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AUG 03 1981

Docket No. 50-483

MEMORANDUM FOR: Ronald L. Ballard, Chief  
Environmental Engineering Branch, DE

FROM: Wm. H. Regan, Jr., Chief  
Siting Analysis Branch, DE

SUBJECT: REVIEW OF ANL SOCIOECONOMIC AND CULTURAL  
RESOURCES INPUT TO CALLAWAY 1 DES

This is in response to Clarence Hickey's request to review the ANL socio-economic and cultural resources input to the Callaway 1, DES. As a result of the review of Sections 4.2.1, 4.3.6, 4.3.7, 5.7 and 5.8 of the Callaway 1 DES, we have attached a copy of the suggested changes and comments.

Suggested changes to Section 4.3.7.1 Demography and Section 4.3.7.2 Settlement Patterns were prepared by W. Rodak (see letter from W. Regan to R. Ballard, July 17, 1981). The changes were discussed with, and concurred in by D. A. Brodnick, ANL. Suggested changes prepared by Louis Bykoskie in Sections 4.3.6, 5.7 and Appendix H dealing with cultural resources were discussed with and concurred in by, Sue Ann Curtis, ANL.

For further information contact Louis Bykoski, who can be reached on extension 24879.

Original signed by W. H. Regan, Jr.

Wm. H. Regan, Jr., Chief  
Siting Analysis Branch  
Division of Engineering

Attachment:  
As stated

cc: D. Cleary  
L. Bykoski  
C. Hickey  
G. Edison



8108110012 810803  
PDR ADOCK 05000483  
D PDR

OFFICE	DE:ET:SAB:RIA	DE:ET:SAB:RIA	DE:ET:SAB		
SURNAME	Bykoski:clc	DP Cleary	WHRegan		
DATE	7/31/81	8/3/81	8/3/81		

OFFICIAL RECORD COPY

DRAFT ENVIRONMENTAL STATEMENT

related to the operation of

CALLAWAY PLANT UNIT 1

UNION ELECTRIC COMPANY

**EXECUTIVE REVIEW COPY** 6 Jul 81

Docket No. STN 50-483

Insert

Page SC-6 - Item J.

A well designed cultural resources management plan will avoid preventable operational impacts and will assure preservation of information where disruption is unavoidable. The applicant is preparing a final research design for the completion of a cultural resource survey, which will include an assessment of identified sites and a cultural resource management plan, which will be done in consultation with the Missouri Department of Natural Resources, Division of Parks and Historic Preservation (Sec. 5.7).

Insert

- j. ~~Impacts on historic and prehistoric sites during operation of the plant will be negligible (and may be beneficial) if the applicant institutes a well-designed monitoring/protection plan. The applicant has proposed a five-part cultural resource management plan. Approval of program design and execution by the staff and the Missouri State Historic Preservation Office will be required (Sec. 5.7).~~
- k. The staff concludes that socioeconomic benefits from the creation of direct and indirect jobs and the increase in tax benefits outweigh the small adverse impacts from land use and increased demand for community services; hence, the net socioeconomic effect will be beneficial. Noise impacts will be negligible (Sec. 5.8).
- l. No significant environmental impacts are anticipated from normal operational releases of radioactive materials. The estimated maximum individual dose for a member of the public subject to the maximum exposure will be very small compared to natural-background doses (about 100 mrem/yr) or the dose limits specified in 10 CFR Part 20 (500 mrem/yr, whole body). As a result, the staff concludes that there should be no measurable radiological impact on members of the public from routine operation of the plant (Sec. 5.9.3).
- m. Occupational-dose summary (Sec. 5.9.3) -
- (to be provided by NRC)
- n. The risk associated with accidental radiation exposure is very low (Sec. 5.9.4).

and is being implemented in cooperation with the Missouri Department of Conservation. Minor adjustments have been made in water flow rates, and the intake and discharge structures have been modified. The staff assessment of radioactive-waste systems has been revised. The amounts of nonradioactive wastes generated and discharged have been reestimated and estimates of the concentrations of dissolved solids in the river water have been updated.

Water-quality data have been updated from measurements made during 1976 to 1978, and surface-water and groundwater descriptions have been updated. Air-quality information has been updated, and ecological descriptions have been updated using recent data provided by the applicant. The description of historic and archeological sites has been updated with new information. Population-distribution estimates have been revised, and population projections within an 80-km (50-mi) radius of the site have been increased.

#### 4.2 FACILITY DESCRIPTION

##### 4.2.1 External Appearance and Plant Layout

*This section should be clarified to reflect the fact that only 1 unit is being licensed.*

There have been minor changes in the design and layout of the Callaway Plant since the FES-CP was issued in March 1975 (ER-OL, Sec. 3; ER-OL, Revs. 1 and 2). A few service facilities (items 93 through 99 in Fig. 4.1) and an emergency-operations facility (EOF) (Fig. 4.2) have been added. The buildings added are small in comparison to the major structures (cooling towers and reactor, turbine, and auxiliary buildings). The cooling-tower height has been increased from 150 m (500 ft) to 169 m (555 ft), with minor and inconsequential adjustments in other dimensions. Sludge lagoons (retention ponds for sediment

F4.1

F4.2

Insert

Pages 4-23 and 4-24

Section 4.3.6 Historical and Archaeological Sites

The site was nominated by the state with the nomination later being returned by the Keeper of the National Register with a request for additional information (Ref. 9). The NRC staff will resubmit the site 23CY20 material to the Keeper. The applicant is taking appropriate measures to protect the site during the determination process.

During a site visit on 18-19 November 1980, the staff and the Missouri Department of Natural Resources, Division of Parks and Historic Preservation observed some unrecorded sites and requested the applicant to conduct a survey of the area of potential environmental impact related to the operation and maintenance of the nuclear power plant and associated facilities (see Appendix H). The applicant is presently proceeding toward a final research design to undertake a survey and assessment of sites which may be identified.



The Missouri Department of Conservation maintains its own list of rare and endangered species (Ref. 7). Two state-designated species of birds listed as endangered have been observed near the Callaway Plant: the marsh hawk (Circus cyaneus) and the sharp-shinned hawk (Accipiter striatus) (ER-OL, Sec. 2.2.3.7). One species of fish, one species of mammals, and two species of birds listed as rare on the state list have been observed near the Callaway Plant: the brown bullhead (Ictalurus furcatus), the long-tailed weasel (Mustela fenata), the bald eagle (Haliaeetus leucocephalus alasensis), and the ruffed grouse (Bonasa umbellus) (ER-OL, Secs. 2.2.2.7.1 and 2.2.3.3.3 and p. 2.2-82). Only one state-designated species of rare and endangered plants has been found on the site: the American elm (Ulmus americana) (ER-OL, p. 2.2-80). ✓

#### 4.3.6 Historic and Archeological Sites

Insert

The region in which the Callaway Plant is located has a long and diverse cultural sequence, and numerous historic and prehistoric cultural-resource sites are known to exist. A description of the cultural history of the region was provided by the applicant (ER-OL, Sec. 2.6 and Apps. 2I, 2J, and 2K).

Two cultural-resource sites were located on the plant property prior to issuance of the FES-CP (FES-CP, Sec. 2.3). The applicant's archeological survey indicated that one of the sites might have cultural-scientific importance. It ~~has~~ <sup>HAD</sup> been determined that this site, 23CY20, ~~is~~ <sup>WAS</sup> potentially eligible for inclusion in the National Register of Historic Places, ~~and the nomination has been submitted (Ref. 9). Moreover, the staff observed other sites on the plant property during a site visit on 10-13 November 1980, including potentially eligible historic and prehistoric properties, and has reason to believe that~~ ✓

~~numerous additional unrecorded sites are still present. The Missouri Department of Natural Resources, Division of Parks and Historic Preservation, concurs with these observations (REF. 10).~~

#### 4.3.7 Socioeconomic Characteristics

Socioeconomic characteristics include demography, governmental services, housing, land use, local economy, political and social structures, and recreation. The relevant attributes for the region around the Callaway Plant have been described (FES-CP, Secs. 2.2, 4.2, 4.5, and 5.6). Some changes have occurred since the FES-CP was issued; these are described below.

##### 4.3.7.1 Demography

Population projections within an 80-km (50-mi) radius surrounding the site have been revised upward since publication of the FES-CP. Preconstruction data and current data provided by the applicant and reviewed by the staff are presented in Table 4.3. Population-distribution estimates for 1970 and 2030, within 16 km (10 mi) of the site, are shown in Figure 4.10.

T4.3  
F4.10

Population fluctuations will occur daily within 8 km (5 mi) of the plant due to changes in the transient populations of the Reform Wildlife Management Area and Lost Canyon Lakes. The Reform Wildlife Management Area allows hunting, fishing, and trapping, but a ban against camping will prevent people from staying in the area. Lost Canyon Lakes is a recreational-vehicle and trailer-park development with about 600 people on a typical weekend and 200 people on an average weekday. The users of these areas are considered transients.



Instructions

Pages 4-24/25 #Table 4.3

Sections 4.3.7.1 Demography P.4-24/25  
Section 4.3.7.2 Settlement Pattern P.4-25

Table 4.3 Projected Population

These sections were reviewed as stated in July 17, 1981 letter from W. Regan to R. Ballou. The suggested changes are attached. They were prepared by Bill ~~Podak~~ Podak and concurred in by D.A. Brodnick ANL over the telephone.

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JUL 17 1961

Docket No. 50-483

MEMORANDUM FOR: Ronald L. Ballard, Chief  
Environmental Engineering Branch, DE

FROM: Wm. H. Regan, Jr., Chief  
Siting Analysis Branch, DE

SUBJECT: REVIEW OF ANL DEMOGRAPHIC INPUT  
TO CALLAWAY 1 DES

As a result of our review of the Callaway 1 DES input on Demography supplied by ANL, the enclosed changes are suggested in Sections 4.3.7.1 on demography and 4.3.7.2 on settlement pattern. These changes appear on the three attached pages of the text. If you have any question concerning these modification please contact Bill Rodak at 492-4880.

Original signed by W. H. Regan, Jr.

Wm. H. Regan, Jr., Chief  
Siting Analysis Branch, DE

Enclosure: As Stated

cc: W. Rodak

*Page of*  
81072070337

DE:ET:SAB:RIA  
WRodak

DE:ET:SAB:RIA DE:ET:SAB  
DCleary WRegan

7/17/61

~~numerous additional unrecorded sites are still present. The Missouri Department of Natural Resources, Division of Parks and Historic Preservation, concurs with these reservations (Ref. 10).~~

#### 4.3.7 Socioeconomic Characteristics

Socioeconomic characteristics include demography, governmental services, housing land use, local economy, political and social structures, and recreation. The relevant attributes for the region around the Callaway Plant have been described (FES-CP, Secs. 2.2, 4.2, 4.5, and 5.6). Some changes have occurred since the FES-CP was issued; these are described below.

##### 4.3.7.1 Demography

Population projections within an 80-km (50-mi) radius surrounding the site have been revised upward since publication of the FES-CP. Preconstruction data and current data provided by the applicant and reviewed by the staff are presented in Table 4.3. Population-distribution estimates for 1970 and 2030, within 16 km (10 mi) of the site, are shown in Figure 4.10.

Population fluctuations will occur ~~daily~~ <sup>seasonally</sup> within 8 km (5 mi) of the plant due to changes in the transient populations of the Reform Wildlife Management Area and Lost Canyon Lakes. The Reform Wildlife Management Area allows hunting, fishing, and trapping, but a ban against camping will prevent people from staying in the area. Lost Canyon Lakes is a recreational-vehicle and trailer-park development with about 600 people on a typical weekend, ~~and~~ 200 people on an average weekday <sup>and 1,400 on a holiday.</sup> ~~The users of these areas are considered transients.~~

Because both these areas are relatively new and developing, it is difficult at this time to estimate future transient population near the site.

Loss Canyon Lakes Co. plans further development. If this occurs there will be an increase in the future transient population.

#### 4.3.7.2 Settlement Patterns

Eight of the original 26 residences located on the land owned by UE still remain and are being rented to tenants by UE. When CAL-1 becomes operational, the one residence on the plant site will not be leased but will be used for various plant activities. UE plans to continue renting the other seven residences to tenants as long as it remains profitable.

The developer of Lost Canyon Lakes has <sup>5</sup> recently <sup>offered</sup> <sup>3-acre</sup> <sup>in</sup> ~~planned~~ 110 homesites ~~for~~ the area. Although this area is <sup>only</sup> ~~primarily~~ inhabited by transients at this time, the composition of the population will change <sup>As these units are sold and developed.</sup> ~~to both permanent and transient residents.~~

The staff expects that the area within 16 km (10 mi) of the site will experience a slow growth rate and continue its rural character during the operation of CAL-1. The location and availability of land around Jefferson City will not require the community to grow toward the site. Also, inasmuch as the site is not within commuting distance (80 km, 50 mi, or a one-hour car ride) of St. Louis, the development of suburban communities near the site is not anticipated.

#### 4.3.7.3 Commercial and Recreational Fishing

Commercial and recreational fishing activities were covered very briefly in the FES-CP (Sec. 2.7.1). Updated estimates of commercial and recreational

Table 4.3. Projected Population Within  
80 Kilometers, 1970-2030

Year	Population Estimates	
	Preconstruction† <sup>1</sup>	Current† <sup>2</sup>
1970 <sup>†3</sup>	358,411	305,338
1980	388,674	369,490
1990	391,374	421,180
2000	425,435	464,820
2010	468,591	492,190
2020	511,946	518,090
2030	-	553,370

†<sup>1</sup> From the ER-CP (Table 2.2-3).

†<sup>2</sup> From the ER-OL (Table 2.1-4).

†<sup>3</sup> Totals for 1970 are actual data obtained by adding contributions from individual areas of a rose format. The preconstruction and current estimates were evaluated independently; the difference between the two 1970 values is a measure of the uncertainty in the total for that year.

†<sup>3</sup> The difference between the two 1970 values reflects the census <sup>data</sup> update. } add

7. "Rare and Endangered Fauna of Missouri." Missouri Department of Conservation, 1978.

9. "National Register of Historic Places Inventory Nomination Form." U.S. Department of the Interior, National Park Service, submitted for Union Electric Company Site, Missouri Archeological Survey Number 23CY20, 24 October 1978.

~~10. Letter from M.S. Weichman, Missouri Department of Natural Resources, Division of Parks and Historic Preservation, to C.R. Hickey, Jr., U.S. Nuclear Regulatory Commission, 20 November 1980.~~

*delete*

11. "Collection of Commercial Fisheries Harvest Data in Missouri; 1975, 1976, 1977, and 1978." Final Report, National Marine Fisheries Service, Project No. 2-291-R-3, Missouri Department of Conservation, March 1980.

12. "Missouri's Commercial Fishery Harvest, 1979." Progress Report, National Marine Fisheries Service, Program No. 2-363-R-1, Missouri Department of Conservation, December 1980.

5. (Deleted)

8. (Deleted)

13. (Deleted)

14. (Deleted)



## 5. ENVIRONMENTAL CONSEQUENCES AND MITIGATING ACTIONS

### 5.1 RÉSUMÉ

This résumé highlights changes in the staff's evaluation of environmental effects of operating the Callaway Plant in the light of information gained since the FES-CP was issued in 1975. No discussion is provided of those impacts for which there has been no new information or change since the construction review.

The major change is a consequence of the decision to defer construction of Unit 2. Analyses and conclusions in the FES-CP regarding environmental impacts applied to two units. The analyses in this section, ~~(except for some of the socioeconomic impacts)~~ <sup>except as noted,</sup> are also for two units; however, the conclusions pertain only to the operation of CAL-1. Conclusions for operation of CAL-1 alone can be drawn from the two-unit analyses because the one-unit impacts do not exceed the two-unit impacts. Other changes are relatively minor, and are summarized below.

Changes in land-use impacts due to operation of the sludge lagoons and revised estimates prompted by updated information are discussed. Water-use and hydro-

logical impacts are reexamined and updated to reflect changes in plant design and operation and more recent environmental data. Air-quality impacts are reexamined using onsite meteorological data collected after 1975. Terrestrial and aquatic-ecology impacts are reviewed and updated. ~~There are~~ Historic and archeological sites are reviewed in the light of new information gained during the site visit. Socioeconomic impacts are reviewed and updated. Information on radiological impacts of normal operation has been revised to reflect updated knowledge gained since the FES-CP was issued. The material on plant accidents now contains information that has been revised and updated to include Class 9 accidents and the lessons learned from the accident at Three Mile Island, Unit 2. The latest information on environmental effects of the uranium fuel cycle and decommissioning has been provided.

Operational monitoring programs are to be conducted in accordance with the Environmental Protection Plan (EPP) to be issued by NRC as part of the operating license. The EPP will require the applicant, as licensee, to (1) notify NRC if change in plant design or operation occur, or if tests or experiments affecting the environment are performed, provided that such changes, tests, or experiments involve an unreviewed environmental question; (2) maintain specific environmentally related records; (3) maintain monthly records as required by, and report violations of conditions stated in, the NPDES permit or state certification pursuant to Section 401 of the Clean Water Act; and (4) report unusual or important environmental events.

## 5.2 LAND USE

Much of the discussion in the FES-CP of operational impacts on land use (FES-CP, Secs. 5.3.4, 5.4.4, 5.5.4, and 5.6.1) remains valid. The following analyses

Insert

Page 5-31

Section 5.7 HISTORIC AND ARCHEOLOGICAL SITES

At the request of the NRC and the Missouri Department of Natural Resources, Division of Parks and Historic Preservation, the applicant will undertake a survey of the area of potential environmental impact related to the operation and maintenance of the nuclear power plant and associated facilities. The applicant is preparing a final research design for the completion of the cultural resources survey which will include an assessment of identified sites and a cultural resources management plan, which will be done in consultation with the Missouri Department of Natural Resources, Division of Parks and Historic Preservation. Sites that may subsequently be identified, and considered potentially eligible for the National Register of Historic Places will have determination of eligibility requests prepared and sent to the Keeper of the National Register with the applicant taking appropriate measures to protect such sites during the process. ~~Such~~ A well designed cultural resources management plan will avoid preventable operational impacts and will assure the preservation of information where disruption is unavoidable.

The staff has also considered the impacts of CAL-1 operation on rare and endangered animal and plant species from the state list that have been observed near the plant (Sec. 4.3.5). They are the marsh hawk (Circus cyaneus), sharp-shinned hawk (Accipiter striatus), brown bullhead (Ictalurus furcatus), long-tailed weasel (Mustela fennata), bald eagle (Haliaeetus leucocephalus alasensis), ruffed grouse (Bonasa umbellus), and American elm (Ulmus americana) (Sec. 4.3.5). The staff has determined that operation of CAL-1 will not have an adverse effect on any of these species.

### 5.7 HISTORIC AND ARCHEOLOGICAL SITES

*Insert*

~~Impacts on the historic and prehistoric cultural resource sites that remain on the plant property are expected to be negligible if the applicant institutes a well-designed monitoring-protection program. The content and execution of this program will depend on the results of the surveys and evaluations to determine what sites and/or districts are potentially eligible for nomination to the National Register of Historic Places.~~

~~A monitoring-protection program is needed to protect sites on the plant property that are potentially eligible for inclusion in the National Register of Historic Places (Sec. 4.3.6). The applicant has proposed a cultural resource management program to identify and preserve these sites (App. H). The details of the plan for the program were not available at the time this environmental statement was prepared. The program design and execution will require approval by the staff and by the Office of the Missouri State Historic Preservation Officer.~~

operation (ER-OL, Rev. 2, p. 310.6-1 and Table 8.1-8). The staff concurs that this level of secondary employment could be achieved. Many of these positions will be filled by local residents, attracting only a few people to move into the area for these jobs.

The transition from construction to operation will result in a net loss of payroll income. The construction payroll reached a maximum of about 2000 workers with a gross annual payroll of about \$80 million per year during 1979 to 1981, and will drop rapidly to about 100 construction workers and \$3 million per year in 1983 (ER-CP, Sec. 8.1.3.1.1). The operating work force started with an initial contingent of 40 workers and an estimated payroll income of \$1 million in 1979, and is projected by the applicant to reach 281 workers with an estimated payroll income (in current dollars) of about \$8 million in 1982 (ER-OL, Rev. 2, Table 8.1-9). The staff believes that this loss will be mitigated by the gradual nature of the transition from construction to operation, the greater stability of the operating work force and a tendency for the operating workers to invest and spend a greater fraction of their income locally, the increased taxes paid by the applicant to local agencies (Sec. 5.8.2), and the fact that the operational-payroll income will extend over a longer period.

The applicant estimates that retail purchases by plant operating employees will be about \$2.7 million in 1982 (ER-OL, Rev. 2, Table 8.1-11).

*Why haven't plant purchases (locally) of supplies and materials been included in this section? See last paragraph of Section 8.1.2.2.1 in ER-OL, ~~page 8.1-7~~ page 8.1-7.*

UE, which is a privately owned utility, has begun to pay large tax revenues to the local area and the state. The property taxes collected from UE for CAL-1

*This would also need to be reflected in Table 6.1 on 11/81, P. 5*

APPENDIX H. ~~APPLICANT'S PROPOSED PROGRAM FOR IDENTIFYING~~  
~~AND PRESERVING~~ HISTORIC AND PREHISTORIC SITES

*(see instructions attached)*



APPENDIX H. HISTORIC AND PREHISTORIC  
SITES

Instructions

- ① DELETE (REMOVE) January 30, 1981 letter from John Bryan, Union Electric Co. to B.S. Youngblood, NRC on pages H-3, 4 and 5.
- ② INCLUDE in appendix H the following enclosed letters.
  - ① Letter from B.S. Youngblood, NRC to John Bryan dated July 21, 1981 and the enclosure which is a letter from Jack R. Rudy to Louis Bykowski dated July 1, 1981.

Delete REMOVE

UNION ELECTRIC COMPANY  
1801 GRATIOT STREET  
ST. LOUIS, MISSOURI

JOHN K. BRYAN  
VICE PRESIDENT

MAILING ADDRESS  
P. O. BOX 148  
ST. LOUIS, MISSOURI 63108

January 30, 1981

Mr. B. J. Youngblood, Chief  
Licensing Branch No. 1  
Division of Licensing  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

ULNRC-411

Dear Mr. Youngblood:

CULTURAL RESOURCES  
CALLAWAY PLANT

In response to your letter dated December 24, 1980, we have taken the following actions:

1. Our Real Estate Department has been instructed to assure the protection of the original structures on the plant site until a physical structure survey and analysis has been completed and the results evaluated.
2. We will continue to protect Site 23CY20 by maintaining the fence around the site and prohibiting any access to the site.
3. Our transmission line construction supervisors have been instructed to survey the areas around the remaining transmission tower bases to determine if any archaeological sites exist. If there is any doubt as to the existence of such a site, the Missouri State Historical Preservation Office will be notified.
4. Mr. Michael S. Weichman of the Missouri Department of Natural Resources has been contacted regarding protection of the mound referred to in Item 3 of your letter. Mr. Weichman advised that protection of mounds (and other unidentified cultural resources) could be accomplished by having plant security note and discourage any activity during normal rounds, such as digging, etc., which could potentially affect a cultural resource. We have, therefore, instructed our security force to implement the above suggestion.

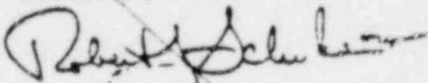
*Delete (Renewal)*

Mr. B. J. Youngblood, Chief  
Page 2  
January 28, 1981

5. We are currently discussing a cultural resources survey including a mound survey with various consultants. This survey will be done in consultation with the Missouri State Historical Preservation Office and a proposal submitted to NRC prior to implementation. Our current plans are to complete this survey prior to the spring planting season.

We will keep you informed of our progress in this area.

Sincerely,



for John K. Bryan

NGS/lli

cc: See Next Page

*Delete (Reserved)*

Mr. B. J. Youngblood, Chief  
Page 3  
January 28, 1981

cc: Mr. Nicholas A. Petrick  
Executive Director--SNUPPS  
5 Choke Cherry Road  
Rockville, Maryland 20850

Gerald Charnoff, Esq.  
Shaw, Pittman, Potts &  
Trowbridge  
1800 M Street, N. W.  
Washington, D.C. 20036

Dr. Vern Starks  
Route 1, Box 863  
Ketchikan, Alaska 99901

Ms. TrevaHearn, Assistant General  
Counsel  
Missouri Public Service Commission  
P. O. Box 360  
Jefferson City, Missouri 65102

Mr. William Hansen  
Resident Inspector/Callaway NPS  
c/o USNRC  
Stedman, Missouri 65077

Mr. Jordan Tannenbaum  
1522 K Street, N. W.  
Washington, D.C. 20005

Mr. Michael S. Weichman  
Senior Archaeologist  
Missouri Department of Natural  
Resources  
P. O. Box 176  
Jefferson City, Missouri 65102

Ms. Sue Ann Curtis  
Argonne National Laboratory  
9700 South Cass Avenue  
Argonne, Illinois 60439



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

*How*

JUL 21 1981

Docket Nos.: 50-483  
and 50-486

Mr. John K. Bryan  
Vice President  
Union Electric Company  
Post Office Box 149  
St. Louis, Missouri 63166

Dear Mr. Bryan:

Subject: Cultural Resources - Callaway Plant

Since receiving your May 4, 1981 request to review your proposal of the cultural resources survey and assessment for Callaway Nuclear Power Plant, the NRC has received the Missouri Department of Natural Resources comments on that Research Design and your subsequent response to those comments.

As part of its review of the Research Design, the NRC requested the Interagency Archeological Service (IAS), National Park Service, United States Department of Interior in Denver, Colorado to review and comment on the Research Design. The IAS comments are provided in the attached letter. NRC concurs with these comments and request that you consider them in your final design.

A map clearly defining the survey area should be sent to the NRC as soon as it has been prepared. The survey area should include the area of potential environmental impact related to the operation and maintenance of the nuclear power plant and associated facilities. Suitable buffer zones and identifiable secondary or indirect impact areas should be included in the survey area (see paragraph two of the attached IAS letter). The map should be accompanied by a discussion and justification of the boundary line determination.

Your May 4, 1981 proposal with your June 23, 1981 response to the Missouri Department of Natural Resources satisfies our request that you provide NRC your program prior to proceeding with the survey. We believe your consultation with the state as you finalize the Research Design, conclude the survey, evaluate resources found and prepare a cultural resources management plan is necessary to achieving a quality cultural resources survey and assessment.

A copy of the final Research Design should be sent to the NRC upon its completion and we should be kept apprised of the survey effort as it continues.

Sincerely,

*B. J. Youngblood*

B. J. Youngblood, Chief  
Licensing Branch No. 1  
Division of Licensing

*Dupe of 8107310079*

Enclosure:  
As stated

Mr. J. K. Bryan  
Vice President - Nuclear  
Union Electric Company  
P. O. Box 149  
St. Louis, Missouri 63166

cc: Mr. Nicholas A. Petrick  
Executive Director - SNUPPS  
5 Choke Cherry Road  
Rockville, Maryland 20850

Gerald Charnoff, Esq.  
Shaw, Pittman, Potts &  
Trowbridge  
1800 M Street, N. W.  
Washington, D. C. 20036

Mr. J. E. Birk  
Assistant to the General Counsel  
Union Electric Company  
P. O. Box 149  
St. Louis, Missouri 63166

Dr. Vern Starks  
Route 1, Box 863  
Ketchikan, Alaska 99901

Ms. TrevaHearn, Assistant General  
Counsel  
Missouri Public Service Commission  
P. O. Box 360  
Jefferson City, Missouri 65102

Mr. D. F. Schnell  
Manager-Nuclear Engineering  
Union Electric Company  
P. O. Box 149  
St. Louis, Missouri 63166

Mr. William Hansen  
Resident Inspector/Callaway NPS  
c/o USNRC  
Steedman, Missouri 65077

Mr. Michael S. Weichman  
Chief, Review and Compliance  
Missouri Dept. of Natural Resources  
Division of Parks & Historic Preservation  
P. O. Box 176  
Jefferson City, Missouri 65102

Dr. Sue Ann Curtis  
Argonne National Laboratory  
9700 South Cass Avenue  
Argonne, Illinois 60439

Mr. Jordan Tannenbaum  
Advisory Council on Historic Preservation  
1522 K Street, N. W.  
Washington, D. C. 20005

Mr. Jack R. Rudy  
Chief, Interagency Archeological  
Services Branch  
National Park Service  
U. S. Department of the Interior  
655 Parfet Street  
P. O. Box 25287  
Denver, Colorado 80225