



Northwest Pennsylvania Industrial Resource Center, Inc.

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To: Jan Kennerknecht, Curriculum Specialist
Erie County Technical School

From: Lance J. Hummer, Workforce Development Coordinator
Northwest PA Industrial Resource Center

A handwritten signature in cursive script that reads "Lance".

Date: June 10, 2005

Topic: Natural Resources and Environmental Sciences DACUM

Jan

Enclosed are two copies of the information that was developed at the first meeting that was held with content experts on the potential program for Natural Resources and Environmental Sciences.

What we need to do next is bring content experts together to work on competencies lists for the following seven subject areas.

- Geological Sciences
- Plant Sciences
- Animal Sciences
- Environmental Awareness
- Energy
- Waste Management
- Enforcement

I should be available the end of July or first of August. Please let me know what dates you are considering.

Erie County Technical School

DACUM

for

Natural Resources and Environmental Sciences

April 28, 2005

Facilitated by

Lance J. Hummer

Workforce Development Coordinator

Northwest Pennsylvania Industrial Resource Center

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What are some of the Careers that would be available in the Natural Resources and Environmental Sciences arena?

Landscape Architect
Golf Course Maintenance
Green Mountain Assistance
Landscape Maintenance
Landscape Contracting
Turf Field Maintenance
Pesticide Application
Organic Garden
Water Recycling
Water Management
Wildlife Conservation
Logging
Foresters
Forest Technician
Conservation Officer
Wildlife Biologist
Working with Invasive Plants
Environmental Research
Teach about the Environment
Out Reach Education
Engineering
Tree Care Salesman
Utility Tree Inspector
Safety Coordinator
Utility Forester
Green Building

- **Engineer**
- **Installer**
- **Construction**
- **Landscape Architect**

Sustainability

- **Energy Renewable**
- **Energy Solar**

Conservation Consultants
Truck Drivers
Environmental Consultant
Mining Minerals

- **Well Tenders**
- **Gas Drillers**
- **Drilling Management**
- **Heavy Equipment Operation**
- **Service Crews**

- Well Cleaner
- Geologist
- Watershed Clean Up
- Pipe Fitters
- Welders

Eco Tourism

Eco Recreation

Eco Marketing

Dairy Farming

Aqua Culture

Green House Business

- Nursery
- Hydroponics
- Propagator
- Field Forman Nurseries
- Marketing
- Soil Conservation
- Micro Biologist
- Environmental Lab Technician
- Agronomy

Chemical Area

Animal Husbandry

Integrated Pest Management

Wildlife Management

Erosion and Sediment Control

Environment Engineering

Forestry

- Timber Sales
- Sustainability
- Wild Life Preservation
- Arborist for City Forestry
- Urban Foresters
- Forest Certification

Land Surveyors

CAD, Drafting

Fish Biologist

Benthic Ecologist

Land Managers

Soil Biologist

Horticulturist

Wetland Declination

Food Processing

Green Industry

Environmental Consultant

- **Accounting**
- **Lawyer**

Geo Chemist

Environmental Chemist

Geologist

- **Coal**
- **Oil**
- **Gas**

Mining Engineer

Hydrogeologies

Reservoir Management

Gas Transportation

Specializing in Environmental Education

Utilization of Pulp Wood

Organic Fruit and Vegetable Growing

Recycling Buildings for Architectural Antiques

Equine Studies

Veterinary Assistant

Certified Crop Technician

PA Certified Horticulturist

PA Certified Nursery Associate

PA Certified Landscaper

GIS-GPS Technician

Botanist

Fisheries Biologist

Wineries

Food Production

Wildlife Conservation Officer

Fruit and Vegetable growers

Certified crop advisor

Certified Arborist – International

Agricultural Mechanics – Machine Operators

Career Clusters

Plant Science

- **Agronomy**
- **Dendrology**
- **Horticulture**
- **Silva Culture**
- **Commercial Food Production**
- **Botany**
- **Invasive Plant**

Animal Science

- **Fish Wildlife**
- **Aqua Culture**
- **Biologist**
- **Invasive Species**

Geological Sciences

- **Soil**
- **Water Hydrology**
- **Hydrogeology**
- **Geology**
- **Soil Science**
- **Environmental Education**
- **Waste Management**
- **Conservation**
- **Enforcement / Regulations / Legal**
- **Water Resources**
- **Environmental Trade Technology**
- **Energy**

Waste Management

- **Recycling**
- **Landfill Management**
- **Hazardous Waste**
- **Reclamation**
- **Gray Water**
- **Brown Fields**

Environmental Education

- **Conservation**
- **Communication**
- **Tourism**
- **Green Technology**
- **Business Management**
- **Environmental Trade Education**

Enforcement – Regulation – Legal

- **Environmental Law**
- **Regulatory Enforcement**
- **Best Management Practices**
- **Governmental Agencies**

Energy

- **Nuclear**
- **Bio Fuels**
- **Alternative Fuels**

Natural Resources and Environmental Sciences

Prioritized Sequential Order

For Subject Material to be Presented to Students

1. Geological Sciences

- Soil
- Water Hydrology
- Hydrogeology
- Geology

2. Plant Sciences

- Botany
- Agronomy
- Dendrology
- Horticulture
- Silva Culture
- Commercial Food Production
- Invasives

3. Animal Sciences

- Fish, Wildlife, Aquaculture
- Biology
- Zoology
- Equine, Domestic
- Animal Husbandry
- Entomology
- Invasives

4. Environmental Awareness

- Conservation
- Communication
- Marketing
- Tourism
- Green Technology
- Business Management

5. Energy

- **Bio Fuels**
- **Alternative Energy**

6. Waste Management

- **Recycling**
- **Gray Water**
- **Landfill Management**
- **Brown Fields**
- **Hazardous Waste**
- **Reclamation**

7. Enforcement – Regulations -Legal

Participants:

Dahlkemper, Charles L.
Retired Founder
Dahlkemper Landscape, Architect-Contractors
5240 Schrimper Road
Erie, PA 16510
50 years experience in current position

Erdman, Tom
Service Forester
DCNT Bureau of Forestry
12723 Rt. 19 Box, 801
Waterford, PA 16441
20 years experience in current position

Holowid, John R., CLT
Extension Educator – IPM Horticulture
Penn State Cooperative Extension
850 East Gore Road
Erie, PA 16509
3 years experience in current position

Lupo, Pat, OSB
Program Director
Lake Erie- Allegheny Earth Force
6270 East Lake Road
Erie, PA 16511
10 years experience in current position

McUmbler, Guy
Sustainability Coordinator
PA Department of Environmental Protection
230 Chestnut Street
Meadville, PA 16335
4 years experience in current position and 23 years with DEP

Salmon, Dr. Verel R.
Farm Owner/Operator and Supt of Record, ECTS
Salmon Farms
5515 Perkins Street
Erie PA 16509
58 years experience, lifelong, grew up on a farm

Senko, Regis F.

Information Education Supervisor, PA Game Commission

PA Game Commission NW Region Franklin, PA.

P.O. Box 31

Franklin, PA 16323

10 years experience in current position and 23 years with the agency

Smith, John O.

President

Hazlett Tree Service

P.O. Box 1

Townville, PA 16360

5 years experience in current position and 28 years with Hazlett

Waltz, Michael, D.

Sr. Project Manager

Environmental Remediation and Recovery INC.

5719 Route GN

Edinboro, PA 16412

19 years experience in current position