

US EPA ARCHIVE DOCUMENT



Project Status and Results



Andersen Corporation

FINAL PROJECT AGREEMENT SIGNED JUNE 30, 1999

Background

The Project Sponsor: The Andersen Corporation is a leading manufacturer of durable, energy-efficient, high-performance windows and patio doors. Andersen's main manufacturing plant is located in Bayport, Minnesota, along the St. Croix River, a federally designated "Wild and Scenic River," which forms a large portion of the border between Minnesota and Wisconsin. Existing manufacturing facilities are located on Andersen's 110-acre Fourth Avenue site, which consists of 78 buildings, most of which are interconnected. Manufacturing and related processes at Andersen include wood cutting and milling, wood preservative application, painting, vinyl processing, adhesive operations, byproduct transfer, wood-fired boilers, assembly operations, technology development, production support, and maintenance functions.

The Experiment: The Andersen project is testing an innovative experiment to reduce air emissions per unit of production and provide to the public information on the plant's environmental efficiency. This reduction will be achieved by using performance-based regulatory approaches based on volatile organic compound (VOC) emissions per standard measure of production, referred to as the "performance ratio." While providing incentives for better performance, the tiered performance ratio system, with both rewards and penalties, will essentially prevent a return to traditional solvent-based coating and wood-preservative processes, while allowing the company the flexibility to research even greater efficiencies and emissions improvements. The company will be allowed to increase production levels without undergoing case-by-case reviews prompted by VOC emission changes, as long as its VOC emissions per unit of production remain below the performance ratio and its overall emissions remain below a facility-wide VOC cap.

The Flexibility: In return for superior environmental performance, EPA, the Minnesota Pollu-

tion Control Agency (MPCA), and Washington County intend to offer Andersen Corporation regulatory flexibility under this XL project. The project will allow modification and addition of preapproved sources without additional review by EPA or MPCA. In the FPA, EPA agreed to develop both a site-specific rule under the Clean Air Act's (CAA's) Prevention of Significant Deterioration (PSD) program and a streamlined Minnesota Project XL multimedia permit (Minnesota XL Permit). The Minnesota XL Permit will, to the extent possible, combine air, hazardous waste, and water discharge conditions at the Bayport Facility into one permit, and it will incorporate the federal air permit as required by 40 CFR Part 70 for the Bayport Facility. The Minnesota XL Permit will be a consolidation of Andersen's various environmental obligations. It will contain the CAA Title V, minor New Source Review, and PSD permits, and it will be issued subject to public notice and comment and the opportunity for EPA review and public petition. During the permit's development, overlapping or conflicting conditions from existing permits will be combined or reconciled, as allowed by applicable requirements. The flexibility granted to Andersen Corporation includes relief from specific applicable synthetic minor air emission limits with the condition that Andersen complies with the site-specific permit limits for particulate matter (PM) and VOCs. The new permit establishes emission caps for VOCs on a "per standard measure of production" basis and on a facility-wide basis and a facility-wide cap on PM. This regulatory flexibility grants preapproval for emission increases that would otherwise require permit modification approval by the regulatory agency. The Minnesota XL Permit will, to the extent possible, reduce the administrative burden through simplified monitoring, reporting, and record keeping.

Other Innovations: (1) *Air emissions per measure of production.* This project represents an innovative approach to allowing changes in manufacturing processes that may result in reduced air emissions per standardized measure of production. (2) *Performance-based air emission ratio system.* The project also provides an opportunity to test whether a tiered air emission ratio system, with both rewards and penalties, can provide a

better incentive for reducing air emissions. If successful, the project will result in a new, flexible, performance-based approach designed to achieve superior environmental results and cost savings. In addition, if this approach is adopted more widely, it will allow the public to compare the environmental efficiency of different facilities for the first time ever, a profound change to how environmental information is approached.

The Superior Environmental Performance:

The project establishes an innovative, incentive-based per unit emission measure that should drive down Andersen’s per unit emission of VOCs. In addition to the per unit measure, emission caps on VOCs and PM ensure that the facility’s overall emissions will not exceed those from normal operations. Andersen will be able to manufacture more of its windows from recycled wood fiber and vinyl than in the past, reducing both its use of virgin materials and its air emissions. Andersen will also decrease its reliance on high-solvent processes, further reducing air emissions at the facility.

Progress in Meeting Commitments
(As of November 2001)

- Current activities are primarily focused on finalizing the permit, which is expected in mid-2002. The following commitments have been targeted and are expected to be incorporated into the Andersen Minnesota XL Permit (the first six Andersen commitments are currently being met):

Andersen

- Conduct a health risk analysis for toxic air emissions (completed and reviewed by MPCA).
- Limit VOC emissions to 2,397 tons per year for the entire Bayport Facility (see Figure 1).
- Combine the existing diptank VOC synthetic minor limits into a single rolling average limit of 1,573.9 tons per year (see Figure 1).
- Limit non-milling PM emissions for the Bayport Facility to 209.1 tons per year (see Figure 2).

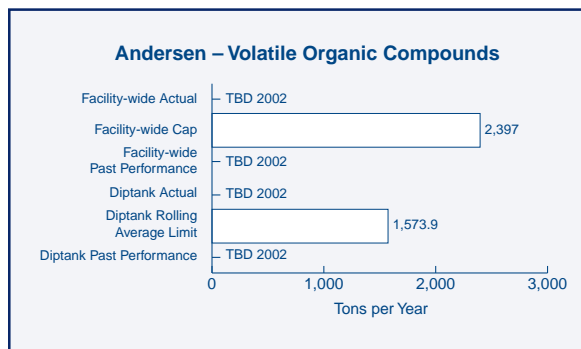


Figure 1
Andersen’s VOC emissions.

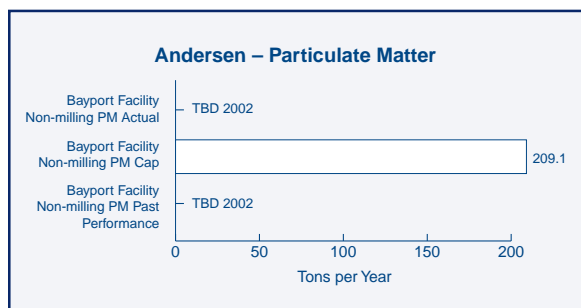


Figure 2
Andersen’s PM emissions.

- Continue to control the door plant paint line emissions with a catalytic oxidizer until the company implements low VOC collating(s) and receives approval to discontinue the use of the control equipment from the MPCA.
- Control all existing and future milling operations with best available control technology (BACT) (currently believed to be baghouse filters), and meet all PSD requirements for PM and PM less than 10 microns (PM-10). Andersen will be allowed to modify or add VOC units and certain PM and PM-10 units as long as they remain below the caps established in the permit. An Air Dispersion Modeling Report for particulate emissions was completed by Andersen and reviewed by the MPCA.
- Ensure that any new or reconstructed paint line equipment does not emit at a rate greater than 4.5 pounds of VOCs per gallon of coating applied (see Figure 3).
- Ensure that any new or reconstructed preservative application process does not emit VOCs at a rate greater than 2.0 pounds per gallon of preservative used (see Figure 3).
- Continue to investigate the possibility of recycling windows as feedstock for the Fibrex composite process.
- Attempt to cease operation of the west diptank.
- Finalize calculations on the performance ratio and implement the emissions caps.
 - The above data will be collected and reported as the project is implemented.

MPCA

- Finalize and issue the Andersen Minnesota Project XL multimedia permit.

EPA

- Promulgate a final rule that will allow regulatory flexibility for this XL project.

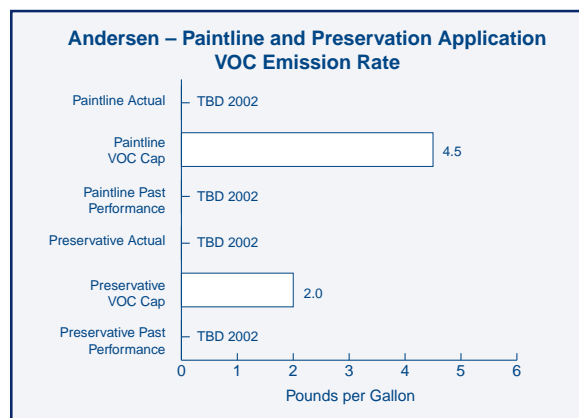


Figure 3

Anderson's paint line and preservations application VOC emission rate.

Washington County

- Amend its hazardous waste management ordinance.

Benefits for the Environment

- VOC emissions and PM emissions will have a facility-wide cap. VOC emissions will be reduced on a per unit basis.
- Baghouse filters, or any other pollution-control devices found to be the best available technology will be installed on suitable milling equipment.
- Andersen will continue to seek ways to enhance the performance of processes at the facility through its Environmental Management System and the Corporate Pollution Prevention Plan.
- Andersen will continue to produce more of its window and door components out of environmentally friendly materials, expediting the reductions in its use of virgin materials.

Benefits for Stakeholders

- Stakeholders are encouraged to provide input on the project by participating in the Community Advisory Committee (CAC) and by keeping informed of project status through a local newsletter, Internet postings, news media contacts, open houses, and local displays. The CAC also has the opportunity to review and comment on the various environmental reports being generated by the project. Playing such a high-profile role in project development and implementation increases the participation in and ownership of the entire process.
- CAC members will be able to stay informed about Andersen's operations under the XL Permit during Andersen's semiannual compliance status presentations to the CAC.

Benefits for the Project Sponsor

- Using the performance ratio allows Andersen greater flexibility to investigate innovative methods for emissions reductions. As long as VOC emissions per unit of production are below the performance ratio, through this XL project Andersen has the leeway to identify and test new processes, pollution control devices, and recycling concepts and can cease operation and remove old equipment that results in high VOC emissions.

Information Resources

The information in this summary comes from the following sources: (1) the FPA for the Andersen Corporation Project, June 30, 1999; and (2) the *2000 Project XL Comprehensive Report, Volume 2: Directory of Project Experiments and Results*, November 2000.

Anne Arundel County Bioreactor

FINAL PROJECT AGREEMENT SIGNED DECEMBER 7, 2000

Background

The Project Sponsor: The Millersville Landfill and Resource Recovery Facility is located on 565 acres in Severn, Maryland, approximately 15 miles south of Baltimore. The facility is owned and operated by Anne Arundel County and is the only active municipal solid waste (MSW) landfill in the county. The facility handles about 390 tons per day of solid waste, of which 130 tons per day is recovered for reuse and recycling. The facility serves about 660 customers, including businesses and residents.

The Experiment: Anne Arundel County proposes to operate a small-scale, controlled, fully monitored and evaluated bioreactor pilot project at the Millersville landfill. Bioreactors provide accelerated waste biodegradation, a means for recovery of air space capacity, enhancement of landfill gas (LFG) generation rates and leachate (which is liquid percolated from the landfill material) quality, and reduction of long-term risks associated with landfills. Bioreactors minimize long-term risk, environmental risk, and liability due to the controlled settlement of the solid waste during landfill operation, reduced potential for leachate migration into the subsurface environment, and the recovery of LFG during operation. Through the recirculation of leachate, the bioreactor landfill will facilitate microbiological processes to transform and stabilize the decomposable organic waste within 5 to 10 years. This is expected to shorten the length of time that the landfill liner is exposed to the leachate and reduce the long-term threat of groundwater contamination from the leachate.

The main goal of this project is to develop information regarding the degree to which different methodologies for liquid introduction could bring about the following environmental benefits:

- Reduced need for construction of new landfills and corresponding reduction (or elimination) of the land, air, and water impacts associated with landfill construction;

- Decreased concentration of most leachate constituents as recycling of leachate removes or reduces contaminants;
- Reduction in the amount of leachate requiring pretreatment;
- Reduction in the amount of leachate that the facility discharges to the local wastewater treatment plant, and subsequent discharge of effluent to the Patuxent River; and
- Reduction in post-closure care, maintenance, and risk (bioreactor landfills minimize long-term environmental risk and liability due to the controlled settlement of the solid waste during landfill operation, low potential for leachate migration into the subsurface environment, and the recovery of LFG during operation).

The Flexibility: The county is requesting specific flexibility under the Resource Conservation and Recovery Act (RCRA) that restricts application of bulk liquids in landfills and prohibits the placement of liquid waste other than leachate/gas condensate and non-septic household waste in any MSW landfill. The county proposes to recirculate the 8,000 gallons of leachate that accumulates daily at the landfill and stormwater runoff in addition to the leachate if the amount is determined to be inadequate for the purposes of the project.

Because the liner with which the facility was constructed meets the performance but not the design standard set forth in CFR 258.40(a)(2), regulatory flexibility is needed to allow the county to recirculate the liquids over the liner.

Additionally, the county has agreed to request and incorporate certain changes in its Title V air permit under the Clean Air Act applicable to the facility due to LFG issues that may arise because of the bioreactor. The county and the Maryland Department of Environment have negotiated an Alternate Operating Scenario (AOS), which allows LFG collection via the existing leachate collection system, rather than from separate LFG extraction wells and/or trenches. The county has agreed to incorporate the AOS in their Title V permit and do additional monitoring that was not required by the AOS.

Other Innovations: *Testing the Bioreactor Approach.* This project provides EPA with the opportunity to obtain data on the differing impacts that geography, climate, construction, design, maintenance, and waste streams may have on the performance of a bioreactor system. Also, the Millersville Landfill Bioreactor pilot project will provide EPA with information about the potential for leachate recirculation and potential liquids additions to increase landfill waste settlement rate.

The Superior Environmental Performance: The bioreactor should provide accelerated waste biodegradation, a means for recovery of air space capacity, enhancement of LFG generation rates and leachate quality, and reduction of long-term risks associated with landfills. The Millersville bioreactor also should minimize long-term environmental risk and liability due to the controlled settlement of the solid waste during landfill operation, reduced potential for leachate migration into the subsurface environment, and the increased recovery of LFG during operation.

Progress in Meeting Commitments (As of September 2001)

This project is in the planning stages. The following is the status of commitments that were outlined in the FPA:

- EPA will propose for public comment and take final action on a site-specific rule amending 40 CFR 258.28 applicable to the Millersville Landfill to allow leachate recirculation.
 - In September 2001 EPA provided a draft of the rule to the county and Maryland Department of the Environment (MDE) for their input. EPA expects to publish the proposed rule in 2001.
- The State of Maryland under its authority will modify any permits necessary to implement the FPA.
 - The Title V Permit for the Millerville Landfill was signed on August 29, 2001.

- The county will submit an amendment to its Title V permit application, issued by the State of Maryland under the Clean Air Act, which will incorporate its obligations to monitor and control LFG generated by this project.
 - The Title V Permit issued in August 2001 contains the LFG monitoring and control obligations of the county for the FPA of the Anne Arundel Bioreactor Pilot project.
- The county committed to collecting, reporting, and providing the following information to project stakeholders, EPA, and the state as the project is implemented:
 - Semiannual reports of quantities of leachate and other bulk liquids circulated.
 - Semiannual reports on changes in the quality of the leachate.
 - Semiannual reporting on settlement as measured against monuments installed for this purpose.
 - Annual reporting and assessment of the settlement in the test area based on topographic surveys.
 - Quarterly monitoring of surface methane emissions.

Benefits for the Environment

- Leachate recirculation can increase landfill waste settlement, which means that the life of a landfill can be extended and fewer landfills need to be built.
- Any leachate from the bioreactor that ultimately does require off-site disposal should be substantially less contaminated with pollutants.

Benefits for Stakeholders

- Leachate recirculation can increase landfill waste settlement and extend the life of a landfill for the local communities.

Benefits for the Project Sponsor

- Because leachate recirculation can increase landfill waste settlement, the project sponsor can extend the life of its landfill.

Information Resources: The information sources used to develop this summary are: (1) the FPA for the Anne Arundel XL Project, signed December 7, 2000; and (2) *2000 Project XL Comprehensive Report, Volume 2: Directory of Project Experiments and Results*, November 2000.

Atlantic Steel Site, Jacoby Development Corporation

FINAL PROJECT AGREEMENT SIGNED SEPTEMBER 7, 1999

Background

The Project Sponsor: Started in 1979, Jacoby Development, Inc., is a privately held real estate company located in Atlanta, Georgia. It specializes in property development, financing, brokerage, leasing, and management. Jacoby has proposed redevelopment of a 138-acre closed steel mill formerly owned by Atlantic Steel, located near Atlanta's central business district. This project will combine typical brownfield redevelopment, the cleanup and redevelopment of a potentially contaminated industrial site, with transportation development encouraging modes of transportation beyond single-occupancy vehicles. The proposed redevelopment, named Atlantic Station, will be a mix of residential and business uses and will include a multimodal bridge, accommodating cars, pedestrians, bicycles, and mass transit. The bridge will provide access to Interstates 75/85 from the site and connect it to a nearby Metropolitan Atlanta Rapid Transit Authority (MARTA) station.

The Experiment: The Atlantic Steel project will test whether brownfield redevelopment strategies can be applied to transportation projects as part of an overall community revitalization plan, such that air quality and other environmental performance can be improved. The Atlanta region is currently not in compliance with the National Ambient Air Quality Standards (NAAQS) for ground-level ozone. Between January 1998 and July 2000, the Atlanta region was out of compliance with transportation conformity requirements under the federal Clean Air Act (CAA) because it could not demonstrate that its transportation activities would not exacerbate its air quality problem. The CAA generally prohibits construction of new transportation projects that use federal funds or require federal approval in areas that are in a transportation conformity lapse. However, projects that are expected to provide an air quality benefit, called Transportation Control Measures (TCMs), can pro-

ceed even during a conformity lapse if they are in a federally approved State Implementation Plan (SIP), which is used to address how the region will conform to the NAAQS. If the Atlantic Steel site is not redeveloped, the development planned for the site will likely occur at another site or sites in the Atlanta region. Alternate development would most likely occur in a greenfield area, thus promoting urban sprawl. The redevelopment of the Atlantic Steel site will encourage "smart growth" design principles such as pedestrian-friendly and transit-oriented access between centers of residential entertainment, cultural, employment, and recreational uses, thus reducing vehicular traffic and encouraging a neighborhood environment. EPA believes that the planned redevelopment of the Atlantic Steel site, including the bridge, will lead to less air pollution than an equivalent amount of development at other likely sites in the region.

The Flexibility: Under the Atlantic Steel project, EPA is considering the entire redevelopment project to be a TCM. For the Atlantic Steel site to qualify as a TCM, EPA is offering flexibility in two areas:

- (1) EPA views the site's location, design transit linkage, and other transportation components (e.g., provisions for bicyclists, participation in a transportation management association) together as the TCM. While the CAA lists several types of projects that can be TCMs, the statute does not limit TCMs to these measures. Specific types of TCMs listed in the CAA include projects that improve public transit, employer-based transportation management plans, projects that limit certain metropolitan areas to non-motorized and pedestrian use, and programs to provide both travel and storage facilities for bicycles. The plan for the Atlantic Steel redevelopment incorporates many elements that could be TCMs by themselves. For example, improved public transit, bicycle and pedestrian paths, and the requirement that employers at the site will join or form a transportation management association. EPA believes that the combination of these elements will have a positive effect on reducing emissions from single occupancy vehicles by encouraging the use of alternative modes of transportation.

(2) This project is testing an innovative approach to determining the air quality benefit of the Atlantic Steel site redevelopment. EPA has modeled the site development's potential air quality benefit relative to an equivalent level of development at other sites in the region. This type of comparison to support a TCM is available only to this particular redevelopment project through the Project XL process. The site's SIP-TCM designation is possible because a 1998 study conducted by EPA's Urban and Economic Development Division, titled "Transportation and Environmental Impacts of Infill and Greenfield Development," demonstrated that the Atlantic Steel brownfield redevelopment, with its mixed-use and transit components, would generate a relative air quality benefit when compared to a similar development located some distance outside of the central business district, in a greenfield location. To analyze the transportation and air emissions impacts of locating new development at the Atlantic Steel site, EPA used modeling analysis to compare the site to three other possible locations for similar-scale development in the Atlanta region. EPA's evaluation of the site's impacts was driven by two facts: (1) that Atlanta will continue to grow over the next 20 years and (2) that without redeveloping the 138-acre Atlantic Steel site, more of this growth will occur in outlying areas. The analysis of regional transportation and air emissions impacts shows that absorbing a portion of Atlanta's future growth at the Atlantic Steel site would result in fewer vehicle miles traveled and fewer emissions than would developing those alternative sites.

The Superior Environmental Performance:

Without designation as a TCM, this project could not move forward as currently conceived and the Atlantic Steel mill could remain an industrial blight in midtown Atlanta. As a former steel mill, environmental contamination exists within the buildings and in surrounding soils. The Atlantic Steel project provides the means to clean up these contaminants and return the site to a beneficial role in the community. Jacoby has proposed using environmentally friendly building practices, which will minimize both the environmental impact made dur-

ing construction and the long-term impact of the building by reducing waste water and increasing energy efficiency. The mixed-use component of the proposed redevelopment (bringing together residential, recreational, and commercial buildings nearby to each other), in conjunction with its proximity and linkages to mass transportation and the pedestrian and bicycle access that will be provided by the new 17th Street bridge, will encourage use of modes of transportation other than vehicular travel. This will reduce not only annual vehicle miles traveled in Atlanta, but also the air pollutants produced by those vehicles. Because of its design, use of existing transportation infrastructure, and location, redevelopment of the Atlantic Steel site can improve rather than exacerbate current air quality problems in the region. Jacoby Development has renamed the site "Atlantic Station" to capture the historical legacy of the site and also to create a new identity for the unique multi-use environment. An interactive



Figure 4

An artist's rendering of what Atlantic Station may look like. Atlantic Station will combine residential, business, and recreational spaces.

(Photo from <http://www.atlanticstation.com>)

media presentation of Atlantic Station, including drawings and potential layout designs of the future site, can be accessed at <http://www.atlanticstation.com>. (See Figure 4.)

Progress in Meeting Commitments (As of July 2001)

Jacoby Development Corporation

- Jacoby committed to redeveloping the Atlantic Steel site into a mixed-use development, providing transportation links to MARTA.
 - A detailed site plan was completed February 2, 1998. The mayor of Atlanta approved the required zoning changes in April 1998.
 - Jacoby completed demolition of the old Atlantic Steel mill structures during the summer of 2000.
 - Metals, oxidized steel products, concrete, used oil, lead acid batteries, power transformers, and railroad crossties were recycled from the demolition site.
 - Jacoby began remediation of the most contaminated soils (“hot spots”) and an existing small Resource Conservation and Recovery Act (RCRA)-permitted facility using excavation and disposal at off-site landfills in January 2000. The slag that remains on-site will be covered by at least two feet of clean fill material. A long-term groundwater collection and monitoring system is part of this remediation. Remediation and infrastructure improvement will continue through the first quarter of 2002.
 - Jacoby intends to work with builders and users of the property to encourage their participation in the Green Building Council’s “Leadership in Energy and Environmental Design” (LEED™) program and attain the requirements for the LEED Building Bronze™ designation. To reduce the use of water, Jacoby is promoting the use of water flow restrictors, innovative uses of “gray water,” the use of drought-tolerant indigenous plant species, and the use of the Hemphill Water Plant backwash water to reduce irrigation needs at the site.
- Jacoby plans to install separate stormwater and sanitary sewer systems on-site, using best management practices, to reduce future impacts on water quality. An on-site erosion and sediment control facility will be built to control all surface water runoff from the site.
- Vertical construction of the first phase of the redevelopment project will begin concurrently with infrastructure development and is expected to be completed in October 2002.
- The short-term transit linkage from the Atlantic Steel site to the MARTA Arts Center Station will consist of shuttle buses circulating between the Arts Center Station and the Atlantic Steel site. Jacoby is working to acquire the initial shuttle buses, which will begin operation when the 17th Street bridge is open to traffic. MARTA is still considering the long-term transit linkage, which could include a light rail system traversing the Atlantic Steel site and the 17th Street bridge.
- Data collection will begin the year following the opening of the 17th Street bridge to single occupancy vehicles and continue until 10 years following redesignation by EPA of the Atlanta area to attainment under the NAAQS for ozone. Data will include (1) average daily vehicle miles traveled per resident, (2) average daily vehicle miles traveled per employee working at the site, (3) the percentage of all trips by mode made to and from the site by residents and employees, and (4) origin and destination data for trips made to, from, and on the site by residents and employees. The data will be submitted annually to the City of Atlanta.
- The first XL public meeting was held in September 1998, in conjunction with the rezoning process. An annual summary of the project was completed in February 2000. A

stakeholder meeting and Periodic Performance Review Conference were also held in February 2000 to inform local stakeholders of the progress and status of the project.

- The Baltimore (Maryland)-based Development Design Group was chosen to design Atlantic Station's street-oriented retail and entertainment sections. Preliminary plans call for a large public town center with sidewalk cafes, fountains, and a central park feature.

Georgia Environmental Protection Division

- Georgia Environmental Protection Division (EPD) committed to playing an active role in this project.
 - The site remediation plan was approved in December 1999.
 - The TCM was approved by the Atlanta Regional Commission in June 1999 and passed to Georgia EPD. The revised SIP, incorporating the TCM, was submitted to EPA in March 2000.
 - Georgia EPD has approved a conservation easement meant to ensure that both the barriers to contaminated slag and the groundwater collection and monitoring system remain intact. The site owner will be responsible for any required mitigation measures.

EPA

- EPA committed to playing an active role in this project.
 - EPA approved the revised SIP on August 28, 2000. It became effective September 27, 2000.
 - EPA issued a Finding of No Significant Impact in December 2000 based on an environmental assessment of the impacts of the redevelopment project, including the proposed 17th Street bridge, conducted in compliance with the National Environmental Policy Act.

Georgia Department of Transportation

- The Georgia Department of Transportation (GA DOT) committed to playing an active role in this project.
 - GA DOT approved the concept report for the 17th Street bridge/extension after Jacoby submitted it in March 2000. URS Greiner, an engineering firm, was selected to design the 17th Street bridge. The preliminary design phase has begun, and construction of the bridge could occur as early as December 2001 and may require approximately 18 months to complete the construction.
 - GA DOT developed an Interchange Justification Report for the 17th Street bridge/extension that was approved by the Federal Highway Administration (FHWA). Final approval of the design and construction plans from FHWA is expected in November 2001 after GA DOT incorporates comments from FHWA.

Benefits for the Environment

- Jacoby will reduce carbon monoxide and nitrogen oxides emissions by providing access to a mass transit system and local infrastructure, which will reduce the number of vehicle miles traveled per individual relative to other sites.
- Jacoby has committed to install separate stormwater and sanitary systems to reduce or eliminate the flow of pollutants from stormwater runoff to receiving waters. Additionally, stormwater controls will be employed to ensure that surface runoff leaving the site will receive some level of treatment prior to reaching the Chattahoochee River.
- Jacoby will implement strategies to prevent and minimize pollution by selecting construction materials and sustainable building technologies that minimize energy use.
- Jacoby will encourage Atlantic Steel to recycle and reuse the solid waste generated during the

demolition of the existing structures on the property.

- Jacoby will comply with state laws and building codes that require all newly constructed properties to reduce water use.

Benefits for Stakeholders

- Stakeholders have been involved throughout the evolution of the project and have been encouraged to share their ideas and concerns through written comments and meetings open to the general public.
- Stakeholders are enabled to participate in the planning of a residential village incorporating smart growth design principles promoting pedestrian-friendly walkways, transit links, shopping, entertainment, office, recreation, and open park spaces.
- Stakeholder needs and values are an integral part of the 17th Street bridge/extension. URS Greiner will design a bridge that serves to accommodate various modes of transportation, the demands of the site, as well as an architecturally pleasing structure to all the users. The bridge is anticipated to include (1) two 11-foot-wide lanes in each direction for general use traffic; (2) two 16-foot-wide dedicated bicycle and transit lanes; and (3) a 24-foot-wide pedestrian park and thoroughfare, complete with elevated walkways, landscaping, and acrylic panels rather than metal fencing.

Benefits for the Project Sponsor

- Jacoby will be granted regulatory flexibility under Project XL by receiving approval of the redevelopment and its associated transportation projects as a TCM, a step taken to reduce vehicular emissions and improve air quality. In return, Jacoby is working to bring a contaminated site back to productive use and, in turn, examine whether the basis for considering the entire redevelopment project a TCM can leverage environmental benefits in air quality.

Information Resources: The information in this summary was obtained from the following sources: (1) the February 15, 2000, Atlantic Steel XL Summary Report; (2) the September 7, 1999, Atlantic Steel FPA; (3) the December 1999 *XL Project Progress Report—Atlantic Steel Redevelopment* (EPA 100-R-00-014); (4) *Project XL Stakeholder Involvement Evaluation, Draft Final Report* (April 2000); (5) news articles from the *Atlanta Journal Constitution*: “Steely Determination: Green Light is Given for Design Work on 17th Street Bridge” (August 25, 2000), “Designer Sees 17th Street Bridge as Unique Gateway into Atlanta” (August 25, 2000), “Development Plan Falls into Place” (August 25, 2000); (6) news article from *Bizjournals.com/atlanta*: “Designer Picked for 17th Street Bridge” (August 24, 2000); and (7) the *2000 Project XL Comprehensive Report Volume 2: Directory of Project Experiments and Results*, November 2000.

Autoliv ASP, Inc.

FINAL PROJECT AGREEMENT SIGNED SEPTEMBER 20, 2000

Background

The Project Sponsor: Autoliv ASP, Inc., (Autoliv) is a manufacturer of automobile safety products. Autoliv's Pyrotechnic Processing Facility is located in Promontory, Utah, a remote area of Box Elder County. The Promontory facility manufactures pyrotechnic products (explosives) for airbags and pretensioners, which tighten a seatbelt during the first fractions of a second in a crash. Both items depend on pyrotechnics to be activated. The facility consists of 75 storage and manufacturing buildings concentrated on a 53-acre site. The only bordering neighbors are another business and a winter cattle range. The extended surrounding area consists of the small farming/ranching communities of Howell, located approximately 10 miles to the north, and Promontory, located eight miles to the west. In its facility, Autoliv currently operates a highly advanced, metals recovery facility (MRF) designed to process and recover aluminum and steel from previously fired airbag inflator units. The MRF collects emissions created during the incineration process and significantly reduces release of gases and particulate matter to the atmosphere. In addition, certain metals, such as aluminum, steel, and copper can be recovered during processing in the MRF and recycled.

The Experiment: During the manufacturing of pyrotechnic materials, reactive hazardous wastes are generated. These wastes are currently treated off-site at a treatment, storage, and disposal facility that is permitted to accept hazardous waste from outside sources and treats it via open burning. Although open burning is a safe and effective treatment method for reactive wastes, it allows for no pollution controls.

In this XL Project, Autoliv is currently in the process of adapting the technology and pollution-control devices used in the MRF to process its waste pyrotechnic materials on-site rather than sending the materials off-site for open burning. The emissions from the pyrotechnic materials, if processed at the MRF, would pass through the air pollution-control train rather than being emitted, thus achiev-

ing a significant reduction of air pollutants released to the environment. Additionally, Autoliv expects to recover and recycle additional materials, such as copper, from the MRF-processed pyrotechnic materials. Autoliv will reinvest a percentage of the savings achieved by this project into additional pollution prevention activities at their facility.

The Flexibility: Although the Resource Conservation and Recovery Act (RCRA) classifies pyrotechnic waste as a reactive hazardous waste, the material produced at the Promontory facility does not contain hazardous materials. Autoliv is requesting regulatory flexibility to allow the treatment of pyrotechnic waste on-site instead of transferring it to a separate facility for open burning. EPA published a site-specific rule on May 9, 2001, which exempted Autoliv from certain RCRA Part B requirements that regulate hazardous waste treatment, storage, and disposal, and permitted it to process the waste in the MRF.

Before Autoliv can proceed with this project, the Utah Department of Environmental Quality must amend state standards applying for hazardous waste disposal. The Utah Division of Air Quality, which regulates the processing operations of airbag inflators and their components, will issue an Approval Order for this innovative pyrotechnic waste disposal process. With the requested federal and state regulatory flexibility, Autoliv can safely and effectively dispose of their pyrotechnic material in the MRF while reducing emissions/pollutants to the environment.

The Superior Environmental Performance: With this project, Autoliv expects that the following superior environmental benefits will be achieved:

- Reduction of air emissions as a result of the minimization of open pit burning of pyrotechnic waste;
- Elimination of the open burning of 158,000 pounds of pyrotechnic material per year, which in turn eliminates 22,876 pounds per year of particulate emissions;

- Recycling of copper and other materials found in the slag of MRF-processed pyrotechnic materials, which can then be recycled back to Autoliv's raw material suppliers, reducing the demand for additional raw materials; and
- Elimination of the risk associated with transporting hazardous pyrotechnic materials to an outside processor.

Progress in Meeting Commitments *(As of September 2001)*

The Autoliv FPA includes the following commitments:

- EPA and the State of Utah committed to issuing a site-specific rule exempting the pyrotechnic waste generated at the Autoliv Promontory facility from being classified as a hazardous waste subject to RCRA regulation.
 - EPA finalized the site-specific rule and published the rule in the Federal Register on May 9, 2001. The State of Utah Division of Solid and Hazardous Waste completed the state rulemaking (R315-2-4(b)(16) of the Utah Administrative Code) on September 4, 2001.
- Autoliv has committed to characterizing all waste materials processed and conducting an initial stack test to evaluate the safety and efficiency of the MRF system. Autoliv will maintain an MRF Operating Record, including waste feed composition, feed rates, temperatures, pressures, upset conditions, spills and releases, and so forth at the Promontory facility.
- Autoliv will confer with stakeholders at a Periodic Performance Review Conference to be held at least every six months.
- Autoliv will provide EPA and the State of Utah semiannual reports by January 30 and July 30 of each year.

Benefits for the Environment

- During 1998 and 1999, 183,557 pounds of pyrotechnic waste was disposed of by open burning. Autoliv aims to eliminate the open burning of 158,000 pounds of pyrotechnic waste during the first year of the project, which would eliminate approximately 22,876 pounds of particulate emissions.
- Recovery and recycling of metals in the pyrotechnic materials will be a significant benefit for the environment. Copper and other materials found in the slag of the MRF-processed pyrotechnic materials could be recovered and recycled by Autoliv's raw materials suppliers.
- The recovery of materials from the MRF slag results in a minimized waste stream. With the volume of waste generated reduced and the associated recovery of heavy metals, less waste will be sent to landfills.
- Part of Autoliv's cost savings from the XL project will be used to fund pollution prevention activities through an Environmental Reinvestment Project. The type and extent of these activities will be specified after the first year's cost savings are calculated.

Benefits for Stakeholders

- This project eliminates the risk associated with transporting hazardous pyrotechnic materials to an outside processor. Pyrotechnic waste would no longer be transported across public roads, resulting in increased public safety and reductions to Autoliv's liability.

Benefits for the Project Sponsor

- The MRF is already functioning at the Autoliv Promontory facility. Additional operating costs for disposing of pyrotechnic wastes in the MRF will be minimal. With onsite disposal, Autoliv expects to save an estimated \$316,000 in disposal costs in the first year because wastes will not have to be transported off-site for open burning.

- In addition, paperwork will be minimized by the reduction in hazardous waste manifests and shipping papers.

Information Resources: The information sources used to develop this progress report include: (1) the Final Project Agreement for the Autoliv XL Project, signed September 20, 2000; and (2) the *2000 Project XL Comprehensive Report Volume 2: Directory of Project Experiments and Results*, November 2000.

Buncombe County Bioreactor

FINAL PROJECT AGREEMENT SIGNED SEPTEMBER 18, 2000

Background

The Project Sponsor: Buncombe County operates a Solid Waste Management Facility (BCSWMF) on a 600-acre site along the French Broad River in the Blue Ridge Mountains in western North Carolina. It is owned and operated by the Buncombe County General Services Department. The facility serves only Buncombe County, which has six municipalities: Asheville, Biltmore Forest, Black Mountain, Montreat, Woodfin, and Weaverville. The municipal solid waste (MSW) landfill was opened in September 1997 and was designed to accommodate up to 10 separate disposal cells that could be constructed sequentially over the estimated 30-year life of the facility. BCSWMF is one of the 10 largest publicly owned MSW landfills in the state. It accepts approximately 100,000 tons of waste per year from the area's 200,000 residents, a population that continues to grow at a rate of 2 percent per year. In addition to the approximately 100-acre MSW landfill, Buncombe operates a construction and debris landfill, a wood waste mulching facility, a convenience center for residential waste disposal and recycling, and a drop-off area for certain goods and tires on the remainder of the 600-acre site.

The Experiment: Over the past two years, Buncombe County has been researching a new method for operating sanitary landfills—the bioreactor method. The bioreactor method involves the recirculation of leachate during the operational phase of the landfill to enhance and accelerate waste decomposition and landfill gas generation. Leachate is the liquid that drains from the waste. Through this XL project, Buncombe County will construct and operate a bioreactor on the 100-acre MSW landfill area at BCSWMF. Using the bioreactor system, controlled quantities of liquid will be added and circulated through the waste, as appropriate, to accelerate the natural biodegradation process and composting of solid and liquid waste components. This process significantly increases the biodegra-

ation rate of waste and, thus, decreases the waste stabilization and composting time (5 to 10 years) relative to what would occur within a conventional landfill (30 to 50 years or more). Likewise, as the biodegradation rate is increased, the amount of landfill gas produced will be concentrated in 5 to 10 years, as opposed to smaller amounts of methane over 30 to 50 years. Research suggests that when different portions of the landfill are compared, an alternative liner offers 50 percent more protection to the underlying aquifer than the standard composite liner.

The primary goal of this XL project will be to demonstrate that leachate can be recirculated safely over an alternate liner system at a full-scale level, something not currently allowed under Resource Conservation and Recovery Act (RCRA) Subtitle D landfill regulations. The Buncombe County Landfill project is composed of five basic components: (1) a combined leachate circulation and gas collection system, (2) horizontal trenches, (3) a pressure injection system, (4) active gas collection, and (5) an alternative liner system.

The Flexibility: Currently, under both federal and state regulations, leachate recirculation is allowed using only the RCRA standard Subtitle D composite liner system. BCSWMF proposes recirculating leachate over an alternative liner. This project will require federal and regulatory flexibility for the full-scale experiment to proceed. EPA proposed and issued a site-specific rule amending 40 CFR Part 258.28 (RCRA Criteria for Municipal Solid Waste Landfills, Liquid Restrictions), allowing Buncombe County to recirculate leachate into its landfill units constructed with an alternative liner system. North Carolina's Department of Environment and Natural Resources (NCDENR), Division of Waste Management, is the statutorily designated agency for permitting and regulation of municipal solid waste landfills in North Carolina. The Division of Waste Management will review Buncombe County's application for the proposed leachate recirculation and gas recovery system in accordance with state statutes and with the EPA site-specific rule. Upon approval of the application, NCDENR will issue Buncombe County a permit to construct the first five-year

phase of the project. EPA and the State of North Carolina will also allow Buncombe County to supplement the leachate flow with water from the French Broad River to maintain moisture levels within the landfill. In the future, the county may seek a delay in the federal and state closure rule requirements, allowing it to continue to recirculate leachate even after a cell has reached its permitted final grade, so that it may return and place additional waste when the expected settlement occurs.

Other Innovations: (1) *Testing Bioreactor and Liner Performance.* By allowing BCSWMF to conduct a bioreactor project with the alternative liner, Buncombe County, the State of North Carolina, and EPA will receive important information about the performance of the alternative liner. In addition to this information, data collected throughout the project will help environmental engineers and scientists understand the important parameters in bioreactor functioning, such as leachate quality and quantity, recirculation techniques, temperature, moisture content, and stabilization. The Buncombe County project is important in this field since, as a long-term project, it has the potential to dramatically increase the understanding of and opportunity for bioreactors. Buncombe County will generate a baseline of current landfill performance to compare against future bioreactor results. (2) *Testing the Potential of Gas as Energy.* Because bioreactor projects increase the rate and quantity of methane gas generated, it can make gas-to-energy projects more feasible. Buncombe County is currently in the initial stages of evaluating the possibility of converting captured landfill gas to a fuel usable by county vehicles. (3) *Providing Examples to EPA for Potential Rulemaking Changes.* On April 6, 2000, EPA published a document in the Federal Register considering whether and to what extent the Criteria for Municipal Solid Waste Landfills, 40 CFR part 258, should be revised to allow for leachate recirculation over alternative liners in MSW landfills. The Buncombe County project, in conjunction with other XL bioreactor projects, will allow EPA to evaluate benefits of alternative liners and leachate recirculation systems under various terrains and operating conditions. (4) *Adaptation to Changes in Waste Streams Over Time.*

As market preferences shift and consumer interests change, the overall characteristics of waste going into the landfill over time may change as well. This project, lasting the lifetime of the landfill, permits Buncombe County and EPA to gauge the behavior and effectiveness of bioreactors over time and changes in inputs. (5) *Lessened Long-term Risk and Need for Monitoring.* The bioreactor method of landfill operation offers potential for substantial reductions in post-closure care needs and costs. This project will study whether, as predicted, rapid decomposition will reduce long-term risk of groundwater contamination and gas migration.

The Superior Environmental Performance: Buncombe County's commitment to develop and test bioreactor technologies at their solid waste management facility demonstrates a commitment to pursuing innovative pollution prevention strategies for dealing with MSW, which have been shown to provide increased protection above and beyond that sought by existing RCRA regulations. Leachate recirculation and other bioreactor technologies provide a high degree of innovation for managing leachate and environmental quality at MSW landfills. Although not new technologies, they are not widely used in the United States. This project will enable BCSWMF the ability to document and test the results of these technologies and provide EPA and the waste disposal industry with data supporting the use of bioreactors and promote the use of bioreactors as an integral part of long-term operations at these and other municipal solid waste landfill sites.

Progress in Meeting Commitments (As of August 2001)

EPA and Buncombe County committed to the following in the FPA:

- EPA committed to propose and issue a site-specific rule amending 40 CFR Part 258.28 for Buncombe County to allow recirculation of leachate over cells constructed with an alternative liner.

- The rule was proposed on April 16, 2001. The final rule was promulgated on August 22, 2001.
- NCDENR, Division of Waste Management, committed to review Buncombe County’s permit application for the first five-year phase of the proposed leachate recirculation and gas recovery system at the landfill in accordance with applicable state statutes and rules and consistency with the site-specific rule promulgated by EPA. If the Division determines that the application meets all of the applicable requirements, the Division will issue a permit to construct the first five-year phase of the project.
- Buncombe County committed to having the final design of the combined leachate recirculation and gas recovery system completed by the end of 2000.
- Buncombe County committed to prepare semi-annual reports that will include all monitoring data. These reports will be provided to EPA and stakeholders.
- Buncombe County committed to hold an annual meeting to review the project progress and results to date for as long as Buncombe County continues to recirculate leachate at the site under the provisions of the site-specific rule.

Benefits for the Environment

- The Bioreactor system is expected to maximize landfill gas control and capture and minimize fugitive methane and volatile organic compound emissions into the environment.
- Leachate recirculation promises more rapid leachate stabilization in terms of pollutant load, reduced leachate environmental impact, and elimination of the need for most discharges to treatment facilities. Improvements in leachate quality are expected to consist of organic compound reduction through increased biological activity and inorganic reductions by adsorption to the waste mass and soil and by chemical reactions, such as metals precipitation.

Benefits for Stakeholders

- Throughout the evolution of the project, stakeholders have been involved in and informed about this project and have been encouraged to share their ideas and concerns through written comments and meetings open to the general public.
- Because leachate from the Buncombe County facility is hauled by tanker truck from the facility to the publicly owned treatment works, the reduction in the amount of leachate requiring treatment resulting from the bioreactor system will result in fewer tanker trucks on the road, creating a safer situation for nearby residents.
- The recirculation of leachate and other liquids has been demonstrated to increase the rate and quantity of gas generation. Increased quantities of gas can make a gas-to-energy project more feasible, which provides added potential economic opportunities to the community and BCSWMF by providing an alternative form of energy.

Benefits for the Project Sponsor

- Buncombe County realized a significant economic benefit, saving nearly \$400,000, when constructing Cell 3 of the landfill using the alternative liner rather than the standard composite system. The county estimates that it will save a total of \$5 million through the build out of the facility if the alternative liner system is used on all the cells.
- Increased landfill disposal capacity due to rapid settlement during the operational period of the landfill will lead to more economical operations. Buncombe County estimates a potential cost savings of \$5 to \$10 million in reduced construction costs for additional landfill capacity if the anticipated increase of 20 to 30 percent in additional waste volume can be achieved due to rapid waste decomposition.

- The county is also estimating a savings of \$9 million over the life of the landfill if leachate hauling and off-site treatment can be eliminated due to recirculation.
- The rapid waste stabilization that occurs through bioreactor system will result in a reduction in the post-closure care, maintenance, and risk burden felt by Buncombe County. Rapid decomposition of the waste during and shortly after disposal operations cease will likely reduce the potential for the facility to generate significant quantities of high-strength leachate.

Informational Resources: The information in this summary comes from the following sources: (1) the FPA for the Buncombe County Bioreactor Project, signed September 18, 2000; (2) the *2000 Project XL Comprehensive Report, Volume 2: Directory of Project Experiments and Results*, November 2000; and (3) final rule published on August 22, 2001.

Chicago Regional Air Quality and Economic Development Strategy

FINAL PROJECT AGREEMENT SIGNED DECEMBER 8, 2000

Background

The Project Sponsor: The Chicago Department of Environment (DOE) is working with other metropolitan communities to address the area's designation of severe ground-level ozone nonattainment. This, in part, means that the region exceeds the ozone levels necessary to protect human health and the environment. The Chicago metropolitan ozone nonattainment region comprises six counties and parts of two additional counties in the northeastern section of the State of Illinois. At more than 9 million inhabitants, the six-county area, with Chicago at its core, contains approximately two-thirds of Illinois' residents. The region's nonattainment status impacts regional health as well as regional economic development by increasing the cost for an industry that wishes to locate or expand in the nonattainment area.

The Experiment: This XL project establishes an innovative approach that integrates clean air and economic growth goals. By sharing the burden of emissions reductions among industrial point sources and non-industrial mobile and area sources, communities and industry can work together to reduce emissions beyond what would be achieved by industry alone and retire some of those emissions capacities permanently, creating cleaner regional air. Under the Clean Air Act (CAA), in order for a new major facility or major modification to an existing facility to occur in a nonattainment region, the new source must achieve the lowest achievable emissions rate (LAER) and obtain emission offsets by purchasing emissions capacity from other industrial facilities at a ratio of 1.3 tons reduced to 1 ton permitted. Under this project, new or expanded industrial sources would still be required to meet LAER requirements but would not be required to obtain traditional offsets from other industrial point sources as described under 173(a)(1)(A) of the CAA. Instead, the City

of Chicago and surrounding regional municipalities will reduce emissions at the local non-industrial level, including mobile source reductions (e.g., by way of environmentally friendly commuting and alternative fuels) and localized area sources (e.g., by banning small incinerators). The emissions reduction will be generated by individuals and communities and then quantified, tracked, and submitted to the Illinois EPA and EPA. These reductions will be used to create a "growth allowance," which, in turn, will be used in lieu of traditional CAA industrial offsets at the same 1.3 to 1 ratio. The growth allowance would be available to companies who locate in proposed "development zones" as defined by EPA in consultation with the Secretary of Housing and Urban Development. The criteria identify zones that promote environmentally sound development and the preservation of open space and sites that have adequate, existing infrastructure. Although it is extremely difficult to predict how many emissions reductions will be generated, it is estimated that three to seven tons of emissions reductions per day of volatile organic compounds (VOCs), an ozone precursor, may be realized under this project.

The Flexibility: While no federal site-specific rule will be required for this project, the Chicago DOE will utilize the flexibility that is present in Section 173(a)(1)(B) of the CAA. This flexibility has never been tested and will allow Chicago DOE to generate new types of emissions reductions that have not previously been pursued and count them towards a growth allowance for new and expanding business and inclusion in the State Implementation Plan (SIP) under the CAA. All emission reduction programs credited in this XL program must be surplus and excess to what is already in the SIP and to what Illinois needs to reach attainment of the one-hour ozone standard. The existing Emissions Credit Banking and Trading Program, as authorized in Section 11-4-575 of the Chicago Municipal Code will ensure that any recipient of growth allowance credits is located or will be located in an approved development zone.

Other Innovations: (1) *Testing Section 173(a)(1)(B) of the Clean Air Act.* This project is testing whether this seldom used flexibility in the

CAA shows promise as a tool to create incentives for a community or group of communities to address its air quality issues in a comprehensive fashion, including flexibility between point and non-point source reductions and creating a more favorable environment for job-creating economic activity in areas where it is needed most, the urban core. (2) *Quantifying the Emissions Reductions of Individuals and Communities*. This project attempts to quantify emission reductions created by the actions of individuals, communities, and businesses and not simply large industrial sources. By taking these more diffuse and individualistic emission reduction activities out of the realm of “intangible benefits” and placing them in the realm of real economic benefits, this project is testing whether demand will be created and a positive effect on the environment gained. (3) *Preservation of Open Space*. Using development zone criteria that provide financial incentives to businesses for locating in areas where infrastructure such as utilities and transportation exist may result in preservation of open space and farmland in the outer suburban rings of the Chicago metropolitan area.

The Superior Environmental Performance: The superior environmental benefits that are expected to accrue from this project include (1) exceeding emission reductions beyond what is necessary to demonstrate attainment of National Ambient Air Quality Standards; (2) retiring some percentage of the emissions capacity generated by emissions reductions above what is needed to demonstrate attainment; (3) creating an incentive to direct new economic growth to largely urban development areas, thereby reducing urban sprawl and related negative environmental factors such as traffic congestion and development of open space and farmland; and (4) creating an incentive for communities and individuals to work hard to achieve reductions in mobile and area pollution sources above federal and state goals.

Progress in Meeting Commitments (As of September 2001)

Chicago DOE

- Generating and keeping data on emissions reductions with other participants and stakehold-

ers in the Campaign for Clean Air and Development.

- Chicago DOE has begun and will continue to generate and keep data on emissions reductions.
- Following the processes described in the Stakeholder Participation Plan for the duration of the project.
 - This is an ongoing regional effort to include public input into emissions reduction strategies. Stakeholder participation will continue as reduction plans are fully implemented.
- Working with EPA, Illinois EPA, and interested parties to implement emission reduction programs, including the quantification and tracking of emission reductions (the tracking system must be approved by EPA prior to implementation of this project).
 - Chicago DOE is working with EPA and Illinois EPA to develop and implement emissions reduction programs. A formal process for tracking reductions has not yet been implemented.
- Permitting the use of the growth allowance only for sources located in a development zone identified under this project.
 - Emissions reduction programs are in development, but the project has not reached the stage of issuing permits for sources using growth allowances.

EPA

- Using Section 173(a)(1)(B) of the CAA as the basis for identifying zones to which economic development should be targeted (development zones).
 - Criteria for development zones follow Section 173(a)(1)(B) and have been outlined in the FPA.
- Working with Chicago DOE, other participating municipalities, and interested parties to

establish, track, and enforce the growth allowance prior to implementation of this project.

- This is an ongoing process.
- Ensuring that no emissions reductions used in the SIP to demonstrate attainment of the one-hour ozone standard will be used as credits in the growth allowance.
 - Illinois EPA submitted an attainment demonstration for one-hour ozone standard that did not rely on the emission reductions associated with the XL project. EPA approved the demonstration.
- Ensuring that the system for verifying and tracking emissions reductions is made available to the public, that the public has sufficient information to independently verify the reductions, and that the public receives timely and detailed information on the use of the growth allowance.
 - EPA will continue to use existing regional public outreach efforts to get input on emission reduction activities being developed. This includes input from community groups, businesses, nonprofit organizations, and other government agencies.

Illinois EPA

- Working with the Chicago DOE, other participating municipalities, and interested parties to establish, track, and enforce the growth allowance prior to implementation of this project.
 - This is an ongoing process.
- Submitting a SIP that demonstrates attainment of the one-hour ozone standard.
 - Illinois EPA submitted an attainment demonstration for one-hour ozone standard that did not rely on the emission reductions associated with the XL project.
- Reviewing terms of this project and their rules to ensure that the project is allowable under the Illinois SIP.

– Illinois has completed its review.

- Ensuring that no emissions reductions used in the SIP to demonstrate attainment of the one-hour ozone standard will be used as credits in the growth allowance.
 - This is an ongoing commitment. Illinois has ensured that no emissions reductions used in the SIP will be used as credits in the growth allowance.
- Establishing accounting mechanisms for tracking emissions reductions above and beyond the attainment plan.
 - Illinois EPA is working with Chicago DOE and EPA to develop and implement emissions reduction programs. A formal process for tracking reductions has not yet been implemented.
- Ensuring that the system for verifying and tracking emissions reductions is made available to the public, that the public has sufficient information to independently verify the reductions, and that the public receives timely and detailed information on the use of the growth allowance.
 - Illinois EPA will continue to use existing regional public outreach efforts to get input on emissions reduction activities being developed. This includes input from community groups, businesses, nonprofit organizations, and other government agencies.

Benefits for the Environment

- It is estimated that 3 to 7 tons of emissions reductions per day of VOCs may be realized under this project. Because 40 percent of the emissions capacity allowed under the CAA will be retired after reductions in actual emissions are achieved, this project may result in an estimated 1.2 to 2.8 tons of VOC reduction per day.
- On October 1, 2000, the City of Chicago banned all small incinerators from burning

waste and ordered they cease operation by January 1, 2001. Twenty-seven small incinerators were closed in the city and resulted in the following emissions reductions: 0.015 tons per day of VOCs; 0.022 tons per day of NO_x; and 0.075 tons per day of CO.

- The city has conducted two lawnmower buy-back programs. The first was a regional buy-back held in April to June of 2000 and resulted in 567 gas-powered lawnmowers being retired. Emission reductions for this program totaled 0.024 tons per day of VOCs. The second buy-back was conducted in the City of Chicago in the summer of 2001. This buy-back resulted in the retirement of 246 gas-powered lawnmowers and emissions reductions totaling 0.012 tons per day of VOCs.
- Due to the fact that the excess emissions capacity created will be given to businesses that locate or expand in development zones, which are largely in urbanized areas, open space and farmland in more rural areas will be saved from development.

Benefits for Stakeholders

- This project offers the opportunity for the public at large and local governments to participate in a meaningful way in improving air quality in their region as it focuses on reducing emissions from mobile and area sources by individuals and communities. By changing individual behaviors such as fuels used and changing driving patterns, stakeholders can create emissions capacity for targeted economic activity that will create jobs in their community.
- Stakeholders will be the direct beneficiaries of new economic activity created by new and expanded businesses in development zones including job creation, brownfields and blighted area redevelopment, crime reduction, and greater urban vitality.

Benefits for the Project Sponsor

- In addition to coming into attainment under the CAA for ground-level ozone and having cleaner regional air, the City of Chicago will be able to remove barriers to companies wanting to locate within the nonattainment area, thereby opening up greater economic opportunity in the city's most needy neighborhoods.

Information Resources: The information in this summary comes from the following sources: (1) the FPA for the Chicago Regional Air Quality and Economic Development Strategy, July 19, 2001; and (2) the *2000 Project XL Comprehensive Report, Volume 2: Directory of Project Experiments and Results*, November 2000.

City of Albuquerque

FINAL PROJECT AGREEMENT SIGNED FEBRUARY 3, 2000

Background

Project Sponsor: The City of Albuquerque Public Works Department’s Wastewater Utility Division is responsible for maintaining Albuquerque’s wastewater collection system and wastewater reclamation plant, which includes one publicly owned treatment works (POTW) facility—the Southside Water Reclamation Plant. All Albuquerque area homes, businesses, and institutions—about 500,000 people, 100 major industries, and 12,000 commercial customers—are connected to the POTW sewer system. The Albuquerque POTW is the largest wastewater treatment facility in New Mexico. The plant design capacity is 76 million gallons/day (MGD). Present flows average about 57 MGD. Fifteen percent of the wastewater treated comes from industrial users.

The Experiment: Albuquerque plans to shift resources from certain less productive requirements, such as monitoring facilities that have excellent or very good records of compliance, to pollution prevention activities that promise greater environmental results. Specifically, the city will attempt to initially reduce the amount of aluminum, cadmium, chromium, copper, cyanide, fluoride, lead, mercury, molybdenum, nickel, selenium, silver, and zinc that are being treated in the POTW by 10 to 25 percent. In addition to reducing these 13 pollutants and improving the area’s overall water quality, this project will reduce the mass and concentration of influent, effluent, and biosolids.

The city also plans to make changes to its Industrial Waste Survey by focusing on sewer system subbasins at key manholes to learn if it is possible to identify where in the city certain pollutants predominate. This replaces current National Pollution Discharge Elimination System (NPDES) requirements that call for predicting pollutant loadings based on industrial inputs. Under the new survey, certain subbasins will receive more focused and intense pollution prevention outreach efforts and activities depending on the types and amounts of pollutants identified in their sector of the city.

In the case of potentially harmful discharges, the city will have the ability to track discharges upstream by increasing sample collections, as well as the ability to visit the industries, institutions, and commercial operations within the subbasin to determine potential sources. If high pollutant levels occur in a subbasin that cannot be tied to a specific institutional or industrial source, the city will address the issue through educational outreach in the specific area.

The Flexibility: The City of Albuquerque’s POTW is covered under EPA’s NPDES. This XL project proposes to modify otherwise required activities under NPDES in three general categories: changing the permitting requirements, revising the definition of “significant non-compliance” (SNC), and implementing a pollution prevention program in the city’s Industrial Pretreatment Program.

Changing the Permitting Requirements. According to the city’s Industrial Pretreatment Program, many of the industrial user permittees have excellent waste management programs and compliance records or represent non-significant discharges of pollutants. The city proposes to delete approximately 13 permits due to their non-significant wastewater discharge while maintaining annual inspections, monitoring, and reporting requirements. The city also proposes to modify approximately 32 permits for industries with good performance histories while maintaining annual inspections, monitoring, and reporting requirements. The city will create general permits where appropriate to simplify permitting procedures.

Revising the Definition of SNC. Under Project XL, the definition of “chronic violation” under SNC will be changed to a basis of whether an administrative assessment has been issued to a permittee under the city’s Enforcement Response Plan. Technical Review Criteria under 40 CFR 403.8(f)(2)(vii) will not be used, and the requirement for rolling quarter determinations of SNC will be replaced with annual determinations. The city’s approved Enforcement Response Plan will be modified to delete the presently required SNC tracking and administration in favor of the above approach.

Pollution Prevention Program. The city proposes to modify its next NPDES permit to reflect its participation in Project XL by requiring a pollution prevention component to its Industrial Pretreatment Program. The pollution prevention component involves changes in the city's survey, monitoring, and reporting requirements. Specifically, the city will make changes in its Industrial Waste Survey by focusing on sewer system subbasins at key manholes to learn if it is possible to identify where in the city certain pollutants predominate.

Other Innovations: (1) *Testing Subbasin Monitoring as a Tool.* EPA and the POTW will be able to determine the usefulness of subbasin monitoring as a less resource-intensive compliance tool and targeting mechanism for pollution prevention outreach. Once baseline data are established within the city's wastewater collection system subbasins, the POTW will be able to target certain businesses for pollution prevention activities, rather than predicting outputs from industrial process inputs. (2) *Fundamental Change in Approach Toward Industrial Waste Generation.* The Southside Water Reclamation Plant is testing a suite of new methods for preventing discharge of pollutants and freeing up resources for outreach and education by attempting to permanently integrate pollution prevention principles, promotion, and recognition as part of the city's required Industrial Pretreatment Program.

Superior Environmental Performance: The goal of the project is to reduce the amount of pollutants released into the environment from industries and businesses through pollution prevention activities. With the flexibility, the city will be able to shift limited resources from certain NPDES requirements, such as monitoring industries that have excellent or very good records of compliance, to more proactive pollution reduction strategies, such as focusing on sewer system subbasins at key manholes to learn if it is possible to identify where in the city certain pollutants predominate. This more focused plan will enable the city to reduce the amounts of pollutants in the water; reduce mass and concentration of influent, effluent, and biosolids; improve stormwater runoff; and improve the overall water quality in Albuquerque. The city estimates reductions in the range of 10 to 20 percent for the 13 targeted pollutants.

Progress in Meeting Commitments (As of October 2001)

- On October 3, 2001, EPA promulgated a rule amending the National Pretreatment Program regulations to allow POTWs that have completed the Project XL selection process, including FPA development, to modify their approved local pretreatment programs. These POTWs will be allowed to modify their programs and implement the new local programs as described in their FPAs.

This project is newly underway. The following commitments for the project are detailed in the FPA:

- The city will provide semiannual updates posted to the Web site for the project on the city's home page at <http://www.cabq.gov/wastewater/projectxl.html>. Hard copies will be provided upon request. The updates will describe local pilot pretreatment program activities and accomplishments, including activities and accomplishments of participating agencies and public involvement. The report also will include an analysis of environmental data collected over the reporting period and activities conducted to reduce pollutant loadings to the environment and any other activities that address the objectives of the local pretreatment program.
- The city has begun sampling to establish a baseline for the city's wastewater collection system from which the city will measure progress toward its goal of reducing targeted pollutants by 10 to 20 percent.
- To increase public awareness, Albuquerque has opened its Technology Resources Center (TRC) office, which is underwritten by the Waste Management Education and Research Consortium (WERC) and cooperates with the New Mexico Green Zia Environmental Excellence Program. The TRC is set up as a clearinghouse to address businesses environmental waste management issues and problems. The city's Web site also is set up with direct links to the pollution prevention program.

Benefits for the Environment

- The city expects declines in subbasin pollutants by 10 to 20 percent. There should be a reduction in mass and concentration of influent, effluent, and biosolids.
- Pollutant releases at a majority of businesses will be expected to decline where pollution prevention promotion has been addressed.
- The project should result in overall water conservation by industrial users.
- Stormwater runoff quality improvements will be expected as more businesses implement stormwater pollution prevention plans.

Benefits for Stakeholders

- Increased public awareness of the importance of pollution prevention will be a tangible result of increased promotion and education efforts.

Benefits for the Project Sponsor

- The city will be able to shift limited resources from certain less productive requirements, such as monitoring industries that have excellent or very good records of compliance, to more proactive pollution reduction strategies, such as focusing on sewer system subbasins at key manholes to learn if it is possible to identify where in the city certain pollutants predominate.

Information Resources: The information in this summary comes from the following sources: (1) the FPA for the City of Albuquerque Public Works Department XL Project, signed February 3, 2000; and (2) the *2000 Project XL Comprehensive Report, Volume 2: Directory of Project Experiments and Results*, November 2000.

City of Columbus

XLC¹ FINAL PROJECT AGREEMENT SIGNED SEPTEMBER 26, 2000

Background

The Project Sponsor: The City of Columbus project focuses on an area within Columbus, Ohio, where 84 percent of all elevated blood lead levels in the city have been found. The area of concern for this project falls within a 10 zip code area located in predominately low-income minority neighborhoods, where the housing is generally much older than in the remainder of the city. Testing done in parts of this area between 1995 and 1997 indicated that as many as 20 percent of the children living in this area of the city had elevated blood lead levels.

The City of Columbus operates a public water system that must comply with regulations under the Safe Drinking Water Act (SDWA) and is currently maintaining optimal treatment for lead. However, in the past, Columbus made certain changes to its water treatment process to meet other water quality standards and inadvertently caused an increase in the lead levels in the water. Columbus is concerned that it may need to make treatment changes in the future that may likewise affect lead levels.

The Experiment: This project takes a multimedia approach to controlling lead by allowing the city to utilize some of its drinking water resources to focus on and abate health hazards due to household lead paint and dust. The City Division of Water has agreed to fund a Lead-Safe Columbus Program (LSCP) at an annual level of \$300,000 for 15 years for lead poisoning prevention.

Programs initiated by the LSCP include free blood screening, public education, medical intervention for children with lead poisoning, and grants or loans for lead abatement projects in high-risk areas. The free blood screening will occur at the

LSCP monthly clinic. In addition, the LSCP will offer to test all children under the age of six at sites where lead levels in the tap water exceed 15 micrograms per liter ($\mu\text{g/l}$), as well as all children under six living in a building where elevated blood lead levels have been detected. Children with elevated blood lead levels greater than, or equal to, 15 micrograms per deciliter ($\mu\text{g/dl}$) will receive medical case management and lead hazard risk assessments from the LSCP. Lead hazard risk assessments will also be performed at all privately owned residences built prior to 1978 whose owners apply for rehabilitation activity funding from the City of Columbus Department of Trade and Development (DTD). Another component of the project involves grants and loans for the abatement of lead hazards in high-risk homes. Up to 20 grants will be given to low- to moderate-income homeowners, at an average amount of \$5,000 to address lead hazards. More expensive lead hazard-reduction projects will be financed through low-interest loans from the DTD.

The Flexibility: EPA identified a SDWA variance as the appropriate federal mechanism for implementing this project. The legal provisions found at Section 1415(a)(3) of the SDWA give EPA the authority to grant a variance from a treatment technique if an alternative treatment technique is determined to be at least as efficient in lowering the level of the contaminant with respect to the prescribed requirement. EPA's issuance of a variance to Columbus based on the city's implementation of an alternative treatment technique, which was determined to be at least as efficient in lowering the level of lead as lead service line (LSL) sampling and replacement, represented the first time this SDWA authority had ever been used. In exchange for providing funding to the LSCP, the Columbus Water Division will receive flexibility, should it become necessary, from lead and copper regulations promulgated under the SDWA. The city is concerned that future changes to its treatment processes could result in temporary increases in drinking water lead levels. Although at this time the city does not anticipate any such increases, if temporary increases do occur, the city is seeking regulatory flexibility until lead levels can be reduced.

¹Project XLC, eXcellence and Leadership for Communities, encourages local public sector and community organizations to come forward with new approaches to demonstrate community-designed and directed strategies for achieving greater environmental quality consistent with community economic goals.

Under the federal and state drinking water regulations, if the drinking water in customers' homes exceeds the "Action Level" (AL) of 15 µg/l of lead in more than 10 percent of drinking water tap samples (i.e., exceeds the AL as a 90th percentile value), the city must begin sampling LSLs immediately and replace those lines that contribute more than 15 µg/l of lead. The flexibility under this XL project will suspend the LSL sampling and replacement requirements for up to three years if and when the city exceeds the lead limit, provided the increase occurs within six years of making a treatment change.

Prior to making any treatment change that could affect the lead levels in the system, the Columbus Water Division will consult with the Ohio Environmental Protection Agency (OEPA) and EPA. Once OEPA approves the proposed treatment change, Columbus will monitor the lead levels in the water. Should the tap monitoring indicate a trend of increasing lead levels, the Columbus Division of Water will consult with OEPA and EPA and take steps to reverse the trend.

This project would not allow flexibility from the public education provisions of the lead and copper regulations; the city would still be required to conduct public education in accordance with federal and state regulations should the lead AL be exceeded at any time.

Other Innovations: (1) *Testing the first-time use of SDWA legal mechanism.* EPA's use of a SDWA variance to implement an alternative treatment technique has proven to be so cost effective to EPA and all of the stakeholders involved in this XLC project that EPA's Region 5 office is now working to employ the same legal mechanism in two pilot projects to be tested in Michigan under the Joint EPA/State Agreement to Pursue Regulatory Innovations.

The Superior Environmental Performance: The LSCP aims to yield superior environmental performance through greater public health protection by addressing all sources of lead exposure in the Columbus community. The project will provide public education and outreach materials and issue lead hazard and abatement grants with the

funding received (\$300,000 a year for 15 years) from the City Water Division. If the city employs an alternative treatment technique for drinking water, the effort will be coordinated between the city, EPA and OEPA. The treatment technique would involve joint management of water treatment changes while allowing the city to adjust drinking water treatment to establish the most effective level of lead treatment in conjunction with other water treatment processes.

Progress in Meeting Commitments (As of July 2001)

- Although ALs have not been exceeded since the FPA was signed, the City of Columbus has committed to a series of actions if the lead AL is exceeded. Should any new water treatment begin which could adversely affect lead levels, the city Division of Water will initiate additional sampling. If the lead AL is exceeded, the Columbus Division of Water will take measures to lower lead levels at the tap.
- The Columbus City Council and City Auditor approved the transfer of \$300,000 in Water Division funds to the LSCP beginning January 1, 2001.
- The LSCP will target a 10 zip code area for priority program activities.
 - LCSP will provide free blood screening at its monthly clinics and conduct probe screens within the community.
 - The LSCP will offer to test the blood lead levels of all children under age six who reside in the same building as a child who has been tested at the monthly clinic and found to have an elevated blood lead level.
 - The LSCP will conduct lead hazard risk assessments for all privately owned, low-income residences built before 1978 when owners apply for rehabilitation activity funding from the DTD, and will issue up to 20 lead hazard identification and abatement grants (up to a total of \$100,000) per year.

- The LSCP will also work with community groups that serve the target neighborhoods to distribute educational materials.
- EPA committed to take final action on the proposed variance under Section 1415(a)(3) of the SDWA after considering public comments.
 - EPA’s Region 5 Administrator signed the final variance on December 27, 2000. Should the flexibility provided by the variance be needed by the city and the variance become effective, EPA and OEPA will review the city’s compliance with its terms.
- Treatment changes will be subject to OEPA review and approval. Should treatment changes be approved, OEPA will designate new monitoring requirements. OEPA will review requests from the Columbus Water Division for a reduction in the frequency of monitoring for lead or other constituents if necessary.
- The comprehensive education program used by the LSCP will provide direct training to those most at risk and who can have the greatest impact on reducing and/or eliminating lead hazards in a child’s environment.
- Public education and outreach materials are another component of the LSCP program funded by the \$300,000 annual commitment. Three areas of public outreach and education will be stressed in this XLC project. Lead information packets will be provided to parents of all children tested with a blood level of 10 µg/dl or greater to help reduce lead hazards in the home. Brochures will be distributed to medical providers and clinics in high-risk neighborhoods. LSCP staff will also distribute materials to community groups, at fairs, and to social service agencies that serve residents of the target neighborhoods.

Benefits for the Environment

- All aspects of childhood lead poisoning are addressed in this XLC project. In addition to traditional screening and risk assessment functions, the project will provide a comprehensive education effort that encourages individual responsibility, long-term maintenance, prevention, and corrective measures. It will address the issue of lead in drinking water with limited flexibility and provide up to \$100,000 per year in targeted funding for abatement from lead paint, dusts, and other sources.

Benefits for Stakeholders

- This XLC project will proactively remediate lead hazards to children. The city will seek properties within high-risk areas, offer to perform free lead assessments, and provide up to 20 grants, at an average of \$5,000 each (for a total of \$100,000 per year), for lead hazard abatement.

Benefits for the Project Sponsor

- Under this XLC project, the Columbus Water Division will receive regulatory flexibility from LSL sampling and replacement regulatory requirements under the SDWA, should a change in treatment technology cause an inadvertent rise in drinking water lead levels.
- LSLs are expensive to replace. There are 28,802 LSLs in Columbus, with average costs for line replacements ranging from \$1,200 (EPA average estimate) to \$3,000 (City of Columbus estimate) per line. The city projects that monitoring for lead in 7 percent of the lines, as required by SDWA regulations would cost the city \$360,000 in the first year, with costs increasing in subsequent years.
- The Columbus Division of Water will be addressing an environmental and health issue beyond their traditional purview. The \$300,000 annual commitment from this project, in addition to a small Center for Control Disease and Prevention grant and larger U.S. Department of Housing and Urban Development grant (\$1.1 million), will all be used to achieve overall city lead program goals, maximizing available resources on the local level to address a serious environmental and health issue.

- The Columbus XLC project has the potential to affect the way that water systems across the country approach lead reduction. Any other supplier wishing for similar regulatory flexibility must first demonstrate superior environmental or public health benefits and commit to comply with appropriate state and federal regulations. The funding of the LSCP is an essential component of this XLC project. The experiences of the Columbus XLC project will assist EPA in determining whether to grant future variances of the SDWA for water systems facing similar circumstances.

Information Resources: The information used to develop this progress report include (1) the FPA for the City of Columbus XLC Project, dated September 26, 2000; (2) the EPA Office of Ground Water and Drinking Water Web site (<http://www.epa.gov/safewater>); (3) the EPA Office of Pollution Prevention and Toxics Lead Web site (<http://www.epa.gov/lead>); (4) the City of Columbus Lead Safe Columbus Web site (<http://hcs.td.ci.columbus.oh.us/Housing/Lead/Lead%20Web/>); and (5) the *2000 Project XL Comprehensive Report, Volume 2: Directory of Project Experiments and Results*, November 2000.