

DOE/EA-1722

FINAL ENVIRONMENTAL ASSESSMENT

**For
Toxco, Incorporated**

**Electric Drive Vehicle Battery and Component
Manufacturing Initiative Application**

Lancaster, Ohio



April 2010

**U.S. DEPARTMENT OF ENERGY
NATIONAL ENERGY TECHNOLOGY LABORATORY**

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ACRONYMS AND ABBREVIATIONS

a.m.	<i>ante meridiem</i> (i.e. before noon) or AM
AQCR	Air Quality Control Region
BMPs	Best Management Practices
BTU	British Thermal Units
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act (Superfund)
CFR	Code of Federal Regulations
cm	Centimeter
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CWA	Clean Water Act
dB	Decibel
dBA	A-weighted Decibel
DNL	Day-night Average Sound Level
DOE	U.S. Department of Energy
e.g.	<i>Exempli gratia</i> , for example
EA	Environmental Assessment
EDV	Electric Drive Vehicles
EDSM	Engineering Directives and Standards Manual
EERE	Energy Efficiency and Renewable Energy
EIS	Environmental Impact Statement
EO	Executive Order
EPCRA	Emergency Planning and Community Right-to-Know Act
ESA	Endangered Species Act
<i>et seq.</i>	<i>et sequens</i> , and the following one or ones
etc.	<i>et cetera</i> , and so on
FONSI	Finding of No Significant Impact
ft	Feet
ft ²	Square Feet
gpd	Gallons per Day
HEV	Hybrid Electric Vehicles
Hz	Hertz
i.e.	<i>id est</i> , that is
I-71	Interstate 71
kl	Kiloliters
km	Kilometer
km ²	Square Kilometer
lbs	Pounds
L _{eq}	Equivalent Sound Level
Li Ion	Lithium Ion
LIB	Li Ion Batteries
LQG	Large Quantity Generator
m	Meter

m ²	Square Meters
MBTA	Migratory Bird Treaty Act
MMBTU	Million British Thermal Units
MSA	Metropolitan Statistical Area
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NETL	National Energy Technology Laboratory
NHPA	National Historic Preservation Act
NiCad	Nickel Cadmium
NiMH	Nickel Metal Hydride
NNSR	Nonattainment New Source Review
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
NSPS	New Source Performance Standards
NSR	New Source Review
O ₃	Ozone
OAC	Ohio Administrative Code
OEM	Original Equipment Manufacturers
OEPA	Ohio Environmental Protection Agency
OH	Ohio
OSHA	Occupational Safety and Health Administration
P.L.	Public Law
p.m.	<i>post meridiem</i> (i.e. after noon) or PM
Pb	Lead
PHEV	Plug-In Hybrid Electric Vehicles
PM ₁₀	Particulate Matter of 10 Micrometers or Less in Aerodynamic Diameter
PM _{2.5}	Particulate Matter Less than 2.5 Micrometers in Aerodynamic Diameter
PSD	Prevention of Significant Deterioration
RCRA	Resource Conservation and Recovery Act
Recovery Act	American Recovery and Reinvestment Act of 2009, Public Law 111-5
SHPO	State Historic Preservation Office or Officer
SIPs	State Implementation Plans
SO ₂	Sulfur Dioxide
SO _x	Sulfur Oxides
Toxco	Toxco Incorporated
tpy	Tons per Year
TSD	Treatment, Storage, and Disposal
TSP	Total Suspended Particles
USC	United States Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VOC	Volatile Organic Compounds
VT	Vehicle Technologies
yr	Year

1.0 INTRODUCTION

1.1 Background

The Department of Energy's (DOE) National Energy Technology Laboratory (NETL) manages the research and development portfolio of the Vehicle Technologies (VT) Program for the Office of Energy Efficiency and Renewable Energy (EERE). A key objective of the VT program is accelerating the development and production of electric drive vehicle systems in order to substantially reduce the United States' consumption of petroleum. Another of its goals is the development of production-ready batteries, power electronics, and electric machines that can be produced in volume economically so as to increase the use of electric drive vehicles (EDVs).

Congress appropriated significant funding for the VT program in the American Recovery and Reinvestment Act of 2009, Public Law 111-5 (Recovery Act) in order to stimulate the economy and reduce unemployment in addition to furthering the existing objectives of the VT program. DOE solicited applications for this funding by issuing a competitive Funding Opportunity Announcement (DE-FOA-0000026), *Recovery Act - Electric Drive Vehicle Battery and Component Manufacturing Initiative*, on March 19, 2009. The announcement invited applications in seven areas of interest:

- Area of Interest 1 – projects that would build or increase production capacity and validate production capability of advanced automotive battery manufacturing plants in the United States.
- Area of Interest 2 – projects that would build or increase production capacity and validate production capability of anode and cathode active materials, components (e.g. separator, packaging material, electrolytes, and salts), and processing equipment in domestic manufacturing plants.
- Area of Interest 3 – projects that combine aspects of Area of Interest 1 and 2.
- Area of Interest 4 – projects that would build or increase production capacity and validate capability of domestic recycling or refurbishment plants for lithium ion batteries.
- Area of Interest 5 – projects that would build or increase production capacity and validate production capability of advanced automotive electric drive component in domestic manufacturing plants.
- Area of Interest 6 – projects that would build or increase production capacity and validate production capability of electric drive subcomponent suppliers in domestic manufacturing plants.
- Area of Interest 7 – projects that combine aspects of Area of Interest 5 and 6.

The application period closed on May 19, 2009, and DOE received 119 proposals across the seven areas of interest. DOE selected 30 projects based on the evaluation criteria set forth in the funding opportunity announcement; special consideration was given to projects that promoted the objectives of the Recovery Act – job preservation or creation and economic recovery – in an expeditious manner.

This project, Next-Generation Lithium Ion (Li Ion) Battery Recycling Facility, was one of the 30 DOE selected for funding. DOE's Proposed Action is to provide \$9,552,653.00 in financial

assistance in a cost sharing arrangement with the project proponent, Toxco Incorporated (Toxco). The total cost of the project was estimated at \$19,107,705.00.

1.2 Purpose and Need for DOE Action

The overall purpose and need for DOE action pursuant to the VT program and the funding opportunity under the Recovery Act is to accelerate the development and production of various electric drive vehicle systems by building or increasing domestic manufacturing capacity for advanced automotive batteries, their components, recycling facilities, and EDV components, in addition to stimulating the United States' economy. This work will enable market introduction of various electric vehicle technologies by lowering the cost of battery packs, batteries, and electric propulsion systems for EDVs through high-volume manufacturing. DOE intends to further this purpose and satisfy this need by providing financial assistance under cost-sharing arrangements to this and the other 29 projects selected under this funding opportunity announcement.

This and the other selected projects are needed to reduce the United States' petroleum consumption by investing in alternative vehicle technologies. Successful commercialization of EDVs would support DOE's Energy Strategic Goal of "protect[ing] our national and economic security by promoting a diverse supply and delivery of reliable, affordable, and environmentally sound energy." This project will also meaningfully assist in the nation's economic recovery by creating manufacturing jobs in the United States in accordance with the objectives of the Recovery Act.

1.3 Legal Framework

DOE has prepared this EA in accordance with the Council on Environmental Quality (CEQ) "Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act," codified in Title 40 of the *Code of Federal Regulations* in Parts 1500 through 1508 (40 CFR 1500-1508). These implement the procedural requirements of the National Environmental Policy Act (NEPA), found in Title 40 of the *United States Code* in Section 4321 and following sections (42 USC § 4321 *et seq.*).

NEPA *requires* Federal agencies to consider the potential environmental consequences of a Proposed Action in their decision-making processes. NEPA *encourages* Federal agencies to protect, restore, or enhance the environment through well-informed Federal decisions. The CEQ NEPA regulations specify that an EA be prepared to:

- Provide sufficient analysis and evidence for determining whether or not to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).
- Aid in an agency's compliance with NEPA when no EIS is deemed necessary.
- Facilitate EIS preparation when one is necessary.

Further, the CEQ NEPA regulations encourage agencies to integrate NEPA requirements with other environmental review and consultation requirements. Relevant environmental requirements are contained in other Federal statutes, such as the Clean Air Act and the Clean

Water Act, and their state counterparts. The following Federal and state statutes and regulations are relevant to this EA. Federal and state permits that may be required are also listed.

American Recovery and Reinvestment Act

American Recovery and Reinvestment Act of 2009, Public Law 111-5 (Recovery Act) is an act making supplemental appropriations for job preservation and creation, infrastructure investment, energy efficiency and science, assistance to the unemployed, and State and local fiscal stabilization. Through this act DOE could fund Toxco's proposed project.

Clean Air Act

The Clean Air Act (CAA), 42 USC § 7401 *et seq.*, establishes the National Ambient Air Quality Standards (NAAQS) developed by the U.S. Environmental Protection Agency (USEPA) for the pervasive pollutants: sulfur dioxide (SO₂), carbon monoxide (CO), ozone (O₃), nitrogen dioxide (NO₂), lead (Pb), and particulate matter (both particulate matter of 10 micrometers or less in aerodynamic diameter (PM₁₀) and particulate matter less than 2.5 micrometers in aerodynamic diameter (PM_{2.5})). The NAAQS are expressed as concentrations of the criteria pollutants in the ambient air, the outdoor air to which the general public is exposed. The CAA also contains emission control permit programs to protect the nation's air quality and establishes New Source Performance Standards that establish design standards, equipment standards, work practices, and operational standards for new or modified sources of air emissions. Where the NAAQS emphasize air quality in general, the New Source Performance Standards focus on particular industrial categories or sub-categories (e.g., fossil fuel fired generators, grain elevators, and steam generating units). Regulations implementing the CAA include 40 CFR Parts 50-95.

Clean Water Act

The Clean Water Act (CWA), 33 USC § 1251 *et seq.*, establishes a comprehensive framework of standards, technical tools, and financial assistance to address "point source" pollution from municipal and industrial wastewater discharges and "nonpoint source" pollution from urban and rural areas. Applicants for federal licenses or permits to conduct any activity that may result in a discharge to navigable waters must provide the Federal agency with a state CWA Section 401 certification that the discharge would comply with applicable provisions of the CWA. CWA Section 404 establishes a permit program to regulate the discharge of dredge and fill material into waters of the United States, including wetlands. CWA Section 402 establishes the National Pollutant Discharge Elimination System (NPDES), which requires point sources of pollutants to obtain permits to discharge effluent to surface waters. Regulations for implementing relevant CWA programs include 33 CFR Parts 320-331 and 40 CFR Parts 400-503

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA), 42 USC § 6901 *et seq.*, regulates the treatment, storage, and disposal of solid and hazardous wastes. RCRA sets "cradle to grave" standards for both solid waste and hazardous waste management. Certain wastes are specifically excluded because they are regulated under other statutes. Some examples are domestic sewage

and septic tank waste; agricultural wastes; industrial discharges; some nuclear wastes; and mining overburden. RCRA regulations include 40 CFR Parts 239-282.

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 USC § 9601 *et seq.*, also known as “Superfund,” established a tax on the chemical and petroleum industries and provided broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA also establishes requirements for closed and abandoned hazardous waste sites, provides for the liability of persons responsible for the release of hazardous substances, and establishes a trust fund to pay for orphan facility cleanup and closure. Regulations for implementing CERCLA include 40 CFR Parts 300-312.

Emergency Planning and Community Right-to-Know Act

The Emergency Planning and Community Right-to-Know Act (EPCRA), 42 USC § 1001 *et seq.*, requires Federal agencies to provide information on hazardous and toxic chemicals to state emergency response commissions, local emergency planning committees, and USEPA. EPCRA’s goal is to provide this information to ensure that local emergency plans are sufficient to respond to unplanned releases of hazardous substances. Regulations implementing EPCRA include 40 CFR Parts 350-374.

National Historic Preservation Act

The National Historic Preservation Act (NHPA), 16 USC § 470 *et seq.*, requires DOE to consult with the State Historic Preservation Officer (SHPO) prior to any construction to ensure that no historical properties would be adversely affected by a proposed project. DOE must also afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the proposed project. Regulations for implementing NHPA include 36 CFR 800-812.

Archaeological Resources Protection Act

The Archaeological Resources Protection Act, 16 USC § 470aa *et seq.*, requires a permit for excavation or removal of archaeological resources from publicly held or Native American lands. The Act requires that excavations further archaeological knowledge in the public interest and that the resources removed remain the property of the United States. Regulations for implementing the Act include 43 CFR 7 and 36 CFR 296.

American Indian Religious Freedom Act

The American Indian Religious Freedom Act, 42 USC § 1996, establishes policy to protect and preserve the inherent and Constitutional right of Native Americans to believe, express, and exercise their traditional religions. The law ensures the protection of sacred locations; access of Native Americans to those sacred locations and traditional resources that are integral to the practice of their religions; and establishes requirements that would apply to Native American

sacred locations, traditional resources, or traditional religious practices potentially affected by construction and operation of proposed facilities. Regulations for implementing the Act include 43 CFR 7.

Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act, 25 USC § 3001, directs the Secretary of the Interior to guide the repatriation of federal archaeological collections and collections that are culturally affiliated with Native American tribes and held by museums that receive federal funding. DOE would follow the provisions of this Act if any excavations associated with the proposed construction led to unexpected discoveries of Native American graves or grave artifacts. Regulations for implementing the Act include 43 CFR 10.

Endangered Species Act

The Endangered Species Act (ESA), 16 USC 1531 *et seq.*, establishes a national program for the conservation of threatened and endangered species of fish, wildlife, and plants, as well as the preservation of the ecosystems on which they depend. ESA Section 7 requires any federal agency authorizing, funding, or carrying out any action to ensure that the action is not likely to jeopardize the continued existence of any endangered species or threatened species, or result in the destruction or adverse modification of critical habitat of such species. Regulations implementing the ESA interagency consultation process include 50 CFR Part 402.

Fish and Wildlife Conservation Act/Fish and Wildlife Coordination Act

The Fish and Wildlife Conservation Act, 16 USC § 2901 *et seq.*, encourages Federal agencies to conserve and promote conservation of non-game fish and wildlife species and their habitats. In addition, the Fish and Wildlife Coordination Act, 16 USC § 661 *et seq.*, requires Federal agencies undertaking projects affecting water resources to consult with the United States Fish and Wildlife Service (USFWS) and the state agency responsible for fish and wildlife resources. Compliance with these statutes is internal to DOE NEPA process.

Noise Control Act

The Noise Control Act of 1972, 42 USC § 4901 *et seq.*, directs federal agencies to carry out programs in their jurisdictions to the fullest extent within their authority and in a manner that furthers a national policy of promoting an environment free from noise that jeopardizes health and welfare. This would involve complying with applicable municipal noise ordinances to the maximum extent practicable.

Occupational Safety and Health Act

The Occupational Safety and Health Act, 29 USC § 651 *et seq.*, requires employers to furnish employees a place of employment that is free from recognized hazards that are causing or are likely to cause death or serious physical harm to the employees, and to comply with occupational

safety and health standards promulgated by the Occupational Safety and Health Administration (OSHA). OSHA standards include 29 CFR Parts 1900-2400.

Pollution Prevention Act

The Pollution Prevention Act, 42 USC § 13101 *et seq.*, establishes a national policy for waste management and pollution control that focuses first on source reduction, and then on environmentally safe waste recycling, treatment, and disposal. Three executive orders provide guidance to agencies to implement the Pollution Prevention Act: Executive Order 12873, “Federal Acquisition, Recycling, and Waste Prevention,” Executive Order 13101, “Greening the Government through Waste Prevention, Recycling, and Federal Acquisition,” and Executive Order 13148, “Greening the Government through Leadership in Environmental Management.”

Proposed Hazardous Materials: Transportation of Lithium Batteries

The Pipeline and Hazardous Materials Safety Administration published a notice of proposed rulemaking on January 11, 2010, for the transportation of lithium batteries (Federal Register Document 2010–281). The proposed rule would include enhanced safety when transporting these materials as fires with lithium batteries are difficult to extinguish.

Executive Orders

A number of presidential executive orders in addition to those noted above provide additional guidance to Federal agencies in developing EAs, including this EA. The most relevant of them include:

- Executive Order 11514, “Protection and Enhancement of Environmental Quality”
- Executive Order 11988, “Floodplain Management”
- Executive Order 12856, “Right to Know Laws and Pollution Prevention Requirements”
- Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations”
- Executive Order 13423, “Strengthening Federal Environmental, Energy, and Transportation Management”
- Executive Order 13514, “Federal Leadership in Environmental, Energy, and Economic Performance”

Federal executive orders can be accessed at <http://www.archives.gov/federal-register/codification/>.

Federal and State Permitting

The following are potentially applicable federal and state permitting requirements to construct and operate the proposed facilities.

- Clean Water Act, Section 401 Certification, Section 402 NPDES Permit, Section 404 Wetlands Permit, and Pretreatment Authorization for Discharge of Wastewater to Municipal Collection System, 40 CFR Parts 104-140, 403
- Clean Air Act, 40 CFR Parts 50-96
- Federal Construction General Permit, Stormwater Discharge

- Hazardous Waste Permit, Title 40 Part 270
- Major Source Construction Permits, Title V Part 71
- Ohio Administrative Code (OAC) Permit-to-Install New Sources and Permit-to-Install and Operate Program, Non-attainment New Source, OAC Chapter 3745-31 Parts 21-27
- NPDES Individual Permit OAC Chapter 3745-33
- Air Permits to Operate and Variances, OAC Chapter 3745-35
- Treatment, Storage and Disposal Permit update, 40 CFR Parts 260-270

2.0 PROPOSED DOE ACTION AND ALTERNATIVES

DOE's Proposed Action is to provide Toxco Incorporated with \$9,552,653 in financial assistance in a cost-sharing arrangement to facilitate construction and operation of the Next-Generation Lithium Ion (Li Ion) Battery Recycling Facility. This Proposed Action through the Vehicle Technologies Program will accelerate the development and production of electric-drive vehicle systems and reduce the United States' consumption of petroleum. This Proposed Action will also meaningfully assist in the nation's economic recovery by creating manufacturing jobs in the United States in accordance with the objectives of the Recovery Act.

2.1 Toxco's Proposed Project

The objective of Toxco's proposed project is to establish domestic recycling capacity for large format advanced Lithium-Ion Batteries (LIB) used in advanced EDVs, including plug-in hybrid electric vehicles (PHEV) and hybrid electric vehicles (HEV). This objective could be accomplished by designing and building an advanced, innovative recycling facility to operate in conjunction with its existing hybrid and electric vehicle battery recycling facility in Lancaster, Ohio (OH) (Figure 2.1-1 below). Successful completion of this project would provide lithium battery quality cathode and anode material plus purified electrolyte solvents and raw materials to the original equipment manufacturers' (OEM) and ensure the proper environmental management of the end of battery life.

The scope of the proposed project includes, following acquisition of all appropriate permits, a 50,000 square foot (ft²) (4,600 square meters (m²)) building for the new LIB recycling plant on its property adjacent to its current lead acid, nickel metal hydride (NiMH), and nickel cadmium (NiCad) battery recycling plant in Lancaster, OH (Figure 2.1-2). The new site is projected to create up to 30 to 50 new full-time construction jobs and estimated construction period is 8 to 10 months.

This facility would have access to truck and rail siding. Toxco is expecting three basic LIB cathode chemistries for advanced EDV batteries and is therefore planning on the three segregated parallel processing lines. This would maximize the ability to eliminate cross contamination of the cathode components and potentially other unique battery components as technology develops. Although Toxco has identified the currently expected HEV/PHEV/EV lithium-ion battery cathode chemistries, the three segregated lines could be adjusted to any new LIB developments and more than one type of LIB could be run on any of the lines when there was a clean out between runs. Toxco estimates that 39 to 45 new full-time high quality manufacturing/labor positions would be added during the project execution.

This project would involve the installation of a series of hammer mills, shredders, effluent holding/treatment tanks, solvent extraction equipment, vibratory shaker tables, conveyors, material separators, scrubber/baghouse, mixing equipment, distillation/condensers, filters/filter presses, kilns, various laboratory analytical equipment, forklifts and general warehousing, and office equipment. Proper maintenance schedules would be established and adhered to as part of the company's best management practices (BMPs).

A full decommissioning of the facility is not anticipated after cessation of the proposed project/funding. The site is part of an existing manufacturing facility. Toxco may continue to use the facility and equipment after the Electric Drive Vehicle Battery and Component Manufacturing Initiative funding stops. If the decommissioning of the building or equipment should occur, the activities would comply with all applicable regulations.

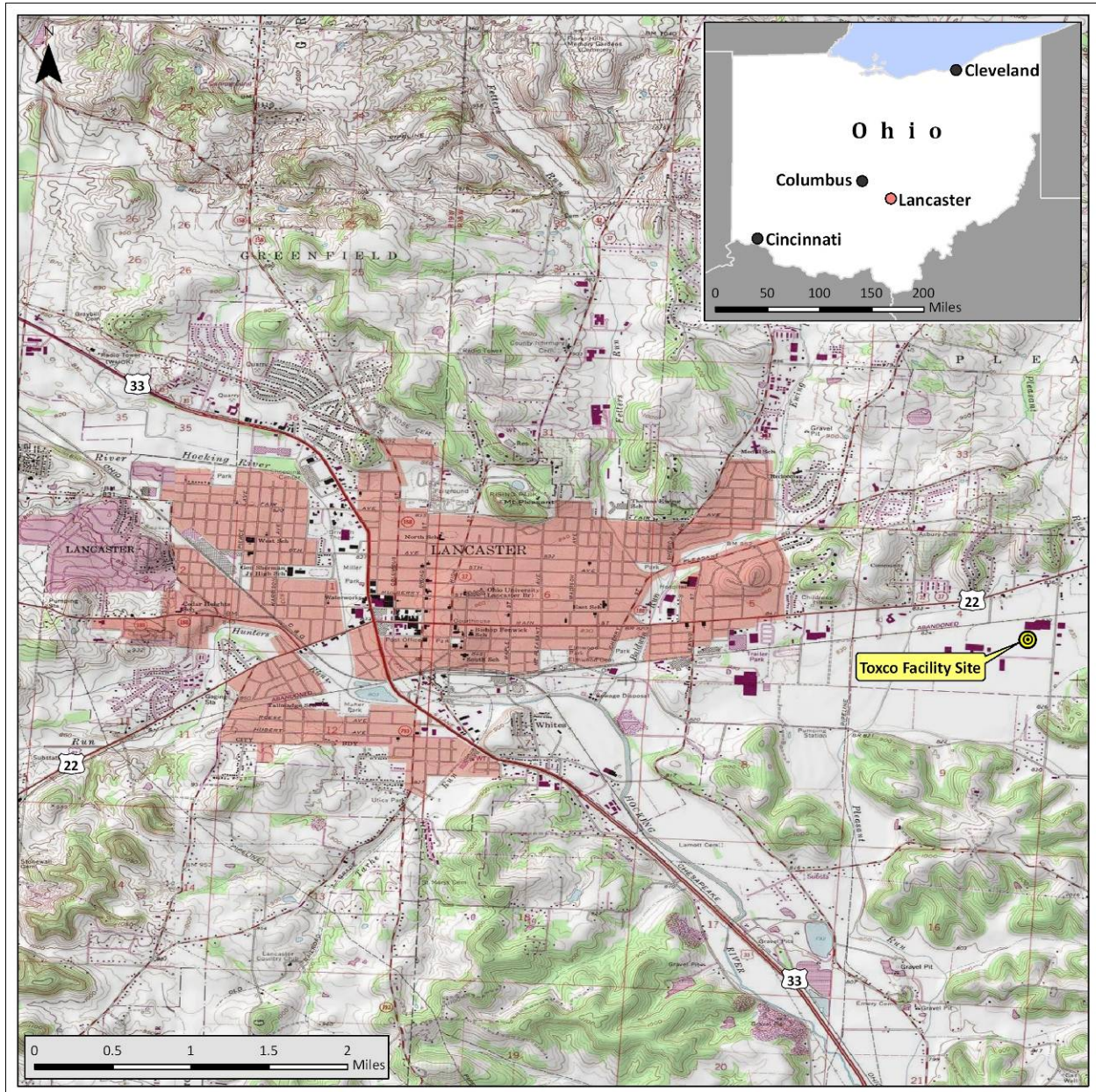


Figure 2.1-1. Vicinity Map

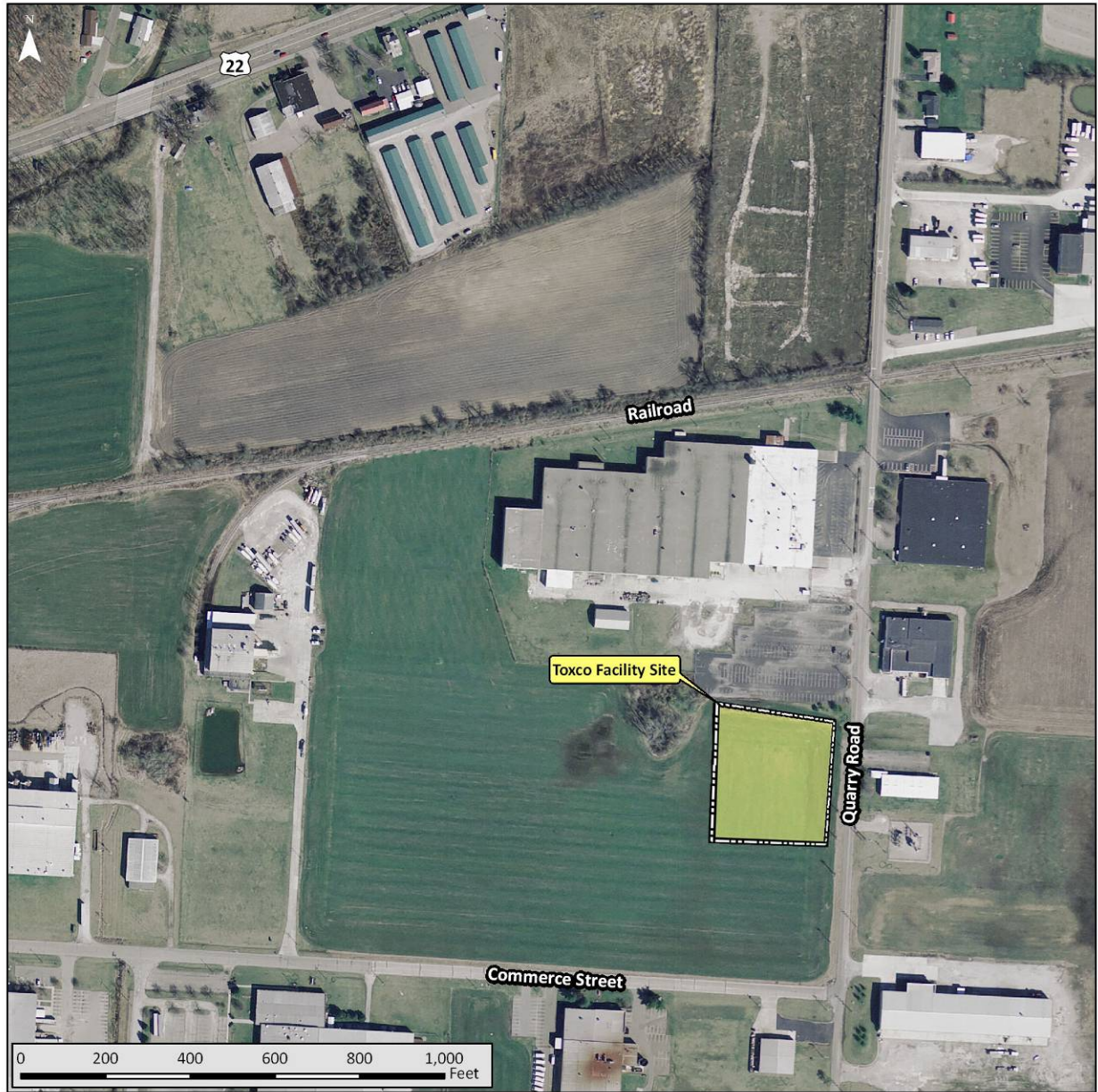


Figure 2.1-2. Project Area Map

2.2 Alternatives

DOE's alternatives to this project consist of the 45 technically acceptable applications received in response to the Funding Opportunity Announcement, *Recovery Act - Electric Drive Vehicle Battery and Component Manufacturing Initiative*. Prior to selection, DOE made preliminary determinations regarding the level of review required by the National Environmental Policy Act (NEPA) based on potentially significant impacts identified in reviews of acceptable applications. DOE conducted these preliminary environmental reviews pursuant to 10 CFR 1021.216 and a variance to certain requirements in that regulation granted by the Department's General Counsel (74 Federal Register 30558, June 26, 2009). These preliminary NEPA determinations and reviews were provided to the selecting official, who considered them during the selection process.

Because DOE's Proposed Action is limited to providing financial assistance in cost-sharing arrangements to projects submitted by applicants in response to a competitive funding opportunity, DOE's decision is limited to either accepting or rejecting the project as proposed by the proponent, including its proposed technology and selected sites. DOE's consideration of reasonable alternatives is therefore limited to the technically acceptable applications and a No-Action Alternative for each selected project.

2.3 No-Action Alternative

Under the No-Action Alternative, DOE would not provide funds to the proposed projects. As a result, these projects would be delayed as they look for other funding sources to meet their needs, or abandoned if other funding sources are not obtained. Furthermore, acceleration of the development and production of various electric drive vehicle systems would not occur or would be delayed. DOE's ability to achieve its objectives under the VT program and the Recovery Act would be impaired.

Although this and other selected projects might proceed if DOE decided not to provide financial assistance, DOE assumes for purposes of this environmental analysis that the project would not proceed without DOE assistance. If projects did proceed without DOE's financial assistance, the potential impacts would be essentially identical to those under DOE's action alternative (i.e., providing assistance that allows the project to proceed). In order to allow a comparison between the potential impacts of a project as implemented and the impacts of not proceeding with a project, DOE assumes that if it were to decide to withhold assistance from a project, it would not proceed.

2.4 Comparison of Impacts

Table 2.4 below comparing impacts of the Toxco's Proposed Project and the No-Action Alternative is based on premises mentioned in Section 2.2 and 2.3.

Table 2.4. Comparison of Impacts

Resource	No-Action Alternative	Toxco's Proposed Project
Air Quality	No impact	Short-term, minor, and adverse effects as well as long-term, negligible, and adverse effects on air quality would be expected. The effects would be from air emissions during construction and from operational sources of air emissions at the proposed facility. Increases in emissions would not exceed <i>de minimis</i> thresholds, be regionally significant, or contribute to a violation of any federal, state, or local air regulation.
Geology and Soils	No impact	Changes in geological or soil stability, permeability, or productivity would be limited in extent. Full recovery would occur in a reasonable time* as provided for in permit conditions for the project, thus, the projected impact would be below the threshold of significance.
Water Resources	No impact	Slight changes to surface water quality or hydrology are confined to the immediate project area. Full recovery would occur in a reasonable time, as provided for in NPDES permit conditions for the project; therefore, projected impacts would be less than significant.
Terrestrial Vegetation	No impact	Overall, any changes to native vegetation would be limited to a small area and would not affect the viability of the resources. Full recovery would occur in a reasonable time, considering the size of the project and the affected resource's natural state.
Wildlife	No impact	Overall, any impacts on wildlife from the Toxco's Proposed Project would be limited to a small portion of the population and would not affect the viability of the resource. Full recovery would occur in a reasonable time, considering the size of the project and the affected species' natural state.
Threatened or Endangered Species	No impact	The known habitats for listed species are not on or near the project area; thus, construction activities for the new facility would not affect listed species. The USFWS agreed with the determination of no impacts to federally listed species or their habitats (Appendix B). Unless a discovery of previously unknown threatened and endangered species occurs, impacts from implementing this alternative would be expected to be less than the significance threshold.
Socioeconomic Resources	Loss of potential for economic impact, but no change	The potential impact of money that would be brought to Lancaster and Fairfield County would positive. Potential additional impacts should be accommodated by the community without being costly or disruptive. Therefore, the impacts should be less than the significance threshold.
Infrastructure/ Utilities	No impact	The site would require utility upgrades and services to support the proposed facility, primarily electrical in nature. There would be limited potential to alter or disturb power or other infrastructure services to the area because of Toxco's Proposed Project. These impacts would be minor and below the threshold of significance.
Noise	No impact	The construction and operation equipment would create some noise, but by conforming to the Lancaster nuisance noise ordinance and zoning regulations, Toxco would minimize adverse impact noise levels on the immediate surroundings. Thus, effects would be minor and would be below the threshold of significance.
Human Health and Safety	No change	Appropriate BMPs and adherence to regulations would minimize the risks present with project implementation. With proper safety procedures in place, the impact to human health and safety should be minimal.
Waste Management	No impact	With BMPs and appropriate plans updated, the changes and quantities of waste would represent minimal changes to current conditions.

* Recovery in a reasonable time is constant, sustainable improvement is apparent and measurable when the site is routinely observed and full recovery is achieved over a period of no more than several years.

2.5 Issues Considered But Dismissed from Further Analysis

The Purpose and Need section above highlighted the importance of the overall program of evaluating EDV as one tool among many to address VT and Recovery Act objectives while providing this nation with a secure energy future and job stability. Many potential impact issues associated with EAs were reviewed to compile this EA for DOE. Due of the lack of potential impact to certain issues and because of specific characteristics of Toxco's Proposed Project, the following issues were considered but dismissed from detailed analysis:

Groundwater

Since the water supply would be from a public source and construction is limited to near-surface activity, groundwater sources would not be affected. Therefore, impacts to groundwater were dismissed from further analysis.

Wetlands/Floodplains

There are no wetlands in the National Wetland Inventory or floodplains in or near the proposed site at Toxco's facility in Lancaster, Ohio. Thus, any impacts would be expected to be negligible, if any. Therefore, wetlands and floodplains were dismissed from further analysis. If wetlands were found at the site, the work would stop until appropriate authorities were contacted and permitting performed with any necessary mitigation.

Land Use

Under the No-Action Alternative, the facility at Lancaster, Ohio, would continue current uses and ownership. This would result in no impacts to land use. Under Toxco's Proposed Project, implementation would entail building a new facility at the existing Toxco site in Lancaster. This would be compatible with current land use at the existing facility, as the site is already industrial and is surrounded by other similar activities. Thus, the proposed project would not interfere with surrounding land uses in the industrial setting. As the land is owned by the proponent, any land issues, such as changes in aesthetics, would likely be able to be easily avoided or mitigated against as part of the design and implementation of Toxco's Proposed Project. Additionally, the project does not require any zoning changes. While the planned site for the proposed new facility has been designated prime farmland if drained (NRCS, 2009), the area is now permitted as an industrial expansion area and a brownfield site. Moreover, the nearest park is Huffer-Durbin Park, which is approximately 1.5 miles (2.4 kilometers (km)) east. Thus, the proposed project is unlikely to impact parks and recreation. The closest Class I Area is Otter Creek Wilderness, which is approximately 160 miles (260 km) southeast. Due to the project being a new building in an industrial area and its distance from the nearest Class I area, it is also unlikely to impact visual resources more than negligibly. Therefore, because projected impacts to land use would be negligible, if any, this topic was dismissed from further analysis.

Environmental Justice

Federal agencies must identify and address disproportionately high and adverse effects of federal

projects on the health or environment of minority and low-income populations (Executive Order 12898). In 2006-2008, Lancaster, Ohio, had 12.7% of the population below the poverty level and 95.9% of the population was white non-Hispanic (Census, No date[a]; Census, No date[b]). This represents more people in poverty than the Fairfield County, Ohio figure (8.9% in 2007), but less than the state average in 2007 of 13.1%. Further, Lancaster, Ohio, has fewer minority individuals than Fairfield County (89.9% white, non-Hispanic people in 2008) and fewer minority individuals in Lancaster than the state average (82.5% white, non-Hispanic in 2008) (Census, 2009a). Thus, with such low percentages of minority and low-income persons, it is unlikely that the impacts would disproportionately affect these populations because most impacts would likely be felt throughout the surrounding community, which means impacts would not be disproportional. Therefore, environmental justice was dismissed from further analysis.

Cultural Resources

Although there would be ground disturbance at the Toxco site, all of these activities would occur at an existing industrial site and in a disturbed location. The closest cemetery is Applegate Cemetery at approximately 0.6 miles northeast (one km), and the nearest Native American Reservation is Alleghany Indian Reservation, which is approximately 250 miles north (402 km). The SHPO and appropriate Tribes have been contacted for any possible concerns regarding this project (Appendix C and D). No known eligible or listed National Register of Historic Places sites exist within one mile (approximately 1.6 km) of the proposed site. The Ohio SHPO gave its concurrence (Appendix C). Therefore, there is a negligible chance of impacting cultural resources, and cultural resources have been eliminated from further analysis. Should any cultural resources be discovered during construction, work in the area would cease, and the discovery would be reported immediately to the State Historic Preservation Officer and any relevant Native American Tribes.

Below are additional issues considered but dismissed due to absence in the project area.

Right-of-Way Acquisition	There was no need for additional right-of-way.
Wild & Scenic Rivers	There are no designated Wild & Scenic Rivers within proximity of the project site.
Impact Property Values	This is a minor expansion within an existing industrial facility.
Alter Local Hydrology Patterns	None of the proposed construction would impact drainage in the local watershed.

3.0 THE ENVIRONMENTAL ANALYSIS APPROACH

This chapter describes how the environmental review team analyzed the potential impacts of Toxco’s proposed project (i.e., the building and operation of the Next-Generation Li Ion Battery Recycling Facility). Chapter 4 provides a description of the affected environment and the potential environmental effects of Toxco’s proposed project along with an analysis of environmental effects if the project were not implemented (No-Action Alternative).

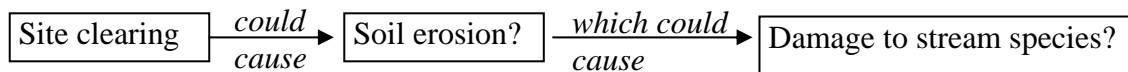
3.1 Approach to the Analysis

An EA is intended to be a clear, focused analysis of impacts. It is not intended to be merely a compilation of encyclopedic information about the project or about the environment. Accordingly, the environmental review team used a systematic approach to identifying, and then answering the relevant impact questions.

The initial step was to develop a detailed description of the components of the Next-Generation Li Ion Battery Recycling Facility process to be used at the proposed site to study the potential of furthering of VT and Recovery Act objectives. This description was presented in Chapter 2.

For each project component (e.g., construction of the facility), the team sought to identify all of the various types of direct effects that the activity could have on relevant environmental resources. For example, clearing a site of vegetation could cause soil erosion. In doing this preliminary identification of the types of impacts that potentially could occur, the team drew upon their experience with previous projects and compiled research specific to this site location.

For each potential direct effect, the team then sought to identify the potential indirect effects on other environmental resources. For example, soil erosion could cause sedimentation in nearby streams, which could in turn harm the fish and other species in the stream.



This served as the framework for the analysis of impacts. That is, the team focused their efforts on answering these questions as to whether these effects would in fact occur, and if so, how extensive, how severe, and how long lasting they would be. This was then compared to the significance levels found in Table 3.2 below.

3.2 Analysis of Significance

The review team used a systematic process to evaluate the importance, or significance, of the predicted impacts. This process involved comparing the predictions to the significance criteria established by the team and illustrated below in Table 3.2. These significance criteria were based on legal and regulatory constraints and on team members’ professional, technical judgment.

Table 3.2. Impact Significance Thresholds	
Resource Area	Impact Significance Thresholds
	An impact would be significant if it EXCEEDS the following conditions.
Air Quality	The project would not produce emissions that would exceed applicability thresholds, be regionally significant, or contribute to a violation of any federal, state, or local air regulation.
Geology and Soils	Any changes in soil stability, permeability, or productivity would be limited in extent. Full recovery would occur in a reasonable time*, considering the size of the project. Mitigation, if needed, would be simple to implement.
Surface Water	Any changes to surface water quality or hydrology would be confined to the immediate project area. Full recovery would occur in a reasonable time, considering the size of the project and the affected area's natural state.
Terrestrial Vegetation	Any changes to native vegetation would be limited to a small area and would not affect the viability of the resources. Full recovery would occur in a reasonable time, considering the size of the project and the affected resource's natural state. Mitigation, if needed, would be simple to implement.
Wildlife	Any changes to wildlife would be limited to a small portion of the population and would not affect the viability of the resource. Full recovery would occur in a reasonable time, considering the size of the project and the affected species' natural state.
Threatened or Endangered Species	Any effect to a federally listed species or its critical habitat would be so small that it would not be of any measurable or perceptible consequence to the protected individual or its population. This negligible effect would equate to a "no effect" determination in U.S. Fish and Wildlife Service terms.
Socioeconomic Resources	Changes to the normal or routine functions of the affected community are short-term or do not alter existing social or economic conditions in a way that is disruptive or costly to the community.
Infrastructure/ Utilities	The project would not noticeably affect or disrupt the normal or routine functions of public institutions, roads, electricity, and other public utilities and services in the project area.
Noise	Noise levels in the project area would not exceed ambient noise level standards as determined by the Federal, state, and/or local government.
Human Health and Safety	The project, with current and updated safety procedures, would pose no more than a minimal risk to the health and safety of on-site workers and the local population.
Waste Management	The action, along with planned mitigation measures, would not cause air, water, or soil to be contaminated with hazardous material that poses a threat to human or ecological health and safety.

* Recovery in a reasonable time: Constant, sustainable improvement is apparent and measurable when the site is routinely observed, and full recovery is achieved over a period of no more than several years.

4.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS

4.1 Air Quality

4.1.1 Description

The USEPA Region 5 and the Ohio Environmental Protection Agency (OEPA), regulate air quality in Ohio. The CAA (42 USC 7401-7671q), as amended, gives USEPA the responsibility to establish the primary and secondary NAAQS (40 CFR Part 50) that set acceptable concentration levels for seven criteria pollutants: PM₁₀, PM_{2.5}, SO₂, CO, nitrogen oxides (NO_x), O₃, and lead. Short-term standards (1-, 8-, and 24-hour periods) have been established for pollutants that contribute to acute health effects, while long-term standards (annual averages) have been established for pollutants that contribute to chronic health effects. Each state has the authority to adopt standards stricter than those established under the federal program; however, Ohio accepts the federal standards. Federal regulations designate Air-Quality Control Regions (AQCRs) that are in violation of the NAAQS as nonattainment areas and those in accordance with the NAAQS as attainment areas.

Fairfield County (and therefore the proposed recycling facility) is in the Metropolitan Columbus Intrastate AQCR (40 CFR 81.200). The USEPA has designated Fairfield County as the following:

- Maintenance Area for the 8-hour O₃ NAAQS
- Nonattainment for the PM_{2.5} NAAQS
- Attainment for all other criteria pollutants (USEPA, 2009)

Because the project is in a nonattainment and a maintenance area, the air conformity regulations may apply. The project's emissions and the *de minimis* thresholds were carried forward to determine the applicability of the general conformity rules and the level of impact under NEPA.

Toxco tracks air emissions from the stationary emission sources at the facility. Sources include a battery torch hood, a plastic granulator, retort and sweat ovens, a dehusker, and a muffin monster. Table 4.1.1 lists the emissions from the Toxco facility for calendar year 2007. Toxco Lancaster has no air permits.

Pollutant	Pounds per year (lbs/yr)	Tons per year (tpy)
Cadmium	1.8	0.00
Lead	151.5	0.08
Nickel	3.2	0.00
PM ₁₀	2,733.3	1.37

Source: (J.E. Compliance Service, Inc., 2009).

4.1.2 Effects of Toxco's Proposed Project

Short- and long-term minor adverse effects on air quality would be expected. The effects would

be from air emissions during construction and from new stationary sources of air emissions at the proposed recycling facility. Increases in emissions would not exceed applicability thresholds, be regionally significant, or contribute to a violation of any federal, state, or local air regulation.

Estimated Emissions and General Conformity. The General Conformity Rule specifies threshold emissions levels by pollutant to determine the applicability of conformity requirements for a project. For a maintenance area for the 8-hour O₃ NAAQS, the applicability criterion is 100 tons per year (tpy) for NO_x and volatile organic compounds (VOCs) (40 CFR 93.153). All direct and indirect emissions of criteria pollutants for Toxco’s Proposed Project have been estimated and compared to the *de minimis* (of minimal importance) rates to determine the applicability of the general conformity rules and the level of impact under NEPA. The total direct and indirect emissions associated with the following activities were accounted for:

- Constructing the new facilities
- Operating vehicles for construction workers
- Heating the facility
- Operating personal vehicles for employees

The requirements of the general conformity rule are not applicable because the highest total annual direct and indirect emissions from these alternatives would not exceed the applicability threshold for any criteria pollutant (Table 4.1.2-1). Because of the limited size and scope of Toxco’s Proposed Project, it is not expected that the estimated emissions from the development and operation of the proposed recycling facility would make up 10 percent or more of regional emissions for any criteria pollutant. Thus, they would not be regionally significant. A detailed breakdown of construction and operational emissions are in Appendix A.

Activity	Annual emissions (Short Tons Per Year)						<i>De minimis</i> threshold (tpy)	Would emissions exceed applicability thresholds? [Yes/No]
	CO	NO _x	VOC	SO _x	PM ₁₀	PM _{2.5}		
Construction	5.65	5.36	1.13	<0.01	1.07	0.37	100	No
Operational	3.79	0.78	0.42	<0.01	1.07	0.05	100	No

Note: SO_x is sulfur oxides.

For the purposes of calculating emissions, it was assumed that approximately 45 permanent personnel would be employed at the proposed recycling facility. Moderate changes in the size or type of equipment ultimately selected or the number of personnel would not substantially change the total direct or indirect emissions or the level of impact under NEPA.

Based on the processes involved in the lithium-ion battery reclamation plant, potential emissions of criteria pollutants due to the combustion of natural gas at process equipment may occur. However, it is unknown at this time what the levels of emissions would be. In the final design stages, if facility wide emissions exceeded 100 tpy for any of the criteria pollutants it is likely that this emission would be already accounted for in the regional emission inventory, and

therefore not subject to the general conformity rules. Therefore, they were not included in the analysis. The facility would reduce emissions from process equipment through the use of air pollution control devices such as an oxidizer, scrubber, bag house, cartridge collector, and a granulated activated carbon system.

Regulatory Review. The CAA mandates that state agencies adopt and implement State Implementation Plans (SIPs) to eliminate or reduce the severity and number of violations of the NAAQS. Since 1990, Ohio has developed a core of air quality regulations that the EPA has approved. These approvals signified the development of the general requirements of the SIP. The Ohio program for regulating air emissions affects industrial sources, commercial facilities, and residential development activities. Regulation occurs primarily through a process of reviewing engineering documents and other technical information, applying emission standards and regulations in permit issuance, performing field inspections, and assisting industries in determining their compliance status with applicable requirements.

As part of these requirements, the OEPA oversees programs for permitting the construction and operation of new or modified stationary source air emissions in Ohio. OEPA air permitting is required for many industries and facilities that emit regulated pollutants. These requirements include Title V permitting of major sources, New Source Review (NSR), Prevention of Significant Deterioration (PSD), New Source Performance Standards (NSPS) for selected categories of industrial sources, and the National Emission Standards for Hazardous Air Pollutants (NESHAP). OEPA air permitting regulations do not apply to mobile sources, such as trucks. An overview of the applicability of these regulations to the project is outlined in Table 4.1.2-2.

Regulation	Project Status
Nonattainment New Source Review (NNSR)	If potential emissions exceed NNSR threshold they would be subject to NNSR permitting requirements. If not, it is possible that a state operating permit would be required.
PSD	Potential emissions would not likely exceed the 250-tpy PSD threshold. Therefore, the project would not be subject to PSD review.
Title V Permitting Requirements	If the facility's potential to emit exceeds the major source thresholds, a Title V permit would be required.
NESHAP	Potential Hazardous Air Pollutant emissions would not likely exceed NESHAP thresholds. Therefore, the use of Maximum Available Control Technology (MACT) would not be required.
NSPS	All new stationary sources would meet NSPS if required.

Other non-permitting requirements may be required through the use of compliant practices and/or products. These regulations are outlined in OAC in OAC 3745-35 and OAC 3745-200. They include, but are not limited to:

- Particulate Matter Standards (OAC 3745-17)
- Open Burning Standards (OAC 3745-19)
- Consumer Products (OAC 3745-112)
- Architectural and Industrial Maintenance Coatings (OAC 3745-113)

In addition to those outlined above, no person shall handle, transport, or store any material in a manner that may allow unnecessary amounts of air contaminants to become airborne. During construction, reasonable measures may be required to prevent unnecessary amounts of particulate matter from becoming airborne (OAC 3745-17). Such precautions may include:

- Use of water for dust control during construction operations, road grading, or land clearing;
- Roadway paving and maintenance;
- Covering open equipment for conveying or transporting material likely to create objectionable air pollution when airborne; and
- Promptly removing spilled or tracked dirt or other materials from paved streets.

This listing is not all-inclusive; Toxco and any contractors would comply with all applicable air pollution control regulations. Outside of these best management practices, no mitigation measures would be required for the construction and operation of the proposed recycling facility. With these BMPs in place, the projected impacts would be less than the significance threshold.

4.1.3 Effects of No-Action

Selecting the No-Action Alternative would result in no impact to ambient air-quality. No construction would be undertaken, and no new facility operations would take place. Ambient air-quality conditions would remain as described in Section 4.1.1.

4.1.4 Cumulative Effects

The State of Ohio takes into account the effects of all past, present, and reasonably foreseeable emissions during the development of the SIP. The state accounts for all significant stationary, area, and mobile emission sources in the development of this plan. Estimated emissions generated by Toxco's Proposed Project would be *de minimis* and would not be regionally significant. Therefore, Toxco's Proposed Project would not exceed the threshold of significance with regard to adverse cumulative effects on air quality.

4.2 Geology and Soils

4.2.1 Description

The project site is located on the western edge of the glaciated Allegheny Plateau. This Plateau experienced uplifts and repeated glaciations from the Illinoian ice sheet and to a lesser extent the Wisconsin ice sheet. This produced rock strata of different kinds and various densities and left a land surface with a multiplicity of features and markings from a variety of natural events (Stout, 1938).

The project site is on the western edge of an area in Southeastern Ohio containing multiple oil and gas wells. The nearest producing well to the project site is located approximately ¼-mile (0.5 km) to the north. The nearest mineral resource location is a sand and gravel operation approximately 2 miles southeast of the project site. Coal is a geological resource found in

southeastern Ohio, but Fairfield County is not among the counties listed by Ohio Department of Natural Resources as having available coal resources (ODNR, undated).

The building site for this project contains soil designated as Patton silty clay loam. This soil is a very poorly drained soil derived from old glaciolacustrine deposits (USDA, 2009). Soils of this type are generally found in depressions on glacial lakes. Slopes on the project site range from 0% to 2%. Most of the areas that have this soil are cropped with corn and soybeans as principal crops. Small grain and meadow are also grown within the area. Native vegetation is hydrophytic including grasses, sedges, and widely spaced trees (NCSS, 2004).

There are three historic, but unmeasured, earthquakes with epicenters in Fairfield County. The dates and epicenter locations were 1870 (approximately 2 miles (3.2 km) west), 1848 (approximately 3.7 miles (6 km)) south-southeast), and 1965 (approximately 4.6 miles (7.4 km) south-southeast) (ODNR, undated). This area is located in seismic zone 1, the second lowest seismic risk zone defined by the Uniform Building Code, which has no additional enforceable requirements for structural design earthquake safety in this zone.

4.2.2 Effects of Toxco's Proposed Project

Construction activities associated with the project would have the greatest potential to generate effects on geological and soil resources. The proposed construction is limited to surface and near-surface activity that would have no potential to affect minerals and deeper geological strata. Seismic activity in this region is negligible and would be adequately addressed through compliance with local building codes.

Soil loss and erosion are the major geological factors for consideration and management during this project. Planned best management practices that can effectively prevent major effects to this resource include: stormwater training for onsite personnel, use of erosion control blankets where soil would otherwise be exposed, avoidance of excessive soil stockpiling where soil is exposed to wind and rain, a sediment settling basin as part of the runoff control program, use of water and dust palliatives on soils that are temporarily exposed to erosive elements, and proper use of temporary or permanent landscaping that would hold soils in place and prevent unwanted soil movement.

Changes in geological or soil stability, permeability, or productivity would be limited in extent. Full recovery would occur in a reasonable time, as provided for in permit conditions for the project, thus, the projected impact would be below the threshold of significance.

4.2.3 Effects of No-Action

Without Department of Energy funding or the No-Action Alternative, none of the proposed construction or operation activities would occur. The absence of construction or operations activities would cause no effects on this resource.

4.2.4 Cumulative Effects

There are no past, present, or foreseeable future projects, which can be analyzed collectively with Toxco's Proposed Project that would result in a greater cumulative effect on this resource than what would occur singularly as a result of Toxco's Proposed Project. Therefore, Toxco's Proposed Project would not exceed the threshold of significance with regard to adverse cumulative effects on geology and soils.

4.3 Water Resources

4.3.1 Description

Fairfield County's major watersheds are the Hocking River and Walnut Creek. A tributary of Hocking River, Pleasant Run passes west of the project site at its closest point of approximately 0.4 miles (0.6 km). The county water acreage consists of about 2,076 acres (8.4 square kilometers (km²)) of lakes, including the 1,563 acres (6.325 km²) of Buckeye Lake within the county. Other water acreage includes five public lakes, 33 private lakes and ponds that range from 5 to 153 acres (0.02 to 0.619 km²) in size, and numerous smaller ponds (OSUE, undated). The closest lake to the project site lies approximately 1.5 miles (2.4 km) to the northwest.

The project proponents have a current wastewater discharge permit that would be modified to address discharges arising from construction and operation activities associated with the proposed project. Pretreatment of wastewater would be performed before it enters the public wastewater collection system (Toxco, 2009a). Operational wastewater discharges are estimated to be 4000 gallons per day (gpd) (15 kiloliters (kl)) of processed water, and 150 gpd (570 lpd) of sanitary sewage and/or grey water (Toxco, 2009a).

The project proponents would also implement erosion control measures during and after construction. These include a stormwater retention pond, which may be necessary to comply with local regulations that are protective of the quality of runoff receiving waters (Coy, 2009a).

The water supply source would be the City of Lancaster, OH. Mr. Jason Westfall of the City of Lancaster indicates that the water supply and final wastewater treatment capacity from these public facilities are sufficient to meet the needs of the project (Westfall, 2009).

An annual average of 36 inches (91 centimeters (cm)) of precipitation occurred in Fairfield County for the period 1961 to 1990. January and February saw 2.1 inches (5 cm) each as they are typically the driest months, while the wettest months, May and July, saw 4.0 inches (10 cm) each.

4.3.2 Effects of Toxco's Proposed Project

Both construction and operational activities have the potential to affect water resources in the project area. During the construction and operational phases, erosion control measures would be the basis for compliance with local regulations.

Infrastructure capacity is sufficient as confirmed by the City of Lancaster, Ohio for water supply as well as public wastewater treatment. Prior to discharge to the offsite public system, pretreatment would occur at the on-site Toxco-owned wastewater system. Since water supply and wastewater treatment would be accomplished through properly sized public and private systems, any potential concerns with groundwater sources and unregulated waste disposal are avoided.

Slight changes to surface water quality or hydrology are confined to the immediate project area. Full recovery would occur in a reasonable time, as provided for in NPDES permit conditions for the project; therefore, projected impacts would not exceed the threshold of significance.

4.3.3 Effects of No-Action

Without Department of Energy funding or the No-Action Alternative, none of the proposed construction or operation activities would occur. The absence of construction or operations activities would cause no effects on this resource.

4.3.4 Cumulative Effects

There are no past, present, or foreseeable future projects, which can be analyzed collectively with Toxco's Proposed Project that would result in a greater cumulative effect on this resource than what would occur singularly from Toxco's Proposed Project. Therefore, Toxco's Proposed Project would not exceed the threshold of significance with regard to adverse cumulative effects on water resources.

4.4 Terrestrial Vegetation

4.4.1 Description

The vacant land on the Toxco property has been used for agricultural purposes with corn, soybeans, alfalfa, or hay grasses as the likely cultivated crops. The land has been idle for over a year and there are no plans for future agricultural use (Coy, 2009b). Weeds and opportunistic plants such as thistles, mustard, Johnsongrass, and sunflowers generally emerge on fallow agricultural land (OSU, 1998). The vacant land includes a small woody patch of trees (likely oak or ash) and shrubs of approximately 0.5 acre (0.2 hectare).

Executive Order 13112 Invasive Species directs federal agencies to make efforts to prevent the introduction and spread of invasive plant species. Invasive species are usually destructive, difficult to control or eradicate, and generally cause ecological and economic harm. A noxious weed is any plant designated by a federal, state, or county government as injurious to public health, agriculture, recreation, wildlife, or property. The control of noxious weeds is regulated by the Ohio Department of Agriculture under Ohio Administrative Code 901:5 and is enforced by local municipalities.

4.4.2 Effects of Toxco's Proposed Project

Grading the site for construction would have a direct impact on less than 2 acres (0.8 hectare) of vegetation, including a fallow agriculture field and the woody patch of trees and shrubs of approximately 0.5 acre (0.2 hectare). The loss of the woody patch would be negligible because of similar undisturbed vegetation in the project area. Any landscaping of disturbed areas around the new facility would include native vegetation.

Noxious weeds and invasive plant species are generally found in disturbed soil conditions. Surface disturbance and construction activities could facilitate the establishment and spread of noxious weeds. Aggressive non-native species could become established if ground disturbance during construction is extensive and lengthy. However, the size of disturbance for the proposed recycling facility and the short length of time before the ground surface is stabilized would minimize the risk of noxious weeds becoming established and therefore any potential impacts would be negligible.

Preventive measures would be implemented to reduce weeds from emerging after ground disturbance occurs. Any hay bales used to control surface runoff during construction would be certified as free from weed seeds. Heavy equipment transferring among construction sites could also introduce noxious weeds; however, because of the relatively small scale of the proposed facility, it is likely that equipment would mobilize to the site only once and thereby minimize this risk.

Overall, any changes to native vegetation would be limited to a small area and would not affect the viability of the resources. Full recovery would occur in a reasonable time, considering the size of the project and the affected resource's natural state. Therefore, impacts on terrestrial vegetation would not be expected to exceed the significance threshold.

4.4.3 Effects of No-Action

Site conditions would remain unchanged under the No-Action Alternative. The surface soils would not be disturbed for construction and existing vegetation would not be removed.

4.4.4 Cumulative Effects

Conversion of agricultural land and loss of forested land to industrial development would have a cumulative effect to native vegetation in the area; however, there are no reasonably foreseeable projects in the vicinity that would have such an effect with Toxco's Proposed Project. Therefore, Toxco's Proposed Project would not exceed the threshold of significance with regard to adverse cumulative effects on vegetation.

4.5 Wildlife

4.5.1 Description

Wildlife that could typically be found in an agricultural/urban interface area, similar to the

project area, include white-tailed deer, coyote, fox, rabbit, chipmunk, squirrel, skunk, and different species of mice, moles, shrews, and bats. Avian species may include passerines (such as sparrows, finches, warblers, swallows, and blackbirds), doves, woodpeckers, crows, and raptors (hawks and owls). Pheasant may be found in adjacent agricultural areas. The lack of forested areas and water sources on the property would limit the presence and density of reptile and amphibian species such as salamanders, snakes, and frogs.

The Migratory Bird Treaty Act (MBTA), which prohibits the destruction of active nesting habitat, protects most birds. The small woody patch on the Toxco property may provide habitat for foraging and nesting for a variety of passerines.

4.5.2 Effects of Toxco's Proposed Project

Construction activities would displace common wildlife species that inhabit or use the area for forage or cover and potentially cause direct mortality of less mobile species, such as amphibians and reptiles. Similar habitat on adjacent land would support the displaced species and thus potential impacts would be negligible. The typical species that could be impacted are widely distributed and the loss of some individuals and habitat would not impact the populations throughout their range.

Construction activities would displace any birds foraging or roosting on the Toxco property; however, potential impacts would be negligible because of available adjacent habitat and the mobility of the species. If clearing and grading activities are scheduled to occur during breeding season (generally March through August), the construction area should be surveyed to confirm the absence of nests and nesting activity. Construction should be curtailed around active nests (containing eggs or young) until the nests are no longer active or the young birds have fledged to reduce the possibility of impacts. The area to be avoided would be appropriate to the species present.

Overall, any impacts on wildlife from Toxco's Proposed Project would be limited to a small portion of the population and would not affect the viability of the resource. Full recovery would occur in a reasonable time, considering the size of the project and the affected species' natural state. Therefore, overall impacts on wildlife would not be expected to exceed the significance threshold.

4.5.3 Effects of No-Action

The No-Action Alternative would not impact wildlife in the area. No construction that would disturb habitat or displace wildlife species would occur.

4.5.4 Cumulative Effects

Conversion of agricultural land and loss of forested land to industrial development would have a cumulative effect to wildlife species in the area; however, there are no reasonably foreseeable projects in the vicinity that would have such an effect with Toxco's Proposed Project. Therefore,

Toxco's Proposed Project would not exceed the threshold of significance with regard to adverse cumulative effects on wildlife.

4.6 Threatened and Endangered Species

4.6.1 Description

A species listed under the ESA is so designated because it is in danger of extinction. The Indiana bat (*Myotis sodalis*) is the only federally listed species with the potential to occur in the project area. It was listed as endangered by the USFWS under the Endangered Species Preservation Act of 1966 and was extended full protection under the ESA of 1973. The Indiana bat is also listed by the State of Ohio as endangered.

The bats are known to hibernate in southern Ohio and the entire state is considered to be within the core maternity range. Females form maternity colonies under the loose bark of trees or in tree cavities during the summer. Only two primary maternity roost trees have been discovered in Ohio; one was located along Big Darby Creek in Pickaway County (USFWS, 2007), which is over 30 miles (48 km) to the west of the project area.

Indiana bats are not expected to roost in isolated trees. Forested areas greater than 100 acres (40 hectares) are more likely to support an Indiana bat maternity colony. An area may be one large forested patch or may occur in smaller forested patches that are connected via tree-lined flight corridors such as riparian corridors or fence rows. Land cover classes in central Ohio that are possible Indiana bat habitat are woody wetlands and deciduous forest (USFWS, 2007).

4.6.2 Effects of Toxco's Proposed Project

Construction activities for the new facility would not disturb trees. Without trees, the proposed project would not likely disturb any travel corridor or potential roosting and foraging habitat. Therefore, Toxco's Proposed Project would not affect the Indiana bat. Unless a discovery of previously unknown threatened and endangered species occurs, impacts from implementing this alternative would be expected to be less than the significance threshold.

4.6.3 Effects of the No-Action

Since no suitable habitat would be affected by Toxco's Proposed Project, the No-Action Alternative would not affect the bat or any other known threatened and endangered species.

4.6.4 Cumulative Effects

Because Toxco's Proposed Project would have no effect to the Indiana bat, it would not contribute to any cumulative effects on the species due to loss of potential habitat from other development in the project area. Therefore, Toxco's Proposed Project would not exceed the threshold of significance with regard to adverse cumulative effects on any threatened or endangered species.

4.7 Socioeconomic Resources

Socioeconomic factors describe the local demographics, economy, and employment that could be influenced by Toxco's Proposed Project.

4.7.1 Description

The new recycling facility proposed by Toxco would be built at the company's existing facility in Lancaster, Ohio, which is part of the Columbus, Ohio, Metropolitan Statistical Area (MSA) that includes eight counties (Stats Indiana, 2009; BEA, 2009). Lancaster, located in Fairfield County, Ohio, had an estimated 2006 population of 36,507 people, which is a 3.3% increase from 2000 (Census, 2009b). Fairfield County has also experienced a population increase of 37.5% since 1990 to 2008 compared to the state that had 5.9% (Stats Indiana, 2009).

Employment in Lancaster is dominated by management, professional, and related occupations (at 28.4% in 2006-2008) followed by sales and office occupations at 24.6% in 2006 to 2008 (Census, No date[a]). The percent civilian unemployment in 2006-2008 for Lancaster, Ohio, was 7.2% with a civilian labor force of 18,938 (Census, No date[a]). In 2008, the Columbus MSA had 5.5% unemployment rate with 965,722 people in the labor force while Fairfield County had an unemployment rate of 5.7% with 75,890 people in the labor force. These unemployment rates are less than the state (6.5%) and national average (5.8%)(Stats Indiana, 2009). Total personal income for Fairfield County was \$4,519,760,000 in 2007 (BEA, 2009).

4.7.2 Effects of Toxco's Proposed Project

Toxco proposes to build a 50,000 ft² (4,600 m²) building. This construction would take an estimated 8 to 10 months and create 30 to 50 full-time equivalent construction jobs. About 60 to 65% of the project construction costs are expected to go to labor. Further, these construction jobs are expected to be drawn locally with about 90% of construction costs going to local businesses (Coy, 2009a). These injections of money into the local economy would have positive effects such as increased spending in the local community in other sectors such as restaurants. However, the duration of these injections are such that the impacts would be short-term making them less than the significance threshold.

The operational employment would also draw from the local community and create about 39 to 45 full-time equivalent operational jobs. These jobs could help reduce unemployment. However, Lancaster had a civilian labor force of 18,938 in 2006-2008 (Census, No date[a]), so even if the 45 people came directly from Lancaster, this increase in employment would only represent approximately 0.24% of the labor force. Lancaster should be able to accommodate this increase. Thus, an influx of people and any corresponding increases in demand on community services should not occur. Further, any additional spending and jobs created indirectly from the proposed project should be minimal when compared to the other activities in the project area. In fact, the project's expenditures would only represent approximately 0.14% of the total personal income in Fairfield County based on 2007 figures. The impact within the City of Lancaster and Fairfield County would be beneficial and should be accommodated by the community without

being costly or disruptive. Therefore, the impacts are anticipated to be less than the significance threshold.

4.7.3 Effects of No-Action

Under this alternative, Toxco would not build or implement the proposed project. Despite unemployment rates higher than county, state, and national levels, impacts to Lancaster and the surrounding areas would be less than the significance threshold. This is because the alternative would represent a lost opportunity for a relatively small number of jobs and income in the community, and this alternative would not worsen current conditions. Therefore, the impacts would be less than the significance threshold.

4.7.4 Cumulative Impacts

Toxco's Proposed Project would not add to local economic development pressures in the Lancaster community, as the new facility would be located within the existing Toxco property footprint. Cumulative economic impacts are unlikely because Toxco's Proposed Project is not large enough to result in enough increased demands for goods and services to trigger further economic development. Additionally, there are no other planned or reasonably foreseeable projects affecting the same resources. Similarly, cumulative impacts of less than the significance threshold would occur from implementing the No-Action Alternative due to the proportionally small lost opportunity.

4.8 Infrastructure/Utilities

The characterization of the current transportation and other infrastructural elements of the project area focus on the ability of these elements to serve existing demand as well as any increase that may result from implementation of Toxco's Proposed Project.

4.8.1 Description

Primarily personal operating vehicles generate traffic in Lancaster. Roadways are predominately paved two- or four-lane asphalt. Regional access is provided by Interstate 71 (I-71) from the north and south, with I-70 providing east-west access. I-70 travels from Columbus, OH to areas throughout Pennsylvania, approximately 15 miles north of Lancaster. I-70 travels from Columbus to Cincinnati, approximately 45 miles west of Lancaster. Travelers would approach and access the site most efficiently via Route 33 once entering the area, and depending on their point of origin, could approach via Route 22. The site itself is on Quarry Road. The existing Toxco facility has electrical transmission lines, portable water utilities, and sewerage access.

4.8.2 Effects of Toxco's Proposed Project

Short- and long-term minor adverse effects on transportation infrastructure and utilities would be expected from implementing Toxco's Proposed Project. The changes would be due to construction vehicles and small changes in localized traffic patterns from the additional

personnel. The project would not noticeably affect or disrupt the normal or routine functions of public institutions, roads, electricity, and other public utilities and services in the project area.

Traffic would increase because of additional construction vehicles and traffic delays near the construction site. These effects would be temporary in nature and would end upon construction phase conclusion. The local roadway infrastructure would be sufficient to support any increase in construction vehicle traffic. Such effects would be minimized by placing construction staging areas where they least interfere with traffic. All construction vehicles would be equipped with backing alarms, two-way radios, and “Slow Moving Vehicle” signs when appropriate.

Access to the site would be limited to a single entrance/exit from Quarry Road, which would result in effects that are more noticeable on streets near the site than on any of the regional roadways. Toxco’s Proposed Project would introduce approximately 45 permanent employees at the proposed recycling facility. These personnel would constitute approximately 150 more vehicle trips per normal weekday, and less on the weekend (ITE, 2003). Only a fraction of these trips would occur during peak traffic periods. This small increase in traffic would not affect the capacity of any of nearby roadway segments or intersections. These effects would be minor. Moderate changes in the number of additional personnel would not substantially change the number of daily trips, the times of travel, or the level of impact under NEPA.

Because the employees would be within driving distance of the proposed recycling facility, Toxco’s Proposed Project would have negligible effect on public transit, rail, bus, or air traffic in the area. Parking would be adequate for the additional personnel.

The site would require utility upgrades and services to support the proposed facility, primarily electrical in nature. In the final design stages, all upgrades would be reviewed carefully to ensure compatibility with the site as well as local zoning ordinances. There would be limited potential to alter or disturb power or other infrastructure services to the area because of Toxco’s Proposed Project. These impacts would be minor and below the threshold of significance.

4.8.3 Effects of No-Action

Selecting the No-Action Alternative would result in no impact to infrastructure and utilities. No construction or changes in facility operations would take place. Therefore, the ambient infrastructure and utilities’ conditions would remain as described in Section 4.8.1.

4.8.4 Cumulative Impacts

Cumulative impacts would not be anticipated in association with Toxco’s Proposed Project. There are no planned or reasonably foreseeable actions for the project area which when added to the effect of Toxco’s Proposed Project would substantially change local road use or traffic patterns. There would be limited potential to alter or disturb power or other infrastructure services to the area due to Toxco’s Proposed Project. These impacts would be negligible, and Toxco’s Proposed Project would not exceed the threshold of significance with regard to adverse cumulative effects on infrastructure.

4.9 Noise

Noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise intrusive. Human response to noise varies depending on the type and characteristics of the noise, the distance between the noise source and the receptor, receptor sensitivity, and time of day.

Sound varies by both intensity and frequency. Sound pressure level, described in decibels (dB), is used to quantify sound intensity. The dB is a logarithmic unit that expresses the ratio of a sound pressure level to a standard reference level. Hertz (Hz) are used to quantify sound frequency. The human ear responds differently to different frequencies. A-weighting, described in a-weighted decibels (dBA), approximates this frequency response to express accurately the perception of sound by humans. Sounds encountered in daily life and their approximate levels in dBA are provided in Table 4.9.

Outdoor	Sound level (dBA)	Indoor
Snowmobile	100	Subway train
Tractor	90	Garbage disposal
Noisy restaurant	85	Blender
Downtown (large city)	80	Ringling telephone
Freeway traffic	70	TV audio
Normal conversation	60	Sewing machine
Rainfall	50	Refrigerator
Quiet residential area	40	Library

Source: (Harris, 1998).

The dBA noise metric describes steady noise levels. Very few noises are, in fact, constant, so a noise metric, day-night sound level (DNL) has been developed. DNL is defined as the average sound energy in a 24-hour period with a 10-dB penalty added to nighttime levels (10 p.m. to 7 a.m.). DNL is a useful descriptor for noise because it averages ongoing yet intermittent noise, and it measures total sound energy over a 24-hour period. In addition, equivalent sound level (L_{eq}) is often used to describe the overall noise environment. L_{eq} is the average sound level in dB.

The Noise Control Act of 1972 (Public Law 92-574) directs federal agencies to comply with applicable federal, state, interstate, and local noise control regulations. In 1974, the EPA provided information suggesting that continuous and long-term noise levels in excess of DNL 65 dBA are normally unacceptable for noise-sensitive land uses such as residences, schools, churches, and hospitals. Ohio has no statewide noise regulation. The City of Lancaster maintains a general nuisance noise ordinance. The code, however, does not set explicit not-to-exceed sound levels (Lancaster, 2009).

4.9.1 Description

Existing sources of noise near the proposed site include local road traffic, rail traffic, high altitude aircraft overflights, and natural noises such as leaves rustling and bird vocalizations.

The site is adjacent to an active rail spur owned and operated by the Indiana and Ohio Railroad. The proposed site is not adjacent to any interstates or airfields.

Existing noise levels (DNL and L_{eq}) were estimated for the proposed site and surrounding areas using the techniques specified in the *American National Standard Quantities and Procedures for Description and Measurement of Environmental Sound Part 3: Short-term measurements with an observer present* (ANSI, 2003). Table 4.9.1 outlines the closest noise-sensitive areas such as residents, schools, churches, and hospitals, and the estimated existing noise levels at each location. Notably, the area is primarily industrial commercial and there are no residences, churches, schools, or hospitals within 1,500 feet (ft) (457 meters (m)) of the site.

Closest noise-sensitive area			Estimated existing sound levels (dBA)		
Distance	Direction	Type	DNL	L_{eq} (Daytime)	L_{eq} (Nighttime)
2100 ft (630 m)	South	Commercial, Industrial, and Normal Urban Residential	58	58	52
1650 ft (510 m)	North				

Source: (ANSI, 2003)

4.9.2 Effects of Toxco’s Proposed Project

Short-term minor adverse effects on the noise environment would be expected from implementing Toxco’s Proposed Project. Noise levels in the project area would not exceed ambient noise level standards as determined by the Federal, state, and/or local government. Minor increases in noise would primarily be the result of using heavy equipment during construction. The effects would be temporary in nature and would end upon completion of construction. Noise from facility operations would be negligible.

Toxco’s Proposed Project would require the construction of new facilities at the site. Individual pieces of construction equipment typically generate noise levels of 80 to 90 dBA at a distance of 50 feet (Table 4.9.2). With multiple items of equipment operating concurrently, noise levels can be relatively high during daytime periods at locations within several hundred feet of active construction sites. The zone of relatively high construction noise levels typically extends to distances of 400 to 800 feet from the site of major equipment operations. There are no residences closer than 800 feet to the site that would experience appreciable amounts of construction noise. Given the temporary nature of the construction, and the distance to the nearest sensitive receptor, it would have a minor effect.

Construction phase	dBA L_{eq} at 50 feet from source
Ground Clearing	84
Excavation, Grading	89
Foundations	78
Structural	85

Table 4.9.2. Noise Levels Associated with Outdoor Construction	
Construction phase	dBA L_{eq} at 50 feet from source
Finishing	89

Source: (USEPA, 1974)

Although construction-related noise effects would be minor, contractors would limit construction to occur primarily during normal weekday business hours and would properly maintain construction equipment mufflers. It is not expected, therefore, that construction noise would violate the local noise ordinance. The effects on construction personnel could be limited by requiring all personnel wear adequate personal hearing protection. Limiting worker exposure and providing adequate personal hearing protection would ensure compliance with federal health and safety regulations.

Operation of the proposed recycling facility would include a one 300 hp crusher per line, blowers, pumps, bag house, and scrubber fans. This equipment would be primarily inside. The exception would be the bag house and scrubber fans, which would be enclosed but attached to the outside of the proposed facility. At the nearest residence (1,650 feet), the sound from this equipment would likely be audible. By conforming to the Lancaster nuisance noise ordinance and zoning regulations, Toxco would minimize, insofar as practical, any adverse impact the noise levels might have on the immediate surroundings. These effects would be minor and would be below the threshold of significance.

4.9.3 Effects of No-Action

Selecting the No-Action Alternative would result in no effect on the ambient noise environment. No construction would be expected. Ambient noise conditions would remain as described in Section 4.9.1.

4.9.4 Cumulative Impacts

Toxco's Proposed Project would introduce short-term incremental increases to the noise environment. These changes would be minor, temporary, and have negligible cumulative effects.

4.10 Human Health and Safety

4.10.1 Description

Air pollution causes human health problems. Air pollution can cause breathing problems; throat and eye irritation; cancer; birth defects; and damage to immune, neurological, reproductive, and respiratory systems (USEPA, 2009b). National and state ambient air quality standards represent the maximum allowable atmospheric concentrations that may occur while still protecting public health and welfare within a reasonable margin of safety (See Section 4.1). In addition, OSHA regulations specify appropriate protective measures for all employees.

Spills from the construction of Toxco's Proposed Project and its operation could also be a source of possible impacts to human health and safety. Spills can introduce soil contamination and allow exposure pathways to workers and the public. The risks and effects of a spill depend on its composition and extent of pollution. Another accident scenario would be with the storage and transportation of lithium batteries. Similarly, waste management also is a source of possible human health and safety risks from exposure to contaminants (See Section 4.11).

A primary concern to human health and safety within the project area would be industrial accidents. Although the proposed project would be using innovative technology, the new building construction and operation would not present unusual risks for the workers due to the use of BMPs, safety protocols present, and the similar nature of the proposed tasks to those already occurring onsite. Thus, the workers on the project would be subject to the same types of health risks that are generally associated with their professions. The most fatalities of any industry in the private sector in 2008 occurred in the construction industry with 404 deaths in 2008 (BLS, 2009a). The construction incident rate of total recordable cases of non-fatal occupational injuries and illnesses in 2008 was 4.7 per 100 full-time workers. The motor vehicle electrical and electronic equipment manufacturing industry had an incidence rate of total recordable cases of non-fatal occupational injuries and illnesses in 2008 of 3.7 per 100 full-time workers (BLS, 2009b).

4.10.2 Effects of Toxco's Proposed Project

The objective of the proposed project, as discussed in Chapter 2 of this EA, is for Toxco Incorporated to establish domestic recycling capacity for large format advanced Li Ion batteries. These batteries are used in advanced electric drive vehicles, which include plug-in hybrid electric vehicles and hybrid electric vehicles. The project includes the construction of an advanced and innovative recycling facility built for operation in conjunction with the existing hybrid and electric vehicle battery recycling facility in Ohio. If Toxco's Proposed Project were implemented, all personnel would be trained on the manufacturing processes and recycling equipment. Training would be conducted in accordance with existing environmental and worker health and safety programs. Plans and procedures would be updated accordingly to account for the new processes and/or information.

If Toxco's Proposed Project were implemented, the equipment and operations used in the project should present minimal risks to human health and safety when operated under normal conditions and maintained. Thus, if BMPs, maintenance, and regulations are followed, the equipment should pose little threat to human health and safety. All personnel would be trained regarding the safety measures and procedures (such as handling hazardous materials) associated with the job. All necessary safety equipment would be worn during operating hours or while on the premises. If necessary, the Toxco safety manuals would be updated. By following safety protocols and other measures, occupational hazards would be minimized.

Since all of the construction and operation of Toxco's Proposed Project would be on Toxco property, the increase in traffic from workers and delivery of equipment and materials would be mostly limited to onsite. This reduces risks to pedestrians and the general public near the proposed project. However, Toxco's Proposed Project would still represent an increase in

traffic, which increases the potential for accidents. The current roads near the sites should be able to handle the increase in vehicles associated with this project. Thus, the impact to human health and safety from the increase in transportation is not expected to exceed the level of significance threshold (See Section 4.8).

Air emissions from Toxco's Proposed Project are anticipated to be less than significant (See Section 4.1). Thus, the impacts to human health from air emissions would not be expected to exceed the significance threshold. By following mitigation measures and BMPs, any impacts to human health from air quality hazards would be reduced. Further, workers would follow OSHA procedures, which would further reduce the impact to human health. Therefore, there would be a minimal risk to human health and safety as long as safety procedures are followed.

The soils are not highly erodible (See Section 4.2); therefore, water contamination from increased runoff, which could lead to human health and safety risks, is not a major issue (See Section 4.3). If significant changes were to occur to stormwater runoff, a new or modified NPDES permit would be required. Further, wastewater would be collected and treated according to applicable regulations and by qualified personnel (Section 4.3). Therefore, the overall effect of Toxco's Proposed Project to surface water quality is not expected to exceed the significance threshold.

If safety procedures and BMPs were followed, spills and leaks from equipment and processes (other than the hazardous wastes) would be low in concentration as well as nonhazardous and non-toxic. This would represent a low risk to human health and safety. Under normal conditions, hazardous and toxic materials can be used safely when appropriate safety precautions are followed. Some hazardous materials would be used or created during the project but not in quantities large enough to affect the large quantity generator status. All generated waste materials would be handled and disposed in accordance with applicable regulations.

With regard to the handling of hazardous materials, Toxco would effectively control chemicals and exposure through hazardous materials control programs developed to protect health, safety and the environment. Procedures would include chemical right-to-know information regarding the chemicals used in operations, acquisition and use of personal protective equipment, lock out tag out procedure, hearing protection, electrical hazards protection, eye protection, respirator fit and use, etc.

Appropriate monitoring equipment and systems that are consistent with all BMPs and regulations would be in place for the materials and wastes produced. This operating procedure would detect leaks and equipment malfunctions to ensure worker safety and allow appropriate early responses to any problems. This would reduce the risk to human health and safety on the site as well as in the local community. As a further precaution, and when necessary as required by regulatory mandate, the local communities and other relevant agencies would be notified of the materials present so that appropriate emergency plans could be modified.

Facility decommission would represent the same types of risks as the operation. Thus, with proper safety procedures, the impact to human health and safety should be minimal. Appropriate BMPs and adherence to regulations would minimize the risks present during project

implementation. Therefore, the overall impact to human health and safety would not be expected to exceed the significance threshold.

4.10.3 Effects of No-Action

Under the No-Action Alternative, there would be no construction, operation, or decommissioning of the proposed project. Thus, none of the risks listed in the previous section would occur, which would mean no impacts to human health and safety. The exception would be the fact that Toxco's Proposed Project's purpose, which is to increase research for advanced Li Ion battery recycling technology while providing economic stimulus, would not be implemented. However, many other projects are in operation or are being proposed to assist in EDV technology and stimulate the economy. Thus, not all possible issues with delaying the advancement of EDV research and economic stimulation are attributable to implementing the No-Action Alternative (DOE refusing to fund Toxco's Proposed Project) for this project. Nevertheless, while the No-Action Alternative does represent some risk to human health and safety by not facilitating the construction and operation of a recycling facility, implementation of the No-Action Alternative would be below the significance threshold.

4.10.4 Cumulative Effects

The cumulative impacts of existing activities in and around the project area do not represent a substantial risk to human health and safety with existing and upcoming mitigation and safety procedures in place. Further, the proposed project would contribute minimally to cumulative impacts due to the minimal risk to human health and safety with BMPs in place. Therefore, the cumulative impacts with implementing Toxco's Proposed Project would not be expected to exceed the significance threshold.

Since the current projects in the area do not pose a substantial risk to human health and safety, the No-Action Alternative does not represent any additional risks to human health and safety. As described in the previous section, the exception is that not implementing Toxco's Proposed Project (thus, implementing the No-Action Alternative) would have an adverse impact on advances in Li Ion battery recycling technology and economic stimulus. However, since this is a single project of many, the cumulative impacts to human health and safety for the No-Action Alternative are not expected to exceed the threshold of significance.

4.11 Waste Management

4.11.1 Description

The Toxco facility is a resource recovery installation that reclaims industrial and automotive batteries, alkali and acidic batteries, and battery components. The facility is identified by the USEPA as a large quantity generator (LQG) of hazardous waste under identification number OHD071654958, and is permitted as a treatment, storage, and disposal (TSD) facility for its recycling operations (EDR, 2009).

Large quantities of batteries are stored at Toxco. Batteries and battery components are handled, packaged, and stored in a manner that prevents the terminals from creating a circuit. Lithium batteries are segregated from other battery chemistries and stored in metal containers whenever practical (Toxco, 2009b).

The principal hazardous materials found at the facility are acids, heavy metals, bases present in reclaimed batteries, and soda ash used to neutralize spills of sulfuric acid. The principal hazardous wastes generated during the battery reclamation processes are heavy metals, corrosive electrolytes (both acid and basic), filter cake from the acid neutralization process, and equipment contaminated with heavy metals and corrosives. These wastes also would include contaminated protective clothing, absorbent, and spent cleaning supplies (Toxco, 2009b).

The Toxco facility uses petroleum-based products for machinery, heavy equipment, and general facility maintenance. Less than 500 gallons (1,893 liters) of these materials are stored in containers ranging in size from 5-gallon (19 liters) pails to 55-gallon (189 liters) drums. Compressed gases (acetylene, oxygen, and propane) are used for torch cutting, welding, and heavy equipment fuel. Approximately 4 to 6 bottles of propane and 1 to 2 bottles of acetylene and oxygen are on the premises at any one time (Toxco, 2009b).

Most of the non-hazardous materials associated with the facility operations are recycled, leaving approximately 5-10 percent of input to be disposed as solid waste (Toxco, 2009c). Types of non-hazardous solid waste would generally include packing and shipping materials as well as office trash.

4.11.2 Effects of Toxco's Proposed Project

Construction activities present the potential to encounter previously unidentified contaminated soils or groundwater. Based on a database search of known locations of hazardous sources and reported activity, the likelihood of encountering contamination is low and impacts from contaminants expected during construction would be negligible. Small amounts of potentially hazardous waste materials (e.g., waste oils, lubricants, solvents, cleaners, paints) would be generated during construction but proper use and storage of the materials would ensure no impact to workers and the environment. Use or storage of hazardous materials on site during construction would be in accordance with applicable regulations, and appropriate spill prevention measures would be implemented. If hazardous materials are spilled or deposited on the site during or after construction, the responsible party would immediately notify appropriate regulatory parties, take all necessary actions to clean up and properly dispose of the materials, and complete all reporting requirements.

Operation of the new recycling facility is not expected to generate hazardous waste of a different type or amount than what is currently generated at the Toxco facility. The amount of hazardous waste generated would not affect the facility's LQG status. The TSD permit would be updated to account for the new recycling process for the lithium ion batteries. Toxco's emergency response procedures and spill contingency plans would be revised to include the new facility and new recycling process.

Small increases in office trash would be expected with the additional 39 to 45 employees operating the new facility. Packaging and shipping materials would continue to be recycled with no expected change in the amount of these materials being disposed as solid waste. Therefore, with implementation of appropriate BMPs and updating plans, the overall impact to waste management would be below the threshold of significance.

4.11.3 Effects of No-Action

The new recycling facility would not be constructed under the No-Action Alternative. There would be no new recycling processes affecting the management of existing hazardous and solid waste at the Toxco facility.

4.11.4 Cumulative Impacts

Improvements in recycling processes would have a cumulative beneficial effect on the environment from reduced disposal requirements for hazardous and solid wastes. There are no reasonably foreseeable projects in the vicinity that would have similar effects as Toxco's Proposed Project. Therefore, Toxco's Proposed Project would not exceed the threshold of significance with regard to adverse cumulative effects on waste management.

4.12 Sustainability

Executive Order (EO) 13541 on Federal Sustainability issued on 5 October 2009, states in part that it is the **policy** of the Federal government “*to create a clean energy economy*” and that “*Federal agencies shall increase energy efficiency; measure, report, and reduce their greenhouse gas emissions from direct and indirect activities; conserve and protect water resources through efficiency, reuse, and stormwater management; eliminate waste, recycle, and prevent pollution;... design, construct, maintain, and operate high performance sustainable buildings in sustainable locations; and strengthen the vitality and livability of the communities in which Federal facilities are located.*”

Section 2(f)(iv) of the EO states that each agency shall “*advance regional and local integrated planning by ... identifying and analyzing impacts from energy usage and alternative energy sources in all Environmental Impact Statements and Environmental Assessments for proposals for new or expanded Federal facilities under the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 et seq.).*”

Toxco's Proposed Project reviewed by this EA is part of a larger national effort to move this country to a more sustainable future. Efforts are underway to begin the move from non-renewable fuel sources to renewable fuel sources to power our economy. A major part of that non-renewable fuel use is in personnel transportation and the use of internal combustion engines in our automobiles. A move to electric vehicles can be seen as a very visible move to a more sustainable future.

Toxco hopes to do its part in this national move to a sustainable future. The action proposed and reviewed in this EA is a part of that effort. If initiated, not only would this project assist in the

development of the viable use of electric vehicles through battery recycling, but also specific project designs would increase the sustainability of the proposed project. For example, it is the intent of Toxco to use the following measures in the new building envisioned in this EA: high efficiency water heaters, low volume flush toilets, high efficiency lighting, roof sky lights, high efficiency heating units, No VOC containing paints or floor coverings, concrete efficiency additives, and efficient building insulation.

5.0 CONSULTATION AND COORDINATION

A kick-off meeting was held on October 20, 2009, at NETL office in Morgantown, West Virginia, with representatives from NETL and Mangi Environmental Group to begin formally the EA process. Subsequent to that meeting, a review was made of available information necessary for the completion of the EA and data gaps were identified and submitted to NETL and Toxco.

5.1 Agency Coordination

The CEQ's regulations for implementing NEPA allows federal agencies to invite comment from Tribal, state, and local agencies, as well as other federal agencies in the preparation of EAs. The purpose of this coordination is to obtain special expertise with respect to environmental and cultural issues in order to enhance interdisciplinary capabilities and otherwise ensure successful, effective consultation in decision-making. The below entities were contacted for this effort.

5.1.1 U.S. Fish and Wildlife Service (USFWS)

The mission of the USFWS is to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of American people. Consultation with USFWS also assists with the Endangered Species Act compliance.

See Appendix B for correspondence with this agency.

5.1.2 State Historic Preservation Office (SHPO)

The National Historic Preservation Act (NHPA) requires DOE to consult with the SHPO prior to any construction to ensure that no historical properties would be adversely affected by a proposed project. DOE must also afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the proposed project.

See Appendix C for correspondence with this agency.

5.1.3 Bureau of Indian Affairs

The American Indian Religious Freedom Act, 42 USC § 1996, establishes policy to protect and preserve the inherent and Constitutional right of Native Americans to believe, express, and exercise their traditional religions. The law ensures the protection of sacred locations; access of Native Americans to those sacred locations and traditional resources that are integral to the practice of their religions; and establishes requirements that would apply to Native American sacred locations, traditional resources, or traditional religious practices potentially affected by construction and operation of proposed facilities.

See Appendix D for correspondence with the Bureau of Indian Affairs and Tribal Councils.

5.2 Public Involvement

The public comment period on the Draft EA was from March 4 to April 3, 2010. An article informing the public of the availability of the Draft EA at the Fairfield County District Library in Lancaster, Ohio ran March 4 and March 11, 2010 in Lancaster Eagle-Gazette. DOE received no public comments.

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Pam Sarlouis; Document Management Support

7.0 REFERENCES

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8.0 GLOSSARY

Air Quality Control Region - A contiguous area where air quality is relatively uniform. AQCRs may consist of two or more cities, counties or other governmental entities, and each region is required to adopt consistent pollution control measures across the political jurisdictions involved.

Ambient - The natural surroundings of a location.

Attainment Areas - A zone within which the level of a pollutant is considered to meet the National Ambient Air Quality Standards.

A-Weighted Decibels - An expression of the relative loudness of sounds in air as perceived by the human ear.

Best Management Practices - Methods or techniques found to be the most effective and practical means in achieving an objective (such as preventing or minimizing pollution) while optimally using the firms resources.

Criteria Pollutants - Six primary air pollutants found throughout the United States as defined by USEPA pursuant to the Clean Air Act. They are particulates, ground-level ozone, carbon monoxide, sulfur oxides, nitrogen oxides, and lead.

Cumulative Effects - Those effects on the environment that result from the incremental effect of the action when added to past, present and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions.

Cumulative Impacts - Impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of which agency (Federal or non-Federal) or person undertakes such other actions; effects resulting from individually minor, but collectively significant, actions taking place over a period of time.

Day-Night Sound Level - The A-weighted equivalent sound level for a 24-hour period with 10 dB added to levels between 10 P.M. to 7 A.M.

Decibel - A unit of measurement that expresses the magnitude of a physical quantity (usually intensity) relative to a specified or implied *reference level*. The decibel is useful for a wide variety of measurements in science (for this application, it is sound).

Endangered Species - A species that is threatened with extinction throughout all or a significant portion of its range.

Environmental Justice - The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no

group of people, including a racial, ethnic or socioeconomic group, should bear a disproportionate share of the adverse environmental consequences resulting from a proposed federal action.

Environmental Justice Population - A population being at least half minority status or at least half low-income status, or this status in a meaningfully greater way than the general population.

Equivalent Sound Level - The level of a steady-state noise without impulses or tone components that is equivalent to the actual noise emitted over a period of time.

Floodplain - The lowlands and relatively flat areas adjoining inland waters, including flood prone areas, which are inundated by a flood.

Forage - The search for food or small shrubs and other plant material that can be used as food sources for grazing animals and livestock.

Full-Time Equivalent - The number of 40-hour positions created. Thus, two 20-hour positions would be one full-time equivalent.

Glaciolacustrine - Of, or pertaining to lakes that are created or fed by glaciers.

Hertz - A unit of frequency equal to one cycle per second.

Hydrophytic - Of, or pertaining to a plant that grows in water or very moist ground; an aquatic plant.

Invasive Species - An alien (nonnative to the ecosystem) species whose introduction does or is likely to cause economic or environmental harm or harm to human health.

Metropolitan Statistical Area - A collection of counties and county equivalents defined by the Office of Management and Budget.

National Ambient Air Quality Standards - Standards established by the USEPA that apply to outdoor air throughout the country. Primary standards are designed to protect human health, with an adequate margin of safety, including sensitive populations such as children, the elderly, and individuals suffering from respiratory disease.

National Emissions Standards for Hazardous Air Pollutants - Emissions standards set by the United States EPA for an air pollutant not covered by NAAQS that may cause an increase in fatalities or in serious, irreversible, or incapacitating illness.

National Pollutant Discharge Elimination System (NPDES) - The national program for administering permits (and pretreatment requirements) under sections 307, 402, 318, and 405 of the Clean Water Act. The term includes state or tribal approved programs.”

New Source Performance Standards - Are pollution control standards issued by the USEPA. The term is used in the Clean Air Act refer to air pollution emission standards, and in the Clean Water Act referring to standards for discharges of industrial wastewater to surface waters.

Nonattainment Areas - A locality where air pollution levels persistently exceed national standards or that contributes to ambient air quality in a nearby area that fails to meet standards.

Occupational Safety and Health Administration (OSHA) - A Department of Labor Agency that establishes and enforces standards for workplace safety.

PM₁₀ - Particulate matter less than 10 microns in diameter.

PM_{2.5} - Particulate matter less than 2.5 microns in diameter.

Prime Farmland - Land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oil seed crops and is available for these uses. Public land is land not available for farming in National forests, National parks, military reservations, and State parks.

Potential To Emit (PTE) - The maximum amount of air contaminants that your source could emit if each process is operated at 100% of its design capacity; each process operated 24 hours/day, 365 days/year; materials that emit the most air contaminants are materials that emit the most air contaminants are used or processed 100% of the time; and air pollution control equipment is turned off.

State Implementation Plan - The state plan for complying with the federal Clean Air Act. A SIP consists of narrative, rules, technical documentation, and agreements that an individual state will use to clean up area not meeting the National Ambient Air Quality Standards.

Sustainability - The capacity to endure. In ecology, the word describes how biological systems remain diverse and productive over time.

Threatened Species - A species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Total Personal Income - The sum of all people's income, which includes wage, salary, supplements to wages and salaries, rental income, and others income sources.

Volatile Organic Compounds (VOCs) - Organic compounds that have high enough vapor pressures under normal conditions to significantly vaporize and enter the atmosphere.

Wetland - Area inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

APPENDICES

Appendix A Air Emission Calculations

Table A-1. Construction Equipment Use				
Equipment type	Number of units	Days on site	Hours per day	Operating hours
Excavators Composite	1	96	4	383
Rollers Composite	1	144	8	1153
Rubber Tired Dozers Composite	1	96	8	767
Plate Compactors Composite	2	96	4	767
Trenchers Composite	2	48	8	773
Air Compressors	2	96	4	767
Cement & Mortar Mixers	2	96	6	1150
Cranes	1	96	7	671
Generator Sets	2	96	4	767
Tractors/Loaders/Backhoes	2	192	7	2683
Pavers Composite	1	48	8	387
Paving Equipment	2	48	8	773

Equipment	CO	NO_x	VOC	SO_x	PM₁₀	PM_{2.5}	CO₂
Excavators Composite	0.5828	1.3249	0.1695	0.0013	0.0727	0.0727	119.6
Rollers Composite	0.4341	0.8607	0.1328	0.0008	0.0601	0.0601	67.1
Rubber Tired Dozers Composite	1.5961	3.2672	0.3644	0.0025	0.1409	0.1409	239.1
Plate Compactors Composite	0.0263	0.0328	0.0052	0.0001	0.0021	0.0021	4.3
Trenchers Composite	0.5080	0.8237	0.1851	0.0007	0.0688	0.0688	58.7
Air Compressors	0.3782	0.7980	0.1232	0.0007	0.0563	0.0563	63.6
Cement and Mortar Mixers	0.0447	0.0658	0.0113	0.0001	0.0044	0.0044	7.2
Cranes	0.6011	1.6100	0.1778	0.0014	0.0715	0.0715	128.7
Generator Sets	0.3461	0.6980	0.1075	0.0007	0.0430	0.0430	61.0
Tractors/Loaders/Backhoes	0.4063	0.7746	0.1204	0.0008	0.0599	0.0599	66.8
Pavers Composite	0.5874	1.0796	0.1963	0.0009	0.0769	0.0769	77.9
Paving Equipment	0.0532	0.1061	0.0166	0.0002	0.0063	0.0063	12.6

Source: (CARB, 2007). Note: CO₂ is carbon dioxide.

Equipment	CO	NO_x	VOC	SO_x	PM₁₀	PM_{2.5}
Excavators Composite	0.1117	0.2539	0.0325	0.0003	0.0139	0.0139
Rollers Composite	0.2503	0.4963	0.0766	0.0004	0.0347	0.0347
Rubber Tired Dozers Composite	0.6118	1.2524	0.1397	0.0009	0.0540	0.0540
Plate Compactors Composite	0.0101	0.0126	0.0020	0.0000	0.0008	0.0008
Trenchers Composite	0.1964	0.3185	0.0716	0.0003	0.0266	0.0266
Air Compressors	0.1450	0.3059	0.0472	0.0003	0.0216	0.0216
Cement and Mortar Mixers	0.0257	0.0378	0.0065	0.0001	0.0026	0.0026
Cranes	0.2016	0.5400	0.0597	0.0005	0.0240	0.0240
Generator Sets	0.1327	0.2676	0.0412	0.0003	0.0165	0.0165
Tractors/Loaders/Backhoes	0.5452	1.0392	0.1615	0.0010	0.0803	0.0803
Pavers Composite	0.1136	0.2087	0.0380	0.0002	0.0149	0.0149
Paving Equipment	0.0206	0.0410	0.0064	0.0001	0.0024	0.0024
Total	2.36	4.77	0.68	0.0043	0.29	0.29

Table A-4. Painting			
VOC Content	0.84	lbs/gallon	
Coverage	400	ft ² /gallon	
Emission Factor	0.0021	lbs/ft ²	
Building/Facility	Wall Surface	VOC (lbs)	VOC (tpy)
All Buildings Combined	100000	210.0	0.105
Total	100000	210.00	0.11

Table A-5. Delivery of Equipment and Supplies						
Number of Deliveries	2					
Number of Trips	2					
Miles Per Trip	30					
Days of Construction	192					
Total Miles	23000					
Pollutant	CO	NO_x	VOC	SO_x	PM₁₀	PM_{2.5}
Emission Factor (lbs/mile)	0.0219	0.0237	0.0030	0.0000	0.0009	0.0007
Total Emissions (lbs)	504.83	545.39	68.83	0.59	19.69	17.00
Total Emissions (tpy)	0.25	0.27	0.03	0.0003	0.01	0.01
Source: (CARB, 2007)						

Table A-6. Paving Off Gasses			
VOC Emissions Factor	2.62	lbs/acre	
Building/Facility	Area (acres)	VOC (lbs)	VOC (tpy)
All Combined Parking	0.23	0.60	0.0003
Total	0.23	0.60	0.0003
Source: (SCAQMD, 1993)			

Table A-7. Surface Disturbance						
TSP Emissions	80	lbs/acre				
PM ₁₀ /TSP	0.45					
PM _{2.5} /PM ₁₀	0.15					
Period of Disturbance	30	days				
Capture Fraction	0.5					
Building/Facility	Area (acres)	TSP (lbs)	PM₁₀ (lbs)	PM₁₀ (tons)	PM_{2.5} (lbs)	PM_{2.5} (tons)
Demolition	1.4	3312	1490	0.75	112	0.06
Total	1.4	3312	1490	0.75	112	0.06

Sources: (USEPA, 1995; USEPA, 2005). Note: TSP is Total Suspended Particles.

Table A-8. Worker Commutes						
Number of Workers	50					
Number of Trips	2					
Miles Per Trip	30					
Days of Construction	192					
Total Miles	575000					
Pollutant	CO	NO_x	VOC	SO_x	PM₁₀	PM_{2.5}
Emission Factor (lbs/mile)	0.0105	0.0011	0.0011	0.0000	0.0001	0.0001
Total Emissions (lbs)	6065.35	634.16	620.54	6.18	48.91	30.43
Total Emissions (tpy)	3.03	0.32	0.31	0.0031	0.02	0.02

Source: (CARB, 2007)

Table A-9. Total Construction Emissions (tons per year)						
Activity/Source	CO	NO _x	VOC	SO _x	PM ₁₀	PM _{2.5}
Construction Equipment	2.36	4.77	0.68	0.0043	0.29	0.29
Painting	0.00	0.00	0.11	0.0000	0.00	0.00
Delivery of Equipment and Supplies	0.25	0.27	0.03	0.0003	0.01	0.01
Paving Off Gasses	0.00	0.00	0.00	0.0000	0.00	0.00
Surface Disturbance	0.00	0.00	0.00	0.0000	0.75	0.06
Worker Commutes	3.03	0.32	0.31	0.0031	0.02	0.02
Total Construction Emissions	5.65	5.36	1.13	0.0077	1.07	0.37

Table A-10. Boiler Emissions						
Gross Area	50000	ft ²				
Heating Requirements	99000	BTU/ft ²				
Total Annual Heat Required	4950	MMBTU				
Heating Value	150	MMBTU/1,000 Gallons				
Total #2 Oil Used	33.0	Thousand Gallons				
Pollutant	CO	NO_x	VOC	SO_x	PM₁₀	PM_{2.5}
Emission Factor (lbs/1,000 gal)	5	24	2.493	0.1	2	2
Total Emissions (tons)	0.08	0.40	0.04	0.00	0.03	0.03

Notes: Emission factors for all pollutants were obtained from EPA's AP-42, Section 1.3 (USEPA, 1995); conservatively assume that PM₁₀ = PM; assumed sulfur concentration 1%; and heating requirements obtained from Commercial Buildings Energy Consumption Survey, (DOE, 2003).

Table A-11. Worker Commutes						
Number of Workers	45					
Number of Trips	2					
Miles Per Trip	30					
Days of Work	260					
Total Miles	702000					
Pollutant	CO	NO_x	VOC	SO_x	PM₁₀	PM_{2.5}
Emission Factor (lbs/mile)	0.0105	0.0011	0.0011	0.0000	0.0001	0.0001
Total Emissions (lbs)	7405.00	774.22	757.59	7.54	59.71	37.16
Total Emissions (tons)	3.70	0.39	0.38	0.00	0.03	0.02

Source: (CARB, 2007)

Table A-12. Total Operational Emissions (tons)						
Activity/Source	CO	NO _x	VOC	SO _x	PM ₁₀	PM _{2.5}
Boiler Emissions	0.08	0.40	0.04	0.00	0.03	0.03
Worker Commutes	3.70	0.39	0.38	0.00	0.03	0.02
Total Operational Emissions	3.79	0.78	0.42	0.01	0.06	0.05

Appendix B USFWS Consultation



NATIONAL ENERGY TECHNOLOGY LABORATORY
Albany, OR • Morgantown, WV • Pittsburgh, PA



November 19, 2009

Mary Knapp, Ph.D., Field Supervisor
U.S. Fish and Wildlife Service
Ohio Ecological Services Field Office
4625 Morse Road, Suite 104
Columbus, OH 43230

Subject: Next-Generation Lithium Ion Battery Recycling Facility in Lancaster, Ohio

Dear Dr. Knapp:

The Department of Energy's (DOE) National Energy Technology Laboratory (NETL) manages the research and development portfolio of the Vehicle Technologies (VT) Program for the Office of Energy Efficiency and Renewable Energy. A key objective of the VT program is accelerating the development and production of electric drive vehicle systems in order to substantially reduce the United States' consumption of petroleum. Another of its goals is the development of production-ready batteries, power electronics, and electric machines that can be produced in volume economically so as to increase the use of electric drive vehicles.

Congress appropriated significant funding for the VT program in the American Recovery and Reinvestment Act of 2009, Public Law 111-5 (Recovery Act) in order to stimulate the economy and reduce unemployment in addition to furthering the existing objectives of the VT program. NETL is considering funding the proposed Next-Generation Lithium Ion (Li Ion) Battery Recycling Facility as one of 30 DOE selected for funding under the Recovery Act.

The objective of the proposed project is for Toxco Incorporated to establish domestic recycling capacity for large format advanced Li Ion batteries used in advanced electric drive vehicles, including plug-in hybrid electric vehicles and hybrid electric vehicles, by designing and building an advanced, innovative recycling facility to operate in conjunction with its existing hybrid and electric vehicle battery recycling facility in Ohio. Successful completion of this project would provide lithium battery quality cathode and anode material plus purified electrolyte solvents and raw materials to the battery original equipment manufacturers and ensure the proper environmental management of the end of life of the batteries.

The scope of the proposed project includes, following acquisition of all appropriate permits, a 50,000 square foot (4,600 square meters) building for the new Li Ion battery recycling plant on its property adjacent to its current lead acid, nickel metal hydride, and nickel cadmium battery recycling plant in Lancaster, Ohio (see attached maps).

As part of our coordination and consultation responsibilities and to comply with both Section 7 of the Endangered Species Act of 1973, as amended, and provisions of the Fish & Wildlife Coordination Act, we would appreciate receiving any information you have on important wildlife resources, including endangered and threatened species or critical habitat, in the project area.

Based on the scope of the proposed project, DOE plans to prepare an Environmental Assessment (EA), in accordance with requirements of the National Environmental Policy Act, to analyze, document, and

disseminate information on the potential environmental consequences of the proposed project. Information that you provide will be incorporated and appropriately addressed in the EA. If your initial review concludes that no endangered or threatened species (or their habitat) are present in the project area and that neither protected species nor their habitat would be affected by the proposed action, a written acknowledgement of that conclusion would be appreciated. In any case, the information that you provide will be considered in preparing a draft EA, which will be provided to you for review upon availability.

Should you require additional information, please contact me by telephone at (412) 386-5428 or by email at pierina.fayish@netl.doe.gov.

Sincerely,



Pierina Fayish
NEPA Document Manager

Enclosures



United States Department of the Interior

FISH AND WILDLIFE SERVICE

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March 8, 2010

Pierina Fayish
National Energy Technology Laboratory
P.O. Box 10940
Pittsburgh, PA 15236

TAILS: 31420-2010-I-0441

Re: Proposed ARRA Funded Toxco Inc. Li Ion Battery Recycling Facility, Fairfield County

Dear Ms. Fayish:

This is in response to your March 1, 2010 letter and draft Environmental Assessment (EA) requesting concurrence that the proposed ARRA Funded Toxco Incorporated Lithium Ion (Li Ion) Battery Recycling Facility will not have an adverse effect on federally listed threatened or endangered species within the vicinity of the proposed project site. We understand that, since your November 19, 2009 letter on which we consulted on December 9, 2009 (TAILS: 2009-TA-0216), the proposed project location has changed from the northwest corner of the intersection of Commerce Street and Quarry Road to a location south of the existing Toxco building along Quarry Road in Lancaster, Fairfield County, Ohio. According to the draft EA, the proposed project involves the construction of a 50,000 square foot Li Ion battery recycling plant on an agricultural field that contains no trees, streams, or wetlands. We understand that surrounding land use includes agricultural and commercial properties. *You have determined that the proposed project activity will have no effect on any federally listed threatened or endangered species or their habitats.*

ENDANGERED SPECIES COMMENTS: The proposed project lies within the range of the **Indiana bat** (*Myotis sodalis*), a federally listed endangered species. Since first listed as endangered in 1967, their population has declined by nearly 60%. Several factors have contributed to the decline of the Indiana bat, including the loss and degradation of suitable hibernacula, human disturbance during hibernation, pesticides, and the loss and degradation of forested habitat, particularly stands of large, mature trees. Fragmentation of forest habitat may also contribute to declines. During winter, Indiana bats hibernate in caves and abandoned mines. Summer habitat requirements for the species are not well defined but the following are considered important:

- (1) dead or live trees and snags with peeling or exfoliating bark, split tree trunk and/or branches, or cavities, which may be used as maternity roost areas;
- (2) live trees (such as shagbark hickory and oaks) which have exfoliating bark;
- (3) stream corridors, riparian areas, and upland woodlots which provide forage sites.

According to the draft EA, it appears that the proposed project site does not contain suitable habitat for the Indiana bat. *You have determined that the proposed project will not affect the Indiana bat due the absence of suitable habitat on-site or impacts to trees. Therefore, due to the proposed project nature and absence of suitable on-site habitat, we agree that the proposed project will have no effect on the Indiana bat.*

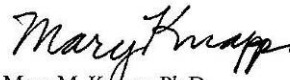
Additionally, the proposed project lies within the range of the **clubshell** (*Pleurobema clava*), a federally listed endangered freshwater mussel, and the **rayed bean** (*Villosa fabalis*), a Federal candidate freshwater mussel species. According to your draft EA, the proposed project site does not contain any bodies of water, and therefore these species are not expected to be within the proposed project vicinity. Therefore, *we agree that the proposed project will have no impact to these freshwater mussel species.*

The proposed project lies within the range of the **eastern massasauga** (*Sistrurus catenatus catenatus*), a Federal Candidate species, and the **bald eagle** (*Haliaeetus leucocephalus*), which is afforded protection by the Bald and Golden Eagle Protection Act and Migratory Bird Protection Act. Due to the current status of these species, no Federal consultation is required. However, based on the proposed project activity, scope, and location, these species or their habitat are not likely to be within the proposed project vicinity and therefore *we do not anticipate impacts to these species as a result of the proposed project.*

This concludes consultation on this action as required by section 7(a)(2) of the Endangered Species Act. Should, during the term of this action, additional information on listed or proposed species or their critical habitat become available, or if new information reveals effects of the action that were not previously considered, consultation with the Service should be reinitiated to assess whether the determinations are still valid. These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the Endangered Species Act of 1973 (ESA), as amended, and are consistent with the intent of the National Environmental Policy Act of 1969 and the U.S. Fish and Wildlife Service's Mitigation Policy.

We appreciate your conscientious efforts to comply with Federal recommendations. If you have questions, or if we may be of further assistance in this matter, please contact Julie Proell at extension 19 in this office or by email at Julie_Proell@fws.gov.

Sincerely,



Mary M. Knapp, Ph.D.
Field Supervisor

cc: ODNR, DOW, SCEA Unit, Columbus, OH

Appendix C SHPO Consultation



NATIONAL ENERGY TECHNOLOGY LABORATORY
Albany, OR • Morgantown, WV • Pittsburgh, PA



November 19, 2009

Ohio Historic Preservation Office, Ohio Historical Society
1982 Velma Ave.
Columbus, OH 43211-2497

Subject: Next-Generation Lithium Ion Battery Recycling Facility in Lancaster, Ohio

Dear Sir or Madam:

The Department of Energy's (DOE) National Energy Technology Laboratory (NETL) manages the research and development portfolio of the Vehicle Technologies (VT) Program for the Office of Energy Efficiency and Renewable Energy. A key objective of the VT program is accelerating the development and production of electric drive vehicle systems in order to substantially reduce the United States' consumption of petroleum. Another of its goals is the development of production-ready batteries, power electronics, and electric machines that can be produced in volume economically so as to increase the use of electric drive vehicles.

Congress appropriated significant funding for the VT program in the American Recovery and Reinvestment Act of 2009, Public Law 111-5 (Recovery Act) in order to stimulate the economy and reduce unemployment in addition to furthering the existing objectives of the VT program. NETL is considering funding the proposed Next-Generation Lithium Ion (Li Ion) Battery Recycling Facility as one of 30 DOE selected for funding under the Recovery Act.

The objective of the proposed project is for Toxco Incorporated to establish domestic recycling capacity for large format advanced Li Ion batteries used in advanced electric drive vehicles, including plug-in hybrid electric vehicles and hybrid electric vehicles, by designing and building an advanced, innovative recycling facility to operate in conjunction with its existing hybrid and electric vehicle battery recycling facility in Ohio. Successful completion of this project would provide lithium battery quality cathode and anode material plus purified electrolyte solvents and raw materials to the battery original equipment manufacturers and ensure the proper environmental management of the end of life of the batteries.

The scope of the proposed project includes, following acquisition of all appropriate permits, a 50,000 square foot (4,600 square meters) building for the new Li Ion battery recycling plant on its property adjacent to its current lead acid, nickel metal hydride, and nickel cadmium battery recycling plant in Lancaster, Ohio (see attached maps).

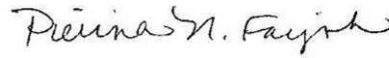
As part of our coordination and consultation responsibilities and to comply with the implementing provisions of Section 106 of the National Historic Preservation Act of 1966, we would appreciate receiving any information you have regarding historic or cultural properties in the project area.

Based on the scope of the proposed project, DOE plans to prepare an Environmental Assessment (EA), in accordance with requirements of the National Environmental Policy Act, to analyze, document, and disseminate information on the potential environmental consequences of the proposed project. Information that you provide will be incorporated and appropriately addressed in the EA. If your initial review concludes that no historic or cultural properties are present in the project area and that neither

historic nor cultural properties would be affected by the proposed action, a written acknowledgement of that conclusion would be appreciated. In any case, the information that you provide will be considered in preparing a draft EA, which will be provided to you for review upon availability.

Should you require additional information, please contact me by telephone at (412) 386-5428 or by email at pierina.fayish@netl.doe.gov.

Sincerely,



Pierina Fayish
NEPA Document Manager

Enclosures



April 7, 2010

Pierina N. Fayish
U. S. Department of Energy
National Energy Technology Laboratory
P. O. Box 10940
Mailstop B922/ M217
Pittsburgh, PA 15236

Dear Ms. Fayish:

RE: Lithium Ion Battery Recycling Facility, Lancaster, Fairfield County, Ohio

This is in response to correspondence, received on December 2, 2009, regarding this project. The comments of the Ohio Historic Preservation Office are submitted in accordance with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended.

Based on the information included in your submission, the area of potential effect (APE) does not appear to have a high probability for archaeological deposits. We are unable to determine whether any properties in the APE are eligible for the National Register of Historic Places. However, based on the limited information provided, we can conclude that the proposed project will not affect historic properties.

No further coordination with this office is necessary unless there is a change in the project. If new or additional historic properties are discovered during implementation of this project, or if the project changes, this office should be notified as required by 36 CFR Section 800.13.

Although we have responded to the limited documentation that you sent regarding this undertaking, this does not constitute proper consultation with this office, in accordance with the National Historic Preservation Act and the associated regulations at 36 CFR Part 800, particularly 36 CFR Section 800.11. In the future, we request that you provide us complete documentation of the undertaking, including findings of National Register eligibility and effect, as required by the National Historic Preservation Act and the regulations.

If you have any questions, please contact me at (614) 298-2000, or by email at nyoung@ohiohistory.org.

Sincerely,

A handwritten signature in black ink that reads "Nathan J. Young".

Nathan J. Young, Project Reviews Manager
Resource Protection and Review

OHIO HISTORICAL SOCIETY

Ohio Historic Preservation Office

1982 Velma Avenue, Columbus, Ohio 43211-2497 ph: 614.298.2000 fx: 614.298.2037
www.ohiohistory.org

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Appendix D Contact with the Bureau of Indian Affairs and Tribal Councils



NATIONAL ENERGY TECHNOLOGY LABORATORY
Albany, OR • Morgantown, WV • Pittsburgh, PA



November 19, 2009

Bureau of Indian Affairs, Eastern Regional Office
545 Marriott Drive, Suite 700
Nashville, TN 37214

Subject: Next-Generation Lithium Ion Battery Recycling Facility in Lancaster, Ohio

Dear Sir or Madam:

The Department of Energy's (DOE) National Energy Technology Laboratory (NETL) manages the research and development portfolio of the Vehicle Technologies (VT) Program for the Office of Energy Efficiency and Renewable Energy. A key objective of the VT program is accelerating the development and production of electric drive vehicle systems in order to substantially reduce the United States' consumption of petroleum. Another of its goals is the development of production-ready batteries, power electronics, and electric machines that can be produced in volume economically so as to increase the use of electric drive vehicles.

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The scope of the proposed project includes, following acquisition of all appropriate permits, a 50,000 square foot (4,600 square meters) building for the new Li Ion battery recycling plant on its property adjacent to its current lead acid, nickel metal hydride, and nickel cadmium battery recycling plant in Lancaster, Ohio (see attached maps).

As part of our coordination and consultation responsibilities and to comply with the implementing provisions of The American Indian Religious Freedom Act, 42 United States Code § 1996, we would appreciate receiving any information you have regarding Native American sacred locations, traditional resources, or traditional religious practices potentially affected by the proposed project.

Based on the scope of the proposed project, DOE plans to prepare an Environmental Assessment (EA), in accordance with requirements of the National Environmental Policy Act, to analyze, document, and disseminate information on the potential environmental consequences of the proposed project. Information that you provide will be incorporated and appropriately addressed in the EA. If your initial

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Should you require additional information, please contact me by telephone at (412) 386-5428 or by email at pierina.fayish@netl.doe.gov.

Sincerely,



Pierina Fayish
NEPA Document Manager

Enclosures



NATIONAL ENERGY TECHNOLOGY LABORATORY
Albany, OR · Morgantown, WV · Pittsburgh, PA



November 18, 2009

Mr. Charles D. Enyart, Chief
Eastern Shawnee Tribe of Oklahoma
P.O. Box 350
Seneca, MO 64865

Subject: Next-Generation Lithium Ion Battery Recycling Facility in Lancaster, Ohio

Dear Chief Enyart:

The Department of Energy's (DOE) National Energy Technology Laboratory (NETL) manages the research and development portfolio of the Vehicle Technologies (VT) Program for the Office of Energy Efficiency and Renewable Energy. A key objective of the VT program is accelerating the development and production of electric drive vehicle systems in order to substantially reduce the United States' consumption of petroleum. Another of its goals is the development of production-ready batteries, power electronics, and electric machines that can be produced in volume economically so as to increase the use of electric drive vehicles.

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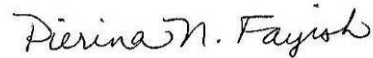
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Sincerely,



Pierina Fayish
NEPA Document Manager

Enclosures



NATIONAL ENERGY TECHNOLOGY LABORATORY
Albany, OR • Morgantown, WV • Pittsburgh, PA



November 18, 2009

Mr. Ron Sparkman, Chairperson
Shawnee Tribe
P.O. Box 189
Miami, OK 74355

Subject: Next-Generation Lithium Ion Battery Recycling Facility in Lancaster, Ohio

Dear Chairman Sparkman:

The Department of Energy's (DOE) National Energy Technology Laboratory (NETL) manages the research and development portfolio of the Vehicle Technologies (VT) Program for the Office of Energy Efficiency and Renewable Energy. A key objective of the VT program is accelerating the development and production of electric drive vehicle systems in order to substantially reduce the United States' consumption of petroleum. Another of its goals is the development of production-ready batteries, power electronics, and electric machines that can be produced in volume economically so as to increase the use of electric drive vehicles.

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Sincerely,



Pierina Fayish
NEPA Document Manager

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