEET
SPILLWAY CREST POOL	124,000 ACRE-FEET
AREA AT SPILLWAY CREST EL	4,140 ACRES
SPILLWAY PEAK DISCHARGE	125,000 SEC FEET
OUTLET WORKS CAPACITY	1,600 SEC FEET

FLOOD CONTROL PROJECT
KICKAPOO RIVER WISCONSIN
CHANNEL IMPROVEMENT
LEVEES DAM AND RESERVOIR

SCALE N MILE

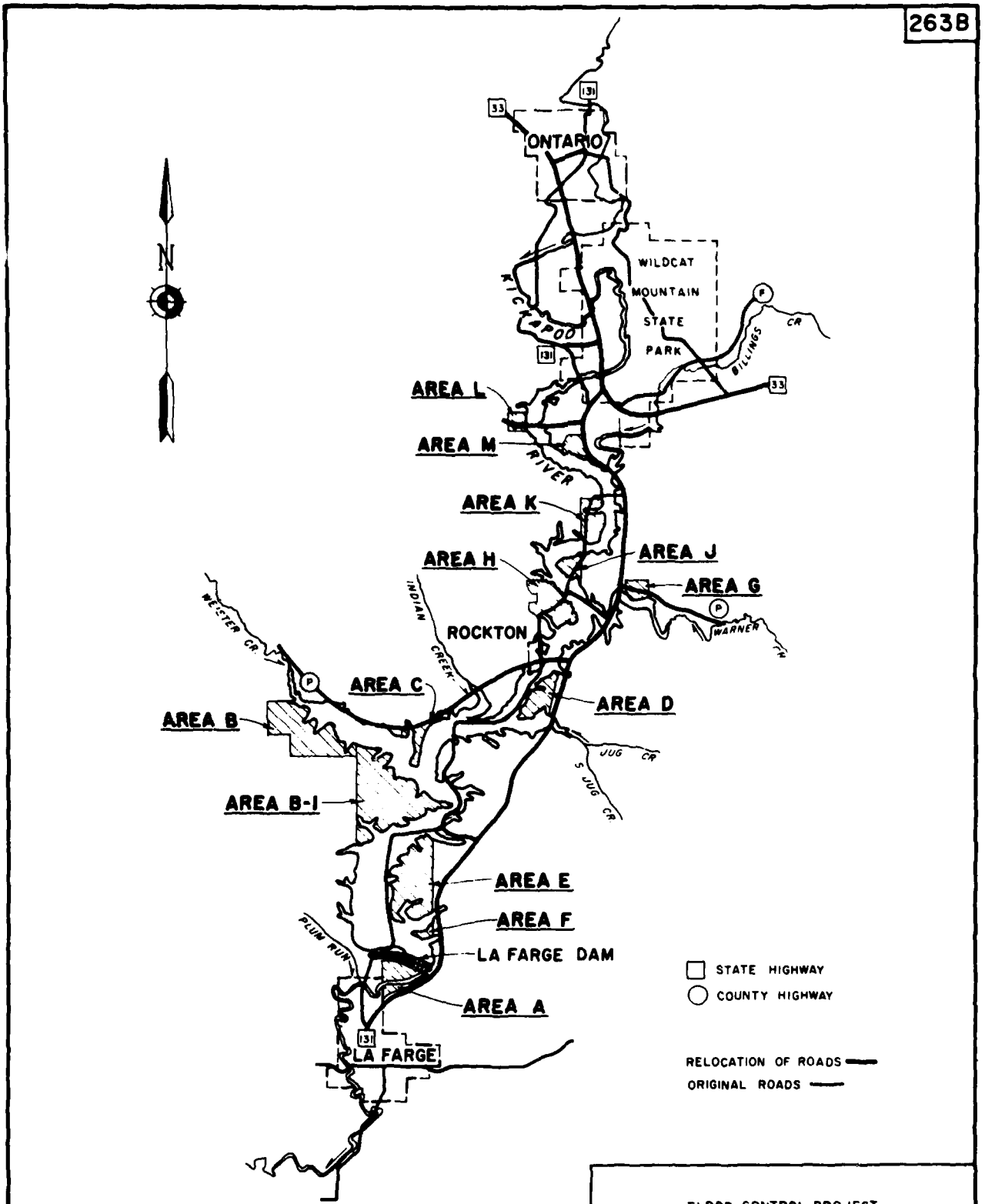
N A SHEETS SHEET NO

CORPS OF ENGINEERS U S ARMY
OFFICE OF THE DISTRICT ENGINEER
ST PAUL DISTRICT ST PAUL, MINN
30 JUNE 1968

PLATE-1

CORPS OF ENGINEERS U.S. ARMY

2638



VERNON COUNTY
WISCONSIN

FLOOD CONTROL PROJECT
KICKAPOO RIVER WISCONSIN

RECREATION AREAS
RELOCATION OF ROADS

4000 0 4000 800
SCALE IN FEET

4 SHEETS SHEET NO. 1
CORPS OF ENGINEERS U.S. ARMY
OFFICE OF THE DISTRICT ENGINEER
ST PAUL DISTRICT ST PAUL, MINN.
30 JUNE 968

PLATE - 2

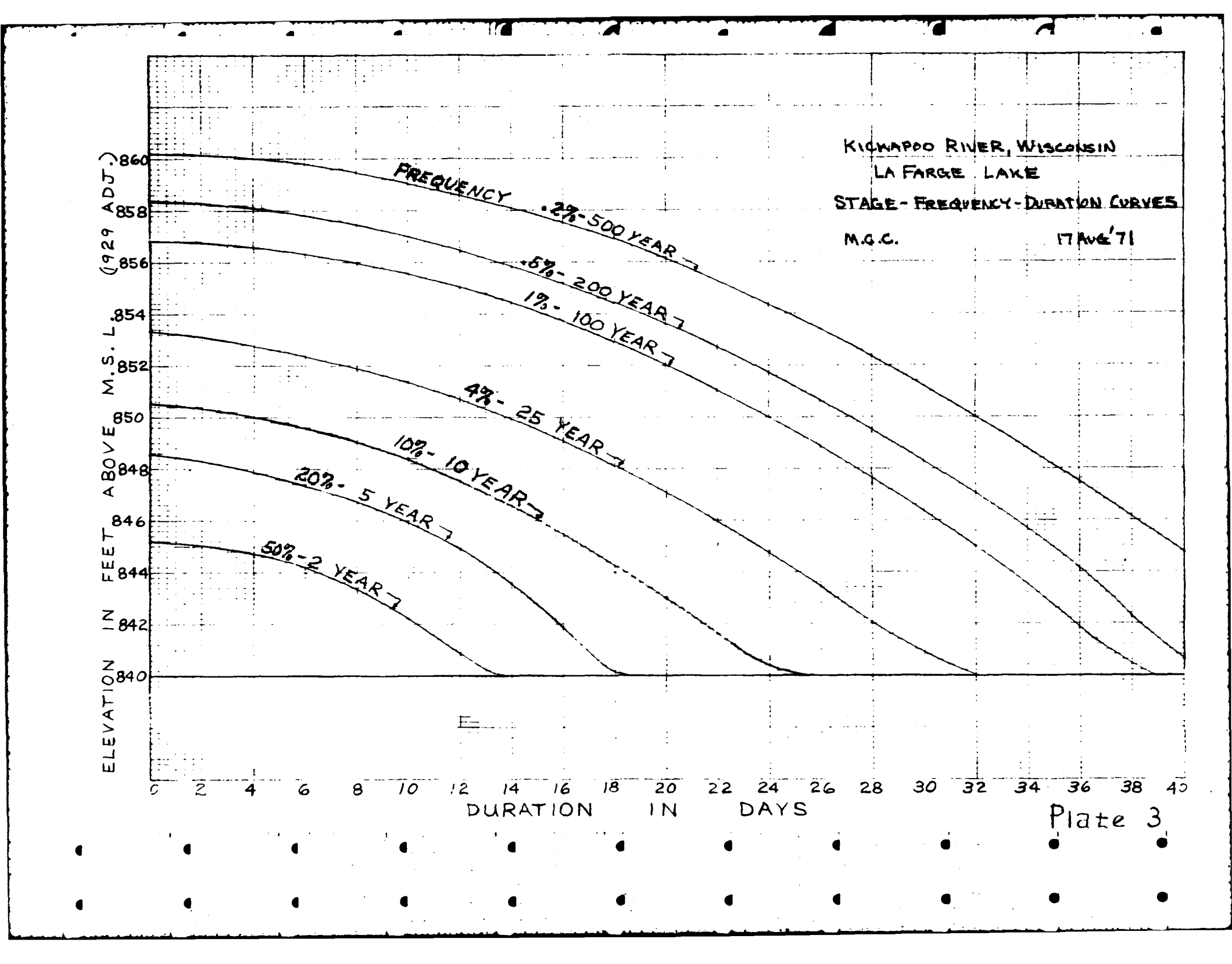

KICKAPOO RIVER, WISCONSIN
LA FARGE LAKE
STAGE - FREQUENCY - DURATION CURVES
M.G.C. 17 AUG '71
FREQUENCY
.2% - 500 YEAR
.5% - 200 YEAR
1% - 100 YEAR
4% - 25 YEAR
10% - 10 YEAR
20% - 5 YEAR
50% - 2 YEAR
ELEVATION IN FEET ABOVE M.S.L. (1929 ADJ.)
860
858
856
854
852
850
848
846
844
842
840
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40
DURATION IN DAYS

Plate 3

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION FOUR
18209 DIXIE HIGHWAY
HOMEWOOD, ILLINOIS 60430

October 19, 1971

IN REPLY REFER TO
4-00.5

LTC Rodney E. Cox
District Engineer
Corps of Engineers
1210 U. S. Post Office & Custom House
St. Paul, Minnesota 55101

Dear Mr. Cox:

Your September 17, 1971 letter to our Wisconsin Division Engineer requested Federal Highway Administration review and comment on the revised draft of an environmental statement on La Farge Lake, Kickapoo River, Wisconsin. Draft environmental statements pursuant to Section 102(2)(C) of the National Environmental Policy Act, when submitted to FHWA for comment, should be directed to the Regional Federal Highway Administrator in whose jurisdiction the action lies unless such action has national implication or other unusual circumstances warranting Washington office review. A current list of our Regional Administrators, page 137 of CEQ's September 1971 "102 Monitor", is enclosed along with a map indicating realignment of FHWA regional boundaries effective January 1, 1972.

We appreciate the opportunity to review and comment on this draft environmental statement. The following comments regarding highways (roads) and bridges are offered for your consideration in developing the final statement.

1. The affected State and County roads discussed on pages 27 and 28 of the draft are on the Federal-aid Secondary System as follow: STH 33 is also FAS 332, STH 131 is also FAS 327, CTH F is also FAS 607, and CTH P is also FAS 609.

2. Wisconsin STH 131 (FAS 327) in the area of this report is one of the scenic highways nominated by the State as part of the National Scenic Roads Study prepared by the President's Council

on Recreation and Natural Beauty. The graphics and other information presented in the draft are not considered to clearly indicate the proposed improvement, topography, or natural growth existing now or anticipated after the improvement. It is suggested that the final statement present sufficient information (verbal and/or graphic) to ascertain the scenic quality of the proposed relocation of this especially scenic highway.

3. The approximate length of State and County road relocations presented in the fourth paragraph on page 34 does not correspond with lengths presented in the last paragraph on page 27. Apparently the 6.3 miles of relocation for CTHs P and F were omitted.

4. The fourth paragraph on page 34 also indicates that 33 old bridges of obsolete design will be salvaged for reuse. It appears that such reuse would be improbable. Other disposal or sale as scrap would be a more likely disposition of any material from these old, obsolete structures.

Sincerely yours,

F. B. Farrell
Regional Administrator

By: A. L. Frank
A. L. Frank
Deputy Regional Administrator

Enclosure

cc: W/O Mr. J. M. O'Connor, Act. Assoc. Admin.
for ROW & Environment FHWA EV-1

D/O Wisconsin 4-47.1

Council on Environmental Quality (10)
Washington, D. C.

Regional Federal Highway Administrators

ION 1
onn., N.H., R.I., Mass., Puerto Rico, Me., N.J., Vt., N.Y.)
inistrator: Gerald D. Love, 4 Normanskill Blvd., Delmar, N.Y. 12054
Tel: (518) 472-6476

ION 2
l., Ohio, Md., W.V., D.C., Penna., Va.)
inistrator: August Schofer, Rm. 1633, George H. Fallon Federal Office Bldg., 31 Hopkins Plaza, Baltimore, Md. 21201
Tel: (301) 962-2361

ION 3
abama, S.C., Georgia, N.C., Fla., Tenn., Miss.)
inistrator: Harry E. Stark, Suite 200, 1720 Peachtree Rd, N.W., Atlanta, Georgia 30309 Tel: (404) 526-5078

ION 4
l., Ky., Wisc., Indiana, Mich.)
inistrator: Fred B. Farrell, 18209 Dixie Hwy., Homewood, Ill. 60430
Tel: (312) 799-6300

ION 5
wa, Neb., Minn., Mo., Ka., N.D., S.D.)
inistrator: John B. Kemp, P.O.Box 7186, Country Club Station, Kansas City, Missouri 64113 Tel: (816) 361-7563

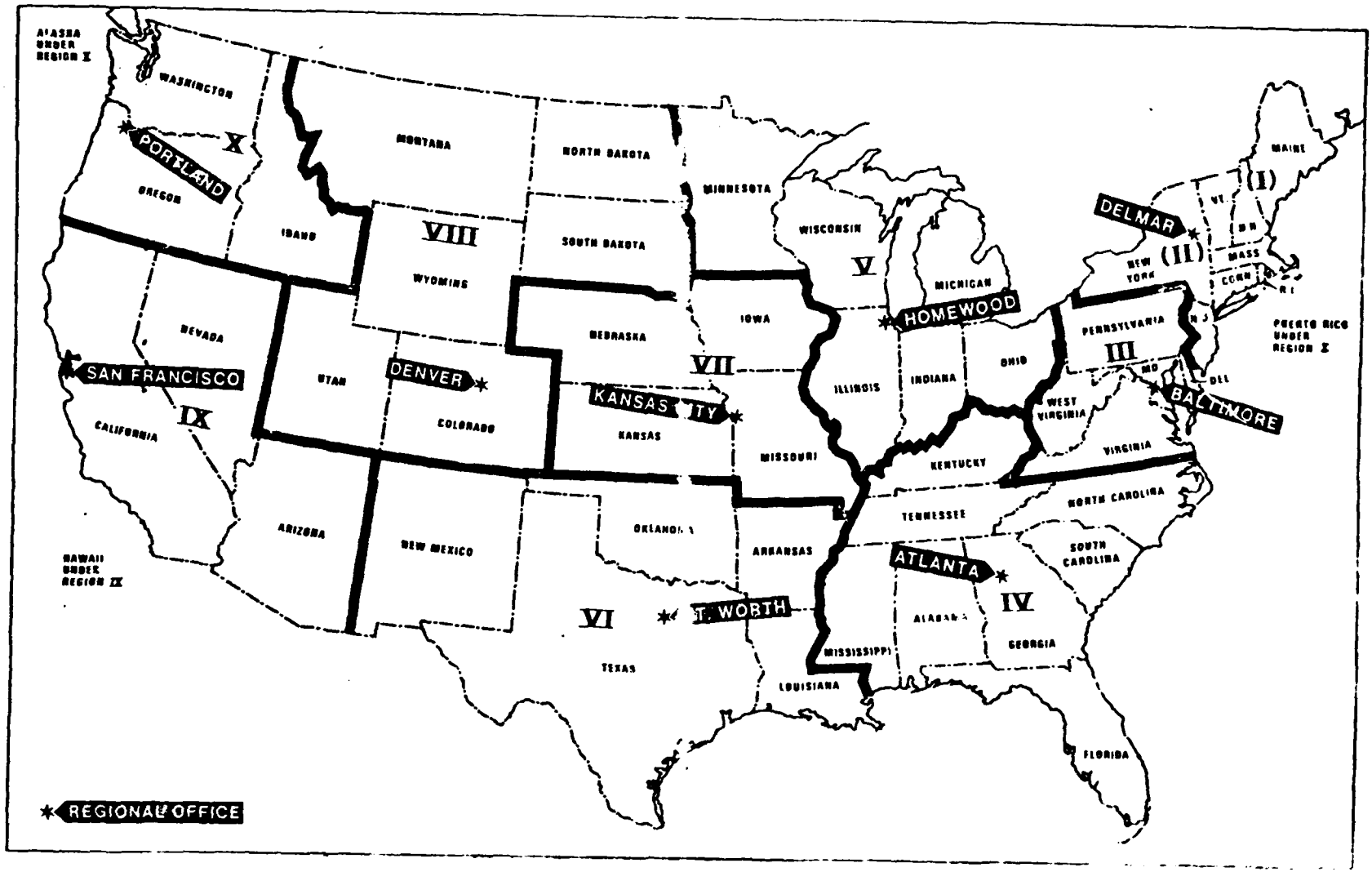
ION 6
k., Oklahoma, La., Texas)
inistrator: James W. White, 819 Taylor St., Ft. Worth, Texas 76102
Tel: (817) 334-3232

ION 7
izona, Hawaii, Calif., Nevada)
inistrator: Sheridan E. Farin, 450 Golden Gate Ave., Box 36096, San Francisco, Calif. 94102 Tel: (415) 556-3951

ION 8
aska, Montana, Wash., Idaho, Oregon)
inistrator: Ralph M. Phillips, Rm. 412, Mohawk Bldg., 222 Southwest Morrison St., Portland, Ore. 97204
Tel: (503) 226-3454

ION 9
l., Utah, N.M., Wyoming)
inistrator: William H. Baugh, Bldg. 40, Denver Federal Center, Denver, Colorado 80225 Tel: (303) 233-6721

REALIGNMENT OF FHWA REGIONAL BOUNDARIES



NOTE: NO CHANGE IN CURRENT FHWA REGION 1 BOUNDARIES - OUR REGION I WILL BE REDESIGNATED AS ROMAN NUMERAL I WHICH INCLUDES STANDARD REGIONS I AND II.

UNITED STATES OF AMERICA
ENVIRONMENTAL PROTECTION AGENCY
REGION V
1 North Wacker Drive, Room 900
Chicago, Illinois 60606

November 30, 1971

lodney E. Cox, District Engineer
r Engineer District, St. Paul
Post Office & Customhouse
Minnesota 55101

mental Protection Agency regrets that it has been unable
ur deadline to complete the review of the impact statement
Farge Lake, Kickapoo River, Wisconsin.

re anxious for you to receive our comments before the
n of a final statement, we are requesting an extension
dline.

hear otherwise, we will assume that such an extension has
d. You should expect to receive our comments no later
ber 14, 1971.

for your cooperation.

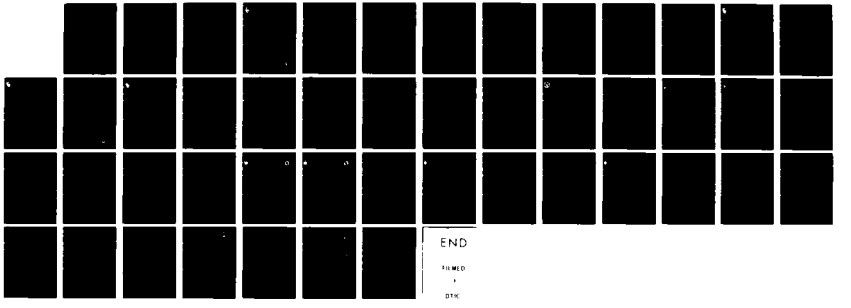
Sincerely yours,

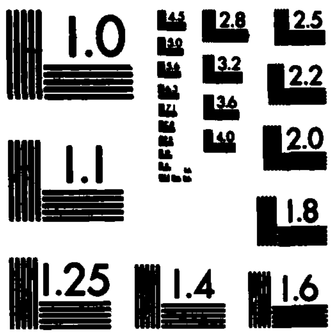
Merrill B. Gamet

Merrill B. Gamet
Chief, Federal Activities
Coordination Branch

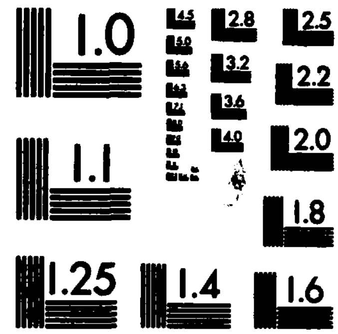
AD-A120 479 LA FARGE LAKE KICKAPOO RIVER VERNON COUNTY WISCONSIN 2/2
FINAL ENVIRONMENTAL STATEMENT(U) CORPS OF ENGINEERS ST
PAUL MN ST PAUL DISTRICT 18 FEB 72

UNCLASSIFIED F/G 13/2 NL





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A



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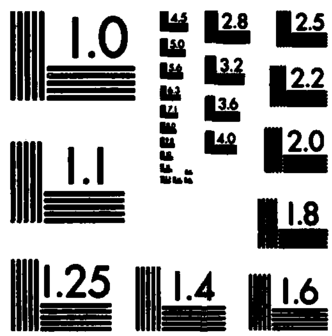

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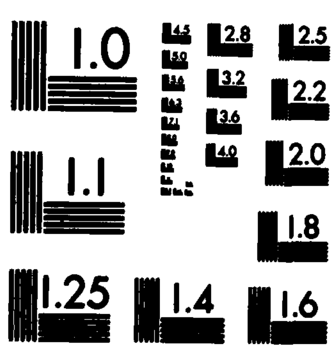

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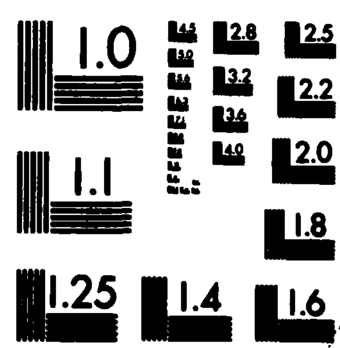

MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

UNITED STATES OF AMERICA
ENVIRONMENTAL PROTECTION AGENCY
REGION V
1 North Wacker Drive, Room 900
Chicago, Illinois 60606

DEC 10 1971

Lt. Col. Rodney E. Cox, District Engineer
U. S. Army Engineer District, St. Paul
1217 U. S. Post Office & Customhouse
St. Paul, Minnesota 55101

Dear Col. Cox:

Your letter of September 17, 1971 requested that this office provide review comments on the draft of the environmental statement for La Farge Lake, Kickapoo River, Wisconsin.

A report on water supply and quality control was prepared by HEW in February, 1965. As indicated in your report, the last contact with the Federal Water Pollution Control Administration (which is now part of the Environmental Protection Agency) was in June, 1966. Reorganization Plan No. 3 of 1970, which established EPA, assigned all functions of the FWQA (Department of Interior) National Air Pollution Control Administration (Dept. of HEW), and Bureaus of Water Hygiene and Solid Waste Management (Department of HEW) to EPA and also the functions of the Council on Environmental Quality under Section 204 (5) of National Environmental Policy Act of 1969 as pertaining to studies of ecological systems.

Fulfillment of the intent of this last function is not possible within the time frame established for this project. Moreover, it appears that the information provided in the appendices to the statement indicate that the ecological system has been thoroughly studied both by government and private agencies. No further study by EPA is scheduled. The program to transplant certain rare plant species will be watched with interest.

No environmental issues are anticipated relating to water supply or air quality. Although the report lists existing solid waste disposal areas, no reference is made to the handling of the solid wastes which will be generated by 735,000 annual visitations.

DEC 10 1971

Lt. Col. Rodney E. Cox, District Engineer
U. S. Army Engineer District, St. Paul

Page 14 of the report indicates that a program is being initiated to monitor changes in water quality. The water quality management plan for this area indicates that present quality is reasonably good. There are seven identified point sources of wastes of which six have deficient treatment. Governor Lucy's letters of May 20, 1971 to General Graves and State officials make it clear that a program must be undertaken to prevent degradation of the water quality in the reservoir.

Since the State water quality standards were established for a free flowing stream, it does not appear that enforcement of present standards would in itself prevent eutrophication in the reservoir, as indicated on Page 42. The necessary program to prevent pollution, which should be stressed in your statement, must include a re-evaluation of the water quality standards program for the upper reaches of the Kickapoo River.

We appreciate the opportunity to comment on this Draft Environmental Impact Statement and apologize for the delay in providing our comments.

Sincerely yours,

Francis T. Mayo
Regional Administrator

United States Department of the Interior

FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
Federal Building, Fort Snelling
Twin Cities, Minnesota 55111

IN REPLY REFER TO:

RB

November 15, 1971

Lt. Col. Rodney E. Cox
District Engineer
U. S. Army Engineer District
St. Paul
1210 U. S. Post Office & Customhouse
St. Paul, Minnesota 55101

Dear Col. Cox:

This is in response to your letter of September 17, 1971 (File NCSED-PB) requesting our comments on the revised draft environmental impact statement for the authorized LaFarge Reservoir Project, Wisconsin. The information received is quantitatively impressive, but the data on fish and wildlife biology is qualitatively weak, especially in comparison to the comprehensive coverage of other subjects.

Due to the advanced stage of project planning, we will keep our comments as brief as possible. Comments are keyed to the major headings of the draft statement.

1. PROJECT DESCRIPTION

Page 1, last paragraph - The "current" interest rate figure should be changed from 5 1/8 to 5 3/8 percent.

2. ENVIRONMENTAL SETTING WITHOUT THE PROJECT

Page 9, Paragraph 1 - We do not concur that channel work proposed by the Monroe County Director of Natural Resources will improve the scenic quality of the Kickapoo River for canoeing enthusiasts. Channeling normally degrades the scenic quality of a river.

Page 11, Paragraph 1, last sentence - We seriously question the implication that conifers give off "noxious emissions into the air". The term "noxious" usually connotes something harmful, destructive, or distasteful. While conifers do produce characteristic odors, these normally are not considered noxious. To most outdoorsmen, this is part of the allure of the North woods.

Page 15, Paragraph 3, lines 4 and 5 - The sentence, "This latter fact offsets the desirability of southern Wisconsin for fishing," reflects only an opinion not substantiated by fact. Southwestern Wisconsin, with its high quality trout, smallmouth bass, and catfish stream fisheries supports a highly desirable resource. We suggest the above quoted sentence be deleted.

Page 15, Paragraph 3, lines 8-11 - The sentence stating that "fishing license sales indicate that in this area 50 percent of the fishing is by Minnesota residents, 35 percent by Wisconsin residents, and 12 percent by Illinois residents" is misleading and has been interpreted erroneously. Upon analysis, it is evident the 50 percent of the Minnesota nonresident sales in the west central Wisconsin zone have been strongly influenced by the Mississippi River fishery. These figures should not be applied to the Kickapoo Basin. A better indicator of nonresident sales is present in the Vernon County license sales where the LaFarge Project is proposed. Between 1940 and 1962, 14 percent of the fishing license sales in Vernon County, Wisconsin were to non-residents. This includes sales to all nonresidents, not only those to Illinois and Minnesota. Please make the appropriate changes.

Page 15, Paragraph 4, 2nd sentence - The use of the words "marginal wildlife habitat" is inappropriate. Marginal would apply to the agricultural lands, but the wooded tracts support considerable numbers of deer, ruffed grouse, squirrels and other forms of wildlife. The harvest of small game per acre in this region exceeds the state average and the harvest of big game is only slightly below the state average. Based on these facts we suggest that this sentence be rewritten.

Page 15, last paragraph, sentence 1 and 2 - This overstates the problem. Many of the wooded areas provide excellent food and cover for deer, grouse, and squirrels.

Page 16, Paragraph 1, sentence 1 - Wildlife in the Kickapoo River area is composed primarily of those species tolerant to farming. Farming operations have forced out some of the original species. Your paragraph implies depredation problems which you may find difficult to support.

Page 16, Paragraph 2 - Temporary flooding does not necessarily destroy wildlife habitat. More often, it alters it. Most wildlife species of the floodplain re-nest if flooding destroys

the first or second nesting attempt. In fact, periodic flooding is the principal reason wildlife habitat remains in many agricultural areas. Once floods are controlled, more intensive farming destroys wildlife habitat. We suggest this paragraph be deleted, since it appears to be an attempt to justify flood control as a means of benefitting wildlife.

Page 16, Paragraph 3, sentence 1 - This sentence conflicts with paragraph 2, page 15. See previous comments on this subject. We suggest this sentence be deleted.

Page 16, Paragraph 4 - This sentence content is well expressed in other ways in the following paragraphs. We suggest its deletion.

Page 16, Paragraph 5 - This is a strong indictment. Damage "throughout Wisconsin" from pollution and urban development would be difficult to substantiate. In any event, is this a necessary prelude to Kickapoo River discussion? We recognize siltation problems here, but the stream still supports brown trout, channel catfish, and other game fish. In lines 5-7, the aquatic invertebrates important to a river system are bottom dwellers, and aquatic vegetation is not requisite to the existence of many such organisms. We suggest this sentence be deleted. We cannot concur in your last sentence regarding absence of streambank vegetation.

Page 16, Paragraph 6 - We suggest this paragraph be reworded as follows: "Carp are abundant in the mainstem of the Kickapoo River. Other relatively abundant fish species are northern redhorse, golden redhorse, white sucker . . . etc."

Page 16, Paragraph 7 - We suggest this paragraph be reworded as follows: "The Kickapoo River supports a modest warmwater stream fishery. In the tributaries and upper reaches trout are still included in the catch. Channel catfish are more widely distributed and are the most important game fish for most anglers."

3. ENVIRONMENTAL IMPACT OF THE PROPOSED ACTION

Page 18, Paragraph 1, last sentence - This sentence is not accurate and we suggest its deletion. The rich ecological and wildlife values of the floodplains and bluffs are no less real because they are not generating a cash flow. Why call them "nonproductive"?

Page 19, 1st sentence - It is true that portions of the Kickapoo River could have a more dependable flow of water for floating a canoe. However, the project will destroy and preempt 12 miles of the Kickapoo River, transforming it into a reservoir with much different qualities from the canoer's standpoint.

Page 19, Paragraph 2 under Physiography - With 160 acre-feet or more of silt coming down the Kickapoo each year, we wonder if this description about deposition and deltas is not understated.

Page 19, Paragraph 4, line 1 - The statement that "The water discharging from the dam might be clear . . ." weakens the premise.

Page 25, Paragraph 1 - Change sentence 2 to read, "a man-made reservoir will flood 1,780 acres of land which features a combination of agriculture, woodland, pasture and wildlife habitat with associated flora and fauna.

Page 25, Paragraph 2, sentence 1 - Change ". . . probably will be affected . . ." to ". . . will be reduced in extent . . .". The last sentence of this paragraph is open to question. For example, cockleburs and other annuals commonly occupy exposed flats following flooding, but they offer little for wildlife.

Page 25, Paragraph 3 - The material in this paragraph provides a general statement on ecology but it does not contribute much to the discussion on LaFarge Project. We suggest deletion of this paragraph.

Page 25, Paragraph 4 - We suggest the second sentence be reworded to read: "Displaced terrestrial animals will compete with adjacent populations for food and space. This will increase stress, reduce survival and reduce total population."

Page 25, Paragraph 5, sentences 1 and 2 - "Some permanent-type habitat" is vague. What is mean by "partial reproductive isolation"? We suggest sentences one and two be reworded as follows: "Considerable wildlife habitat below LaFarge Dam is expected to be lost to more intensive cultivation and expanded agriculture, once flood prevention is assured. The dam and reservoir will restrict the mobility of many land and aquatic animals."

Page 25, Paragraph 6, line 10 - Omit "and day length" from this sentence.

Page 26, Paragraph 2, lines 9, 10 and 11 - This sentence is conjectural and opinion. There can be no gain in wildlife until all losses accruing to the reservoir have been compensated. We hope that intensive management of reservoir lands will restore

wildlife populations to their original levels. Any "overall gain of wildlife" is highly optimistic.

Page 26, Paragraph 4, line 4 - Change "pickeral" to "pickerel". Change "milfait" to "milfoil". Delete coontail and wildcelery from the list of emergent plants.

Page 26, Paragraph 5, lines 3-6 - These sentences read: "Undesirable fish species will be suppressed so that the fishery forage base can be utilized by game fish. Fish management may be complicated by water level fluctuations because of the priority purpose of flood control for the project." There are serious fishery management problems inherent here and the control of rough fish in this reservoir will likely be very difficult. It will be complicated by management of the reservoir levels primarily for flood control. We suggest development of a water management plan at LaFarge which will be fully consistent with fishery needs if this project is to be truly multi-purpose.

Page 32, Paragraph 2 - This paragraph is most confusing. We suggest it be rewritten.

Page 32, Paragraph 4, 1st sentence - This sentence reads as follows: "Foresting of certain appropriate areas will not only replace the loss due to clearing in the conservation pool, but will also enhance the wildlife habitat."

The statement referring to enhancement of wildlife habitat is only opinion which is not substantiated by facts. It is Bureau of Sport Fisheries and Wildlife policy that there can be no enhancement until all habitat losses have been compensated. Certainly the planting of trees will not replace all the habitats destroyed or damaged by the LaFarge Project.

Page 32, last paragraph - We doubt that a transplant program of rare species would be very successful. In any event, Wisconsin Department of Natural Resources should be requested to coordinate any such activity.

Page 33, Paragraph 2 - We doubt that local residents have the necessary expertise to be qualified as botanists or horticulturists of rare plant species. We suggest deletion of the last two sentences.

4. ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED SHOULD THE PROPOSAL BE IMPLEMENTED.

Page 33, Paragraph 4, line 3 - Delete "the existing marginal" and substitute "any remaining".

Page 35, Paragraph 3 - This paragraph is quoted below:

"The fish habitat to be lost through construction and operation of the LaFarge Lake includes some marginal trout water in lower reaches of tributary streams and a 12-mile stretch of the Kickapoo River mainstem. The existing fishery in the latter is mediocre and insignificant because of stream silting and high populations of rough fish. The conversion of these streams into standing water habitats will not comprise a significant loss."

In line 2, we suggest you remove the word "marginal". Sentence 2 should be reworded as follows: "The Kickapoo River presently supports a modest warmwater fishery. Its present condition is the result of siltation, sedimentation and other degradation brought about by agricultural or urban development."

Page 35, Paragraph 4 - This paragraph is quoted below:

"The Kickapoo Valley is generally marginal wildlife habitat because of improper land management during the past 100 years. The 1,780 acres to be inundated by LaFarge Lake include about 1,000 acres of agricultural and 800 acres of forested land. This loss from the terrestrial ecosystem will not be significant in terms of wildlife habitat because forest land understory has been destroyed by cattle browsing while agricultural lands have been managed for crops and cattle production. The approximately 1,400 acres of land to be developed for recreation will not be entirely lost to wildlife because a variety of small mammals, birds, and insects usually occupy such areas. The presence of such animals is generally regarded as a recreational asset."

We suggest sentences 1, 2 and 3 be reworded as follows:

"The Kickapoo Valley now provides only average quality wildlife habitat, due to its deterioration from improper land management during the past 100 years. The 1,780 acres to be inundated by LaFarge Reservoir now features a combination of agricultural land, woodlots, river bottoms, and pasture with associated flora and fauna. The loss of this area will eliminate considerable

"edge" with resultant loss of wildlife habitat. Nongame species, including songbirds, will be affected in addition to game species already noted."

Delete "insects from sentence 4.

The last sentence of the quoted paragraph adds little or nothing to this section on Fish and Wildlife Habitat Losses. We suggest the sentence be deleted.

Page 37, Paragraph a, lines 11-12. This sentence is quoted below:

"Under these circumstances, fish and wildlife habitats would continue to remain mediocre or even depreciate."

This sentence is open to question. We do not expect further depreciation of fish and wildlife habitat under a "no action" alternative. We suggest this sentence be rewritten as follows:

"Under these circumstances, fish and wildlife habitats would remain essentially the same."

Page 41, Paragraph 1 - Your proposal to maintain nutrient productivity in the reservoir as it ages raises some questions. Such a proposal can be a good management tool, when needed. The chances for early aging from eutrophication are far greater, however. Overfertilization may be the greatest danger to the reservoir. Before any plan to increase nutrients is put into effect it should be coordinated with the Wisconsin Department of Natural Resources and the Bureau of Sport Fisheries and Wildlife. It is extremely unlikely that added nutrients will be needed. This paragraph also seems to conflict with the philosophy of Paragraph 1, Page 42.

6. SHORT-TERM USES OF THE EXISTING ENVIRONMENT AS COMPARED TO MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY.

This section is adequate.

7. IRREVERSIBLE OR IRRETRIEVABLE COMMITMENTS OF RESOURCES.

Page 42, Paragraph 4, lines 10-12 - We do not agree that labor required to construct the project is a natural resource. Labor is a human activity providing goods or services. We suggest you rewrite this sentence deleting references to labor.

Page 43, Paragraph 1, line 8 - You indicate a loss "might be" irretrievable if the rare plant transplant program fails. The "might be" should be deleted. We suggest "will likely be" in place of "might be".

Page 43, Paragraph 2 · This appears to be an attempt to minimize project-incurred losses of natural resources. If this paragraph is retained in the final impact statement, we suggest the following be added to the discussion:

"Inundation by LaFarge Reservoir will have irreversible and irretrievable commitments on 1,780 acres of land supporting a variety of ecological communities and habitats. Although some project lands will benefit from intensive wildlife management practices, lost habitat will not be replaced. Reservoir habitat will be created, which will replace a free-flowing river segment, river edge and bottoms, and adjacent terrestrial units."

We have serious reservations about the use of Appendix III The Vegetation and Flora of the Driftless Area, Including the Kickapoo Valley. Many plants included in the list would not be expected to occur in the project area. If a list is deemed necessary, we suggest appropriate revision to make it apply to the more local area, rather than all or portions of a 20-county area.

We are sorry that we were unable to complete review of this statement within the normal 30-day review period. We appreciate the additional time allowed us to review and comment on this project.

Sincerely,

Galen I Buterbaugh

Galen I Buterbaugh
Acting Asst. Regional Director

United States Department of the Interior

GEOLOGICAL SURVEY

Water Resources Division
1815 University Avenue
Madison, Wisconsin 53706

October 19, 1971

Mr. Rodney E. Cox, District Engineer
St. Paul Corps of Engineers
1210 U.S. Post Office and Custom House
St. Paul, Minnesota 55101

Dear Mr. Cox:

We have reviewed very briefly the revised draft of a Corps of Engineers' environmental impact statement on La Farge Lake on the Kickapoo River in Wisconsin. This statement considers numerous effects of the proposed reservoir on the La Farge reach of the Kickapoo River, as well as possible impacts on the environment.

The following comments by this office do not constitute the official Department of Interior review. They are based only on available data and are concerned only with the effects of the proposed reservoir on the hydrologic system in the area.

Ground Water--The ground-water considerations in the report are comprehensive and consider possible high-water table and ground-water pollution concerns.

I do not concur with the text statement on pages 21-22 that the La Farge Lake (elevation 840) will raise ground-water levels only in the near vicinity of the lake and that there would be no shift in t' ground-water divide. Instead, I would expect that a shift of the ground-water system from river discharge to the higher altitude lake discharge would result in an appreciable amount of rise in the ground-water table between the lake and the divide. The slope of the water table from the divide to the lake should approximate the present ground-water table slope to the river. A lesser rise in the water table in the divide area would result if the ground-water divide shifts toward the lake. Ground-water discharge to the lake would decrease and discharge to an adjacent stream would increase. This expected rise in the water table may be beneficial to well owners because of reduced pumping lift. However, the water table rise may be detrimental to owners of dwellings whose basements may be located below the new level of the water table.

Surface Water--The possible effects of the proposed reservoir on the streamflow system are adequately described in the text. My only concern might be the eroding effects of sediment-free water discharging from the reservoir. A USGS gaging station located below the proposed reservoir site will monitor changes in streamflow and site changes in the stream channel.

Quality Water--Water-quality changes resulting from dam construction, land-use changes, and reservoir filling will be monitored at USGS-CE monitoring sites located above and below the proposed dam.

An evaluation of changes in the water system of the La Farge reach of the Kickapoo River caused by the proposed reservoir can best be made from records of data collected before, during, and after reservoir development. Surface-water flow monitoring should be expanded to include flow of principal streams entering the reservoir. Surface-water quality, as currently being conducted by the USGS-CE, should be conducted for several years after construction. Monitoring of changes in ground-water levels in representative areas of the basin should be commenced before construction and continued for several years after the reservoir is built. Observation wells may have to be constructed for monitoring purposes.

Sincerely yours,

C. L. R. Holt, Jr.
District Chief

CLH:ral

United States Department of the Interior

NATIONAL PARK SERVICE

NORTHEAST REGION
143 SOUTH THIRD STREET
PHILADELPHIA, PA. 19106

REPLY REFER TO:

L7423
NER CP

NOV 23 1971

LTC. Rodney E. Cox
District Engineer
St. Paul District, Corps of Engineers
1210 U. S. Post Office &
Custom House
St. Paul, Minnesota 55101

Dear LTC. Cox:

Please pardon the extended delay in forwarding our comments on the revised environmental statement for the La Farge Lake, Kickapoo River, Wisconsin project.

The project does not threaten the integrity of any proposed or existing National Park Service areas. Nor does it adversely affect any registered historic or natural landmarks. However, the review of this statement does evoke mingled reactions. The statement is, much to your credit, an honest, forthright presentation which clearly indicates the presence of numerous and diverse values in the work area. We are thus concerned by the impact of the project on the archeological, scenic, ecological and geologic resources of the area and trust that some measures will be devised to perpetuate them.

We are pleased to note that the statement includes provisions to complete the archeological salvage program. The statement should also give evidence of consultation with the State Liaison Officer for Historic Preservation even though there is apparently a dearth of historic values.

In view of the rich resource base of the Kickapoo Valley, we shall view the progress of this project with a great deal of interest.

Sincerely yours,

Harold I. Lessem

Harold I. Lessem
Federal Liaison, Division of
Federal, State & Private Assistance

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
P. O. Box 4248, Madison, Wisconsin 53711

October 4, 1971

Mr. Rodney E. Cox
LTC, Corps of Engineers
District Engineer
Department of the Army
St. Paul District, Corps of Engineers
1210 U. S. Post Office & Custom House
St. Paul, Minnesota 55101

Dear Mr. Cox:

We appreciated the opportunity to review the revised environmental statement on La Farge Lake, Kickapoo River, Wisconsin prepared by the U. S. Army Engineer District, St. Paul, Minnesota, dated September 17, 1971.

Our review discloses that a fair and equitable statement has been made concerning the environment. Effects and studies of PL-566 projects proposed by sponsoring local organizations and assistance provided by the Soil Conservation Service and cooperating agencies have been adequately covered.

There is one comment concerning Page 97. The second paragraph should be corrected to read that the projects authorized under the Watershed Protection and Flood Prevention Act of 1954, are limited to" . . . watershed or sub-watershed areas not exceeding two hundred and fifty thousand acres and not including any single structure which provides more than twenty-five thousand acre feet of total capacity instead of five thousand acre feet of total capacity.

Sincerely,

Richard W. Akeley

Richard W. Akeley
State Conservationist

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF OUTDOOR RECREATION
LAKE CENTRAL REGION
3853 RESEARCH PARK DRIVE
ANN ARBOR, MICHIGAN 48104

D6427UM

November 9, 1971

District Engineer
U.S. Army Engineer District,
St. Paul
1210 U.S. Post Office and Custom House
St. Paul, Minnesota 55101

Dear Sir:

The following comments are provided in response to your draft environmental impact statement for the La Farge Reservoir project in Wisconsin which was prepared in accordance with Section 102(c) of the National Environmental Policy Act of 1969 and transmitted in a letter dated September 17, 1971 (NCSED-PB). Comments provided at this time are in addition to or supportive of our previous draft impact statement comments which were transmitted to your office October 26, 1970.

1. Project Description - Channelization and local flood protection measures referred to in the statement should either be discussed in more specific terms or covered in a separate impact statement.

2. Environmental Setting Without the Project

Page 3, first paragraph - Some mention should be made of the popularity of sightseeing and pleasure driving activities in the Kickapoo River Valley.

Page 6, Land Use - The stream system is not a land use as this section implies. The condition of the stream system, however, is related to past and present land use within the watershed.

Page 7, fifth paragraph - The current economic trends related to declining agricultural activity are generally caused by a variety of interrelated socio-economic conditions; the statement that the agricultural decline in the Kickapoo Valley is due to flooding over the past 15 years should be documented to evidence objectivity.

Page 8, Recreation Resources - The sentence discussing water-based activities could be reworked. As a suggestion: "Present water-based activities include canoeing and fishing. Opportunities for motor-boating, water-skiing, boat fishing, and swimming are limited or lacking due to the absence of a suitable water body."

The description of the Kickapoo River as a canoeing river needs some clarification. The last sentence on page 8 refers to the river as "generally quite shallow." Apparently, this describes the reach between Ontario and Wilton, which the Monroe County Director of Natural Resources proposes to deepen. The reference to this reach of the river should be more specific. The proposed deepening below the damsite could disrupt the stream ecology of that reach. While the deepening is not a part of the La Farge Lake project, it apparently is being proposed to replace the loss of one of the more canoeable stretches of river. Since that loss is due to the project, the deepening and subsequent environmental impact will be an indirect result of the project and should be discussed more thoroughly in the impact section.

Page 9 - The last paragraph, first sentence, makes reference to the limited opportunities for camping and picnicking in the Kickapoo River Valley and the poor quality of the experience, but there is no indication whether the quality of the experience is related to poor facilities, limitation in the resource base, or both.

Page 10, paragraph 2 - The list of other recreational opportunities should include the Mississippi River and a comment on the Upper Mississippi National Recreation Area proposal.

Page 11, first paragraph - The reference to the "normal noxious emissions" of conifers appears to be inappropriate and misleading.

Page 16 - Paragraphs 4 and 7 make essentially the same point. Further, paragraphs 4 and 5 should be reversed for continuity.

Page 17, third paragraph - The statement that "Riparian vegetation . . . is very disturbed because of flooding. . ." should be qualified. Some plant species are dependent on periodic flooding.

3. Environmental Impact of Proposed Action

Page 18 - In the first paragraph, it is stated that "Most of the flood plain and bluffs are nonproductive except for some timber." This statement does not acknowledge the value of these and associated resources as wildlife habitats, recreational areas, and complementing features of the valley landscape.

The second sentence of paragraph 2 contains a reference that the value of fringe lands could be expected to be enhanced due to the proximity of the water area and development of homesites. The development of homesites should be considered an environmental loss as well as an economic asset.

Page 19 - Under "Physiography," there should be a brief discussion on changes which could be expected to physiographic features below the impoundment. Biotic communities dependent on periodic flooding for their survival would be adversely affected by regulated flows. This would constitute one example of physiographic change. The first sentence of the last complete paragraph mentions that water discharged from the reservoir might be clear; however, the next sentence implies that the water would be clear. Perhaps there should be a discussion to explain why the waters discharged from the impoundment would be clearer than existing waters. This discussion should be separate from what we assume to be the major point of the paragraph which is that discharged waters from the reservoir have a potential to produce greater stream-bank erosion than that which takes place under present conditions.

Page 20 - In both the first and last sentence of paragraph 1, the reference should be to known minerals or mineral deposits.

Page 23 - We suggest that the first sentence of the last paragraph be changed to read, "The proposed land and associated recreation areas could handle 8,500 visitors per day (expected peak load on a normal summer Sunday) in an area where lake-oriented recreation is not currently available."

Page 24, paragraphs 3-5 - The expected increase in industrial and residential development may result in air and water pollution and unwise land use. Floodplain zoning below the damsite may be required to protect the resource from the expected cultivation and residential and industrial development which will encourage vegetation removal and reduce the amount of land available for recreation and open space purposes. The environmental impact of the expected industrial and residential development should be analyzed in Section 4, "Adverse Environmental Effects. . .."

Page 26 - In the first paragraph there should be a statement on the adverse effects of mud flats on aesthetic values.

Page 28 - The third sentence of the last paragraph should be deleted or accompanied by a more complete explanation, including a reference to when historic and prehistoric remains would disappear.

Page 29, fifth sentence, last paragraph - The actual effect recreation developments will have on environmental values will depend to a great extent on facility quality, design, and location, and adequacy of facilities to satisfy demands imposed by recreationists.

Page 30 - An addition to the last paragraph is suggested. "A free-flowing stream, its associated ecosystems, and terrestrial floodplain resources would be displaced by a static, lacustrine environment. Visual perceptions associated with a scenic river valley will be replaced by those associated with an attractive reservoir setting."

Pages 31-32 - The resolution passed by the Scientific Areas Preservation Council, as quoted on page 32, states that, ". . . the SAPC. . . considers the Kickapoo River bottom lands and cliff communities above the proposed damsite to be of unique value and urges that any final consideration for creating an impoundment lake be appraised on the basis of existing unique natural qualities of the area in contrast to the alleged artificial values of the proposed impoundment." We interpret this resolution as refering to the valley as it now exists. However, the first sentence of paragraph 5, page 31, states that "the proposed La Farge Lake impoundment is considered to have value as a potential scientific area." (Underlining added.) This statement implies that the SAPC has placed a value on the impoundment as a potential scientific area, although it is the area as it now exists that has been determined to have such value.

Page 32 - The second sentence of the second paragraph is confusing and appears somewhat contradictory to previous statements of the Scientific Areas Preservation Council (pages 31 and 32). It would be helpful if the third paragraph would provide details on when, where, or how these scientific areas will be established and whether or not they will be coordinated with the Scientific Areas Preservation Council (SAPC).

Page 33 - Has the vegetation survey referred to in paragraph 2 been coordinated with SAPC and do they agree with the conclusions set forth in this paragraph?

4. Adverse Environmental Effects which Cannot Be Avoided Should the Proposal Be Implemented - The subsection on "Land Use Changes" should provide a discussion on resort, cottage, and permanent home construction which can be expected. Commercial developments supporting the tourism and recreation industry will also affect land-use patterns.

Page 35 - Under the heading "Fishing and Wildlife Habitat Losses" reference is made to the existence of marginal wildlife habitat in the project area. We have some doubt that wildlife habitat is of marginal value. Further, it is indicated that past grazing and cropping practices have depreciated or destroyed wildlife habitat values. Since man's actions are largely responsible for this condition, it is conceivably within his power to restore the wildlife habitats that were lost. This potential to restore the wildlife habitats as well as other values in the valley without the project should be noted in this subsection and other areas of the statement where appropriate.

5. Alternatives to Proposed Action

Page 38 - The paragraph continued from page 37 notes that the project would reduce human suffering among other things. This may be true to some extent, but it is also necessary to note that the project would create certain hardships for people who are unable to replace lands lost as a result of the La Farge Reservoir project.

6. Short-term Uses of the Existing Environment as Compared to Maintenance and Enhancement of Long-term Productivity

Page 41 - In the first paragraph, one of the options which may be precluded by the proposed works would be the opportunity to fully realize the inherent recreation potentials of the Kickapoo River Valley as it now exists. The potentials referred to could be partially realized by adopting a river corridor resource management plan that emphasizes discriminate recreation development, resource preservation, and reclamation of degraded environments, including the water resource base. The end result would be a resource that could conceivably provide quality recreation benefits beyond the functional life of the reservoir project. This plan would not accomplish the primary objectives of the project, nor would it in all probability provide the same recreation benefits; however, the potentials as well as desirability of a corridor management program should be discussed so that environmental impact can be determined.

7. Irreversible or Irretrievable Commitments of Resources

Page 42 - In reference to paragraph 1, we believe that the determination as to whether or not a river or portions thereof is to remain free-flowing should be made before a reservoir is constructed. Beside the labor, materials, and other resources

committed, it is highly questionable if the inundated portion of the valley could be restored to its present physical and biological condition within a realistic time span.

8. Coordination

Page 43 - It is stated that, "review comments from previously referenced agencies indicated general acceptance of the project plan (see Appendix VI)." A letter of October 26, 1970, from the Bureau of Outdoor Recreation, included in this appendix, was the Bureau's response to a request for review comments concerning the environmental aspects of the Kickapoo River Reservoir. The review comments were based on the draft environmental statement and should not be construed to imply acceptance or rejection of the project plan. Neither should the comments included herein be thought to imply acceptance or rejection of the project.

Some general comments about the statement are provided for your consideration.

Although there may have been some basis for repeated references to the degraded quality of the Kickapoo River, its fishery, and wildlife habitats of the valley, similar effort should have been devoted to a discussion of the programs that could be implemented to either reclaim those resources which have been devalued or destroyed or to realize the potentials of the existing resource base. With more intensive fishery management efforts, including a possible fish eradication program, plus improvements in water quality conditions, the stream fishery could conceivably become a viable part of the Kickapoo River Valley's recreation resource base. Complementing these efforts could be a program or plan that would provide for the management of the Kickapoo River and associated terrestrial resources as an environmental corridor or valley preserve. Such a plan could give consideration to environmentally compatible recreation developments, preserving valuable resource features and restoring degraded environments. This does not suggest that these programs would provide greater recreation benefits than programs related to La Farge Reservoir Project; however, we do feel that these potentials should be discussed in order to provide a basis to determine net environmental impact. It is further noted that many of the measures being considered to improve the quality of the reservoir setting would also improve the quality of the Kickapoo River Valley without the project.

If the project is built, the implementation of effective zoning regulations is essential to protect the natural integrity of the reservoir setting.

There was little discussion in the statement on procedures used in clearing woodlands within the reservoir pools or whether or not these trees would be removed at all. This should be given attention in appropriate segments of the report.

There is an apparent need for further editing to improve continuity and eliminate such ambiguous phrases as "normal noxious emissions," page 11. Portions of the draft statement could be interpreted as an attempt to justify the project, rather than objectively discuss the environmental effect.

Thank you for the opportunity to provide comment on the draft impact statement. In view of the substantial comments which we have offered in regard to this draft, we would welcome the opportunity to review a draft revision.

Sincerely yours,

Robert H. Myers

Robert H. Myers
Acting Regional Director

DEPARTMENT OF THE ARMY
NORTH CENTRAL DIVISION, CORPS OF ENGINEERS
536 SOUTH CLARK STREET
CHICAGO, ILLINOIS 60605

NCDED-T

28 October 1971

SUBJECT: Draft of Revised Environmental Impact Statement, La Farge Lake, Kickapoo River, Wisconsin

District Engineer, St. Paul

The subject draft environmental statement has been reviewed and is considered to be a good comprehensive statement. Copies have been forwarded to OCE for processing to CEQ. The following comments are furnished as guidance for preparation of the final statement.

a. The environmental statement should include an introductory comment identifying the project and specifying the reasons for submission of a revised statement at this time. The introduction should preceed the table of contents.

b. The relevancy of information furnished in Appendixes VII through XIII to the ecological impact of the project on the Kickapoo River Area should be more clearly developed in the main text. The information concerns significant events relative to endorsement of the project by state officials and covers project aspects other than those related to the environmental statement.

c. The Table of Contents should be expanded to include the summary sheet and main text with appropriate subdivision as desired.

d. Page 6 - Last paragraph. Information should be furnished, if available, whether the number of acres of farmland removed from production was proportionate to the reduction in the number of farms.

e. Page 8 - Transportation Facilities paragraph. The impact of the Mississippi River commercial navigation upon the Kickapoo River area and La Farge, Wisconsin, in particular is not clear.

f. Page 15 - Middle paragraph. If Illinois residents purchase only 12 percent of fishing licenses sold in the southwest part of Wisconsin, it does not seem reasonable, that "people of the Chicago area place considerable pressure on southern Wisconsin's outdoor

recreation areas and resources". This may be true, but it is not substantiated by the indicated fishing license sales percentages.

g. Page 18. Land Loss. If available, the number of acres of non-agricultural land to be taken for public ownership should be stated. The fifth paragraph on page 24 indicates that approximately 5,000 acres will be removed from agricultural production. These two paragraphs do not appear to agree.

h. Page 11. First paragraph. The use of the term "noxious" in relation to the normal emissions of conifers is questioned.

FOR THE DIVISION ENGINEER:

LEWIS H. BLAKEY
Chief, Engineering Division

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

L. P. Voigt
Secretary

BOX 450
MADISON, WISCONSIN 53701

September 30, 1971

IN REPLY REFER TO: 1460

Lieutenant Colonel Rodney E. Cox
District Engineer
St. Paul District, Corps of Engineers
1210 U.S. Post Office and Custom House
St. Paul, Minnesota 55101

Dear Colonel Cox:

Re: NCSED-PB

Thank you for sending us a copy of the revised draft of the environmental statement on La Farge Lake, Kickapoo River, Wisconsin, for review and comment. Because of the technical nature of the report and the amount of material which must be evaluated, we request a 20-day time extension for this review. This time extension would permit us to submit comments to your office by November 5, 1971.

Your consideration of this request is greatly appreciated.

Very truly yours,

L. P. Voigt
Secretary

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

L. P. Voigt
Secretary

BOX 450
MADISON, WISCONSIN 53701

November 2, 1971

IN REPLY REFER TO: 1600

Lieutenant Colonel Rodney E. Cox
District Engineer
St. Paul District, Corps of Engineers
1210 U.S. Post Office and Custom House
St. Paul, Minnesota 55101

Dear Colonel Cox:

Re: NCSED-PB
LaFarge Lake
Kickapoo River, Wisconsin

We have reviewed the revised draft environmental impact statement for LaFarge Lake, Kickapoo River, Wisconsin. Because of the earlier decision by Governor Patrick J. Lucey to let this project continue, our review has centered mainly on accuracy of the statement. We have, however, included several comments which relate to the overall concept of the project.

The following corrections and comments are suggested to enhance the basic statement:

Page 3, paragraph 1

This paragraph is misleading as written. We suggest: "Recreational activities in the basin consist of limited fishing on the Kickapoo River and hunting of deer and upland game on the adjacent lands. Fairly intensive seasonal fishing occurs on some of the small er streams tributary to the Kickapoo River. Canoeing, bicycling, snowmobiling, and camping are rapidly growing activities in the area."

Page 8, paragraph 2

Clarity is needed. "Waterbased activities except for limited canoeing are virtually nonexistent...due to the lack of a body of water suitable for motorboating...and swimming." Actually swimming in the area is not limited primarily by the lack of water but rather by the existence of poor water quality and the heavy silt load of the Kickapoo River.

Suggested addition. "Wildcat Mountain State Park is located in the vicinity of the proposed reservoir. This park was established in 1948 with an acreage goal of 3165.93 acres. Currently 2911.18 acres have been acquired. The hills in the park tower some 400 feet above the Kickapoo River and provide panoramic views of the rugged Wisconsin landscape.

In 1970, the park had 71,854 visitations and 5,005 camper-days. With water facilities to be provided by the LaFarge reservoir, it is expected that use of Wildcat Mountain State Park will increase."

Page 9, paragraph 3

This paragraph is misleading as written. We suggest: "Hunting pressure in the area of the Kickapoo River is generally minimal at this time due to the lack of suitable game numbers and sparse human populations. Deer, fox, ruffed grouse, ducks and squirrels are the primary targets. Fishing pressure in the area is light except for intensive seasonal pressure on several tributaries of the Kickapoo River."

Page 16, paragraph 1

This paragraph is misleading as written. We suggest: "Due to insufficient natural foods and cover, the wildlife population in this area is low to medium and some damage to farm crops does occur. However, this damage is not too serious except for occasional heavy damage by deer, racoon and beaver on a few farms."

Page 16, paragraph 3

This paragraph is misleading as written. We suggest: "Hunting pressure is light throughout the Kickapoo Valley as most game populations are low and the valley is isolated from human population centers. Deer, ruffed grouse, squirrels and racoons are the most abundant game species. Cottontail rabbits, foxes, woodcock, ducks and beaver are found in smaller numbers."

Page 16, paragraph 8

The statement is made that "trout fishing in most of the tributaries would improve if erosion were checked and riparian vegetation were restored."

The trout streams tributary to the proposed LaFarge Reservoir are in need of flood control measures. P.L. 566 structures on these streams should be incorporated into the overall plan. Structures on the tributary streams would considerably reduce the silt load of the waters entering the reservoir, thus greatly extending its useful life span. Properly placed structures would also encourage the development of prime trout fishing habitat and make possible top quality trout fishing which would be available to those persons using the proposed recreational areas. This action would more than mitigate the expected loss of the lower reaches of some trout streams through impoundment.

Pages 16-18

The section on vegetation does not take into account the relationship of the plant communities in the project area or the possible effects of the impoundment upon these communities. It would be more meaningful if this section was broadened to include a discussion of the following plant communities: (1) Cliffs shaded by hemlock-sugar maple-yellow birch-white pine; (2) Exposed cliffs with occasional red pine; (3) Springy seepage areas along cliff bases and feeder streams; (4) Lowland forest pockets of silver maple, black willow, elm, and yellow birch; (5) Marsh areas of Carex or grasses; (6) Upland forests of mixed oaks and hickory; and (7) Aquatic plants in springs, feeder streams and the Kickapoo River. All of these types can be found along the Kickapoo River in the area proposed for the impoundment. Even though agricultural practices have had a profound effect on the

ecosystem, numerous remnant plant communities and extensive cliff communities still exist.

The provisional regional flora list in Appendix III has limited value to the current project for several reasons:

(1) A number of plants listed, e.g. Ammophila breviligulata, Cakile edentual, Circium pitcheri, Euphorbia polygonifolia and Iris lacustris are plants characteristic of and restricted to the Lake Michigan beach and dunes at least 150 miles east of Vernon County. Except for cultivated specimens, these plants would not be found along the Kickapoo River between La Farge and Ontario.

(2) If plants such as Actinomeris alternifolia (Wingstem), Asimina triloba (Paw Paw), Aster vimineus, Buchloe dactyloides (Buffalo Grass), Carya glabra (Sweet Pignut), Carya illinoensis (Pecan), Planera aquatica (Planer-tree), Quercus lyrata (Over-cup Oak) and Rhus toxicodendrum (Poison Oak) were found growing spontaneously in the Kickapoo River area they would all be state records. Thus, the listing of species such as these is erroneous and misleading.

(3) Numerous plants listed, if found growing spontaneously in the Kickapoo River area, would be extremely significant discoveries and would add greatly to our knowledge of plant migration and distribution. Some examples of these plants and their general ranges are: Aletris farinosa - usually found near Lake Michigan; Allium cernuum - restricted to far southeastern Wisconsin; Asclepias Meadii - probably the rarest plant in the Midwest and has been collected only once in Wisconsin; Asplenium pinnatifidum - known only from Iowa County in Wisconsin; Fagus grandifolia (Beech) and Epifagus virginiana (parasitic on Beech) - generally found within 50 miles of Lake Michigan; Trillium recurvatum - found only in the vicinity of Green County, Wisconsin; Wulfenia bullii, synonymous with Besseya bullii (both listed) - not found in the driftless area. It is restricted to morainal, open oak forests in Pierce County and in southeastern Wisconsin.

(4) According to Gray's Manual of Botany, Eight Edition, there are numerous errors of synonymy which are incorporated in the provisional regional flora list: Aster paniculatus = Aster simplex; Aster praealtus = Aster salicifolius; Circium lanceolatum = Circium vulgare; Solidago flexicaulis = Solidago latifolia; etc.

Many of the above plants are believed taken from Thomas Hartley's "Flora of the Driftless Area" (University microfilms). This is an unpublished document and probably a work sheet from which Hartley prepared his thesis of plants actually collected in the Driftless Area. His list includes plants from portions of 20 counties, from Buffalo to Marathon, south to Green. This is almost one-quarter of Wisconsin and many of the plants contained in the list are not necessarily found in a short stretch of the Kickapoo River in Vernon County. This species list is of limited value for this impact statement. We suggest that the plant list be revised to more accurately reflect the plant communities in the LaFarge area.

The impact statement does not adequately treat the plant communities on the extensive cliff areas and the rare plants which grow upon them. For instance, Aconitum in places with patches up to 75 feet long and containing hundred of plants, grows nowhere else in Wisconsin in such profusion. The locations of Aconitum are not given, their critical elevation unknown, the proportion which will be inundated, and the proportion which will be eliminated through periodic annual inundation due to flooding is not calculated. Other plants such as Saxafraga forbesii and rare mosses (Luminous moss and sword moss) are not considered.

In regard to transplanting rare plant species, especially those inhabitating the micro-climate of the cliffs, the idea is good but the success is very doubtful. In addition, survival of plants well above the proposed pool levels will also be affected by a change in micro-climate after the lake replaces the river. The change in plant communities should be documented for future reference.

Pages 26 and 32

Reforestation is discussed. It is very important that only native tree species are planted and that this planting effort be fully corrdinated with our Bureau of Forestry.

Pages 27 and 28

Suggested addition. "The Department is working closely with the state Division of [illegible]ways to select a corridor for relocating all roads, and particularly Highways 131 and 33, in the project area which will have the least adverse impact on the environment and which will enhance recreational opportunities."

Page 33, paragraph 1

This paragraph indicates that modification of the plans for the outlet structure in the vicinity of the dam will be considered at the request of the Department of Natural Resources to provide a controlled water temperature downstream to improve the fish habitat. Modification of the outlet structure is essential and must meet the specifications and approval of the Department.

Page 34, paragraph 1

Our La Crosse Area Office would appreciate the opportunity to review the vegetation clearing plan for the proposed impoundment area. Several people have expressed the opportunity to salvage some of the wood which must be removed from the reservoir.

Page 35, paragraph 4

Although there is discussion of wildlife habitat loss for major game species, little attention is paid to the loss of habitat for a variety of nongame species including song birds. Several canoeists on the Kickapoo River between Ontario and La Farge counted over 70 species of song birds in June 1971.

A noticeable gap in the impact statement is lack of information on water quality. While the USGS has recently started periodic monitoring of several water quality parameters above and below the dam site the statement should consider this aspect of the project in more detail.

A "Surface Water Quality Survey" coordinated by Mr. Virgil Butteris, Crawford County Resource Agent, in cooperation with the Crawford County 4-H Clubs, 4-H members, Campion Jesuit School students and Campion Science Department was conducted in April and May of 1971. Whether their methods conformed to the A.P.H.A. Standard Methods is not known. However, their results are consistent with what would be expected in this area.

A total of 8 stations were sampled on the Kickapoo River main stem from Soldiers Grove to Wauzeka. Phosphate (PO_4-3) concentrations ranged from 2.1 ppm to 0.1 ppm. The mean PO_4-3 concentration for 6 stations was 1.13 ppm. Inorganic nitrogen levels (NO_3-NO_2) ranged from 4.0 ppm to 1.0 ppm. The mean NO_3-NO_2concentrations for 6 stations was 2.33 ppm.

C. N. Sawyer in "Some New Aspects of Phosphates in Relation to Lake Fertilization" (Sewage and Industrial Wastes, Vol. 24(6):768-776) analyzed data from 17 southern Wisconsin lakes. The conclusion reached was that concentrations in excess of 0.01 ppm of inorganic phosphorus and 0.30 ppm of inorganic nitrogen at the time of spring turnover could be expected to produce nuisance algae blooms. Domestic sewage contains 15 to 35 ppm of nitrogen and 2 to 4 ppm of phosphorus. The value for phosphorus in the Kickapoo River is 100 times greater and the value for nitrogen is 7 times higher than the concentration needed to cause nuisance algae blooms. The high values represented originate from partially treated domestic wastes, animal wastes, soil erosion and leaching. The PO_4-3 level at Soldiers Grove which is 18 miles from LaFarge, was 1.5 ppm and the NO_3-NO_2 was 4.0 ppm.

The Kickapoo River carries one of the heaviest silt loads of any river in the state. The annual volume of suspended sediment loads in acre feet for various streams in Wisconsin is an follows: Kickapoo River at Steuben - 160 acre feet; Black River at Galesville - 59 acre feet; Trempealeau River at Dodge - 19 acre feet; Baraboo River at Baraboo - 22 acre feet; Chippewa River at Durand - 95 acre feet; Eau Galle River at Spring Valley - 1.1 acre feet; Wisconsin River at Muscoda - 230 acre feet; Galena River at Buncombe - 50 acre feet; and the Grant River at Burton - 110 acre feet.

The Corps has allowed 10,000 acre feet for sediment storage in the reservoir. An expected silt load of 100 acre feet per year could be estimated at LaFarge. At these levels, the expected life span would be 100 years. Originally only 5,250 acre feet was allowed for sediment storage.

Nitrogen and phosphorus bound to sediment particles will also be released to the water environment. According to G. Fred Lee ("Eutrophication", Occasional Paper No. 2, The University of Wisconsin Water Resources Center), lake sediments act as phosphate buffers. If the phosphorus concentration in overlying waters is decreased (i.e., incorporated into plant biomass), the sediments will contribute phosphorus to make up the deficit. Sediments also contribute nitrogen to overlying waters. However, nitrogen is controlled more by anerobic conditions whereas phosphorus is leached under both aerobic and anerobic conditions, but more is leached under anerobic conditions.

The possibilities for premature eutrophication of the La Farge Reservoir are extremely high. To ameliorate these possibilities, federal cost-sharing funds should be made available to identify and correct sources of excessive plant nutrients.

Pages 40 and 41 of the impact statement outline a plan to fertilize the impoundment. Under no circumstances should this plan be initiated in an aquatic environment that is already overly fertile. Strict watershed quality standards should be set and achieved within 5 years of completion. These standards, nutrient controls, and soil conservation measures should encompass the entire watershed in both Vernon and Monroe Counties.

In 1966, the Wisconsin legislature established Section 87.30, Wis. Stats., which required cities, villages and counties to enact flood plain zoning. Vernon, Richland and Crawford counties have enacted satisfactory flood plain and shoreland zoning ordinances. Although the La Farge Dam is designed for flood control, flooding downstream can still be expected from large flow releases from the dam, and from intervening drainage areas below the dam. Frequently a false sense of security is associated with the feeling the dam will control all flooding. This encourages citizens to seek zoning variances to encroach on the flood plain downstream. Unforseen floods periodically inundate these lower flood plain areas creating economic disaster. This flood plain encroachment has been elaborated upon in House Document No. 465. Thus, it is essential that effective administrative procedures are established to enforce land use controls throughout the project area and especially downstream from the proposed dam to insure wise use of the flood plain.

Thank you for the opportunity to review and comment on the revised draft of the environmental impact statement on La Farge Lake, Kickapoo River, Wisconsin.

Very truly yours,
Bureau of Environmental Impact

C D Besadny

C. D. Besadny
Acting Director

CDB:ml

State of Wisconsin \ DEPARTMENT OF TRANSPORTATION

October 12, 1971

DIVISION OF HIGHWAYS
4802 SHEBOYGAN AVENUE
MADISON, WISCONSIN 53702

Lt. Colonel Rodney E. Cox
District Engineer
U. S. Army, Corps of Engineers
St. Paul District
1210 U. S. Post Office & Custom House
St. Paul, Minnesota 55101

Dear Colonel Cox:

NCSED-PB
Project ID 5111-0-00
La Farge Lake
Vernon County, Wisconsin

We wish to thank you for the opportunity to review and comment on the draft environmental statement produced by your office for this project. We have examined the material and wish to comment on the following points.

1. On page 9, 2nd paragraph, mention is made of the "state of disrepair (of Highway 131), due to the lack of maintenance." The State of Wisconsin is required under ss. 84.07 of the Wisconsin Statutes to maintain the state trunk highway system at state expense. Actual maintenance work upon the segment of the Highway 131 in Vernon County is performed by the county's maintenance forces under an agreement with the state. Highway 131 is on a program of normal and continuing maintenance by Vernon County. Deficiencies in this highway are attributable to the substandard geometrics and pavement and shoulder widths, not because it is inadequately maintained.

2. On page 34, 4th paragraph, it is stated that the existing "structures will be....salvaged for reuse." We wish to clarify this statement. None of the structures designated for removal under this project will be reused either at their present location or elsewhere on the project, whether in their present form or in an altered condition.

We hope these comments will be helpful in the preparation of the final environmental statement.

Sincerely,

W. J. Harmeister, P.E.
State Highway Engineer

State of Wisconsin \ DEPARTMENT OF TRANSPORTATION

October 28, 1971

DIVISION OF HIGHWAYS
4802 SHEBOYGAN AVENUE
MADISON, WISCONSIN 53702

U.S. Army Corps of Engineers
St. Paul District
1217 U. S. Post Office & Custom House
St. Paul, Minnesota 55101

Attn: Environmental Resources Section

Gentlemen:

In response to the call from Mr. Jim White on October 26, 1971, concerning State Trunk Highway 131 in Vernon County we offer the following information:

This route was one of the scenic routes nominated by the State Highway Commission in a study conducted at the request of the Bureau of Public Roads, acting for the Recreation Advisory Council. The objective, as expressed in the BPR Manual of November 5, 1964, is "to assemble data from all states with enough reliability and foundation, with which to derive and develop a recommendation for a national program of scenic roads and parkways, involving improved recreational driving opportunities."

This road was designated as scenic route 62-1. The route description is from a point 5.8 miles west of Coon Valley to 2.4 miles west of Hillsboro in Vernon County. The total length was 57.0 miles, 9.6 miles are involved in the La Farge Reservior area extending from La Farge to County Trunk "F" south of Ontario.

This road had a priority of number 16 out of 152 routes selected as scenic. The lowest priority number was 117 because some duplicate priority numbers were assigned. The priorities were determined by the district offices and reviewed by the Division of Highways Central Office staff with representatives from interested agencies such as U. S. Forest Service, and the Wisconsin Conservation Department.

Although a considerable effort went into compiling this study, no significant further action has been apparent since its preparation.

It is our feeling that relocated State Trunk Highway 131 will have a considerable scenic value after the construction and ponding of the La Farge

Reservior. We hope that this information will be helpful to you in your preparation of the final environmental impact statement on the La Farge Reservior.

Sincerely,

R W Baker

R. W. Baker
Design Development Engineer

RWB:KK
CC:D.L.Strand
D.Revello

State of Wisconsin \ DEPARTMENT OF HEALTH AND SOCIAL SERVICES

DIVISION OF HEALTH
MAIL ADDRESS: P. O. BOX 309
MADISON, WISCONSIN 53701

IN REPLY PLEASE REFER TO:

September 20, 1971

Rodney E. Cox
LTC, Corps of Engineers
District Engineer
Department of the Army
1210 U.S. Post Office & Custom House
St. Paul, Minnesota 55101

Dear Colonel Cox:

Some months ago the Natural Resources Council of State Agencies created a Statewide River Basin Coordinating Subcommittee. I have forwarded the draft of the "Revised Environmental Statement, La Farge Lake, Kickapoo River, Wisconsin," to Mr. Michael Lovejoy, the chairman of the indicated subcommittee. Reason for this is that the draft which you desire review represents the kind of programming the Council had in mind when the subcommittee was established. I have asked Mr. Lovejoy to correspond with you concerning the outcome of their review.

Incidentally, Mr. Lovejoy's address is Department of Administration, 1 West Wilson Street, Room B114, Madison, Wisconsin 53702. Should you have other reports that relate to river basins Mr. Lovejoy should be your Wisconsin contact.

Sincerely,

H. E. Wirth

H. E. Wirth, P.E., Director
Bureau of Environmental Health

dv

cc: Mr. Walter Scott

MISSISSIPPI RIVER
REGIONAL PLANNING COMMISSION

Courthouse, La Crosse, Wisconsin

JOHN M. THOMAS, La Crosse, Wis.
Chairman

ANTHONY POLZER, Durand, Wis.
Vice-Chairman

LAWRENCE WEBER, Elmwood, Wis.
Secretary & Treasurer

WILLIAM J. KROLL, La Crosse, Wis.
Director

October 20, 1971

Mr. Rodney E. Cox
District Engineer
St. Paul Corps of Engineers
1210 U. S. Post Office and Custom House
St. Paul, Minnesota 55101

Dear Mr. Cox:

Thank you for the copy "Revised Environmental Statement La Farge Lake, Kickapoo River, Wisconsin". It appears that comment on the draft at this point in time is academic because the project is scheduled for construction in the near future.

Because of the projects immediate scheduling and the extreme length of the publication submitted for review, the MRRPC membership has not studied the revised environmental statement in detail and will not attempt to do so. Most of the arguments regarding environmental effects of the La Farge Lake have been made and do not warrent further discussion at this time.

The Mississippi River Regional Planning Commission (MRRPC) was not requested to offer comments on environmental statements which were issued previously. It would have been desirable if we would have had an opportunity to take formal action on the project at an earlier date. The Wisconsin Department of Local Affairs and Development should have been consulted also because of their expertise in Local and Regional Planning, Economic Development, Emergency Government, Housing, Relocation and related activities.

Governor Patrick J. Lucey has charged the Corps with certain environmental stipulations as a result of his intensive review of the project held in Madison on April 27, 1971. The stipulations included erosion control, transplating of wild flora, entensive reforestration and preservation of unusual archeological ruins. The Governor has expressed special concern about river and reservoir pollution from municipal sewage and private waste disposal systems which will be constructed in the area. The MRRPC concurs with these stipulations and concerns.

The Vernon County Recreation Plan, prepared with assistance from the Wisconsin Department of Natural Resources, emphasizes the need for measures to safeguard resources and protect county interests to the greatest extent possible. The Recreation Plan indicates that water quality of the reservoir is a major concern, that the Kickapoo is a sediment laden river and that strict programs to control runoff in the upper reaches of the watershed should be provided through programs of easement acquisition, construction of small flood water retarding structures on minor tributaries, improved

agricultural practices and programs to preserve and protect the shoreline. The MRRPC agrees that the above safeguards are necessary and requests the services of the Corps in implementing these measures. In that construction will soon be initiated, it is imperative that effective land use regulations be implemented well in advance of actual development. Economic pressures are anticipated as a result of this project and are already felt in the area. The MRRPC has developed land regulatory models and guides designed for use in the regions counties and has made these materials available to local officials.

Frequently local efforts to apply environmental safeguards are thwarted by powerful economic interests which ignor sound development principals and forsake the public interest. With the cooperation of experienced governmental agencies, growth can be channeled along lines which insure harmony and balance between economic activity and the natural surroundings.

Thank you for the opportunity to comment on the environmental draft statement.

Sincerely,

John M. Thomas
Chairman

JMT:kml

cc: Governor Patrick J. Lucey
Charles M. Hill, Sr.
Lester Voigt
Chester Erlandson
James Peterson

State of Wisconsin \ DEPARTMENT OF ADMINISTRATION

STATE BUREAU OF PLANNING AND BUDGET
WALTER F. McCANNA, DIRECTOR
1 WEST WILSON STREET
MADISON, WISCONSIN 53702

October 14, 1971

LTCOL Rodney E. Cox
District Engineer, Corps of Engineers
St. Paul District
1210 U.W. Post Office and Custom House
St. Paul, Minnesota 55101

Dear Colonel Cox,

In late September the revised draft of the environmental statement on the La Farge Lake project in Wisconsin was received by Mr. Harvey Wirth, chairman of the Water Committee of the Natural Resources Council of State Agencies (NRCSA). At that time you requested that NRCSA review and comment on the revised draft within 30 days.

As chairman of the Statewide River Basin Coordinating Subcommittee of NRCSA I was asked to coordinate the council's response to the draft. After discussing this matter with several NRCSA members and in consideration of the limited time available (even if an extension is granted) it has been determined that a combined state agency response, under the auspices of NRCSA, is not feasible at this time.

While the Council itself will not be commenting officially it is our understanding that certain of the member agencies are reviewing the draft. It is our hope that the Corps will take their comments into serious consideration in all future deliberations on this subject.

Sincerely,

Michael E. Lovejoy

Michael E. Lovejoy, Chairman
Statewide River Basin Coordinating Subcommittee
Natural Resources Council of State Agencies

MEL:cs

cc: Walter Scott
Harvey Wirth
Thomas Reardon
Curt Lindholm

LAW OFFICES
ROSS, STEVENS, PICK & ROSS
THE FIRST NATIONAL BANK BUILDING
ONE SOUTH PINCKNEY STREET
MADISON, WISCONSIN 53703

EDWIN C. PICK (1915-1970)

AREA CODE 608
TELEPHONE 257-5353

NK A. ROSS
ON STEVENS
NK A. ROSS, JR.
ERT W. SMITH
ES E. WEBSTER
MAS D. ZILAVY
EMY C. SHEA
K F. OLSON
HARD C. GLESNER
IEL W. HILDEBRAND
ER R. DOHR
IERT D. MARTIN
ES R. COLE

October 15, 1971

Mr. Rodney E. Cox, LTC
Corps of Engineers
District Engineer
Department of the Army
1210 U. S. Post Office & Custom House
St. Paul, Minnesota 55101

Dear Mr. Cox:

This will acknowledge receipt of the Corps' "Revised Environmental Statement, La Farge Lake, Kickapoo River, Wisconsin," in draft form. Your letter of transmittal indicates the draft was furnished to the Sierra Club for our "review and comment and any additional information" we may wish to present.

If there was the slightest indication that the Corps was attempting in good faith to comply with NEPA, we would respond to your request for comments on the draft of the revised environmental statement in the same spirit of good faith. Unfortunately, there is no such indication.

The Corps' failure to fulfill its duties in preparation of an Environmental Statement frustrates or makes impossible constructive review by other agencies and interested parties. The Corps can hardly expect reviewing parties to perform the basic duties imposed on the Corps, especially in the face of a letter of transmittal which concludes by stating: "An early reply, within 30 days, will be appreciated since this project is scheduled for construction soon."

The Corps made its attitude toward compliance with NEPA very clear in paragraph No. 55 of the Answer it filed in the pending litigation; i.e. "Defendants affirmatively allege that they intend to complete the Kickapoo Project." The Answer is dated August 5, 1971. In context the "Kickapoo Project" referred to is the Corps' 1967 revised version.

Obviously the Corps' "mind" has been made up and it certainly isn't going to be changed by the "facts" or by whatever is thrown together under the title of "Environmental Statement."

Congress attempted to communicate the will of the people of the United States to federal agencies when it enacted NEPA. Regretfully, only the courts appear to be able to make some federal agencies listen to Congress and follow its mandates.

At this point in time it would be an "exercise in futility" for us to point out the short comings of the revised statement. The same fate that Professor Lord's affidavit met is all that could be expected. We suggest the Corps might as well increase the confusion by also attaching the remainder of the affidavits we submitted at the hearing of July 7, 1971, before Judge Doyle.

I am authorized to state that Professor William Lord and Mr. Ronald Rich share the view expressed in this letter; and, therefore, you will not receive any response from either.

Very truly yours,

Robert W. Smith

RWS/ckh

MCSOC 18 October 1971

ROSS, STEVENS, PICK & ROSS
The First National Bank Building
One South Pinckney Street
Madison, Wisconsin 53703
ATTN: Mr. Robert W. Smith

Dear Mr. Smith:

In accordance with our telephone conversation of 15 October 1971, I verified the scheduling information which we discussed and our plans are basically as follows. Present schedule calls for award of the outlet works contract in April 1972. Rock Island District has informed me that they anticipate the first eminent domain proceedings to be initiated in May 1972 and would seek possession of those lands by 1 March 1973.

The reason that the contract can be awarded before the condemnation proceedings take place is that it appears that none of the property to be so acquired is necessary for the next contract work. In connection with that condemnation, the landowners affected will be notified by letter of our intentions with respect to filing a Declaration of Taking well in advance of that filing.

I hope this is responsive to your needs.

Sincerely yours,

MICHAEL H. FERRING
Acting District Counsel

NCSDE 19 October 1971

Mr. Robert W. Smith
Ross, Stevens, Pick & Ross
The First National Bank Building
One South Pinckney Street
Madison, Wisconsin 53703

Dear Mr. Smith:

This is in reply to your 15 October 1971 letter acknowledging receipt of our revised environmental impact statement for the La Farge Lake - Kickapoo River Wisconsin project. I am most disturbed that you feel that your reply to our requested comments would only be "an exercise in futility" and for this reason I feel a straightforward response on my part might solicit your most needed, and I am sure, most helpful comments.

As you know, we have been in the learning process with respect to preparing environmental impact statements. The reason for this is obvious, both because of the recent enactment of NEPA and also because traditionally in the United States, development of the Nation's resources has been left to the professionals. Resources development has always been a symptom of national growth, wherein such growth was a goal of the nation and the people; however, the public generally left planning and development to the professionals.

We recognize that in recent years there has been a marked change in public attitude. The people of the United States have taken an increased interest in project planning and now the man in the street wants to take part in the determination of how his resources are being used, and in many cases his attitude has been militant.

As a result of all this, we in the Corps of Engineers feel we have a new partner. Like any other partnership this one between resources professional and interested laymen can be profitable or disastrous depending on how

well the partnership gets along, now closely the partners understand each other, and how much they trust each other.

The purpose of my reply then is to help assure that our partnership is profitable. Our environmental impact statement is directed toward all professional planners and all interested parties in public life. In addition to providing a basis for decision making which considers all environmental aspects of a particular undertaking, its aims are to introduce our thoughts to our new partners and to help us get to know them. In turn, we hope to get suggestions and ideas which could lead to means of improving our problem solutions - all toward the public good. All this is necessary to establish the mutual trust which, hopefully, will result in the most beneficial management of our water and related land resources.

In addition to the environmental versus development interests which have recently emerged, we in the Corps are still faced with the rather traditional disagreements between upstream and downstream interests; between mass recreationists and those who prefer wilderness recreation, between towing interests and railroads; and between state and federal engineers and planners. The public interest then is changing in response to population pressures, increasing interest in environmental quality, and resources scarcity. The result of these changes is to add additional causes for conflict to those which have existed historically.

You say that our mind has been made up and is certainly not going to be changed by the facts. I can only say sir, that you have read our mind incorrectly. But keep in mind that we are caught in a conflicting situation. On the one hand, the Congress has told us to follow the guidelines it set forth and enacted in the NEPA, but on the other hand it has authorized and funded projects, and we have to interpret these actions as evidence of Congressional will and desire in the public good. The only way that we can solve this dilemma is to make sure that all of our activities including those projects already authorized and funded do comply with NEPA. If you feel that the La Farge project falls within this category, I would hope that you will set forth your reasons. As taxpayers, we can readily see why this project determination needs to be clarified immediately. Coupled with all this is also the need to make an economic determination in an attempt to validate the continuation of an ongoing project in which large sums of public monies have been spent, to include considering abandoning the project or attempting to return it to its natural condition.

NCSDE 19 October 1971
Mr. Robert W. Smith

I personally feel that it is best that disagreements such as the one involving this project to be solved as a result of constructive interchange and exchange of ideas between the parties. I, of course, am well aware of the pending litigation and I realize that you consider that the courtroom can provide the forum for ultimate determination of the issues involved here. While I recognize that issues as this are often determined judicially, it is my personal belief that resolution of this matter by the courts does not have to be necessary and is not in keeping with the American tradition of solving problems through voluntary meeting of the minds rather than in a courtroom where the solution is generally arrived at by one man and perhaps does not incorporate the best arguments of each position.

I, therefore, in all sincerity request that you, Professor William Lord, and Mr. Ronald Rich reconsider your intention of not responding to our environmental impact statement. I can assure you that we want your response and if you can set forth ideas or alternatives to protect the people along the Kickapoo or give us a firm handle on why we should recommend that this project be altered or stopped, I can assure you that we will do so.

If you or any of your club members have an occasion to be in this area, I would welcome the opportunity to sit down and discuss this matter with you.

Sincerely yours,

RODNEY E. COX
LTC, Corps of Engineers
District Engineer

Kickapoo Valley Association, Inc.

A Southwestern Wisconsin Corporation

Oct 15, 1971

STC, Rodney Cox
Corps of Engineers
District Engineer

Dear Rodney Cox,

I am writing to you for Bernard Smith who is in the Hospital and unable to write this letter for himself. He asked me to point out one thing that he has found in error in the Revised Environmental Statement on the La Farge Lake Project.

On page 2 under the list of Comments requested, you have listed "People of the Kickapoo Valley / Citizens National Resource, Ronald A. Kick, Bamboo, Wis."

We would like this clear, that Ronald Kick does not Represent the "People of the Kickapoo Valley."

When Gov. Lucey called for his extensive Regions he called upon the People of the Kickapoo Valley by using the KVA (Kickapoo Valley Ass.) to represent the People of this Area. Barnard Smith (Pres.) went to Madison to represent the People of this Valley — not Ronald Rick. Mr. Rick should, in no way be connected with the People in this Valley.

As for the rest of the Draft. Barnard finds a few minor errors in the canoeing area but that they do not seem serious.

Kickapoo Valley Association, Inc.

A Southwestern Wisconsin Corporation

As for my own personal feelings, I have not read the large Volume but in the revised draft I think ~~[illegible]~~ anything and everything of importance has been covered.

My real concern is that if there is any way to speed up the construction at this point to get this job done in a shorter time. I talked to some of the neighboring people and they think they can do their work in less than three years. Can they?

Thanking you on behalf of

Bernard Smith, Sincerely, Ron Lehman

The University of Wisconsin

COLLEGE OF ENGINEERING
MADISON
53706

DEPARTMENT OF CIVIL ENGINEERING
2205 ENGINEERING BUILDING
262-3642 AREA CODE 608

October 5, 1971

LTC Rodney E. Cox
Corps of Engineers
District Engineer
Department of the Army
St. Paul District
1210 U.S. Post Office & Custom House
St. Paul, Minnesota 55101

Dear Colonel Cox:

I acknowledge receipt of your revised draft of an environmental statement on the LaFarge Lake, Kickapoo River, Wisconsin. This document caught me at a time when I was quite preoccupied with registration and the rush of activities associated with the beginning of our fall term. I will try to give it a careful study within the next week or two. I appreciate having the opportunity of critiquing this document.

Sincerely yours,

James R. Villemonte

James R. Villemonte
Professor of Civil and
Environmental Engineering

JRV:rw

END

FILMED