Final

Environmental Impact Statement

Proposed City of Albany's

Cagle Water Expansion Project

Albany, Kentucky

June 13, 1997

Prepared for
The United States Department of Agriculture
Rural Utilities Service

by

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EXECUTIVE SUMMARY

The City of Albany, located in south-central Kentucky, has applied for federal financial assistance to expand its potable water treatment plant. This action is a part of the Federal Government Empowerment Zone program that seeks to empower depressed rural communities to develop economically through a government and private business partnership. The US Department of Agriculture, Rural Utilities Service, has prepared this Environmental Impact Statement (EIS) concerning this action. This document is developed and written in accordance with the National Environmental Policy Act, the President's Council on Environmental Quality regulations, and Rural Utilities Service regulations.

This EIS is the evaluation of the potential impacts on the environment from the potable water treatment plant expansion. In addition, the EIS considers the potential environmental impacts from the construction and operation of industries that would locate in the Albany, Kentucky area as a result of the expansion. Cagle's Inc. plans to build a poultry processing facility in the area. This would require construction of support operations such as a feed mill, hatchery, poultry farms, and associated utility lines and ancillary systems. The Clinton County Industrial Park is also proposed as a result of the expansion, even though no specific plans have been made for the industrial park.

In preparing this EIS, the study team considered several alternatives ways to meet the community's need, but most were considered impracticable, or unreasonable. Therefore, this EIS evaluates in depth only two alternatives: the action to expand the potable water treatment plant and the No Action alternative. Alternatives within the proposed action are also discussed.

The affected environment of the facilities considered in this EIS consists of rural settings that are dominated by agricultural operations. The expansion would require building a new potable water treatment plant next to the existing plant. This would increase the overall raw water treatment capacity from 2 million gallons per day to 5 million gallons per day. The raw water would be drawn from Lake Cumberland, a major recreational lake in the area.

The poultry processing facility would be located about 3 miles from Lake Cumberland. It would use an on-site, no discharge wastewater treatment system that would use drip and spray irrigation of treated wastewater on a hay farm. No wastewater would be directly discharged to Indian Creek or any other surface waterway. Indian Creek drains into Lake Cumberland. A feed mill and hatchery would be located about 70 miles due west of the poultry processing facility in Franklin, Kentucky, with poultry farms likely to be established throughout fifteen counties in Kentucky and Tennessee. The Clinton County Industrial Park would be located about four miles south of the raw water treatment plant.

The EIS evaluates the potential environmental impacts from the construction and operation of the various facilities and associated utility lines. Construction and operation of the facilities and utility lines would have no significant impact on biological resources, noise, aesthetics, cultural resources, and the air quality of the region.

Construction of the facilities and utility lines would use best management practices to control erosion, runoff, and sedimentation, as required by Kentucky Best Management Practices for Construction Activities. Therefore, minimal impacts on soils and surface water would occur. The geology of the area consists largely of limestone, containing sinkholes, crevices, and caves. Therefore, to minimize the risk of problems associated with sinkholes, subsurface investigations would have to be used by Cagle's engineers to help determine the exact siting of buildings, lagoons, and the other facilities.

Operation of the potable water treatment plant would have negligible impact on Lake Cumberland's water capacity. The irrigation of treated wastewater from the poultry processing facility would have no significant impact on soils or surface and groundwater. However, a monitoring program for soils, surface, and groundwater would be set up to assess any potential long-term effects of the irrigation. The feed mill and hatchery would have minimal impact on the water and associated environment since its wastewater would be discharged to a local municipal sewer.

Disposal of poultry wastes from the poultry processing facility and poultry farms should use best management practices. However if best management practices are not followed significant impacts to the soils, and surface and groundwater could occur.

For all of the facility areas, no significant cultural resources have been found.

Most of the socioeconomic effects would result from the construction and operation of the poultry processing facility and its support operations. The poultry farming operations would be consistent with US Department of Agriculture's family farming policy. The projected industrial growth in the area would result in increased employment and income. This would in turn stimulate economic growth of this low-income area. No significant impact on the transportation system in the region is expected.

The Clinton County Industrial Park would be able to accommodate businesses interested in locating to the area in the future. This would further stimulate economic growth in the area.

The construction and operation of the facilities and utility lines would meet all federal, state, and local regulations and permitting requirements. Best management practices for construction activities and poultry farming operations would prevent any significantly adverse impacts on the environment. Funding of the potable water treatment plant is the preferred alternative at this time.

The No Action alternative is not to award Federal financial assistance to the City of Albany. If the No Action alternative is chosen, the potential environmental effects of the various facilities, discussed above, would not occur. However, potential economic development in the area would not be realized, and the goals of the federal assistance program would not be met. The area would continue to suffer from high unemployment, extreme poverty, and dependence on Federal and State entitlements.

By not funding the project, the No Action alternative, economic conditions within the EZ would continue to worsen. The trend of factories closing or down sizing shifts, and stores and businesses closing would continue. The current economy could not support the existing businesses. The No Action alternative would be detrimental to the EZ and result in an adverse impact to a low income community.

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ACRONYMS AND ABBREVIATIONS

ACOE	Army Corps of Engineers
ADT	Average Daily Traffic
CFR	Code of Federal Regulations
CO	Carbon Monoxide
dB	Decibels
dBA	A-weighted dB scale
EDA	Economic Development Administration
EIS	Environmental Impact Statement
EZ	Empowerment Zone
ft	Feet Or Foot
gpd	Gallons Per Day
HUD	Department of Housing and Urban Development
KPDES	Kentucky Pollution Discharge Elimination System
kV	Kilovolt
kwh/mo	Kilowatt Hours Per Month
mg/l	Milligram per Liter
$\mu g/m^3$	Micrograms Per Cubic Meters
NOx	Nitrogen Oxides
NAAQS	National Ambient Air Quality Standards
OSHA	Occupational Safety and Health Administration
PM_{10}	Particulate Matter Less Than 10 Microns in Diameter
Rt.	State Route
RUS	Rural Utilities Service
USDA	United States Department of Agriculture

INTRODUCTION

WHAT THIS REPORT IS

This Environmental Impact Statement (EIS) is a report on the potential impacts to the environment that could occur if the potable water treatment plant in Albany, Kentucky is expanded. If the project occurs, a new industrial park and a new poultry processing facility with its ancillary support activities, are anticipated to be developed for the area. Therefore, this EIS reports on the impacts of the potable water treatment plant expansion, the Industrial Park, and the poultry processing facility with its support facilities and family farming operations.

WHY THIS REPORT WAS PREPARED

The National Environmental Policy Act and the regulations that implement it, require federal agencies to consider the environmental impacts whenever they are planning, or making a decision about, an action. To bring that about, the rules call for the agencies to make public an EIS on those impacts. In making decisions about actions, agencies must also consider the comments that citizens and other agencies have on the EIS.

THE AGENCIES THAT ARE INVOLVED

The City of Albany, Kentucky has applied to several federal agencies for financial assistance to help pay for the expansion of its potable water treatment plant. The agencies are:

- Rural Utilities Service (RUS), an agency of the United States Department of Agriculture (USDA);
- Economic Development Administration (EDA), a part of the Department of Commerce; and
- Department of Housing and Urban Development (HUD).

Under the City of Albany's proposal, each of these agencies would provide a portion of the total amount of financial assistance needed to expand the potable water treatment plant. The financial assistance would be provided either by a grant or loan to the City of Albany.

These three agencies and the City of Albany have cooperated in the preparation of this EIS, with RUS serving as the Lead Agency. These agencies will consider the information in this EIS as they make their decisions about funding this project.

THE SCOPING PROCESS

When agencies prepare an EIS, they ask the public and other agencies to help identify which activities, alternatives and impacts should be included in the scope of the study. This is termed the Scoping Process, and it is required by National Environmental Policy Act regulations.

For this project, RUS announced the intent to prepare an EIS in a Notice of Intent published in the Federal Register on November 29, 1996, and in a public notice in the Clinton County News on November 28, 1997, a weekly newspaper. A public meeting was held on December 19, 1996, in Albany, Kentucky, to receive public comments about the issues to be considered in the EIS. The RUS also invited other agencies, organizations, and citizens to send comments by US mail, and electronic mail, and set up a 1-800 hot line for the public to call in their comments. No telephone calls were received. The official comment period was open for 36 calendar days. However, comments received after the 36 days were also considered in preparing the EIS. Many written comments were received from the general public. The overwhelming majority of these comments were in favor of the project. The volume of support letters stacked up to 10 inches high.

The concerns raised at the Public Meeting and in written comments have helped shape the scope of this EIS. Further details on the Scoping Process are in Appendix A.

PUBLIC REVIEW OF THE DRAFT

On April 18, 1997, RUS published a Draft version of this EIS and mailed copies to every citizen and organization that requested one. Copies were also mailed to state and referral agencies. The EIS was also made available electronically from RUS's Home Page on the Internet. RUS held four public meetings to receive comments on the Draft. Two meetings were held in Albany, on April 28, 1997, a third meeting was held on May 28, 1997, and a meeting was held in Franklin on May 29, 1997. The RUS also invited comments by mail, electronic mail, and by toll-free phone line.

1.0 PURPOSE AND NEED FOR ACTION

Clinton County and the adjacent Wayne County are located in south-central Kentucky, an area of chronic poverty and high unemployment. Clinton County and a portion of Wayne County are part of the Kentucky Highlands Empowerment Zone that was designated as such by the Secretary of Agriculture under a program established by Congress in 1993 (Budget Act, 1993). Clinton County and a portion of Wayne County have been designated by Kentucky Highlands Empowerment Zone as a Rural Empowerment Community. The Rural Empowerment Community is incorporated under the name Clinton County Empowerment Zone Community, Inc. and is referred to in this document as the EZ (see Figure 1). The purpose of the program is to empower rural communities and their residents to create jobs and opportunities for development through a government and private business partnership. The rural Empowerment Zone program provides tax benefits, federal investments, and enhanced coordination among federal, state and local agencies. The project is located near the City of Albany, Kentucky, which is in Clinton County, in the south-central part of the County.

Empowerment Zones

Empowerment Zones are established in recognition of an area's need for jobs, and its plans and potential to carry out the development that creates those jobs. There are currently only two other rural Empowerment Zones established by the Secretary of Agriculture in the nation.

As part of the Clinton County EZ's development plan, the EZ has purchased a parcel of land south of State Route 90, near the intersection of State Routes 90 and 2063. This property has been turned over to the Clinton County Industrial Authority, who has designated it as the Clinton County Industrial Park. In addition, the EZ has attracted Cagle's, Inc. to the area. Cagle's plan is to build a poultry processing facility on a site north of State Route 90, just west of State Route 127. The poultry processing facility would in turn require support facilities, i.e., a feed mill and hatchery and poultry farms (see Figure 2). However, before the poultry processing facility and any other type of industrial plant could operate in the Albany area, the City needs to be able to supply sufficient potable water to them. The existing potable water treatment plant cannot supply sufficient water for the industrial development that will be brought in by the EZ.

To supply the needed water, the City of Albany proposes to expand its potable water treatment plant. To do this, the City of Albany has requested federal financial assistance. This action is described in more detail in the next section, along with the other courses of action that have been considered.

Figure 1 The Clinton County Empowerment Zone Community, Inc

Figure 2 Proposed Projects and Associated Facilities in Kentucky

2.0 ALTERNATIVES

There are several possible alternative approaches to meeting the EZ's need that warrant investigation. These are discussed and compared in this section.

2.1 NO ACTION

Under the No Action Alternative, federal agencies would not provide financial assistance for the potable water treatment plant expansion. Without federal financial assistance, the City of Albany could not afford to expand its treatment plant (City of Albany, 1997a). There are no other feasible sources of potable water for the Clinton County Industrial Park or the Cagle's facility. So, if the capacity of the Albany plant is not increased there would not be sufficient potable water supply to enable Cagle's or other industrial users to locate facilities within Clinton County.

2.2 THE ACTION

The action is to expand the City of Albany's potable water treatment plant. This would increase the treatment capacity from 2 million gallons per day to 5 million gallons per day. This expansion would include a new raw water intake structure, new treatment system equipment, approximately 5.5 miles of new water main, and a 1.5 million gallon water storage tank. The raw water source would be Lake Cumberland. To implement this proposal, the City of Albany has applied for financial assistance from:

USDA, RUS Loan	$1,500,000
RUS Grant	$2,225,000
EDA Grant	$1,400,000
HUD Community Development Block Grant	$1,500,000
EZ Funds	$475,000
Total:	$7,100,000

2.3 ALTERNATIVES WITHIN THE ACTION

Within the proposal to expand the City of Albany plant, there are three alternative water main routes that could be followed from the potable water treatment plant to the Cagle's site. These are shown in Figure 3. Water main routes have not as yet been designed to bring water to the Clinton County Industrial Park site.

2.4 ALTERNATIVES TO THE ACTION

Several other ways to meet the water need for Cagle's poultry processing facility and the Clinton County Industrial Park were considered.

Figure 3 Three Alternative Water Routes from the Water Plant to the Storage Tank on Cagle's Hay Farm

2.4.1 USE GROUNDWATER

Under this approach, a group of wells would be drilled at or near the Cagle's site, the Clinton County Industrial Park Site, or into an aquifer within Clinton County. This approach is not feasible. The groundwater at and near the sites, and throughout Clinton County is of very poor quality. The groundwater is generally contaminated with sulfur from the oil pools and natural gas deposits in the area (Monarch, 1997). Moreover, the geologic information available for the area indicates a lack of aquifers. It is unlikely that sufficient quantities of groundwater could be obtained (Monarch, 1997). For these reasons, use of groundwater was not considered a reasonable alternative and was not studied in detail.

2.4.2 USE WATER FROM OTHER WATER SYSTEMS

Under this approach, one of the other water systems in Clinton or nearby Counties would provide water to the Cagle's and the Clinton County Industrial Park sites, rather than the City of Albany's system.

Besides the Albany plant, which is approximately 5.5 miles from the Cagle's site and 4 miles from the Clinton County Industrial Park site, the next closest system within Clinton County is the Dale Hollow Lake State Park potable water treatment plant on Dale Hollow Lake. This system is approximately 15 miles from the Cagle's site and the Clinton County Industrial Park. This system is only used to supply the State Park. This system is going to be closed down (Monarch, 1997a). Other water supply systems in the area are outside the jurisdiction of Clinton County. The closest is in Cumberland City, Kentucky, approximately 13 miles, by road, from the sites. None of the other systems have sufficient excess capacity to meet the projected needs of the Cagle's facility and the Clinton County Industrial Park. Therefore, any other system would also have to add treatment capacity. No other system therefore offers any advantage in terms of existing capacity or proximity to the Clinton County Industrial Park. Therefore, using other water systems was not considered reasonable and was not studied in detail (Monarch, 1996).

Potable Water Treatment Plant Capacity

Kentucky procedures employ trigger mechanisms for water tap-on and line extension bans. When the seasonal average daily production of a potable water treatment plant reaches 85% of the plant's operational capacity, a water line extension ban is initiated, i.e., no further water mains can be installed. When the average daily production reaches 95% of a plant's operational capacity, a water tap-on ban is initiated, i.e., no more new users can be connected to the water distribution mains.

2.4.3 MAINTAIN PRESENT TREATMENT PLANT CAPACITY, AND USE RECYCLED WATER AT POULTRY PROCESSING FACILITY

Under this approach, the Cagle's plant would receive water from the existing City of Albany's potable water treatment plant, and substantially reduce its water needs by treating and recycling wastewater. This approach would violate the USDA's strict regulations regarding the use of recycled water in food processing facilities.

The Cagle's plant cannot significantly reduce its use of water. The use of water at such a plant is for washing, moving waste, and chilling the meat. The USDA requires a high degree of cleanliness for equipment and surfaces inside a food processing plant such as this one. The required cleanliness cannot be maintained without adequate amounts of potable non-recycled wash water.

The current Albany plant has a rated capacity of 2.0 million gallons per day with an average annual daily usage of 1.1 million gallons (see box on previous page). The 1996 peak daily usage, approximately 1.3 million gallons, occurred in August. Therefore at present, the Albany plant has an excess capacity of approximately eight hundred thousand gallons. This would not be enough to supply the 2 million gallons a day needed by the Cagle's plant. This would not provide an adequate water supply needed by other businesses and industry users that may otherwise be attracted to the Clinton County Industrial Park (Monarch, 1996).

For these reasons, this alternative was not studied in detail.

2.4.4 EXPAND THE ALBANY PLANT TO A DIFFERENT DEGREE

Under this approach, instead of expanding the existing plant from 2 to 5 million gallons per day, either a lesser expansion or an even greater expansion would be undertaken.

The 3 million gallon per day expansion is based on the City of Albany's best estimates of its reasonably foreseeable future water needs. With a lesser degree of expansion, there would be a risk that the City of Albany would be unable to meet demands in support of the EZ's economic development goals. With a greater expansion, there would be a risk that the plant would have a substantial unused capacity for the future, meaning that the extra money spent on the additional expansion would have been wasted (Monarch, 1996). Because of these factors, this approach was not considered in detail.

2.5 COMPARISON OF THE CONSEQUENCES OF THE ALTERNATIVES

2.5.1 NO ACTION

If the federal agencies decide not to provide the requested financial assistance, the Albany potable water treatment plant would not be expanded. As a consequence, the EZ's ability to attract industry, such as the Cagle's poultry processing facility, and to promote economic growth, would be critically hampered, and the EZ's goals would not be met, and the region's economy would not improve.

The environmental and socioeconomic effects that are reasonably foreseeable from this No Action alternative are discussed in Section 3.0, and summarized in Table 1.

2.5.2 PROPOSED ACTION

If federal agencies do provide the requested financial assistance, then the EZ would be able to use the availability of potable water as a recruiting tool to attract business concerns to the area. Without an adequate supply of potable water, the Cagle's poultry processing facility will not locate in the EZ, and the Clinton County Industrial Park would not be developed.

The proposed action, expanding the potable water treatment plant would in turn attract the Cagle's poultry processing facility to the area and support the development of the Clinton County Industrial Park. In addition, to support the Cagle's poultry processing facility a network of support facilities that would include a feed mill and hatchery, and pullet, breeder and broiler houses would be required. The environmental and socioeconomic effects of the various projects that are reasonably foreseeable are discussed and analyzed in the next section.

At the present time, this is the agencies' preferred alternative. The agencies' final decision will be made public in the Record and Decision.

Considering the evaluation of the impacts in Section 3.0, Table 1 is a comparative summary of the impacts of the alternatives. The table includes the impacts that would occur from the construction and operation of the following projects: the expansion of the potable water treatment plant, the water intake structure, the water main, and the water storage tank.

The Industrial Park and the Cagle's poultry processing facility and its support facilities (feed mill, hatchery, and poultry houses) are not part of the action for federal funding. However, these are connected actions resulting from the proposed action and their effects are also considered in this document and the summary in Table 1.

Finally, a new electrical transmission line and substation and a new natural gas pipeline would be needed to serve the processing plant. Those actions are also described in this EIS.

TABLE 1

Summary Of Impacts

Resource	No Action	Action
Soils, topography and geology (See Sections 3.2.1, 3.3.1, 3.4.1, 3.5.1, 3.6.1, 3.7.1, 3.9.1, 3.10.1, and 3.11.1)	None	Potential soil erosion during construction would be avoided by the use of best construction management practices.
	None	Risk of fracturing of bedrock during blasting would be minimized by controlled blasting by licensed professionals.
	None	Risk of soil contamination from construction fuels and materials would be minimized by following strict regulatory procedures for safe handling of such materials.
	None	Risk of contamination of soil from poultry processing plant wastewater would be low because of the low pollutant content of the treated wastewater. Soil and groundwater quality monitoring would be conducted to ensure this.
	None	Risk of saturating, damaging or eroding soil by drip and spray irrigation would be low because of the good permeability of the soil, and the water consuming and stabilizing effect of the hay crops.
	None	Risk of soil contamination from poultry houses' waste would be minimized by following waste management practices recommended by the States of Kentucky and Tennessee and the Cagle's requirement for a Litter Management Plan.
Surface and Groundwater (See sections 3.2.2, 3.3.2, 3.4.2, 3.5.2, 3.6.2, 3.7.2, 3.8.1, 3.9.2, and 3.11.2)	None	Sedimentation into surface waters from erosion during construction would be prevented by the use of best construction management practices.
	None	Risk of contamination from construction fuels and hazardous materials would be prevented by following strict regulatory procedures for safe handling of such materials.
	None	Contamination from treatment plant sludge will be avoided by use of lined settling lagoons, and safe disposal of the sludge.
	None	Risk of contamination of Lake Cumberland from oil from water pumps would be minimized by frequent inspections and maintenance.

Resource	No Action	Action
Surface and Groundwater (Continued) (See sections 3.2.2, 3.3.2, 3.4.2, 3.5.2, 3.6.2, 3.7.2, 3.8.1, 3.9.2, and 3.11.2)	None	Damage to streams at transmission main crossings would be minimized by the use of best management practices.
	None	Risk of water contamination from poultry processing plant treatment lagoons would be minimized by impermeable lining of the lagoons and careful siting to avoid sinkholes.
	None	Risk of surface or groundwater contamination from irrigation of treated wastewater would be avoided because of the low pollutant levels in the irrigation water. Application rates planned are well below the capacity of the soils to safely accommodate. irrigation will not occur within 100 feet of a sinkhole.
	None	Water quality monitoring would be done to ensure contamination does not occur.
Air Quality (See Sections 3.2.3, 3.4.4, 3.5.3, 3.6.4, 3.7.3, 3.8.2, 3.9.3, 3.10.2, and 3.11.4)	None	No construction, transportation nor operation activities would emit sufficient pollutants to cause violation of Clean Air Act standards.
	None	Because objectionable outdoor odors from poultry processing, poultry houses, and waste treatment systems have not been a problem at Cagle's facilities elsewhere; such problems are not likely here.
Aesthetics and Noise (See sections 3.2.5, 3.3.4, 3.4.6, 3.5.5, 3.6.6, 3.7.5, 3.9.5, and 3.10.4)	None	Minor, short term visual and noise effects during construction of each facility. New intake, linked to existing one, will not significantly change visual experience of Lake Cumberland.
	None	New storage tank will slightly change appearance of the hill, but tank will not be visually dominant. Poultry processing building will change appearance of part of the site, but building design will consider aesthetics, and will be neatly maintained.
	None	New intake pumps will not produce noise over conversational speech levels, which is not considered annoying.
	None	Feed mill operations noise would be less than that of a soft whisper at property edge.

Resource	No Action	Action
Archeological Resources (See Sections 3.4.7, 3.9.6, and 3.10.5)	None	All facility sites have been cleared by the State Historic Preservation Office. Contractors installing the water main, transmission line, and natural gas pipelines will stop work if artifacts are found.
Biological Resources (See Sections 3.2.4, 3.3.3, 3.4.5, 3.5.4, 3.6.5, 3.7.4, 3.9.4, 3.10.3, and 3.11.5)	None	Small, ecologically unimportant acreage of common habitat will be lost to facility sites. Water intake structure is designed to avoid taking in fish from the Lake, as is the existing intake.
	None	Potential habitat for two endangered bat species occurs near the storage tank and near the Industrial Park, but no construction or operations activities would affect those habitats.
	None	State protected plants occur near water transmission route, but would not be affected by main construction.
Land Use (See Sections 3.2.6, 3.4.8, 3.5.6, 3.6.7, 3.7.6, 3.9.7, 3.10.6, and 3.11.6)	None	Conversion of 20 acres of prime farmland at poultry processing plant, and up to 50 acres at Industrial Park site would be insignificant losses of prime farmland.
Socioeconomics (See Section 3.12)	The trends of the economy will continue to worsen. Unemployment and poverty will increase.	Locally and regionally available labor force is expected to meet all employment needs. Substantial new population growth is not expected, but improved economy will result in new building and other development. Master planning and zoning can prevent aesthetic degradation, congestion and other effects of development.

3.0 ENVIRONMENTAL EVALUATION

3.1 APPROACH

The effects ("impacts") that could result from the action or the alternatives are described below. The Study Team, as listed in Section 9.0 List of Preparers, followed a series of steps to develop this information:

- The Team worked with the City of Albany, the EZ board, and others to identify and describe the major physical activities that would occur if the potable water treatment plant expansion were to proceed. As noted above, if the potable water treatment plant is expanded, a poultry processing facility would be built by Cagle's, Inc. and a Clinton County Industrial Park would be developed. Several other facilities would also be built to support the Cagle's facility. These actions were also included in the Team's list of project activities.

- For each of these activities, the team identified, as completely as they could, all of the various kinds of direct effects on the environment that could be caused by that activity.

- The team then identified the various indirect impacts that could conceivably arise from the direct impacts.

- For each type of impact, the team first asked whether that effect would actually occur in this project:

  ⇒ If they concluded that the effect would occur, then they studied how extensive, how often, how long, or how severe that impact would be. Then, they continued the study of the indirect impacts that could arise from it.

  ⇒ However, if they concluded that the effect would not reasonably occur, then there was no need to study any of the other effects that would have stemmed from it.

Activity
Excavation:
can lead to→
Direct Effect: Soil Erosion
which can lead to→
Indirect Effect: Muddy Stream
which can lead to→
Indirect Effect: Fish/eggs killed

- The team evaluated the significance of the impacts by using the criteria as described in Table B-1 in Appendix B.

The results of the study process are discussed in this section. They are also shown in Figure 4,

the Environmental Evaluation Diagram. This set of figures graphically depicts the many series of effects that the team identified and studied. The figures are cross-referenced to the text, so they can serve as a road map to the document.

There are several resources that would not be affected by this project as indicated in Figure 4. For some parts of the environment, the team could not identify any reasonable mechanism through which any aspect of this project would affect that resource. Therefore, there are no further discussions in this document about these resources because it was established that there was no way that resource could be affected.

The action would involve actions at several different locations: the potable water treatment plant site, the poultry processing facility site, the Clinton County Industrial Park site, and the feed mill and hatchery site near Franklin, Kentucky. In addition, poultry farms are likely to be established in the area between the feed mill site and the processing facility. These sites are described below.

The Way Section 3.0 Is Organized

SITE, e.g., POTABLE WATER TREATMENT PLANT SITE

RESOURCE, e.g., SOIL

— Affected Environment
— Environmental Consequences
Construction phase
Impact Summary
Rationale
Operations phase
— Mitigation Measures

Therefore, the remainder of this section is organized by site. Within each of the subsections, the discussion is organized by environmental resource. Thus, discussions of geology, topography, and soils for the potable water treatment plant are in Section 3.2.1, discussions of surface and groundwater and water quality are in Section 3.2.2, and so on.

Within each resource section, the sequence of information is:

— Affected Environment

This describes the current condition of that resource. This discussion is meant to give readers the necessary information to understand the impacts that are predicted on that resource.

— Environmental Consequences

For both the construction phase and the operations phase, these sections describe the impacts on the particular environmental resource that would stem from activities at that site. This part also discusses the importance, and the significance of the impact.

Some information is common to several sections. To avoid having the reader flipping back and forth through the document hunting down cross-references, the document repeats information on occasion so that it is presented wherever the reader needs it.

Figure 4 Environmental Evaluation Diagrams

— Mitigation Measures

These sections describe the measures that would be or could be taken to prevent, avoid, lessen, or compensate for the impacts.

The potential impacts on people and their communities stem from the overall set of actions (the water plant, the poultry processing facility and farms). These impacts, often termed "socioeconomic impacts" would occur over an area of several counties. For these reasons, there is a single, overall discussion of socioeconomic impacts for the region as a whole. That is located in Section 3.12.

3.2 POTABLE WATER TREATMENT PLANT

To accommodate the projected industrial water use of the Clinton County Industrial Park and the Cagle's poultry processing facility, the City of Albany, Kentucky, proposes to increase the treatment capacity of its potable water treatment plant from 2.0 million gallons per day to 5.0 million gallons per day, install 5.5 miles of 16-inch water transmission main, and construct a 1.5 million gallon water storage tank.

The City of Albany owns and operates a potable water treatment plant in Clinton County. The plant is located on a bluff above the shore of Lake Cumberland, near the community of Seventy Six Falls (See Figure 5). Lake Cumberland is owned by the US Government with oversight provided by the ACOE, Nashville District. The current Albany plant has a rated capacity of 2.0 million gallons per day with an average annual daily usage of 1.1 million gallons. The 1996 peak daily usage, approximately 1.3 million gallons, occurred in August.

The potable water treatment plant would have the same equipment and be operated exactly the same way the City's current plant is operated. The only difference between the two would be that the plant would have a larger treatment capacity. The potable water treatment plant would consist of a floating raw water intake structure and a series of treatment process areas. The treatment process would consist of a flash mixer, flocculators, clarifiers, filters, disinfection, storage, and pumpage into the distribution system (see Figure 6).

Potable Water Treatment Plant Capacity

Kentucky procedures employ trigger mechanisms for water tap-on and line extension bans. When the seasonal average daily production of a potable water treatment plant reaches 85% of the plant's operational capacity, a water line extension ban is initiated, i.e., no further water mains can be installed. When the average daily production reaches 95% of a plant's operational capacity, a water tap-on ban is initiated, i.e., no more new users can be connected to the water distribution mains.

Figure 5 The Proposed Potable Water Treatment Plant Location

Figure 6 Flow Diagram of City of Albany's Proposed Potable Water Treatment Plant

The proposed plant would be built on an adjacent hill just southwest of the existing facility. The site is pasture land except for one small stand of trees, approximately 0.5 acres. There are also trees along the fence line of the site. Preparing the site would involve tree removal, and excavating and blasting to lower the top elevation by 10 feet (ft). The soil and rock material that would be removed would be spread out to create a plateau on which to situate the plant (see Figure 7).

The proposed size of the structures for the new facility would be: the plant building, approximately 75 ft by 160 ft; the clear well, 75 ft by 75 ft; and the lagoon area, approximately 75 ft by 325 ft. There would be two lagoons approximately 100 ft by 100 ft, each, and a recirculation basin approximately 35 ft by 70 ft, located in the lagoon area. The two in ground, clay lined lagoons would be used to retain and treat the filter backwash from the plant. The recirculation basin would be above-ground.

Flocculation

In flocculation, chemicals such as aluminum sulfate (alum) are added to raw water to combine with the objectionable chemicals that occur naturally in the raw water. The reaction of these chemicals forms solid particles that contain the objectionable material. These solids can then be filtered out. Disinfection refers to the addition of chlorine gas to kill bacteria and other organisms.

See Figure 7 for the probable layout of the potable water treatment plant.

The proposed potable water treatment plant personnel would be licensed by the state of Kentucky.

The construction and operation of the potable water treatment plant would not affect any floodplain, wetland, or cultural resource. Neither a floodplain, nor a wetland exist on or near the site. A Phase I Cultural Resource Survey was performed for this site and no cultural materials were found (Starr and Stallings, 1995). Therefore, these subjects will not be discussed further in this subsection.

3.2.1 GEOLOGY/TOPOGRAPHY/SOILS

Potential impacts to geology were determined through evaluation of the type of geologic formation at the site, type of activity occurring, duration of the activity, and the size of the area affected.

Impacts to the topography of the site were derived by analyzing the site itself for elevation, slope, and topographic features, such as hills or sinkholes. The proposed action, size of area affected, and duration of the activity was also considered in the determination of the significance of the impact.

Figure 7 Probable Layout of the Proposed Potable Water Treatment Plant

Analysis of potential soil impacts included the type of soil, depth of soil, slope of site, and the permeability and erosive tendencies of the soils. The amount of area affected as well as the duration and severity of impact was also considered.

Each of the characteristics for each impact was considered in conjunction with the definitions found in Appendix B to determine the significance of the impact. Each of the geology, topography, and soils sections in the EIS were handled in the same manner.

— Affected Environment

Geology

The proposed potable water plant site is underlain by 270 ft of siltstone, shale, and limestone bedrock from the Mississipian-age Fort Payne Formation (Lewis and Thaden, 1962).

Topography

The proposed plant site has an elevation of approximately 200 ft above Indian Creek, which lies to the north and east of the site. The site would be located on top of a hill with about a 10% slope, southwest of the existing potable water treatment plant (see Figure 7).

Soils

Soil of the proposed plant site consists of two units, the Caneyville-Dewey complex, and the Dewey loam (SCS, 1994). The Caneyville-Dewey complex is well drained, has 6% to 20% slopes, and a depth to bedrock of about 20 to 60 inches. The soils have a high clay content, moderately slow permeability, rapid runoff and risk of moderate to severe erosion. The relatively slow permeability of this soil contributes to the risk of moderate to severe erosion.

The Dewey loam is well drained and has 6 to 15% slopes, with a depth to bedrock of more than 60 inches. The soil has high clay content, moderate permeability, rapid runoff, and slightly erosive tendencies. None of the soils types on the site are classified as prime farmland by the USDA Natural Resources Conservation Service, formerly known as the Soil Conservation Service.

— Environmental Consequences

– Construction Impacts

As identified from the environmental evaluation diagram, the potential impacts from the construction of the project on topography, geology, and soils include:

- Soil erosion from the clearing and grading of the plant site;
- Soil erosion from excavation for transmission lines from the valve vault to the new plant;
- Fracture of bedrock from blasting;

- Soil contamination from hazardous materials; and
- Loss of prime farmland.

For the plant site, approximately 6 to 10 ft of soils in an area of about 2 acres would be removed from the top of the hill during clearing and grading. The material removed from the hilltop would be spread around the perimeter of the site to create a plateau for the facility. The material would be compacted in place. Two 100 ft by 100 ft, 7-ft deep lagoons would be constructed on the hill directly above the existing plant. The lagoons would be lined with clay and would have a combined holding capacity of about 1 million gallons.

Very little blasting is anticipated. If blasting were required, it would consist of small, controlled charges less than 3 ft deep in a maximum of five drilled holes. Steel mats would be used during blasting, as necessary. The blasting would be conducted by a licensed explosive handler. This would minimize the potential for fracturing the bedrock.

Standard practices for erosion, runoff, and sedimentation control would be implemented during construction of the plant in accordance with the Kentucky Best Management Practices for Construction Activities (NREPC, 1994). These standard practices include the placing of hay bales and siltscreens and the use of settling basins as necessary. Therefore, the potential impacts from soil erosion would be minimized or eliminated.

Fuel and dynamite would be the only hazardous materials used during construction. Material Safety Data Sheets for the materials would be available on-site. Occupational Safety and Health Administration (OSHA) requirements for personal protective equipment and procedures would be followed to ensure worker health and safety. The materials would be stored indoors under lock and key. The contractor would remove any hazardous materials that need to be disposed of according to applicable regulations.

Based on a review of the Soil Survey of Clinton County (SCS, 1994), the construction of the plant and water transmission lines from the valve vault to the new plant itself would not result in any loss of prime farmland. The indirect effects on prime farmland that would occur from the poultry processing facility and the Clinton County Industrial Park construction are discussed in their appropriate sections of this document.

– Operation Impacts

As identified from the environmental evaluation diagram, the potential impacts from the operation of the project on topography, geology, and soils include:

- Soil contamination from sludge disposal; and
- Soil contamination from chemical handling and storage accidents.

Sludge from the operation of the potable water treatment plant would be consolidated by settling before being delivered to the lagoon for drying. The lagoons would be lined with clay

thereby inhibiting leakage from them. This would minimize the potential for soil contamination from sludge handling. The sludge from the potable water treatment plant would be suitable for use as soil conditioner type fertilizer. The analysis of the sludge from the existing plant has shown that it is rich in ammonium nitrogen, total nitrogen, phosphorous, and potassium, and contains trace amounts of benign metals. The pH of the sludge is neutral. The dried sludge would be tested just to ensure it did not contain any materials above levels considered to be hazardous by State/Federal guidelines before being offered for use as a soil conditioner/fertilizer. If no one wants the sludge, then the sludge would be removed from the lagoons and hauled to a landfill for disposal.

Chemicals that would be used during operation include chlorine, alum (aluminum sulfate), and lime (calcium hydroxide). Chlorine would be stored as bottled gas, alum in fiberglass storage tanks, and lime in bags inside the new plant. An alarm outside the chlorine storage building would be used to alert the operators of any chlorine leaks. All workers would be trained in safe handling operations and proper emergency procedures, therefore, the risk of soil contamination would be minimized.

— Mitigation Measures

The construction and operation of the potable water treatment plant would not cause significant impacts to topography, geology, and soils. Standard erosion control as set forth in the Kentucky Best Management Practices for Construction Activities would be implemented, and extreme care would be exercised when blasting is performed. The operators of the potable water treatment plant would be trained and certified under Kentucky Regulations. Proper storage and handling of the water treatment chemicals would be practiced. No other mitigation measures are proposed.

3.2.2 SURFACE AND GROUNDWATER/WATER QUALITY

The potential impacts to the surface and groundwater water quality were derived from evaluation of the amount of contamination possible from the proposed action in addition to the characteristics of the site. The associated watershed and surrounding water bodies were also considered. These criteria along with the parameters discussed in Appendix B were used to determine the significance of the impact. Each surface and groundwater water quality section in the EIS was analyzed by the same methodology.

— Affected Environment

The water treatment plant would be located on a bluff above the shore of Lake Cumberland near Seventy Six Falls. Lake Cumberland is about 50,000 acres in area and is managed by the ACOE. It is used for public recreation such as boating and as the water supply for five municipal water systems including the Albany potable water treatment plant. Water level of the lake is controlled by the Wolf Creek Dam, which regulates water flow into Cumberland River. The lake levels are changed by up to an approximate 90 ft seasonally to allow the lake to accommodate flood water storage.

Lake Cumberland is classified by the State as fully supporting its designated uses, and considered to be nutrient poor and contains low amounts of algae (KNREPC, 1996). Water quality of the lake may be affected by recreational activities such as boating, residential activities around the lake, point-source discharges into the Cumberland River basin, and agriculture activities surrounding the streams that flow into the lake. (KNREPC, 1996).

— Environmental Consequences

- Construction Impacts

The potential impacts from the water treatment plant on surface and groundwater include:

- Decreased water quality from erosion and runoff; and
- Contamination of surface and groundwater from construction waste.

Best management practices to control erosion and sedimentation, as discussed in Section 3.2.1, would be implemented during the construction of the water treatment plant. Any hazardous material generated by construction activities would be removed and disposed of in accordance with Kentucky regulations and procedures. Thus, no significantly adverse impacts on surface water would occur.

- Operation Impacts

The potential impacts of the water treatment plant to surface and groundwater include:

- Decreased lake capacity from water withdrawal; and
- Contamination of groundwater from sludge dewatering.

The operation of the water treatment plant would require a withdrawal permit from the Kentucky Division of Water. To supply the proposed water treatment plant, the expected maximum withdrawal from the lake would be about 3 million gallons per day. This amount of withdrawal should have no significant effect on the water resource of the lake. The lake's storage capacity is about 4 million acre-ft (ACOE, 1997). The withdrawal would correspond to about 900 million gallons (2,700 acre-ft) per year, which would be approximately 0.07% of the storage capacity.

Acre-Foot

An acre-foot is a volume of water one foot deep over an acre. An acre equals 43,500 square feet. An acre-foot of water is equal to approximately 330 thousand gallons.

The dewatering lagoons would be lined with clay, and the sludge would be disposed of off-site after drying. Thus the potential for groundwater contamination by the sludge would be minimized.

— Mitigation Measures

The construction of the potable water treatment plant would not cause any significant adverse impacts to the surface and groundwater or water quality with the implementation of best management practices. Therefore, no mitigation measures would be proposed.

3.2.3 AIR QUALITY

The potential impacts to air quality were determined through consideration of the existing air quality, types of emissions possible, including pollutants and odor, duration of emissions, and extent (size) of areas affected. These characteristics in conjunction with the parameters listed in Appendix B were used to derive the significance of each impact. Each air quality section in the EIS was handled in the same manner.

— Affected Environment

The potable water treatment plant would be built in Clinton County which is part of Kentucky's South Central Region, an Air Quality Control Region. Each region, and its portions are designated by the Environmental Protection Agency, as either being in attainment, non-attainment, or unclassifiable when compared with the National Ambient Air Quality Standards (NAAQS) (see box). The South Central Region is designated as in attainment for each of the NAAQS six criteria pollutants.

The Daniel Boone National Forest, located approximately 25 miles directly east of the project locations, is a Class 1 area under the Federal Clean Air Act. More stringent air quality regulations apply to Class 1 areas.

National Ambient Air Quality Standards

Under the Federal Clean Air Act, the US Environmental Protection Agency regulations have established limits on the average levels of pollutants in the air to which the general public is exposed ("ambient" air). Primary Standards establish the level of air quality necessary to protect the public health from any known or anticipated adverse effects of a pollutant, allowing a margin of safety to protect sensitive members of the population. The Secondary Standards establish the level of air quality necessary to protect the public welfare by preventing injury to agricultural crops and livestock, deterioration of materials and property, and adverse impact on the environment.

Pollutant	Averaging Time	Standards[a]
Ozone	1 hr	235 $\mu g/m^3$
Carbon Monoxide	1 hr 8 hr	40 mg/m^3 10 mg/m^3
Nitrogen Dioxide	Annual	100 $\mu g/m^3$
Sulfur Dioxide	Annual[b] 24 hr[b] 3 hr[c]	80 $\mu g/m^3$ 365 $\mu g/m^3$ 1300 $\mu g/m^3$
Particulate Matter (PM_{10})	Annual 24 hr	50 $\mu g/m^3$ 150 $\mu g/m^3$
	¼ year	1.5 $\mu g/m^3$

[a] Both the Primary and Secondary Standards are the same value, except for sulfur dioxide.
$\mu g/m^3$ = micrograms per cubic meters
[b] Primary Standard
[c] Secondary Standard

— Environmental Consequences

- Construction Impacts

The potential impacts from the construction of the project on the air quality include:

- Create air pollution from burning trees, etc.;
- Generate fugitive dust from construction activities; and
- Generate emissions from construction equipment.

Air quality impacts of the construction would be short-term, low-level intermittent and transient emissions of nitrogen oxides (NOx), particulate matter less than 10 microns in diameter (PM_{10}), and carbon monoxide (CO) routinely resulting from the coming and going of trucks, from on-site machinery, and from fugitive dust created by building activities and blasting. Such short-term emissions do not constitute any degradation of ambient air quality. Kentucky does not have regulations on air emissions from construction equipment (Goebel, 1997). In addition, dust created by excavation activities would be controlled by conventional water spraying techniques as outlined in the Kentucky Best Management Practices for Construction Activities. Steel mats used during blasting would help to prevent the release of particles and debris into the surrounding air. Vehicular exhaust is controlled primarily by emission controls installed by the manufacturer. Vehicles would be properly maintained and unnecessary operation would be minimized to decrease exhaust emissions.

Trees would be disposed of by burning. This is a common practice for construction projects and would be permissible per Kentucky Regulation 401 KR 63:005 Open Burning, *"Fires may be set for disposal of natural growth for land clearing, provided that no extraneous material such as tires or heavy oil which tend to produce dense smoke are used to cause ignition or aid combustion and the burning would be done on sunny days with mild winds."* The contractor would be required to abide by this regulation. This action would not impact the Daniel Boone National Forest. The emissions resulting from burning would be temporary, would dissipate prior to reaching the forest, and construction activities resulting in temporary emissions are exempt from regulation per the Clean Air Act (Title 42 US Code Part 7472, Section 163).

- Operation Impacts

The potential impacts from the operation of the project on the air quality include:

- Create odor due to sludge handling.

The sludge from the existing plant has little or no odor. There has been no odor complaints to the City of Albany associated with the operation of the existing potable water treatment plant, the sludge, or during the removal of sludge for disposal or sale as a soil conditioner (City of

Albany, 1997b). Therefore, the sludge from the potable water treatment plant would not pose an odor problem.

— Mitigation Measures

The construction and operation by the certified operators of the potable water treatment plant would not cause significant air impacts and therefore, no mitigation is called for.

3.2.4 BIOLOGICAL RESOURCES/THREATENED AND ENDANGERED SPECIES

The significance of the impacts identified in each biological resources section of the EIS were derived through information on the type and amount of endangered or threatened species found, size and type of habitat affected, and duration of impact. The parameters discussed in Appendix B were also utilized to make a determination of each impact's significance.

— Affected Environment

No occurrence of state endangered, threatened, or special concern plants, animals, and natural communities have been reported within or near the plant site (KSNPC, 1997). Most of the site consists of grassland with approximately 0.5 acres of trees located on the hill above the existing plant and some trees along the fence line of the site.

Two federally listed endangered species may occur in the project area: gray bat (*Myotis grisescens*) and Indiana bat (*Myotis sodalis*). Even though no record of these species has been reported in the project area, their habitats may exist in the area (Barclay, 1997a). Suitable roosting or maternity habitat for the bats includes the tree species of silver maple, shellbark hickory, green ash, cottonwood, post oak, slippery elm, shagbark hickory, bitternut hickory, white ash, red oak, white oak, American elm, sugar maple, shingle oak, and sassafras. Standing snags (dead or dying trees) also provide suitable roosting or maternity habitat for the bats. Foraging habitat consists of stream, lake, or reservoir shorelines, riparian or upland forest canopy, or early successional forest. The bats are likely to forage as close to the maternity colony as possible.

Based on a habitat survey of the project site by a qualified biologist, habitat for the two endangered bats was not identified. The 0.5-acre stand of trees is not suitable summer maternity, roosting, or foraging habitat for the endangered bats due to lack of the appropriate tree species or standing snags. The area contains a salient (surface opening) approximately 12 inches in diameter, and could have potentially been an access point to a limestone cave that the endangered bat may use for winter hibernation. However, a geotechnical study of the area showed solid limestone rock in the subsurface and no indication of potential caves (Monarch, 1997b). The response to the letter from US Fish and Wildlife Service can be found in Appendix C.

— Environmental Consequences

- Construction Impacts

Approximately 0.5 acres of forested land would be cleared during the construction of the potable water treatment plant. However, no sensitive species are present. No impact on any protected species or sensitive natural communities would result from the construction.

- Operation Impacts

The potential impact from the operation of the potable water treatment plant is:

- Harm to protected species and their habitats or sensitive natural communities from clearing site and from potential contamination to soils, surface and groundwater.

Because no protected species or sensitive natural communities occur at the site, no impact would result from the operation of the potable water treatment plant.

— Mitigation Measures

The construction and operation of the potable water treatment plant would not cause significant impacts to biological resources, or threatened and endangered species or their habitats. Therefore, no mitigation is proposed.

3.2.5 AESTHETICS AND NOISE

The potential impacts of the proposed action on noise were determined by evaluation of the types of noise, duration of noise, number and proximity of residences, and levels of the noise. These criteria were compared to the definitions in Appendix B to derive the significance of the potential impact. Each of the noise sections in the EIS were evaluated with the same methodology.

Common Noise Levels

The loudness of sound is measured in units called decibels (dB); the loudness of vehicle and machinery sound as heard by the human ear, is measured on the A-weighted dB scale (dBA). A few examples of how some familiar noises compare and their exposure concerns are as follows:

Source*	dB	Concern
Soft Whisper	30	Normal Safe levels.
Quiet Office	40	
Average Home	50	
Conversational Speech	66	
Busy Traffic	75	May affect hearing in some individuals, depending on sensitivity, length of exposure, etc.
Noisy Restaurant	80-90	
Average Factory	100	
Pneumatic Drill	120	Continued exposure to noise over 90 dB may eventually cause hearing impairment.
Automobile Horn	170	
Jet Plane	140	Noise at, or over 140 dB may cause pain.
Gunshot Blast	140	

*(Channing Bete Co., 1985).

— Affected Environment

Aesthetics

The project site and associated areas are located in remote areas. The potable water treatment plant location would be located on top of a wooded hillside 2,200 ft downstream of Seventy Six Falls and cove, a popular recreational site.

Noise

The nearest noise receptor, a residence, is approximately 0.5 miles in land from the site. Other sources of noise are boaters in Lake Cumberland and traffic along Seventy Six Falls Road across Indian Creek, and Seventy Six Falls itself. These other noise sources do not exceed the normal safe level of conversational levels and would not be annoying. Within the existing water treatment facility, noise levels are at conversational levels, 66 decibels (dB), and would not be annoying, even within the operating facility (see box on previous page).

— Environmental Consequences

- Construction Impacts

As identified from the environmental evaluation diagram, the potential impacts from the construction of the project on the aesthetics and noise environment include:

- Noise from blasting during construction activities;
- Noise from construction activities; and
- Create aesthetic problems during construction.

The action would generate noise from equipment, vehicles, blasting, and generators. Construction activities would occur during normal daylight hours. Blasting would occur during daylight hours, but as best as can be accomplished, as the last activity of the day. Blasting would be conducted by a licensed explosive expert. Blasting activities are expected to occur for a period of 5 days for construction of the potable water treatment plant. Blasting would be conducted according to standard blasting practices.

Construction would produce temporary noise disturbances associated with construction machinery and construction-induced traffic. Typical machinery would include earth movers, a small mobile crane, air compressors, etc. Typical noise levels for this type of construction equipment, with all pertinent equipment present at the site, range from 72 to 98 A-weighted decibel scale (dBA), at a distance of 50 ft from the source of the noise, which is approximately the edge of the construction site (Canter, 1977). Noise decreases over distance. For a point source of noise, the sound level decreases by 6 dB for every doubling of the distance from the source (DOD, 1978). At these levels persons outdoors within a 500-foot radius of the source, assuming no topographic attenuation, i.e., reduction in noise due to hills, would experience noise in the range of 12 to 38 dB. This sound level range is synonymous to that of a whisper, 12 dB, to that of an average residence without the stereo playing, 38 dB (HUD, 1985).

Noise impacts to humans in the project vicinity are expected to be minimal as the closest residence is 0.5 miles from the site. Workers would wear hearing protection that meets or exceeds OSHA requirements during construction and blasting activities when noise levels exceed 85 dB. All construction noise impacts would cease at the end of the project.

Construction noise impacts would persist for approximately one year.

Construction activities would affect the aesthetics of the areas minimally. Staging areas, material stockpiles, and equipment would be required. The visual impacts would be temporary. The staging areas would be recontoured and/or revegetated, and all equipment and material stockpiles would be exhausted and/or removed from the sites after construction is complete. Impacts would thereby be reduced to insignificant levels.

- Operation Impacts

As identified from the environmental evaluation diagram, the potential impacts from the operation of the project on the aesthetics and noise environment include:

- Create aesthetic problems for residents and recreational users; and
- Generate noise during operation activities.

During operation of the potable water treatment plant, it is projected that the noise levels would mirror those of the existing potable water treatment plant, approximately 40 dB. The plant would have a series of service pumps, which would pump water from the treatment plant to the finished water transmission main. The service pumps would be located on the clearwell at the treatment plant site and would be housed in a brick and block building. The maximum number of pumps running would be two for each application.

The noise level for the service pumps has been estimated to be 75 to 80 dB at 1 ft from the pumps. (Monarch 1997c). The service pump noise would be contained in the brick and block building. The building walls would attenuate the noise. The noise level outside the building would be at conversational levels and would not be annoying. Operators entering the service pump house, when the pumps are running, would wear hearing protection in accordance with OSHA regulations.

Therefore, operation of the water treatment facility and its associated systems would not cause significant noise impacts to the workers, the closest receptor, or recreational users of Lake Cumberland.

Operation activities would affect the aesthetics of the area marginally. The new treatment plant is not expected to be visible from the lake or from Seventy Six Falls Park except perhaps during the winter when the hillside trees are bare, but when there are also relatively few boaters or park visitors. This would constitute a slight aesthetic impact.

— Mitigation Measures

The construction and operation of the new water treatment facility would not cause significant noise or aesthetic impacts within or surrounding the location, and no mitigation is proposed.

3.2.6 SITE LAND USE

The significance of the land use impacts for each proposed action was determined by evaluating the current use of the site and the future use of the site as a result of the action. The size of the area to be utilized, duration of the activity, and possible conflict with land use plans were also evaluated. The criteria in Appendix B was used in conjunction with the above information to determine the significance of the impact. Each site land use section in the EIS was developed by the same methodology.

Clinton County does not have a zoning code that designates land use within the county. The site for the potable water treatment plant is currently used as cattle pasture. With the acceptance of the project, the site area would no longer be available for grazing. None of the soils on the site are classified as prime farmland (SCS, 1994).

3.3 INTAKE STRUCTURE

The potable water treatment plant would require a new intake structure to be built. The structure would be fabricated of aluminum at a factory, shipped over land, assembled as necessary on shore, launched from an existing launching ramp, and floated into place alongside the existing City of Albany's intake structure. The new structure would be fastened by tie bars to the existing structure to avoid collisions as the structures floated in the water. The existing structure is located on Lake Cumberland, approximately 2,200 ft downstream from Seventy Six Falls. The new intake structure would be similar in design to the existing structure. The intake structure would be approximately 18 ft wide by 25 ft long and it would be 28 ft high. Its deck would float in the water to a depth of approximately 1 ft. The structure would have a chain-link fence placed on top of it for safety purposes as does the existing structure.

The three pumps that would be placed on the structure would have their intakes at a depth of approximately 8 to 10 ft below the waterline (see Figure 8). The inlets to the three pumps would have fish screens over them. The new intake structure would normally be approximately 100 ft from the shore when the lake is at its maximum elevation level. It would be tethered by a 1-inch cable to a 3 ton anchor. As the lake's surface level is lowered, the intake structure could drift out from the shore to a maximum of approximately 150 ft. There would be three 8-inch diameter raw water discharge hoses connecting the pumps to the valve vault at the Lake Cumberland shore. The valve vault would be a box like structure near the shoreline. The hoses would be held down on the bottom of the lake by 200 pound concrete weights placed at 15 ft intervals along the pipes. The hoses would be at a maximum depth of approximately 120 ft (see Figure 9).

Figure 8 Cross Section of the Proposed Intake Structure

Figure 9 Proposed Intake Structure Water Transmission Lines

An approximate 14-inch ductile iron water main would be built from the valve vault to the plant. The new water main intake line would be constructed parallel to the old intake line and would extend approximately 400 ft from the shore uphill to the plant site. This water intake line would be trenched into the hillside of the lake in an existing easement. The ACOE granted the easement for the original potable water treatment plant built in 1976. The ACOE has to amend the easement with a modification to allow for the new intake line. Soil would be excavated about 4 ft deep to install the line, which would be buried with a minimum 30-inch depth of cover.

The construction and placement of the intake structure in the lake would not affect geology, topography, soils, groundwater, floodplains, wetlands, other protected natural resources, cultural resources, air quality, or land use. Therefore these subjects will not be discussed further in this subsection for the intake structure. The new water main intake on the shoreline would not affect groundwater air quality, or land use. A Phase I Cultural Resource Survey was performed and no cultural materials were found (Starr and Stallings, 1995). Therefore these subjects will not be discussed further in this subsection.

3.3.1 GEOLOGY/TOPOGRAPHY/SOILS

— Affected Environment

Geology

The site for the water main intake line is underlain by the Mississipian-age Fort Payne Formation consisting of siltstone, shale, and limestone (Lewis and Thaden, 1962).

Topography

The site of the water main intake is a 400 ft extension on an existing right-of-way from the Lake Cumberland shore uphill to the potable water treatment plant site.

Soils

The water main intake line site contains Garmon-Caneyville association, Caneyville-Dewey complex, and Dewey loam (SCS, 1994). Garmon-Caneyville association is a moderately deep, fine textured soil on a very steep slope. Caneyville-Dewey complex is rocky with 6 to 20% slopes. Dewey loam is a well-drained, very deep, moderately permeable, and clayey soil on 6 to 15% slopes. None of the soils found at the site are considered prime farmland.

— Environmental Consequences

– Construction Impacts

The potential impacts of the construction of the water main intake lines include:

- Soil erosion and sedimentation from excavation for intake line;
- Fracture of bedrock from blasting;

- Soil contamination from construction waste; and
- Loss of prime farmland.

Standard practices for erosion, runoff, and sedimentation control would be implemented during the excavation of the intake line in accordance with the Kentucky Best Management Practices for Construction Activities. Therefore, the impacts from soil erosion and sedimentation would be minimized or eliminated.

During excavation and construction of the water intake line, blasting would not be required and as a result, the risk of fracturing bedrock is eliminated. The only hazardous material expected to be used in this construction is fuel, which would be removed and disposed of according to applicable regulations if the need arises.

The excavation and construction of the water main intake line would not cause any loss of prime farmland.

— Operation Impacts

The operation of the water main intake line would have no significant impacts on the geology, topography, and soils of the site.

— Mitigation Measures

The construction and operation of the water main intake line would not cause significant impacts to the geology, topography, or soils of the site. However, standard erosion, runoff, and sedimentation control as stated in the Kentucky Best Management Practices for Construction Activities would be implemented.

3.3.2 SURFACE WATER AND WATER QUALITY

— Affected Environment

The floating intake structure would be located on Lake Cumberland, approximately 100 ft from the shore when the Lake is at its maximum level.

— Environmental Consequences

- Construction Impacts

The potential impact from the construction of the intake structure on surface and water is:

- Decreased water quality from erosion and runoff.

The construction of the intake structure would require a permit from the ACOE. The permit application was submitted to the ACOE on January 27, 1997. Placement of the intake structure would have minimum impacts on surface water since no dredging of the lake's bottom would be required. Construction of the water main on the hillside would require some excavation. Best management practices would be implemented to control erosion and sedimentation. Therefore, minimal impacts on surface water are expected.

— Operation Impacts

The potential impact from the operation of the intake structure on surface and groundwater is:

- Surface water contamination from operation of pumps.

During the operation of the intake structure, the oil level in the pumps on the structure would be checked once a month. Any observed oil leak from the pumps would be corrected immediately. Therefore, no significant impacts on surface water would result from the operation of the intake structure.

— Mitigation Measures

Best management practices would be implemented during the construction of the intake structure, which would protect surface and groundwater. No additional mitigation would be required.

3.3.3 BIOLOGICAL RESOURCES/THREATENED AND ENDANGERED SPECIES

— Affected Environment

No occurrence of endangered, threatened, or special concern plants, animals, and natural communities have been reported within or near the intake structure (KSNPC, 1997). The route for the intake line from the shore to the plant site consists of brushes and small trees less than about 6 inches in diameter.

— Environmental Consequences

- Construction Impacts

The potential impact from the construction of the intake structure is:

- Harm to protected species and their habitats or sensitive natural communities from site clearing and from potential contamination to soils, surface and groundwater.

Construction of the intake structure would have minimal impacts on biological resources since no excavation of the lake's bottom would be required. The placement of the concrete weights

on the bottom of the lake to hold down the hose may destroy some submergent vegetation, but the area of disturbance would be very small, less than 0.002 acres. The route for the new intake line uphill to the plant would require clearing an area of approximately 0.2 acre along the existing intake line.

- Operation Impacts

Operation of the intake structure would not have any significant impacts on biological resources. The raw water pumps would have protective fish screens over their inlets. The intake velocity at the fish screen would be about 3 to 5 ft per second. Thus, there should be no problem with impingement (organisms being stuck against the screen), as none has been experienced with the existing intakes. (Monarch 1997a).

— Mitigation Measures

No significantly adverse impacts on biological resources would result from the construction and operation of the intake structure. Therefore, no mitigation measure is proposed.

3.3.4 AESTHETICS AND NOISE

— Affected Environment

Aesthetics

An existing 28 foot tall intake structure is located within Lake Cumberland to serve the existing City of Albany's potable water treatment plant. A new intake structure would be placed adjacent to the existing structure (see Figure 10). The new intake structure have a chain-link fence placed atop it for safety purposes. The two structures would be linked together to avoid collision. See the simulated image of how the two intake structures would look to an observer on the lake surface in Figure 10. There are no residences surrounding the intake structure site.

The appearance of the new intake structure would be substantially the same as that of the existing structure, except that the two structures together would be wider. Although the structure would be a visually noticeable human-made feature in a largely natural lake setting, it would not be a new feature, boaters have seen the existing structure for more than 20 years. Therefore, the new structure would not create as new aesthetic impact.

Noise

Noise would be generated from the launching and placing of the new intake structure. Operating noise would be generated from the pumps on the structure.

Figure 10 Probable View of Intake Structure

- Construction Impacts

The potential impacts from the construction of the project on the aesthetics and noise environment include:

- Generate aesthetic problems during construction activities; and
- Generate noise from construction activities.

The aesthetics of Lake Cumberland would be minimally affected by construction activities. The intake would be floated from shore and placed adjacent to the existing intake structure. No residences surround the intake structure site and therefore, the structure would not cause any negative aesthetic effects.

Noise generated during construction activities would be from the assembly of the structure and any watercraft necessary to float the new intake structure to its position upon the lake. The noise generated from assembly would be no louder than approximately that of a home workshop and would be attenuated by being performed in the open air. The noise would be short term in nature. The noise from the watercraft to set the structure in place would be short term and no louder than the houseboats currently used on the lake.

- Operations Impacts

The potential impacts from the operation activities of the project on the aesthetics and noise environment include:

- Generate aesthetic problems during operation activities; and
- Generate noise from operation activities.

Aesthetic resources are perceptual stimuli that provide enjoyment. Aesthetic qualities are based on human perception and can change as peoples' values change. There is an existing intake structure that would be added onto by an additional 423 square feet, and would be visible to Lake Cumberland recreational users. It might be an annoyance to some recreational users and it might not be to others. It is each individual's perception as to what is or is not aesthetically pleasing. There are no residences surrounding the proposed and existing intake structures.

The proposed potable water treatment plant would be served by three raw water pumps, which would pump the water from the reservoir to the treatment plant. The raw water pumps would be located on the deck of the intake structure, and would not be enclosed. Only two pumps would be running on the new intake structure at one time. There are also three pumps on the existing intake structure of which only two would be running at one time. Therefore, a maximum of four pumps could be running at one time, two on each structure. The noise level of the raw water pumps is 70 to 75 dB at 1 ft, from the pump (Monarch 1997a).

In an extreme case analysis, using the higher noise level of 75 dB, when all four pumps are running simultaneously, the combined noise level would be 81 dB. An unusual property of the decibel scale is that the noise levels of two separate sources are not directly, i.e., arithmetically, additive. For example, if a sound source of 75 dB were added to another sound source of 75 dB, the total is only a 3 dB increase to 78 dB, not a doubling to 150 dB. Furthermore, if two sounds are of different noise levels, the lower noise level adds less to the higher, as the difference increases. Thus, based on the methodology in Planning in the Noise Environment, (DOD, 1978), and Protection Noise Levels, (EPA, 1978) the combined noise level was calculated to be 81 dB.

Noise decreases over distance. For a point source of noise, the sound level decreases by 6 dB for every doubling of distance away from the source (DOD, 1978). The combined pump noise would be 81 dB at one foot from the pumps. Therefore, at 2 ft from the pumps, the dB level would drop 6 dB to 75 dB. At 4 ft, (double of 2 ft), the dB would drop another 6 dB to 69 dB. This would be at the edge of the intake's deck. At 8 ft, the noise level would be 63 dB. At 63 dB, the noise level 4 ft out from the edge of the intake deck, would be below the decibel level of conversational speech, 66 dB. The noise level would also be below the annoyance level of 65 dB (HUD, 1985). A noise level of 65 dB is considered acceptable (HUD, 1985).

Warning signs are posted on the fence surrounding the existing intake structure and will be posted on the new structure. The signs state that boaters are not permitted to tie up to the structure. This keeps the boaters away from the intake's deck at a minimum of 4 ft (8 ft from the pumps), at which noise levels are considered acceptable.

Therefore, operation of the raw water pumps would not cause significant noise impacts to the recreational users of Lake Cumberland.

— Mitigation Measures

The construction and operation of the new intake structure would not cause significant noise or aesthetic impacts within Lake Cumberland, and no mitigation is proposed.

3.4 WATER MAIN

A 16-inch ductile iron water main would be constructed from the potable water treatment plant to a water storage tank on Harper Mountain. There are three alternative routes, which follow road rights-of-way, for the water main.

The first alternative water main route would run along the side of the access road to the current potable water treatment plant until it reached the gate. The route would then cut across an open field in a west south direction until it reached State Route (Rt.) 1266. From that point the route would turn northwest following Rt. 1266 until it intersected with Rt. 734. The route would then follow Rt. 734, southwest until reached Rt. 639, and follow Rt. 639 north and continue to follow Rt. 639 when it turns southwest until it reached Rt. 127. The route would then follow US 127 north until it intersected with Rt. 1590, following that road for approxi-

mately 1 mile. At that point the route would turn directly south across Cagle's property turning east at some undetermined point towards the water storage tank on Harper Mountain (see Figure 3, page 8)

The second alternative water main route would follow the same rights-of-way as the first alternative until it reached Rt. 639. At that intersection, the second route would continue south along Rt. 734 until reached Rt. 90. The route would then follow Rt. 90 west for approximately 2 miles until it reached the Cagle's Poultry Processing facility property where it would turn directly north crossing the property onto Cagle's hay farm. The route would continue north across the Cagle's property turning east at some undetermined point towards the water storage tank on Harper Mountain.

The third alternative water main route would also begin by following the first alternative route until it reached Rt. 127. At that intersection, instead of following Rt. 127, this route would continue southwest on Rt. 639 until it reached Rt. 90. The route would then turn west on Rt. 90 following it for approximately two thirds of a mile until it reached the Cagle's Poultry Processing facility property where it would turn directly north crossing the property onto Cagle's hay farm. The route would continue north across the Cagle's property turning east at some undetermined point towards the water storage tank on Harper Mountain.

3.4.1 GEOLOGY/TOPOGRAPHY/SOILS

— Affected Environment

Geology

The routes of the water main is underlain by the St. Genevieve Limestone Formation, Fort-Payne Limestone Formation, and the St. Louis Limestone Formation (GETS, 1997).

Topography

Most of the three alternative routes for the transmission main are located on public road rights-of-way. However, two segments common to all the routes cross pasture land. The first segment would be about 2,300 ft from the potable water treatment plant to Rt. 734, and the second segment would be about 3,000 ft from Rt. 1590 across the Cagle's hay farm, to the water storage tank on Harper Mountain. The terrain of the route has slopes ranging from 6% to 30%.

Soils

The routes of the water transmission line passes through several types of soil including Rock outcrop, Caneyville-Dewey complex, Dewey loam, Garmon-Caneyville association, Newark silt loam, Nolin silt loam, and Mountview silt loam. Of these types of soils, Newark silt loam, Nolin silt loam, and Mountview silt loam are considered prime farm land in Clinton County (SCS, 1994).

— Environmental Consequences

- Construction Impacts

As illustrated in the environmental evaluation diagram, the potential impacts from construction of the water main include:

- Soil erosion from excavation for transmission line;
- Fracture of bedrock from blasting;
- Soil contamination from construction waste; and
- Loss of prime farmland.

For the 16-inch transmission main, the area along the routes would be excavated and trenched about 30 inches deep. All the routes are approximately the same in length, 5.5 miles. Standard erosion mitigation procedures and requirements from the Kentucky Best Management Practices for Construction Activities would be utilized in order to decrease the risk of soil erosion.

About 20% of the entire length of the water main route would require blasting using dynamite. Steel mats would be used and the charges would be controlled by a licensed explosive handler. The potential for fracturing the bedrock would be minimal.

During construction of the water main, fuel and dynamite would be the only types of hazardous materials needed. Therefore, no construction waste is anticipated that would require disposal and thus the possibility of soil contamination would be minimal.

Approximately 1/3 of an acre of prime farmland was calculated to be located along the proposed water main corridor. Upon installation of the water main, excavated soil materials would be returned to pre-construction contours and agricultural production may continue at the site. Therefore, no impact to prime farmland would result from construction of the proposed water main (NRCS, 1997).

- Operation Impacts

No impact on geology or soils would result from the operation of the water transmission main.

— Mitigation Measures

The construction and operation of the water transmission line would not cause significant impact on geology, soils or topography. Standard erosion control as set forth in the Kentucky Best Management Practices for Construction Activities must be implemented, and extreme care must be exercised when blasting is performed but no other mitigation measures are called for.

3.4.2 SURFACE AND GROUNDWATER/WATER QUALITY

— Affected Environment

The water main would cross Indian Creek near Rt. 734. Indian Creek is a small stream that flows into Lake Cumberland through Seventy Six Falls (see Figure 3, page 8).

— Environmental Consequences

- Construction Impacts

The potential impacts from the construction of the water main on surface and groundwater include:

- Decreased surface water quality from stream crossing;
- Decreased surface water quality from erosion and runoff; and
- Surface and groundwater contamination from construction waste.

The water main would be installed across the creek by direct burial. The excavated material would be temporarily placed along the creek and would be used to backfill the trench to the original contour. No material would be removed from the site, and any remaining material would be used to stabilize the shore. As a part of the project application review by the Kentucky Division of Water, the construction of the water main would be exempt from a floodplain construction permit.

Best management practices to control erosion and sedimentation would be implemented during the construction of the water main. Any hazardous material generated by construction activities would be removed and disposed of in accordance with Kentucky regulations. Therefore, minimal impacts on surface and groundwater are expected.

- Operation Impacts

The operation of the water main would not have any impacts on surface or groundwater.

- Mitigation Measures

Best management practices to minimize surface and ground water effects would be implemented during the construction of the water main. No additional mitigation would be required.

3.4.3 FLOODPLAIN AND WETLANDS

The potential impacts to the floodplain were determined through information on the type of activity affecting the floodplain, the duration of the action, the possibility of conflict with man-

agement plans, and the amount of floodplain being affected. The criteria in Appendix B was used to determine the significance of the impact.

The impacts to wetlands were evaluated by considering certain criteria. The size of the wetland, duration of the impact, and possible conflict with federal or state protection programs were considered along with the definitions in Appendix B to derive the significance of the impact. Each of the floodplain and wetlands sections were evaluated in the same manner.

The water main would cross Indian Creek, but the floodplain area would be minimally affected only during construction, which is temporary. The water main would be buried and not impact the floodplain by taking up space within the floodplain. There are no wetlands within the three alternative water main routes.

3.4.4 AIR QUALITY

— Affected Environment

The water main construction would occur along road rights-of-way that are currently affected primarily by vehicular traffic. Clinton County is part of Kentucky's South Central Region, an Air Quality Control Region that is designated as in attainment for each of NAAQS six criteria pollutants.

— Environmental Consequences

- Construction Impacts

The potential impacts from the construction of the water main on the air quality include:

- Generate fugitive dust from construction activities; and
- Generate emissions from construction equipment.

Air quality impacts of the construction would be short-term, low-level intermittent and transient emissions of NOx, PM_{10}, and CO routinely resulting from the on-site machinery, and fugitive dust created by burial activities and blasting. Such emissions do not constitute any degradation of ambient air quality. Kentucky does not have regulations on air emissions from construction equipment (Goebel, 1997). In addition, dust created by excavation activities would be controlled by conventional water spraying techniques as outlined in the Kentucky Best Management Practices for Construction Activities. Approximately 20% of the water main route would be blasted. Steel mats would be used during blasting that would help to prevent the release of particles and debris into the surrounding air. Vehicular exhaust is controlled primarily by emission controls installed by the manufacturer. Vehicles would be properly maintained and unnecessary operation would be minimized to decrease exhaust emissions.

- Operation Impacts

There would be no potential impacts from the operation of the water main routes on the air quality.

— Mitigation Measures

The installation and operation of the water main route would not cause significant air impacts and no mitigation is proposed.

3.4.5 BIOLOGICAL RESOURCES/THREATENED AND ENDANGERED SPECIES

— Affected Environment

The Natural Heritage Program Database of the Kentucky State Nature Preserves Commission was searched to determine if any endangered, threatened, or special concern plants, animals, and natural communities occur on or near the water transmission route. Two protected plants are located near Seventy Six Falls, approximately 300 ft downhill from the transmission main route. This distance is covered by heavily wooded forest. They are cutleaf meadow-parsnip (*Thaspium pinnatifidum*), which is state-listed as threatened, and large-leafed grass-of-parnassus (*Parnassia grandifolia*), which is state-listed as endangered (KSNPC, 1997).

Within the same area of the protected plants is a calcareous-seepage palustrine community (wetland), which is classified as extremely rare in Kentucky. This is a type of wetland that is characterized by up-welling, calcium-rich groundwater, which provides for distinctive soil and water chemistry and plant communities (KSNPC, 1997).

— Environmental Consequences

- Construction Impacts

The potential impact from the construction and operation of the water main is:

- Harm to protected species and their habitats or sensitive natural communities from clearing site and from potential contamination to soils, surface and groundwater.

Best management practices for erosion, runoff, and sedimentation control would be implemented during the construction of the water transmission main, therefore no increased runoff to affect the plants would occur. Construction would be conducted 300 ft uphill of the plants. The distance between construction activities and the plants is covered heavily by wooded forest and would create an additional buffer between construction activities and the plants. There would be no impact on the protected plant species and sensitive community.

- Operation Impacts

No impact on biological resources would result from the operation of the water transmission main.

— Mitigation Measures

The construction and operation of the water main would not cause significant impacts to biological resources, including threatened and endangered species. Therefore, no mitigation is proposed.

3.4.6 AESTHETICS AND NOISE

— Affected Environment

Aesthetics
The water main would run across a short segment of pasture land and on public road rights-of way.

Noise
The water main would occur along road rights-of-way that are currently affected primarily by vehicular traffic.

— Environmental Consequences

- Construction Impacts

The potential impacts from the construction of the water main on the aesthetics and noise environment include:

- Effects from blasting during construction activities;
- Generate noise from construction activities; and
- Create aesthetic problems during construction.

The action would generate noise from equipment, vehicles, blasting, and generators. Construction activities would occur predominantly during normal daylight hours. Blasting would occur during daylight hours also, but as best as can be accomplished, as the last activity of the day. Blasting would be conducted by a licensed explosive expert. Blasting activities are expected to occur for a period of 5 days for the installation of the water main. The water main route would require about 20% of its entire length to be blasted. For safety reasons, when blasting occurs near a roadway, traffic would be stopped within a 100-yard safety zone. Blasting would be conducted according to standard blasting practices. If blasting is a problem with the residences, the rock would be manually removed.

Construction would produce temporary noise disturbances associated with construction machinery and construction-induced traffic. Typical noise levels for this type of activity range from 72 to 98 dB at a distance of 50 ft from the source of the noise, which is approximately the edge of the construction site. Noise decreases over distance at 6 dB for every doubling of the distance from the source (Canter, 1977). There are houses at a minimum of approximately 75 ft from the road along the three alternative routes. Noise would be experienced in the range of 39 to 65 dB at these residences. These levels are acceptable day-night average sound levels (HUD, 1985). Construction impacts would persist for approximately one year.

Noise impacts to humans in the project vicinity are expected to be minimal. Workers would wear hearing protection that meets or exceeds OSHA requirements during construction and blasting activities when noise levels exceed 85 dB. All noise impacts would cease at the end of the project.

The water transmission main would be buried and when the line crosses Indian Creek, the excavated material would be temporarily placed along the creek, then be used as backfill material. No material would be removed from the site and any remaining material would be used to stabilize the shore.

Construction activities would affect the aesthetics of the areas minimally. Staging areas, material stockpiles, and equipment would be required. The visual impacts would be temporary. Activities would occur along the road rights-of-way and across two segment of pastureland. It is assumed that the staging areas would be recontoured and/or revegetated, and that all equipment and material stockpiles would be exhausted and/or removed from the sites after construction is complete. Impacts would be reduced to insignificant levels.

- Operation Impacts

There are no potential impacts from the operation of the water main routes on the aesthetics of the routes or on noise.

— Mitigation Measures

The installation and operation of the water main route would not cause significant impacts to the aesthetics of the routes. Blasting would be temporary and occur as one of the last activities of the day. As the impact of blasting is short term there would be no need for mitigation measures to be instituted. If blasting becomes a problem with residences, the rock would be manually removed.

3.4.7 CULTURAL RESOURCES

The potential impacts to cultural resources for the proposed action were evaluated on the basis of duration of impact, status of site regarding the National Register, percentage of site affected by action, and the success of mitigation. These aspects along with the criteria listed in Appendix B were used to determine the significance of the impact in each of the cultural resource

sections in the EIS.

The alternative routes of the water main, for most parts, are in existing rights-of-way that have been previously disturbed when the roads were constructed. It is unlikely that there would be any cultural resources present in these rights-of-way. In the unlikely event that an artifact should be discovered work would stop in that area and the State Historic Preservation Officer would be notified (Monarch, 1997c).

3.4.8 SITE LAND USE

The site for the water transmission line would be primarily located on public road rights-of-way. In this respect, the property that would be utilized has been previously disturbed and the use of the land would not particularly change as a result of the project. Two small sections of land at either ends of the water main are not along road rights-of-way and are currently used for pasture land. If the project were to commence, those areas would not be available for grazing as the construction would disturb the plant growth. Once the water main is buried the land would revert to its original use without any impairment.

3.5 WATER STORAGE TANK

A 1.5 million gallon water tank would be constructed on Harper Mountain on land currently owned by Cagle's Inc. The land for the tank would be acquired by the City of Albany along with a right-of-way for access to the site. The tank would be 120 ft in diameter and 20 ft high. The tank would be made of steel, have a concrete foundation, and would be coated to protect it from the elements. Approximately 350 gallons of coatings would be required to cover the tank. The coatings may be hazardous materials under Kentucky law. The tank would be situated low enough from the top and close enough to the side of Harper Mountain so lightning protection would not be required (see Figure 3, page 8).

The site for the water storage tank would be in the transition zone where the pasture land gives way to forest. The site is sparsely treed. A construction site not much larger than the storage tank, approximately 150 ft in diameter, i.e., a little more than 0.4 acres, would be cleared and leveled to build the foundation for the tank. The site would have to be leveled and one day's use of blasting materials would probably be required.

The construction and operation of the storage tank would not affect floodplains, wetlands, other protected natural resources, or any cultural resource. A Phase I Cultural Resource Survey was performed for this site and no cultural materials were found (Starr and Stallings, 1995). Therefore, these subjects will not be discussed further in this subsection for the storage tank.

3.5.1 GEOLOGY/TOPOGRAPHY/SOILS

— Affected Environment

Geology

The site is underlain by the Mississipian aged St. Genevieve Limestone Formation. The site also consists of limestone and cherts, of the Mississipian aged St. Louis Limestone (Ross-Stallings, 1997). Cherts consist of a number of compact and very hard rocks made of silica (Tarbuck, 1996).

Topography

The site contains a rock outcrop-Caneyville complex. The outcrop consists of exposed areas of limestone and Caneyville soil with very little ground cover except for leaves and deadfall (Ross-Stallings, 1997).

Soils

Caneyville soil is the primary soil type found at the storage tank site, Harper Mountain. The soil is moderately deep, well drained, relatively slowly permeable and was formed in clay material weathered from limestone (SCS, 1994).

— Environmental Consequences

– Construction Impacts

The potential impacts from construction of the water storage tank on topography, geology, and soils include:

- Soil erosion from clearing and grading site;
- Fracture of bedrock from blasting; and
- Soil contamination from hazardous materials or hazardous waste.

In order to minimize any soil erosion from clearing and grading the tank site, mitigation measures as outlined in the Best Management Practices for Construction Activities would be followed.

Construction of the water storage tank would require drilling and blasting for one day at the site on Harper Mountain. Blasting would be conducted by a licensed explosive handler and would consist of small, controlled charges. Steel mats would be used during blasting. The potential for fracturing the bedrock would not occur.

The steel water storage tank would require approximately 350 gallons of coatings. The coating material would be selected by the contractor at the time of construction. Handling, storage, and disposal of the coating material would comply with applicable hazardous material regulations. Workers would be instructed in proper handling and disposal of any hazardous materials; therefore, contamination of soil would be minimized.

- Operation Impacts

There are no potential impacts from the operation of the water storage tank on the aesthetics or on noise.

— Mitigation Measures

The construction and operation of the water storage tank would not cause significant impacts to geology and soils. The tank would be built on a concrete base to protect it from reacting with the soils. Standard erosion control as set forth in the Kentucky Best Management Practices for Construction Activities must be implemented, and extreme care must be exercised when blasting is performed but no other mitigation measures would be proposed.

3.5.2 SURFACE AND GROUNDWATER/WATER QUALITY

The water storage tank would be sited near the top of the hill on Harper Mountain. The site is not close to any surface water body. The construction of the tank would require about 350 gallons of coating that may be considered hazardous material. Application of the coating would comply with state regulations on handling and disposal of hazardous materials. No impacts on surface and groundwater are expected from the construction and operation of the water storage tank.

— Mitigation Measures

Best management practices would be used during the construction of the water storage tank. No additional mitigation would be required.

3.5.3 AIR QUALITY

—Affected Environment

The action would occur in Clinton County that is in attainment for each of the NAAQS six criteria pollutants.

The Daniel Boone National Forest, a Class 1 area, is located approximately 25 miles east from the project location.

— Environmental Consequences

- Construction Impacts

The potential impacts from the construction of the project on the air quality include:

- Create air pollution from burning trash;
- Generate fugitive dust from construction activities and blasting; and
- Generate emissions from construction equipment.

Trees and stumps would be disposed of by burning. This is common practice for construction projects and is permissible per Kentucky Regulation 401 KAR 63:005 Open Burning. The contractor would comply with regulation. This action would not impact the Daniel Boone National Forest. The emissions resulting from burning would be temporary, would dissipate prior to reaching the park, and construction activities resulting in temporary emissions are exempt from regulation per the Clean Air Act.

Air quality impacts of the construction would be short-term, low-level intermittent and transient emissions of NOx, PM_{10}, and CO routinely resulting from construction activities. These types of emissions would not create any degradation of ambient air quality. Kentucky does not have regulations on air emissions from construction equipment (Goebel, 1997). Dust created by excavation activities would be controlled by conventional water spraying techniques and the use of gravel. Steel mats would be used during blasting to reduce fugitive dust emissions. Vehicles would be properly maintained and unnecessary operation would be minimized to decrease exhaust emissions.

Coatings would be applied to the storage tank. The fumes should not affect residents. Wildlife could be temporarily affected, but it is assumed that wildlife would have already temporarily relocate from the area due to human activity. Workers would wear proper respiratory protection when exposed to the emissions caused by applying the coating to the tank.

-Operation Impacts

There would not be air impacts associated with operation of the water storage tank.

— Mitigation Measures

The construction and operation of the water storage tank would not cause significant air impacts and no mitigation is proposed.

3.5.4 BIOLOGICAL RESOURCES/THREATENED AND ENDANGERED SPECIES

— Affected Environment

No occurrence of endangered, threatened, special concern plants, animals, and natural communities has been reported within or near the site for the water storage tank (KSNPC, 1997). However, two federally listed endangered species may occur in the project area: gray bat (*Myotis grisescens*) and Indiana bat (*Myotis sodalis*). Even though no record of these species has been reported in the project area, their habitats may exist in the area (Barclay, 1997a).

Based on a habitat survey of the project site by a qualified biologist, the water storage tank site consists of approximately 20% canopy cover of black locust, red bud, and dogwood, and is not considered a suitable bat habitat. Suitable bat habitat was found south of the storage tank site on Harper Mountain, which is part of Cagle's hay farm (see Section 3.6.5).

— Environment Consequences

- Construction Impacts

The potential impact from the construction and operation of the water storage tank is:

- Harm to protected species and their habitats or sensitive natural communities from clearing the site and from potential contamination to soils, surface, and groundwater.

Construction of the water storage tank would involve clearing and grading approximately 0.4 acre of the area. No impact on any protected species or sensitive natural communities would result from the construction and operation of the water storage tank.

— Mitigation Measures

The construction and operation of the water storage tank would not cause significant impacts to biological resources, including any threatened and endangered species; therefore, no mitigation is proposed.

3.5.5 AESTHETICS AND NOISE

— Affected Environment

Aesthetics

The new water storage tank on Harper Mountain would be potentially visible to residents and to motorists traveling along Rts. 90, 1590, and 127.

Noise

The water storage tank site is located on Harper Mountain on the Cagle's hay farm between Rts. 90 and 1590. Noise in the area is currently attributable to vehicular traffic. The nearest noise receptor is located approximately 600 ft from this project site.

- Construction Impacts

The potential impacts from the construction of the water storage tank on the aesthetics and noise environment include:

- Effects from blasting during construction activities;
- Generate noise from construction activities and disturb people and wildlife; and
- Create aesthetic problems during construction.

The noise level would be impacted by blasting that should occur for only one day. Noise would be generated during construction activities though from equipment, vehicular, and generator use. The noise might be an annoyance to nearby residences because it is such a rural area, but the noise levels should stay within an 80-90 decibel range at the site and attenuate to less than 36 dB at the nearest noise receptor. This level is considered faint and synonymous to those levels that occur at an average residence without the stereo playing (HUD, 1985). Wildlife in the area would be affected by noise generated during construction activities. The wildlife would probably have already temporarily relocated due to the human activity in the area. Workers would wear hearing protection that meets or exceeds OSHA requirements during construction activities when noise levels exceed 85 dB.

Construction activities would temporarily affect the aesthetics of the area. Once "open" land would be filled with construction equipment, ancillary items, materials, staging areas, vehicles, and workers. It is assumed that the staging areas would be recontoured and/or revegetated, and that all equipment and material stockpiles would be used and/or removed from the site after construction is completed.

- Operation Impacts

The potential impacts from the operation of the water storage tank on the aesthetics and noise environment include:

- Create aesthetic problems for residents and recreational users; and
- Generate noise during operation activities.

The water storage tank would be seen, but it would be painted the color Teardrop, a sky blue with a greenish cast, that would help it to blend in with the surrounding countryside. The trees left around the tank site would help to mask the structure. The water storage tank would only be seen at a distance of approximately 1300 ft, so it would not be visually intrusive to the residents and motorists traveling along Rts. 90, 1590, and 127.

Operation of the water storage tank would not generate noise impacts.

— Mitigation Measures

The construction and operation of the water storage tank would not cause significant noise impacts and no mitigation is required. The water storage tank would change the scenery of the site, but the tank would be only 20 ft tall and positioned against the side of Harper Mountain down from the top, away from the skyline. The distance to the observer would diminish the size of the tank. The tank would be painted the color Teardrop to blend it in with its background. Trees would be left or planted around the site to help mask the structure.

3.5.6 SITE LAND USE

Clinton County does not have a zoning code that designates land use within the county. The site for locating the water storage tank is currently used as pasture. The role of the site would change. It would no longer be pasture land, but would be associated with that of industrial use. The area is in a transition zone where the pasture land gives way to the forest on Harper Mountain. The site is rocky and sparsely treed. The only changes to the site would be the placement of the water storage tank. Prime farm land would not be lost as none of the soils on the site are considered prime farmland based on a review of the Soil Survey of Clinton County (SCS, 1994).

3.6 POULTRY PROCESSING FACILITY AND HAY FARM

As a direct result of the proposed action, Cagle's, Inc., is planning to build a poultry processing facility on a site on the north side of State Rt. 90, just west of State Rt. 127, and seven miles northwest of the City of Albany, in Clinton County, Kentucky. The land on which the Cagle's poultry processing facility would be built was purchased, by use of private funds, by the Clinton County Industrial Authority. Cagle's has an option to buy this land. The land is adjacent, just south, to the farm Cagle's owns (see Figure 11). The Cagle's farm would be used for land application, that is drip and spray irrigation, of the poultry processing facility's treated wastewater.

Cagle's intends to irrigate the existing hay crops on the farmland. The pasture land with pasture grasses would be replanted to hay crops.

The hay farm is a 385 acre site that is primarily hay fields and pasture land with a wooded area in the extreme southeastern corner. Buildings presently on the site would be refurbished, and used to house irrigation machinery and farm equipment.

There are no streams on or near the site. The run-off from the irrigated area would return to the storage lagoons to be sited on low lying areas of the farm. There are five known abandoned oil exploration wells on the property.

Figure 11 The Cagle’s Hay Farm and Adjacent Land for Proposed Poultry Processing Facility

The poultry processing facility would require several support facilities. The support facilities would include a feed mill, pullet houses, breeder houses, a hatchery, and broiler houses (see box). The type and number of facilities, cost, number of workers and the approximate total daily or weekly truck traffic for each facility is identified on the table below.

Type of Facility	Number	Cost (thousands)	Workers Required	Number Of Trucks
Poultry Processing	1	$ 42,000	1,000	100 per day
Feed Mill And	1	$ 12,000 cost	28	78 per day
Hatchery	1	for both	3 to 40	7 per day
Pullet Houses	20	$ 100	1 per 4 houses	2 per week
Breeder Houses	48	$ 150	4 per 2 houses	6 per week
Broiler Houses	376	$ 125	1 per 4 houses	4 per week

The poultry processing facility would be approximately 240,000 square ft in size and the overall dimensions of the plant would be approximately 800 ft by 450 ft. The parking area for the facility would be approximately 800 ft by 500 ft. The plant would be built to USDA specifications. The USDA, Federal Safety and Inspection Service, Division of Facilities, Equipment and Sanitation must approve the facility plans before production may begin.

The poultry processing plant would require monthly usage of approximately 32 million gallons of water, 2 million kilowatt hours per month, and 8.4 million cubic ft of natural gas. An electric substation would be built next to the poultry processing facility property to service the Cagle's plant and other future users at the Clinton County Industrial Park, which is east of the Cagle's site and south of Rt. 90. No transmission route has been selected to bring the power lines from the substation to the industrial park.

The poultry processing facility would process approximately 200,000 chickens a day when at its peak capacity. The facility would have three 8-hour shifts 5 days per week. The first two shifts would process the chickens and the third shift would clean and sanitize the plant. This facility would be very similar to several other Cagle's facilities.

The chickens would be stunned, humanely slaughtered, beheaded, de-feathered, have

POULTRY

Chicks are purchased from special breeders known as primary breeder companies to be raised in pullet houses. Pullets are chickens raised in a controlled environment to sexual maturity. Once mature at approximately 21 weeks, the pullets are transferred to a breeder house. At the breeder house the hens and roosters mate to produce fertilized eggs for the hatchery. The pullets remain in the breeder house for about 65 weeks before they are sold as spent fowl. The chicks from the hatchery are washed and inoculated before they are transported in special vehicles to the broiler houses. At the broiler house, the chickens are raised for 6 to 8 weeks depending on the size of bird desired and then sent to the poultry processing facility.

their feet removed, inspected by Cagle's personnel, eviscerated, inspected by USDA personnel, chilled, and finally sent to the processing room to be cut into parts for shipment to other food processors. The carcasses from the processing room would be sent to a processor that makes chicken frankfurters. The offal and feathers from the processing plant would be transported by water to the facility's waste treatment area. The blood would be sent separately to the waste treatment area, and loaded directly into a tank truck. All whole chickens and parts of chickens rejected by the inspectors, and the heads, offal, feathers, and any other solid organic materials are loaded onto lined and covered dump trucks for transport. All the organic waste from the poultry processing operation, approximately 2.5 million pounds per week, would be transported and sold to a rendering facility. The renderer would use the material to produce pet foods and animal protein feeds. The two closest rendering companies are located in Russellville, and in Henderson, Kentucky.

Approximately 1.43 million gallons per day of wastewater would be generated at the poultry processing facility. The wastewater would be generated by the processing line and by the washing and sanitizing of equipment, walls, and floors. The wastewater would be treated on site under a permit issued by the State of Kentucky. Under Kentucky regulation, the Cagle's wastewater treatment plant operator(s) must be trained and certified by the state.

The wastewater treatment system would consist of (see Figure 12):

- primary and secondary screens;
- dissolved air flotation;
- an anaerobic lagoon;
- aerobic basin;
- treated wastewater holding basins; and
- a no-discharge land application system (drip and spray irrigation).

The primary stainless steel screens are for solids removal. The screens would be 4 ft in diameter and 10 ft long. The rotary drum screens would be internally fed for the primary screening of offal and feathers from the processing plant wastewater (Rowe, 1997).

The secondary stainless steel screens are for smaller size solids removal. The slots in these screens are smaller than the primary screens. The screens would be 3 ft in diameter and 8 ft long. These screens would be internally fed the treated wastewater from the primary screens.

The function of the dissolved air flotation unit is to remove oil and grease from the wastewater before it is sent to the anaerobic lagoons. The collected oil and grease would be sent to the

Biochemical Oxygen Demand

The organic biological components of a wastewater in an open atmosphere require oxygen to be broken down and destroyed. This is a biological and chemical reaction process. The measurement of the amount of oxygen necessary to breakdown and destroy a particular waste is referred to as biochemical oxygen demand.

Figure 12 Flow Schematic of Cagle’s, Inc. Poultry Processing Facility Wastewater System

rendering plant. The steel flotation unit would be 10 ft wide, 10 ft deep, and 60 ft long.

The next step in the treatment process would be an anaerobic lagoon that uses bacteria that can live in the absence of oxygen to digest (breakdown or destroy) the biological constituents of the wastewater.

The anaerobic lagoons would be placed in the ground. An 80 mil high density polyethylene would be used in the ground as a liner, and as a floating cover. Both liner and cover would be fused together to shut off all air contact and hence, the access to oxygen. The lagoon would be approximately 320 ft wide by 640 ft long at the top, sloping to an approximate 265 ft width by 580 ft length at the bottom. The lagoon would hold approximately 18.6 million gallons of wastewater with a detention time of approximately 13 days. The anaerobic process would be used for further treatment of any oil and grease, for removal of solids and for the treatment of Biochemical Oxygen Demand (see box on page 76). The anaerobic process would produce methane gas that would be trapped under the lagoon's cover. The methane would be collected and used for the generation of steam in the gas boilers of the poultry processing facility (see box at right).

pH

pH is the measure of acidity or alkalinity of a solution and is represented by a number ranging from 0 to 14 with 7 being neutral. Common substances have the following pH values:

Vinegar is an acid with a pH of about 3
Distilled water is neutral with a pH of 7
Lye is alkali with a pH of about 12

Source: Millar, et.al., 1965.

The cyclic reactor aerobic basin would be a 4.8 million gallon basin that would be used to aerate the treated wastewater from the anaerobic lagoon. The basin would be lined with an 80 mil high density polyethylene liner. The basin would be approximately 160 ft wide by 470 ft long at the top, sloping to an approximate 110 ft width by 420 ft length at the bottom. Air would be pumped into the basin to aerate the wastewater for final removal (breakdown) of any BOD, solids, and oil and grease. The aeration of the lagoon would also remove nitrogen from the wastewater. No chemicals other than those for pH adjustment would be used at the plant (see box below).

The treatment system would have a greater than 99 percent removal efficiency for BOD, total suspended solids, and oil and grease (Rowe, 1997). The total nitrogen removal efficiency would be greater than 97 percent (Rowe, 1997). Removal efficiencies are based on EPA publica-

Methane Use

The collection and use of methane from anaerobic processes has long been a common practice. The collected methane has been used by municipalities included but not limited to running motor vehicles, heating buildings, and running other plant operations. For example, Little Rock, Arkansas uses the methane collected for the generation of electric power – enough power to run its sewage treatment plant and sell the excess to the local electric company. Cagle's uses the methane collected at its Camilla plant to heat water for steam.

Source: Rowe, 1997a.

tions related to the treatment capabilities of the cyclic reactor aerobic basin type systems and the engineering experience of Cagle's professional engineer's designing of the system (Rowe, 1997).

The treated wastewater would then be used for the irrigation of the hay crops on the adjacent farm property that Cagle's owns. The water would be piped to several pump stations for distribution through the irrigation system. A stationary sprinkler irrigation system would be used on the site. Drip irrigation would be used in areas of steeper terrain such as on Harper Mountain. Portions of Harper Mountain would be terraced to create leveled areas to control runoff. Where the land is more flat, spray nozzles, such as those as seen on a golf course, would be used to irrigate the crops. During inclement weather when there is precipitation or when the temperature is too low for the irrigation system to be used, the water would be diverted to one of several holding ponds. They would be lined with soils with enough clay content to hold the water in the pond. If the soils on site do not have enough clay content to hold the water in the holding ponds, then proper soils would be transported to the site. The layout design of the irrigation system and the selection of the holding pond sites have not been determined as yet. The holding ponds would however be located in the low lying areas of the farm. By placing the holding ponds in the low lying areas and by performing some regrading of the farm, if any irrigation water were to runoff, having not been absorbed, the water would then be collected in the ponds for reapplication. The ponds would not, however be located in sinkholes, as discussed in the next section.

Karst Topography

Karst topography is a distinctive landscape that forms in areas underlain by soluble bedrock, typically limestone, gypsum, and rock salt. The flow of groundwater dissolves the limestone layer, creating caves that continue to enlarge until the roof collapses producing a sinkhole. These sinkholes may permit a direct recharge of water to the underlying aquifer. Sinkholes continue to enlarge and eventually connect with each other to form valleys. Ultimately, the majority of the limestone layer will be weathered away leaving only small hills of the original layer.

Source: Hamblin, 1989.

There are no floodplains, cultural resources, or other protected natural resources on the site. According to the State Historic Preservation Officer, there are no cultural resources of national importance on this site. See the Officer's letter in Appendix C. Therefore these subjects will not be discussed further in this subsection for the poultry processing facility.

3.6.1 GEOLOGY/TOPOGRAPHY/SOILS

— Affected Environment

Geology

The site is directly underlain by Mississipian-aged limestone formations, with an approximate thickness of about 570 ft (GETS, 1997). The site is located on a well-developed, mature karst formation. Sinkholes and sinking streams are present and lead to several underground karst

Figure 13 Location of Existing Sinkholes on Cagle’s Hay Farm

aquifers. The hay farm contains five known abandoned oil exploration wells on the site that would need to be plugged and sealed prior to construction.

Topography

The terrain of the poultry processing facility and spray irrigation site is gently sloping, except for Harper Mountain located on the eastern part of the site, with a peak elevation of about 200 ft above the site. The area has karst topography, which is characterized by irregular terrain with depressions called sinkholes or sinks. Four known sinkholes are located on the site (see Figure 13).

Soils

The spray irrigation area consists of the following soil types: Caneyville-Dewey complex, Dewey loam, Melvin silt loam, Mountview silt loam, and Newark silt loam (SCS, 1994). The physical and engineering properties of these soils are described in the Table 2. The Melvin silt loam is a hydric soil (NRCS, 1997a). Soils at the facility site consist of Dewey loam, Mountview silt loam, and Newark silt loam. Of the soils on the site, Mountview silt loam and Newark silt loam are designated as prime farmland in Clinton County. Approximately 33 acres of the facility site and 107 acres of the irrigation area consist of prime farmland (see Table 2).

Hydric Soil

A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.

— Environmental Consequences

– Construction Impacts

Based on the environmental evaluation diagram, the potential impacts from the construction of the poultry processing facility on topography, geology, and soils include:

- Loss of prime farmland;
- Soil erosion from clearing and grading site;
- Soil erosion from excavation for pipeline and lagoons;
- Fracture of bedrock from blasting; and
- Soil contamination from hazardous materials, or hazardous waste.

The USDA Natural Resources Conservation Service completed a Farmland Conversion Impact Rating for the facility site. The evaluation was conducted because the construction of the poultry processing facility would convert the prime farmland to industrial use. The irrigation area was not considered since the area would remain as a farm and thus, be available for hay crops. The Service used the same system they use for the evaluation of the effects of any federal action on land classified as prime farmland. If the total score from the evaluation of the site is less than 160, no further consideration is needed and no alternative sites need to be identified.

The poultry processing facility site received a score of 157, and thus no further action is required.

The facility site would be excavated approximately 20 ft and no blasting is expected. For the wastewater treatment site, about 40,000 cubic yards of soils would be excavated for the cyclic reactor and 125,000 cubic yards for the anaerobic lagoon. The treated wastewater holding basins would be constructed on selected natural depressions in the facility area, excluding the four sinkholes on-site. It is unknown how much soil would be excavated as the holding ponds have not yet been sited.

TABLE 2

Properties Of Soil Types Located In The Irrigation Area

Soil Name	Percent Present on-site	Percent Slope	Depth to Bedrock (inches)	Permeability (inches per hour)[1]	Available Water Capacity (inches)[2]	Erosion Hazard	Capability Subclass[3]
Caneyville-Dewey complex	15	6-20	20-60	moderate 0.6-2.0	high 9-12	moderate to severe	Vis
Dewey loam	60	6-15 15-25	>60	moderate 0.6-2.0	high 9-12	slight to moderate	IIIe Ive
Melvin silt loam	2	0-2	>60	moderate 0.6-2.0	high 9-12	slight	Vw
Mountview silt loam	15	2-6	>60	moderate 0.6-2.0	high 9-12	slight	Iie
Newark silt loam	8	0-2	>60	moderate 0.6-2.0	high 9-12	slight	Iiw

[1] The quality of the soil that enables movement of water, measured as the number of inches per hour that water moves through the saturated soil.

[2] The capacity of soils to hold water available for use by most plants, expressed as inches of water in a 60-inch soil profile.

[3] The capability classification shows the suitability of soils for use as cropland:
- II: moderate limitations that reduce the choice of plants or require moderate conservation practices.
- III: severe limitations that reduce the choice of plants or require special conservation practices.
- IV: very severe limitations that reduce the choice of plants or require very careful management.
- V: not likely to erode, but have other limitations, impractical to remove, that limit the soil's use.
- VI: severe limitations that make soils generally unsuitable for cultivation.
- e: risk of erosion is the main hazard unless a close-growing plant cover is maintained.
- s: the soil is limited because it is shallow, droughty, or stony.
- w: water in or on the soil interferes with plant growth or cultivation.

A karst geologist would be involved in the siting of the wastewater basins and the treated wastewater holding ponds to identify potential sink hole areas. Once identified, these areas would be avoided when siting the wastewater basins and treated wastewater holding ponds (GETS, 1997a).

Best management practices to control erosion and sedimentation, e.g., silt fencing, would be implemented during construction. The construction activities would comply with the Kentucky Best Management Practices for Construction Activities and include mitigation measures as specified in the construction permit. Any metals remaining after construction would be recycled which would minimize solid waste from the site.

– **Operation Impacts**

The potential impacts from the operation of the poultry processing facility on topography, geology, and soils are:

- Soil saturation and erosion from irrigation.
- Soil contamination from lagoons and irrigation.

The moderate permeability of the soils contained at the irrigation site would minimize any surface ponding. Also, the terraced levels on Harper Mountain would reduce runoff and erosion from the irrigation. The hay crop on the site would stabilize the soil and consume the treated wastewater to further reduce the potential for soil saturation and erosion. Any remaining runoff would be directed to the storage lagoons by the slope of the hay farm.

The anaerobic lagoon and cyclic reactor would be lined and that would prevent the treated wastewater from entering the subsurface environment. The treated wastewater holding basins would be lined with clay soils that are on site to hold water in the basin. If not enough clay type soils are present on site, additional clay soil would be brought to the site. The poultry processing facility would not use chemicals in its water used for operation of the facility other than chlorine for sanitary purposes or chemicals in the treatment of its water except those for pH adjustments. The treated wastewater would be of discharge quality. In other words, if a receiving stream were available on the site, Cagle's would be allowed to discharge the treated wastewater directly to that stream. Since there is not a stream of the size necessary for this purpose, the discharge will be through a drip and spray irrigation system. Therefore, the potential for soil contamination would be minimal.

— Mitigation Measures

The construction and operation of the poultry processing facility would not cause significant impacts to topography, geology, and soils. Standard erosion control as set forth in the Kentucky Best Management Practices for Construction Activities must be implemented, but no other construction mitigation measures would be proposed.

The Natural Resources Conservation Service has reviewed the Groundwater Engineer and Testing Service report and concurs with its findings regarding soil types, infiltration rates, and chemical properties of the drip and spray irrigation sites (NRCS, 1997b).

During operations, it has been recommended by the Cagle's engineers that a general periodic monitoring program be initiated. The monitoring would be used to help ascertain the long-term effectiveness of the wastewater treatment and the irrigation systems. The monitoring would allow for adjustments to the treatment systems, if necessary, that would prevent impacts on soils (GETS, 1997). To ensure the effectiveness of the systems, Cagle's through their engineering firm would have to initiate this monitoring program. No further operating mitigation measures are proposed.

3.6.2 SURFACE AND GROUNDWATER/WATER QUALITY

— Affected Environment

Surface Water

Indian Creek is to the north of the hay farm area. About 397 acres of the hay farm and facility site lie within the Indian Creek drainage basin. Indian Creek flows to the northeast to Lake Cumberland, 3 miles from the site. The remaining 70 acres of the facility's area drains toward a wetland, across Rt. 90 approximately 2,800 ft south of the site (GETS, 1997). There are no streams on or adjacent to the hay farm and facility site.

Groundwater

Groundwater at the facility area is typical of karst terrain and occurs in three zones: the soil layers, the transition zone consisting of weathered limestone/shale, and the underlying bedrock. Of the three zones, the weathered limestone/shale has the highest rate of groundwater flow due to its large grain size and voids. Site investigation indicates that groundwater generally flows to the northeast toward Lake Cumberland. Groundwater levels of the site range from about 3 ft to 21 ft below land surface. No springs were observed during site investigation. Ponding occurs in low areas of the site during wet periods (GETS, 1997).

Water Quality

Groundwater and surface water quality of the facility area are affected by the ongoing cattle farming and other agricultural activities on and near the site. Groundwater sampling of the site showed high levels of ammonia and fecal coliform bacteria, which are representative of contamination by animal waste. Cattle have been observed to gather around the monitoring wells that were used for sampling by sampling personnel (GETS, 1997).

— Environmental Consequences

- Construction Impacts

The potential impacts from the construction of the poultry processing facility on surface and groundwater include:

- Decreased surface and groundwater quality from erosion and runoff; and
- Contamination of surface and groundwater from construction waste.

Best management practices to control erosion, runoff, and sedimentation, e.g., silt fencing, would be implemented during the construction of the poultry processing facility and the wastewater treatment system. A groundwater protection plan would be written and put into place prior to the start of construction activities. The abandoned oil exploration wells would be plugged and sealed.

A No Discharge Operational Permit from the Kentucky Division of Water would be required prior to construction of the wastewater treatment system. The permit is only effective for 12 months from the date of issuance. The permit that had been issued to Cagle's on June 1, 1995, has expired. Cagle's has not submitted a new application as of the date of the final EIS.

By implementing best management practices for construction and meeting permit requirements by the state, the construction of the poultry processing facility and the wastewater treatment system would not cause any significantly adverse impacts on surface and groundwater in the area.

- Operation Impacts

The potential impacts from the construction of the poultry processing facility on surface and groundwater include:

- Surface and groundwater contamination from irrigation; and
- Surface and groundwater contamination from treatment lagoons.

The wastewater from the poultry processing facility would be treated by its wastewater treatment system prior to being used for irrigation. Based on the available data from similar treatment systems being used in the poultry industry, the projected influent characteristics of the wastewater and effluent characteristics of the treated wastewater are summarized in the table on the next page.

Parameter	Before Treatment	After Treatment	Irrigation Percolate[1]	Total System Removal[2]
BOD[3] (mg/L)[4]	2,976	10	< 1	> 99.9%
TSS[5] (mg/L)	2,652	18	< 1	> 99.9%
Oil and Grease (mg/L)	1,000	1	< 1	> 99.8%
Ammonia Nitrogen(mg/L)	40	2	< 0.1	> 98%
Nitrate Nitrogen (mg/L)	0	4	< 1	-
Nitrite Nitrogen (mg/L)	0	1	< 0.1	-
Total Nitrogen[6] (mg/L)	130	8	< 3.1	> 97.6%

[1] Irrigation percolate refers to water that has moved through the soils before reaching the groundwater

[2] Removal efficiencies are based on EPA publications related to the treatment capabilities of the cyclic reactor aerobic basin type systems and the engineering experience of the Cagle's professional engineer designing the system.

[3] BOD is the Biochemical Oxygen Demand, a measure of the amount of oxygen consumed by the break down of organic matter in water. The greater the BOD, the greater the degree of pollution.

[4] mg/L = milligrams per liter

[5] TSS is the Total Suspended Solids, a measure of the amount of small particles of solid pollutants that float on the surface of, or are suspended, in water.

[6] Total nitrogen includes both organic and inorganic nitrogen.

Source: Rowe, 1997

The influent to the wastewater treatment system would have a total phosphorous concentration of approximately 15 milligrams per liter (mg/L). The effluent after treatment would be approximately 10 mg/L (Rowe, 1997b). This level is in the same range as the other parameters in the treated wastewater. Due to the low concentration, to reduce the phosphorous level any further would not be economically feasible (Rowe, 1997b).

The wastewater treatment system is designed to provide a very high quality of treated wastewater. The nutrient levels in the treated wastewater would be so low that additional fertilizers would need to be applied for irrigation of the crops. Therefore, the design of the irrigation system could be limited mostly by the amount of water that could be applied to the land.

Kentucky procedure requires that activities must not occur within 100 ft from the perimeter of a sinkhole. Thus, the irrigation plan would maintain a 100 ft buffer zone from all four existing sinkholes on the site, and from any addition sinkholes as may be found during detailed site geology engineering studies. The buffer zones would prevent potential irrigation runoff from directly entering the sinkholes and streams. A 25 ft buffer zone would be maintained from all property lines.

As a part of the Kentucky No Discharge Operational Permit application (GETS, 1997), the irrigation plan was designed in general accordance with the Environmental Protection Agency's Process Design Manual for Land Treatment of Municipal Wastewater. Based on infiltration tests of the soils on the irrigation site, a design application rate of 0.03 inches per hour was

used to calculate the water balance of the site, taking into account transevaporation, i.e., loss of water through evaporation and plant uptake, and precipitation in the region.

The water balance calculation yielded a total maximum potential irrigation volume of 1,408 million gallons per year for the 316 acre irrigation area. This is based on being able to apply water 5 days a week, 52 weeks per year, or 260 days per year. For the facility, the projected maximum irrigation volume is 540 million gallons per year, which is about 38% of the calculated maximum and well within the allowable limit (GETS, 1997).

However, a more conservative irrigation plan for the facility was developed based on lower monthly transevaporation rates and lower percolation rates during winter months (Rowe, 1997). The plan would stop irrigation during the months of December through March and would store the irrigation water in the holding basins. The maximum storage of about 140 million gallons would occur during the month of March, and irrigation would resume in April. Kentucky procedure currently requires that irrigation systems have at least three months of storage capacity.

The treated wastewater holding basins would be designed to hold the expected maximum 140 millions gallons of treated wastewater. Based on preliminary site investigation, four basins may be located on the low lying areas, excluding the four known sinkholes on the site. The basins would be designed to hold 3 months of treated wastewater and stormwater as required by the Kentucky Division of Water Procedures.

The potential for leaks in the liners of the wastewater lagoons would be minimal. As a preventative measure, the volumes of water entering and discharging from the lagoons are metered and closely monitored for any discrepancies that may indicate a leak through the liner. In the unlikely event of a leak, divers would be sent into the lagoon to located and repair the leak. Wastewater from the lagoon would enter and contaminate the groundwater for a short period of time until the leak was repaired. Impacts caused by the leak and necessary mitigation measures would need to be determined by the state of Kentucky at the time of the incident.

In order to minimize the potential for catastrophic failure of the wastewater treatment basins, such as a sinkhole collapse, a karst geologist would be consulted by Cagle's engineers on placement of the lagoons. In the unlikely event of a massive rupture of the wastewater treatment basin, significant groundwater contamination would result. Impacts caused by the rupture and necessary mitigation measures would need to be determined by the state of Kentucky at the time of the incident.

Spray irrigation on the hay farm would approximately double the amount of water received by the soil in the irrigation area from naturally occurring precipitation. However, based on the slow application rate and no application during wet days or winter months, no significant surface runoff would occur. Most of the water applied would either evaporate, be taken up by plants, or percolate through the soils to the groundwater. Any surface runoff would return to the storage basins, which would be located on the low lying areas. The farm would also be graded to allow the runoff to return to the lagoons.

During stormwater events, surface runoff may carry potential soil contaminants into the sinkholes and streams. However, contaminants such as heavy metals that tend to accumulate in soils are not expected to be present in the treated wastewater for irrigation, since no chemicals would be used in the wastewater treatment process. Other contaminants such as nitrogen, phosphorous, and oil and grease (as related to chicken fat) would be consumed by biological processes in the soils or uptake by crops. The discharge of oil and grease is very unlikely. Therefore, these contaminants are not expected to accumulate in the soils.

Data from the Kentucky Geological Survey Open File Well List indicate that the facility area contains several oil wells and exploration holes (ECI, 1995). Five locations have been identified in the area, and three of these have open steel casings. Abandoned wells pose the risk that the irrigation water could enter the well and go directly to the groundwater. There may be other abandoned wells on the site. Cagle's through their engineering firm, would have to conduct a search for such wells. To avoid the possible contamination of the groundwater, all abandoned wells would be properly plugged and sealed in accordance with Kentucky requirements to prevent this direct environmental conduit to the groundwater.

— Mitigation Measures

All abandoned oil exploration wells would be plugged and sealed to prevent a direct environmental pathway to the groundwater. The storage basins would be located on low lying areas and would be designed so that any surface runoff would return to the basins by natural drainage. The poultry processing facility would not use any chemicals during operation except those needed for the adjustment of pH. Even though the operation of the wastewater treatment and irrigation systems would not significantly affect the surface and groundwater quality in the facility area, a general ground and surface water monitoring program has been developed to ensure the effectiveness of the systems (GETS, 1997). Groundwater samples from the nine monitoring wells would be tested twice a year. Surface water sampling would be conducted during a rainfall event in June or July of the year. One upgradient and one downgradient stream sample would be collected from Indian Creek near the area. In addition, four stormwater runoff samples would be collected from the perimeters of the facility area.

The ground and surface water samples would be analyzed for the following parameters: sulfate, chloride, nitrogen, fecal coliform, phosphorous, conductivity, pH, dissolved oxygen, temperature, BOD, chemical oxygen demand, total suspended solids, total dissolved solids, and oil and grease associated with chicken fat. Total suspended solids is a measure of the amount of small particles of solid pollutants that float on the surface of, or are suspended, in the water. Total dissolved solids are the amount of solids such as minerals dissolved in the water. Chemical oxygen demand is a measure of the amount of oxygen consumed by the breakdown of organic matter by chemical processes.

Collection and analysis of the samples would be in accordance with Environmental Protection Agency's recommended protocol. If an impact on groundwater or surface water attributable to

the Cagle's discharge system is detected by analysis of the monitoring data, the wastewater treatment and irrigation distribution system would be improved to mitigate the impact.

3.6.3 WETLANDS

According to the National Wetlands Inventory Map for the Wolf Creek Dam Quadrangle, there are no wetlands delineated on the poultry processing facility site. There are, however, hydric soils present on the site as delineated by the Natural Resource Conservation Service (SCS, 1994). Hydric soils are one of the three criteria necessary for delineating jurisdictional wetlands that are subject to compliance to the Clean Water Act, Section 404 permitting program administered by the ACOE.

Based on Section 404 classification criteria, there is a small wetland on the property. It is approximately 30 by 30 ft (0.03 acres) at the southern edge of the property. A Section 404 permit will be required before site construction can effect this area. An application will be submitted to the ACOE as soon as the design drawings are complete.

3.6.4 AIR QUALITY

— Affected Environment

The action areas would be open air burning where there is no air pollution concern. Clinton County is part of Kentucky's South Central Region, an Air Quality Control Region that is designated as in attainment for each of the NAAQS six criteria pollutants.

The Daniel Boone National Forest a Class 1 area is located approximately 25 miles east from the project locations.

— Environmental Consequences

- Construction Impacts

The potential impacts from the construction of the project on the air quality include:

- Create air pollution from the burning trash;
- Generate fugitive dust from construction activities; and
- Generate emissions from construction equipment.

Air quality impacts of the construction would be short-term, low-level intermittent and transient emissions of NOx, PM_{10}, and CO routinely resulting from the construction activities. These emissions do not constitute any degradation of ambient air quality. Kentucky does not have regulations on air emissions from construction equipment (Goebel, 1997). In addition, dust created by excavation activities would be controlled by conventional water spraying meth-

ods and the use of gravel. Vehicles would be properly maintained and unnecessary operation would be minimized to decrease exhaust emissions.

Trees would be disposed of by burning. This is common practice for construction projects and is permissible per Kentucky Regulation 401 KAR 63:005 Open Burning. The contractor would comply with this regulation. The emissions resulting from burning would be temporary, would dissipate prior to reaching the Daniel Boone National Forest, and construction activities resulting in temporary emissions are exempt from regulation per the Clean Air Act.

- Operation Impacts

The potential impacts from the operation of the project on the air quality include:

- Create odor due to plant operation; and
- Create odor due to wastewater disposal operations.

Operations of the poultry processing facility and its ancillary systems would not create odor problems. Processing facility operations would be conducted in enclosed areas. No odors are generated from processing operations at similar Cagle's poultry processing facilities. According to the Mitchell County Health Department, no odor complaints have been received regarding Cagle's poultry processing facility in Georgia (Mitchell County, 1997a). The wastewater disposal lagoons would not create significant odors. This has also been confirmed at similar Cagle's poultry processing facilities.

— Mitigation Measures

The construction and operation of the poultry processing facility would not cause significant air impacts and no mitigation is proposed.

3.6.5 BIOLOGICAL RESOURCES/THREATENED AND ENDANGERED SPECIES

— Affected Environment

Based on a review of the Natural Heritage Program Database of the Kentucky State Nature Preserves Commission (KSNPC, 1997), no occurrence of endangered, threatened, special concern plants, animals, and natural communities has been reported in or near the poultry processing facility area and hay farm.

The facility area is primarily used for cattle farming and consists of hay fields and pasture. The dominant plant species are Kentucky fescue and ironweed. The southeastern part of the area, Harper Mountain, is wooded with medium to old growth deciduous hardwoods.

Two federally listed endangered species may occur in the project area: gray bat (*Myotis grisescens*) and Indiana bat (*Myotis sodalis*). No record of these species has been reported in the

project area (Barclay, 1997a). Based on a habitat survey of the Cagle's hay farm site by a qualified biologist, suitable habitat (see Section 3.2.4) for the Indiana bat was found on Cagle's farm south of the storage tank site on Harper Mountain. The area consists of mature upland forest with approximately 75% canopy closure. The canopy of tree species include shagbark hickory, yellow buckeye, white oak, and sugar maple, and standing snags are also present.

— Environment Consequences

The potential impact from the construction and operation of the poultry processing facility is:

- Harm to protected species and their habitats or sensitive natural communities from clearing site and from potential contamination to soils, surface and groundwater.

No adverse impact on biological resources would result from the construction and operation of the poultry processing facility. No trees would be cut on Harper Mountain (Cagle, 1997). Therefore, there would be no impact on the habitat of the endangered Indiana bat.

— Mitigation Measures

The construction and operation of the poultry processing facility would not cause any significant impacts to biological resources and therefore, no mitigation is proposed.

3.6.6 AESTHETICS AND NOISE

— Affected Environment

Aesthetics

The site is approximately 460 acres of predominantly pasture land and was used primarily for agriculture and livestock. Residences are located around the perimeter of the site to the west. Residences to the east are blocked from viewing the site by Harper Mountain. There are no residences south of the site across Rt. 90.

Noise

The poultry processing facility site is located in Clinton County, Kentucky between Kentucky Highway 90 and Clinton County 1590. Noise in the area is currently attributable to vehicular traffic. The nearest noise receptor is located approximately 600 ft from the poultry processing facility site.

— Environmental Consequences

- Construction Impacts

The potential impacts from the construction of the poultry processing facility on the aesthetics and noise environment include:

- Effects from blasting during construction activities;
- Generate noise from construction activities and disturb people and wildlife; and
- Create aesthetic problems during construction.

The noise level would not be impacted by blasting. The site is not rocky and blasting would not be expected to occur. Noise would be generated during construction activities though from equipment, vehicular, and generator use. This would be a major project and noise might be an annoyance to nearby residences because it is such a rural area, but the noise levels should stay within an 80-90 decibel range at the site and attenuate to less than 36 dB (just below the noise of a quiet office) at the nearest residential receptor. Wildlife in the area would be startled by the sudden noise and would probably be driven from the area during construction activities. Workers would wear hearing protection that meets or exceeds OSHA requirements during construction activities when noise levels exceed 85 dB. Construction impacts would persist for approximately one year.

Construction activities would temporarily affect the aesthetics of the area. Once unoccupied land would be filled with construction equipment, ancillary items, materials, staging areas, vehicles, and workers. It is assumed that the staging areas would be recontoured and/or revegetated, and that all equipment and material stockpiles would be used and/or removed from the site after construction is finished.

Construction activities will not involve removal of any of the buildings currently present at the site. The buildings will remain and be renovated for housing irrigation machinery and/or farming equipment.

- Operation Impacts

The potential impacts from the operation of the poultry processing facility on the aesthetics and noise environment include:

- Create aesthetic problems for residents and recreational users; and
- Generate noise during operation activities.

The facility and ancillary systems would be clean, kept up, and the processing building would duplicate the poultry processing facility in Camilla, Georgia (See Figure 14). The building would be architecturally balanced and pleasant to the eye. The facility would be approximately

Figure 14 The Cagle’s Poultry Processing Facility in Camilla, Georgia

240,000 square ft in size with the overall dimensions of the plant approximately 800 ft by 450 ft. The adjacent parking lot would be approximately 800 ft by 500 ft. The facility would be landscaped to enhance the site.

Operation of the facility and its ancillary systems would create noise within the building. Workers would be required to wear hearing protection that meets or exceeds OSHA requirements, during operational activities associated with noise levels in excess of 85 dB. Noise would be lessened by the walls of the plant and there would be no noise levels outside the plant that would be unsafe or annoying.

— Mitigation Measures

The construction and operation of the poultry processing facility would not cause significant noise impacts and no mitigation is required. The facility would change the scenery of the site, but the facility would not be aesthetically unpleasant and no mitigation is proposed.

3.6.7 SITE LAND USE

The land use of the site would change. It would no longer be pasture land, but would be developed for industrial uses. After project commencement, the poultry processing facility area would not be available for either of its previous uses and would contain the facility, 800 ft by 450 ft, and a parking area, 800 ft by 500 ft. The site for the poultry processing facility and irrigation area are currently being used as cattle pasture and farmland. However, the hay farm area would continue to be used as farmland, since the site would be utilized for cultivation of hay.

3.6.8 WORKER HEALTH AND SAFETY EDUCATION

Concerns for worker health and safety were raised at the public scoping meeting and at the Public Hearing; therefore, this issue is being addressed in this subsection.

All poultry plant workers would be trained in the necessary policies and procedures set forth by OSHA to safely perform their jobs. The workers would be trained by professional OSHA instructors. At the time of hire, employees would be trained in hearing conservation, emergency response, lockout and tagout procedures, and the use and care of personal protective equipment, i.e., dust masks, respirators, etc. Workers would also be trained on proper procedures for minimizing the potential risk of exposure to both blood-borne pathogens (bacteria) and the potential risks related to these pathogens being transmitted by food products. The pathogens of concern would be Salmonella, Campylobacter, Listeria, and E. Coli.

Processing plant employees would also be trained in safe operating procedures in order to reduce the risk of injury related to the poultry processing facility.

Specially trained nurses would be on-site at the processing facility during all shifts in case of possible worker accident resulting in injury. One nurse would have expertise in handling any worker injured in a hazardous material accident if it were to occur. Minimizing employee injury would be the primary concern.

Cagle's, Inc. would also provide a Graduation Equivalency Program for all employees of the company. This program would be encouraged and offered at no cost to the workers.

According to the Atlanta OSHA Director's Office, Cagle's has consistently demonstrated a sincere willingness to comply with all OSHA requirements and has always taken swift action to correct any deficiencies in their policies (OSHA, 1997). In addition, Cagle's was named one of nine outstanding employers in Georgia by the State Department of Labor (Ledger-Enquirer, 1996).

3.7 FEED MILL AND HATCHERY

Cagle's has purchased a former gasohol plant on US Highway 31-W approximately 1.1 miles west of Interstate 65, in Franklin, Simpson County, Kentucky. The gasohol plant has been out of business since 1990. The feed mill and hatchery, the only facilities for this site, would both be sited on this property (see Figure 2, page 5). It would cost approximately $12 million to renovate the feed mill and to build the hatchery.

Feed Mill

The feed mill would make use of the existing equipment on the site (see Figure 15). The existing grain storage bins and a material receiving area would be used including the rail car unloading equipment. Additional existing structures would be used to house the electric fueled boilers, a truck maintenance garage, and the office for clerical and farm support personnel. The existing railroad spur would also be used. The existing aboveground aeration tanks would be used to pretreat the wastewater from the hatchery, and any floor washing from the feed mill. Use of water for floor washing is extremely rare for a feed mill operation as grain must be kept dry. The pretreated wastewater would be discharged to the Franklin City sewer.

The CSX railroad track runs along to the east of the feed mill and hatchery site. The spurs, necessary for the handling of rail car deliveries of grain were previously built for the former gasohol plant. Cagle's proposes to extend each of the two existing spurs by approximately 20 ft. There is also an existing railroad bed on the site that Cagle's would use to build a third unloading spur. Ballast would be placed on the road bed, and ties and rails would then be laid. There are two unloading pits under the rails. A third pit would be built. The hopper cars would be positioned over the pits, the hopper doors under the car would be opened, and the grain would pour into the unloading pit. A dust collection system would be used to control the grain dust. A train would deliver 65 carloads of grain approximately every 10 days. Once delivered, a yard mule, a small diesel vehicle, would be used to move the cars around the site.

Figure 15 Site and Proposed Plot Plan for the Feed Mill and Hatchery

All metal discarded from the renovation of the plant would be sold to a recycler. The rubble generated would be taken to a landfill. The existing in ground lagoons would be filled or removed completely.

The new mill structure would roughly double the present mill footprint covering an area approximately 90 ft by 270 ft. The greatest elevation would be roughly 200 ft. The mill would be constructed of steel with a concrete floor. The greatest footer depth anticipated would be approximately 17 ft.

The feed mill would be receiving corn and soybean meal by truck and railroad. Other feed mixture components that would be used at the mill such as animal protein and micro ingredients would only be trucked to the mill. The feed would be mixed using proportions of approximately 70% corn, 20% soybean meal, 4% poultry meal and 6% micro ingredients. The feed would be blended at the mill and then shipped to the various types of poultry farms.

Corn would be purchased as 50 or 100 car loads at a time. Approximately every 10 days, 22,7500 bushels of corn would be delivered by rail to the feed mill. Corn would also be delivered by truck as approximately 25% of the corn volume would be purchased from local farmers. The feed mill would receive approximately 8 million bushels of corn per year.

The soybean meal would be brought to the feed mill by rail. The feed mill would receive approximately 54,000 tons of soybean meal per year.

The poultry protein would be purchased from the rendering companies. The poultry protein is packaged in bulk and looks and smells like dry dog food. The meal would be trucked to the feed mill. Approximately 10,000 tons of poultry meal would be shipped to the site annually.

Micro ingredients are the vitamins, minerals (limestone, etc.), and salt necessary for proper growth of the birds. Approximately 22,000 tons of micro ingredients would be shipped to the site by truck each year.

The feed mill would be operated 6 days per week by 28 workers.

Hatchery

The hatchery footprint would be generally in the shape of a cross. The hatchery would be built on a previously disturbed area of the Franklin site (see Figure 15 on page 97).

The overall dimensions of the building would be 250 ft wide by 450 ft long at its greatest width and length. The entire structure would enclose approximately 75,000 square ft. Its maximum height would be about 15 ft.

The building construction would be predominantly pre-stressed concrete with concrete floors. The foundation would extend a maximum of approximately 3 ft below grade.

The hatchery would be able to hold 5.3 million eggs at a time. The hatchery would be operated 7 days a week. During the maintenance mode when eggs are incubating only 3 workers are required to run the facility. When the chicks hatch, up to 40 workers are required to sort, grade, wash, and inoculate the chicks before they are shipped to the broiler farms. Chicks from the hatchery are only sent to the broiler farms. The eggs that do not hatch, the eggshells, and chicks that must be euthanized (humanely destroyed) because of a physical defect are all sent to the rendering plant.

The hatchery would be washed down and sanitized between shipping one batch chicks and receiving the next batch of eggs. It would require approximately 20 workers to perform this operation and to receive the eggs when they arrive. As additional workers are required to perform the various tasks they would be drawn from the farm support personnel. The farm support personnel are the breeder manager, broiler manager, and live haul supervisor, supported by the production assistants, contract managers, and drivers. The production assistants advise the contract growers on proper poultry raising methods, farming operations, and any other farm problem, such as odor and flies. They also provide support if there is a crisis or epidemic and help with any situation interfering with egg production. The production assistants would visit each farm on a weekly basis.

The construction and operation of the feed mill and hatchery would not affect floodplains, wetlands, other protected natural resources, cultural resources, air quality, or land use. There are no floodplains, wetlands, or other protected natural resources on the site. Land use at the site will not change from its current use. An archaeological survey was conducted at the site in 1981, before the construction of the gasohol plant (Schock and Langford, 1981). The survey found one prehistoric archaeological site that would have been destroyed by the construction of the gasohol plant. The site was thoroughly excavated and examined. The results of the examination indicated that the site was not eligible for nomination to the National Register of Historical Places. The subjects mentioned above will not be discussed further in this subsection.

3.7.1 GEOLOGY/TOPOGRAPHY/SOILS

— Affected Environment

Geology/Topography/Soils

The site is located within the boundary of an old gasohol plant. The topography is generally level, and all of the land area has been previously disturbed. The site has karst geology (see box on page 79).

— Environmental Consequences

– Construction Impacts

Based on the environmental evaluation diagram, the potential impacts from the construction

and renovation of the hatchery and feed mill include:

- Soil contamination from construction wastes; and
- Soil erosion from clearing and grading hatchery site.

The feed mill would be constructed on the old plant site and would cover approximately 0.5 acres with the greatest footer depth being about 17 ft. Appropriate foundation support, i.e., spread footers, caissons, etc., would be used to support the structure. The construction would affect only previously disturbed soils. The hatchery would be located near the entrance to the old plant and would cover approximately 2 acres with a footer depth of no more than 3 ft. Best management practices would be followed to minimize soil erosion during construction of both facilities. Mitigation measures would also be utilized in accordance with the Kentucky Best Management Practices for Construction Activities.

– Operation Impacts

The potential impact of the operation of the feed mill and hatchery is:

- Soil contamination from wastewater, or solid waste.

Aboveground aeration tanks would be used to pretreat the wastewater from the feed mill and hatchery and would subsequently be discharged to the Franklin City sewer. Solid wastes would be properly contained and disposed of by a contract trash collector. Therefore, the risk of soil contamination would be minimal.

— Mitigation Measures

The construction and operation of the feed mill and hatchery would not cause significant impacts to topography, geology, and soils. Standard erosion control as set forth in the Kentucky Best Management Practices for Construction Activities must be implemented but no other mitigation measures are proposed.

3.7.2 SURFACE AND GROUNDWATER/WATER QUALITY

— Affected Environment

Several small ponds exist in the area surrounding the site. Surface water bodies near the site include Sharps Branch, which lies about 0.5 miles north of the site, and West Fork Drakes Creek, which lies about one mile northeast of the site.

— Environmental Consequences

- Construction Impacts

The potential impacts from the construction of the feed mill and hatchery on surface and groundwater include:

- Decreased surface water quality from erosion and runoff; and
- Surface and groundwater contamination from construction waste.

Best management practices to control erosion and sedimentation, as specified in the Kentucky Best Management Practices for Construction Activities, would be implemented during the construction of the feed mill and hatchery. The handling, storage, and disposal of any hazardous waste would be done in accordance with Kentucky regulations. Therefore, minimal impacts on surface and groundwater would result from the construction activities.

- Operation Impacts

The potential impacts from the operation of the feed mill and hatchery on surface and groundwater include:

- Decrease local water supply; and
- Contamination of surface and groundwater from wastewater disposal.

The operation of the feed mill and hatchery would require approximately 23,000 gallons per day of water. The water supply would come from the Simpson County Water District, which buys its water from the Whitehouse Utilities District in Tennessee. The District draws its water from the Old Hickory Reservoir. The Simpson County Water District has a contract limit to use 1 million gallons per day. The district currently uses 700,000 gallons per day (Liles, 1997). Therefore, the additional 23,000 gallons per day would be well within the district's contract limit. The current contract limit can be upgraded to 1.5 million gallons per day, once the Tennessee district is notified the increase is required.

Operation of the feed mill and hatchery would generate approximately 700,000 gallons of wastewater per month. The wastewater would be pretreated by above-ground aeration tanks before being discharged to the Franklin City sewer. No on-site discharge of wastewater would occur. The existing in-ground lagoons would be filled or removed completely. Thus, the potential for contaminating surface and groundwater would be minimized.

— Mitigation Measures

Best management practices for construction would prevent surface and groundwater contamination. No additional mitigation measures would be for the construction and operation of the feed mill and hatchery.

3.7.3 AIR QUALITY

— Affected Environment

The action would be located in an industrial area. The project would take place in Simpson County which is part of Kentucky's South Central Air Quality Control Region. The Region is designated as in attainment for each of the NAAQS six criteria pollutants.

The Mammoth Cave National Park, a Class 1 area, is located approximately 35 miles north from the project location.

— Environmental Consequences

- Construction Impacts

The potential impacts from the renovation and construction activities of the project on the air quality include:

- Generate fugitive dust from construction activities; and
- Generate emissions from construction equipment.

Air quality impacts of the construction would be characteristic short-term, low-level intermittent, and transient emissions of NOx, PM_{10}, and CO resulting from construction activities. Such emissions do not constitute any degradation of ambient air quality. Kentucky does not have regulations on air emissions from construction equipment (Goebel, 1997). Dust created by renovation activities would be controlled by conventional methods, such as the use of tarps and covers. Vehicles would be properly maintained and unessential operation would be minimized to decrease exhaust emissions.

- Operation Impacts

The potential impacts from the operation of the project on the air quality include:

- Create odor and fugitive dust due to feed mill and hatchery operation;
- Violate air quality standards due to boiler operation; and
- Violate air quality standards due to emissions generated by increased truck traffic.

Operations of the feed mill and hatchery would not create odor problems. No odors are generated from operations at similar Cagle's feed mill and hatchery facilities. According to the Mitchell County Health Department, no odor complaints have been received regarding Cagle's feed mill and hatchery operations in Georgia (Mitchell County, 1997a). Electric boilers are to be used on site.

Dust created by the transfer of corn kernels from rail car to the feed mill would be collected and dispersion would not occur. Average daily truck traffic would increase by approximately 7 percent over current truck traffic volume. The area is well within attainment for the NAAQS six criteria pollutants (KDAQ, 1997). The 7 percent increase in truck traffic would minimally affect the air quality. The resultant levels would remain in attainment within the area.

— Mitigation Measures

The renovation, construction and operation of the feed mill and hatchery would probably not cause any significant air impacts. No mitigation measures are necessary.

3.7.4 BIOLOGICAL RESOURCES/THREATENED AND ENDANGERED SPECIES

— Affected Environment

The area for the feed mill and hatchery is previously disturbed by the construction and operation of the gasohol plant. No significant biological resources exist in the area. Based on a review of the Natural Heritage Program Database of the Kentucky State Nature Preserves Commission (KSNPC, 1997), no occurrence of endangered, threatened, special concern plants, animals, and natural communities has been reported within or near the site for the feed mill and hatchery. The Federally listed endangered gray bat (*Myotis grisesceus*) has been sighted in Simpson County.

— Environmental Consequences

The potential impact from the construction and operation of the feed mill and hatchery is:

- Harm to protected species and their habitats or sensitive natural communities from clearing site and from potential contamination to soils, surface and groundwater.

No impact on any protected species or sensitive natural communities would result from the construction and operation of the feed mill and hatchery. The construction activities would occur on previously disturbed areas. Therefore, no impact on any potential habitat for the gray bat would occur. The US Fish and Wildlife Service concurs with this conclusion (Barclay, 1997a).

— Mitigation Measures

Since the construction and operation of the feed mill and hatchery would have no significantly adverse impacts on biological resources, no mitigation would be proposed.

3.7.5 AESTHETICS AND NOISE

— Affected Environment

Aesthetics

The site is an abandoned gasohol plant. It was an industrial site with many buildings, tanks, silos, a railroad spur, and lagoons (see Figure 15, page 96).

Noise

The feed mill and hatchery site is located in Simpson County, Kentucky. Noise in the area is currently attributable to vehicular traffic. The nearest noise receptor is located adjacent to the feed mill and hatchery site, approximately 0.1 miles from the main gate.

— Environmental Consequences

- Construction Impacts

The potential impacts from the renovation activities for the feed mill and hatchery on the aesthetics and noise environment include:

- Create noise from construction activities and disturb people and wildlife; and
- Create aesthetic problems during construction.

Noise would be generated during renovation activities from equipment, vehicular, and generator use. This would be a major project and the noise might be an annoyance to nearby residences. The noise levels should stay within an 80-90 decibel range at the site and attenuate. If it is assumed that the maximum decibel level, 90 dB, were to be 1 ft from outside the fence line of the site property, then the noise level at the nearest receptor, approximately 0.1 miles away, would be less than that of a soft whisper, 30 dB. Wildlife in the area would be affected by noise generated during construction activities. Workers would wear hearing protection that meets or exceeds OSHA requirements during construction activities when noise levels exceed 85 dB. Construction impacts would persist for approximately nine months.

Renovation activities would minimally affect the aesthetics of the area. The site was used as industrial and currently is abandoned. Renovation of the site would positively impact the aesthetics of the site. Current run down buildings and areas would either be removed or cleaned up and enhanced.

- Operation Impacts

The potential impacts from the operation of the feed mill and hatchery on the aesthetics and noise environment include:

- Create aesthetic problems for residents and recreational users; and

- Generate noise during operation activities.

The land use of the site would not change from that of its existing use. The facilities and ancillary systems would be clean, and maintained.

The noise generated from the hatchery would not be above safe levels, i.e., normal conversational levels. The feed mill would have normal industrial noise levels estimated to be, in the extreme case, a maximum of 90 dB about 1 ft from the machinery. If it is assumed that this 90 dB noise level were to be 1 ft from the outside the fence line of the property then the noise level at the nearest receptor approximately 0.1 miles away would be less than that of a soft whisper. The potential exists for increased noise levels along the transportation routes to the facility. Truck and other vehicular traffic would increase.

— Mitigation Measures

The construction and operation of the feed mill and hatchery would cause minimal noise impacts and no mitigation is proposed. Renovation activities would not change the view of the site.

3.7.6 SITE LAND USE

The site for the feed mill and hatchery is located on a former gasohol plant site. The former plant is not currently in use, and would be renovated to accommodate the new feed mill structure. An additional structure for the hatchery would be built at this site. The feed mill building would occupy an area approximately 90 ft by 270 ft; whereas, the hatchery building would encompass an area approximately 250 ft by 450 ft. There would be no impact to land use as there would be no change from the site's current industrial use.

3.8 POULTRY HOUSES

The pullet and breeder houses would be located within an approximately 20-mile radius of the feed mill and hatchery site in Franklin, Kentucky. The broiler houses would be located within two 20-mile wide corridors that follow (see Figure 16):

- Rt. 52 between Portland and Moss, Tennessee; and
- Highway 65 to Rt. 90 between Bowling Green and Beaumont, KY.

No specific locations for the pullet, breeder and broiler houses have been identified. The processing facility would require approximately 20 pullet houses, 48 breeder houses, and 376 broiler houses to be built. Broiler farms would have 3 or 4 houses on them. This means that at a minimum, approximately 134 farming operations would be required. Information about the

Figure 16 Areas of Pullet, Breeder, and Broiler Farm Potential Locations

operation of the types of farms is in the following table:

Type of Farm	Houses Per Farm	Total Farms	Workers Required	Birds Per House
Pullet	2	10	1 per 4 houses	11,600
Breeder	2	24	4 per 2 houses	11,000
Broiler	3-4	100	1 per 4 houses	22,000

The pullet, breeder and broiler houses are all constructed similarly in method, size and in material. The houses would be constructed on 500 ft long by 40 ft wide dirt pads. The pads would be separated from other houses by at least 50 ft to allow for adequate stormwater drainage. The land is graded so the drainage is away from the houses. In the front of the house would be a 150 ft wide gravel area for truck loading and unloading. Breeder houses are essentially built the same as the other houses, however, there would be an additional space in the front of the house for egg crating and storage. Conveyor belts bring the eggs from the nesting boxes to the egg room to be graded and packed in plastic flats.

Typical poultry house construction begins with the grading of the site. Wall construction would be typically a solid concrete base that would be tapered from a 28-inch bottom to an 8-inch top. Special machinery can form this base within approximately 3 hours. On top of the concrete base a treated wood plate would be attached and then 4-inch by 4-inch treated posts would be erected every 4 ft on center. The floor would be clay. Scissor trusses would be used for the roof supports. The roofs would be built to the local codes for snow loads and would be insulated with R19 insulation. The bottom of the trusses would be covered with a vapor barrier. Colored metal would be used to cover all exposed wood on the front and rear of the house for aesthetics and to help maintain the life of the house. The poultry houses have two large sliding doors at the front of the house for easy access.

The sidewalls of the houses would be covered with a silver reflective material to reflect heat and sun light. The houses would be heated by forced air gas heat and cooled by nine fans electronically linked to automatic vents. Negative tunnel ventilation would be used to cool the houses. Keeping the house at a constant 85° F is important to the survival of the birds. When there are extreme heat conditions, all the fans turn-on automatically and foggy nozzles mist the air being pulled in through the house to cool the birds.

There would be three 14 ton bins placed between each of two houses to hold the feed for the birds. Inside the houses, there would be rows of feeders and drinking apparatus that run the length of the house. Nipple drinkers would be used that only supply water when the bird drinks. All the equipment can be raised to the ceiling for the catching of the birds and the cleaning out of the litter.

Each house would require water and electric service. Water would be used for the birds to drink and for cooling the houses. The water consumption of the birds depends on their size and the temperature in the poultry house. The maximum consumption assuming a 100°F daytime

temperature and the birds at full maturity in gallons per day would be as listed in the following table:

Type Farm	Total Farms	Houses Per Farm	Water/House (gpd)	Water/Farm (gpd)	Total Water Use (gpd)
Pullet	10	2	2,000	4,000	40,000
Breeder	24	2	1,900	3,800	91,200
Broiler	100	4	3,800	7,600	760,000

An approximate total 0.9 million gallons per day of water for watering poultry and cooling the houses, could be used during hottest days of the year. However this use would be distributed throughout the 15 counties in Kentucky and Tennessee where the poultry houses would be built.

The electric energy in kilowatt-hours per month (kwh/mo) required by each house would be as listed in the following table:

Type Farm	Total Farms	Houses Per Farm	Electric/House (kwh/mo)	Electric/Farm (kwh/mo)	Electric/Year (kwh)
Pullet	10	2	1,500	3,000	30,000
Breeder	24	2	2,000	4,000	96,000
Broiler	100	4	2,000	8,000	800,000

An approximate total 930,000 kilowatt hours (kwh) of electricity would be required to operate the poultry houses each year. However, this use would be spread throughout the 15 counties in Kentucky and Tennessee where the poultry houses would be built.

As maintaining the temperature is important to the life of the birds, each house would be equipped with a back up system. The system would be a 125 kilowatt generator that would automatically start in case of a power failure. The generator would ensure that all equipment necessary to keep the birds healthy, fed, and watered would remain operational.

Approximately two inches of litter, either pines shavings or rice hulls, depending upon what is available in the area, would be used on the floor. In the three types of houses, used litter, containing litter and poultry manure, would be in a dry form. The used litter has a high nitrogen content. Litter would be removed once a year by special machinery. The machine would be capable of scooping up the litter and also applying the used litter as fertilizer directly in the field. The drinking and feeding equipment would be raised to the ceiling of the house. The collection machinery would enter through the large doors at the end of the house and clean out the used litter. The used litter would be either used as fertilizer on the poultry farm, sold, or given away to local farmers. There is usually a good local market for this high nitrogen type of fertilizer. The litter would be handled in compliance with Kentucky's or Tennessee's laws and regulations as appropriate.

Disposal of dead birds would be done in compliance with Kentucky or Tennessee laws and regulations depending on the location of the poultry farm. Current law in both states allows for the burial, incineration, and/or composting of dead birds on site. In the case of a catastrophic event where a large number of birds were to die, the dead birds would be either composted, incinerated, or sent to the rendering facility for disposal in compliance with Kentucky's or Tennessee's laws and regulations, as appropriate. Cagle's farm production assistants would help the farmers to properly dispose of the birds, as they have at other Cagle's operations.

As there have been no sites chosen for the poultry houses the effects of the construction and operations of these farms cannot be evaluated in some areas. No information is available as to the geology, topography, soils, floodplains, wetlands, other protected natural resources, cultural resources, or land use of the prospective sites. Therefore these subjects cannot be discussed in detail in this subsection.

3.8.1 TOPOGRAPHY/SOILS

— Affected Environment

The poultry houses in Kentucky and Tennessee are likely to be located on karst topography (Crawford, 1997, and TDEC, 1997). Karst areas are typically underlain by limestone formations and characterized by shallow soils with low surface drainage.

— Environmental Consequences

- Construction Impacts

The exact locations of the poultry houses are not known at this time. Therefore, site-specific impacts such as those to soil types cannot be evaluated. During construction of the poultry houses, best management practices to control erosion would be implemented. No significant impacts on topography and soils are expected during construction, since only grading of the sites would be required. There could be some loss of prime and state important farmland when the poultry houses are sited.

- Operation Impacts

While site-specific information on the soils that would be on the poultry farms is absent, some general impact can be discussed. Poultry litter is an adequate substitute for chemical fertilizers to apply on croplands. Poultry litter contains nutrients such as nitrogen, phosphorous, and potassium, that are beneficial to crops. The litter also contains fecal coliform, which can be controlled by using proper litter application rates. Proper siting of application areas and proper timing and rate of application can prevent contamination. However, improper management of litter application may lead to soil, surface and groundwater contamination. Improper siting and timing of litter application would cause runoff rich in nutrients and fecal coliform to enter surface waters (Pescatore, 1997b).

The following information was obtained from the University of Kentucky.

The broiler litter from Kentucky typically has a nutrient content of nitrogen at 48 pounds per ton, phosphorous at 41 pounds per ton, and potassium at 42 pounds per ton. The typical broiler house produces between 150 to 160 tons of litter in a year. From experiences with the use of broiler litter on croplands in Kentucky, the appropriate application rate is approximately 4 tons of litter per acre of cropland. Therefore, about 30 to 40 acres of cropland would adequately handle the litter from one broiler house, or about 120 to 160 acres for each broiler farm. There is ample cropland in the area to fully and safely utilize the litter from the potential broiler houses (Pescatore, 1997).

A proper nutrient management plan for litter application should include nutrient analysis of soils and litter to determine crop needs, an evaluation of field limitations such as sinkholes, land near surface water, highly erodible soils, etc., application plan based on limiting nutrient, proper timing of application, and proper application rate.

If the land at the broiler farm is not adequate for litter application because of its size, soils, or topography, broiler litter may be sold or given to local farmers for use as fertilizer. Broiler litter contains about 80% of the nutrient requirements for corn crops (Pescatore, 1997a). Based on current cost estimates, if the grower is paid a per ton price of $5 to $10 and the litter has a value of $22 to $28 as fertilizer, the buyer can afford to transport the litter 100 miles for land application. This means that farmers within 100 miles of the broiler farms would provide an attractive market for litter (PWQC, 1994).

— Mitigation Measures

Assistance on nutrient management plans for litter application is available from the local USDA Natural Resources Conservation Service or Cooperative Extension Service.

3.8.2 GROUNDWATER

— Affected Environment

Since the exact locations of the poultry houses are not known at this time, no site-specific description of the environment is available. Because of the karst topography in the area, the counties of Logan, Simpson, Warren, and Barren, have been assessed as highly vulnerable to groundwater contamination by the State of Kentucky (KNREPC, 1996). These counties are possible locations for poultry houses.

Of the poultry houses likely to be located in northern central Tennessee, most would be broiler houses. The broiler houses would span the counties of Clay, Jackson, Macon, Robertson, Sumner, and Trousdale. These counties are located in areas with karst topography (see box on page 79), and are considered vulnerable to groundwater contamination (TDEC, 1997).

— Environmental Consequences

- Construction Impacts

The potential impact from the construction of the poultry houses on groundwater include:

- Decreased water quality from erosion and runoff; and
- Surface and groundwater contamination from construction waste.

In Kentucky, during construction of the poultry houses, best management practices to control erosion and sedimentation would be implemented. All construction waste would be removed and properly disposed of according to Kentucky regulations. Therefore, no significantly adverse impacts on surface and groundwater would occur.

- Operation Impacts

The potential impact from the construction of the poultry houses on groundwater include:

- Groundwater contamination from poultry waste disposal.

With the rapid growth of the poultry industry, environmental awareness has shifted beyond poultry processing plants to the grower. Concentrated operations in modern poultry farming practices has created an immense amount of waste, including manure, litter, and dead birds. Improper disposal of poultry waste can have adverse impacts on water quality by creating potential water pollutants that include nutrients and salts, organic materials, bacteria, and viruses (PWQC, 1994).

There were concerns raised about metals, specifically arsenic, cadmium, molybdenum, copper, zinc, and phosphorus, being deposited in the litter. Arsenic is no longer used in feed and therefore is no longer in the litter. Data shows that the metals are at levels not of concern (Collins, 1997).

In Kentucky, the best management practices for waste utilization consists of nutrient assessment of the land by soil sampling, analysis of poultry wastes to determine the total amount of nutrients, and the proper timing of waste application to prevent groundwater contamination. The best management practices for dead animal disposal requires that all carcasses be disposed of within 48 hours after the carcass is found. Some disposal methods include burial, incineration, landfilling, rendering, composting, or any other scientifically proven method approved by the Kentucky Board of Agriculture.

With the proper implementation of the best management practices, the operation of the poultry houses would not have significantly adverse impacts on groundwater in the region.

In Tennessee, non-point source pollution such as poultry waste disposal is not regulated by the

State. Currently, best management practices for poultry waste disposal in Tennessee include land application of dry litter and composting of dead poultry (Burns, 1997). These two practices are exempt from State permits. However, technical support is available from the University of Tennessee Agricultural Extension Service, USDA Natural Resources Conservation Service, Farm Service Agency, and Tennessee Department of Agriculture. For the past three years, these agencies have promoted the construction of approximately 150 new poultry composting facilities in Tennessee (Poling, 1997). The effective implementation of these best management practices would prevent significant contamination of groundwater from poultry waste disposal.

However, significant groundwater contamination may occur if best management practices are not followed during operation of the poultry houses.

— Mitigation Measures

Even though no significant impacts on surface and groundwater are expected from the operation of the poultry houses if best management practices are implemented, monitoring of surface and groundwater quality may help assess the effectiveness of these practices. The Commonwealth of Kentucky is in the process of implementing the Kentucky Agriculture Water Quality Plan, which would require all agriculture operations to establish individual plans to comply with the statewide plan (KAWQ, 1996). The statewide plan has been approved by the Division of Water and must be implemented by October 2001. Before the implementation deadline, the state is recommending that new agriculture producers develop an agriculture water quality plan prior to start of operation.

The statewide plan serves to integrate the regulatory requirements under state groundwater regulations, state water quality standards, the Clean Water Act, the ACOE Section 404 permits, etc. Therefore, agriculture producers would be effectively informed of all regulatory requirements and the consequences of noncompliance. The Statewide Plan would provide technical and financial assistance to help agriculture producers implement best management practices to protect the state's surface and groundwater.

The Kentucky Statewide Plan would require monitoring of available statewide data to identify and designate water protection priority regions, where intensive monitoring programs would be conducted to investigate groundwater pollution. Agriculture operations in the priority areas would receive technical and financial assistance from the state, if available, to modify their plans to comply with the regional water quality plan. Therefore, any potential long-term impacts from the operation of the poultry houses would be mitigated by the effective implementation of the Statewide Plan.

In addition, the Natural Resource Conservation Service has developed and is implementing a new program, the Environmental Quality Initiative, which is available to provide technical and financial assistance through cost-sharing for implementing best management practices to poultry farmers. Poultry farms would be eligible to apply for this assistance program through local Natural Resource Conservation Service offices.

In Tennessee, the poultry farmer would be encouraged to implement best management practices to dispose of poultry waste. If the private wells on the farm were used as a drinking water source, proper well siting and construction are recommended to protect the water supply from contamination. No additional mitigation is proposed.

The Tennessee and Kentucky region is experiencing a dramatic increase in poultry operations in their states. Coordinated education, technical assistance, and cost-sharing programs are available through state and federal government agencies and land-grant universities and will be furthered in the future to help minimize any potential adverse impacts from these operations.

3.8.3 AIR QUALITY

— Affected Environment

The area where the poultry houses would be located is rural, primarily open farmland. There is vehicular traffic traveling along the corridors as previously mentioned.

The counties within Kentucky and Tennessee in which the poultry houses would be located are all within attainment for each of the six NAAQS criteria pollutants. The Mammoth Cave National Park is a Class 1 area and is located in Edmonson County, Kentucky, approximately 35 miles north-east of the feed mill and hatchery site.

— Environmental Consequences

- Construction Impacts

The potential impacts from the construction of the poultry houses on the air environment include:

- Create fugitive dust from construction activities; and
- Generate emissions from construction equipment.

Emissions would be generated during construction activities from equipment, machinery, and workers engaged in grading the sites, erecting the houses, and installing utility services. The impacts would be short-term, low-level intermittent and transient emissions characteristic of construction activities. Dust would be controlled by common construction practices, such as water spraying. The use of vehicles and the movement of materials would only be conducted as necessary.

- Operation Impacts

The potential impacts from the operation of the poultry houses on the air quality include:

- Create odor problems;
- Create fugitive dust problems; and
- Create emissions due to truck traffic that would violate air quality standards.

The houses and the activities that would occur in the houses are enclosed to keep them dry. Odor would not be a problem as the litter would be dry. Odor is not expected to be any more annoying than a slight ammonia scent since the poultry house litter is dry, and the odor would not be strong, will be of short duration, and is expected to dissipate before reaching any neighbors (Rock, 1997). Cagle's requires the farmer to have enough land to site their poultry houses away from their neighbors (Cagle, 1997). Dust is only a problem when workers are catching the birds. During this activity, dust generation will be minimal and workers will wear dust masks. According to the Mitchell County Commissioner's Office, odor and fugitive dust from existing Cagle's poultry houses in Georgia are neither a major problem nor annoying to the neighboring residents (Mitchell County, 1997b). Truck traffic would increase by approximately 2% in the area (see Section 3.12). This would not degrade the regional air quality.

The following information was received from Dr. Pescatore of the University of Kentucky, College of Agriculture.

Poultry houses do have dust and airborne particle matter. The dust in poultry houses originates from three sources: the bird, the feed and the litter, or fecal material. The bird contributes dust or particular matter in the form of down and dandruff (sloughing of epidermal cells). The dust from the feed is self-explanatory, the dust from the litter is the result of having low moisture content, and the dry waste can be dusty. There are periods of time when dust levels increase. These are associated with feeding and increase bird movement. The internal environment of the poultry house can have detrimental effects on poultry growers' health, which can be increased by other respiratory trauma such as smoking and chronic respiratory infections or allergies. The best way to prevent this problem is the use of a respirator by the grower. Outside the poultry house, dust is usually not a problem due to the level in the air discharged and the dilution effect with the atmosphere. To ensure that there are no problems with adjoining properties and neighbors the poultry house needs to be properly sited with regards to prevailing winds and fan location. The use of reasonable setbacks from property lines will also prevent problems. Minimum setbacks for poultry houses should be approximately 100 feed from a property line and 300 feet from a school, church, or other public area.

There is no problem with dust with regard to transportation of birds from the farm to the processing plant. The amount of dust or feathers will be negligible and should not present a problem. Dust can be generated by the transportation and application of litter material and care needs to be taken with these materials. The same guidelines that apply to transporting any type of dusty or light material needs to be followed. The transporter needs to prevent blow out

through the use of tarps or retaining boards. The control of nuisance dust during land application of poultry litter must be done. Protection measures include accounting for wind drift as well as being aware of the surrounding areas and residences. The same principles that apply for the application of farm chemicals to land and crops will easily prevent nuisance dust from the land application of poultry litter (Pescatore, 1997).

— Mitigation Measures

The construction and operation of poultry houses would probably not cause significant air impacts. Therefore, no mitigative measures are proposed.

3.8.4 PEST MANAGEMENT

Concerns were raised about flies being attracted to the area because of the poultry houses. The following information was received from Dr. Pescatore at the University of Kentucky College of Agriculture.

There are many species of manure-breeding flies that can exist in rural areas. Poultry operations can develop fly problems due to poor sanitation and management. Flies have four stages of development, egg, larva or maggot, pupa, and adult. Environmental conditions must be right for all four stages of development for a fly problem to develop. Flies have a short generation interval and can multiply rapidly. Moisture levels of 75 to 80 percent are ideal for fly development. Female flies will not lay eggs in manure with less than 70 percent moisture and development of larvae is poor in manure with less than 65 percent moisture.

Flies are less of a problem on broiler farms because of the dry manure than on other types of agricultural operations. If there is a fly problem on a broiler farm, it can usually be traced to poor sanitation or management. Improper storage of manure once it is taken out of the poultry house, letting the manure get wet or spilling manure on the area outside of the house are the most common problems. All are easily solved with proper management.

The pullet houses are similar to broiler houses and the same principles apply.

The breeder houses are different from broiler houses in that in the breeder house, 2/3 of the floor area is slatted floors and 1/3 is litter. The female feeders and the water lines are over the slatted area and the male feeders are over the litter area. The majority of manure produced by the birds is in the slatted area. Fresh poultry manure is approximately 75% moisture, air circulation can dry the manure to moisture levels that are unsuitable for fly reproduction. Moisture control of the manure is crucial for fly control in breeder houses because the breeder flock is there for almost a year. Once a problem starts, it takes a major effort to bring it under control. The breeder birds do not have access to the potential fly breeding area under the slates. Therefore, the biological control of the birds eating the larvae is not possible in the breeder house. Proper management of the drinker system in the breeder house is essential for moisture control of the manure and ultimately fly control. If a fly problem develops there are control programs available. One control program is the use of Larvadex (cyromazine) in the feed or as

a direct application onto the manure. In either case, this product acts as a larvicide. Other pesticides can also be effective controls for flies by killing the adults. These are solutions for problem farms, there is no substitution for proper management. Proper storage of manure once removed from the house is important on the breeder farm (Pescatore, 1997).

If there would be a problem, Cagle's production assistants would help the farmer eliminate the problem.

3.8.5 NOISE

— Environmental Consequences

- Construction Impacts

The potential impacts from the construction of the poultry houses on the noise environment is:

- Generate noise from construction activities.

Noise would be generated during construction activities from equipment, vehicular, and generator use. The noise might be an annoyance to nearby residences because it would most likely occur in a rural area. The noise levels should stay within an 80-90 dB range at the site and attenuate at 50 dB (noise level of average home) at a distance of 32 ft (HUD, 1985).

- Operation Impacts

The potential impact from operation activities of the poultry houses on the noise environment is:

- Generate noise from operation activities

Each poultry house would be served by nine of the most commonly used ventilation fans, which have a noise level of 70-75 dB per fan (WW Grainer, 1997). Based on the methodology in Planning in the Noise Environment, (DOD, 1978), and Protection Noise Levels, (EPA, 1978), the combined noise level of the nine fans was calculated to be 85 dB at a 1 ft distance from the fans. At this decibel level, the noise could be detrimental to the farmers.

Noise decreases over distance. For a point source of noise, the sound level decreases by 6 dB for every doubling of distance away from source (DOD, 1978). The combined fan noise would be 85 dB at 1 ft from the fans. Therefore, at 2 ft from the fans, the decibel level would drop 6 dB to 79 dB. At 4 ft (doubling of 2 ft), the decibel level would drop another 6 dB to 73 dB. At 16 ft from the fans, the dB level would be 61 dB, which is below the day/night annoyance level of 65 dB (HUD, 1985). At 64 ft from the fans, the decibel level would be 49 dB, which is the decibel level of an average home, 50 dB (HUD, 1985). Therefore, operation of the poultry house fans would not cause significant noise impacts to the surrounding residences.

— Mitigation Measures

The construction and operation of the poultry houses would not cause significant noise levels, and no mitigation is proposed.

3.8.6 SITE LAND USE

Agriculture is the predominant land use throughout the area where the poultry houses would be located. There are approximately 17,600 farms in the area where the poultry farms would be located (BOC, 1996). The average farm size is approximately 140 acres over the entire area in both states. In most cases, the poultry houses will likely be set up on pre-existing farms, perhaps involving the conversion of up to an approximate 6.6 acres of land to sites for the poultry houses, with the remainder of the farm maintaining its current crop use. Cagle's requires that a grower have enough land:

- to build their houses far enough away from their neighbors so as not be an annoyance;
- to spread litter and get trucks in and out; and
- provide a litter management plan.

In some of these cases, establishment of poultry houses for family-owned farms, which predominate in the area, may provide sufficient new income to help them remain in the farming business.

In some cases, poultry houses may be set up on land that is not currently in agricultural use, perhaps by individuals and families not currently engaged in agriculture. To the extent this may occur, the total number of family farms in the region would increase.

Therefore, the action could result in an increase in the number of family farms, or at least result in a relative stabilization of the number.

3.9 PROPOSED TRANSMISSION LINE AND SUBSTATION

The poultry processing facility would require access to electricity. East Kentucky Power Cooperative, Inc. (EKPC), proposes to construct a 69/12.5 kilovolt (kV) distribution substation and associated 69 kV transmission tap line to supply the necessary power. The substation, which would occupy approximately 1.5 acres, would be located approximately six miles north of Albany in Clinton County, Kentucky adjacent to the Cagle's poultry processing facility property (see Figure 17).

The power supply would provide the necessary additional capacity to serve the Cagle's poultry processing facility along with existing and projected load growth in Clinton County. The projected new growth includes the future power requirements of the Clinton County Industrial

Figure 17 Proposed Electric Transmission Line Corridor and Substation

Park. The new substation would also reduce distribution circuit loading and thus, improve voltage levels and lower distribution feeder losses throughout the affected service area.

The associated transmission line that would serve as the tap for the power source would be approximately 2.7 miles in length. The line would tap into the existing EKPC, Albany-Summer Shade 69 kV line. The line would be contained in a 100 ft wide transmission corridor. The transmission line would be supported by a double pole structure with the poles being 10 ft apart. The holes for the poles would be dug by an auger. The poles would be 65 ft long, 1 ft in diameter, and buried to a depth of 10 ft, making the above-ground height 55 ft. There would be approximately 10 pairs of poles per mile. The line would span wetlands.

The construction and placement of the transmission line and substation would not affect floodplains, wetlands, or other protected natural resources. Therefore these subjects will not be discussed further in this subsection.

A Phase I archaeological survey of the substation site was conducted in February 1997. No prehistoric or historic sites were discovered, and no additional archaeological work was recommended (Stallings and Ross-Stallings, 1997). This subject will not be discussed further in this subsection in relation to the substation site. No Phase I archaeological survey was conducted along the transmission corridor.

3.9.1 GEOLOGY/TOPOGRAPHY/SOILS

— Affected Environment

Geology
The site is located on Mississipian aged St. Louis Limestone, which contains cherts (Ross-Stallings, 1997).

Topography
The substation site is located 4000 ft west of Harper Mountain (EKPC, 1997). The site is bordered on the south by the US 90 right-of-way and on the east and west by maintained short grass pastures (Ross-Stallings, 1997).

Soils
The primary soil contained in the area of the substation is Dewey loam at a 6 to 15% slope, eroded (Ross-Stallings, 1997). The shallow soiled, gently sloping terrain has suitable drainage for a substation (EKPC, 1997).

— Environmental Consequences

– Construction Impacts

The potential impacts of the construction of the substation and transmission line on geology,

topography, and soils include:

- Soil erosion from clearing and grading site;
- Soil erosion from drilling for transmission line;
- Fracture of bedrock from blasting;
- Soil contamination from hazardous materials, or hazardous waste; and
- Loss of prime farmland.

The construction of the substation and transmission line is not anticipated to require blasting and therefore there is no risk of fracturing bedrock. Standard erosion control measures would be taken in accordance with the Kentucky Best Management Practices for Construction Activities in order to minimize the risk of soil erosion during construction.

The substation site and transmission line corridor do not contain any prime farmland soils and would therefore erase the potential impact to prime farmland.

– Operation Impacts

The potential for soil contamination during operation and maintenance of the substation would be minimized by the use of only Environmental Protection Agency approved herbicides. The approved herbicides would be utilized by trained licensed operators.

— Mitigation Measures

The construction and operation of the transmission line would not cause significant impacts to geology, topography, or soils. Standard erosion control as set forth in the Kentucky Best Management Practices for Construction Activities must be implemented, but no other mitigation measures were proposed.

3.9.2 SURFACE AND GROUNDWATER/WATER QUALITY

— Affected Environment

The substation would occupy about 1.5 acres adjacent to the poultry processing facility. The area drains toward a wetland approximately 3,000 ft south of the site. One stream is on the route of the transmission line.

— Environmental Consequences

– Construction Impacts

The potential impacts from the construction of the substation and transmission line include:

- Decreased surface water quality from erosion and runoff; and

- Decreased surface and groundwater quality from construction waste.

Best management practices to control erosion and sedimentation would be implemented during construction to minimize any impacts on surface and groundwater. Construction of the transmission line would span the stream in its path. No disturbance to the stream would occur. Any construction waste would be removed and properly disposed of in accordance with Kentucky regulations.

- Operation Impacts

The potential impact from the operation of the substation and transmission line include:

- Surface and groundwater contamination from maintenance activities.

The operation of the substation and transmission line would not have any significant impacts on water resources in the area. Application of Environmental Protection Agency approved herbicides would be conducted by trained licensed operators. In accordance with Environmental Protection Agency regulations, herbicide application would not be performed in the vicinity of the streams or other surface water bodies.

— Mitigation Measures

Best management practices to control erosion, sedimentation, and surface and groundwater contamination would be implemented during the construction and operation of the substation and transmission line. No additional mitigation were proposed.

3.9.3 AIR QUALITY

— AFFECTED ENVIRONMENT

The action areas would be located in an open-air environment where there is no air pollution concern. Clinton County is part of Kentucky's South Central Region, an Air Quality Control Region that is designated as in attainment for each of the NAAQS six criteria pollutants.

— Environmental Consequences

- Construction Impacts

The potential impacts from the construction of the project on the air quality include:

- Generate fugitive dust from construction activities and blasting; and
- Generate emissions from construction equipment.

Air quality impacts of the construction would be characteristic short-term, low-level intermittent and transient emissions of NOx, PM_{10}, and CO routinely resulting from construction activities. These emissions do not constitute any degradation of ambient air quality. Kentucky does not have regulations on air emissions from construction equipment (Goebel, 1997). In addition, dust created by excavation activities would be controlled by conventional methods. Vehicles would be properly maintained and unessential operation would be minimized to decrease exhaust emissions.

- Operation Impacts

There would not be air impacts associated with operation of the transmission line.

— Mitigation Measures

The construction and operation of the transmission line would not cause significant air impacts and no mitigation is proposed.

3.9.4 BIOLOGICAL RESOURCES/THREATENED AND ENDANGERED SPECIES

— Affected Environment

Based on a review of the Natural Heritage Program Database of the Kentucky State Nature Preserves Commission (KSNPC, 1997), no occurrence of endangered, threatened, special concern plants, animals, and sensitive natural communities has been reported within or near the site for the substation and transmission tap line.

— Environmental Consequences

- Construction Impacts

The potential impact from the construction and operation of the substation and transmission line is:

- Harm to protected species and their habitats or sensitive natural communities from clearing site and from potential contamination to soils and surface and groundwater.

No impact on any protected species or sensitive natural communities would result from the construction of the substation and transmission tap line. The US Fish and Wildlife Service concurs with this conclusion (Barclay, 1997b). Approximately 1.3 miles of the transmission line route would require clearing to establish a 100-ft corridor.

- Operation Impacts

No impact on any protected species or sensitive natural communities would result from the operation of the substation and transmission tap line. The US Fish and Wildlife Service concurs with this conclusion (Barclay, 1997b). Maintenance of the transmission line corridor would require application of herbicides approved by the Environmental Protection Agency.

— Mitigation Measures

Best management practices to control erosion and sedimentation would prevent any significant impact on biological resources. No additional mitigation is proposed.

3.9.5 AESTHETICS AND NOISE

— Affected Environment

Aesthetics
The transmission line and substation area are currently pasture land and road rights-of way.

Noise
The project area's noise level is currently impacted by vehicular traffic.

- Construction Impacts

The potential impacts from the construction of the transmission substation and associated lines on the aesthetics and noise environment include:

- Generate noise from construction activities and disturb people and wildlife; and
- Create aesthetic problems during construction.

Noise would be generated during construction activities from equipment, vehicular, and generator use. The noise might be an annoyance to nearby residences because it would be such a rural area, but the noise levels should stay within an 80-90 decibel range and attenuate, resulting in noise being at conversational levels at the residences which would not be annoying. Wildlife in the area would be affected by noise generated during construction activities primarily at the pasture land. Workers would wear hearing protection that meets or exceeds OSHA requirements during construction activities when noise levels exceed 85 dB.

Construction activities would temporarily affect the aesthetics of the area. Construction equipment, ancillary items, materials, staging areas, vehicles, and workers would temporarily congest at the area. It is assumed that the staging areas would be recontoured and/or revegetated, and that all equipment and material stockpiles would be used and/or removed from the staging areas after construction is finished.

- Operation Impacts

The potential impacts from the operation of the transmission line and substation on the aesthetics and noise environment include:

- Create aesthetic problems for nearby residents; and
- Generate noise during operation activities.

The role of the substation site would change. It would no longer be pasture land, but would be associated with that of industrial use. The substation would be adjacent and west of the poultry processing facility and visible from Rt. 90.

Operation of the transmission substation and associated lines would generate minimal noise during operation. Noise, such as voltage noises, would be attenuated and only workers near the substation would be affected. The noise levels would be below conversational levels.

— Mitigation Measures

The construction and operation of the transmission substation and associated lines would not cause significant noise impacts and no mitigation is proposed. The substation would change the scenery of the site, but the substation would be located adjacent to the processing facility site and be small in comparison.

3.9.6 CULTURAL RESOURCES

The route of the transmission line would extend across property owned by private individuals. From the transmission tap, the line would travel approximately 1.5 miles north-northeast and then 1.2 miles north to the substation. The poles would be augered in to a depth of 10 ft there would be 10 pairs of 1 ft diameter poles per mile. There would be little soil disturbance. In the unlikely event that an artifact should be discovered, EKPC would stop work in that area and notify the State Historic Preservation Officer.

3.9.7 SITE LAND USE

The sites for the substation and transmission line corridor are currently being used for cattle pasture land and farmland. With the addition of a substation, the site would no longer be used for pasture land, but would house a 1.5 acre structure to supply the necessary additional power for the poultry processing plant and the future Clinton County Industrial Park. The 1.5 mile length and 100 ft width of the transmission line corridor would not prohibit that particular area from being utilized as pasture or farm land.

3.10 NATURAL GAS PIPELINE

The Cagle's poultry processing facility would use natural gas to heat water and to heat the plant. The natural gas would be supplied by GASCO Distribution Systems, Inc. The anticipated amount of natural gas that the Cagle's poultry processing facility would be expected to use is approximately 100 million cubic ft per year, which is about 8.4 million cubic ft per month.

A pipeline to supply the natural gas would be connected to the existing 6-inch pipeline just south of the Tennessee border near the junction of Rt. 42 and Rt. 127. The pipeline would follow the Rt. 127 right-of-way north to the intersection with Rt. 90. The pipeline route would then turn west following Rt. 90 until it reached the Cagle's poultry processing facility site. If the planned Rt. 127 Albany by-pass is to be built, then the pipeline would follow the new by-pass right-of-way around the City of Albany.

The line would be a 6-inch plastic pipe and would have the capacity to supply Cagle's and other users at the Clinton County Industrial Park. The line would be buried by using a ditch witch to trench the right-of-way. Trenching would be to a depth of 4 ft to allow the pipeline to be embedded in a foot of sand and to maintain a minimum of 3 ft of cover. Blasting would not be necessary as the ditch witch would be able to cut through any rock in the right-of-way.
The natural gas would travel under 80 pounds of pressure, which is permitted to reach 100 pounds under Kentucky State Public Service Regulations. At the Cagle's poultry processing facility site, a regulator station would be installed against the poultry processing facility wall. The station would be 2 ft wide and 8 ft long.

The construction and placement of the natural gas pipeline would not affect surface water, groundwater, floodplains, wetlands, or other protected natural resources. Therefore these subjects will not be discussed further in this subsection.

3.10.1 GEOLOGY/TOPOGRAPHY/SOILS

— Affected Environment

Geology/Topography/Soils

The natural gas pipeline would follow Rt. 127. The site would consist of previously disturbed land on a public road right-of-way.

— Environmental Consequences

– Construction Impacts

A ditch witch would be used to dig the trench for the pipeline and blasting would not be necessary. Therefore, the risk of fracturing bedrock would be non-existent.

During excavation of the trench for the pipeline, erosion mitigation measures would be followed the Kentucky Best Management Practices for Construction Activities. Therefore, the potential for soil erosion during construction would be minimized.

- Operation Impacts

The operation of the natural gas pipeline would not have any significantly adverse impacts to the geology, topography, and soils of the site.

— Mitigation Measures

The construction and operation of the natural gas pipeline would not cause significant impacts to topography, geology, and soils. Standard erosion control as set forth in the Kentucky Best Management Practices for Construction Activities will be implemented, but no other mitigation measures are proposed.

3.10.2 AIR QUALITY

The action areas would be located in open-space where there is no air pollution concern. The pipeline would run along already disturbed rights-of-way. Clinton County is part of Kentucky's South Central Air Quality Control Region that is designated as in attainment for each of the NAAQS six criteria pollutants.

— Environmental Consequences

- Construction Impacts

The potential impacts from the construction of the project on the air quality include:

- Generate fugitive dust from construction activities; and
- Generate emissions from construction equipment.

Air quality impacts of the construction would be short duration, low-level intermittent and transient emissions of NOx, PM_{10}, and CO routinely resulting from construction activities and would not constitute any degradation of ambient air quality. In addition, dust created by excavation activities would be controlled by conventional construction methods. Vehicles would be properly maintained and unnecessary operation would be minimized to decrease exhaust emissions.

- Operation Impacts

There would not be air impacts associated with operation of the gas pipeline.

— Mitigation Measures

The construction and operation of the gas pipeline would not cause significant air impacts and no mitigation is proposed.

3.10.3 BIOLOGICAL RESOURCES/THREATENED AND ENDANGERED SPECIES

— Affected Environment

The natural gas pipeline would be constructed along public road rights-of-way. Based on a review of the Natural Heritage Program Database of the Kentucky State Nature Preserves Commission (KSNPC, 1997), no occurrence of endangered, threatened, special concern plants, animals, and natural communities has been reported within or near the route for the gas pipeline.

— Environment Consequences

The potential impact from the construction and operation of the natural gas pipeline is:

- Harm to protected species and their habitats or sensitive natural communities from clearing site and from potential contamination to soils, surface and groundwater.

No impact on any protected species or sensitive natural communities would result from the construction and operation of the natural gas pipeline.

— Mitigation Measures

Since no impact on any biological resources is expected, no mitigation is proposed.

3.10.4 AESTHETICS AND NOISE

— Affected Environment

Aesthetics
The gas pipeline run along side pasture land on a public road right-of way.

Noise
The project area's noise level is currently impacted by vehicular traffic.

- Construction Impacts

The potential impacts from the construction of the gas pipeline on the aesthetics and noise

environment include:

- Generate noise from construction activities and disturb people and wildlife; and
- Create aesthetic problems during construction.

Noise would be generated during construction activities from equipment and vehicular use. The noise might be an annoyance to nearby residences because it is such a rural area, but the noise levels should stay within an 80-90 decibel range at the site and attenuate, resulting in noise being at conversational levels at the residences around the pipeline installation area. This noise level would not be annoying. Wildlife in the area would be affected by noise generated during construction activities. Workers would wear hearing protection that meets or exceeds OSHA requirements during construction activities when noise levels exceed 85 dB.

Construction activities would temporarily affect the aesthetics of the area. Construction equipment, materials, staging areas, vehicles, and workers would be present. It is assumed that the staging areas would be recontoured and/or revegetated, and that all equipment and material stockpiles would be used and/or removed from the site after construction is finished. The pipeline would be buried and recontoured to a natural state.

- Operation Impacts

There would be no impacts to the aesthetics or noise levels within the project location due to operation activities.

— Mitigation Measures

The construction and operation of the gas pipeline would not cause significant noise impacts and temporary aesthetic impacts and no mitigation is proposed

3.10.5 CULTURAL RESOURCES

The alternative routes of the natural gas pipeline are in existing rights-of-way that have been previously disturbed when the roads were constructed. It is unlikely that there would be any cultural resources present in the rights-of-way. In the unlikely event that an artifact should be discovered GASCO, would stop work in that area and notify the State Historic Preservation Officer (GASCO, 1997).

3.10.6 SITE LAND USE

The site for the natural gas pipeline would be along public road rights-of-way and would therefore would be in areas that have been previously disturbed. Therefore, the use of the land would not change should the natural gas pipeline be constructed.

3.11 CLINTON COUNTY INDUSTRIAL PARK SITE

The Clinton County Industrial Park Site would be built on land that has been purchased by the EZ and turned over to the Clinton County Industrial Authority. The site is located south of Rt. 90 and west of Rt. 2063, Upchurch Road (see Figure 18). The site, approximately 50 acres in size, is vacant agricultural land. There are rolling hills on the northern and southern parts of the site. The central portion of the site is flat land. Along the eastern boundary is a wooded creek. The site was formerly used for pasture land and crops. The site is surrounded by other agricultural land and some residential property. The site presently contains a barn, out buildings, and a house.

No potential tenants for the Clinton County Industrial Park have been identified. No plans for the development of this site have been as yet. No access roads or entrances have been designed.

The industrial park would be supplied with water from the City of Albany's potable water treatment plant expansion. However, no water main routes to provide this water supply have been proposed.

Electricity would be supplied by the Kentucky Power Cooperative's 69/12.5 kV distribution substation and associated 69 kV transmission tap line to be located by the Cagle's poultry processing facility. However, no transmission routes to provide this power supply have been proposed.

A Phase I Cultural Resource Survey was performed for this site and no cultural materials were found (Schock, 1997).

3.11.1 GEOLOGY/TOPOGRAPHY/SOILS

— Affected Environment

Geology

The site for the Clinton County Industrial Park is underlain by Mississipian Monteagle or St. Louis Limestone deposits (Lewis and Thaden, 1965). The site is primarily a karst geologic formation.

Topography

The Clinton County Industrial Park site is at an elevation of approximately 980 ft to 1,040 ft above mean sea level (Schock, 1997). The site is primarily rough to hilly on the Northern and Southern portions and flat in the central portion (MSE, 1997). The site contains one sinkhole and numerous springs throughout.

Soils

The site consists of Mountview silt loam, Newark silt loam, Dewey silt loam, and Melvin silt loam (SCS, 1994). Of these soils, Mountview silt loam and Newark silt loam are considered

Figure 18 Proposed Clinton County Industrial Park

prime farmland and spans approximately 22 of the 50 acre site. The Dewey silt loam, 6 to 15% slope, and the Melvin silt loam are considered to be of state-wide importance (NRCS, 1997).

— Environmental Consequences

– Construction Impacts

Based on the environmental evaluation diagram, the potential impacts from the construction of the Clinton County Industrial Park on geology, topography, and soils include:

- Loss of prime farmland;
- Soil erosion from clearing and grading site;
- Fracture of bedrock from blasting; and
- Soil contamination from hazardous materials, or hazardous waste.

The USDA Natural Resources Conservation Service completed a Farmland Conversion Impact Rating for the facility site, which would convert the prime farmland to industrial use. The Clinton County Industrial Park property was evaluated under the same system that is used for the evaluation of the effects of a federal action on protected farmland. If the total score from the evaluation of the site is less than 160, no further consideration is needed and no alternative sites need to be identified. The Clinton County Industrial Park site received a score of 154, and thus no further action is required.

During the construction of the Clinton County Industrial Park, blasting is not anticipated and therefore eliminates the potential risk of fracturing bedrock.

Best management practices to control erosion and sedimentation, e.g., silt fencing, would be implemented during construction. The construction activities would comply with the Kentucky Best Management Practices for Construction Activities and include mitigation measures as specified in the construction permit.

— Mitigation Measures

The construction of the Clinton County Industrial Park would not cause significant impacts to the topography, geology and soils. Standard erosion controls as set forth in the Kentucky Best Management Practices for Construction Activities must be implemented, but no other mitigation measures are proposed.

3.11.2 SURFACE AND GROUNDWATER/WATER QUALITY

— Affected Environment

A wooded creek is located on the eastern boundary of the Clinton County Industrial Park site. Several springs are present along the eastern and southeastern boundary of the site, with one on the western edge (MSE, 1997). No water quality data are available for the site.

— Environmental Consequences

- Construction Impacts

The potential impacts from the construction of the industrial park on surface and groundwater include:

- Decreased surface and groundwater quality from erosion and runoff; and
- Surface and groundwater contamination from construction waste.

Any future construction at the Clinton County Industrial Park would require a groundwater protection plan to be approved by the Division of Water. Kentucky procedures require that no activity be conducted within a 100 ft buffer zone around sinkholes and streams. The area close to the wooded creek is unsuitable for development and would likely be used as a natural screen from the adjacent property.

- Operation Impacts

Since the operations at the Clinton County Industrial Park are unknown at this time, no specific evaluation can be made. However, any future operations at the site would comply with the applicable groundwater protection plans as required by the Division of Water.

3.11.3 AIR QUALITY

— Affected Environment

The action areas would be located in an open-air environment where there is no air pollution concern. Clinton County is part of Kentucky's South Central Air Quality Control Region that is designated as in attainment for each of the NAAQS six criteria pollutants.

A Class 1 area, the Daniel Boone National Forest, is located within approximately 35 miles from the Clinton County Industrial Park Site.

— Environmental Consequences

- Construction Impacts

The potential impacts from the construction of the project on the air quality include:

- Create air pollution from burning trash;
- Generate fugitive dust from construction activities; and
- Generate emissions from construction equipment.

Air quality impacts of the construction would be short-term, low-level intermittent and transient emissions of NOx, PM_{10}, and CO routinely resulting from the coming and going of trucks, on-site machinery, and fugitive dust created by clearing, grading, and building activities. Such emissions do not constitute any degradation of ambient air quality. Kentucky does not have regulations on air emissions from construction equipment (Goebel, 1997). In addition, dust created by excavation activities would be controlled by conventional water spraying techniques and the use of gravel. Vehicular exhaust is controlled primarily by emission controls installed by the manufacturer. Vehicles would be properly maintained and unnecessary operation would be minimized to decrease exhaust emissions.

Trees would be disposed of by burning which is common practice for construction projects and is permissible per Kentucky Regulation 401 KAR 63:005 Open Burning. The contractor would abide by this regulation. This action would not impact the Daniel Boone National Forest. The emissions resulting from burning would be temporary, would dissipate prior to reaching the park, and construction activities resulting in temporary emissions are exempt from regulation per the Clean Air Act.

- Operation Impacts

Activities attributed to operation of the Clinton County Industrial Park cannot be made at this time due to the fact that no decisions have been made as to use of the park.

— Mitigation Measures

The construction of the Clinton County Industrial Park would not cause significant air impacts. No mitigation measures are proposed.

3.11.4 BIOLOGICAL RESOURCES/THREATENED AND ENDANGERED SPECIES

— Affected Environment

No occurrence of endangered, threatened, or special concern plants, animals, and natural communities have been reported within or near the Clinton County Industrial Park site

(KSNPC, 1997). Most of the site consists of grassland, with a wooded area on the eastern boundary of the site.

Two federally listed endangered species may occur in the project area: gray bat (*Myotis grisescens*) and Indiana bat (*Myotis sodalis*). Even though no record of these species has been reported in the project area, their habitats may exist in the area (Barclay, 1997a). Based on a habitat survey of the project site by a qualified biologist, a perennial stream is located along the northeastern site boundary. Tree species along this stream include maple, pin oak, sweet gum, and sycamore, with approximately 40 percent canopy cover. Suitable maternity or roosting habitat for the endangered bats is found adjacent to the stream outside the site boundary. Therefore, the riparian forest within the site boundary may be suitable foraging habitat for the bats.

— Environmental Consequences

The potential impact from the construction and operation of the Clinton County Industrial Park is:

- Harm to protected species and their habitats or sensitive natural communities from clearing the site and from potential contamination to soils and surface and groundwater.

The area close to the wooded stream is unsuitable for development and would likely be used as a natural screen from the adjacent property. Therefore, any impact on the potential foraging habitat for the endangered bats would be avoided.

— Mitigation Measures

Forest clearing around the stream on the northeastern boundary of the Clinton County Industrial Park must be avoided to mitigate any impact on the potential foraging habitat for the endangered bats.

3.11.5 SITE LAND USE

Clinton County does not have a zoning code that designates land use within the county. The site for the Clinton County Industrial Park is currently used for cattle pasture and agricultural purposes, specifically tobacco and corn cultivation. The construction and operation of the Clinton County Industrial Park would result in the site no longer being available for either of its previous purposes.

3.12 SOCIOECONOMIC EFFECTS

The development of the Cagle's poultry processing facility would be made possible by the expansion of the City of Albany's potable water treatment plant. This development would pro-

duce a series of economic changes. These changes could affect the community and its well-being. Ultimately, economic development in the area could lead to impacts on the environment.

3.12.1 ECONOMY AND EMPLOYMENT

The potential impacts to the economy and employment were evaluated by considering the number of employees needed, types of jobs needed, length of time employed, accommodations for increased number of employees, and origin of commuting employees. Also, the duration of the those changes and the percentage of change from the original values is considered along with the criteria in Appendix B to determine the significance of the socioeconomic impacts.

— Affected Environment

The directly affected environment for the socioeconomic impacts encompasses 11 counties in Kentucky and 6 in Tennessee where the construction of the projects would occur (see Figure 19). These counties are as follows:

Kentucky: Allen, Barren, Clinton, Edmonson, Hart, Logan, Metcalfe, Monroe, Simpson, Warren, and Wayne.

Tennessee: Clay, Jackson, Macon, Robertson, Sumner, and Trousdale.

The EZ counties, Clinton and Wayne, and Metcalfe, Adair, Cumberland and Monroe Counties within Kentucky and Clay, Fentress, and Pickett counties within Tennessee, were considered for the evaluation of the employment pool for the poultry processing facility and the spin-off industries that would develop within the EZ, as well as included in the study. These jobs would be more permanent than temporary construction jobs. These "employment pool" counties were considered because they are within an approximate 20 miles radius of the poultry processing facility site and there are no natural barriers, i.e. bodies of water, to prevent prospective employees from traveling to the job site (see Figure 20).

The counties most affected by new jobs would most likely be Clinton and Wayne. This is because companies that locate in the EZ, such as Cagle's, will receive tax incentives based on the number of workers they hire from the EZ counties. This incentive is designed to reduce the high rate of unemployment in these counties. In 1996, the unemployment rate in Clinton was 7.3%, or 325 workers out of a total workforce of 4,450 and in Wayne, it was 6.1% or 477 workers out of a total workforce of 7817 (BOC, 1996).

Counties outside the EZ will also be affected economically by the establishment of the feed mill and hatchery, and associated poultry farms near transportation corridors that run through these counties.

Figure 19 Construction Socioeconomic Study Area

Figure 20 Employment Pool Study Area

— Environmental Consequences

The action would lead to creation of construction jobs on the potable water treatment plant and associated facilities, the Cagle's processing facility, the feed mill and hatchery, the poultry houses, the electric transmission line, the gas pipeline, and other industrial and commercial facilities at the Clinton County Industrial Park. Once these facilities are built, the action would lead to operational jobs at the potable water treatment plant, the Cagle's poultry processing facility, the feed mill and hatchery, the poultry houses, and other industrial and commercial facilities located at the Clinton County Industrial Park.

When fully operational, the Cagle's plant would employ approximately 1,200 people, with the feed mill and hatchery requiring 175 workers, and the approximate 134 poultry houses requiring approximately 200 people to operate them. The numbers of workers needed by businesses attracted to locate in the Clinton County Industrial Park cannot be predicted, because no specific firm or even type of firm has yet been identified as a potential occupant of the Industrial Park.

Besides the direct jobs, the Cagle's facility and its ancillary facilities will indirectly generate jobs among local firms providing materials, supplies and services to Cagle's. Additional indirect or spin-off jobs, will be generated in local businesses from stores to service establishments and restaurants, as the Cagle's workforce begins to spend the excess portion of then increased incomes. The approximate numbers of such indirect jobs can be estimated based on the approximate amount of money that will be spent by Cagle's for payroll and other operating expenses. Similarly, the numbers of construction jobs can be estimated from the expected costs of construction of the facilities.

For the action, the job estimates were made with the help of an "input-output" computer model. This model, which is just a series of formulas calculated by a computer, is based on what typically happens in regard to job creation when major new facilities locate in a community. More information about this model and the study team's methodology is presented in Appendix D.

The employment predictions made by this model may be found in Table 3. This assumes that the potable water plant and the Cagle's plant are both built within the first year, and that the ancillary facilities are built during the first year and second year. The total number of permanent jobs predicted to be created by the time the poultry processing facility has been open for three years is approximately 2,900. The EZ would experience an annual inflow of approximately $219 million.

TABLE 3

Employment Impacts For The First Three Years In 1997 Dollars

Industry	Employment First Year	Employment Second Year	Employment Third Year
Direct Effects			
Construction	700	100	0
Food Manufacturing	590	1,180	1,180
Total Direct Effects	**1,290**	**1,280**	**1,180**
Secondary Effects			
Agricultural Production and Services	160	290	290
Stone Mining and Natural Gas	< 10	< 10	< 10
Construction	30	30	30
Food Manufacturing	120	230	230
Other Manufacturing	30	20	10
Transportation and Communication	50	40	30
Utilities	10	10	10
Wholesale and Retail Trade	330	330	280
Financial	30	20	20
Insurance	< 10	< 10	< 10
Real Estate	10	10	10
Personal Services	40	40	30
Professional Services and Business Products	200	110	70
Entertainment	10	10	10
Health Services	150	160	150
Legal Services	20	10	10
Educational Services	< 10	< 10	< 10
Social Services	10	10	10
State and Local Government	10	10	10
Federal Government	10	10	< 10
Total Indirect and Induced Effects	**1,240**	**1,360**	**1,210**
Grand Total:	**2,530**	**2,640**	**2,390**

See the table below of the direct, indirect, and induced total industry output for the first three years in 1997 dollars.

Industry	**Total Industry Output First year ($ Thousands)**	**Total Industry Output Second Year ($ Thousands)**	**Total Industry Output Third Year ($ Thousands)**
Direct Effects from Construction and Food Manufacturing	$157,610	$163,984	$136,009
Indirect and Induced Effects	$74,658	$92,601	$82,670
Total Direct and Indirect Effects	**$232,268**	**$256,585**	**$218,679**

Construction Workforce

A total of roughly 700 short-term construction jobs, in various trades and skills, would be created directly for construction of the water plant, the processing plant, the feed mill hatchery, and the poultry houses. Roughly half of those jobs, about 350, would be in Clinton County, at the water plant and the processing plant, but not all of those jobs would be needed at the same time, e.g., excavation equipment operators are not needed at the same time as interior finish ers. The estimated peak number of construction workers needed at any one time would be approximately 215 workers.

Some of these workers would likely be drawn from Clinton and Wayne counties, and from workers commuting into these counties from surrounding counties. Some of the workers from more distant locations may take up temporary residence near the Albany construction work sites, perhaps returning home each weekend. The relative proportions of "local hires" compared to temporary residents cannot be predicted at this time. However, it is expected that whatever number of temporary resident construction workers there would be, they would be able to find sufficient temporary housing in existing motel and rental properties, and in housing that may be made available for rental by property owners who are not actively renting out rooms at this time. Currently, there are 38 motel rooms in Albany, 95 rooms in Burkesville, 133 rooms in Monticello, and 19 rooms in Byrdstown.

About 20 construction jobs would be in Franklin for the renovation of the feed mill and construction of the hatchery. As with the facilities in Clinton County, the peak requirement would not create an excessive demand for housing or other community support.

The remaining 330 jobs would be dispersed throughout the 15 county area in Kentucky and Tennessee, for the building of the poultry houses.

Operational Workforce

Operational jobs would be more permanent than the short term construction jobs. The nine

counties considered for the evaluation of the employment pool were chosen because they are within close proximity and driving distance from the poultry processing facility site. Also, there are no natural barriers, such as Lake Cumberland, to prevent prospective employees from driving to the job site.

The major requirement for long term jobs will come from the Cagle's processing plant, which will employ roughly 1,200 people. Because Cagle's would obtain tax benefits as incentives for hiring residents of Clinton or Wayne counties, it is likely that local workers will have the opportunity to get these jobs. Moreover, Cagle's Inc. has an extensive worker training program, and would receive EZ funds to help pay for local worker training. This reinforces the likelihood that substantially as many local workers who are available will be able to obtain jobs at Cagle's.

In 1996, there were approximately 990 workers unemployed in Clinton, Wayne, and Cumberland counties. Kentucky unemployment figures are already adjusted for the marginally unemployed. Clearly, this existing labor resource is sufficient to meet the first year demand for jobs in the EZ, but not the second year demand. Even if all of these individuals sought work and were hired at Cagle's, an extreme assumption, there would still not be a sufficient workforce to meet Cagle's needs over the years.

According to several citizens and government officials, there is a substantial number of workers who currently live in Clinton or Wayne who commute out of their counties to work at jobs in other counties. Many of these individuals could be expected to seek work closer to home, at Cagle's. No firm numbers are available for this outbound commuter workforce.

Another pool of "local" workers, also perhaps numbering in the several hundred, are Clinton and Wayne county natives who have had to move out of the county to find jobs. Local officials believe that many of these individuals are likely to move back to rejoin their families in these counties.

Of course, workers presently employed within the counties may choose to seek employment at Cagle's. For the most part, the jobs they vacate would then need to be filled by someone else.

Therefore, there may or may not be a sufficiently large "local" labor force to meet Cagle's needs, and to meet the needs for the additional roughly 1,200 spin-off jobs that would be largely located in the Clinton Wayne area. However, there are over 2,200 unemployed workers in the counties surrounding Clinton and Wayne within reasonable commuting distance of job sites within the EZ equaling an approximate total 2,900 unemployed workers.

County	Workforce	% Unemployed	Available Workers
Clinton, Kentucky	4,446	7.3	325
Wayne, Kentucky	7,820	6.1	177
Cumberland, Kentucky	2,957	6.4	189
Monroe, Kentucky	5,294	5.4	286
Metcalf, Kentucky	4,731	5.5	260
Adair, Kentucky	8,119	7.4	601
Clay, Tennessee	3,762	6.0	226
Pickett, Tennessee	2,261	5.5	124
Fentress, Tennessee	7,495	9.7	727
TOTAL:			2915

This suggests that the large majority of the jobs created directly and indirectly by this action in Clinton and Wayne counties likely would be filled by local residents and by residents of nearby counties.

To the extent that more workers were needed than the immediate commuting area could provide, then it is reasonable to assume that Kentucky and Tennessee residents from counties somewhat further away would be attracted to move into Clinton and Wayne counties.

3.12.2 OTHER SOCIOECONOMIC EFFECTS

As indicated above, the action, and the planned poultry facilities that would result from it, are not expected to cause overall population growth from new residents moving into the EZ. When additional new industrial operations are attracted by the EZ to move into the Clinton County Industrial Park, then these facilities may require a workforce that would exceed the locally available labor resources. Workers from Wayne County outside the EZ, other parts of Kentucky, Tennessee, or elsewhere might then move into the area to fill those jobs. It is possible, therefore, that future industrial development would result in overall population growth in Clinton, Wayne, and surrounding counties. The extent, timing, and other specifics of such potential population growth cannot be predicted at this time, because no other specific major industry has yet been identified as planning to locate in the Clinton County Industrial Park or elsewhere in the EZ.

An overall increase in population would likely lead to a series of effects on, and changes to the communities experiencing such growth. Depending on how many people might move into the area, they might create the need for additional housing, additional roads, additional utilities, and additional commercial and government services such as ambulance service, classrooms, teachers, and police and fire protection. Again, no specific prediction about extent of these needs can be made at this time.

The action would result in significant inflow of funds to the area, in the form of expenditures of surplus income at locally owned businesses. This would increase local business payrolls.

Even if this economic stimulus does not increase the overall population of the counties, there will still likely be changes that would occur in communities such as the City of Albany.

The increased personal and business incomes in these communities would likely stimulate the expansion of existing stores, restaurants, and other service establishments, and perhaps the establishment of new ones. A wide variety of new commercial development could occur, such as banks, realtors, movies, car dealers, and various other enterprises.

In addition, existing houses may be expanded or replaced with new houses in different locations. Local governments may have sufficiently increased tax revenues to fund renovations, expansions or replacements of government facilities such as schools, libraries, and roads. It may become financially feasible to increase staffing of government services such as police, fire protection, and others to provide the communities with enhanced levels of service.

Changes such as these are reasonably foreseeable and may occur in the quality of life in the communities even if the overall population does not grow. These kinds of positive changes are generally in keeping with the federal and local governments' objectives in establishing the EZ. However, if this potential development were to occur in the absence of any master plan or zoning codes, then it could result in adverse effects for the community.

A few examples of these adverse effects could include: land uses that conflict with one another, such as a noisy commercial facility next to a school, or increased stormwater runoff pollution, such as motor oil washed off parking lots into streams, and unnecessary conversion of prime farmland to nonagricultural use, such as commercial use. Unsightly commercial facilities and advertising are also often associated with unmanaged development. Traffic congestion, noise, and localized air quality impacts from traffic also can result when unplanned commercial development occurs.

Another common result of unplanned development is the unanticipated decline in the condition of older town and city central areas. New development on the outskirts of a town can divert customers, and "starve" businesses in the older, more central commercial areas. Thus, in many cases throughout the US, a small city or town has experienced an economic decline, with high commercial vacancies, deteriorating buildings and infrastructure, and declining tax base, while counties or municipalities immediately surrounding it have experienced substantial growth.

If the communities of the EZ want to avoid these potential effects of development, such problems would be substantially preventable through the use of a county-wide master planning and zoning code approach.

A County Master Plan could identify the community's "vision" of what it would look like and how to accomplish this vision in the future. It could then identify areas of the county where commercial development is to be directed, and those areas that are to be used for other purposes. Such a master plan could also identify future physical needs such as electric and telephone services, water lines, and sewer lines. A master plan could also help the county and lo-

cal governments to anticipate and plan for future personnel and equipment needs for police, fire, and other government services.

While a master plan would set out the blueprint for planned development, zoning codes would have to be used to help implement the plan. For example, zoning codes would specify allowable densities of commercial development, limits on the height of their signs, parking lot dimensions, and requirements for green space and trees. Applying such codes could help ensure that the communities of the EZ experience the benefits of economic development while minimizing the less desirable consequences for the community, its character, and its quality of life.

Another community aspect that would be likely to change as a result of the establishment of the Cagle's facility would be public health. Cagle's Inc. will provide health insurance to its employees. This insurance coverage, coupled with the increased income of the workers, will likely result in significantly increased expenditures in the community on health care because many county residents do not currently have insured health care, nor sufficient income to pay for such care. The economic model (see Appendix D) used in this study estimates an increase of roughly $6.3M a year in health care expenditures in the area. This will likely result in better health conditions of the workers and their families. It may result in attracting more health care providers into the community, making a greater range of health care services available to the community.

3.12.3 TRANSPORTATION

The potential impacts to transportation were evaluated for significance by considering the amount of traffic change, type of traffic change, and capacity of the roadways. The percentage of change from original transportation amounts as well as the duration of the changes are evaluated with the criteria contained in Appendix B to determine the significance of the impacts to transportation.

— Affected Environment

Most of the impacts on the transportation system in the region would occur during the operation of the poultry processing facility and support operations, which would increase traffic from employee and truck deliveries. The road systems that would be affected are:

Kentucky: US 31 West from the feed mill and hatchery site to Interstate (I) 65;
I-65 from Tennessee border to Cumberland Parkway;
Cumberland Parkway from I-65 to Rt. 90;
Rt. 90 from I-65 to Rt. 639 near the poultry processing facility; and
Rt. 61 from Burkeville to Tennessee border.

Tennessee: Rt. 109 from US 31 West to Rt. 52;
Rt. 52 from Portland to Moss, Tennessee; and
Rt. 53 from Rt. 52 to Kentucky border.

Rail traffic for delivery of feed supplies to the feed mill would use the existing railroad system that passes near and has a spur that would service the feed mill and hatchery site near Franklin, Kentucky.

— Environmental Consequences

- Construction Impacts

Most of the water transmission main and the gas pipelines would be constructed on public road rights-of-way. The construction would require a permit from the Kentucky Department of Highways, and would be coordinated with the Chief District Engineer at the earliest possible stage of the work. The contractor performing the work must have in his possession at all times a copy of the permit, authorization letter, and detailed drawings of the work to be done.

About 20% of the entire length of the water transmission route would need blasting using dynamite and steel mats for safety purposes. Traffic would be stopped within a 100-yard safety zone. The construction on road rights-of-way would avoid heavy-traffic hours to minimize any impacts on the local traffic. Construction signs and flag persons would be used to make the public aware of what is occurring for safety.

- Operation Impacts

Delivery of supplies and products to and from the poultry processing facility, feed mill and hatchery, and poultry houses would increase the amount of truck traffic within the 17 county region during the operation of the facilities. This increase in truck traffic would occur primarily within the two corridors where the broiler houses would likely be located. The delivery routes of supplies to and from the pullet and breeder houses cannot be evaluated, since their locations are unknown at this time. This is also true for the delivery routes of other supplies to the feed mill, hatchery, and processing facility, since the supply sources are unknown at this time.

The most significant number of truck trips would include the delivery of feed and chicks from the feed mill and hatchery to the broiler houses (about 11 total trips per day), the delivery of live poultry from the broiler houses to the processing facility (about 40 total trips per day), and the delivery of poultry products from the processing facility to the stores (about 30 total trips per day). The total number of trucks in and out of the feed mill and hatchery is expected to be about 170 per day, and the employee traffic would be about 250 vehicles per day. The total number of trucks in and out of the poultry processing facility would be about 200 per day, and the employee traffic would be about 2,400 vehicles per day, which represents the extreme-case estimate.

To evaluate the potential impacts of the traffic increase in the region, traffic data for the various segments of the affected routes were compiled, and the projected increase in truck percentages and average daily traffic (ADT) were calculated. The segments of the routes were those

designed by the traffic count information as received from the Kentucky Transportation Cabinet and the Tennessee Department of Transportation. It was assumed that:

Approximately half of the broilers houses would be located along the Rt. 52 corridor, whereas the other half would be located along the Interstate 65 and Rt. 90 corridor; The broilers houses would be evenly spread out along the corridors. About half of the poultry products deliveries would go on Rt. 90 up to Interstate 65, whereas the other half would go on Rt. 61 down to Rt. 53 and Interstate 41 in Tennessee.

The number of trucks traveling from the feed mill and hatchery to the poultry farms would diminish along the segments of the routes as the trucks made deliveries and then returned home, i.e. not all trucks would travel the full length of the broiler house corridors. The same analysis was used for the trucks that would pick up birds at the broiler houses and deliver them to the processing facility.

The results of the evaluation are on Table 4. As shown by the projected data, no significant increases in the percentage of the average daily traffic including trucks, are expected for most of the segments of the affected routes. Eight of the segments would experience an approximate 2 % or less increase in the average daily traffic. Five segments would experience an approximate 4 % increase in the average daily traffic. One segment would experience an approximate 7% increase in the average daily traffic. The most significant effect to the average daily traffic would occur at the poultry processing facility, where the combined employee and truck traffic would increase by approximately 160%. However, this would be spread out through three employee shifts, and the truck traffic would occur throughout the working day. Traffic signals would be installed, as well as turning lanes and acceleration lanes, would be built at the facility's entrance to ease the traffic flow. Therefore, no significant impact on peak-hour traffic would occur. The comprehensive adequacy rating for the affected segment of Rt. 90 is good to very good (KTC, 1996). Thus, the road would be able to accommodate the projected traffic increase.

3.12.4 ENVIRONMENTAL JUSTICE

Presidential Executive Order 12898 directs Federal agencies to ensure that their projects do not impose disproportionate adverse environmental effects on minority or low income communities. By calling for an equitable distribution of environmental effects among various communities and groups, the Governments seeks "Environmental Justice."

The establishment of the EZ in Clinton County and a portion of Wayne County has shown that the project area is a high unemployment and low income area which needs an influx of industry and jobs to improve its economic status. It was to provide this type of economic benefit to these depressed communities that the Federal Government established the EZ. This area of southern Kentucky has experienced several economic hardships and would benefit greatly

from the project. Several factories have closed forcing many residents into unemployment. In addition, the factories that have remained open have reduced the number of shifts. Unemployment compensation is disbursed for only a finite period of time and has contributed to increased poverty in this area. Welfare programs are changing and the number of recipients of public assistance are being reduced. The stress of the economy is evidenced by the several vacant stores, and closing businesses in the City of Albany to help ensure that Environmental Justice concerns are identified and considered during the planning of a project, agencies must also take steps to obtain input from minority and low income groups that may be affected by a project. For the proposed project, public meetings have been held for the purpose of obtaining public insight into the project and this EIS has been made available to the public for additional comments.

The study team considered whether there would be adverse environmental impacts that would be imposed on the minority or low income groups present in the project area to a disproportionately greater extent than on other groups. No such disproportionate adverse impacts are expected, since no significant adverse environmental impacts are expected from the project.

Instead, the project is expected to have a significant beneficial economic impact on the low-income communities of the EZ. Industrial development such as that that would result from the project would create employment in both the construction and operation of the poultry processing facility. Also, spin-off businesses and expanding local industries would be expected to decrease unemployment within the EZ.

By not funding the project, the No Action Alternative, economic conditions within the EZ would continue to worsen. The trend of factories closing or down sizing shifts, and stores and businesses closing would continue. The current economy can not support the existing businesses. The No Action Alternative would be detrimental to the EZ and result in an adverse impact to a low income community.

3.13 CONSISTENCY WITH LAND USE PLANS AND POLICY

Land Use

Clinton County does not have a master plan for the county that would normally detail the suitable use of the land. Nor does the county have a zoning code. Therefore, the land use changes that would come about due to the construction of the projects in the county, do not conflict with any land use policy.

The feed mill and hatchery in Simpson County would be built on land already under industrial use. The land would continue in this use and therefore, would not conflict with any land use policy.

Prime Farmland

The Farmland Policy Protection Act of 1981 requires the Secretary of Agriculture to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion

of farmland to nonagricultural uses. (Farm Act, 1981). This is accomplished through the Departmental Regulation 9500-3, the United States Department of Agriculture's Land Use Policy, and through the Land Evaluation and Site Assessment scoring system. The criteria for, and the administration of the system is controlled by the Natural Resource Conservation Service. If the score of a site under the Land Evaluation and Site Assessment is 160 or less, then the site need not be given further consideration for protection. No alternative sites need to be identified for the project. The construction of the poultry processing facility and the Clinton County Industrial Park would convert prime farmland and state important land to industrial use. Each site was scored by the Natural Resource Conservation Service. The scores were 157 and 154 for the poultry processing facility and the Clinton County Industrial Park, respectively.

These scores are less than 160 and therefore, the conversion of this land to industrial use is consistent with the Farmland Protection Policy Act and the United States Department of Agriculture regulations.

Family Farm Policy

The question was raised at the public scoping meeting as to how the Cagle's facility and farm system fit with the USDA's family farm policy. Therefore, this issue is being discussed within this subsection.

The USDA definition of a farm is - A tract or tracts of land, improvements, and other appurtenances considered to be farm property which is used or will be used in the production of crops or livestock, including the production of fish under controlled conditions, for sale in sufficient quantities so that the property is recognized as a farm rather than a rural residence (Code Federal Regulations Sec. 1941.4 Part 1941 - Operating Loans Subpart A - Operating Loan Policies, Procedures, and Authorizations).

And the USDA family farm definition is - A farm which produces agricultural commodities for sale in sufficient quantities so that it is recognized in the community as a farm rather than a rural residence, provides enough agricultural income by itself, including rented land, or combined with any other dependable income, to enable the farmer to pay necessary family expenses and operating expenses, maintain essential chattel and real property, and to pay family debts. The family farm is also defined as having a substantial amount of the labor requirements for the farm and non-farm enterprises being provided by the farmer and the family members.

Integrated farming occurs when the family farmer contracts with a corporation to grow livestock or crops for a commercial producer of agricultural products. For over 25 years, the USDA through the Farmers Home Administration has supported integrated farming by providing direct and guaranteed loans for the construction, purchase, and operating expenses of facilities to be used by the family farmer. The loan program, which is limited to family farmers, provides credit and management assistance to farmers and ranchers to become operators of family-sized farms, or to continue such operations. The Farm Service Agency, successor to the Farmers Home Administration, continues to assist family farm operators to use their land, labor, and other resources, to improve their living and financial conditions so that they can ob-

tain credit elsewhere. Through this program the USDA is supporting the family farm and integrated farming.

Regarding the family farm definition, all of the day-to-day management and operational decision should be made by members of the farm family. The use of consultants, advisors, and similar experts is acceptable, if someone in the farm family is the decision-maker (USDA, 1996). Cagle's does not control the siting nor the building of the poultry houses. All decisions would be made by the farm family. However, the family farm must have enough land to ensure a good neighbor policy. Also, the farm family must submit a litter management plan to show that it would be properly handled. Cagle's production assistants would provide technical support and information to the farm family so they may make informed decision as to the management of their farms.

The Cagle's farm system is an example of an integrated poultry and livestock production integrated farming operation. Their contracts are with the individual family farmers. The Cagle's integrated farm system and the use of family farms are not inconsistent with the USDA family farm policy.

3.14 IMPACTS OF THE NO ACTION ALTERNATIVE

If the No Action Alternative is chosen, then no financial assistance would be provided by the EZ authority for the potable water treatment plant expansion to be built. If this is the case, then the expansion most likely would not happen.

In this event, a vast majority of the direct environmental effects discussed in this entire section, including those enumerated here, would not be experienced. The land use of the treatment plant site and transmission lines would not be altered. No environmental characteristics would be altered or threatened. This includes the geology and soil characteristics; surface water, groundwater, and the general water quality; wetlands; air quality; biological resources—including animal and plant species. None of these factors would feel any effects, changes, or differences from the status quo.

This also means that other elements would no longer be introduced. For example, at the poultry processing facility site, there would be no increase in trucks or other traffic, eliminating the need for improved roads and transportation services. It would eliminate any of the potential environmental effects from a traffic increase, including noise, groundwater, runoff, and air pollution, wildlife hazards, aesthetic, or cultural impacts. Any additional businesses or secondary economic increases would also not happen.

Any prime farmland, that would otherwise be converted to other use, would remain available for general agricultural purposes. If utilized as such, then some income and growth prospects could be realized, but they would be localized and much more minimal than any commerce resulting from the action alternative. Agricultural usage would also result in environmental effects, which would depend on the type of farming performed.

In the event of a no action decision, the region would realize negative effects in the areas of socioeconomic and humanistic resources. The historic and current economic trend of the EZ is downward. Factories are closing or downsizing shifts, and stores are closing and going out of business. The current economy can not support the existing business community. The following effects would be felt if there is a no action decision:

- The pending Cagle's chicken processing plant and associated facilities would not locate in the area;
- Over 1,000 permanent new jobs would not be created and approximately $59.5 million of new income would not be generated in the next three years from the Cagle's project;
- The ability to recruit other industry and commercial enterprises would be critically impaired;
- The EZ's mission would be defied;
- The EZ's goals would not be met, and any potential benefits from this status would not be realized; and
- The area would continue to suffer from high unemployment, extreme poverty, and dependence on entitlements, such as welfare, unemployment insurance, Administration for Family and Children compensation, and food stamps.

With the lack of economic improvement, then the following positive "domino effects" would also be missed:

- An extended tax–base that would increase revenues for the state and local governments without increasing tax rates;
- Improved infrastructure—including roads, schools, sewer systems, police, medical and emergency systems;
- Advanced ability to attract other revenue sources— for instance, additional industries, tourism, and commerce, i.e., grocery stores and retail shops; and
- Improved general quality of life.

If the federal financial assistance is not awarded, then the treatment plant expansion could still be built if an alternative source of funding could be found. This is very unlikely, considering the primary alternative—municipal bonds issued independently by the City of Albany—is not a possibility.

If alternative funding sources were secured, then the same environmental effects enumerated in this section would occur. Additionally, there would be separate cultural and socioeconomic effects. Any other funding sources would probably need to raise revenues in order to pay for the project over time. Revenues would most likely include user fees. These user fees would be levied on any person, organization, business, or other entity that used water from the treatment plant. This would create a burden on a majority of the users, ranging from minimal to severe.

Due to their income status, many of the area's citizens could not afford to pay user fees. Such a fee would also be a detriment to attracting business to the area.

4.0 REGULATORY COMPLIANCE

The Federal government, State of Kentucky, and local municipalities all have regulations that govern the construction and operation activities of each of the facilities under review. Many of the regulations mandate that the operators obtain permits. The table below lists the laws that are relevant.

Topic	**Applicable Section**
Clean Air Act	Air Quality
Clean Water Act - Section 404/401/10 Permits - Rivers and Harbor Act	Surface and Groundwater/Water Quality; Floodplain & Wetlands/Protected Natural Resources
Endangered Species Act	Biological Resources/Threatened and Endangered Species
Executive Order 11988, Floodplain Management.	Floodplain & Wetlands/Protected Natural Resources
Executive Order 11990, Protection of Wetlands	Floodplain & Wetlands/Protected Natural Resources
Executive Order 12898, Environmental Justice	Cultural Resources and Socioeconomics
Farmland Protection Policy Act	Geology/Topography/Soils/Land Use (Prime Farmland)
Kentucky Agriculture Water Quality Act (SB 241 & KY Reg. 224.71-120)	Surface and Groundwater/Water Quality
National and Kentucky Pollution Discharge Elimination System	Surface & Groundwater/Water Quality
National Historic Preservation Act	Cultural Resources
Noise Control Act	Aesthetics and Noise
Occupational Safety and Health Act and Regulations	Worker Health and Safety

Each of the facilities mentioned in this document might need to obtain a series of permits for construction and operation activities. Below is a series of listings for each facility class, divided by construction and operation. Unless noted otherwise, none of these permits has yet been obtained. As this is not an exhaustive list, other permits may become necessary for a certain facility. The list would not be final until each facility's construction and operation plans are complete and exact location determined.

To construct and operate the potable water treatment plant expansion, the City of Albany needs to obtain:

- An ACOE permit for the intake structure—including land easement for the transmission lines and a raw water withdrawal permit. An ACOE Section 10

permit for the intake structure, modification of the existing easement, and a COE water withdrawal contract. It would also include a Section 404 (wetlands) permit.

- Health and sanitary approval from the Kentucky Natural Resources and Environmental Protection Cabinet.
- A domestic sanitary "plumbing" permit from the Kentucky Division of Plumbing, for a restroom facility to be placed in the operations center of the facility.

The Cagle's Company would need to apply for several permits for the construction and operation of its chicken processing facility in Albany and related facilities (feed mill and hatchery located in Franklin, Kentucky). For construction of the poultry processing facility in Albany, Cagle's would need to obtain:

- A wastewater treatment plant construction permit.
- A stormwater construction plan, if more than 5 acres of land will be disturbed.

Additional permits that might need to be obtained for the processing facility, depending on the final designs, include:

- A dam construction permit for the processing facility's treatment lagoons, if the lagoons would be 25 feet above ground.

For the feed mill and hatchery in Franklin, a dam construction permit has already been obtained. However, the following may also need to be obtained:

- A stormwater construction plan, if more than 5 acres of land would be disturbed.

For operation of its poultry processing facility in Albany, Cagle's would need to obtain:

- A Kentucky No Discharge Operational Permit. This would include a groundwater protection plan.
- A Kentucky Pollution Discharge Elimination System (KPDES) permit for stormwater discharges.
- Drinking water system approval.
- Division of Air Quality permits for any air emission control devices.

For operation of the feed mill and hatchery in Franklin, Cagle's would need to obtain:

- A Kentucky Pollution Discharge Elimination System permit for stormwater discharges.

- Drinking water system approval.
- Division of Air Quality permits for any air emission control devises.

Additional permits for the processing facility, depending on the facilities' final designs, might include:

- Section 401 certification from the State of Kentucky, and Section 10 and Section 404 permits from the ACOE.

Other facilities that support the Cagle's plant—such as breeder, pullet, and broiler farms — would also have the responsibility of obtaining permits for construction and operations. Each of these facilities would be individually owned and operated, and would need to obtain an individual set of permits. What each facility would need to acquire would depend on the community where it locates, but such permits might include:

- Floodplain construction permits.
- Drinking water systems approval.
- Solid waste regulation and special waste permits for land farming and composting.
- Water well driller's certification.
- KPDES stormwater permit.
- KPDES wastewater discharge permit.
- Section 401 certifications from the State of Kentucky, and Section 10 and Section 404 permits from the ACOE.

5.0 CUMULATIVE IMPACTS

There are no other similar actions or facilities known to be in planning in the study area, nor any other projects known that could reasonably have environmental impacts that would add to the impacts of this project.

Construction of the poultry processing facility and the Clinton County Industrial Park would convert prime farmland or state-wide important land to industrial use. Approximately 22 acres of the 50 acre Industrial Park site are prime farmland and approximately 16 acres are state-wide important land. Approximately 33 acres of the 75 acre site for the poultry processing facility are prime farmland, and approximately 25 acres are considered to be land of state-wide importance. Thus, a total of 55 acres of prime farmland and 58 acres of state-wide important land would be converted to industrial use.

The effects on the economics and social well-being of the area would in a sense be the "cumulative," or additive result of the poultry processing plant plus its ancillary facilities. These effects are discussed above in Section 3.12.

Each of the several hundred ancillary facilities (such as the broiler houses) will consume electrical power and water, and will generate solid waste, and truck traffic. As discussed above, none of these impacts are expected to represent significant strain on the available resources at each farm where they are located. Moreover, even when they are considered cumulatively, these impacts will not add up to significant strains on resources because these facilities will be spread over a 15 county area.

6.0 IRREVERSIBLE/IRRETRIEVABLE COMMITMENTS OF RESOURCE AND LONG TERM VS SHORT TERM TRADEOFFS

6.1 IRREVERSIBLE IMPACTS AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

For the most part, the impacts of the water treatment plant expansion, and of the other actions associated with it, would be reversible and would not represent irretrievable commitments of resources. The use of land for building sites, lagoons and other facilities, for example, could be reversed at some future time. Many of the building materials that would be used, especially the steel and wood, could be recycled.

These actions would not destroy natural features such as wetlands or biological resources such as endangered species habitat.

A total of 55 acres of prime farmland and 58 acres of state-wide important land would be converted to industrial use.

The fuels used during construction and operation of the facilities would be an irretrievable use of natural resources. Considering the modest amounts of electrical power, petroleum products and natural gas that will be used, and considering that they will contribute to the production of food products, this use of energy resources is not a significant adverse impact.

Most of the water used by the poultry processing plant will be lost to evaporation or to transpiration through the irrigated hay crop. Because this water will be drawn from a very sizable surface water body (Lake Cumberland), it will represent a negligible use of a renewable resource.

Various measures would be taken to prevent impacts to groundwater, and to the underground structures in the karst geology. As described in previous sections, these include precautions in the storage, use and disposal of fuels and hazardous materials. Impact prevention measures would also include the careful siting of wastewater treatment lagoons at the poultry processing facility. The intent would be to avoid locating these lagoons on top of sinkhole structures where a collapse of the sinkhole could lead to a rupture of the lagoon's lining.

6.2 RELATIONSHIP BETWEEN SHORT TERM USE OF RESOURCES AND LONG TERM PRODUCTIVITY

The action and associated activities would not compromise the long-term productivity of the environment. As indicated above, the commitments of land would be reversible; the use of water would not affect the availability of abundant surface water for other users, and ground-

water would not be adversely affected. As with all current use of fossil fuels such as gasoline and natural gas, the action does represent a consumption of a largely nonrenewable resource.

7.0 SUMMARY OF MITIGATION

During the construction of all the facilities and ancillary systems, best management practices to control erosion, runoff, and sedimentation, as specified in the Kentucky Construction Mitigation Handbook, would be implemented. Therefore, any potential adverse impacts to soils, geology, topography, surface and groundwater would be mitigated. In addition, any extraneous metals following the construction of the facilities would be recycled.

Further karst hydrogeological investigations would be conducted before siting the facilities at the poultry processing facility area and future operations at the Clinton County Industrial Park. Any existing and potential sinkholes, sinking streams, and springs would be avoided to minimized potential contamination to surface and groundwater.

A soils, surface, and groundwater monitoring program would be established at the poultry processing facility area to assess any long-term effects of the irrigation systems. If an impact on groundwater or surface water attributable to the Cagle's discharge system is detected by analysis of the monitoring data, the wastewater treatment and irrigation distribution system would be improved to mitigate the impact. No chemicals would be used during the operation of the poultry processing facility except for those necessary for the adjustment of pH. This would prevent any significant impacts on soils, surface, and groundwater. The methane gas produced by the anaerobic lagoon at the poultry processing facility would be utilized in the boilers to create steam at the processing facility.

The Kentucky Statewide Plan requires monitoring of available statewide data to identify and designate water protection priority regions, where intensive monitoring programs would be conducted to investigate groundwater pollution. Agriculture operations (poultry houses) in the priority areas would receive technical and financial assistance from the state, if available, to modify their plans to comply with the regional water quality plan. Therefore, any potential long-term impacts from the operation of the poultry houses would be mitigated by the effective implementation of the Statewide Plan.

The operators of the potable water treatment plant would be trained and certified under Kentucky Regulations. Proper handling of the water treatment chemicals would be practiced.

Best management practices for poultry waste disposal would be implemented as required by the Kentucky Agriculture Water Quality Plan. Long-term monitoring of available water quality data by the State as required by the plan would allow the State to assess the effectiveness of best management practices and to implement any necessary modifications. Agriculture producers would receive technical and financial assistance from the State to ensure the success of the plan.

Therefore, since no significantly adverse impacts on air quality, noise, and protected biological resources are expected from the construction and operation of all the facilities, no mitigation for these resources would be proposed.

Forest clearing around the stream on the northeastern boundary of the Clinton County Industrial Park must be avoided to mitigate any impact on the potential foraging habitat for the endangered bats.

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INDEX

APPENDIX A

SCOPING

Scoping

The Environmental Impact Statement process begins with the scoping process. The primary purpose of this step is to decide exactly what the EIS will study. The idea is to ask a series of questions that will help determine the EIS's appropriate focus. Questions normally asked include:

- What exactly is the purpose and need for this project?
- What is the extent of the proposed action?
- What alternative actions might be done in place of the proposed action?
- What geographic areas, environmental factors, and special considerations need to be studied to determine potential impacts?
- Which issues and impacts should be studied or considered for study?

One part of the scoping process is the Notice of Intent (NOI). This instrument "officially begins" the EIS process by formally announcing that an agency intends to prepare an EIS. The NOI opens the public review and comment period, and announces the scoping meeting's date, time, and place. The NOI includes other pertinent information, including:

- a summary of the project to be studied;
- names and addresses of key contacts and agency personnel; and
- a schedule of dates, including meetings and due dates.

The NOI for this project was published in the Federal Register (as according to RUS and NEPA regulations) and in the *Clinton County News* of November 28, 1996.

A scoping meeting for this project was held on December 19, 1996, at the Clinton County High School. At this meeting, the proposed project was introduced, key personnel gave presentations, and interested citizens presented comments about the project.

After the public scoping had been held it was learned that Cagle's had purchased a site in Simpson County for its feed mill and hatchery. When this information was discovered, a public notice about the RUS's intent to develop an EIS was immediately published in *The Franklin Favorite* weekly newspaper. On January 13, 1997, the notice was published for two weeks (see Attachment A). There was no written response to this notice.

As a result of the scoping meeting and its related conversations, investigations, and comments, a Scoping Report was issued by RUS to anyone that attended the scoping meeting and requested a copy of the DEIS. In the report are the NOI; the brochure distributed at the meeting; a map of the proposed project area; and the scope, study

area, alternatives, and impact analysis approach determined to be appropriate for the study. The Scoping Report is included in this Appendix.

During the scoping process, several oral comments and many written comments were received from the general public. The RUS received letters from the residents of the EZ. The overwhelming majority of these comments included remarks in favor of the proposed project. The letters stacked up to 10 inches. The chief reason cited for support was to attract jobs and economic growth, which is the primary mission of the EZ.

PROPOSED SCOPE OF THE ENVIRONMENTAL IMPACT STATEMENT ON THE ALBANY, KY, WATER TREATMENT PLANT EXPANSION

1.0 Introduction

An Environmental Impact Statement (EIS) is being prepared by the U.S. Department of Agriculture, Rural Utilities Service (RUS) in response to an application for Federal financial assistance by the City of Albany, Kentucky, to expand its water treatment plant. This EIS is being prepared according to the National Environmental Policy Act (NEPA) of 1969 [42 United States Code 4321 et seq.], the Council on Environmental Quality regulations [40 Code of Federal Regulations (CFR) 1500 et seq.], and RUS regulations [7 CFR 1940-G]. The Notice of Intent and Notice of Public Scoping Meeting were published in the *Clinton County News* on November 28 December 5, 1996, and in the Federal Register (Vol. 61, No. 231) on November 29, 1996 (see Attachment A).

The National Environmental Policy Act (NEPA) requires that all federal agencies incorporate a systematic review of the environmental impacts of a proposed action into their decision making process. This evaluation ensures that Agency decisions are based on an understanding of the environmental consequences of their actions. The Federal agencies funding the proposed action include the RUS, the Economic Development agency (EDA) of the Department of Commerce, and the Department of Housing an Urban Development (HUD). RUS is the lead agency for this study; EDA and HUD are cooperating agencies.

The mission of the RUS is to provide financial assistance through loan and grant programs to rural communities for developing water and waste disposal systems, such as the proposed action of this study. In addition, the proposed action is located in a rural Empowerment Zone (EZ). The purpose of the EZ is to help create opportunities for economic development through a Federal-State-local and private sector partnership. As an integral part of the EZ initiative, the proposed action would promote favorable economic conditions for job creation.

The proposed action involves expanding Albany's water treatment facility to increase its treatment capacity from 2 million gallons per day (MGD) to 5 MGD by constructing a new plant adjacent to the existing plant, and constructing a new water transmission main and a new storage tank. The proposed water transmission main would extend from the proposed water treatment plant approximately 5.5 miles to a newly proposed 1.5 million gallon storage tank (see map). This tank would be located near and used by a poultry processing facility to be built by Cagle's, Inc., in Clinton County. The proposed water treatment facility expansion would also create the capacity to serve other users in the future.

The scope of the upcoming EIS has been developed in large part from the comments and suggestions made during the scoping process by interested citizens, organizations,

Map - Proposed Expansion of Albany, KY Water Treatment Plant

and local, state, and federal agencies. The scoping process involved a series of formal and informal meetings and correspondence with agencies and citizens in Kentucky. The brochure that was provided at the public scoping meeting held in Clinton County on December 19, 1996, may be found in Attachment B.

In accordance with NEPA and RUS regulations, the scoping process has focused on determining:

- the scope of the proposed action;
- the project alternatives; and
- the issues and impacts to be investigated.

2.0 The Scope of the Proposed Action

The purpose of the EIS is to assist RUS and other agencies in evaluating the environmental impacts of the proposed action by the City of Albany, Kentucky, to expand its water treatment capacity. Based on the results of the scoping process, the scope of the EIS will focus on three primary areas of concern.

1. The expansion of Albany's water treatment plant – The proposed expansion would consist of a new floating raw water intake structure, raw water transmission main, chemical feed system, flocculators, clarifiers, filter, clear well, finished water pump station, filter backwash recirculation and treatment, a 5.5 mile finished water transmission main, and 1.5 million gallon storage tank. The environmental impacts associated with the construction and operation of the proposed water treatment plant expansion must be evaluated before RUS can fund this project.

2. Cagle's poultry processing facility -- Even though the poultry processing facility is not part of the proposed action, it would be a direct result of the proposed action. There are concerns about the poultry processing facility's wastewater disposal in an area with karstic geology, which could be susceptible to groundwater contamination. Therefore, the EIS will evaluate the environmental impacts associated with the construction and operation of the proposed poultry processing facility. In response to concerns raised during the public scoping process, the evaluation will also include worker's health and safety issues related to the poultry processing facility. In addition, the study will take into account the environmental records of Cagle's other operations.

3. Poultry houses supplying the processing facility – Since the exact locations of the poultry houses are not known at this time, the EIS will evaluate the environmental impacts associated with the typical practices of modern poultry farming. The EIS will also study the potential changes in farming operations in the surrounding areas as a result of the poultry processing facility, and document the state/local regulations and procedures for handling the waste products from the poultry houses.

Study Area

For the analysis of impacts on the physical and biological environment, the EIS will study the project site for the proposed water treatment plant expansion and ancillary equipment, and the site for Cagle's proposed poultry processing facility and ancillary facilities. During the scoping process after the public meeting in Clinton County, it was revealed that Cagle's, Inc. could locate a feed mill and a hatchery near Franklin, KY, to support Cagle's poultry processing facility in Clinton County. Therefore, the proposed site of Cagle's feed mill and hatchery near Franklin, KY, will be considered in the evaluation of the physical and biological environment.

For the socioeconomic analysis, the EIS will consider the EZ counties of Clinton and Wayne, and the areas where the poultry houses supplying Cagle's processing facility are likely to be located. The pullet and breeder houses could be built within a 20-mile radius around the feed mill and hatchery near Franklin, KY. The broiler houses could be built within two 20-mile wide corridors that follow: (1) Route 52 between Portland and Moss, Tennessee, and (2) Highway 65 to Route 90 between Bowling Green and Beaumont, Kentucky.

3.0 Alternatives

A core requirement to NEPA is to study, develop, and describe appropriate and reasonable alternatives to a project proposal. This EIS will evaluate the No-Action alternative of not expanding Albany's water treatment plant, specifically studying the socioeconomic impacts. Other alternatives to be evaluated include:

- two alternative routes of the finished water transmission main (see dotted lines on the map);
- use of the existing raw water intake structure for the water treatment plant expansion; and
- use of the reserve capacity of the existing water treatment plant and recycled water to supply the poultry processing facility.

4.0 Approach to Impact Analysis

In an environmental impact analysis, there is a high degree of "connectivity" among impacts. That is, many potential effects could conceivably lead to other effects. Therefore, the EIS study will need to maintain a clear recognition of these chains of causes and effects which may span many different environmental components, e.g., soils-groundwater-surface water-biological resources-socioeconomic values. To help accomplish this, the interdisciplinary environmental study team has developed extensive network diagrams presented in Attachment C.

It is essential to note that every item on this diagram is cast as a question, not as an established fact. That is, the identification of an effect being conceivable does not indicate that it will in fact occur, nor to what extent it might occur. The purpose of this initial network is to "map out" the effects which must be investigated to determine if they will occur, and if so, to what extent. The diagram shows the questions, not the answers. The answers will be developed during the course of the EIS study.

Given the logical structure of this analysis, the emphasis will be on answering the critical questions concerning the most direct potential impacts. If, as the EIS study proceeds, the indication is that the direct effect will not occur, then there is no need to study in any detail the indirect effects which could depend on it. Conversely, if the EIS study reveals that a direct effect is likely to occur to a significant extent, then those indirect effects will also need to be investigated.

This network of "causes" and "effects" is the roadmap of the impact analysis. All study efforts will be aimed at investigating one or more of the potential effects identified on the diagram. This technique helps ensure that the resulting EIS will achieve the regulatory requirement that it be "analytic", not "encyclopedic".

ATTACHMENT A

Notice of Intent and Notice of Public Scoping Meeting

Notices:

Federal Register Notice of Intent to Prepare an Environmental Impact Statement and Notice of Scoping Meeting

Public Notice - November 28, 1996, Clinton County News

Public Notice - January 16 and 23, 19976, The Franklin Favorite

ATTACHMENT B

Public Scoping Meeting
for the
Environmental Impact Statement
on the Albany
Water Plant Expansion

Clinton County High School
December 19, 1996

Rural Utilities Service (RUS)

WELCOME. Thank you for coming to tonight's meeting.

AGENDA

6:15 Doors Open; Speaker Registration
6:35 Welcome and Introduction
6:40 Description of the Environmental Study Process
Description of the Projects
7:00 Comments from Audience
Wrap-Up

SPEAKER LIST

Mayor James A. Brown, City of Albany
Thomas A. Fern, USDA, Rural Development Kentucky State Director
Judge Charlene King, Chairperson, Clinton County Empowerment Zone
James I. Mangi, President, Mangi Environmental Group, Inc.
Ronnie Grant, Monarch Engineering, Inc.

WHAT IS A PUBLIC SCOPING MEETING?

The purpose of tonight's meeting is to enlist your help. We ask you to help us determine the extent, or "scope" of our environmental study on Albany's water plant. The sections below describe the study process and the projects that will be studied in it. Following these sections is an explanation of the help we seek from you.

WHAT IS AN EIS?

An Environmental Impact Statement, or EIS, is a report about the effects on the environment of a proposed action. When a Federal agency is deciding on a major action, they must prepare an EIS. The law which requires this is the National Environmental Policy Act (NEPA).

The main parts of an EIS are:

- The purpose and need of the proposed action
- Comparison of the alternative courses of action
- Description of the existing environment that would be affected
- The impacts of each alternative on the environment
- Mitigation measures that could be taken to lessen the impacts
- Public comments

WHO PREPARES AN EIS?

An EIS is the responsibility of the Federal agency or agencies involved in the proposed action. The Department of Agriculture's Rural Utilities Service, RUS, (which replaced the Farmers Home Administration) is the lead agency for this study. The Economic Development Agency (EDA) of the Department of Commerce, and the Department of Housing and Urban Development (HUD) are cooperating agencies.

YOUR ROLE

The purpose of tonight's meeting is to obtain suggestions from the public and from other agencies as to what issues RUS should study in this EIS.

This is the first opportunity for public input to the study. The next opportunity will occur several months from now. RUS will make that draft version of the EIS available for public comment. We plan to hold public meetings again, at that time. RUS will respond to public and other agencies' comments in the Final EIS.

If you have any comments on the EIS scope after tonight, we would welcome your written comments. You can separate this page, and use the space below. Then fold the page in half fasten it, and mail it. To be most useful, comments must be sent by January 3, 1997. Thank you.

Return Address

_____

_____

_____

Stamp
Here

Mark Plank
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AG Box 1548
Washington, DC 20250

Attachment C - Environmental Evaluation Diagram

Diagram 1

Diagram 2

Diagram 3

Diagram 4

APPENDIX B
IMPACT SIGNIFICANCE CRITERIA

Identification of Cause-Effect Matrix and Significance Criteria

Existing operations and documentation were reviewed to ascertain the activities associated with the potable water treatment plant expansion and the Cagle's poultry operation which could potentially cause environmental impacts, and the types of impacts they could cause. Research was supplemented by professional judgment concerning impacts of typical concern for any large construction project or manufacturing operation. An environmental evaluation diagram was developed for each proposed action which listed the potential impacts associated with that action. The environmental evaluation diagrams can be found in Section 3.0, Figure 4.

Given the list of impacts which had been identified as potentially relevant to the project by the environmental evaluation diagrams, criteria were defined as a means of measuring the size of the impact and its significance. A structured framework is required to support conclusions concerning the significance of each of these effects and to systematically integrate individual resource assessments. For example, construction projects generally require some grading and soil disturbance. This disturbance of the soil could be important in and of itself, and it could also affect air quality (by creating fugitive dust), water quality (through erosion of the bare soil and sediment deposition in the surface water), terrestrial resources (through the removal of vegetation and wildlife habitat), and land resources (such as through the removal of prime agricultural soils).

The identification of cause-effect relationships by resource provided the basis for assessing the significance of impacts. The significance was determined systematically by assessing four parameters of environmental impact: magnitude (how much), extent (sphere of influence), duration, and likelihood of occurrence. Each parameter was divided into three levels as follows:

Magnitude:
- major
- moderate
- minor

Duration:
- long term
- medium term (intermittent)
- short term

Extent:
- large
- medium (localized)
- small (limited)

Likelihood:
- probable
- possible
- unlikely

For each type of impact identified, definitions of each of the terms were prepared. The definitions derived for each impact are provided in this Appendix.

The methods of analysis for each of the impacts were as quantitative as possible, given the amount and reliability of the data and the apparent importance of each issue. In most cases, quantitative estimates were based on the best available preliminary project design information. Other evaluations were strictly qualitative, such as discussions of hazardous waste handling.

Given the definitions of magnitude, duration, extent, and likelihood for each type of impact, plus the assessments of the impact at each site, the significance of the impact at each site was determined by comparing the significance definitions to the predetermined definitions. The overall significance of the impact was then determined by referring to the guidelines shown in the first table of the Appendix. For example, any impact which conformed to the definitions of major magnitude, medium extent, long-term duration, and probable likelihood was judged to be a significant impact. The following tables list the quantitative definitions of the parameters for each type of impact.

TABLE B -1
CRITERIA FOR RATING IMPACTS

Level of Impact				
Impact Rating	**Magnitude**	**Extent**	**Duration**	**Likelihood**
Very Significant	Major	Large or Medium	Any Level	Probable
	Major	Large or Medium	Long term	Possible
Moderately Significant	Major	Any level	Medium term, intermittent, or short term	Possible
	Moderate	Large or Medium	Any 1evel	Probable
	Major	Small	Any 1evel	Probable
	Major	Small	Long term	Possible
	Moderate	Large	Any 1evel	Possible
	Moderate	Medium or Small	Any level	Possible
	Moderate	Small	Any level	Probable
	Major	Large	Any level	Unlikely
	Major	Medium or Small	Long term	Unlikely
	Minor	Large	Any level	Probable
	Minor	Medium or Small	Long term	Probable
	Major	Medium or Small	Medium term, intermittent, or short term	Unlikely
Insignificant	Minor	Medium	Medium term or intermittent	Probable
	Minor	Large	Any level	Possible
	Minor	Medium or Sma1l	Long term	Possible
	Moderate to Minor	Any 1evel	Any level	Unlikely
	Minor	Medium	Short term	Probable
	Minor	Small	Medium term intermittent, or short term	Probable
	Minor	Medium or Small	Medium term, intermittent, or short term	Possible

SIGNIFICANT DEFINITIONS

Discipline: Air Quality
Criterion: Ambient Air Quality

Term	Definition
Magnitude	
Major	Exceed a standard
Moderate	Change more than 50 percent of standard
Minor	Change less than 50 percent standard or increment
Duration	
Long Term	Annual
Medium Term (limited or intermittent)	24-hour to 1 month
Short Term	1 to 8 hours
Extent	
Large	Widespread impact in several directions
Medium (localized)	A compass sector (22.5 degrees)
Small (limited)	A single receptor
Likelihood	
Probable	Occurs under typical operating conditions
Possible	Occurs under worst-case operating conditions
Unlikely	Occurs under upset/malfunction conditions

SIGNIFICANCE DEFINITIONS

Discipline: Cultural Resources
Criterion : All

Term	Definition
Magnitude	
Major	Project will adversely affect a site listed on or eligible for listing on the National Register of Historic Places or World Heritage List, and mitigation of adverse effects is unsuccessful or not possible
Minor	Project will adversely affect a site listed on or eligible for listing on the National Register of Historic Places, and mitigation of adverse effects is successful
Duration	
Long Term	More than 5 years
Medium Term (limited or intermittent)	1-5 years
Short Term	Less than 1 year
Extent	
Large	Most of historic or archaeological site or district affected (more than 50 percent)
Medium (localized)	Some of historic or archaeological site or district affected (5-50 percent)
Sma11 (limited)	Small portion of historic or archaeological site or district affected (less than 5 percent)
Likelihood	
Probable	Occurs under typical operating conditions
Possible	Occurs under worst-case operating conditions
Unlikely	Occurs under upset/malfunction conditions

SIGNIFICANCE DEFINITIONS

Discipline: Geotechnical Issues
Criterion : Erosive Soil Loss

Term	Definition
Magnitude	
Major	Secondary effects (e.g., building damage, siltation of surface water)
Moderate	Aesthetic effects
Minor	Imperceptible changes
Duration	
Long Term	Through facility life (> 30 yr)
Medium Term (limited or intermittent)	Recurrent
Short Term	During critical activities only (during construction, after first test firing)
Extent	
Large	> 100 sq yd
Medium (localized)	~ 10 sq yd
Small (limited)	< ~ 1 sq yd
Likelihood	
Probable	Occurs under typical operating conditions
Possible	Occurs under worst-case operating conditions
Unlikely	Occurs under upset/malfunction conditions

SIGNIFICANCE DEFINITIONS

Discipline : Land Use
Criterion: Land Use Jurisdictions

Term	Definition
Magnitude	
Major	In conflict with federal or state land use plans
Moderate	In conflict with regional or county land use plans
Minor	In conflict with nearby municipa1 or site specific land use plans
Duration	
Long Term	Project life is more than 20 years
Medium Term (limited or intermittent)	Project life is 5-20 years
Short Term	Project life is less than 5 years
Extent	
Large	Proposed project occupies an area greater than 5 percent of the planning area jurisdiction
Medium (localized)	------
Small (limited)	Proposed project occupies an area less than 5 percent of the planning area jurisdiction
Likelihood	
Probable	Occurs under typical operating conditions
Possible	Occurs under worst-case operating conditions
Unlikely	Occurs under upset/malfunction conditions

SIGNIFICANCE DEFINITIONS

Discipline : Land Use
Criterion : Prime and Unique Farm Land

Term	Definition
Magnitude	
Major	Project impacts areas of prime and unique farm land
Moderate	-------
Minor	Project impacts areas dedicated to built-up uses, but with soils usually considered prime
Duration	
Long Term	Project 1ife of 20 years or more
Medium Term (limited or intermittent)	-------
Short Term	Project life of 5 years or less
Extent	
Large	Over 1,000 acres of prime and unique farm land is taken out of the resource base
Medium (localized)	Between 50-1,000 acres of prime and unique farm land is taken out of the resource base
Sma11 (limited)	Less than 50 acres of prime and unique farm land is taken out of the resource base
Likelihood	
Probable	Occurs under typical operating conditions
Possible	Occurs under worst-case operating conditions
Unlikely	Occurs under upset/malfunction conditions

SIGNIFICANCE DEFINITIONS

Discipline : Land Use
Criterion : Direct Noise Impacts

Term	Definition	
Magnitude	**A-Weighted (humans)**	**Linear (Structures)**
Major	Greater than 100 db noise levels	Greater than 130 db levels or 1 5 PSF
Moderate	Between 75 db and 100 db	Between 127 db and 130 db or 1 0 to 1 5 PSF
Minor	Less than 75 db	Less than 127 db; 1 0 PSF
Duration		
Long Term	More than 3 minutes	
Medium Term (limited or intermittent)	--	
Short Term	Three minutes or less	
Extent		
Large	More than 1,000 persons exposed to greater than 80 db, or 100 houses affected by structural damage	
Medium	Between 100 - 1,000 people affected, or between 30 and 100 homes affected by structural damage	
Small	Less than 100 people affected, or less than 30 homes affected by structural damage	
Likelihood		
Probable	Occurs under typical operating conditions	
Possible	Occurs under worst-case operating conditions	
Unlikely	Occurs under upset/malfunction conditions	

SIGNIFICANCE DEFINITIONS

Discipline: Land Use
Criterion: Agricultural Lands

Term	Definition
Magnitude	
Major	A 25 percent or greater reduction in crop yields per acre
Moderate	A 5-25 percent reduction in crop yields per acre
Minor	A less than 5 percent reduction in crop yields per acre
Duration	
Long Term	More than 1 growing season
Medium Term	------
Short Term	Damage seen within part of a growing season
Extent	
Large	5 percent of county agricultural acres
Medium (localized)	2-5 percent of county agricultural acres
Sma11 (limited)	1 percent or less of county agricultural acres
Likelihood	
Probable	Occurs under typical operating conditions
Possible	Occurs under worst-case operating conditions
Unlikely	Occurs under upset/malfunction conditions

SIGNIFICANCE DEFINITIONS

Discipline : Transportation
Criterion: Local Traffic Increase

Term	Definition
Magnitude	
Major	Service level decreased to E or below (Vehicle spacing is at approximately 6 car lengths)
Moderate	Service level decrease to D (Vehicle spacing is at or above 165 ft, or 9 car lengths)
Minor	Service level remains at C or above (vehicle spacing is in range of 220 ft, or 11 car lengths.)
Duration	
Long Term	More than 3 years (operational period)
Medium Term (limited or intermittent)	1-3 years (generally equivalent to construction period)
Short Term	Less than 1 year (associated with temporary road closures)
Extent	
Large	Multiple intersections or road segments on key access routes to community
Medium (localized)	1-3 intersections or road segments, primarily affects traffic routes
Small (limited)	1 intersection or road segment, not key location in local system
Likelihood	
Probable	Occurs under typical operating conditions
Possible	Occurs under worst-case operating conditions
Unlikely	Occurs under upset/ malfunction conditions

SIGNIFICANCE DEFINITIONS

Discipline: Socioeconomics
Criterion : Population, Employment Changes, Changes in Housing and Service

Term	Definition
Magnitude	
Major	Greater than 3 percent change, if measurable
Moderate	2 to 3 percent change
Minor	Less than 1 percent change
Duration	
Long Term	More than 10 years
Medium Term (limited or intermittent)	3 - 10 years
Short Term	Less than 3 years (assuming a 3 year construction phase)
Extent	
Large	State, regional or national
Medium (localized)	Entire study area
Small (limited)	Part of study area
Likelihood	
Probable	Greater than 50 percent chance of occurrence
Possible	5 to 50 percent chance of occurrence
Unlikely	Less than 5 percent chance of occurrence

SIGNIFICANCE DEFINITIONS

Discipline: Terrestrial Ecology/Biological Resources
Criterion: All

Term	Definition
Magnitude	
Major	Loss of any threatened or endangered species, loss or degradation of any critical habitat Impacts to threatened or endangered species are considered to be of major magnitude unless a Biological Assessment team report been prepared and indicates otherwise
Moderate	Loss of any sensitive species or habitats; loss or degradation of any unusual plant communities
Minor	Loss or degradation of undisturbed/developed vegetation or habitat in affected area
Duration	
Long Term	Greater than one year (or during critical periods)
Medium Term (limited or intermittent)	One month to one year
Short Term	Less than one month
Extent	
Large	Greater than 5 percent of regional (as defined by county or space center boundaries, if known) resources
Medium (localized)	2-5 percent of regional resources
Small (limited)	Less than 2 percent of regional resources
Likelihood	
Probable	Occurs under typical operating conditions
Possible	Occurs under worst-case operating conditions
Unlikely	Occurs under upset/malfunction conditions

SIGNIFICANCE DEFINITIONS

Discipline : Wetlands
Criterion: All

Term	Definition
Magnitude	
Major	In conflict with federal or state wetland protection programs
Moderate	
Minor	Wetland losses would be mitigated through consultation with federal and state agencies
Duration	
Long Term	Project life is more than 20 years
Medium Term (limited or intermittent)	Project life is 5-20 years
Short Term	Project life is less than 5 years
Extent	
Large	Greater than 5 percent of the regional resource
Medium(localized)	2-5 percent of regional resource
Sma11 (limited)	Less than 2 percent of regional resource
Likelihood	
Probable	Occurs under typical operating conditions
Possible	Occurs under worst case operating conditions
Unlikely	Occurs under upset/malfunction conditions

SIGNIFICANCE DEFINITIONS

Discipline : Floodplains
Criterion : All

Term	Definition
Magnitude	
Major	In conflict with federal or state floodplain management
Moderate	In conflict with regional or county floodplain management
Minor	In conflict with nearby municipal or site specific floodplain management plans or no conflicts
Duration	
Long Term	Project life is more than 20 Years
Medium Term (limited or intermittent)	Project life is 5-20 years
Short Term	Project life is less than 5 years
Extent	
Large	The floodplain cannot be avoided and the floodway would be impaired
Medium (localized)	-----
Small (1imited)	The floodplain cannot be avoided but would not be impaired
Likelihood	
Probable	Occurs under typical operating conditions
Possible	Occurs under worst case operating conditions
Unlikely	Occurs under upset/malfunction conditions

SIGNIFICANCE DEFINITIONS

Discipline : Water Resources
Criterion : Surface Water Quality

Term	**Definition**	
Magnitude		
Major	a. Parameter-specific numerical criteria exceeded by order of magnitude (factor of 10) or greater, or b. Immediately observable impact (e.g., fish kill)	
Moderate	a. Parameter-specific numerical criteria exceeded, by less than order of magnitude (factor of 10), or b. Some observable biological response (e.g., avoidance)	
Minor	a. Parameter-specific numerical criteria approximately equaled, no biological response observed.	
Duration (Duration is somewhat parameter- and criteria-specific and must be considered in that context)	Input Oriented	Event Oriented
Long Term	Sufficient period to exhibit chronic effects	Continuous series of events greater than 1-2 yrs.
Medium Term (limited or intermittent)	Sufficient to exhibit acute and some subacute	Intermittent events over period max 1-2 yrs.
Short Term	Sufficient period to exhibit acute effects	Single Event
Extent		
Large	a. Effect over entire watershed (basin) or multiple watersheds, or b. Effect over 40 percent of major waterbody (e.g., over 40 percent of major lake, > 40 percent width and significant length (> 100) of major river, etc.)	

Medium (localized)	a. Effect over 25 percent of watershed (basin), or b. Effect over 50 percent of small water body, or c. > 10 percent < 40 percent of major water body.
Small (1imited)	Effect less than 25 percent single watershed, less than 10 percent major water body. May include entire area of 1-2 small ponds (< 5 acres) or small seasonal wetland.
Likelihood	
Probable	Occurs under typical operating conditions
Possible	Occurs under worst-case operating conditions
Unlikely	Occurs under upset/malfunction conditions

SIGNIFICANCE DEFINITIONS

Discipline : Water Resources
Criterion : Groundwater Quality

Term	**Definition**	
Magnitude		
Major	a. Parameter-specific numerical criteria exceeded by order of magnitude (factor of 10) or greater, or b. Immediately observable impact (e.g., fish kill)	
Moderate	a. Parameter-specific numerical criteria exceeded, by less than order of magnitude (factor of 10), or b. Some observable biological response (e.g., avoidance)	
Minor	a. Parameter-specific numerical criteria approximately equaled, no biological response observed.	
Duration (Duration is somewhat parameter- and criteria-specific and must be considered in that context)	Input Oriented	Event Oriented
Long Term	Sufficient period to exhibit chronic effects	Continuous series of events greater than 1-2 yrs.
Medium Term (limited or intermittent)	Sufficient to exhibit acute and some subacute	Intermittent events over period max 1-2 yrs.
Short Term	Sufficient period to exhibit acute effects	Single Event
Extent		
Large	a. Effect over entire watershed (basin) or multiple watersheds, or b. Effect over 40 percent of major waterbody (e.g., over 40 percent of major lake, > 40 percent width and significant length (> 100) of major river, etc.)	

Medium (localized)	a. Effect over 25 percent of watershed (basin), or b. Effect over 50 percent of small water body, or c. > 10 percent < 40 percent of major water body.
Small (1imited)	Effect less than 25 percent single watershed, less than 10 percent major water body. May include entire area of 1-2 small ponds (< 5 acres) or small seasonal wetland.
Likelihood	
Probable	Occurs under typical operating conditions
Possible	Occurs under worst-case operating conditions
Unlikely	Occurs under upset/malfunction conditions

SIGNIFICANCE DEFINITIONS

Discipline : Geotechnical Issues
Criterion : Soil Contamination Levels

Term	Definition
Magnitude	
Major	Posing secondary (e.g., health) risks
Moderate	> EP Tox levels, or visible contamination
Minor	< EP Tox levels
Duration	
Long Term	Cumulative over operational life
Medium Term (limited or intermittent)	Recurrent, or residues cumulating
Short Term	Easily cleared up or self-remediating (e.g., biological breakdown, volatilizing)
Extent	
Large	> 100 cu. yd. (or 100 sq. yd. surface area)
Medium (localized)	~ 10 cu. yd. (or 10 sq. yd. surface area)
Small (1imited)	< 1 cu. yd. (or 2 sq. yd. surface area)
Likelihood	
Probable	Occurs under typical operating conditions
Possible	Occurs under worst-case operating conditions
Unlikely	Occurs under upset/malfunction conditions

APPENDIX C

LETTERS FROM AGENCIES AND RESPONSE

United States Department of the Interior

FISH AND WILDLIFE SERVICE
446 Neal Street
Cookeville, Tennessee 38501

March 26, 1997

Mr. Robert Shih
The Mangi Environmental Group, Inc.
701 West Broad Street, Suite 205
Falls Church, Virginia 22046

Dear Mr. Shih:

Thank you for your letter and enclosures of February 11, 1997, regarding the development of an Environmental Impact Statement (EIS) for construction of a poultry processing facility and associated waste disposal, expansion of the existing water treatment plant and construction of new water mains, and construction of an industrial park in Clinton County. Kentucky. The EIS will also address the construction of a feed mill and hatchery in Simpson County, Kentucky. The U.S. Fish and Wildlife Service (Service) has reviewed the information submitted and offers the following comments and suggestions for consideration in the preparation of the EIS.

Poultry Processing Facility Construction and Waste Disposal Area (Clinton County) According to our records, the following federally listed endangered species may occur in the project impact area:

Gray bat	*Myotis grisescens*
Indiana bat	*Myotis sodalis*

The Service recommends that the Rural Utilities Service conduct habitat surveys to determine if suitable habitat (caves, sinkholes, or summer roosting and maternity areas) exists in the project impact area. Habitat surveys should be conducted by qualified biologists familiar with the biology of the bats and their habitat requirements. If no suitable habitat exists, a "no effect" determination may be justified. If suitable habitat does exist, a "may affect" finding should be made and informal consultation continued with this **office.** A detailed habitat description of the project area should be included in the EIS.

Gray bats and Indiana bats are known to forage over rivers, streams, reservoirs, and in forested tracts near their roosting areas. The narrative contained within the project description did not specify a typical final effluent characterization, the retention capacity of the effluent holding basin, or the area(s) proposed for spray irrigation of the final effluent and frequency of application. Although buffer zones around perennial streams, lakes, and sinkholes may provide protection from overland runoff to surface streams

and other water bodies and direct discharge to karst areas from the effluent, saturation of the proposed application area(s) may prove problematic in regard to groundwater infiltration and the potential contamination of prefer-red foraging areas for endangered bats. A hydrogeological survey of the project area should be conducted to determine groundwater flow patterns present in the project impact area. Groundwater characterization should include area(s) of recharge and depth to water table or water-bearing formations, and area(s) of discharge to Indian Creek, its tributaries, or other streams and water bodies in the general project vicinity. A description of the soils and geologic formations. from boring logs would also be useful in determining drainage and retention characteristics of the project area. This information is critical for assessing potential impacts to these bats and aquatic species from the proposed effluent disposal methods. The technical findings should be incorporated into the EIS. The location for disposal of solid waste generated at the facility should also be identified.

Information available to the Service indicates that wetlands may exist near the southern boundary of the proposed project area. Enclosed is a copy of a portion of the National Wetlands Inventory's (NWI) Wolf Creek Dam quadrangle (Enclosure 1) with the referenced wetlands highlighted. The NWI mapping procedures are based on interpretations of aerial photography and may not definitively determine the presence or absence of jurisdictional wetlands within the proposed project boundaries. The NWI determination has been made in the absence of a **field** inspection and does not constitute a wetlands delineation for the purposes of Section 404 of the Clean Water Act or the wetlands conservation provisions of the Food Security Act. The area should be surveyed for the presence of wetlands by a qualified wetland ecologist. The Corps of Engineers or the Natural Resources Conservation Service should be contacted to verify wetland delineations and for determining requirements of wetlands protection statutes. If jurisdictional wetlands are present in the project impact area, a complete description and functional assessment of the wetland(s) should be included in the EIS.

Water Treatment Plant Expansion and Water Main Construction (Clinton County)

If the expansion of the water treatment plant and construction of new water mains will occur at existing facilities and in public rights-of-way, the Service would not anticipate adverse impacts to the aforementioned endangered species. However, if karst areas or other suitable habitat types exist in the project impact area(s), they should be surveyed and clearly identified in the EIS.

Information available to the Service indicates that wetlands may exist near the water treatment plant and within the corridor of the proposed Alternative Route No. 2 for the finished water transmission main. Enclosed is a copy of a portion of the National Wetlands Inventory's Wolf Creek Dam quadrangle (Enclosure 2) with the referenced wetlands highlighted.

Construction of the proposed finished water mains will involve crossing(s) of Indian Creek and associated tributaries. We recommend that silt barriers be put in place when working adjacent to all streams and sinkholes to prevent runoff of sediment. Conventional trenching techniques used to cross streams could result in adverse impacts to stream habitat and water quality. Directional boring pipelines under streams or pipeline attachment to road bridges would avoid or minimize impacts to stream habitat and water quality. If a conventional stream crossing is necessary, it should be accomplished during low flow periods. Streambanks should be reseeded with native vegetation beneficial to wildlife immediately following completion of the stream crossing(s), disturbed surfaces should be restored to original

contours, and excess materials removed to a properly confined, upland area. A discussion of the selected construction best management. practices should be included in the EIS.

Proposed Industrial Park (Clinton County)
Habitat surveys should be conducted by qualified biologists familiar with the biology of the aforementioned bats and their habitat requirements. A review of the NWI Savage and Cumberland City quadrangles (copies of appropriate portions are provided as Enclosures 3 and 4, respectively) did not indicate that wetlands were present in the vicinity of the proposed project. A detailed habitat description of the project area should be included in the EIS.

Proposed Feed Mill and Hatchery (Simpson County)
Although records for the gray bat exist in Simpson Count),, we would not anticipate adverse impacts to either species from utilization of existing facilities for this operation and from the discharge of process wastewaters to the City of Franklin wastewater treatment plant. A review of the NWI Franklin quadrangle (Enclosure 5) did not indicate that wetlands were present in the project area.

With regard to the Indiana bat, the Service presently has no confirmed records for the species in Clinton County. However, maternity colonies have been reported in southern Illinois, Indiana, and Ohio, as well as in several counties in western, southeastern, and northeastern Kentucky. We believe that suitable habitats in the project area(s) may also support colonies of *M. sodalis.* Despite the fact that most of the known major Indiana bat hibernacula are protected, this species continues to exhibit declines in numbers throughout large portions of its present range. We believe that these declines are the result of destruction or alteration of the species' summer habitat. Furthermore, if the populations continue to decline, the species will ultimately reach a point from which recovery would no longer be possible. Consequently, the Service's Cookeville **Office** places a high priority on protection of Indiana bat summer habitat.

The Service strongly recommends selection of the following option as a means of avoiding adverse impacts to the bats and their habitat:

1. Avoid disturbance to potential *M grisescens and M sodalis* habitat by rerouting, realigning, or otherwise modifying the project (Enclosure 6 describes the Cookeville Office's interpretation, based on coordination with species experts and review of available literature, of what constitutes "suitable habitat" for the Indiana bat).

If this option is selected, the Service would likely concur with a "not likely to adversely affect" finding. If avoidance is not possible, several additional options are, in our opinion, available for avoiding adverse impacts, including:

1. Conduct mist net surveys of the action area. Section 7 regulations define "action area" (project impact area) as "all areas that will be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." Mist net surveys should be conducted by biologists familiar with the biology of the gray bat and Indiana bat, and who have a thorough knowledge of mist netting methodology for bats. If gray bats or Indiana bats are collected, a "may affect" finding should be made and

informal consultation continued. If no gray bats or Indiana bats are collected, a "not likely to adversely affect" determination **@a** be justified. An adequate mist net survey consists of the following:

a. Sampling conducted in suitable habitat between May 15 and October 15.

b. Use of low visibility nylon mist nets with mesh no greater than one and one-half inches.

c. Sampling should not be conducted during periods of precipitation. Ambient air temperatures should be greater than IO degrees Celsius (50 degrees Fahrenheit) and winds should be still to calm. In open sites, the moon should be covered by clouds or less than one-half full.

d. Nets should be stacked to a height of four meters or more.

e. One net set should be made for every one kilometer of stream in the project area.

f. Sampling should consist of at least three nights of netting. One night of netting consists of the appropriate number of nets set in accordance with conditions a, b, c, d, e, g, h, I, and j (i.e., three stacked nets set for one night does not comprise three nights of netting).

g- Nets should be set and monitored from sunset until at least 2:00 a.m.

h. Nets should be set from the water surface up to the canopy, with enclosing foliage or banks on both sides. At open sites, nets should be set from the water surface to a height of at least four meters.

I. Nets should be checked every 20 minutes.

j. There should be no disturbance at the nets between checking.

2. Assume that gray bats and Indiana bats are present in the project area during the summer (April I through September 15). Selection of this option would preclude the need for habitat and/or mist net surveys for the species. However, the agency would have to agree to incorporate, at a minimum, the following measures into the EIS and project plans in order for the Service to concur with a "not likely to adversely affect" finding:

a. Habitat-disturbing activities (i.e., clearing, construction, etc.) will be conducted only during the period between October 15 and March 3 I.

b. Strict measures will be implemented to maintain water quality in all streams, other water bodies, and groundwater in the project area. This will be accomplished by keeping equipment out of the water to the maximum extent possible, establishing equipment staging areas well away from water bodies, maintaining good silt control (used singly or in

combination, as needed, these include: silt fences, hay bales, rock checks, settling basins, diversion ditches, mulch, and seeding), and keeping removal of mature riparian and upland forest to an absolute minimum. Based on the technical findings of the hydrogeological survey, this may also preclude land application of the effluent from the proposed poultry processing facility.

c. If the project will result in loss of maternity habitat, the agency should create or maintain an equal amount of suitable habitat adjacent to that lost. Creation would consist of "girdling" mature trees or acquiring areas adjacent to the right-of-way (or the project area) containing mature forested habitat with appropriate tree species (see Enclosure I for tree species known to be used by Indiana bats).

d. The project site must be inspected regularly to ensure that all protective measures are in place and are effectively protecting the habitat. In addition, any habitat enhancement features or revegetation implemented upon project completion must be inspected to ensure success.

These recommendations should be included in the EIS for use in an evaluation of available alternatives. If inclusion of the above and/or other protective measures is not possible, formal consultation with the Service pursuant to Section 7 of the Endangered Species Act of 1973, as amended, may be warranted if the species are present in the project impact area(s).

Thank you for the opportunity to comment on this action. If you have questions or if we can be of further assistance, please contact Steve Alexander of my staff at 615/528-6481.

Sincerely,

/s/

Lee A. Barclay, Ph.D.
Field Supervisor

Enclosures

xc: Wayne Davis, KDFWR, Frankfort
Terry Anderson, KDOW, Frankfort

Enclosure 1

Enclosure 2

Enclosure 3

Enclosure 4

Enclosure 5

Enclosure 6..

COMPONENTS OF SUITABLE HABITAT FOR THE ENDANGERED INDIANA BAT

Description of Indiana Bat Habitat

The endangered Indiana bat, *Myotis sodalis,* utilizes two distinct habitat types during the course of a year. In winter (late-October through late March), the bats hibernate in limestone caves, specifically caves that act as cold air traps. In the Cookeville Field Office work area (Kentucky and -Tennessee), large hibernating populations are known to exist in Coach Cave (Edmonson County) and Bat Cave (Carter County) in Kentucky, and White Oak Blowhole Cave (Blount County), Hubbard Cave (Warren County), and Nickajack Cave (Marion County) in Tennessee. Coach Cave, Bat Cave, and White Oak Blowhole Cave have been designated as critical habitat for this species. Smaller populations are known to hibernate in Stillhouse Cave and Cave Hollow Cave on the Daniel Boone National Forest (Lee County). There are other caves in Tennessee and Kentucky that are known to or may support smaller hibernating populations of Indiana bats, as well as caves that have not been surveyed to date.

Upon emergence from hibernation, the bats disperse. Males generally spend the summer in caves, but they are also known to roost in trees periodically after nightly foraging activities. The females, however, use a different habitat, forming small maternity colonies (50 [or fewer] to I 00 [or more] individuals) under loose bark or in cavities (i.e., cracks or holes) in mature trees. Loss of summer maternity and roosting habitat may be an important causative factor in the continued decline of Indiana bat numbers observed by biologists in portions of the species' range. Since most of the major Indiana bat hibernacula are now protected (e.g., cave gate installed, fence constructed around cave entrance), it is the position of the Service that protection of suitable summer habitat may reverse (or at least curb) present declines and will aid in the recovery of the species.

Based on review of available literature and interviews with biologists knowledgeable of Indiana bat biology and ecology, we believe that the following are important components of summer maternity, roosting, and foraging habitat:

1. Mature riparian, lowland, or upland forest.

    a. Trees of appropriate size. Primary roost trees have been found to range in size from 12.2 inches in diameter at breast height (dbh) to 29.9 inches dbh, averaging 21.3 inches. Trees used as secondary roosts range from approximately 7 inches dbh to 33 inches and average 15 to 17 inches dbh.

b. Trees of appropriate species (i.e., trees that have naturally exfoliating bark, or those that develop loose bark, cracks, or holes as they age or die). The species of the tree used as a maternity colony may not be as important as the presence of loose bark or cavities.

1.) Tree species used by Indiana bats include, but are likely not limited to, the following (not listed in order of preference):

"Class I " Species (These tree species possess morphological characteristics that make them highly suitable for maternity roosts {Romme et al., 1995)):

Silver maple	Shagbark hickory
Shellbark hickory	Bitternut hickory
Green ash	White ash
Cottonwood	Red oak
Post oak	White oak
Slippery elm	American elm

"Class 2 "Species (These are species that are considered to be of lesser value than Class I trees, but they are also used):

Sugar maple Shingle oak Sassafras

"Class 3 " Species (All other tree species. If a tree develops loose bark or cavities as it ages or dies, it may provide suitable roosting or maternity habitat for Indiana bats):

2.) Standing snags. Evidence indicates that Indiana bat maternity colonies are more likely to exist in dead or dying trees. Live trees may also be used as maternity sites, but they are more often used as alternate roosts. If possible, snags should be left in areas in which forest habitat is to be removed at a density of at least six per acre. If possible, several trees should be left standing around each snag--i.e., a "clump," consisting of the snag and several trees--to provide some degree of shade to the snag.

3.) If possible, all species of hickory and other tree species that contain or develop characteristics suitable for maternity or roost trees (as described in I.b above) should be left in the area.

2. Foraging habitat immediately adjacent or in close proximity to maternity colony site. The bats likely forage as close to the maternity colony as possible, but they will fly up to three miles to forage if no suitable habitat exists closer to the maternity tree.

a. Foraging habitat consists of streams, lake or reservoir shorelines, riparian or upland forest canopy, or early successional forest. Forested areas and streams should have a closed canopy (40% or more, but less than 80%).

b. Fresh water (i.e., stream, lake, pond) within one kilometer of maternity, roosting, or foraging habitat (66 feet between roost and water is optimal). Bats are even known to use standing water in wheel ruts in old roads or in constructed upland ponds as sources of drinking water.

1.) Opportunities to construct small upland ponds should be explored whenever possible. Ponds should be constructed at I -kilometer intervals throughout the area, and a mixture of permanent and temporary ponds should be constructed.

3. Forest canopy in roosting and maternity areas should be closed (between 30% and 75% overstory closure; not more than 30% understory [from 2 meters above the forest floor to the bottom of the overstory) closure).

a. Maternity or roost trees should not be in areas subject to extreme afternoon sunlight or summer temperatures. Exposure to morning sun would probably not render a tree unsuitable, however.

4. Understory closure should be less than 30% in maternity, roosting, and foraging habitat.

5. Travel corridors should be available. No large "breaks" in forest habitat (no larger than 100 feet) between colony sites and foraging habitat (if not contiguous). Indiana bats tend not to fly across large, open areas.

6. No major highways (i.e., Interstate, U.S. highway, 4-lane, or major State Route) within 300 feet of suitable maternity or roosting habitat. The presence of roads would, however, not necessarily make a stream or forest tract unsuitable as a foraging area.

7. A particular tree may only be temporarily suitable for use as a maternity colony or roosting site (3-4 years). Therefore, if a project will require removal of a single suitable roost tree, there should be an adequate number of suitable and potentially suitable roost trees available in bottomland, lowland, or upland forest immediately adjacent to or within 3 miles of the tree to be removed.

NOTE: The habitat components described above are based on the best data available to date. The summer habitat requirements of the Indiana bat are, however, not yet fully understood. The Cookeville **Office** will refine or modify this document as more data arc collected regarding summer habitat needs.

THE MANGI ENVIRONMENTAL GROUP INC.
701 W. Broad St. Falls Church VA 22046
703 534 2484 Fax 534 2487

May 13, 1997

Mr. Lee A. Barclay, Field Supervisor
U.S. Department of the Interior
Fish and Wildlife Service
466 Neal Street
Cookeville, Tennessee 38501

,Dear Mr. Barclay:

This letter is in response to the U.S. Fish and Wildlife Service's letter of March 26, 1997, received by The Mangi Environmental Group, Inc. which conveyed comments and suggestions for consideration in preparing the Draft Environmental Impact Statement (DEIS) on the proposed City of Albany's Water Expansion Project, Albany, Kentucky. The DEIS was being prepared on behalf of the U.S. Department of Agriculture's Rural Utility Service. Your letter recommended that a habitat survey be conducted by a qualified biologist to determine if any suitable habitat existed for the federally listed endangered species, the Gray bat and the Indiana bat, within the proposed project area.

Habitat surveys were conducted on the proposed project area: the water storage tank site, Clinton County Industrial Park Site, and a 0.5 acre portion of the water treatment plant expansion site by Potesta and Associates on April 3, 1997. Suitable summer maternity, roosting, and foraging habitat for the Indiana bat was found directly south of the proposed water storage tank site. The tank would be located next to this habitat but its installation would not affect the habitat. Necessary mitigation measures would be taken to insure that the habitat would not be affected.

A survey was conducted at the proposed Clinton County Industrial Park site. It was found that a forested area exists along the northeastern site boundary around a perennial stream. Suitable maternity or roosting habitat for the bats was found adjacent to the stream outside the site boundary. Because of this proximity of habitat, the forested area within the site boundary was judged to be suitable foraging habitat for the bats. It was further determined by the Industrial Park design engineers, Mayes, Sudderth, and Ethridge, Inc., that this area is unsuitable for development and would be used as a natural screen for the adjacent property. The habitat would be protected by a 100 foot buffer zone. Therefore, any impact on the potential foraging habitat for the endangered bats would be avoided.

A survey was conducted at the proposed water treatment plant expansion site. No habitats for the two endangered bats were identified. The 0.5-acre stand of trees is not suitable summer maternity, roosting, or foraging habitat for the endangered bats due to lack of appropriate tree species or standing snags. This stand of trees will be removed for health considerations in operating the proposed potable water treatment plant.

The area contains a salient (surface opening) approximately 12 inches in diameter which could have been an access point to a limestone cave the endangered bats might use for winter hibernation. However, the geotechnical study of the area by Monarch Engineering, the proposed potable water treatment plant design engineers, showed solid limestone rock in the subsurface and no indication of any potential caves. This conclusion was based on boreholes, and rock soundings. Neither method identified voids that would indicate caves within the geology of the tested area. Also, soil and ,rock samples were taken and analyzed in the laboratory. Materials that would indicate the presence of voids were not found in the samples.

Therefore, although some suitable habitat does exist within the proposed project area, those habitats would remain undisturbed and additional mitigation measures other than those proposed, would not be necessary.

Please feel free to contact me or John Falkenbury at (703) 534-2484 if you have any questions or we can be of further assistance.

Sincerely Yours,

Martha A. Grib I
Senior Project Manager

Education, Arts and Humanities Cabinet

KENTUCKY HERITAGE COUNCIL
The State Historic Preservation Office

Paul E. **Patton**
Governor
Roy Peterson
Cabinet Secretary

David L. **Morgan**
Executive Director
and SHPO

June 6, 1997

Mr. John f Falkenbury, Technical Director
The Mangi Environmental Group, Inc.
701 W. Broad Street**,** Suite 205
Falls Church, Virginia 22046

RE: Archaeological Investigations at the Proposed Location of the Cagles' Poultry Processing Facility in Clinton County, Kentucky" By Leon Lane, William D. Updike, Daniel B. Davis, and Nancy O'Malley

Dear Mr. Falkenbury:

We have completed our review of the above referenced archaeological report. During the course of their survey the authors recorded eight archaeological sites (I 5Ct23-30) and conducted additional investigations at two of these sites (I 5Ct26 and I 5Ct28). Based upon the results of their study the authors' concluded that none of these sites are eligible for listing in the National Register of Historic Places. I concur with the authors' findings and recommendations that no further archaeological investigations be undertaken at archaeological sites 15Ct26-30.

The project will have no effect on any property listed in or eligible for listing in the National Register of Historic Places and I have no objections to its construction. If you have any questions please feel free to contact David Pollack of my staff at 502-564-7005.

Sincerely,

David L. Morgan, Director
Kentucky Heritage Council and
State Historic Preservation Off**icer**

300 Washington Street
Frankfort, Kentucky 40601

Telephone (502) 564-7005
FAX (502) 564-5820

APPENDIX D

SOCIOECONOMIC MODELING

METHODOLOGY

Regional input-output (I-O) analysis provides the classic tool for tracing economic ripples through the economy. Based on the region's industrial structure, I-O analysis tracks the expected inter-industry flow of goods and services. The effects of the potable water treatment plant development, and the operation of the new poultry processing facility with its integrated farming system on wages, employment, and industry output in the 17 county project area were simulated using a regionalized I-O model. In this analysis, the poultry processing facility is assumed to be operational at half capacity in the first year and at full capacity in the second year and beyond. All project construction is planned for only the first and second years. Because both plant capacity and construction costs are variable in the first and second years, the impacts of this project were evaluated separately for all three years.

The model inputs included construction costs, units constructed, and total output (dollars) from the processing facility. Total project development includes the construction of:

- 1 potable water treatment plant expansion;
- 1 poultry processing facility;
- 1 feed mill and hatchery;
- 20 pullet houses;
- 48 breeder houses; and
- 375 broiler houses.

The specific construction costs and number of units constructed used as model inputs in each project year are listed in the following table:

Construction Costs and Units Used as I-O Model Inputs

Item	Total Units	Unit Construction Cost	First Year (1997)		Second Year (1998)		Third Year (1999)	
			Units	Construction Cost (thousands)	Units	Construction Cost (thousands)	Units	Construction Cost (thousands)
Potable Water Treatment Plant	1	$7,500	1	$7,500	0	$0	0	$0
Processing Facility	1	$42,000	1	$42,000	0	$0	0	$0
Feed Mill and Hatchery	1	$12,000	1	$12,000	0	$0	0	$0
Pullet Houses	20	$100	10	$1,000	10	$1,000	0	$0
Breeder Houses	48	$150	24	$3,600	24	$3,600	0	$0
Broiler Houses	375	$125	188	$23,500	187	$23,375	0	$0
Total	**-**	**-**	**-**	**$89,600**	**-**	**$27,975**	**-**	**$0**

The anticipated direct construction costs in the first year, $89.6 million, includes the construction of the potable water treatment plant expansion, the poultry processing facility, the feed mill and hatchery, 10 pullet houses, 24 breeder houses, and 188 broiler houses. Construction in the second year is comprised only of the remaining 10 pullet houses, 24 breeder houses, and 187 broiler houses, totaling approximately $28 million. Project construction is assumed to conclude in the second year, therefore direct construction expenditures in the third year are zero.

The final input to the I-O model involved an estimate of the annual output of the processing facility. This is necessary as the processing facility would be using local labor and supplies for its operation. The greater the output of the processing plant, the more local supplies and labor would be required. It was assumed that the processing facility would operate at half capacity in the first year and at full capacity in the second and third years. Annual output was calculated using 343 million pounds of poultry, and 40 cents as the price received per pound of chicken. The price was based on the *Agricultural Prices,* published January 31, 1997 by the National Agricultural Statistics Service, USDA which listed 40.4 cents per pound as the price received by farmers. The actual price per pound received by chicken processors is likely to be higher. Therefore, processing plant output in the first year is estimated to be approximately $69 million and in the second and third years it is estimated to be approximately $137 million. These are conservative estimates.

The annual effects on total industry output, employee compensation, and employment are in Tables 1, 2, and 3, for the first second and third project years, respectively. Impacts for specific sectors of the Agricultural Production & Services Industry are also provided in these tables. Wages include salaries, non-wage compensation, and benefits. Employment is measured as the number of jobs, not necessarily full-time equivalents. The first year impacts result from first year construction combined with half-capacity operation of the processing plant. The second year impacts result from the construction completed in the second year combined with the full capacity operation of the plant. By the third year, construction has ended, and economic impacts are the result of only the full capacity operation of the plant.

Development in the EZ would create short-term employment in the construction industry and longer term employment in the processing plant and in spin-off or expanding local industries. It is important to consider whether ample labor forces exist in the EZ (Clinton and Wayne County). It was assumed that the majority of construction jobs would be not be filled locally, but rather be imported with the construction companies. Therefore, in evaluating whether local labor resources are ample, the focus is on meeting labor demand for positions created directly by the processing plant, and those resulting from indirect and induced effects. According to the US Bureau of Census 1996 report, the unemployment rate was 7.3% and 6.1% for Clinton and Wayne County respectively, translating to 325 unemployed workers in Clinton County and 477 in Wayne County. Including 189 unemployed in neighboring Cumberland County, the unemployed labor force for this 3-county area totals approximately 990.

The first year results in the direct employment of approximately 600 workers at the processing plant and feed mill, while approximately 1,200 new jobs may be created via indirect and induced effects. By the second year, the poultry processing plant would probably add another 600 workers increasing to full employment, while the indirect and induced employment would increase by approximately 150. By the third year, the overall effects of direct employment resulting from the processing plant and the indirect and induced employment after construction concludes would total approximately 2,300 jobs created locally.

The Cagle's work force would require a total of approximately 1,200 people for operation of the poultry processing facility by the second year.

Currently, it has been reported that there are 990 people on the unemployment rolls in Clinton, Wayne, and Cumberland Counties. Kentucky unemployment figures are already adjusted for the marginally unemployed. Clearly, this existing labor resource is sufficient to meet the first year demand of jobs in the EZ, but not the second year demand. Additions to the labor force have become available due to factory closings in the City of Albany area, and additional resources would be required to fill jobs at the poultry processing facility and secondary businesses and industries that develop in the area as some individuals change jobs or leave public assistance, it seems unlikely that local resources would be sufficient to meet labor demand.

TABLE D - 1

Direct, Indirect, And Induced Economic Impacts For The First Year In 1997 Dollars

Industry	Total Industry Output	Employee Compensation	Employment
Direct Effects			
Construction	$89,605,444	$10,762,000	698
Food Manufacturing	$68,004,423	$11,902,600	587
Total Direct Effects	**$157,609,868**	**$22,664,600**	**1,285**
Indirect and Induced Effects			
Agricultural Production & Services	$11,624,711	$1,176,000	156
Stone Mining and Natural Gas	$79,378	$12,100	1
Construction	$2,910,361	$433,800	30
Food Manufacturing	$13,096,912	$2,265,100	116
Other Manufacturing	$2,876,366	$434,600	26
Transportation & Communication	$2,833,145	$711,600	46
Utilities	$2,648,216	$519,100	13
Wholesale and Retail Trade	$8,737,113	$3,583,500	329
Financial	$5,323,649	$739,700	31
Insurance	$202,169	$22,700	1
Real Estate	$5,052,468	$50,100	12
Personal Services	$1,385,388	$520,700	44
Professional Services & Bus. Products	$9,007,528	$2,621,300	195
Entertainment	$154,051	$31,500	8
Health Services	$6,497,854	$2,522,700	153
Legal Services	$786,469	$151,300	15
Educational Services	$42,467	$7,900	1
Social Services	$275,775	$110,500	9
State & Local Government	$752,525	$164,900	6
Federal Government	$371,212	$239,600	7
Total Indirect and Induced Effects	**$74,657,756**	**$16,318,700**	**1,200**

Direct Indirect And Induced Effects On Agricultural Sectors In 1997 Dollars

Sector	Total Industry Output	Employee Compensation	Employment
Dairy Farm Products	$196,906	$13,400	2
Poultry And Eggs	$10,068,504	$788,300	80
Ranch Fed Cattle	$109,534	$5,200	6
Range Fed Cattle	$4,772	$300	0
Cattle Feedlots	$11,558	$500	0
Hogs, Pigs And Swine	$14,845	$700	0
Miscellaneous Livestock	$25,024	$2,800	2
Food Grains	$4,029	$100	0
Feed Grains	$34,779	$1,000	1
Hay And Pasture	$156,401	$4,700	4
Grass Seeds	$318	$0	0
Tobacco	$250,559	$28,000	19
Fruits	$16,541	$4,500	1
Vegetables	$118,122	$19,700	2
Oil Bearing Crops	$10,709	$600	0
Forest Products	$2,651	$100	0
Greenhouse And Nursery Products	$39,869	$11,400	1
Forestry Products	$0	$0	0
Agricultural, Forestry, Fishery Services	$451,059	$250,300	33
Landscape And Horticulture	$108,529	$44,400	5
Total	**$11,624,711**	**$1,176,000**	**156**

TABLE D - 2

Direct, Indirect, and Induced Economic Impacts For The Second Year In 1997 Dollars

Industry	Total Industry Output	Employee Compensation	Employment
Direct Effects			
Construction	$27,974,889	$1,707,400	105
Food Manufacturing	$136,008,846	$23,805,200	1,175
Total Direct Effects	**$163,983,735**	**$25,512,600**	**1,280**
Indirect and Induced Effects			
Agricultural Production & Services	$22,589,680	$2,236,700	293
Stone Mining and Natural Gas	$61,779	$10,300	1
Construction	$3,244,047	$483,400	33
Food Manufacturing	$25,793,317	$4,479,200	229
Other Manufacturing	$2,431,391	$379,600	24
Transportation & Communication	$2,460,567	$598,500	38
Utilities	$3,049,847	$598,600	14
Wholesale and Retail Trade	$8,690,285	$3,546,100	329
Financial	$3,815,753	$531,800	22
Insurance	$175,100	$19,700	1
Real Estate	$5,330,206	$49,300	12
Personal Services	$1,089,677	$385,300	35
Professional Services & Bus. Products	$4,629,647	$1,164,200	109
Entertainment	$164,377	$32,500	8
Health Services	$6,975,879	$2,708,300	164
Legal Services	$669,285	$128,700	13
Educational Services	$45,267	$8,400	2
Social Services	$293,377	$117,700	10
State & Local Government	$788,499	$172,700	7
Federal Government	$302,680	$195,400	6
Total Indirect and Induced Effects	**$92,600,658**	**$17,846,400**	**1,351**

Direct Indirect and Induced Effects on Agricultural Sectors In 1997 Dollars

Sector	Total Industry Output	Employee Compensation	Employment
Dairy farm products	$243,137	$16,500	3
Poultry and eggs	$20,102,759	$1,574,000	160
Ranch fed cattle	$189,378	$9,000	10
Range fed cattle	$8,059	$400	0
Cattle feedlots	$19,934	$1,000	0
Hogs, pigs and swine	$25,766	$1,200	1
Miscellaneous live-stock	$34,673	$3,800	3
Food grains	$6,362	$200	0
Feed grains	$54,396	$1,500	1
Hay and pasture	$224,581	$6,900	5
Grass seeds	$530	$0	0
Tobacco	$490,197	$54,700	36
Fruits	$18,450	$5,100	1
Vegetables	$136,997	$22,900	3
Oil bearing crops	$20,465	$1,100	0
Forest products	$3,817	$100	0
Greenhouse and nurs-ery products	$42,202	$12,100	1
Forestry products	$0	$0	0
Agricultural, forestry, fishery services	$893,012	$495,500	65
Landscape and horticulture	$74,965	$30,700	3
TOTAL	**$22,589,680**	**$2,236,700**	**293**

TABLE D - 3

Direct, Indirect, and Induced Economic Impacts For The Third Year
In 1997 Dollars

Industry	Total Industry Output	Employee Compensation	Employment
Direct Effects			
Construction	$0	$0	0
Food Manufacturing	$136,008,846	$23,805,200	1,175
Total Direct Effects	**$136,008,846**	**$23,805,200**	**1,175**
Indirect and Induced Effects			
Agricultural Production & Services	$22,472,679	$2,211,900	290
Stone Mining and Natural Gas	$42,078	$7,300	1
Construction	$2,756,868	$410,600	28
Food Manufacturing	$25,746,982	$4,473,200	229
Other Manufacturing	$870,565	$202,700	12
Transportation & Communication	$1,731,568	$412,700	25
Utilities	$2,700,870	$530,000	13
Wholesale and Retail Trade	$7,407,918	$3,007,800	282
Financial	$2,636,342	$367,100	15
Insurance	$136,654	$15,300	1
Real Estate	$4,763,607	$42,300	10
Personal Services	$902,208	$312,800	29
Professional Services & Bus. Products	$2,317,960	$592,600	66
Entertainment	$148,110	$29,300	7
Health Services	$6,282,306	$2,438,900	148
Legal Services	$546,307	$105,000	10
Educational Services	$40,600	$7,600	1
Social Services	$263,576	$105,700	9
State & Local Government	$698,624	$153,100	6
Federal Government	$204,285	$131,800	4
Total Indirect and Induced Effects	**$82,670,107**	**$15,557,700**	**1,187**

Direct Indirect and Induced Effects on Agricultural Sectors
In 1997 Dollars

Sector	Total Industry Output	Employee Compensation	Employment
Dairy Farm Products	$225,747	$15,200	3
Poultry And Eggs	$20,098,836	$1,573,700	160
Ranch Fed Cattle	$185,878	$8,800	10
Range Fed Cattle	$7,953	$400	0
Cattle Feedlots	$19,510	$900	0
Hogs, Pigs And Swine	$25,130	$1,200	1
Miscellaneous Live-stock	$32,765	$3,600	2
Food Grains	$5,938	$200	0
Feed Grains	$50,791	$1,400	1
Hay And Pasture	$203,056	$6,200	5
Grass Seeds	$530	$0	0
Tobacco	$488,925	$54,500	36
Fruits	$16,753	$4,600	1
Vegetables	$125,545	$21,000	2
Oil Bearing Crops	$20,359	$1,100	0
Forest Products	$2,969	$100	0
Greenhouse And Nurs-ery Products	$36,476	$10,400	1
Forestry Products	$0	$0	0
Agricultural, Forestry, Fishery Services	$891,741	$494,800	65
Landscape And Horti-culture	$33,776	$13,800	1
Total	**$22,472,679**	**$2,211,900**	**290**

APPENDIX E

Response to Comments

List of Individual Commentors (Written Comments)	
Larry Gibson Caren Gibson Jerry Jones	Jim Hughes Timothy Crocker
List of Individual Commentors (Telephone Comments to 1-800 Number)	
Dorothy Matz Mark Hall Jerry Jones	Eule Krebin Scott Jusoe

Comments:

General non-specific comments received from the public in support or opposition to various facilities that would be built should the proposed project be funded. There was no opposition to the proposed Albany potable water treatment plant.

Response:

Thank you for your comments.

List of Agency Commentors	
None	
List of Organization Commentors	
Friends of Drakes Creek Sierra Club	Peggy Farley Granville Hall W. H. Graddy
List of Individual Commentors	
Jessica B. Spears Beverly Gillespie JW and Christene B. Randolph Cherie Sloan Ronald R. and Elizabeth G. Dunn	Terry and Lee Spears Douglas Tucker Barbara M. Hall Jon Collins

Comments:

These comments were related to odor that could be emitted from poultry houses.

Response:

Odor would not be an annoyance to neighbors since the litter is kept dry, proper stormwater drainage is provided, and proper fan ventilation is maintained. See Section 3.8.3, Air Quality, page 113.

List of Agency Commentors	
None	
List of Organization Commentors	
Friends of Drakes Creek Sierra Club	Peggy Farley Granville Hall W. H. Graddy
List of Individual Commentors	
Jessica B. Spears Beverly Gillespie JW and Christene B. Randolph Cherie Sloan Ronald R. and Elizabeth G.Dunn	Terry and Lee Spears Douglas Tucker Barbara M. Hall Jon Collins

Comments:

These comments were related to odor that could be emitted by the feed mill.

Response:

No odor would be emitted by the feed mill. See Section 3.7.3, Air Quality, page 102.

List of Agency Commentors	
None	
List of Organization Commentors	
Friends of Drakes Creek	Peggy Farley Granville Hall
List of Individual Commentors	
JW and Christene B. Randolph Beverly Gillespie Ronald R. and Elizabeth G. Dunn Cheri Sloan	Terry and Lee Spears Louise Williams Barbara M. Hall Douglas Tucker

Comments:

These comments were on flies being attracted by poultry houses and being an annoyance.

Response:

The dry litter and chickens eating the larvae would prevent flies at the broiler and pullet houses. At the breeder houses, flies would be controlled by the use of pesticides. See Section 3.8.4, Pest Management, page 115.

List of Agency Commentors	
None	
List of Organization Commentors	
Friends of Drakes Creek Sierra Club	Granville Hall W. H. Graddy
List of Individual Commentors	
Terry and Lee Spears	

Comments:

Comments were received on the dust that could be associated with poultry houses.

Response:

Dust in the poultry houses would originate from the bird, the feed, and the litter. Dust is usually not a problem outside the poultry house due to the low level of dust discharged from the house and the dilution effect of the atmosphere. See Section 3.8.3, Air Quality, page 113.

List of Agency Commentors	
None	
List of Organization Commentors	
Friends of Drakes Creek Sierra Club	Granville Hall W. H. Graddy
List of Individual Commentors	
Terry and Lee Spears	

Comments:

Comments were received on the dust that could be associated with the feed mill.

Response:

Dust from the transfer of corn kernels from rail car to the feed mill would be collected to prohibit dispersion. See Section 3.7.3, Air Quality, page 102.

List of Individual Commentors
Ronald R. and Elizabeth G. Dunn

Comments:

There is no discussion of noise associated with poultry house operation.

Response:

The noise from the poultry house would be from the operation of the nine ventilation fans and the diesel generator for backup electric power. See Section 3.8.5, Noise, page 116.

List of Agency Commentors	
None	
List of Organization Commentors	
Sierra Club Friends of Drakes Creek Friends of Red River Lake Cumberland Trust Kentucky Waterways Alliance	W. H. Graddy Bettye Glover Bettye Glover Alice Howell Alice Howell
List of Individual Commentors	
None	

Comments:

Comments were the concentration of metals found in chicken manure (sic) was not discussed in the EIS. The only specific metal mentioned was arsenic.

Response:

Arsenic was and is no longer an ingredient used in feed, and therefore is not in the litter.

List of Individual Commentors
Terry and Lee Spears

Comments:

The feed mill and hatchery would utilize too much Simpson County water. Drake's Creek was cited as the water supply of concern.

Response:

Simpson Couty obtains its potable water from the Whitehouse Utilities District in Tennessee. The district draws its water from the Old Hickory Reservoir. See Section 3.7.2, Surface and Groundwater/Water Quality, page 100.

List of Agency Commentors	
None	
List of Organization Commentors	
Lake Cumberland Trust Kentucky Waterways Alliance Friends of Drakes Creek Friends of Red River Kentucky Resources Council, Inc. Sierra Club	Alice Howell Alice Howell Bettye Glover Bettye Glover Tom FitzGerald W. H. Graddy
List of Individual Commentors	
Jessica B. Spears Patrick Meguiar	Terry and Lee Spears

Comments:

The comments were about the poultry processing facility's treated wastewater passing directly through the karst geology and entering and contaminating the groundwater.

Response:

The discussion of the relationships between the karst topography, treated wastewater, and the groundwater may be found in Section 3.6.1, Geology/Topography/Soils, page 79 and Section 3.6.2, Surface and Groundwater/Water Quality, page 84.

List of Agency Commentors	
None	
List of Organization Commentors	
Lake Cumberland Trust Kentucky Waterways Alliance Friends of Drakes Creek Friends of Red River Kentucky Resources Council, Inc. Sierra Club	Alice Howell Alice Howell Bettye Glover Bettye Glover Tom FitzGerald W. H. Graddy
List of Individual Commentors	
Jessica B. Spears Patrick Meguiar	Terry and Lee Spears

Comments:

The comments were about the poultry houses drainage passing through the karst geology and causing groundwater contamination.

Response:

Poultry house design keeps precipitation flowing away from the house. This, plus the use of nipple drinkers, clay floors, and the litter being kept dry prevents contamination of groundwater. Groundwater could be contaminated by MB management of litter application to the land. See Section 3.8, Poultry Houses, page 105 and Section 3.8.1, Topography/Soils, page 109, and Section 3.8.2, Groundwater, page 110.

List of Agency Commentors	
None	
List of Organization Commentors	
Community Farm Alliance Friends of Drakes Creek Friends of Red River	Tribby Vice Bettye Glover Bettye Glover
List of Individual Commentors	
Patrick Meguiar	

Comments:

Comments concerned Tennessee‘s karst geology vulnerability to groundwater contamination.

Response:

The construction of the poultry houses, such as the roof, clay floors, stormwater drainage, and nipple drinkers for the birds would keep the litter dry. However, the karst geology found in Tennessee would permit groundwater contamination if best management practices are not followed during poultry house litter application as a fertilizer. See Section 3.8.1, Topography/Soils, page 109, and Section3.8.2, Groundwater, page 110.

List of Agency Commentors	
None	
List of Organization Commentors	
Friends of Beargrass Creek	Bud Hixson
List of Individual Commentors	
None	

Comments:

The proper farm acreage for land application of poultry house litter was not discussed in the EIS.

Response:

Land application of poultry house litter would require 30-40 acres of land for each house (Pescatore, 1997). See Sections 3.8, Poultry Houses, page 105, and 3.8.1, Topography/Soils, page 109.

List of Agency Commentors	
None	
List of Organization Commentors	
Kentucky Resources Council, Inc.	Tom FitzGerald
List of Individual Commentors	
None	

Comments:

The Kentucky Agriculture Water Quality Plan is not in effect.

Response:

The plan will not be implemented until 2001. Kentucky is currently encouraging early compliance with the plan. See Section 3.8.2, Groundwater, page 110.

List of Agency Commentors	
None	
List of Organization Commentors	
Sierra Club Lake Cumberland Trust Kentucky Waterways Alliance	W. H. Graddy Alice Howell Alice Howell
List of Individual Commentors	
None	

Comments:

Removal efficiency of the wastewater treatment system is unsubstantiated. No explanation is provided for removal of metals, ammonia, oil, grease, bacterial pathogens, and other pollutants from the wastewater.

Response:

The removal efficiencies are based on EPA publications on the capabilites of the cyclic reactor aerobic basin type system as well as the engineering experience of Cagle's professional engineer. See Section 3.6.2, Surface and Groundwater/Water Quality, page 84. No chemicals containing metals are used in the processing facility. All other parameters are discussed in the EIS. See Section 3.6, Poultry Processing Facility and Hay Farm, page 73.

List of Agency Commentors	
None	
List of Organization Commentors	
Kentucky Resources Council, Inc. Friends of Drakes Creek Friends of Red River Sierra Club	Tom FitzGerald Bettye Glover Bettye Glover W. H. Graddy
List of Individual Commentors	
Jessica B. Spears	Homer Hecht

Comments:

The EIS fails to include OSHA compliance records for Cagle's operations.

Response:

Not within the scope of this EIS. See Section 3.6.8, Worker Health and Safety Education, page 95.

List of Agency Commentors	
None	
List of Organization Commentors	
Kentucky Resources Council, Inc. Rural Advancement Foundation	Tom FitzGerald Mary Clouse
List of Individual Commentors	
Douglas Tucker	

Comments:

The EIS does not discuss the inequality of contracts between company and growers.

Response:

This subject is not within the scope of the EIS.

List of Agency Commentors	
Environmental Protection Agency Region IV	
List of Organization Commentors	
None	
List of Individual Commentors	
None	

Comments:

Line the holding ponds with the same polyethylene material as used for the lagoon.

Response:

Cagle's engineers have stated it would cost over $1 million to line the holding ponds with the polyethylene material. This liner would not provide any better protection from groundwater contamination in the unlikely event of a sinkhole collapse. A karst geologist would be consulted in the siting of the holding ponds. See Section 3.6.2, Surface and Groundwater/Water Quality, page 84.

List of Agency Commentors	
Environmental Protection Agency Region IV	
List of Organization Commentors	
None	
List of Individual Commentors	
None	

Comments:

Cagle's should use a well field monitoring program to determine potential groundwater contamination.

Response:

Cagle's engineers would establish a well field monitoring program on the processing facility site. The monitoring program would monitor for sulfate, chloride, nitrogen, fecal coliform, phosphorous, conductivity, pH, dissolved oxygen, temperature, BOD, chemical, oxygen demand, total suspended solids, total dissolved solids, oil, and grease. See Section 3.6.2, Surface and Groundwater/Water Quality, page 84.

The following comments were received on behalf of the Sierra Club by W.H. Graddy and Associates in letters dated April 29, 1997, May 28, 1997, and two letters dated June 6, 1997. Comments were also received by J. Paxton Marshall in a letter dated June 9, 1997; these comments were referred to by W.H. Graddy in his June 6, 1997 correspondence.

Comment:	Failure to provide University of Kentucky archaeological investigation report regarding poultry processing facility site.
Response:	The University of Kentucky archaeological report was not referenced in the Draft EIS or in this FEIS. The archaeological report was and has not been incorporated by reference. The report is the property of the Clinton County Empowerment Zone Community, Inc. Please contact the EZ for a copy of the report.
Comment:	Failure to make material incorporated by reference reasonably available. The Rowe 1997 report was not provided in adequate time for comment. The Rowe report, when provided, was inefficient regarding spray irrigation nutrient levels. (Marshall also commented on this) No basis is provided for the claimed removal efficiencies of 94% and 95%.
Response:	A copy of the Rowe 1997 report was not requested until the Wednesday night Public Hearing on 28 May 1997 at the Public Hearing held in Albany, Kentucky. An original, clean copy of the Rowe report was requested from Vernon Rowe, P.E. on Thursday, 29 May 1997. The validity of the removal efficiency in the report were verified in a cover letter from Vernon Rowe, P.E., on Monday, 3 June 1997. The letter and report were received on Tuesday, 4 June 1997. The letter and report were immediately sent to William H. Graddy by facsimile. William H. Graddy had the report within four working days.
Comment:	Failure to provide Ground Engineering and Testing Service, Inc. (GETS) report.
Response:	A copy of the GETS Report was personally provided to Mr. William H. Graddy on 29 April 1997 at the Clinton County School at the evening Public Hearing.
Comment:	The DEIS is inadequate on its face and the USDA should prepare and circulate a revised draft EIS.
Response:	After 45-day comment period, no federal agency, particularly the US EPA, found the Draft to be inadequate.

Comment:	The USDA failed to provide adequate notice for the April 29, 1997, public hearings.
Response:	Two additional Public Hearings were held on 28 May 1997 in Albany, KY and 29 May 1997 in Franklin, KY. Mr. William H. Graddy was personally invited to both meetings.
Comment:	Lack of candor regarding the list of agencies and persons contacted. Some of the people listed were not contacted regarding the EIS.
Response:	Section 10.0 in the draft EIS, Persons and Agencies Contacted, was a list of all persons to whom the draft EIS was sent and a list of agencies and persons contacted in preparing the draft. The Section 10 in the final EIS only contains the list of "List of Agencies, Organizations, and Persons to whom copies of the statement (were) sent" [40 CFR 1502.10(i)].
Comment:	Failure to consider reasonable alternatives: Cagle's processing facility should be located at the Clinton County Industrial Park site and the wastewater should be discharged to the City of Albany's sewer system. Cagle's processing facility would locate at the proposed site; however, wastewater treatment with tertiary treatment facilities would be used instead of the land application system. The EIS should investigate the City of Albany attracting a number of different and diverse economic enterprises. (By Marshall): The processing facility should be located closer to the City of Albany and utilize Biological Nutrient Removal. The facility would discharge to Albany's wastewater treatment plant.
Response:	The purpose and need as described in this EIS is to provide an adequate long-term potable water source for the EZ, in order to allow the EZ to attract industry to the area. The alternatives proposed by the commentors did not relate to the purpose and need, and are not within the scope of the EIS.

Comment:	Failure to evaluate environmental consequences. Hydrologist report states that the Cagle's hay farm cannot provide adequate treatment for the poultry processing facilities' wastewater. Failure to study the karst consequences of spray irrigation. (Comments by Graddy and Marshall)
Response:	Adequate study and evaluation was provided by Ground Engineering and Testing Services, Inc., and Crawford and Associates on these subjects. A karst geologist will be used to assist in the final study siting and design of the wastewater basins, the storage lagoons, and the irrigation systems. See Section 3.6., Section 3.6.1, and Section 3.6.2.
Comment:	The method of methane collection is unreliable and the DEIS fails to reference successful use of the technique.
Response:	The proposed methane collection strategy is a common practice and has been successfully used by municipal utility companies, such as in Little Rock, Arkansas. See the box on the fourth page of Section 3.6.
Comment:	Failure to consider phosphorous contamination in the wastewater.
Response:	Phosphorous level in the treated wastewater would be too low, 10 mg/L, to economically treat for further removal. See Section 3.6.2.
Comment:	Failure to note that the Cagle's hay farm is designated by the Division of Water to be a highly sensitive groundwater area.
Response:	This statement was unsubstantiated. No documentation was presented to support this claim.
Comment:	Failure to provide substantiation for the impacts section for surface and groundwater.
Response:	After the 45-day comment period, no federal agency, particularly the US EPA, found the surface and groundwater impact sections to be inadequate. See Section 3.6.2.
Comment:	Failure to give environmental consequences of 468 (sic) poultry houses.
Response:	There are a project 444 poultry house on approximately 134 farms. The impacts of these poultry houses and farms are discussed in Section 3.8.
Comment:	DEIS ignores the problem of poultry house odor and dust.
Response:	Odor and dust are discussed in Section 3.8.3.

Comment:	Environmental impacts appear to be overlooked in the Draft EIS. The DEIS ignored the issue of abundant metals and bacteria found in poultry manure.
Response:	The supporting documentation is six years old ("Environmental Impacts of On-Farm Poultry Waste Disposal – A Review," Edwards, et.al., 1991) and does not reflect the currently used information on the subject of poultry waste. Iron, copper, and zinc are commonly used as soil conditioners. Chlorine would be present in the waste as either a potassium or sodium salt and not as a free radical. Arsenic was formerly used in feed and is no longer and is not found in poultry waste today.
Comment:	Failure to provide adequate analysis concerning disposal of dead animals from the poultry houses.
Response:	Disposal of dead birds would be done in compliance with Kentucky or Tennessee laws and regulation. See Section 3.8.
Comment:	The DEIS merely asserts that the Kentucky Agriculture Water Quality Plan will prevent adverse impacts from poultry house operation.
Response:	See Section 3.8.1.
Comment:	Failure to study the environmental risks to poultry house workers based upon available scientific literature.
Response:	This subject is not within the scope of this EIS.
Comment:	DEIS fails to recognize that row crop farmers do not purchase poultry litter and are reluctant to use it on a regular basis.
Response:	This claim was unsubstantiated by the literature cited.
Comment:	The Cagle's integrated farming operation is inconsistent with the USDA Family Farm Policy.
Response:	The Cagle's farm system is a prime example of an integrated farming operation. Their contracts are with individual family farmers. This is consistent with the current USDA family farm policy. See Section 3.13.
Comment:	Failure to provide substantiation for the poultry houses providing sufficient income to a family farm establishment.
Response:	This subject is not within the scope of the EIS.
Comment:	Failure to provide adequate analysis of the environmental consequences of construction of water main on identified threatened and endangered species.
Response:	There are no threatened or endangered species on the water main route. There are two plant species 300 feet from the route and would not be endangered by the construction. See Section 3.4.5.
Comment:	Failure to provide adequate analysis of consequences of water storage tank on two federally endangered bat species.
Response:	See Section 3.5.4.

Comment:	Failure to provide adequate analysis of consequences of 100 additional trucks per day to plant transportation routes.
Response:	After the 45-day comment period, no federal agency, particularly the US EPA, found the transportation impact sections to be inadequate. See Section 3.12.3.
Comment:	Failure to provide Cagle's performance in the area of worker health and safety.
Response:	This subject is not within the scope of this EIS. See Section 3.6.8.
Comment:	DEIS is unrealistic in its analysis of maintaining over 1,000 people employed at the processing facility with the local population.
Response:	After the 45-day comment period, no federal agency, particularly the US EPA, found the socioeconomic impact sections to be inadequate. See Section 3.12.1.

Comments received on May 28, 1997, from the Kentucky Resources Council, Inc:	
Comment:	Failure to develop long-term economic strategy for the EZ.
Response:	The federal government established the EZ and its long-term strategy to attract industrial enterprises. The purpose and need for the proposed action is to provide a long-term potable water supply to any potential businesses that locate within the EZ.
Comment:	Too narrow a range of alternatives considered; only considered alternatives for delivering water to Cagle's.
Response:	The comments do not address the mission of the EZ, which is to empower rural communities and their residents to create jobs and opportunities for development through a government and private business partnership. The comments do not address the purpose and need of the EIS. The industrial development that will be brought in by the EZ will need a sufficient potable water supply. The existing potable water treatment plant cannot provide a sufficient supply. The alternatives provided in the EIS address options for providing long-term potable water to the EZ for future industrial development. No other options for water sources or treatment plants other than the ones provided in the EIS met the expected needs of the EZ.
Comment:	Impacts of No Action alternative are speculative.
Response:	Refer to Section 3.14 of the EIS text for explanation of the No Action alternative.
Comment:	EZ strategy should not be dependent on one employer.
Response:	The current EZ economic strategy is not dependent on one employer for its success. The location of Cagle's to the EZ as a result of the increase in available potable water is merely the start of the influx of business and opportunity into the EZ. Cagle's is just the first of possibly many employers.
Comment:	Failure to include ACOE as cooperating agency.
Response:	The ACOE was given the opportunity to become a cooperating agency in the development of this EIS and had to decline the offer at that time. This does not preclude the ACOE from adopting this final EIS at a later time.

Comment:	Failure to consult EPA and US Fish and Wildlife.
Response:	The EPA Region IV has been given a copy of the Draft EIS for review, and the US Fish and Wildlife Service was consulted on areas of the EIS which pertain to their areas of regulation. Comments have been received from the EPA on the draft EIS. US Fish and Wildlife Service chose not to comment.
Comment:	Failure to include Kentucky Division of Water as cooperating agency.
Response:	Since there is no state action taking place in the proposed project, the Kentucky Division of Water is not directly involved in the decision-making process. However, that office was given a copy of the Draft EIS for review and comment. The Kentucky Division of Water did not comment.
Comment:	Failure to note impacts to workers.
Response:	The potential impacts to employees of the Cagle's poultry processing facility are discussed in Sections 3.12.1 and 3.12.2.
Comment:	No assessment of the relationship of growers to the processing facility given. Contract provisions to protect grower should be a requirement for receipt of grant money.
Response:	The contracts and relationships between Cagle's and the potential growers is a private arrangement and is out of the scope of study for this EIS. Furthermore, no evidence has been provided to indicate that the Cagle's contracts are financially or personally detrimental to the farmer.
Comment:	USDA should develop a program to ensure accuracy of weighing. Educational programs for farmers should be established. No cost/benefit study conducted for existing poultry operations in Kentucky.
Response:	The development of programs for proper weighing and education to farmers is out of the scope of study for this EIS as is a cost/benefit study of existing poultry operations in Kentucky.
Comment:	Failure to include OSHA compliance records for Cagle's, any parent company, and key personnel.
Response:	Not within the scope of this EIS. See Section 3.6.8.

Comment:	Failure to account for non-compliance with voluntary mitigation measures.
Response:	Cagle's would strongly encourage compliance with any voluntary best management practices including the Kentucky Agriculture Water Quality Plan in order to minimize the potential for environmental impacts. See Section 3.8.
Comment:	Failure to account for catastrophic mortality and failure of lagoon liner.
Response:	Refer to Section 3.6.2 for impacts of an unlikely lagoon liner rupture. Catastrophic mortality of the poultry houses was addressed in Section 3.8 of the EIS.
Comment:	Kentucky Agriculture Water Quality Plan is not implemented for specific farms.
Response:	The Kentucky Agriculture Water Quality Plan will be implemented by 2001.
Comment:	Failure to include assessment of stream loading from runoff and other pollutants.
Response:	Refer to Section 3.6 for potential impacts of stream loading. Refer to Section 3.8.1 for potential stream loading impacts regarding poultry houses.
Comment:	Failure to address solid waste disposal for offal and sludge.
Response:	The offal from the processing facility would be disposed of at the rendering plants located in Russellville and Henderson, Kentucky. The processing facility operations would not produce any sludge. Refer to Section 3.6.
Comment:	Failure to include worst-case (sic) scenario impacts for items where site evaluation is not available.
Response:	The extreme case scenario impacts for the unsited poultry houses can be found in Section 3.8.1.