

UNION ELECTRIC COMPANY

1901 GRATIOT STREET
ST. LOUIS, MISSOURI

DONALD F. SCHNELL
VICE PRESIDENT

MAILING ADDRESS:
P. O. BOX 149
ST. LOUIS, MISSOURI 63166

June 3, 1983

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

ULNRC-634

Dear Mr. Denton:

DOCKET NUMBER 50-483
CALLAWAY PLANT
CULTURAL RESOURCES

- Ref: 1. NRC letter dated December 24, 1980,
from B. J. Youngblood
2. Section 5.7, Final Environmental State-
ment NUREG 0813, dated January 1982.

The above references requested additional information concerning cultural resources at the Callaway Plant site. On November 8, 1982 final draft reports, "A Cultural Resources Management Plan for Residual Lands at the Union Electric Company Callaway Nuclear Power Plant, Callaway County, Missouri" and "A Phase I Cultural Resource Survey and Assessment on Residual Lands at Union Electric Company's Nuclear Power Plant, Callaway County, Missouri", were submitted for comment to the Missouri Division of Parks and Historic Preservation and the Nuclear Regulatory Commission. Transmitted herewith are revised final draft reports and responses to the SHPO's comments.

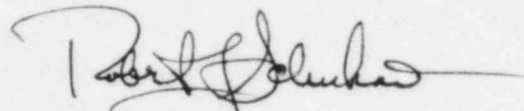
A review of the attached reports clearly documents our effort to identify cultural resources, evaluate these resources for potential significance against National Register eligibility criteria and then design a management plan which appropriately protects identified resources. It should be noted that the survey was conducted on all project property, not just the area of potential environmental impact related to the operation and maintenance of the plant and associated facilities. The management plan provides long-term protection to potentially significant sites as well as sites believed to be insignificant by either avoiding the site or imposing land-use restrictions on

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it. Phase II testing of sites considered potentially eligible for the National Register of Historic Places and subsequent nomination of the sites to the National Register will be postponed until a site is threatened by impact.

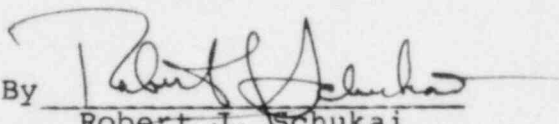
Sincerely,


Donald F. Schnell
Vice President
Nuclear

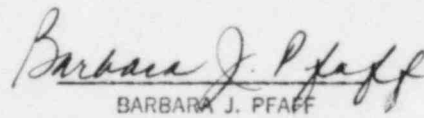
DJW/mc
Enc.

STATE OF MISSOURI)
) S S
CITY OF ST. LOUIS)

Robert J. Schukai, of lawful age, being first duly sworn upon oath says that he is General Manager-Engineering (Nuclear) for Union Electric Company; that he has read the foregoing document and knows the content thereof; that he has executed the same for and on behalf of said company with full power and authority to do so; and that the facts therein stated are true and correct to the best of his knowledge, information and belief.

By 
Robert J. Schukai
General Manager-Engineering
Nuclear

SUBSCRIBED and sworn to before me this 3rd day of June, 1983


BARBARA J. PFAFF
NOTARY PUBLIC, STATE OF MISSOURI
MY COMMISSION EXPIRES APRIL 22, 1985
ST. LOUIS COUNTY

cc: Glenn L. Koester
Vice President
Operations
Kansas Gas & Electric
P.O. Box 208
Wichita, Kansas 67201

Donald T. McPhee
Vice President
Kansas City Power and Light Company
1330 Baltimore Avenue
Kansas City, Missouri 64141

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

Nicholas A. Petrick
Executive Director
SNUPPS
5 Choke Cherry Road
Rockville, Maryland 20850

John H. Neisler
Callaway Resident Office
U.S. Nuclear Regulatory Commission
RR#1
Steedman, Missouri 65077

UNION ELECTRIC COMPANY
1901 GRATIOT STREET - ST. LOUIS

May 16, 1983

MAILING ADDRESS:
P. O. BOX 149
ST. LOUIS, MO. 63166

Mr. Michael S. Weichman
Chief, Review and Compliance
MO. Dept. of Natural Resources
Division of Parks and Historic Preservation
P.O. Box 176
Jefferson City, Missouri 65101

RE: Final Draft Reports, Cultural Resources Survey
and Management Plan, Union Electric Company's
Callaway Nuclear Power Plant, Callaway County,
Missouri.

Dear Mr. Weichman:

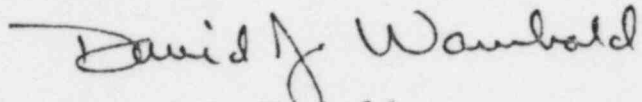
Please find enclosed our response to your
December 30, 1982 comments on the referenced reports.
Your comment 1 was a request for a survey project summary
form and a map (please see enclosure 1). Your comments
2,3,4,8,9,14,16,18,19,21,22,39,51 and 56 have been addressed
by directly incorporating our response into the text of
the reports. Our response to the balance of your comments
may be found in enclosure 2. Also enclosed are five
copies of the revised reports.

We feel that the survey and resultant cultural
resource report and management plan more than adequately
satisfies the requirements of the Missouri Historic
Preservation Program, The National Historic Preservation
Act and has adequately addressed National Register eligi-
bility. Additionally, you will find that the management
plan represents a very conservative approach to cultural
resource management by offering an appropriate degree of
protection to archaeological sites even though they may be
judged insignificant and are located outside defined plant
operation and maintenance areas. Please note, however,
that we do not agree with your interpretation of the
historic architectural significance of the structures
on the property (see page 17 of enclosure 2). In fact,
we believe that the majority of these historically
insignificant properties represent a threat to public
safety and it is our intention to raze them in the
future.

In the near future I will be contacting you to verify the number of copies of the final reports you need for your file. All artifacts will be deposited with the State as soon as conveniently possible.

If you have any questions please contact me.

Sincerely,



David J. Wambold
Supervising Biologist
Environmental Services

DJW/mtn
Enc.

cc: Dr. Louis Bykoski *Spent reports - being sent to the Denton*
Fred A. Lafser *by Nuclear*
John Karel

bcc: D.F. Schnell
D.W. Capone
A.C. Passwater
N.G. Slaten *✓ with two copies of report (1 for NRC)*
J.D. Smith
G.L. Horton
M.F. Barnes
TES/EMR/1-26-2-4

Mike McNerney

CULTURAL RESOURCE SURVEY PROJECT SUMMARY SHEET

Missouri Department of Natural Resources Historic Preservation Program

Report Title: A Phase I Cultural Resources Survey and Assessment on Residual Lands at Union Electric Company's Callaway Nuclear Power Plant, Callaway County, Missouri
 Counties: Callaway Author(s): Jack H. Ray, Edward M. Morin, Michael J. McNerney, R. Gail White
 Institutional Affiliation of Author(s): American Resources Group, Ltd. Gail White, Associates
 Federal Agency Involved/Client: Nuclear Regulatory Commission/Union Electric Company
 Date of Report: April 1983 Date of Field Invest.: August 26-December 16, 1981
 Legal Description of Survey Area/Unit: Sec 1, 2, 3, 10, 11, 12, 13, 14, 15, 23, 24, 25, 26, 35, 36, T46N, R8W; Sec 6, 7, 18, T46N, R7W Total Acres Surveyed: 5,848
 Historic Preservation Program Drainage: Missouri River 2

Elevation of Survey Area/Unit: Max. 858 msl Min. 505 msl Avg. 775 msl 70% 800-858; 30% 600-700; 1% 500-600
 Terrain: Flat to gently rolling glaciated prairie in north, heavily dissected upland with narrow ridges and valleys to south, and fertile bottomlands of Logan Creek and the Missouri River along the southern boundary
 Vegetation: Tall grass prairie/oak-hickory forest
 Visibility (as % of survey area/unit): 13% 50-100%; 87% 0-50%
 Type: 36% forested, 28% cultivated, 36% pasture
 Nature of Soil (as % of survey area/unit): Aeolian 72 % Colluvial 18 % Alluvial 6 % Other 4 % glacial till
 Raw Lithic Material Available: Type Chert (major): Burlington/ Source in situ/stream deposited/
 Legal Location: too numerous Jefferson City residual/glacial
 Nearest Permanent Water Source: Spring Stream River X Lake Other
 Distance 2.3 kilometers Name Missouri River
 Closest Tributary: Distance within survey area Name Logan Creek Order 3 or 4

Number of Sites in Survey Area/Unit:

Prev. Recorded	<u>2</u> Prehistoric	Rec. by Pres. Invest.	<u>77</u> Prehistoric
	<u> </u> Historic Archaeo.		<u>29</u> Historic Archaeo.
	<u> </u> Historic		<u> </u> Historic
	<u> </u> Architectural		<u>21</u> Architectural
	<u> </u> None		<u> </u> None

Type of Investigations (Mark all applicable):

<input checked="" type="checkbox"/> Literature Search	<u> </u> Testing (Phase II)
<u> </u> Reconnaissance Survey	<u> </u> Excavation (mitigation)
<input checked="" type="checkbox"/> Intensive Survey - All resources	<u> </u> Research only
<u> </u> Intensive Survey - Archaeological only	<u> </u> Other Fieldwork
<u> </u> Intensive Survey - Architectural-Historic only	<u> </u> Other

List all sites located within survey area/unit or discussed in report (attach continuation sheet if necessary).
See attached

Types of Site(s) Base camps, field camps, limited activity sites, and mounds

Range of Cultural Affiliation(s) of Site(s) Paleo-Indian/Mississippian

Direct Impact(s) to Site(s): ☐ Total Destruction ☐ Disruption
☐ Partial Destruction ☒ No Impact

Nature of Direct Impact(s) Unknown at this time

Nature of Indirect/Long-Range Impact to Site(s): Significant sites will be protected (see reference to Management Plan)

Significance (Mark all applicable):

- ☒ High (National or regional research applicable) (25 sites)
☐ Moderate (Local or state research applicable)
☐ Low
 1. Disturbed
 2. Lacks context
 3. Redundant data
 4. Future utility uncertain
☐ Insufficient Information

Future Work Recommendations (Mark all applicable):

- ☐ No further work needed ☒ Nominate to Register (after testing)
☐ Preserve/avoid ☐ Restrict access
☒ Test (if impacted) ☐ Other _____
☐ Excavate _____
☐ Monitor construction
(must justify by high potential of buried sites)

Comments:

See: A Cultural Resources Management Plan for Residual Lands at the Union Electric Company Callaway Nuclear Power Plant, Callaway County, Missouri. Michael J. McNerney, American Resources Group, Ltd., Carbondale, Illinois.

A U.S.G.S. 7.5 min. topographic map indicating all areas actually surveyed and locations of all sites must be attached.

Return to Michael Weichman, Chief, Review & Compliance, Historic Preservation Program, Missouri Department of Natural Resources, P.O. Box 176, Jefferson City, Missouri 65102.

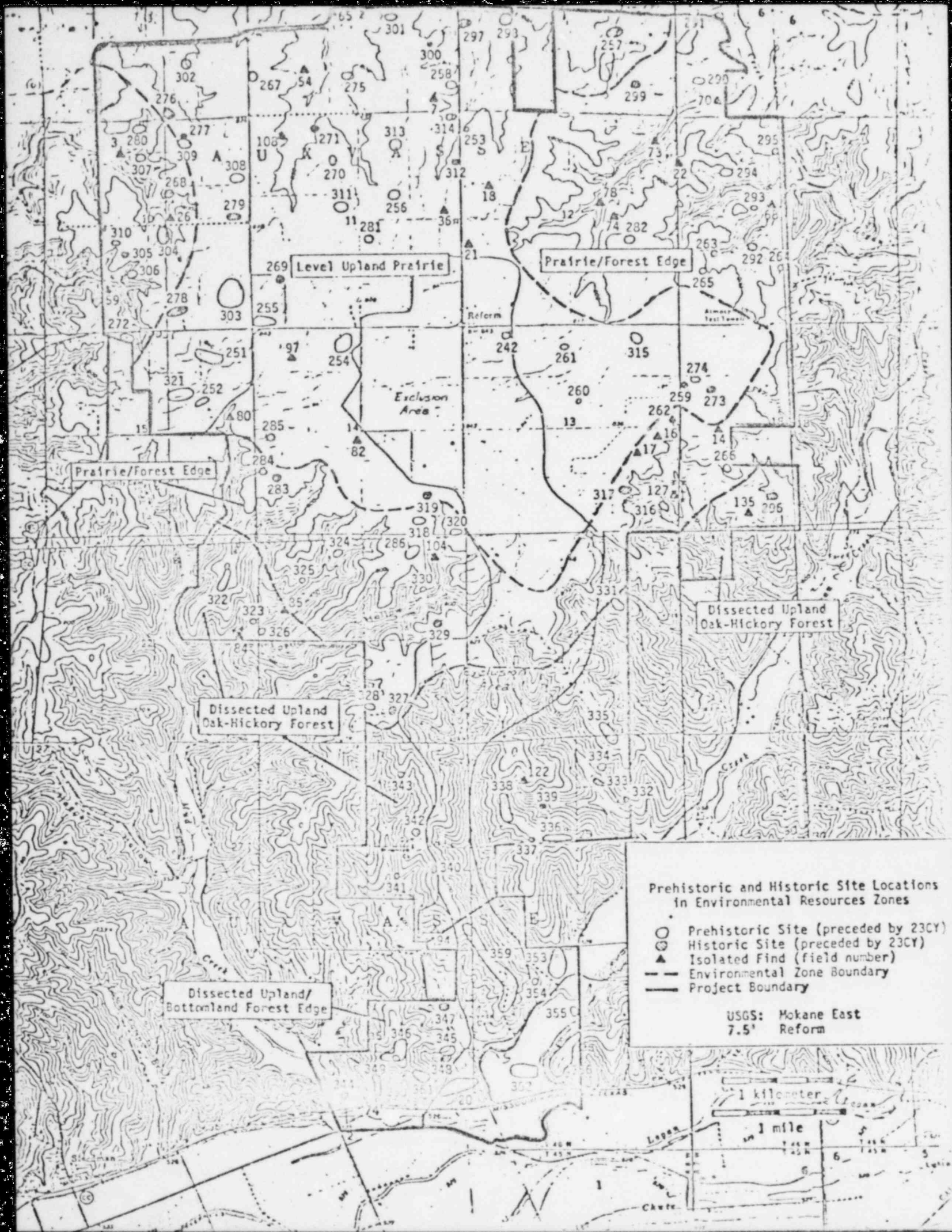
Continuation Sheet

A Phase I Cultural Resources Survey and Assessment
on Residual Lands at Union Electric Company's
Callaway Nuclear Power Plant,
Callaway County, Missouri

List all sites located with survey area/unit or discussed in report.

23CY20, -74, -242, -251, -252, -253, -254, -255, -256, -257, -258,
-259, -260, -261, -262, -263, -264, -265, -266, -267, -268, -269, -270,
-271, -272, -273, -274, -275, -276, -277, -278, -279, -280, -281, -282,
-283, -284, -285, -286, -290, -291, -292, -293, -294, -295, -296, -297,
-298, -299, -300, -301, -302, -303, -304, -305, -306, -307, -308, -309,
-310, -311, -312, -313, -314, -315, -316, -317, -318, -319, -320, -321,
-322, -323, -324, -325, -326, -327, -328, -329, -330, -331, -332, -333,
-334, -335, -336, -337, -338, -339, -340, -341, -342, -343, -344, -345,
-346, -347, -348, -349, -350, -351, -352, -353, -354, -355, -356, and
-359

Architectural sites are numbered 1 through 21.



April 1983

Responses to MOHP Review
A Phase I Cultural Resources Survey and Assessment
on Residual Lands at Union Electric Company's
Callaway Nuclear Power Plant,
Callaway County, Missouri

5. Site descriptions are difficult to follow as presently organized. Sequential numbering would be far superior for locating a specific site description. Discussions of impacts to sites and recommendations are necessary and should also be included for each individual site.

Alternative organizational formats were considered. A format arranged by environmental zones was selected since the focus of the study was the relationship between environmental zones and site locations. A sequential numbering of sites cross referenced to environmental zones will be added (see Comment #38).

6. Site descriptions should mention, at least in the broad category (upland, prairie, etc.) what other resources might be available, i.e., subsistence resources, lithic resources, etc. It is suggested that an estimate be made at the nature of the activity(ies) conducted. For example, scrapers, according to angle and wear, indicate hide working vs. woodworking.

The environmental setting for each site is presented in Table 5, pp. 186-199. The site descriptions are grouped according to the broad environmental zone they occupy (pp. 201, 225, etc.). The natural and lithic resources available in the project area are well described (pp. 4-30). To repeat these available resources for every site would be redundant, e.g., to repeat 79 times that useable chert was available in the nearby ravines and streams would contribute nothing to the report. Functional tool studies are specialized and highly technical, requiring large samples of similar types of tools. The small quantity of artifactual material recovered in the survey is not suitable for such studies. To estimate site activities from the examination of a handful of utilized flakes would contribute nothing to this study.

Responses to MOHP Review
April 1983

7. Pages 186-199. As knapping and sharpening were continual and frequent pursuits of prehistoric populations, one could just as well describe any sites as a knapping station.

Yes, one could. These designations are a function of three factors: the abundant amounts of chert resources available throughout the research area, waste flakes are the most commonly occurring artifacts on most prehistoric archaeological sites, and many of the sites recorded produced only waste flakes.

10. Page 16, 3rd paragraph. It is questioned that this is a Winterset formation chert (see comment 40).

The chert is visually similar to Winterset, and the reference on p. 16 indicates that it is a tentative identification. Since the submittal of the draft report, the formation has been identified as Excello, and changes will be made throughout the report.

11. Page 28-30. Caution should be employed in utilizing environmental data from southwestern and southeastern Missouri in order to attempt to use environmental regimes in central Missouri at the end of the Prairie Peninsula. While much of this may be applicable to northern Missouri, it should be pointed out that the project area is not even in the same environmental area.

We are aware of the nature of these data, and they are used only as a general background framework. There is no statement in the report that identifies this sequence of paleoclimatic events solely with the study area. Rather, this discussion addresses a broader area "during the past 12,000 years in mid-continental North America" (p. 28).

12. Page 31. It should be noted that although there is evidence of man in the New World as early as 22,000 P.B., there is no conclusive evidence of Early Man in Missouri.

We find no reference to Early Man on this page or elsewhere in the report. The Paleo-Indian period is referenced on page 31.

13. Page 31, 1st paragraph. The report fails to reference the recent work at Arnold Research Cave which was conducted by the University of Missouri-Columbia (O'Brien et al.), as well as the recent Moreau River surveys (Sturdevant) and Columbia investigations (Schmits). As this project area is in close proximity, more detail should have been taken from these recent investigations.

There is no report or published work ("O'Brien et al.") on the results of the 1981 field work at Arnold Research Cave by the University of Missouri-Columbia (telecommunication, Dr. Michael O'Brien, March 4, 1983). The supervising archaeologist of this project (Callaway County) was a member of the field party at Arnold Research Cave, and the recent information which we thought useful to this study is cited as Ray 1981c in the references cited. Work in Boone County (Schmits and Wright 1981, Wright 1981) and Cole County (Sturdevant 1978) is cited in other parts of the report and included in the references.

15. Page 35. 23GA142 (Hermann Site) is not Early Archaic. The single radiocarbon date is Middle Archaic.

"Cultural deposits at the Hermann Site span the Holocene from ca. 10,000 B.P. until historic times. Occupation appears to have been intense during the early Holocene; and on the basis of a limited number of projectile points, includes brief Paleo-Indian, Dalton and Early Archaic components" (Schmits 1982:193).

17. Page 38. Teter & Warren (1979) have conflicting information. Table 8.1, page 234 of Teter & Warren, does not substantiate the dates presented on pages 247-248. The dates of 2100 ± 100 B.P. from the Middle Woodland level were rejected (Teter & Warren 1979:235) and there are no dates anywhere in the text suggestive of an Early Woodland occupation. In addition, Klippel's (1972) Collins Site is a poor example of Early Woodland. O'Brien (1979:63) as well as others believe that the site is multi-component Archaic/Woodland. Most of the features were intersected at the base of the plowzone, and it cannot be determined what the levels of pit origins were. While the cited dates are generally accepted as Early Woodland, the dates for Early Woodland have not been firmly established in Missouri. Without pottery, calling it Early Woodland is questionable as the basis

of defining any Woodland component is the presence of Woodland pottery. Also, there is no basis for equating contracting stemmed projectile points with Early Woodland in Missouri.

We are aware that the temporal and cultural dimensions of the terminal Late Archaic-Early Woodland are poorly understood in Missouri and will qualify the comments on page 38 accordingly.

Small quantities of slightly contracting and contracting stemmed projectile points were recovered at the Collins Site (Klippel 1972:56). Although this site contains other cultural components, these tools probably represent the Early Woodland component. Other investigators working east of the Callaway plant site believe that contracting stemmed projectile points relate to the Early Woodland period (Haas 1978:165, Kling and Martin 1979:38).

20. Page 133, 3rd paragraph. When the authors refer to an area ". . . sufficient to determine the number of cultural resources present," what factors did they use to determine sufficiency of areas surveyed? Also does the management plan take into consideration cultural resources which are presently unidentified, buried or otherwise currently unknown sites within the project area?

Shovel test/transect intervals and related field methods are discussed on pp. 161-163. Careful reading of this section will give the reader a good idea of the sufficiency of the survey. The possibility of deeply buried occupations and unknown sites are addressed in the revised management plan, comments 8 and 9, page 43.

23. Page 135, 1st paragraph. Technology and settlement patterns have a direct bearing on such "inappropriate" topics as social organization and subsistence.

We are aware of these relations; the reviewer's comment is taken out of context. See below:

"From this brief overview, it is clear that there is a direct relationship between the types of research problems that can be investigated

and the nature, intensity, and duration of any given research project. Research questions which are appropriate to a Phase I archaeological survey relying primarily on shovel testing as a means of data recovery are addressed. Questions relating to human biology, ideology, social organization, and subsistence are not appropriate, since hypotheses relating to these areas are not testable or only marginally testable in a Phase I effort. However, research questions relating to technology and settlement patterns in relation to the natural environment can be addressed in a Phase I survey. The research design and problem orientation for this study will pose questions relating to two of mankind's important strategies: technology and settlement location."

The following change will be made to clarify this section: questions relating to topics requiring large amounts of data, e.g., human biology and ideology The appropriateness or inappropriateness has to do with the kinds of questions that might be asked and answered in this type of survey.

24. P. 136-137, last paragraph. Please provide an indepth explanation of why the authors assume that primarily only a general hunting and gathering form of subsistence was prevalent for the prehistoric inhabitants within the project area.

Although a variety of site types may be expected due to a wide variety of floral and faunal types present in the area, the physical aspects of its topography make the area more conducive for exploitation by mobile hunter/gatherer groups or temporary specialized task groups from more sedentary groups outside the research area. Much of the area consists of a rolling typography, restricting its potential use for sedentary horticulturalists. The lack of an extensive arable floodplain

within the immediate area would suggest that horticultural groups, if they were in the general area, would have emphasized exploitation of game, wild plant resources, and, perhaps, chert. Further, since the prehistoric aboriginal inhabitants of the area remained hunter/gatherers until the Woodland period and still pursued these activities through post-contact times, it is expected that hunter/gatherer sites will be the most frequently occurring site types.

25. Page 140, 1st paragraph. Were the isolated finds also mapped in detail and reported to the Archaeological Survey of Missouri?

See p. 185, Map 16; yes, they were reported.

26. Page 140. In respect to the definition of "site", how large or small of a circumscribed area is intended to be included? Also, the definition of site types is too vague; the authors should cite source(s) or definitions, if appropriate.

A site is two or more flakes; the size is highly variable and is based in large part on the judgment of the supervising archaeologist (see the site survey forms for more details). Site types are after Binford (1980) as indicated on p. 140.

27. Page 140, 3rd paragraph. As organics can be quickly leached from the soil and usually are preserved readily only when quickly buried, the presence of organics to define habitation sites should be used cautiously.

Yes, we are aware of this possibility. Again, the comment is taken out of context. Other factors include subsurface features, artifact diversity and density, site size, etc.

28. Page 142, 3rd paragraph, line 9. What is the basis for this tentative scaling? Some basis for this is required other than species discussions. A limited number of species with high volume may yield higher biomass. Some form of index would be better than this (e.g. quantity by environmental areas).

42. Page 352. Again, as there is no firm basis for ranking environmental areas, this test is nearly meaningless.

While the comment regarding the rationale for environmental ranking of food potential of microenvironments (Comment #28) is a valid point, it must be remembered that this ranking is stated as a hypothesized (or expected) rank ordering (pp. 142, 352) in consideration of environmental data reviewed and source material cited (pp. 21-27, 142). As to the comment that "this test is nearly meaningless" (Comment #42), such a comment is without substance. It is suggested that the reviewer read material on experimental research design which may be found in any introductory statistics text (e.g., Roscoe 1975:170-178, 187-209).

29. Page 145. What was the rationale for limiting the hypothesis presented to hunter-gatherer subsistence/procurement strategies only?

Hypotheses of ecological strategies for horticultural groups would require different data sets, such as evidence of past horticultural practices and remains of cultigens, in the research area. Such data have not been shown to exist; therefore, such hypotheses would be inappropriate.

30. Page 145-146. Hypothesis 1 cannot be tested until some index for scaling potential resources is accomplished. Simply to say that you assume resource areas have one order may have no basis in reality. Also, site location is a result of a matrix of choices by aboriginal populations. One factor by itself may not have a major effect on choice of site location. This hypothesis is simply not testable until more detailed work is done.

(Comments 30, 31, 32, 33, pp. 145-146) The hypotheses as stated are statistically testable hypotheses. Again, it must be remembered that hypothesized distributions against which actual data are tested are hypothesized distributions.

34. Pages 145-147. The hypotheses presented are inappropriate, broadly generalized, and fail to address a single valid research question formulated by other intensive investigations in central Missouri, e.g. Schmits, O'Brien et.al. etc.

Suggestions that the application of research questions derived from

a previous study to be applied to this study in a different area possesses two major shortcomings. Such a priori assumptions that only these types of research questions are "valid" indicates "no consideration of the data needed to address the questions and no evaluation of the likelihood that the site contains this information" (Rondeau 1981:34).

35. Page 161. A topographic map of the project area indicating percentage of vegetation/visibility and areas actually surveyed with approximate locations of shovel tests should be included.

See p. 184 for these percentages and the transect interval. The entire project area was surveyed using the techniques described in the methods section (pp. 161-163) and adequately documented in field notebooks. Field notebooks showing shovel test locations are on file at Union Electric Company. A small-scale map of 5,848 acres with small dots indicating approximate shovel test locations would not add to the study. Map i in the management plan shows general land use/vegetation patterns.

36. Page 163, 1st paragraph. Detailed sketch maps of all sites located during this investigation should be included within the main text or in an appendix.

The MOHP has been provided with USGS maps of the project area showing all site locations, along with an ASM site form for each site. These maps and forms, with photographs of every site (on file at Union Electric Company), provide adequate site documentation.

37. Page 175-183. The detail of discussions presented in the "Chert Resources Survey Section" is considered to be too extensive for this level of investigation. It would be more appropriate as an appendix.

The Chert Resources Survey section is central to the entire study. Hypotheses 3 and 4 relate to chert resources and exploitation, and waste flakes constitute the major class of prehistoric artifacts recovered (4,350 waste flakes vs. 18 culturally diagnostic stone tools were collected).

Therefore, the eight-page Chert Resources Survey section is consistent with the types and quantities of data recovered, the research questions which were asked, and is not too extensive. The section will remain in its present location.

38. Page 201. Discussion of sites in survey area are listed by environmental zones rather than sequentially. This is confusing when trying to locate a specific site. Furthermore, we have some serious reservations about the zone referred to as "Dissected Upland/Bottomland Forest Edge." This term appears to consist of a combination of two and possibly three vegetational communities, which probably consists of slope forest, floodplain forest and edge communities.

A sequential listing of sites cross referenced by environmental zones will be provided with Table 5, p. 186. The Dissected Upland/Bottomland Forest Edge is a heuristic device based on environmental, topographic, and cultural considerations, as well as artificial limits imposed by the project boundaries. It is true that the two zones mentioned above are contained within this zone. It should be noted (Map 16, p. 185) that from a cultural/environmental perspective it would offer a diverse number of exploitable resources within a very confined space. From an ecological perspective, the construct could be extensively debated (in fact, the utility of the ecotone concept is currently under reconsideration in the ecological disciplines). We feel the zone serves the needs of this study.

40. Page 282 and 357. Winterset limestone is a member of the Kansas City group which is known to outcrop in western and northwestern Missouri. It is questioned that Winterset chert outcrops 18 km north of the Callaway project area. If it does, this would be an anomaly worth discussing in more detail. It is also interesting to note that on page 357, the source for Winterset chert has migrated 8 km to the south, i.e. only 10 km from the project area.

See Comment #10. There are two sources: one to the north and one to the south.

41. Page 297, Plate 13c. This is not Graham Cave Notched.

It may not be a classic, but some workers in Missouri have typed these as "Graham Cave" (Schmits 1982:76-77). The specimen (13c) is within the stylistic range of both Graham Cave and Big Sandy points (plates 9a, 12a). We will note this range of variation.

43. Page 352. Environmental zones were ranked in decreasing order of food importance. What is the basis for this ranking? We question that a prairie forest edge zone would have more resources than upland oak hickory forest. The possible incorrect ordering of these zones may account for the lack of significant correlation between food resource potential and site density.

Again, this comment addresses a valid point originally raised in comments #28 and #42 (see pp. 6-7). We must again remind the reviewer that the distribution is hypothesized. The reviewer's assertion that a reordering of the zones may account for the lack of a significant correlation is well taken; the reordering suggested would result in $r = 1.0$. However, other reasons, e.g., sample size, construct validity, also may be applicable and are discussed as possibilities on pp. 352-355. To reorder the hypothesized distribution of zones, simply for the sake of obtaining a significant correlation, violates principles of statistical hypothesis testing.

44. Page 355, paragraph 3. We question the use of the term "social complexity". A large number of different site types does not necessarily equate with social complexity. Hunters and gatherers usually will have a greater number of site types than will more "complex" social organizations.

We are aware that assumptions, hypotheses, and inferences about the archaeological record are open to question. The discussion on p. 355 deals with an inference based on both the archaeological record and the site types defined in the research design. It would be well to consider

the concept within the sentence in which it occurred. "The other zones only produced two types of sites each (field camps and limited activity loci) and therefore expressed roughly equivalent degrees of social complexity."

45. Page 355. Hypothesis 2 - This is not a test but is simply intensive observation.

As indicated in the first paragraph of the discussion of this hypothesis, "Because of the problem of tied ranks in a small sample size of environments (N=4), this question could not be assessed statistically" (p. 355). The sentence order of the paragraph will be changed to make this point more explicit. As with other hypotheses considered, a discussion of alternatives (pp. 355-357) follows the discussion of test results.

46. Page 356. Use of the terms "field camp" and "limited activity sites" should be explicitly defined.

The phrases "field camp" and "limited activity sites," as well as other site types, are defined on pp. 140-141.

47. Page 357. Hypothesis 3 - Same as comment hypothesis 2. (No. 45).

The differences in quantities of local vs. nonlocal chert types are so obvious that to perform a statistical test would be inappropriate. The rationale for not applying a test may be found in Thomas (1976:468) in regard to his discussion of Berkson's Interocular Traumatic Test. Perhaps even more germane is a quotation attributed to A. Whitehead (cited in Thomas 1976:468): "It requires a very unusual mind to make an analysis of the obvious."

48. Page 357. What is the basis for identification of Winterset chert in Audrain and Monroe Counties?

See Comment #10.

49. Page 389, line 1. This is not a Graham Cave Notched point.

See Comment #41.

50. Page 391, paragraph 2. Grantham (1977:179) says nothing about blending of Late Archaic and Early Woodland.

True, Grantham did not use the word "blending." However, it would seem to be a reasonable word choice for summarizing what Grantham said: "While it appears probable that there is at least a minimal Early Woodland occupation in the area, there is as yet no way to separate it from earlier or later material."

52. Page 401. Is this project designed to inventory and evaluate or to inventory and make recommendations for evaluation of potentially National Register eligible resources? There appears to be a lack of attention paid to proper CRM terminology or scope of work.

The project is designed to inventory, evaluate, and identify sites potentially eligible for the National Register of Historic Places within the context of a Phase I survey and to prepare an appropriate management plan. Any further evaluation or assessment should be determined from the results of this Phase I study (see Scope of Work).

53. Page 417-418. These criteria are heavily weighted toward large, dense sites. It is seriously doubted that this has any basis in terms of potential research applicability. This is an arbitrary choice of criteria. Without reference to any specific research design which can successfully exclude certain site, after they have been adequately evaluated, these criteria are meaningless.

Statements of significance are based upon professional judgment. Judgments are credible only when clearly and objectively documented (Wendorf 1978:2).

As other cultural resources managers have noted, the National Register criteria provide no help in clearly and objectively documenting statements of significance. For example:

The former Director, Office of Review and Compliance, ACHP, said, "this language [National Register criteria] invites the interpretation that all archaeological sites are eligible for listing on the National Register of Historic Places."

An Environmental Affairs Specialist, Office of Environment and Safety, Department of Transportation, said, "the National Register criteria needs overhauling. In fact, the believability of the National Register is being seriously hampered by quality of sites, both historical and archeological, that are entered into the Register."

The President, Society for American Archeology, said, "Inasmuch as any site, no matter how miserable, is guaranteed to produce some information on the nation's past, we find ourselves with a system that tends to assign the same level of significance to all sites" (Comptroller General 1981:25).

The eight working criteria discussed on pp. 417-418 are supplemental to the National Register criteria. Specifically, the eight criteria are linked directly to the National Register criteria which relate to archaeological sites: "(d) that have yielded, or may be likely to yield, information important in prehistory or history" (Federal Register 1976:1595). These provide the field investigator and the reviewer with specific guidelines with which to evaluate archaeological resources, justify recommendations of additional research or no further research, and to make statements of significance and recommendations of potential National Register eligibility.

The outlining of our "eight working criteria" represents the explicit articulation of judgmental criteria which most archaeologists fail to present in written form. It is incumbent upon the archaeological community to develop and articulate specific and workable criteria within the context of National Register of Historic Places guidelines in such a manner that National Register of Historic Places goals and professional commitments are met.

Further, as cultural resources managers who have fiscal and scientific responsibilities both to the client and the general public, we believe that site evaluations, statements of significance, and related issues based upon such broad and vague "criteria" regarding cultural resources "that have yielded, or may be likely to yield, information important in prehistory or history" promote poor science, bad business practices, and lead to wasteful cultural resources management practices in both the private and public sector.

54. Page 418. Twenty-five sites are considered potentially significant and National Register eligible. What is the basis for determining the remaining properties non-eligible? This should be clearly documented on a site by site basis.

The rationale for considering a prehistoric site nonsignificant and thus potentially noneligible for nomination to the National Register of Historic Places is based on the following interrelated factors:

1. Site failed to meet any of the eight criteria.
2. Site produced very few artifacts suggesting a highly transient occupation. Of the 41 prehistoric sites considered potentially nonsignificant, 27 produced 5 or fewer waste flakes (35%), and 14 produced 10 waste flakes or fewer (18%) and no other evidence of prehistoric occupation. Small sites producing nothing more than a few waste flakes and lacking culturally diagnostic artifacts offer little research potential or new data beyond site location information. Further, such sites are numerous in areas of abundant chert resources such as the project area.
3. Items 1 and 2 above, combined with the fact that the 23 prehistoric sites considered potentially significant constitute a sample of the known cultural and environmental diversity represented in the project area, provide the basis for recommendations of nonsignificance.

Architectural sites were evaluated and considered significant or nonsignificant using the criteria of the National Register of Historic Places (see architectural responses to MOHP comments).

Historic archaeological sites were considered nonsignificant based on the criteria of the National Register of Historic Places, integrity (see p. 431), temporal considerations, and the availability of published sources of historic documentation other than archaeological record.

55. Page 436. If sufficient data is available to make National Register evaluations, i.e. determination of National Register eligible and non-eligible, as called for in the scope of work, we question the recommendations for further Phase II testing. It would appear that the author is attempting to generate more work.

The Scope of Work requires an assessment of "potential eligibility for the National Register of Historic Places" (see Scope of Work 4.0a, p. 3). No specific recommendations for Phase II work are made at this time (p. 436). Recommendations for Phase II testing are contingent upon the actual threat of adverse effects should such a situation arise in the future (p. 440). These recommendations are consistent with the Scope of Work and the Advisory Council on Historic Preservation, "Procedures for the Protection of Historic and Cultural Properties" (36 CFR Part 800). These procedures were developed to implement the National Historic Preservation Act of 1966 and Executive Order 11593, "Protection and Enhancement of the Cultural Environment, May 1971." They detail how a federal agency should take into account the undertaking's effect on properties included in or eligible for inclusion in the National Register of Historic Places.

The first step in the compliance process is the identification and evaluation of all properties included in or eligible for inclusion in the

National Register of Historic Places that are located within the potential environmental impact area of the federal undertaking, including both federally owned and nonfederally owned land. Union Electric Company has completed this first step with earlier surveys (Evans and Ives 1973, 1978, 1979) in direct impact zones and the more recent Phase I survey of residual lands. The second step is a determination by the federal agency whether any cultural resources included in or eligible for inclusion in the National Register of Historic Places will be affected by the proposed undertaking.

In determining effect, the federal agency, in consultation with the state historic preservation officer, applies the criteria of effect: an undertaking is considered to have an effect when any condition of the undertaking causes or may cause any change -- beneficial or adverse -- in the quality of the historical, architectural, or archaeological character that qualified the property under the criteria of the National Register of Historic Places. If the federal agency finds that there will be no effect, then the requirements of the law have been satisfied and there is no Advisory Council involvement in the matter. If the federal agency finds that there will be an effect, then it, in consultation with the state historic preservation officer, applies the criteria of adverse effect.

Generally, adverse effects occur under conditions which include but are not limited to: (a) destruction or alteration of all or part of a property; (b) isolation from or alteration of its surrounding environment; (c) introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting; (d) transfer or sale of a federally-owned property without adequate conditions or restrictions

regarding preservation, maintenance, or use; and (e) neglect of a property resulting in its deterioration or destruction.

At this time, there are no known adverse effects from the operation and maintenance of the Callaway plant which threaten those sites recommended as potentially eligible to the National Register of Historic Places. Further, the management plan recommends protection through avoidance of those potentially eligible on a site-by-site basis. A determination of "no effect" or "adverse effect" can be made when and if they are threatened. Phase II testing for determination of eligibility is recommended only when these threats are identified and reviewed (McNerney 1982:29-40).

Architectural Overview

1. Original fenestration, main facade of house (Inventory #4)

Evidence observed on the exterior of this structure would indicate that the former fenestration pattern was window-window-door-window rather than window-door-door-window as suggested by the reviewer. At present, the inner bay is sealed over with wood siding. Further verification of the original function (i.e., window or door) of this bay would require work beyond the scope of this project. The floor plan will be appropriately noted to indicate this as an assumed original window bay.

2. Photographic research

The photographic collections of the Missouri State Historical Society and Missouri State Historic Preservation Office were reviewed during September and October 1981. Files of Callaway County, as well as adjacent counties in Little Dixie, were reviewed.

3. Regional examples/sites 2, 4, 11, 12, 15, 20, and 21

The MOHP mention of several good examples of southern vernacular

architecture in Portland, Mokane, and Readsville is a point well taken. The author is aware of these structures and found them useful in evaluating the architectural significance of extant structures within the project area. However, it is this author's opinion that the extant structures within the study area, when compared with other good examples of southern vernacular architecture and particularly with other examples in Callaway County, diminish in architectural significance. The extant structures of the study area do not represent a distinctive level of achievement in structure or styling; rather, they are of average architectural quality.

The reviewer has noted that structures at sites numbered 2, 4, 11, 12, 15, 20, and 21 "architecturally represent fragments of a widespread regional southern culture that persisted from the initial settlement period through ca. WW I." The author concurs with this observation and with the assertion that these buildings fall within the Little Dixie building tradition.

The Scope of Work for this study requires evaluation of extant structures for historic architectural significance using the criteria of the National Register of Historic Places. The fact that these structures are "fragments" rather than good, solid examples of regional culture diminishes their potential for significance. Additionally, modifications to these structures have, in most instances, compromised their historic architectural integrity.

With respect to sites 2, 4, 11, 12, 15, 20, and 21, the following clarifications regarding architectural quality and integrity are made.

Site 2: Structure A has been modified and modernized by the addition of synthetic siding, replacement windows which do not match original

window types or fenestration patterns, and by the addition of ornamentation inappropriate to the period of the original structure. It is the opinion of this author that the historic architectural integrity of this house has been severely compromised through these modifications. The remaining structures at this site are standard architectural/structural types of recent origin.

Site 4: Structure A is a standard double-pen type house. However, it should be noted that the house is a weaker example of the double-pen type house than, for example, others in nearby Portland. In terms of proportions, scale, and detail, the house at site 4 is not well developed. From an architectural perspective, the house does not represent a level of achievement or uniqueness to merit nomination to the National Register of Historic Places. The ancillary buildings at this site are standard architectural and structural types and do not appear to meet the criteria for nomination to the National Register of Historic Places.

Sites 11 and 12: Several structures at these two sites reflect the traditions of southern vernacular architecture. Structure 11A is a double-pen type house, and structure 12A is a single-pen log house expanded to a 2-story "I" type house. Structures 11C, 12C, and 12D are agricultural buildings of horizontal log construction which represent southern building traditions.

When measured against the criteria of the National Register of Historic Places, these structures do not appear to represent a significant level of innovation, uniqueness, or artistry. While they may be potential candidates for preservation, they are best categorized as standard examples of their respective building types.

Site 15: Structure A represents the "I" type house tradition of the uplands South. However, like the structures discussed above, this house fails to represent a level of architectural significance through either artistry or uniqueness to satisfy the criteria of the National Register of Historic Places.

Sites 20 and 21: Log structures 20A and 21A are both in ruin. Their consideration for architectural significance is diminished by this fact.

4. Bibliography

A list of references cited, rather than a bibliography, was included in the report. In response to the reviewer's concern for a lack of basic literature on southern vernacular architecture, a bibliography is submitted with this document.

5. History of occupants of a single house

Former owners and occupants of property within the project area were contacted (see bibliography) for historical information related to both the people and places associated with the old Reform area. Legal and historical documents were reviewed for references to former landholders in the project area.

Archival resources produced little information related to inhabitants of the project area prior to involvement of the Union Electric Company in the 1970s. Interviews with former landowners and occupants produced little concrete information useable for reconstructing the history of the occupants of a property. The author concurs with the reviewer's concern for the humanistic association with cultural resources. Accordingly, every effort was made to locate reliable information concerning former occupants and their potential significance. No documentary evidence was located which

indicated significance of former occupants of the extant structures. Interviews with former occupants netted information that was, at best, conjectural and inconclusive. Consequently, the report deals with architectural/structural data and excludes oral and genealogical findings.

6. Slave schedules and agricultural census records

In both the Historical and Historic Architectural overviews, slave schedules and agricultural censuses are referenced when used as sources (e.g., p. 124).

Historical Overview

The reviewer's comments are well taken. Both an abbreviated historical overview and the more extensive historical overview were considered. Based upon the central location of Callaway County within the state where early routes of travel passed, i.e., Missouri River and overland trails, and the need to provide an historical backdrop with which to view the history of Callaway County, the expanded historical approach was selected. The history section will be edited before the final report is printed.

The agricultural census data were examined and also considered. It was decided that census information on agricultural produce, slaves, and other data available from these sources would be more appropriate for Phase II and Phase III investigations should they be deemed necessary in the future. We recognize the usefulness of this material but believe that it is more appropriate for large-scale mitigation efforts similar to the Cannon Reservoir project where these sources were used.

MOHP Comments, Page 7 of Review Letter

The report is the result of a Phase I investigation (see Scope of

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Work 6.0a, p. 8) on the residual lands surrounding the Callaway plant site. The Scope of Work recommends evaluation of cultural resources to determine only their potential suitability for nomination to the National Register of Historic Places (Scope of Work 7.0c). Additional investigations to support determination of eligibility should be determined from the results of the Phase I investigations (Scope of Work 6.0, p. 8). Further, Phase II investigations are recommended as an aid to identifying significance or lack of significance by the Missouri Office of Historic Preservation:

In the case of archaeological properties, the existence of such resources within a proposed undertaking's impact area is generally not known until after the completion of a cultural resource survey and in many instances, insufficient information exists to determine if a particular archaeological site is eligible for inclusion in the National Register. Consequently, additional investigation in the form of limited archaeological testing or Phase II testing, is often needed to provide the necessary data to ascertain the National Register significance or lack of significance of a site. (Letter from Michael S. Weichman to Michael J. McNerney, October 15, 1979)

Therefore, the report is consistent with the Scope of Work and the MOHP guidelines. If the MOHP is recommending Phase II testing at selected sites to ascertain the National Register significance or lack of significance, it should simply make that recommendation to the Union Electric Company. Other comments on page 7 of the review letter concerning the eight criteria and significance are addressed in the individual comments.

MOHP Comment, Page 7, Paragraph 5: Furthermore, we do not believe that the statement presented on pages 435-436 that a National Register District is not warranted because of it is "not in the best interest of U.E. Company" is not sufficient justification, neither from a professional point of view or based on the Criteria set forth in 36CFR Part 60. It is obvious that the authors place the opinion of the client over the importance of the protection of the cultural resources.

This comment is taken out of context and ignores the results of the survey, legal considerations, the management plan, and the overall project context. In addition, consideration of the "interests of the client" is as important as the cultural resources. Any profession or business which has its operating authority tied to federal laws must always consider these interests. The cost of cultural resources management is borne directly by a specific client or indirectly by the general public (in this case, users of electricity generated by the Union Electric Company). To consider only the cultural resources fails to grasp the essence of either the regulatory process or the complexity of the cultural resources management process.

MOHP Comment, Page 8, Nomination of a National Register District

It has been recommended that 23 prehistoric archaeological sites and 2 historic archaeological sites are potentially significant and potentially eligible for nomination to the National Register of Historic Places. Phase II testing, to aid in the determination of National Register eligibility, is recommended to proceed only when, and if, these potentially eligible resources are threatened. The remaining cultural resources are not eligible for nomination to the National Register, and further evaluation or assessment is unnecessary at the remaining 104 sites. Further, after careful evaluation of all sites and consultation with other archaeologists and cultural resources managers, it is felt that the cultural resources located on the residual lands at the Callaway Nuclear Plant do not qualify for nomination to the National Register as an historic district (McNerney 1982:28). These recommendations are based on legal and regulatory considerations as well as the archaeological and historical context.

1. Legal and regulatory considerations:

The protection of cultural resources from adverse effects (direct and indirect impacts) has been and is the central theme of cultural resources management laws and regulations, e.g.,

That any person who shall appropriate, excavate, injure or destroy an historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the Government of the United States, without the permission (Antiquities Act of 1906)

More recently:

Whenever any Federal agency finds, or is notified, in writing, by an appropriate historical or archaeological authority, that its activities in connection with any Federal construction project or federally licensed project, activity, or program may cause irreparable loss or destruction of significant scientific, prehistorical, historical, or archaeological data, such agency shall notify the Secretary, in writing, and shall provide the Secretary with appropriate information concerning the project, program, or activity. (PL 93-291, Archaeological and Historic Preservation Act, Section 3, 1974)

The Union Electric Company has complied with these and other federal laws by having conducted cultural resources assessments in areas impacted by construction activities related to the building of the Callaway plant (McNerney 1982:2). The intensive survey of the residual lands goes beyond the letter of the law and has demonstrated Union Electric Company's willingness to meet the spirit of the law as well.

Under the Advisory Council's "Procedures for the Preparation of Historic and Cultural Properties" (36CFR800), Section 800.4(6) of the procedures requires that the state historic preservation office be consulted when any federal, federally funded, or federally licensed undertaking will affect a property included in or eligible for the National Register that is located within the undertaking's potential environmental impact. In the opinion of the National Register archaeological staff in

Washington, D. C., any proposed undertaking within the boundaries of an historic district by an agency having a federal involvement would have to be reviewed to determine the effect of the undertaking on the historic district even if the undertaking would not directly affect any of the eligible sites within the district (Bush 1982:telecommunication). These regulatory requirements are not administratively or archaeologically feasible based upon the findings presented in the Phase I survey report or the overall context of the project. First, the creation of an historic district which contains large amounts of land devoid of any cultural resources (92% of the residual lands lack cultural resources) can not be justified. Second, an historic district on the residual lands would have to be defined by arbitrary boundaries which do not reflect cultural or environmental integrity. Third, the potentially significant cultural resources could be administered more effectively on a site-by-site basis if they were threatened and after a determination of adverse or no adverse effects was made.

Therefore, based on the nonsignificance of many of the cultural resources recorded and evaluated during the Phase I survey and the legal considerations mentioned above, we see little justification in recommending a National Register District for the residual lands.

2. The evaluation of the archaeological/historical context and the evaluation of individual site significance does not support a National Register District nomination for the following reasons:

- a. Of the 79 prehistoric archaeological sites recorded, 41 (52%) produced 10 or fewer waste flakes (27 produced fewer than 5 waste flakes, and 14 produced fewer than 10 waste flakes). The research potential at such sites is extremely low.

- b. Only one of the 41 sites produced a culturally diagnostic artifact.
- c. Aboriginal inhabitants found abundant amounts of useable chert within the project area, a situation which results in the frequent occurrence of waste flakes thinly and widely scattered across the landscape.
- d. Based on the above factors (2a-c), we can not justify Phase II testing for the purpose of further assessing eligibility to the National Register of Historic Places.
- e. Ninety-two percent of the area within the project boundaries is devoid of cultural resources (pp. 408-416). It would be difficult to justify creating a National Register District containing this much empty space.
- f. The 23 prehistoric sites (29% of all sites recorded) recommended as potentially eligible provide a sample of sites representing all known cultural time periods in the project area, each environmental zone, and abundant amounts of waste flakes with which to study problems of lithic technology. This sample provides an adequate base for a wide variety of research problems.
- g. Dr. Dale R. Henning, Project Consultant, has evaluated the cultural resources recorded on the Callaway Nuclear Power Plant residual lands using criteria developed for district nominations at the Cannon Reservoir in northeastern Missouri. The criteria are posed as questions:
 - (1) Did the affected area ever constitute a natural and/or cultural region unique unto itself in comparison with the surrounding area through time?

- (2) Did the affected area function as a "key point" of any regional or areally-defined cultural manifestation through time which, in the absence of data from there, the whole would never be properly understood?

Applying these questions to the archaeological resources in the Cannon Reservoir, it was concluded that the resources and the area possessed cultural-regional integrity and encompassed a definable natural cultural region which could be offered to district nomination. Evaluating the cultural resources on the Callaway Nuclear Power Plant residual lands in a similar manner, Dr. Henning concludes:

My reading of the data from the project area does not suggest such integrity [like the Cannon area], at any point in time. It [cultural resources on the residual lands] is "part of" much broader areas, leaving the evaluator to decide which "parts" may be integral to our understanding of regional or areal prehistory and history. I see very few sites which qualify in any respect as integral to our understanding [of areal prehistory and history]. . . .

The Phase I testing program has been very methodical and thorough. In a sense, following the subsurface testing done in search of sites in forested, brushy and grassy locations, the beginnings for Phase II testing (depth and spatial dimensions) has already been begun. Many prehistoric sites located can be thoroughly evaluated in terms of the limits of testing already accomplished. In short, I am suggesting that in terms of the future, all 129 sites located should be subjected to critical review and determinations of eligibility made for those few which are deemed worthy by virtue of site integrity and potential areal importance. Few enough of the sites located in this project area would survive intensive scrutiny. Phase II testing of those few would probably eliminate a number because of previous disturbance or paucity of artifacts offering cultural identifications.

Unless my initial reading of the documentation afforded to date coupled with information gathered through site visits is seriously in error, I doubt that final evaluation pertinent to recommendation to the National Register of Historic Places would be feasible for more than 10 (probably less) sites in the entire project area. This figure includes all resources,

prehistoric, historic and historic-architectural. I would recommend Phase II testing on sites which, following the intensive Phase I work already done, are believed to be unique in some way and retain some semblance of integrity.

District nomination is, to me, not feasible for the project area. That area does not constitute either a natural or cultural district at any level nor, judging from the information available, did it at any time in the prehistoric past. This location has always apparently been part of a much larger world; a world shared with the Missouri River trench and/or Ozark Highlands. To recommend it as a district on the basis of cultural resources seems to me to be a form of punitive act not necessarily conforming to the spirit of the law. (Comments from Dr. Dale R. Henning to American Resources Group, Ltd., July 30, 1982)

The principal investigator concurs with Dr. Henning's conclusions but recommends Phase II only after a determination of future adverse effects to the 23 potentially significant sites which may occur as the result of plant operation, maintenance, or expansion.

One other change in the survey report has been made. All discussion of site significance and related management recommendations has been moved to the management report. The first draft contained much of the management plan; the reader is now referred to the management document.

The foregoing discussions constitute the central issues in the decision not to recommend nomination of the cultural resources on residual lands as an Historic District. However, if the potentially significant cultural resources identified in this Phase I survey are threatened by adverse effects related to the operation and maintenance of the Callaway plant sometime in the future, Phase II testing related to future adverse effects may provide additional evidence which would support a district nomination at that time.

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1981 Personal communication/interview. Mokane, Missouri,
September 1.

Holland, Charley, and Jewel Holland

1981 Personal communication/interview. Steedman, Missouri,
September 1.

Lawrence, Ralph

1981 Personal communication/interview. 1002 Randall, Fulton,
Missouri, September 1.

Shiverdecker, Pearl

1981 Personal communication/interview. 507 Highway 54S,
Fulton, Missouri, September 4.

Steele, Patrick H., Sr.

1981 Personal communication/interview. Missouri Heritage
Trust, Jefferson City, Missouri, September 2.

Veatch, Virginia

1981 Personal communication/interview. East Second at Addison
Streets, Fulton, Missouri, September 4.

Photographs

Aerial view of Reform, late 1970s, prior to demolition. Shows Reform
store, Water's house north of store, and associated barn. Courtesy of
Charley and Jewel Holland, Steedman, Missouri.

Architectural Bibliography (cont.)

Barn and wooden silo on Holland farm (north of General Store).
Courtesy of Charley and Jewel Holland, Steedman, Missouri.

Holland General Store, Reform, Missouri, mid-1970s. Courtesy of
Charley and Jewel Holland, Steedman, Missouri.