

Environmental Assessment

SUPPLEMENT

**Kiev Atlantic Project
Farm Service Center
Vegetable Oil Seed Plant**

in

Myronivka, Kiev Oblast, Ukraine

Under the auspices of

**Citizens Network for Foreign Affairs, Kiev, Ukraine
and the
United States Agency for International Development**

Cooperative Agreement No. 121-0006-A-00-6238-00

Agribusiness Partnerships II Project

by

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23 June 1997

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(1) SUMMARY

The objective of this Supplemental Environmental Assessment is to bring Kiev Atlantic's operations in Myronivka, Kiev Oblast, Ukraine into compliance with current environmental regulations of the Ukraine and the United States Agency for International Development.

The supplement is presented to USAID for approval of the Environmental Assessment pursuant to 22CFR Regulation 216. The environmental impacts and mitigations described herein are based on the findings and analysis of the Initial Environmental Evaluation, Environmental Assessment, and Environmental Audit written for USAID by CNFA. Additional information came from the Environmental Management Plan required by the European Bank for Reconstruction Development, various CNFA/USAID reports and memorandums, local authorities inspections and reports during the construction period and on internal reports and assessments of Kiev Atlantic Ukraine, Ltd.

Kiev Atlantic is complying with EA requirements documented by USAID, required by EBRD, and inspected by Ukrainian authorities. These requirements are attached as appendices to this document. In those cases where plans changed in the USAID AP 1 project, no further environmental analysis is warranted at this time. Due to a variety of reasons, the construction and operation of the agrochemical facility, including storage and management of fuels, fertilizers and pesticides were delayed. The Ukrainian grain embargo of 1996 caused a massive failure in repayment of debts to Kiev Atlantic from the farming community, and was a factor for the changes in the project. Presently no fertilizers nor pesticides are stored on the property. The fuel depot is for on site construction purposes and Kiev Atlantic transportation needs.

As the project progresses and funding evolves, should these activities reactivate, environmental assessments will be completed for them. The existing Environmental Audit can serve as preliminary guidelines for management.

Mitigations for construction activities were guided by complying with Ukrainian standards for receiving licences and passports for each phase of the project. They met all construction standards in this state of the art facility. Environmental impacts and proposed mitigations are described in this document for industrial waste, surface runoff and toilet/kitchen sewerage plus air pollution abatement, in particular for the seed oil extractor. Kiev Atlantic will achieve odor reduction through temperature control, efficiency of operation, and following the advice of consultant recommendations to be obtained in 1997. The boiler for steam generation will burn natural gas serviced by subterranean pipeline and will be clean. Dust is controlled by high grade coarse crushed granite on all roadways, aprons, and side rail areas and the replanting of vegetation. Additionally, impacts and mitigations are described for hazardous wastes and materials including fuels and paints and solvents. Construction of a berm will contain fuel spillages from the central storage tank to be completed in 1997. Paints and solvents are safely stored in closed metal shipping crates isolated from other structures. Soil and groundwater contamination is managed by

an adequate system of subterranean sewer lines and surface ditching. Erosion at the terminus of the surface drainage system will be controlled by the construction of a crushed rock apron with berms in addition to the present velocity reducer. Kiev Atlantic will control soil erosion in several places next to the property in 1997. An aerator tower will control groundwater radon. A radioisotope baseline survey of client farms in the Myronivka area is scheduled for July, and will be attached as an appendix to this Environmental Assessment Supplement when it is finished. Noise abatement will proceed through proper maintenance of bearings, belts and machinery. Planting trees and grass at key locations will improve aesthetics around the perimeter of the project, and developing a park for employee recreation. Two reservoirs, pipelines and pumps are under construction for fire control. The Environmental Audit contains a Worker Training Plan for Emergency Response, and is attached to this Supplement. Delegation of responsibility for worker safety is also attached.

Monitoring requirements will be:

Waste Water.....Regular maintenance
 Air Pollution.....To be determined by consultant during 1997
 Radon.....Quarterly tests as per official requirements
 Radiation.....Only the baseline study will be completed
 Fire Abatement.....Municipality will perform periodic checks on the system
 Worker Health and Safety and
 Emergency Response Plan.....As described in Environmental Audit attached as Appendix.

(2) DESCRIPTION OF PROJECT

The Kiev Atlantic Ukraine Ltd. Farm Service Center in Myronivka, Kiev Oblast, Ukraine is designed to provide inputs and services for farmers in the Ukraine. The Center currently consists of:

1. A 150,000 tons per annum through-put capacity, state of the art grain elevator complex.
2. 30,000 tons of long term processed seed oil storage of the planned 56,000 ton capacity for the center.
3. A 50,000 tons per annum capacity oil seed extraction plant, slated for opening in August-October, 1997.
4. A 60,000 tons per annum livestock feed production facility.
5. A scale house, employee cafeteria, fencing and security buildings.
6. A new connecting rail spur and 3.2 kilometers of ?on site? rail lines.
7. Site utilities and steam boiler plant
8. Related site improvements, including reservoirs, a well, and hard-surfaced roads.

The project nucleus, consisting of the grain holding silos, seed oil processing and storage facility and a feed mill will be operational in 1997. All products will be bulk loaded out of the plant. The supply sides of the project including agrochemical and fertilizer storage and sales and seed warehousing, farm machinery and parts? sales will follow later. No design plans are currently available for supply side activities other than those planned activities already included in the 1995 Environmental Audit and Vnipitransgas Technozyvazok Institute reports (Appendix).

The Kiev Atlantic project first received USAID funding in 1994 from the Food Systems Restructuring Project (also known as Agribusiness Partnerships I Project). These funds amounted to \$1,686,600 with matching funds of \$9,540,000 from Kiev-Atlantic Ltd. AP I will end in January 1998. CNFA is the primary contractor and the KAU is a Subgrantee of the project.

(3) PROPOSED ACTIVITIES IN THE AP-2 PHASE

The current proposal under consideration by CNFA is for the **?Completion and Start-Up of Vegetable Oil Seed Processing Plant to Extract Oil and Produce Protein Meals.?** The plant is located next to the grain receiving elevator structure with facilities for long-term storage of whole seeds and finished product along with the oilseed processing line (Maps in appendix). It has the capacity for storage of 50,000 tons of soft vegetable seeds. The potential oilseed crops of the region are canola, soybeans, peas, sweet lupines and primarily sunflowers. They expect the plant to produce annually 22,000 tons of pure crude vegetable oil and 28,000 tons of vegetable protein meals when operating at full capacity. Extracted oil will be stored in silos on site to be loaded into railroad tank cars and perhaps tanker trucks for shipment to bottling factories and other processing factories and overseas. Kiev Atlantic currently has a market for bulk loaded seed cake with a large state feed mill in Borispol. Several poultry operations have expressed interest in purchases of the concentrate. Very little waste is anticipated, due to the high value of the product. In case of spillage, or if the meal were to be contaminated, the municipal sanitary landfill and municipal sewerage system on an emergency basis can handle the waste satisfactorily.

The project will have two main elements:

- a. Processing line-this consists of a large ?day bin,? seed cleaners, cracking mills, steam conditioners, five 185 HP Anderson extruder-expellers, protein meal coolers, oil filters and oil storage tanks.
- b. Production Storage - this will consist of four large U.S. manufactured silos with a holding capacity of 30,000 tons. This is ? of the annual capacity of the processing line of approximately 57,000 tons. Detailed specifications are attached in the Appendix.

The proposed assistance from USAID will make it possible to have the oilseed processing plant operational by September of 1997. Specifically the AP funds will be used to:

- a. Hire and train Ukrainian employees;
- b. Provide direct supervision by Western managers in training Ukrainian personnel;
- c. Make payments to construction sub-contractors for fire protection pump house and water reservoirs, steam boiler and extraction/line erection, oil processing electric installation, utility contract and EKO electric contract;
- d. Purchase and install computer hardware and software and provide training for their use; and,
- e. Conduct a baseline monitoring study of the radiation environmental status of farms from which grains will be purchased.

Financial inputs for the proposed project are: \$4,950,372 from Kiev Atlantic U.S. & Partners; \$500,000 from USAID, and \$00.00 from Kiev Atlantic Ukraine, for a total of \$5,450,372.

The proposed AP-2 development contract is for seven months. Kiev Atlantic has arranged for procurement of 35,000 tons of 1997 oilseeds. The initial operating period, October through December, will be a training period and they will operate the plant at less than full capacity. They plan that by June of 1998, processing the 1997 crop will be completed. The yield for this crop will be;

- 1. Vegetable Oils: 15,000 tons
- 2. Vegetable Protein meals: 20,000 tons.

Vegetable protein meals with milled grains for animal concentrates will be blended and bulk-shipped to clients.

The plant will operate on a 24-hour per day basis for 300 days per year. It will be manned by a shift supervisor and five specialists who will operate the machines on the line. This is not a solvent extraction plant. Oil will be pressed from the seed, and partial steam extraction will occur from the cake. The remaining residues will be high in protein; ideal for animal concentrate blending.

4) HISTORY OF THE ENVIRONMENTAL ASSESSMENT PROCESS FOR THE KIEV ATLANTIC PROJECT

In the original Subgrant Agreement with Kiev-Atlantic, Ltd. and Citizens Network for Foreign Affairs under the FSRP Project, an Initial Environmental Evaluation (IEE) was prepared. USAID recommended and approved a Positive Determination on June 4, 1994. Therefore, an Environmental Assessment was required. The issues to be reviewed were the potential negative environmental impacts resulting from the operation of the farm service center store which stocks various products including fuel, fertilizer, crop production chemicals and veterinary supplies, the operation of a transportation fleet and the construction and operation of an oilseed processing plant.

Among the environmental concerns were air quality and disposal of waste from the grain elevator, fuel storage for the transportation fleet, the storage and handling of chemicals and the disposal of water and other waste from the proposed oil seed processing plant.

Interconnect Associates carried out the Environmental Assessment for the Kiev Atlantic Subgrant Activities, Inc. under contract to CNFA, which was submitted to CNFA on 18 November 1994. USAID reviewed the EA in January of 1995 and outlined suggestions for improvement of the document (See Appendix).

CNFA then prepared an Environmental Audit for the KAU Farm Service Center dated December 1995. (Appendixes) to address the concerns of AID. This audit served successfully as the annual 1995 Environmental Management Plan required by the European Bank for Reconstruction Development (EBRD).

Ground breaking for the Farm Service Center took place in May 1995. Kiev Atlantic continued to make progress on the ground, and complied with most environmental mitigations suggested in the original EA and Environmental Audit plus meeting the requirements of the European Bank for Reconstruction Development (ERDB) and the Ukrainian government. They met the lengthy environmental mitigation requirements of the Kiev Oblast and obtained all required passports (Appendix). The existing legislation and changes expected in legislation to harmonize the country's environmental law with European Union standards have been considered. The company has until now obtained all necessary permissions regarding environmental regulations to build and operate the center in Myronivka.

An impartial external Institute, Vnipitransgas ?Technozvyazok? in 1995-96 issued three design reports (in Ukrainian/Russian) on environmental protection and labor safety for the company's operations (Front pages in English enclosed as Appendix No. 1). The Ministry of Environmental Protection of Ukraine adopted the reports in March 1996 (Appendix).

There have been periodic inspections by the Myronivka District Sanitary Epidemiology Inspection Department. Kiev Atlantic met the regulations.

As of June 1997 USAID had still not granted final approval the Environmental Assessment nor informed CNFA of its progress.

In March 1997 CNFA notified USAID and continued its Environmental Assessment to address the concerns of USAID from the AP I Project for the new Kiev Atlantic proposal. This present supplement addresses the review comments of AID and discusses new findings.

Several originally planned Agrochemical Activities in the Farm Service Center have not materialized, and are not expected to be completed in 1997. Therefore the pesticide and fertilizer warehouses and the large fuel depot will not be built at the site during this current (AP-1) or next (AP-2) funding phases. USAID funds will not be spent for these activities. The Environmental

Audit of December 1995 (Appendix) discusses in detail the pesticide and fuel management situation, fulfilling the questions of AID Memorandum dated January 25, 1995 (Appendix). No further analysis of pesticides, fuels and fertilizers is warranted for this funding period, except fuel storage for core business direct uses. As in all Environmental Assessments, should changes occur which would require further analysis and discussion, CNFA and Kiev Atlantic will comply with the statutes after notification from USAID/Kiev.

(5) TASKS OF THIS FOCUSED ENVIRONMENTAL ASSESSMENT SUPPLEMENT.

Kiev Atlantic activities in the Ukraine is one project with different development phases. The purpose of this EA Supplement is to answer previous questions of AID satisfactorily concerning the original environmental analyses, with the purpose of obtaining approval of the EA by USAID and to more specifically address the primary purpose of this round of funding under AP-2; the seed oil extraction plant. Due to oversight, this document also discusses the need for and design of a baseline study for environmental monitoring for radioisotope baseline determinations in the surrounding farmlands where Kiev Atlantic has clients.

(6) HISTORY OF THE PROJECT

Kiev-Atlantic Ltd. began in 1990 when David D. Sweere, Minnesota businessman, created Kiev-Atlantic U.S. to conduct business in Ukraine. His general business idea for Ukrainian endeavors consisted of four components.

1. Agricultural producers in a specific region would be able to obtain vital, high-quality inputs of seeds, equipment, chemicals, fertilizer and fuel on a reliable, timely, convenient and competitive basis.
2. Farms would have access to an alternative, private market for sale of their production, and they would receive ?market prices? for their commodities.
3. At least some of this production would be locally processed to increase the value adding benefits to farm communities.
4. Emphasis would be placed on the production of high protein crops, and by-products would be more fully used since this kind of farming system would improve agriculture in Ukraine.

In 1992, Kiev-Atlantic U.S. (KAU) formed a joint venture with a Ukrainian partner, Sophia TransCon Industries, Ltd. The joint venture began a trading business whose basic activity was contracting with Ukrainian farms in barter transactions which furnished imported vehicle fuel for marketable commodities, mainly ?feeding peas.? The market for these commodities was Western Europe with terms of sale that generated hard currency, which was then used to purchase gasoline and diesel fuel, mainly from Russia.

As the trading business grew in volume it became advantageous to establish a modern storage and marketing facility, instead of having to rely on state controlled facilities and

unsupported railroad sidings. In 1993 KAU presented an Integrated Agribusiness Supply and Service Center proposal to Citizens Network for Foreign Affairs (CNFA) as a candidate for the USAID-funded Food Systems Restructuring Program (FSRP). In April 1994, CNFA made a development grant to Kiev-Atlantic to supplement the investment of the joint venture in establishing the first components of a multi-service farm center. Work began immediately and a site was selected in Myronivka in the Kiev Oblast, approximately 100 km south of Kiev.

In late 1993, the KAU center project came to the attention of the European Bank for Reconstruction and Development (EBRD). Over an 18-month period, they conducted negotiations for an "equity/debt package" between the joint venture, its German trading partners and representatives of 13 Ukrainian farms on one side and the EBRD on the other. Plans for additional service units of the KAU center were completed and participation in the "ground breaking" for the expanded construction occurred in May 1995. Kiev Atlantic is the only private Ukrainian Agribusiness enterprise in Ukraine in which the EBRD has invested. The EBRD requires KAU to submit an annual Environmental Management Plan, which CNFA has been helping with. The 1995 Environmental Audit, which is the base of the Environmental Management Plan is also an integral part of the Environmental Assessment required by USAID. Suggestions made by USAID staff for the Environmental Audit are addressed in this document.

In 1996, the company contracted for more than \$9 million of commodities by advancing to 110 farms in 13 Oblasts more than \$3.5 million in fuel and other vital inputs against future deliveries of feeding peas and barley. With that fuel, they planted and harvested more than 300,000 hectares of crops. In five Ukrainian Districts, farms were totally dependent on KAU fuel. Because of the 1996 "grain embargo" imposed in mid-season, KAU had a sales volume of \$3,635,793, essentially 1/3 of 1995 business and only a quarter of the planned business for 1996. In 12 of 13 Oblasts where the company had forward delivery contracts with farms, transactions were blocked and the commodities were eventually lost. Recently the Government of Ukraine arranged restitution to KAU for the 1996 business losses after highest level political persuasions. The embargo was one reason for the entrenchment of the business and downsizing.

(7) AFFECTED ENVIRONMENT AND MITIGATION MEASURES RECOMMENDED FOR THE PROJECT

This section contains a brief discussion of those environmental factors at the Kiev Atlantic plant, including the seed oil extraction and storage facility, where negative environmental impacts might occur. Most of these points were discussed for the most part in the earlier Environmental Assessment and Audit, but this section brings the situation up to date concerning impacts, mitigations, and budget expenditures. Since pesticides, the large fuel depot and fertilizer warehouse, and construction activities are not included in the proposed funding cycle, they are not discussed here. As plans develop in the project and if AID funding changes, the Environmental Assessment process will consider new developments.

7.1 WASTE WATER

7.1.1 Industrial Waste Water

Small amounts of industrial waste water and effluents will come from the vegetable oil processing plant and the feed mill. In the oil processing plant, only about 4-5 gallons of expelled effluent (vegetable oil and water) per year will exit through a drain in the floor of the building to a settling pit at the exterior. After gravity separation, the nontoxic floating sunflower oil will be skimmed off and mixed with the feed ration meal. The remaining clarified water will be periodically pumped into the municipal sewerage system. Some steam condensates will also be diverted into this settling pit.

7.1.2 Surface Runoff Waters

During construction, all topsoil was removed from the 13 hectare site according to Ukrainian regulations and banked adjacent to the property (Photograph). A relatively impermeable underlying clay layer was exposed, and the facility was built on this clay layer. A network of drainage pipes was constructed leading away from the site to the municipal sewerage system. A network of ditches on the property leads to a 12-15 inch diameter concrete pipe that diverts the runoff to the floor of a small valley near the property. At the terminus of the pipe is a velocity dispeller and several truckloads of coarse rock will be placed at its base in the form of an apron with low berms to prevent soil erosion. The mound of topsoil is relatively well stabilized by natural reseeding. Some of this earth will be used in landscaping the premises after construction. The rest of the topsoil should be disposed of at nearby dachas. Two gullies on the down hill side of the property need to be stabilized with loads of rocks and boulders. Plans are being made to accomplish this during 1997.

7.1.3 Toilet/kitchen sewage

Toilet and kitchen sewage will be discharged into the public sewage system. Currently there are sixty-three employees at the facility, and the sewerage system is adequate to accept this amount of effluent.

Costs for mitigations

The Company paid its part for upgrading the city sanitary land fill system of Myronivka to a proper sanitary and technical condition, spending approximately one thousand US dollars. The company also paid fifteen hundred dollars for the repair of the Municipal sewerage pump. All costs are included in the current construction budget.

7.2 AIR POLLUTION ABATEMENT

The central boiler in the sunflower oil extraction plant will burn natural gas and will not be a significant source of air pollution. The ventilation stack for the oil extractors is six meters above the building. The building is 11 meters high at the edge of the roof. The amount of oil to be extracted is 64 metric tons per day. The pressed seed cake is heated and steam is passed over the it to

increase the efficiency of extraction. This process releases some volatile fractions of the oil to the atmosphere producing the odor of sunflower oil or whatever other oil is being extracted. Kiev Atlantic hired a consultant to assess the odor situation, who analyzed a similar plant abroad per the mandates of the Oblast officials. Other than the mitigating process of information from the consultant, they will operate the plant at the minimum temperature needed for efficient oil extraction. This method will keep odor emissions to minimal levels. Kiev Atlantic will therefore operate its extractors at those temperatures necessary to reduce odors as much as possible. In addition, the consultant will determine during 1997 the needs for monitoring and filtration devices.

Economics and Costs of Abatement

All costs are included in the current construction budget.

Time Schedule. The abatement process needs will be determined in 1997, and solutions started.

7.3. Hazardous Waste.

7.3.1 Fuel management. A 9000-liter fuel tank containing diesel fuel is on the premises. It is above ground. A berm or ditch is necessary to contain the fuel should a spill or breach of the tank occur. Plans are being made for the berm that Kiev Atlantic will install in 1997.

7.3.2 Paints and Solvents. For purposes of painting steel structures, several hundred liters of paint are on hand as needed. The paint and solvents are stored in 50 liter drums and placed in walk in steel shipping containers isolated from other structures.

7.4 SOIL AND GROUNDWATER CONTAMINATION

The Company recently finished groundwater tests and developed several remediation strategies.

7.4.1 They made three tests of the groundwater in their well. The first test showed a high content of radon. The following two tests showed a normal radon content. A special tower was constructed with a state of the art air pump that aerates and sprinkles the water as it rises to the top of the tower. This device will gas off the radon. Kiev Atlantic will monitor the water at quarterly intervals for radon per official requirement.

7.4.2 Radiation Survey of Client Farms. The Kiev Atlantic plant is in one of the many radioisotope fallout zones in the Ukraine that resulted from the Chernobyl Atomic Power Plant accident of April 1986 (Map 1). Very slightly above normal radiation at the KA site was detected in April 1997 by the CNFA environmental staff. Our Geiger counter monitoring showed that radiation was above normal. ?Normal? is considered 30 counts per minute with our instrument measuring alpha, gamma and beta and x-radiation. Readings at the plant in the mid to high 30s were common. Consequently, to assure radiation-free grain and oil products, CNFA will do a baseline survey in the summer of 1997 on randomly selected client farms of Kiev Atlantic in the fall out zone and non-affected areas as a control. The baseline survey will determine the level, if any, of radiation in client farm soils and grain. Some specimens will also be taken from the seed oil cake

in the plant. A line item of \$5000 was placed in the Kiev Atlantic project budget so that USAID funds could cover the cost of this base line survey. The survey will be designed as a double-blind assessment. The Department of Nuclear Physics at Kiev State University and the Ukrainian Institute of Nuclear Research will analyze samples according to international protocols. The scientific survey will enable Kiev Atlantic to determine which farms are free of radioisotope contamination. They will contract with clean farms for agricultural products in the business operation.

For the past five years, all Kiev Atlantic grain exports have received a clean bill of health on radiation from the Ukrainian government.

Further preliminary investigation is needed, and the matter will be discussed fully with CNFA, USAID and Kiev Atlantic.

7.5 Noise Abatement

Grain elevators, seed oil extraction plants and feed mills are noisy during operation. Conveyers, the pressing mill, feed grinders and mixers, trucks and trains are all sources of noise. However, The Kiev Atlantic plant is in an isolated area in a medium industrial site at the end of a road quite distant from the nearest dwellings. Open agricultural land surrounds the facility on two sides. A light industrial zone is on the other sides, with a feed mill, water treatment plant and a dairy next to the property. It is considered that the plant will not create bothersome noise for the city of Myronovka. Exterior buildings house machinery, which will abate some noise. The machinery is new and will be properly lubricated, keeping noise to the minimum possible. They will provide earplugs to the employees of the plant in those areas of highest decibels. Transport trucks will use the main highway that does not pass directly through Myronovka. The present railway system will transport most grain and oil. The rail system is operating at far below former use due to the current idleness of the national economy.

7.6 Aesthetics. The plant is visible from the village and is of western aesthetic standards and not ugly. There is currently a grove of oak trees planted along part of the railroad track at the site. During construction, some of these trees were removed. After construction, they will replace a part of the top soil on the site, and new trees and grass will be planted to partially replace the biomass which they removed for construction. The additional plants will act as a partial screen for the facility, and will be maintained as a park for employees to relax.

7.7 Fire Control. The project will have its own fire protection. Two large reservoirs, a pump station and a pipe line system are under construction and about 50% completed. A part of the budget from the current funding cycle is for fire protection. All costs are included in the construction budget. Local municipality officials will periodically inspect the fire control system.

7.8 Worker Training Plan and Emergency Response Plan. Kiev Atlantic intends to use all relevant parts of the Environmental Audit of 1995 (CNFA) regarding worker health and safety matters and to worker training, planning and emergency response. They will start the component parts of this plan parallel to the completion of the project and as stated in the completion terms in

the plan. Personnel responsible for these plans are listed in the Appendix.

(8) AFFECTED ENVIRONMENT.

The Environmental Assessment of November 18, 1994 contained a brief description of the affected environment and is attached in the appendix. Additional observations follow.

Bird species observed were the grey European crow and another species of black crow (rook), magpies, English sparrows, rock pigeons, and northern chickadees. Partridges, jays and white storks are reported to inhabit nearby woods and marshes. There are various raptors and song birds. There is reported to be extensive avifauna and fauna in the deciduous forested remnants, which have species such as chestnuts, oaks, hornbeam, birch, some spruce and Scotch pine. In the area around the plant, there are no woodlands or forests. Almost all of the land has all been cleared off for agriculture. Some tree plantations serve as wind screens, snow fences and firewood primarily of various oak species are present. These borders are usually 1-2 rows of trees wide. The railroad bank south of the property has many salamander nests and perhaps is their overwintering ground. Downstream from the plant about two kilometers is a small fresh water marsh with reeds predominating (Photo). Woodland lilies, ferns and others may be present, and an occasional Red Russian Code species may be present (Table 8.1). Information about All Red Code Book species listed as having possible habitats in the Kiev Oblast is attached in the Appendix. Because of the complete degree of build out in the area, it is doubtful if any rare or endangered species survive within the direct influence of the Kiev Atlantic facility. Common cultivated plants include the Lombardy and other poplars, weeping willows, oaks, maples, basswood, hornbeams, buckeye, elms, beech, some conifers such as black spruce and blue spruce, lilacs, roses, bridal veil, etc.

A partial list of species in Kiev Oblast is listed in Table 8.1.

TABLE 8.1 *

PLANT LIFE

1. Forest Vegetation

A. Coniferous and Platyphyllous-coniferous forests.

- a. Pine Forests (scotch pine and green moss in combination with cereals, lichen, bracken fern).
- b. Oak Pine forests (bracken fern, mixed grass).

B. Deciduous Forests

- a. Oak-hornbeam forests (oak in combination with grass-scarce species, woodruff, common goatweed, sedge, weasel snout, wild ginger).
- b. Cultivated deciduous forests predominantly with hornbeam, sharp-leaved maple, oak in combination with introduced tree (grass-scarce) species.

2. Flood Plain Vegetation

Water meadows (flow and marshy meadows), osier beds, flood plain forests and reservoirs.

3. Park Vegetation

Park and forest-park plantations predominantly with sharp-leaved maple, horse chestnut, poplar (black, white and pyramidal), Robinnia, linden, decorative shrubs and other species, with remnants of natural vegetation.

4. Orchards

Apples, walnuts, plums, sweet cherries, and grapes, are common orchard species

5. Nursery

Some intensive plantations of poplar for firewood were observed.

There are several rare plant species protected by law in Kiev's green zone, including:

Wood lily
Mumwort grape-fern
Platanthera bifolia
Epipactis platyphyllous
Horsetail (Equisetum)
Birch (Betula lectus)
Snowdrop (Galanthus alba)
Corydalis and Dutchman's breeches

Some of these species may also be present around Myronivka

Common major species include:

I. PLANTS

Cherry Plum (*Prunus divaricata*)
Bird Cherry
Golden Current
Red-berried Elder
Sour Cherry
Blue Honeysuckle
Horse Chestnut
Lilac
Rowan
Hawthorn
Snow-ball
Guelder Rose (*Viburnum*)
Prickly Rose
Black berried elder
Double lilac
European linden

Fine-leaved linden

II. FAUNA

1. Mammals

Fox
Stone marten
Wood marten
Otter
Wild boar
Roe Deer
Elk (moose)
Hare
Beaver
Squirrel
Muskrat
Hedgehogs
Mole
Mouse-like rodents
Bats

2. Birds

Gray heron
Mallard
Goshawk
Windhover
Hobby
Partridge
White Stork
Gray Owl
Woodpeckers
Chimney swift
Cuckoo
Collared dove
Passerine birds (whitethroat thrush, swallow, sparrow, starlings, finch, gray crow, black crow, chickadees, magpies and others).

3. Reptiles and Amphibians

Widespread mostly in the forest-park zone are mud turtle, lizard, grass snake, frog, newt, and others.

4. Fish

Lakes and ponds abound in carp, tench, loach, perch, roach, rudd, pike, bleak, etc. In the Dinipro River and its inlets, live pike, bleak, roach, rudd, gudgeon, bream, sheat, pile, perch, perch, ruff,

etc.

Up to twenty animal species entered in the UrkSSR Red Data Book of the International Union for Nature Conservation (IUCN). can be found in the Kiev area permanently or transitorily, among them some varieties of bats, birds, (e.g., eagle-owl, short-toed eagle), insects (e.g. Bombyx) and others. Several of these listings are included in the appendix.

*Source ?Kiev - Atlas for Tourists.? 1989. Main Administration of Geodesy and Cartography, Under the Council of Ministers of the USSR, Moscow. Complete species epitaphs and a more inclusive listing of species are not available at this time.

(9) ENVIRONMENTAL CONSEQUENCES

Given the current major political and production crises presenting themselves to Ukraine agriculture, the Kiev Atlantic project will have significantly positive economic and environmental effects for the region. The project provides a market for grain, storage facilities for grains, processing for value-added products as valuable seed oil which is a cash crop commodity. Insufficient amounts of quality animal feed concentrates in the country are a severe limiting factor for meat production. Because of the lack of markets and credit, the Ukrainian farmers have reduced the size of their cattle and porcine herds. Almost all of the poultry in the country is imported. This has caused dairies, slaughter houses, and packing plants to operate far below their original capacities. Generally these kinds of agribusinesses are either completely idle, or operating at 8-10 percent of capacity. Workers have not been paid for months and civil violence and poverty is increasing rapidly.

The Kiev Atlantic Project is extending credit to farmers for their crops, and lending critical strategic ideas to the farming community. The project represents a major privatization impact in the Kiev Oblast. The history of Ukraine has witnessed frequent famines, some politically induced and some naturally induced. A large degree of responsibility for past famines was the lack of grain and other agricultural product storage capacity. The presence of a large grain and seed oil storage bins and silos of Kiev Atlantic gives insurance and confidence to the farming community that continued grain production can be worthwhile. This calming effect produces tranquility and peace, instead of violence and despair; so prevalent in the region due to the dissolution of the Soviet Union and significant loss of farming inputs and markets. Continued instability in agricultural production will predictably lead to a high chance of political instability, with the spectre of multiple hundreds of armed nuclear weapons at the ready. Consequently, the current massive trend of the failure of agriculture in the Ukraine must be stopped. Ukraine is one of the potentially richest regions on earth, but continued failure in agriculture during the transition away from the Soviet system will exacerbate the current disastrous situation. Violence through civil unrest leading to war is the worst environmental degradation.

The Kiev Atlantic Project is rapidly moving toward reversing the trends of a crashing agriculture. Ukraine agriculturalists will copy its example many times over if it is successful in achieving its goals of improved production and sustained agriculture. If the project succeeds, the farming community will realize better prices for their harvests, begin to understand what the potential is for a new kind of marketing situation, and create a new wave of prosperity for the

Ukraine. If the project fails, then the crisis will simply accelerate, and the collapse of Ukrainian agriculture would be just that much rapid, with violence and anarchy as copartners.

Within this realistic and conservative context, keeping starvation off the doorsteps of the converting collective farms will create wealth, and both the physical and social environment will be significantly improved.

The physical environment will be improved by the project overall because farmers with moveable capital will invest in better technologies that are more benign to the environment than the older currently used technologies of the Soviet era. Profit for farmers will enable them to invest in better seeds, fertilizers, fuels and equipment. This new technological package will have multiplier effects such as the adoption of no-till agriculture, contour farming, conservation easements along waterways, increased opportunities for adopting IPM-oriented pesticide practices, and achieving better quality standards. With a market, such as presented by Kiev Atlantic, the economy will become more stable, and such healthy economic indicators are generally proven to also be good indicators for the environment.

The specific negative impacts of the physical facility have essentially been mitigated already, or mitigations are being installed or planned for. The municipal sewerage system at Myronovka has been upgraded to be able to receive discharges from the plant. The solid waste disposal area has also been upgraded to receive wastes from Kiev Atlantic. An adequate system of monitoring environmental parameters is in order and operating. Ukrainian officials with certainty will keep a close check on the Kiev Atlantic operations. Surface runoff should not present an erosion problem nor water contamination problem to the receiving watershed. Kiev Atlantic will reduce noise, odors and dust, but a certain degree of these kinds of impacts is inevitable during Kiev Atlantic activities in Myronovka.

(10) LIST OF PREPARERS

The USAID Deputy Assistant Administrator, END and Environmental Officer on 6-4-94 approved the IEE. Interconnect Associates, Inc. prepared the Environmental Assessment. Mark Mitchell, Environmental Program Officer of CNFA prepared the Environmental Audit dated March 25, 1996. Dr. Wayne Williams completed this Supplemental Environmental Assessment.

Dr. Williams is currently the environmental advisor for Citizens Network for Foreign Affairs in Kiev, Ukraine. He has extensive experience in the Environmental Assessment field and Agro-Environmental Policy Analysis, successfully completing several dozen Environmental Assessments for USAID in Central America from 1991 through 1995 in his capacity as Regional Environmental Advisor for USAID/ROCAP/ Guatemala. These and other Environmental Assessments completed by Dr. Williams covered the widest possible range of topics including pesticide management, medical clinics construction, solid and liquid waste disposal, public health and other projects including large and medium sized industrial operations, including electrical power generating plants.

(11) APPENDICES

- A. Pertinent Maps
- B. Photo Album of site
- C. Copies of environmental permits
- D. Original IEE
- E. Original EA
- F. Original Environmental Audit
- G. Labor Protection
- H. Rare and Endangered Species in the Kiev Oblast
- I. Plans and Specifications of Oil Extraction Machinery
- J. USAID Memorandum of 1995
- K. Cover Sheets of Reports from Vnipitransgas Technoqvyazok Institute