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Calumet Eco-Industrial Network Survey Project

Partnership Opportunities for Reusing Materials, Water, and Energy

Stacey Thomas
Kristen Groce

Southeast Chicago
Development Commission

RR-102
April 2003
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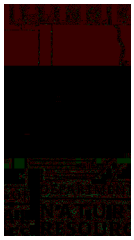

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www.wmrc.uiuc.edu

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Executive Summary

The Calumet Eco-Industrial Network Survey Project was conducted to collect baseline inform

aterial re-use, waste reduction, and energy efficiency within networks of companies. Information gathered from this survey project could be a first step in creating an Eco-Industrial Network (EIN) between local companies in the Calumet region.

The survey focused on byproducts—items that are waste to one company but could be used by another. By partnering to exchange byproducts, businesses in the Calumet area could accomplish two important goals: first, they could lower waste disposal costs and become more competitive; second, they could reduce their impact on the natural environment. Lowering business costs and protecting the environment would help ensure the longevity of local businesses, which would in turn provide much needed jobs and a pleasant living environment for local residents in the Calumet area.

The Calumet survey project was largely inspired by a survey done by the Triangle J Council of Governments in North Carolina. There were 182 surveys completed in the Triangle J project and 44 surveys completed in the Calumet project. The Calumet survey collected information on what items local companies use and which of those are recycled or reused. Several exchange possibilities were identified but it was not in the scope of this project to pursue those possibilities. The survey also collected information on companies' water and energy use. Additionally, the survey collected information on companies' awareness of the Industrial Materials Exchange Service (IMES), a statewide program headed by the Illinois Environmental Protection Agency. Local companies generally expressed an interest in IMES, as well as the idea of a local network similar to IMES.

This byproduct survey was only the first step toward an EIN in the Calumet region. The Triangle J report outlines five elements for creating a local infrastructure: a website, warehouse space, a taxi service, a facilitator, and funding. SCDCom hopes to continue working toward developing an EIN by implementing a website and by conducting focus groups so that companies can discuss exchange possibilities amongst themselves.

Survey Report

Introduction and Background

Eco-Industrial Development has been endorsed by the President's Council on Sustainable Development, the Department of Energy's Center of Excellence for Sustainable Development, and the Environmental Protection Agency as a promising strategy for the next century. Based on the concepts of industrial ecology, flexible manufacturing, and business clustering, Eco-Industrial principles encourage companies to share resources and locate in close proximity to one another in order to reduce waste and increase profitability. Companies can realize these benefits without needing to be in physical proximity to each other. The Calumet Eco-Industrial Development project could be a first step in creating an Eco-Industrial Park (EIP) or a network of companies in the Calumet region. The region covered in this survey is bounded by 130th Street to the north, Western Avenue to the west, just past the Chicago border to the south, and to Lake Michigan and the Indiana border to the east (see Appendix A-1).

In 1993, the City of Chicago Department of Planning and Development (DPD), in conjunction with numerous governmental and civic organizations, began work on C*ityScape: An Open Space Plan for Chicago*. This plan recognizes that, "The Lake Calumet district holds unique opportunities for the preservation and restoration of wetlands and natural areas and an expansion and improvement of Chicago's industrial base." In addition, in 1993, DPD designated the Calumet Corridor as one of 26 "model industrial corridors" throughout the City.

The Calumet area suffers from disinvestment, with an abundance of vacant lots and problems with crime. The image of the Calumet area discourages business investment. Environmental contamination and inadequate infrastructure cause hazards, business problems, and eyesores in key areas in the corridor. The lack of drainage has caused flooding severe enough to curtail business operations. Also present are remnants of illegal dumps and pre-regulation industrial landfills,

In 1998, DPD in collaboration with SCDCom and the Open lands Project (OLP) received a Sustainable Development grant. The goal was to develop the Lake Calumet Industrial Corridor as a modern industrial park that integrates the area's significant ecological character and natural assets to its economic and physical development strategy. DPD is also establishing a tax increment financing district (TIF) in the Lake Calumet region which, when implemented, will be the largest TIF in Chicago.

In order to keep up the momentum of industrial planning that the City of Chicago and SCDCom have been working on together for nearly a decade, SCDCom would like to introduce the concept of a virtual EIN to the Calumet region. Helping companies to reduce their waste stream by working together will increase their profitability and benefit the environment. Thriving companies

Resources and Acknowledgements

The idea for how to implement the Calumet survey project was largely inspired by a survey done by the Triangle J Council of Governments in North Carolina. Judy Kincaid, Solid Waste/Materials Resources Program Manager for the project, was encouraging in the development of the Calumet survey project. Diane McClain from the Industrial Material Exchange Service (IMES), co-sponsored by Illinois Environmental Protection Agency and Illinois State Chamber of Commerce, and Otis Omenazu from City of Chicago-Department of Environment provided informational assistance. Jorge Perez and Michael Sapienza from Calumet Area Industrial Commission (CAIC) provided business information and professional advice on administering the survey. George Krumins from Waste Management and Research Center created maps for the project.

On a conceptual level, a Cornell University report entitled *Eco-Industrial Development: A Strategy for Building Sustainable Communities* (Schlarb) was helpful in defining the concept of eco-industrial development and eco-industrial networks. Information on an eco-industrial model in Kalundborg, Denmark and a study by the Cornell University Work and Environment Initiative on the Fairfield Ecological Industrial Park in Baltimore, Maryland were also helpful. Larisa Salamacha, Development Director for the City of Baltimore Development Corporation, explained in a telephone interview that the Eco-Industrial Park (EIP) concept did not work there. The EIN concept is broader than an EIP, however, and one setback does not discredit the principles behind Eco-Industrial Development.

Survey Purpose and Objectives

As mentioned in the Triangle J Council of Governments project report (Kincaid, 1999), the purpose of that survey was to "encourage local partnerships that provided an alternative to…disposal in a landfill, disposal in wastewater, disposal by a hazardous materials handler, or recycling or reuse involving more distant transportation." The goal was not to focus on source reduction or on items that are commonly recycled, such as cardboard, glass and aluminum;

Survey Design

The Calumet area survey was modeled closely after the Triangle J survey, which was conducted from June 1997 through May 1999. The Triangle J survey provided valuable information on several levels: as a guide to model the Calumet survey after; as a benchmark to measure the Calumet survey against; and as a resource for ideas on how to proceed after completion of the Calumet survey. The Calumet survey was conducted in much the same way as the Triangle J survey, except that the Triangle J survey was done on a larger scale. There were 182 surveys completed in the Triangle J project, while there were 44 surveys completed in the Calumet project.

In the Triangle J survey, a list of potential survey participants was first compiled using several sources. A list of potential survey participants for the Calumet survey was compiled from the *Harris Industrial Directory* for Illinois and from a membership list of the Calumet Area Industrial Commission (CAIC). Also in the Triangle J survey, a professional advisory panel reviewed the survey format and made suggestions. The Calumet survey did not have an advisory panel, but some industrial and environmental professionals made suggestions about the survey prior to it being sent out. Both the Triangle J survey and the Calumet survey contacted potential participants by phone. The Triangle J project asked established members of the community to make the phone calls in order to project a higher level of professionalism for the project. Both of the callers for the Calumet survey had environmental backgrounds but not industrial backgrounds. The fact that the callers in the Calumet survey were not known in the industrial community may have had an adverse affect on the survey's participation level. Callers in the Triangle J survey estimated that it took one-and-a-half hours on the phone for every one business that agreed to participate in the survey. They also estimated that for every business that agreed to participate it took another one-and-a-half hours on the phone after the survey had been sent out to set up an interview. Therefore, for every survey completed, an estimated three hours was spent on the phone. Although time spent making calls for the Calumet survey was not precisely recorded, this estimate seems reasonably close. Using the Triangle J estimate, approximately 132 hours were spent making phone calls for the Calumet survey. Based on the number of companies called, it is estimated that around 1500 total calls were made for the Calumet survey. The Triangle J survey conducted in-plant interviews. Interviewers received a three-hour training session before going out on interviews. They reported that plant tours helped to identify more exchange possibilities that interviewees might otherwise not have mentioned. Plant tours were also found to be useful in the Calumet surveys. The Triangle J survey entered interview information into the database. Project team members estimated it took about 30 minutes to enter the information into the database. Entering data for the Calumet survey took longer, perhaps because with fewer surveys the system was less streamlined. The Triangle J survey used data that was mapped using GIS software. GIS mapping was not feasible in the Calumet survey due to the fact that there was only one facilitator working within a shorter time limit. Finally in the Triangle J survey, information was compiled on possible survey matches. The information was available only to project members who then contacted survey participants with possible matches. Possible or probable matches were found for 36 materials. At the same time, groups of representatives from facilities in close proximity to each other were brought together to discuss byproduct exchange possibili

types of byproducts. Discussions between industry representatives were out of the scope of the Calumet survey.

Survey Participants

Contacting Potential Survey Participants

Initial contact for this survey was made by phone. Attempts were made to contact a total of 304 businesses. Of the 304 businesses, 219 were able to be reached. Of the 219 businesses that were reached, 162 (54 percent) declined to participate in the survey. Thirty-eight businesses (14 percent) ultimately participated in the survey. Another six businesses gave information over the phone, for a combined total of forty-four businesses.

Company Response to Survey

	#	%
Unable to be reached	98	32
Participated in survey	44	14
Declined to participate	162	54

There were 98 businesses (32 percent) that were unable to be reached. After double-checking, ten of those businesses had wrong numbers and five had numbers that were not available. Another eleven businesses had numbers that were disconnected, suggesting that they had gone out of business. One business was not contacted because it was known to have gone out of business during the course of the survey.

Non-participants

There were various reasons given by businesses that declined to participate in the survey. Thirty-eight businesses did not give a reason why they declined to participate in the survey. The second most common reason, given by 22 businesses, was that there was no actual production at their facility. Most of these businesses were either distribution facilities or wholesalers. The third most common reason, given by 17 businesses, was simply that they were not interested. Sixteen businesses said that they already recycled their most common byproduct—metal. Sixteen businesses also claimed they had no byproducts. Fourteen businesses said that they already reused or recycled at least some of their byproducts. Nine businesses said that they were either closing or in some sort of transition. Eight businesses said that they did not have any reusable byproducts. Five businesses said that they were too busy or that they did not have time to participate in the survey. Four businesses declined because they are recyclers, although at least one of these businesses would be interested in referrals from the survey. Three businesses declined because they are part of a larger corporation. Two businesses did not think a byproduct network would work in the Calumet region. It may be of interest to note that one of these is a recycler. One business stated that they are happy with their current procedures; another did not feel that they

have enough byproduct to recycle or to be part of a byproduct network; and finally, one did not have an English speaking person with whom to discuss the survey.

Reasons for Declining Survey		
	#	%
Reason not given	38	23
Distribution/transfer facility	22	14
Not interested	17	10
Already recycle scrap metal	16	10
No byproducts	16	10
Already recycle/reuse	14	9
Company closing/in transition	9	6
No reusable byproducts	8	5
Don't think survey applied	5	3
No time/too busy	5	3
Recycler/metal processor	4	2
Corporate	3	2
Don't think project will work	2	1
Other	3	2

Of the 16 businesses that already recycle or reuse their byproducts, they named a variety of products. Three businesses stated that they reuse wood products. Two of these are construction companies that save wood from project to project. The third is a lumberyard that grinds its scrap wood into sawdust and sells it as horse bedding. A machining company recycles its waste oil and scrap metal. A roofing business recycles its asphalt and fiberglass roofing material. A tee-shirt business reuses defective shirts as cleaning rags. A uniform business recycles scrap wool, which gets turned into roof tar. A framing business donates scrap matting to a school. A printing business turns scrap paper into notepads for its customers. A cement business remixes dust and other leftover products back into its cement. A (water-based) chemical company recovers 90 percent of its waste and remixes it back into its products. An oil processor recycles its waste oil, which gets turned into lubricant. Finally, a container company sends its cardboard to a paper mill to be recycled.

Participants

The 44 companies who agreed to participate in the survey or a phone interview are spread throughout an eight zip-code area in the southeast Chicagoland region (see Appendix A-1).

Companies by Zip Code		
	#	%
60409/Calumet City	1	2
60617/Chicago	12	26
60619/Chicago	8	18
60620/Chicago	5	11
60628/Chicago	7	16
60633/Chicago, Burnham	7	16
60643/Chicago, Calumet Park	4	9
60827/Riverdale	1	2

These companies represent a variety of industries. Using the Standard Industrial Code (SIC) classification system, they fall into 16 general categories: chemicals and allied products; food and kindred products; primary metal industry; machinery, except electrical; lumber and wood products, except furniture; furniture and fixtures; printing, publishing and allied industry; petroleum refining and related industry; business services; social services; paper and allied products; clay, glass and concrete products; fabricated metal products, except machinery and transport equipment; electrical and electronic machinery, equipment and supplies; transportation equipment; and wholesale trade-durable goods. There were five companies whose SIC codes could not be identified.

Companies by Sic Code		
	#	%
2000/Food	7	16
2400/Lumber	2	5
2500/Furniture	2	5
2600/Paper	1	2
2700/Printing	1	2
2800/Chemicals	8	18
2900/Petroleum	2	5
3200/Clay, glass, concrete	1	2
3300/Primary metals	4	9
3400/Fabricated metal	1	2
3500/Machinery	3	7
3600/Electrical	1	2
3700/Transportation	1	2
5000/Wholesale trade	1	2
7300/Business services	2	5
8300/Social services	2	5
Unknown	5	11

The surveyed companies also vary in size and corporate affiliation. Of the 40 companies with available employee information, they range from three to 550 employees, for a total of 3,556 employees. The average number of employees for these 40 companies is 89. Specifically, 20

companies have 39 employees or less; 9 companies have between 40 and 99 employees; and 11 companies have more than 100 employees. Of the 40 companies with available corporate information, 16 companies have corporate affiliations and 24 do not. Four companies did not provide employee or corporate information. Size and corporate affiliation did appear to affect survey participation and responses. In general, larger companies seem to have less trouble finding recyclers or other takers for their byproducts because their byproducts were typically in larger quantities. Three companies declined to participate in the survey because of corporate affiliations. Many companies with corporate affiliations that did participate in the survey stated that they have limited control over their input and output materials because of corporate policies.

Company Size

	#	%
39 or fewer employees	20	46
40-99 employees	9	20
100 or more employees	11	25
Information not given	4	9

Corporate Affiliation

	#	%
Have corporate affiliation	16	36
No corporate affiliation	24	55
Information not given	4	9

Material Use

The survey tracked three major items: water, energy and material use. Response on material use was by far the most prevalent. All materials were separated into fourteen general categories: oil, chemicals, paint, acids/bases, scrap metal (ferrous), scrap metal (non-ferrous), wood, storage (steel drums, wood pallets, cardboard, plastic storage), clay/carbon, plastic/synthetics, food, paper, fabric, special waste, and other. Companies were asked to list their material inputs and outputs (byproducts) so they could be checked against other companies for possible matches.

Material Inputs and Outputs (Byproducts)

	Input	Output*
Oil	18	12
Chemicals	19	9
Paint	6	2
Acids/b o234171fBT12		

Continued…	Input	Output
Cardboard	0	20
Plastic Storage	0	10
Clay/Carbon	6	4
Plastic/Synthetic	5	4
Food	4	4
Paper	2	7
Fabric	2	2
Special Waste	0	7
Other	0	1

* Number of companies that mentioned each item as an input or a byproduct

Companies were also asked if they recycle or reuse any of their byproducts and if they could get any of their input materials used. For the purpose of this survey, "recycling" means sending products to a recycler; "reusing" means using the product in-house. There was little response from companies on whether they could get used input materials. When companies listed items that they do not recycle or reuse, they were asked if they knew of any possible ways they could be recycled or reused (Table 5).

Material Byproduct Use

	Total	Recycle	Reuse*
Oil	12	12	0
Chemicals	9	2	3
Paint	2	2	2
Acid/Base	0	0	0
Scrap (ferrous)	11	10	0
Scrap (non-ferrous)	10	6	0
Wood	5	3	0
Steel Drums	13	9	0
Wood Pallets	18	9	5
Cardboard	20	12	0
Plastic Storage	10	1	1
Clay/Carbon	4	3	0
Plastic/Synthetic	4	3	0
Food	4	3	1
Paper	7	3	0
Fabric	2	2	0
Special Waste	7	0	0
Other	1	1	0

* Uses may not equal total

Twelve companies listed oil as a byproduct. All twelve of those companies send their oil to a recycler. Partnering to reuse oil was discussed with several companies; however, it was not feasible because all the waste oil was dirty. Dirty oil could be burned as fuel but none of the surveyed companies do this because it requires a special kind of burner, which is expensive, and because it requires special permitting. One company was interested in combining its waste oil with other companies to cut disposal costs, which may be a possibility for them. Six companies listed nine types of chemicals as a byproduct. Three of the chemicals are reused, two are recycled and four are specially disposed of. One company has unused laboratory chemicals, which could possibly be sent to a school science department. One company listed paint and paint dust as byproducts. They recycle or reuse them as appropriate. No companies listed acids or bases as byproducts.

Eleven companies listed ferrous (iron, steel) scrap as a byproduct. Ten of those companies send their ferrous scrap to a recycler. One company has brackets, which it does not recycle because it does not have large quantities, even though it could be recycled. Ten companies listed non-ferrous scrap as a byproduct. Six of those companies send their non-ferrous scrap to a recycler. Three companies do not recycle their non-ferrous scrap. One company has tin cans, one company has aluminum chip wrappers and aluminum cans, and one company has motor parts, all of which could be sent to a recycler. Also, there was an al

companies listed food as a byproduct. One company sends its meat scraps to a recycler and two companies send their food byproducts to farmers for slop. One company reuses its food byproduct. Seven companies listed paper as a byproduct. Three companies recycle their paper and four companies do not. Paper could also be sent to a warehouse for storage and then to a recycler once enough is collected. One company listed two kinds of fabric as byproducts—scrap fabric and polyester batting, which are donated and made into bags and pillows. Seven companies listed special waste: scale solids, wastewater, dust collector ash, acrylic filters, wastewater with glue, and blast slag. All of these items are specially disposed of except for blast slag, for which the disposal method was not given. One company listed light bulbs (other) as a byproduct, which they recycle.

Surveyed companies indicated concerns about recycling and reuse. The most common concern was simply that recycling or reuse is not profitable for many companies. The second most common concern was that companies cannot find a recycler or other company to take their byproducts. Less common concerns were: that there is a lack of storage space, that the company wants one recycler for all of its byproducts, that there is a lack of equipment, that it takes too much

2003. SCDCom plans to invite survey participants to attend the workshop and, if applicable, have assessments done of their facilities. The goal is to attain ten participants for the P2 assessments and fifty participants for the workshop. Given the rate of participation

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Map 1: Locations of Participating Companies

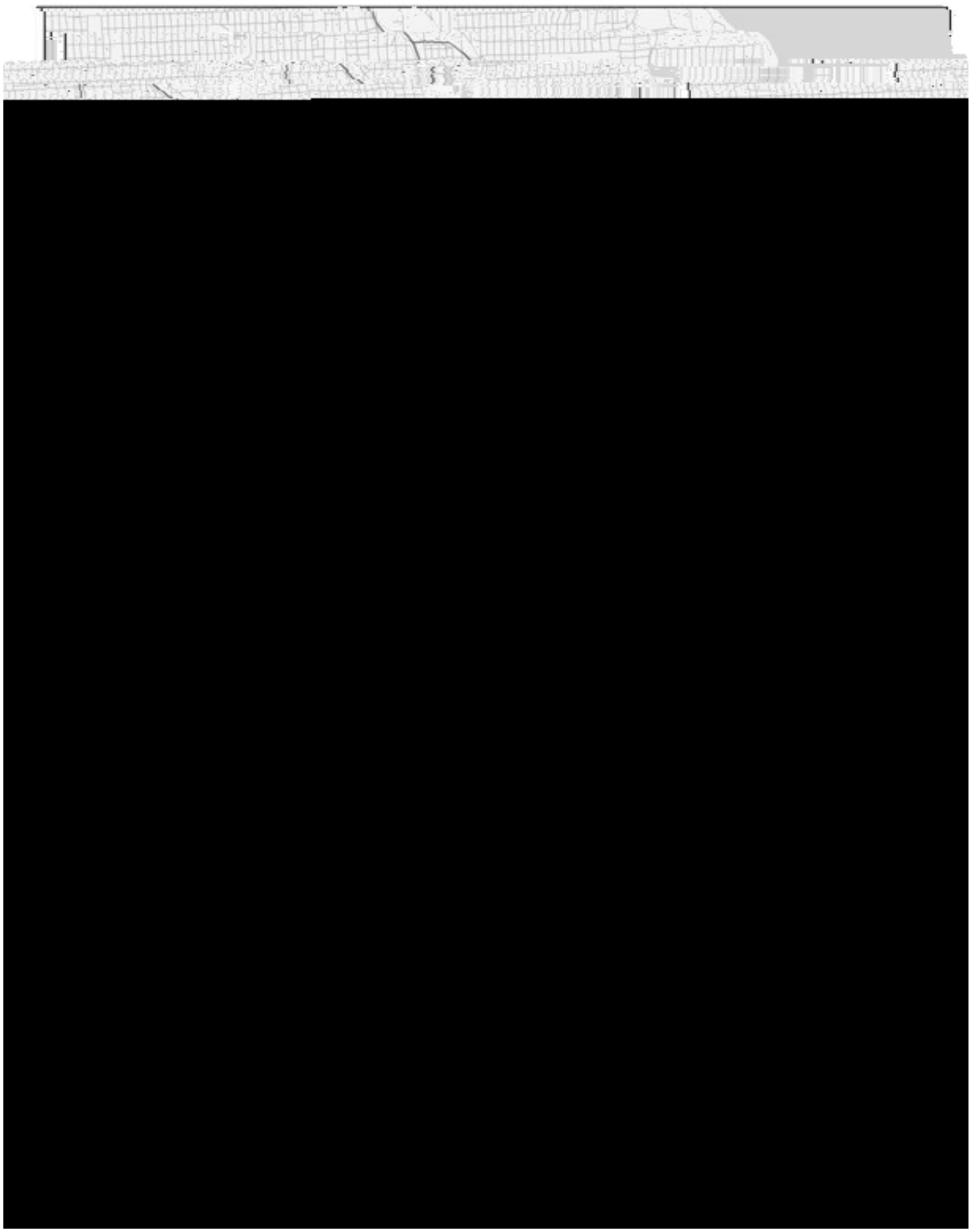

Table 1: Material Inputs by Company

Company ID Number	Inputs	Category

Table 1 Continued…

Company ID Number	**Inputs**	**Category**

Table 1 Continued…

Company ID Number	Inputs	Category

Table 2: Material Byproducts by Sic Code		
Sic Code	**Item**	**Category**
2000 food & kindred products		
2013 sausage producer	cans	scrap (non-ferrous)
	cardboard	storage (CB)
	meat byproducts	food
2021 butter producer	cardboard	storage (CB)
	old pallets	storage (WP)
2051 bakery	leftover pieces of cake, crumbs (topping)	food
	cardboard	storage (CB)
2061 syrup, molasses manufacturer	plastic drums (odd size)	storage (PL)
2077 acid oils & animal fats renderer	steel drums	storage (SD)
	wood pallets	storage (WP)
2096 potato chip factory	potato mash	food
	cardboard	storage (CB)
	office paper	paper
	old wood pallets	storage (WP)
	aluminum chip wrappers	scrap (non-ferrous)
	aluminum cans	scrap (non-ferrous)
	used oil	oil
2099 ice cream cone manufacturer	wood pallets	storage (WP)
	cardboard	storage (CB)
	ice cream cone scraps	food
	diatomaceous earth	clay/carbon
	office paper	paper
	drums	storage (SD)
2400 lumber & wood products		
2421 lumber & saw mill	wood scrap (firewood)	wood
	sawdust	wood
	steel scrap from wood bundles	scrap (ferrous)
2434 wood kitchen cabinet maker	wood scrap and sawdust	wood
2500 furniture & fixtures		
2512 furniture upholsterer	polyester batting	fabric
	old fabric	fabric
	old foam	plastic/synthetic
	cardboard rolls	storage (CB)
2515 mattress & bedspring manufacturer	none listed	none
2600 paper & allied products		
2653 corrugated box manufacturer	none listed	none
Sic Code	**Item**	**Category**
2700 printing, publishing		
2711 printer	office paper	paper
	old newsprint	paper

Table 2 Continued…

2800 chemicals & allied products		
2819 industrial chemical & sulfuric acid manufacturer	none listed	none
2819 desulfurizer, dephosphorizer & insulating slag manufacturer	waste oil	oil
	plastic packaging	storage (PL)
2819 steel mill & foundry producer	broken pallets	storage (WP)
	waste oil	oil
	steel drums	storage (SD)
	ash from dust collector	special waste
2821 resin & adhesive manufacturer	caustic wash	chemical
	cleaning tank resin	chemical
	sample materials	chemical
	filters for acrylic	special waste
	off-specification materials	chemical
	cardboard	storage (CB)
	office paper	pape

Table 2 Continued…		
Sic Code	**Item**	**Category**
3200 clay, glass & concrete		
3273 ready mixed concrete manufacturer	oil	oil
	cement slurry	clay/carbon
3300 primary metals		
3312 structural steel tubing & pipe manufacturer	steel scrap	scrap (ferrous)
	scale solids	special waste
	steel drums	storage (SD)
	waste oil	oil
	wood pallets	storage (WP)
3341 stainless steel scrap processor	wood pallets	storage (WP)
	cardboard	storage (CB)
3369 nonferrous sand casting & machine work	silica sand	clay/carbon
	aluminum, bronze, brass	scrap (non-ferrous)
	solvent	chemical
3398 metal heat treater	steel drums	storage (SD)
	metal shot	scrap (ferrous)
	cardboard boxes	storage (CB)
	wood skids	storage (WP)
3400 fabricated metal products		
3441 hydraulic cylinders & RR housing manufacturer; steel fabricating & stamping	waste oil	oil
	scrap metal	scrap (ferrous)
	wood blocks	wood
	empty paint drums	scrap (non-ferrous)
	cardboard	storage (CB)
3500 machinery, except electrical		
3545 machine vice and rotary table producer	steel castings	scrap (ferrous)
	wood skids/crates	storage (WP)
	cardboard	storage (CB)
3555 precisioned machine parts manufacturer	scrap metal	scrap (ferrous)
	wood pallets	storage (WP)
	waste coolant	chemical
	waste oil	oil
3589 floor buffer assembler	aluminum scrap	scrap (non-ferrous)
	bad motors	scrap (non-ferrous)
3600 electrical & electrical machinery		
3629 metal stamping & assembler	steel scrap	scrap (ferrous)
	office paper	paper
	wood pallets	storage (WP)
	cardboard drums	storage (CB)
	plastic bags	storage (PL)

Table 2 Continued…

Sic Code	Item	Category
3700 transportation equipment		
3714 accoustic parts producer	aluminum panels	scrap (non-ferrous)
	EVA rubber	plastic/synthetic
	PVC plastic	plastic/synthetic
	polyurethane foam	plastic/synthetic
	waste water mixed w/glue	special waste
	returnable dunnage (plastic crates)	storage (PL)
	metal scrap brackets	scrap (ferrous)
	cardboard	storage (CB)
5000 wholesale trade-durable goods		
5051 steel service center: sheet steel processing & slitting	scrap metal	scrap (ferrous)
	oil	oil
7300 business services		
7389 contract packager	steel drums	storage (SD)
	wood pallets	storage (WP)
	plastic	storage (PL)
	cardboard	storage (CB)
	waste water	special waste
7389 contract packager	corrugated cardboard	storage (CB)
	waste solvents	chemical
	steel drums	storage (SD)
	plastic tubes	storage (PL)
8300 social services		
8331 job trainer & vocational rehabilitation services	cardboard	storage (CB)
	steel drums	storage (SD)
	plastic shrink wrap	storage (PL)
8331 job trainer & vocational rehabilitation services	none listed	none
unknown		
pre-fabricated housing manufacturer	light bulbs	other
	metal machine parts	scrap (non-ferrous)
	scrap lumber	wood
brickyard	brick bats	clay/carbon
slag & cement processor	corrugated cardboard	storage (CB)
	scrap metal	scrap (ferrous)
	blast slag	special waste
barge towing service	waste oil	oil
package printer		

	Table 3: Material Byproducts by Company					
Company	**Byproducts**	**Category**	**Recycling?**	**Reusing?**	**Buy used?**	**Special disposal?**

Table 3 Continued…

Company	Byproducts	Category	Recycling?	Reusing?	Buy Used?	Special disposal?

Table 3 Continued…

Company	Byproducts	Category	Recycling?	Reusing?	Buy Used?	Special disposal?

Table 4: Byproduct Recycling/Reuse by Category					
Material	**Total by-products listed***	**Recycle**	**Reuse**	**Buy Used**	**Special Disposal**

Item	Category	Possibilities
unused laboratory chemicals (chloroform)	chemicals	school science department
metal brackets	scrap (ferrous)	recycler
tin paint cans	scrap (non-ferrous)	foundry
		recycler
aluminum chip wrappers and cans	scrap (non-ferrous)	foundry
		recycler
bad motor parts	scrap (non-ferrous)	foundry
		recycler
scrap wood	wood	woodworking studio
sawdust	wood	horse bedding
steel drums	storage	stainless steel scrap processor
		recycler
wood pallets	storage	stainless steel scrap processor
		recycler
cardboard	storage	recycler
plastic storage	storage	recycler
brickbats	clay, carbon	roadfill
silica sand	clay, carbon	roadfill
foam	plastic/synthetic	recycler
paper	paper	recycler

Company: _____
Date of interview: _____Length: _____ Tour? Y or N
Names & titles of company people at interview:
1.
2.
3.

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Interview Reporting Form

Question 1: (Look to see if they use water in their processes) Do you reuse/conserve water at your facility?

Question 2: (If they treat their water onsite) Do you have the ability to do any more onsite water treatment than you do now?

Question 3: Could you use water from a nearby facility?

Question 4: How much water could you use?

Question 5: What water quality requirements would you have? (Dirty or clean?)

Question 6: Can you identify any barriers in using the recycled water input? (Be specific regarding what items these barriers relate to.) If not, explain why.

Question 7: What is the monetary value, or what is the most you would pay, including added benefits (Ex. If you require heated water and it comes to you already hot)?

Question 8: Are you aware of other facilities around you that might be reusing water, either from another plant or within their own facility? If yes, what was the result?

Question 9: What types of waste do you have?

Question 10: Are there any additional items that you have turned into reusable? What was the result? If no would you be interested in learning more?

Question 11: What by-products at your facility do you think have the greatest potential for reuse?

Question 12: When looking at ways to reuse your by-products, what barriers were found? (Be specific regarding what by-products these barriers relate to.)

Question 13: Does the facility reuse/ conserve any source of energy?

Question 14: What is the biggest barrier to reusing/conserving energy?

Question 15: As far as you know, do any of your neighboring businesses reuse any energy sources?

Question 16: Are you currently exchanging? If yes, what was the result?

Question 17: Have you ever tried IMES? If not, why?

Question 18: Would you be interested in a local exchange network similar to IMES?

Question 19:

Question 20: Are you involved in any other local transfers of excess materials, water, or energy?

Question 21: Do you have any other ideas for potential partnerships?

Question 22: What barriers are there for you to making waste/excess materials available to others?

Question 23: How might this project benefit your facility?

Question 24: Do you have any other suggestions of resources we should use?

Analyze Questions

From the examples that they provide from other companies, do any of them reuse any of the items that come though their plant?

What is the interviewer's assessment of the level of experience with reuse at the facility?
___None
___No experience, but interested
___A few examples
___Some large examples (as % of inputs or outputs)
___Extensive consideration already, few options remain.

Did they list any materials? Inputs/outputs

Other concerns?


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