New York City Materials Exchange Roundtable

November 14, 1997

A Final Report

Conducted by
The Cornell Waste Management Institute

Sponsored by
The U.S. Environmental Protection Agency Region 2
On behalf of The New York City
Department of Sanitation

January, 1998

CORNELL WASTE MANAGEMENT INSTITUTE

CWMI, Center for the Environment 100 Rice Hall Cornell University Ithaca, NY 14853-5601 (607) 255-1187
email: cwmi@cornell.edu internet: www.cfe.cornell.edu/wmi/

New York City Materials Exchange Roundtable
November 14, 1997
A Final Report

Conducted by The Cornell Waste Management Institute
Sponsored by The U.S. Environmental Protection Agency Region 2
On behalf of The New York City Department of Sanitation

ACKNOWLEDGEMENTS

The success of this New York City Materials Exchange Roundtable was largely due to the enthusiastic participation of the attendees who shared their knowledge and ideas. Those who came from as far as California or as near as the adjacent office in Cornell Cooperative Extension all provided perspectives that will be useful in maximizing the impact of the NYC Wa$teMatch program.

The commitment of the New York City Department of Sanitation to waste reduction and in particular the efforts of Dave Kleckner and Patty Tobin in the Bureau of Waste Prevention, Reuse and Recycling, were key to the development and implementation of this Roundtable. Ivan Braun of ITAC also provided important input. Without the assistance of EPA, Region II and the enthusiastic support of John Filippelli, the Roundtable would not have been possible.

Finally, the assistance of the staff of Cornell Cooperative Extension-NYC Programs, particularly Sol Agosto, in providing an atmosphere conducive to productive interaction and the logistical support of Karen Rollo (and Peter Borst behind the scenes in Ithaca) is much appreciated.

Many thanks to all involved – Ellen Harrison, Director

The Cornell Waste Management Institute (CWMI) was established in 1987. CWMI addresses the environmental and social issues associated with waste management by focusing University resources and capabilities on this pressing economic, environmental, and political issue. Through research, outreach, and teaching activities, CWMI staff and affiliated researchers and educators work to develop technical solutions to waste management problems and to address broader issues of waste generation and composition, waste reduction, risk management, environmental equity, and public decision-making. The focus for such work is on multi-disciplinary projects that integrate research and outreach. Working in collaboration with Cornell faculty and students from many departments and with cooperators in both the public and private sectors, issues ranging from management of sewage sludges to enviroshopping are the focus of on-going programs.

CONTENTS

Appendixes

BACKGROUND

A Plan to Phase Out The Fresh Kills Landfill was issued by the Task Force established by New York State Governor George Pataki and New York City Mayor Rudolph Giuliani during November of 1996. Central to this plan are strategies intended to maximize the amount of New York City waste that is prevented and recycled, in order to minimize the need to export waste when the Fresh Kills Landfill on Staten Island closes at the end of 2001.

The Fresh Kills Landfill has long been an inexpensive solid waste disposal option for the City. However, the City's reliance on this landfill is being dramatically reduced over the next five years. Concurrently, New York City is increasing its reliance on waste reduction initiatives, recycling, composting, and out-of-City disposal.

The U.S. Environmental Protection Agency (EPA) participated in the Task Force established by the Governor and Mayor. In the Task Force Plan, EPA offered to fund roundtable meetings with the City to address waste reduction issues. The Task Force recommended and the City agreed that the roundtable meetings would include representatives of various City, State, local, and private organizations who have studied or implemented waste reduction strategies, and who could share information and experiences at these meetings.

The New York City Department of Sanitation (DOS), Bureau of Waste Prevention, Reuse and Recycling (BWPRR) proposed to EPA Region 2 that a roundtable be convened to provide a forum for materials exchange program sponsors from throughout the nation, including New York City program operators and interested parties. The purpose was to discuss issues critical to the success of materials exchange operations, that were also being tackled by the new NY Wa$teMatch Program launched by DOS in April of 1997. NY Wa$teMatch is a materials exchange service that facilitates transactions between participating firms, and does not provide material storage services.

DOS provided EPA Region 2 with a proposal setting forth the respective roles of the two agencies. EPA agreed to this arrangement, and subsequently provided funding for the Cornell Waste Management Institute (CWMI) to provide the needed services. These included providing input regarding the agenda and selection of invited participants, sending out invitations and following up as necessary to recruit participants, providing meeting space and refreshments, moderating the session, writing this summary report, and related services. CWMI and DOS worked closely in developing the agenda and selecting participants.

The Roundtable provided all participants with a networking and learning experience to assist program development, refine and improve materials exchange programs, and maximize program effectiveness. Experts from throughout the country participated in the session, as well as representatives of local organizations that do not currently provide matchmaking services. These included New York State agency and local development corporation representatives. They were invited in recognition of their role as potential

service providers and promoters of NY Wa$teMatch (described below). The meeting also provided them with an opportunity to determine whether and how they may want to tap into or promote the program, use the database, or even establish satellite programs to augment the Wa$teMatch service.

DOS also directed CWMI to invite observers to attend the session. These invited guests included representatives of the Citywide Recycling Advisory Board, Solid Waste Advisory Boards from each Borough of the City, the Chair of the City Council's Environmental Committee, the Mayor's Office of Operations, the Mayor's Office of Construction, and the NYC Department of Business Services.

The Roundtable was an all day session, convened on November 14, 1997. The meeting space was provided by the Cornell Cooperative Extension, New York City Programs.

NY WA$TEMATCH

NY Wa$teMatch was launched during the spring of 1997 by the NYC Department of Sanitation, in partnership with the City University of New York (CUNY). DOS designed, funds, assists, and oversees implementation of NY Wa$teMatch. Matchmaking services are provided through contracts managed by CUNY with the Industrial Technology Assistance Corporation (ITAC), and Long Island City Business Development Corporation (LICBDC). CUNY is also responsible for developing the computer system/database for the program.

NY Wa$teMatch is designed to help businesses save money by providing a brokering service for industrial scraps, packaging, and other items that are potentially reusable, but for which there are not well-established recycling markets. The program is similar to others operating throughout the country, and builds on successful local programs in Long Island City and East Williamsburg, NY, which save businesses money by promoting reuse of materials that would otherwise be discarded. While reuse is the primary objective, some transactions involve recycling when reuse outlets are not available.

Goals and Objectives

1. **Reduce DOS-Collected Waste.** It is anticipated that NY Wa$teMatch will reduce the amount of waste collected and disposed of by the Department of Sanitation. Although the initial primary focus of the program is on the City's industrial sector, either the source or recipient of a listed material may be a government agency or institution that receives DOS collection service. And, DOS expects the program to expand over time to directly target organizations that receive DOS collection and disposal services.

2. **Increased regional waste disposal capacity.** The entire City, including the Department of Sanitation, benefits from waste reduction, regardless of the source of the waste. As DOS moves towards exporting a larger portion of the waste that the agency collects,

the agency will be competing for the same regional waste disposal capacity as the private sector. Therefore, to the extent that NY Wa$teMatch leads to a reduction in waste generated by businesses for export by private haulers, there will be increased capacity for waste disposal at existing facilities in the region. This can be expected to help minimize the distance DOS will need to transport waste that remains after waste prevention, recycling, and composting. Furthermore, reduced competition for limited waste disposal capacity within the region may ultimately minimize tipping fees charged by waste disposal facilities that receive DOS collected waste.

3. **Public Awareness.** The program can be expected to raise the waste prevention and recycling awareness of the business community. Individuals who work in businesses in New York City often live in the City. To motivate New York City residents to minimize wasteful behavior, we must reach out to people not only in their homes, but where they work.

4. **Sustainable businesses and self-sustaining program.** NY Wa$teMatch saves money for businesses, which the program may be able to leverage to minimize the cost per ton of Sanitation's investment in NY Wa$teMatch. As a solid waste management agency, a primary waste reduction goal for DOS is to minimize the cost per ton of programs that DOS funds.

Although NY Wa$teMatch may generate limited direct benefits for the Department of Sanitation, it benefits the City by helping businesses to become more competitive and sustainable. The businesses and institutions that are directly served by the program, and the business assistance agencies and organizations that serve the business community and the City's institutions – such as local development corporations and business improvement districts – appear to have a vested interest in supporting the service, financially or otherwise.

Therefore, DOS's role in the program is to serve as an initiator of a service, but not necessarily as a funder, or at least the primary funder, in the long-run. DOS is working to position the program so that it will become self-sufficient in whole or in part over time. DOS anticipates that progress toward this goal can be achieved by demonstrating that NY Wa$teMatch is a program that is valued and needed by the City's businesses and institutions. To the extent that NY Wa$teMatch is successful in leveraging resources from the business community and others through fees-for-services, establishment of satellite services, and through outreach and marketing efforts, it will minimize the cost per ton to the Department of Sanitation for any financial support the agency may continue to provide over the long-term.

WELCOMING REMARKS

(See Appendix A for list of attendees and Roundtable agenda.)

The session began with brief welcoming remarks from the co-sponsors and organizers of the Materials Exchanges Roundtable: John Filippelli, U.S. EPA Region 2; Dave Kleckner, New York City Department of Sanitation, Bureau of Waste Prevention, Reuse and Recycling; and Ellen Harrison, Director of the Waste Management Institute at Cornell University.

Deputy Commissioner Martha K. Hirst of the NYC Department of Sanitation welcomed the participants on behalf of DOS Commissioner John J. Doherty, and highlighted the importance of waste prevention and recycling as components of the City's Plan to Phase Out the Fresh Kills Landfill. Deputy Commissioner Hirst noted that the continued success of DOS's programs rely on working closely with federal, state, and local policy makers; recycling advocates; the business community; and the City's residents. She added that DOS recognizes that there is much that jurisdictions can learn from each other, including those represented at the Roundtable.

PROGRAM DESCRIPTIONS

The Roundtable proceeded with representatives of materials exchange programs from throughout the country presenting the following program descriptions:

California Materials Exchange Program (CALMAX) - Kevin Taylor

CALMAX is a service provided by the California Integrated Waste Management Board (CIWMB), designed to help businesses and other organizations reduce the amount of waste materials discarded, and to meet the 1989 state mandated goals of reducing the amount of waste going to the landfill by 25 percent by 1995 and 50 percent by the year 2000. The main target of the CALMAX program is California's businesses, but surrounding areas such as Oregon, Nevada, and Northern Mexico are invited to use the program. Listings from other areas of the U.S., as well as Canada and Mexico, are accepted if they may be beneficial to California. CALMAX does not accept most hazardous materials or hazardous wastes. Some exceptions (e.g., fluorescent lights) may be permitted on a case-by-case basis. CALMAX has designated construction/demolition, organics, and electronics waste types/ industries as priorities. Promotion is through a quarterly catalogue and the Internet (http:/ /www.ciwmb.ca.gov/mrt/calmax/calmax.htm). The catalogue is the primary mechanism used by CALMAX for disseminating listings, and also serves a promotional function. Printing and mailing costs are approximately $20,000. A challenge is to get more people

to use the Internet. Progress is being made. In the past year, approximately 350 queries/ week were made on the database through the Web site. (CALMAX estimates that approximately 1100 listings were completed last year; annual budget, $200,000-$250,000; staff = 2 full-time equivalent employees (FTEs), 1 part-time student, contractor for catalogue.)

Iowa Waste Exchange (via conference call) - Jennifer Drenner

The Iowa Waste Exchange is a cooperative effort of Iowa community colleges and councils of governments, solid waste agencies, the Iowa Waste Reduction Center at the University of Northern Iowa, the Iowa Department of Natural Resources, the Iowa Department of Economic Development and the Recycle Iowa Program. There are 11 regional offices throughout the state with eight FTEs. Information about the program is disseminated through a Web listing, (http://www.recycleiowa.org/tech/bawss.html); and a pull-out section in a quarterly newsletter, "The Closed Loop," that contains "hot" (newest listings, and "hard-to-place" materials) listings. Exchange transactions are made through direct contact with regional representatives.

Long Island City Business Development Corporation (LICBDC) - John Okun

LICBDC, a NY Wa$teMatch subcontractor, operates the Industrial Waste Recycling and Prevention Program (INWRAP), which includes a nonhazardous materials exchange, serving primarily Long Island City, western Queens, and Greenpoint. The program is targeted mainly to small and medium-sized industrial businesses. INWRAP provides ambitious technical assistance in recruiting users and listings, and performs significant tracking, invoicing, and analysis of cost savings. Approximately 30-35 percent of funding dollars comes from revenues generated by INWRAP through shared savings payments from participating companies (contracts are executed between the companies and INWRAP) and membership dues from vendors and recipients. Additional funding comes from grants from Empire State Development and EPA, and sponsorships for special events.

A new program initiative utilizes a credit network specializing in cash and trade credits offered by the worldwide Chadwick Financial Corporation in exchange for non-performing assets such as unwanted equipment and surplus inventory. For specific information on how INWRAP uses the credit network, contact John Okun; general information about the Chadwick Financial Corporation is available on the Web (http:// www.inkindgift.com/boutchad.htm). INWRAP makes use of interns through a partnership with the NY Institute of Technology and LaGuardia Community College. (4-500 listings/ year; staff - 1.5 FTE and 3 part-time interns.)

New Hampshire Materials Exchange (NHME) - Mark Toussaint

NHME is a service of WasteCap of New Hampshire, a proactive not-for-profit waste reduction organization operated by the Business & Industry Association (BIA) of New Hampshire. Mark Toussaint is the sole staff member; funding for the program (approximately $18,000 annually) comes from community sponsors; grants (EPA and the American Plastics Council); and fund-raising events tied to specific projects. Materials exchange information is disseminated in four ways: 1) through the World Wide Web (http://www.wastecapnh.org) with e-mail links to listers when possible, links to other materials exchanges nationwide, and information about Wastecap's free, confidential waste reduction services; 2) a printed catalogue published quarterly; 3) an e-mail list serve whereby users sign up to receive current information on exchange opportunities (to register for the list, e-mail nhmex@aol.com); and 4) an automatic fax on new listings for those who have fax machines, but no access to e-mail.

Contact information is provided in the catalogue and Web site allowing direct contact between generators and users. Approximately one-half of NHME's listings this quarter came through the Web access. Recycler's World has a link to the NHME site which generates a fair number of visitors. (Approximately 200 listings/year; staff = .5 FTE; office space is donated.)

Northeast Industrial Waste Exchange, Inc. (NIWE); The Millennium Exchange, Ltd. - Bill Sloan

NIWE provides buyers' and sellers' listings for a 13 state area. Funding is currently provided by grants/contracts from sources in New York State, Baltimore, and Pennsylvania, which support one full time employee. The Millennium Exchange, is a private, investor-owned company, which is anticipated to provide active custom match-ups through the Web, e-mail, and fax. (1-2,000 listings/year; staff = 1.5 FTE and 1 temporary.)

Southeast Minnesota Recyclers' Exchange (SEMREX) - Anne Morse

Minnesota has developed a statewide materials exchange network. Five regional materials exchange programs function in partnership as the Minnesota Materials Exchange Alliance with the Minnesota Office of Environmental Assistance (OEA) which coordinates the regional efforts, and the Minnesota Technical Assistance Program which publishes the statewide catalogue. One of the five regional exchanges, SEMREX is an organization of counties in the Southeast corner of Minnesota. SEMREX has developed an interactive Materials Exchange database that links businesses that have a usable waste material with others that can use that material as a resource. SEMREX also provides Cooperative Marketing services to its businesses to overcome the obstacles rural recyclers face, such as smaller volumes and dispersed populations, higher transportation costs, and budgetary and storage constraints.

Through free waste evaluations, SEMREX assists businesses in identifying which waste materials can potentially be reused by others, and which are recyclable through the marketing program. State funds provide for the operation of the clearinghouse for listings from the exchange programs in Minnesota and other states, and a semiannual publication of a "Materials Listing Catalogue." Regional exchanges are required to be self-financing, and SEMREX is working to achieve this through a ten percent surcharge on materials cooperatively marketed, and the use of volunteer and AmeriCorps*VISTA workers (see Appendix D). (Approximately 1500 listings/year; staff = 5 regional offices with one staff each.)

Southern Waste Information Exchange (SWIX) - Gene Jones

SWIX is a service of Keep Florida Beautiful, Inc. and Florida State University (FSU). Originally instituted as FWIX (Florida Waste Information Exchange) in 1981, it expanded its service area in 1982 to the southern region of the U.S. in order to improve waste recycling, use, and reuse opportunities for Florida waste generators, as well as to more effectively respond to the many inquiries about Florida's materials from potential clients outside of Florida. The program started with hazardous wastes listings, but since 1993 the shift has been to nonhazardous wastes. All areas of waste exchange are targeted, but the focus is on 12 standard categories of "materials available" and "materials wanted" – acids, alkalis, other inorganic chemicals, solvents, other organic chemicals, oils and waxes, plastics and rubber, textiles and leather, wood and paper, metal and metal sludges, construction/building materials, and equipment. Promotion of exchanges is accomplished through: 1) a catalogue published three times annually; 2) an Internet home page (http://www.enviroworld.com/SWIX/) with links to other exchanges and environmental agencies, and 3) a toll-free 800 number (1-800-441-7949). SWIX received 5,000 requests for information last year.

Requests for information through the Internet are increasing, from 10 to 33 percent in the past year, but the bulk are received by phone (54%). The budget for SWIX is approximately $100,000 annually, and FSU donates some in-house costs, i.e., office space and equipment. In addition, FSU faculty and students provide assistance in identifying potential uses of materials and pollution prevention opportunities. Additional revenues are raised by catalogue subscriptions, fees for materials available and waste management services listings, and sponsors. (2-300 listings/year; staff = 1 FTE, 1 part-time student.)

Following the presentations from the materials exchange representatives, all participants of the Roundtable introduced themselves/affiliations and briefly outlined their reasons for participating. The discussion then moved on to how to effectively recruit listings and facilitate transactions.

MOTIVATING BUSINESSES TO USE WASTE EXCHANGES

The motivation for companies to participate in waste exchange includes reduced waste handling costs, savings in purchasing costs, increased storage space that can be used for other purposes, tax deductions and civic pride from reusable materials that may be donated to not-for profit organizations, concern for the environment, and other considerations. However, for many companies, the focus is on revenue generated by their normal business activities, with less regard for pursuing cost reduction initiatives, which is an obstacle to generating interest and participation in materials exchange programs. In some instances, "doing the right thing," (e.g., environmental responsibility) is cited as a prime motivation for participation in waste exchanges. The group discussed some ideas for encouraging more participation in materials exchange programs:

- Demonstrate to businesses that although maximizing revenue from their operations is likely their primary focus, they can enhance their profitability by replacing raw materials or reducing waste disposal costs through reusable material transactions.
- Change the mindset of those responsible for purchasing, i.e., from "where do I get virgin materials" to "where can I get cost-effective, used materials."
- Tax deductions may be available, when materials are donated to nonprofit organizations.

METHODS OF IDENTIFYING USERS AND GENERATORS

Transactions do not always involve "buyers" and "sellers." Money may not always exchange hands (e.g., barter and donations are possible). This might entail efforts to find a specific match for a specific waste, or efforts to link generators with possible users with whom they can work in the future. Finding and developing new markets for potential waste streams and identifying new companies to bring into the reuse and recycling markets is an on-going activity. Following are some methods suggested by Roundtable participants for identifying users and/or generators:

- Use SIC (Standard Industrial Classification) Codes to target similar businesses who may have similar needs/wastes and to identify materials used by those businesses.
- Use Thomas' Register of Business & Industry, Harris Directory, and Yellow Pages (available on the Web) to identify area businesses; focus on local commodities.
- Use Internet listing of businesses who specialize in "green materials."
- Work with recycling coordinators and economic development experts (including Empire State Development, ORMD in NYS); they are often aware of what is being disposed of and what materials may have other uses.

- Work with local economic development, business, and trade organizations such as Local Development Corporations, Chambers of Commerce, and with Manufacturing Extension Partnerships (MEPs).
- Consider linking with the NY State Department of Environmental Conservation's beneficial use determination (BUD) program.
- Use referrals from successful exchanges, helping participants to network with peers.
- Promote success stories–publicize through trade association newsletters.
- Target repeat services.
- Target specific individual within a company (i.e., John Doe in purchasing, who is interested in the "bottom line").
- Use vendors who travel between companies (e.g., computer service providers) and repeat customers to build an informal network to promote the materials exchange concept.
- Inventory purchased inputs as well as wastes when conducting business audits.
- Look at new businesses prior to start-up, design for minimum waste; identify opportunities to use exchange materials as inputs and opportunities for reusable and recyclable outputs.
- Work with manufacturers within an industry, or related industries, to discuss possibilities of targeting waste products.
- Convince generators to target their waste to users, modifying it to meet user's needs.
- Provide information (and possibly samples) at trade shows and similar events (may not need to rent a booth, but simply show up and distribute catalogues).
- Provide samples of materials at trade shows, fairs, on-site visits, and consider contests for "how to reuse these materials" (though some Roundtable participants do not make use of samples in order to avoid liability of representing that the material available is exactly the same as the sample).
- Target hospitals as possible sources or users of reusable materials.
- Target schools as possible recipients of reusable materials.
- Work with waste haulers.
- Seek contacts in construction as possible sources of reusable materials.

OPEN VERSUS CLOSED LISTINGS

Open listings (listings that fully disclose information about the listing, including the identity of the listing entity, whereby transactions can be facilitated without the direct assistance or knowledge of the materials exchange program sponsor) do not provide opportunities for tracking and measuring outcome, for charging based on exchanges, or for providing as much service assistance to companies. However, they save time and money and thus allow for facilitating more exchanges. Confidentiality is not generally an issue except for hazardous materials. Materials exchange representatives described their policies:

- SEMREX requires users to go through a registration process to obtain information. Registration can take place either over the telephone or via the Web. Once registered, users can list materials directly on the Web site (with e-mail automatically going to SEMREX so information can be verified), or access contact information on materials listed. SEMREX also obtains names within companies to establish client relationships.
- CALMAX maintains open listings with all contact information unless confidentiality is specifically requested.
- SWIX and NHME use a listing code in order to track numbers of inquiries, target like companies, and gather information for documenting successful exchanges.
- NY Wa$teMatch uses closed listings in order to enable tracking, charging for transactions, and to provide middle-man service for companies, but may consider open listings on a limited basis where confidentiality is not requested.
- Iowa maintains "closed listings and complete confidentiality."

REALISTIC WASTE EXCHANGE RADIUS

Transportation costs usually define exchange geographical boundaries. While acceptable transport distances will vary with the value of the material as well as disposal costs, generally 250 miles is a practical radius.

TECHNOLOGIES USED TO ORGANIZE LISTINGS AND ASSIST MATCHMAKING

Print materials (e.g., catalogues) - Materials exchange operators find catalogues useful for several reasons. Businesses may not yet be accustomed to accessing information on the Internet, which makes hard copy useful. Catalogues are considered useful promotional tools: they serve as a good desk reference and may also be passed on to others. However, they are costly to assemble and publish. Alternative forms of visual "advertising" such as

incorporating a section into existing newsletters may provide some of the benefits without the major costs.

Internet - Use of the Internet is increasing rapidly and Web listings provide the opportunity to link with other exchanges, but several representatives feel it is a challenge to get businesses to fully utilize this new technology. There was some comment from NYC participants that NYC businesses and even potential partners (such as LDCs) may not have Internet access; some nonprofit agencies do not have access to the Internet; and/or some small businesses simply did not have time to fully utilize new technologies. In addition, using the Web requires businesses to seek out the information rather than having it "delivered."

Computer databases for storing and organizing listings - Computer databases are essential for recordkeeping, monthly reports, tracking, invoicing, and program evaluation. When designing an interactive database, it is important to make sure all databases are compatible. This applies not only within the organization, but also to the use of the database by partners and potentially by clients. CALMAX maintains three databases: a list of contacts, a list of materials available and wanted, and a list of successful exchanges. Entering information is the time consuming aspect. Automated entry by the contractor is being used by SEMREX and CALMAX with the use of pull down "pick lists" to help ensure consistent listings. Records within the databases need to be linked so that a change of address, for example, can be automatically applied to all relevant categories. There are a variety of programs that can be used.

SEMREX's "interactive real time database" located on the Web (http://www.wwwwis.com/semrex) also keeps track of regional activities. Members of the public can post listings of items they have available, and browsers can access listing and contact information (SEMREX terms these referrals) on items in the on-line catalogue they are interested in. Regional program operators will also use this on-line catalogue as their primary method of listing and tracking materials. SEMREX expects associated employee training requirements for the program to be minimal, as the program is very "user friendly." Highlights of the SEMREX database program include the ability to track users via registration data, ticklers which prompt referral follow-up, drop-down menus with editing procedures and conversion charts, extensive search capabilities, e-mail contact linked to the tickler system, and fields for avoided disposal and acquisition costs. This on-line database will also function as the database for the twice/year paper catalogue.

Anne Morse (507-457-6468, fax: 507-457-6469; e-mail: amorse@ntl.co.winona.mn.us) will supply any of the Roundtable participants with a simple password in order to access the office applications that are not readily apparent when just visiting the Web site. Moreover, since they are in the process of completing the program, any suggestions other exchange operators have as to additional fields or reporting features would be very useful. SEMREX is also willing to share its software program with other exchange programs for a small portion of the development costs.

Faxing - There are two fax techniques. One involves use of a computer to automatically fax new listings to specified potential users or persons identified in categories in a database. The second, an automatic fax-back service, sends a fax back with contact information about a listing in response to the receipt of a faxed inquiry. Such a system can be costly (anywhere from $10-$50,000).

E-mail Listserves - An emerging technology is to have e-mail messages delivered automatically to a listserve as new listings are entered. Thus any potential user of some class of materials would be notified when a listing of the materials was received or conversely, information on a new "materials wanted" listing could be distributed automatically to a relevant subset of material generators. This is similar to a fax system in practice in some exchanges. A concern about tying up the computer too much in sending such messages can be addressed by having the messages sent at night. Sophisticated e-mailing of diagrams and pictures is also emerging. There is currently a listserve for Material Exchange Operators only; for instructions on subscribing, contact CWMI or e-mail Gene Jones at <gjones@mailer.fus.edu>.

TRACKING RESULTS AND PROGRAM EVALUATION

There are several indicators of success which programs have tried to use. The number of successful exchanges is one quantifiable indicator of a materials exchange program's effectiveness. The amount of material moved and the monetary value of the exchanges are other measures. Data on the types and quantities of materials exchanged can be used to estimate costs savings and other benefits derived by the sponsor and other stakeholders, but Roundtable participants agreed that calculating costs is very problematic.

The main methods used to document successful exchanges are calls to listing companies, mailing follow-up surveys requesting information, and obtaining information through personal contacts. Materials exchange representatives discussed some of their experiences with tracking and evaluation, and outlined some methods used to document successful exchanges:

- It has been CALMAX's experience that follow-up letters to targeted listings are usually not answered; when there are responses, most people are just guessing at the numbers in regard to dollars saved. In 1997, staff conducted follow-up phone calls to every listing. The effort was extremely time consuming. They have recently implemented a new system that requires companies to specify the duration of a listing (3 months, 6 months, 1 year) and CALMAX calls 1-2 months prior to termination to ask if an exchange has been made or if the listing should be extended. This equals about 50 calls/month. A database of successful matches is being kept.

- SEMREX verifies each listing before a catalogue is published, thereby finding out if a match has been made.

- New Hampshire follows up on every exchange it can through mail and telephone. Successful exchanges are reported in terms of tonnages diverted; measurements (weight and volume) are easier to validate than dollars saved. There are various ways of reaching dollar amounts in evaluating exchanges – avoided disposal costs plus material value includes depreciation, transport costs, landfill costs. Life cycle assessment information currently available on the Internet may be of some use.

- SWIX enters every inquiry/generator into a database. A generic follow-up letter (See Appendix B) has had a 20 percent rate of return; the returned responses are then followed up with phone calls for verification and/or more information. Phone inquiries are not tracked.

- Fax-back systems do not provide for automatic tracking information.

LIABILITY, CONFIDENTIALITY AND REGULATORY ISSUES

None of the participating exchanges have had any liability problems. In general, most exchanges only arrange for contact between users and generators, and do not take possession of a material, or transport or arrange for transportation which thus minimizes liability exposure. The group felt that a subscription fee for participation and for listing is unlikely to generate liability. If an exchange takes physical charge of a material or charges for the transaction, the liability question is less clear. Materials exchange representatives described precautions taken to protect themselves against liability:

- California state lawyers have determined there is no liability to CALMAX, but catalogue and Web listings carry a disclaimer statement.

- New Hampshire has a disclaimer "NHME does not broker materials, provides information only."

- SEMREX - The Minnesota Materials Exchange Alliance's statewide catalogue carries a disclaimer, and the Internet access to the SEMREX database requires users to affirm that they have read the disclaimer before they can receive contact information.

- INWRAP carries professional liability insurance; and also has a one page contract (any longer than one page seems to deter business participation) to release INWRAP from liability (See Appendix C).

- ITAC carries insurance which does not have an environmental exclusion. As part of a Manufacturing Extension Partnership (MEP), they have determined that their liability in providing engineering assistance exceeds their liability for environmental risk. No MEP has ever been sued.

- See sample liability article, and other "liability reference materials" listed in Appendix C.

PAYING FOR IT: REVENUE GENERATION AND SELF-SUFFICIENCY

General agreement was that complete self-sufficiency through fees-for-savings charged to generators and recipients of materials is an unrealistic expectation for a materials exchange:

- Bill Sloan indicated that he believes that if a program focuses on low-value materials, it cannot be self-sustaining. However, he also indicated that self-sustainability may be possible by limiting the focus of a program to a limited number of high-value materials.
- John Okun indicated that charging a fee is important because it enhances program credibility. When businesses are charged for the services they receive, they treat the service provider as a business in a professional manner.
- CALMAX's program is focused on the goal of maximizing the amount of waste diverted by the program for reuse, rather than in generating funds to support program operation.
- Gene Jones estimates that he spends about one-third of his time on fundraising.

Staffing Options

Because most waste exchanges operate with very limited budgets, almost all rely partially on the use of volunteers or low-cost employees to help with the workload. Following are some sources:

- Mayor's Volunteer Action Center, NYC, is a source of retired engineers for INWRAP;
- Americorps* VISTA (See Appendix D);
- Interns from technical institutes, community college co-op programs, college environmental programs;
- Students - off campus work-study programs;
- University studies, i.e., Cooper Union; research studies.

Potential Sources of Support

The materials exchanges represented are largely dependent on budget support from federal, state, and/or local governments, and seek to defray expenses through fees for catalogues, listing fees, grants, or other mechanisms. The Roundtable participants discussed other stakeholders and program beneficiaries that might provide support or assistance to NY Wa$teMatch:

- Environmental agencies; State Economic Development Agencies;
- City Agencies;
- Board of Education - School Materials Exchanges can foster after school programs; student waste audits, high school projects;
- Trade and business associations such as Chambers of Commerce (both Florida and Minnesota programs started with the help of local chambers);
- Private investors - i.e., the Millennium Exchange.

Potential Funding Sources

Some possible methods for obtaining funds and other assistance:

- Grants from agencies including Economic Development, Environmental Conservation (several representatives felt that diverse waste stream exchanges were most likely to get government support); grants from foundations; grants from trade groups such as American Plastics Council;
- Membership dues/subscription fees; revenues from advertising in exchange catalogues;
- Sponsorships for special events;
- Cooperative marketing of recyclable/reusable materials; (10% fee generates revenue for SEMREX);
- Landfill tipping fees or other surcharge on waste transport or disposal;
- Fees for services such as percent of transaction value (cost savings or revenues). Issues with this include difficulty of accurate cost assessment, potential to discourage trades and thus undermining goal. INWRAP uses a sliding scale for transaction charges. They believe charging helps businesses take INWRAP seriously as a business.

Communicating Benefits to Garner Support

Some suggestions for communicating benefits to stakeholders to facilitate support:

- Calculate savings to make your case; use case study information to recruit similar businesses.
- Show a dollar return on savings to businesses as the best means of obtaining funding (from state/federal agencies).
- Change mind set from "generating revenue" to "cost savings."

TIME FRAME FOR RESULTS IN NEW YORK CITY

What NYC can realistically expect to happen and what else needs to be done to get the program fully up and running includes:

- Expect a slow beginning – the first database and the first catalogue are the hardest to produce.
- General public information campaign; probably a multimedia approach would be most successful for NYC at this time for generating interest in the program.
- Promote same concept to workers that they buy into at home – i.e., reduce, reuse, recycle – so that PR for materials exchange links to the reuse concept.
- Place an ad in a trade journal, the more specific, the better. For example, an article in the *New York Times* in July generated approximately 200 calls to INWRAP that led to 75-80 listings.
- The extra time and effort devoted to the program in the beginning will help to ensure future success.

POTENTIAL FOLLOW UP MEETING IN NEW YORK CITY

A follow-up meeting for potential participants and stakeholders in New York City and the vicinity to discuss ways to effectively implement Wa$teMatch may be needed. The following topics were identified:

- What opportunities are there to identify generators and users through various permit systems?
- What opportunities are there to target wastes generated by city agencies and materials they might use?
- How to maximize the effectiveness of partnerships with LDCs and others?
- Database consistency and sharing, i.e., if listings are generated by a number of players (partners, businesses), how can they be verified and consistent?

There is an upcoming Materials Exchange Conference in Florida. For more information or to get on listserve, e-mail: gjones@mailer.fsu.edu

Appendix A-1 • Roundtable Participants

Anne Marie Alonso
Council on the Environment of NYC
51 Chambers St.
New York, NY 10007
212 788-7900
cenyc@webspan.net

Robert Balder
Assistant Vice President, Economic Development Corporation
110 William Street, 5th Floor
New York City, NY 10038
212 312-3865

Barbara Belasco
US EPA Region 2, Solid Waste
290 Broadway
New York, NY 10007-1866
212 637-4182;
fax: 212 637-4437
belasco.barbara@epamail.epa.gov

Carole Bell
Science Applications International Corporation (SAIC)
221 3rd St.
Newport, RI 20840
401 848-4756

Wade Beltamo
Mayor's Office of Operations
100 Church Street, 20th Floor
New York City, NY 10007

Marie Boucher
US EPA (5306)
401 M Street, SW
Washington, DC 20460

Ivan Braun
Industrial Technology Assistance Corporation (ITAC)
253 Broadway, Room 302
212 240-6920
ivanb@tecnet.org

Joe Chan
Intern, New York Department of Sanitation (DOS),
44 Beaver Street
New York, NY 10004
212 837-8175;
fax: 212 837-8162

Hada De Slosser
Cornell Cooperative Extension (CCE)/ New York City
16 East 34th Street, 8th Floor
New York, NY 10016
212 340-2900
hld3@cornell.edu

Vasil Diyamandoglu
City College Of NY, Dept Of Civil Engineering
Convent Ave. At 138th St.
New York, NY 10031
212 650-8039
vasil@ce-mail.engr.ccny.cuny.edu

Jennifer Drenner (conference call)
Iowa Waste Reduction Center, University of Nothern Iowa
75 Biology Research Complex
Cedar Falls, IA 50614-0185.
319 273-2079,;
fax: 319 273-2926
drenner@uni.edu

John Filippelli
US EPA Region 2, Solid Waste
290 Broadway
New York, NY 10007
212 637-4125
filippelli.john@EPAMAIL.EPA.GOV

Robin Fitzpatrick
Office of Resource Development (ORMD), Empire State Development
1 Commerce Plaza
Albany, NY 12245

Appendix A-1 • Roundtable Participants

Lorraine Graves
US EPA Region 2, Solid Waste
290 Broadway
New York, NY 10007
212 637-4099;
fax: 212 637-4437
graves.lorraine@epamail.epa.gov

Ellen Harrison
Cornell Waste Management Institute (CWMI)
100 Rice Hall, Cornell University
Ithaca, NY 14853
607 255-8576;
fax: 255-8207
ezh1@cornell.edu,

Gene Jones
Southern Waste Information Exchange (SWIX)
PO BOX 960
Tallahassee, FL 32302
1 800 441-7949 or 904 386-6280; fax: 385-4020
gjones@mailer.fsu.edu

David Karpman
Bathgate LDC
4201 3rd Ave
Bronx, NY 10457
718 901-1977, 901-0212

Dave Kleckner
New York Department of Sanitation (DOS),
Bureau of Waste Prevention, Reuse and Recycling
44 Beaver St.
New York, NY 10004
212 837-8175;
fax: 212-837-8162
bwprr@cnct.com

Andriana Kontovrakis
Former Senior Project Manager, EWVIDCD

Julia Maceda-Willebrand
Chair, Manhattan Solid Waste Advisory Board
225 West 84th Street, 1B
New York City, NY 10024

Harry Martinian
Classroom Materials Exchange
850 Grand Street
Brooklyn, NY 11211
718 387-2800 x199

Anne Morse
Southeast Minnesota Recyclers' Exchange (SEMREX)
171 West Third Street
Winona, MN 55987
507 457-6468;
fax: 507 457-6464
amorse@nti.co.winina.mn.us

John Okun
Long Island City Business Development Corporation (LICBDC)
29-10 Thomson Ave, 9th Floor
Long Island City, NY 11101
718 786-5300 x24;
fax: 718 786-4356
inwrap@aol.com

Jeff Potent
Industrial Technology Assistance Corporation (ITAC)
253 Broadway, Room 302
New York, NY 10007
212 240-6920
ivanb@tecnet.org

Karen Rollo
Cornell Waste Management Institute (CWMI)
111 Rice Hall, Cornell University
Ithaca, NY 14853
607 255-8578;
fax: : 607 255-8207
klr11@cornell.edu

Appendix A-1 • Roundtable Participants

Steve Simon
Chief of Staff for Stanley Michels
49 Chambers Street, Room 400
New York City, NY 10007
212 788-7700

Bill Sloan
Northeast Industrial Waste Exchange (NIWE)
The Millennium Exchange, Ltd.
PO Box 2171
Annapolis, MD 21404-2171
410 280-2080;
fax: 280-0025
niwe@pop.erols.com

Julie Sullivan
Association for Resource Conservation (ARC)
9 Bittersweet Court
Centerport, NY 11721
516 757-0894;
beeper: 516 685-5447

Kevin Taylor
California Materials Exchange (CALMAX)
8800 Cal Ct. Dr.
Sacramento CA 95826
916 255-2369;
fax: 916 255-4580
ktaylor@ciwmb.ca.gov

Patty Tobin
New York Department of Sanitation (DOS), Bureau of Waste Prevention, Reuse and Recycling
44 Beaver St.
New York, NY 10004
212 83 7-8175

Mark Toussaint
New Hampshire Materials Exchange (NHME)
122 N. Main St.
Concord NH 03301
fax: 603 224-2872
nhmex@aol.com

Nancy Walby
Chair, Brooklyn Solid Waste Advisory Board
2163 East 34th Street
Brooklyn, NY 11234

Louise Woerle
Assistant Director, Mayor's Office of Construction
52 Chambers Street, Room 307
New York, NY 10007
212 788-2508;
fax: 212 788-2519

Gail Yaeger
Council on the Environment of NYC
51 Chambers St.
New York, NY 10007
212 788-7900

Agenda for

NYC Materials Exchange Roundtable

Sponsored by U. S. EPA, Region 2 and
The Cornell Waste Management Institute
on behalf of the NYC Department of Sanitation

November 14. 1997; 9 am - 5 PM
Cornell Cooperative Extension Office (212 340-2900)
16 E. 34th Street, NY, NY

8:30 - registration, coffee and bagels

9:00-10:00
INTRODUCTIONS
Share written materials including Program overviews; staffing; budget; funding sources; accomplishments.

Operators of Materials Exchanges briefly (~5 min) describe their program
- Goals and objectives
- Targeted wastes and generators/users
- Mode of operation
- Funding
- Staffing
- Accomplishments

For those not currently representing an active exchange program very briefly (~1 min)
- Why are you here, what are your plans

10:00-11:00
HOW TO EFFECTIVELY RECRUIT LISTINGS AND FACILITATE TRANSACTIONS

Methods of reaching audiences, their effectiveness and cost (including staffing implications), keeping in mind the advantages and disadvantages of active vs. passive matchmaking.

How do you identify targeted sources?
How do you identify users?
- Research methods/info sources (especially for unusual materials)
- What radius of exchange is realistic

How can different technologies be used to organize listings and assist matchmaking and how effective are they?
- Print materials (catalogues)
- Computer databases
- Faxing
- E-mail listservs

Opportunities, methods, and effectiveness of networking between materials exchange programs

11:00-11:15
BREAK

11:15-12:15
HOW TO EFFECTIVELY RECRUIT LISTINGS AND FACILITATE TRANSACTIONS

How effective are outreach methods? What are the advantages/disadvantages and how can effectiveness be maximized?

- Working with trade associations and other business assistance organizations (newsletters, workshops, etc.)
- Mailings
- Telephone outreach
- Personal visits
- Websites
- Local press

Open vs. closed listing (direct exchanges between businesses vs. MatEx in middle)

Other methods for maximizing program effectiveness

What materials easiest/most challenging to transact

12:15-1:15
LUNCH - provided

1:15-2:15
TRACKING RESULTS AND PROGRAM EVALUATION

What are the obstacles to tracking and evaluation and how can they be surmounted?

What methods facilitate tracking and calculating of tonnage transacted and/or number of transactions, cost savings and other benefits derived by the sponsor and other stakeholders?

- Automated computer tracking
- Fax back
- Phone
- Site visits
- Reporting incentives (or sanctions) for businesses
- Other methods for tracking and evaluation

2:15-2:45
LIABILITY, CONFIDENTIALITY AND REGULATORY ISSUES

What are the sources of liability exposure (to the sponsor, to participants) and how serious are the risks?

Methods for minimizing liability exposure and impact of these methods on program effectiveness.
- Disclaimers
- Limiting materials

How does program operation affect liability?
- Impact of fees on sponsor/operator liability
- Impact of operating procedures on sponsor/operator liability

How important is confidentiality for businesses and how can it be achieved if necessary?

Other regulatory issues.

2:45-3:00
BREAK

3:00-4:00
PAYING FOR IT: REVENUE GENERATION AND SELF-SUFFICIENCY

What are program budgets and staffing of existing programs?

Include discussion of the use of volunteers, the role of economic development professionals and other agencies.

Who are the stakeholders and program beneficiaries that might provide support, assistance or operation?

Methods for obtaining funds and other assistance. Opportunities, obstacles.

- Funding sources
  - Government (local, state, national) funding sources - solid waste; business assistance agencies/organizations
  - Business trade associations
  - Foundations
  - Academia
  - Generators/users of transacted materials
    - charge per transaction, charge by weight, by cost savings
    - membership services
  - Other

How to communicate benefits to stakeholders to facilitate their support?

- Calculating savings to make your case
- Costs of operation
- What sectors or wastes are most/least revenue generating (and how does that relate to hard to manage wastes?)

Experiences and outlook for full or partial self-sufficiency

- Successes and limitations of fund-raising
- Extent to which fund-raising may undermine program achievement (e.g. temptation to focus on high value wastes) - how to minimize such potential impacts

4-4:30
TIME FRAME FOR RESULTS

- What impacts can be expected over what time frame
- Balancing long run Vs short term planning, objectives and accomplishments

4:30-5
UNFINISHED BUSINESS

Southern Waste Information Exchange (SWIX)
Post Office Box 960 • Tallahassee, Florida 32302
Telephone (800) 441-SWIX • FAX: (904) 385-4020

«Data inq.txt»

SUCCESSFUL EXCHANGE SURVEY FORM

PLEASE RETURN BY DECEMBER 31, 1997

The SWIX is requesting your assistance in conducting our annual review of the use and success of the SWIX Program. This information will help us to evaluate our success rate. To expedite your renewal, please fax this form to SWIX at the following number: (904) 385-4020. If you have questions concerning this matter, please contact Gene Jones at (800) 441-7949.

«F_Name» «L_Name»
«organization»
«add1»
«If add2»«add2»
«Endif
«city», «state» «zip»
Phone: «phone»
FAX: «fax»
Email:

Note: Please make necessary address corrections.

During 1997 you inquired about the following Listing(s) from the SWIX Catalog:

«I1»	«I2»	«I3»	«I4»	«I5»	«I6»
«I7»	«I8»	«I9»	«I10»	«I11»	«I12»
«I13»	«I14»	«I15»	«I16»	«I17»	«I18»
«I19»	«I20»	«I21»	«I22»	«I23»	«I24»
«I25»	«I26»	«I27»			

Were you successful in a exchange of material: ❑ Yes ❑ No

If Yes, please complete:
Material(s) Exchanged: _____

Annual Amount(s) of material transferred (est.). _____

SWIX FAX # (904) 385-4020

PLEASE RETURN BY DECEMBER 31, 1997

Southern Waste Information Exchange (SWIX)
Post Office Box 960 • Tallahassee, Florida 32302
Telephone (800) 441-SWIX • FAX: (904) 385-4020

«Data Listing.txt»

SUCCESSFUL EXCHANGE SURVEY FORM

PLEASE RETURN BY DECEMBER 31, 1997

The SWIX is requesting your assistance in conducting our annual review of the use and success of the SWIX Program. This information will help us to evaluate our success rate. To expedite your renewal, please fax this form to SWIX at the following number: (904) 385-4020. If you have questions concerning this matter, please contact Gene Jones at (800) 441-7949.

«contact»
«organization»
«add1»
«If add2»«add2»
«Endif
«city», «state» «zip»
Phone: «phone»

Note: Please make necessary address corrections.

During 1997 you listed the following listing in the SWIX Catalog:

Code Number: «code»

Material: «material»

Were you successful in a exchange of material: ❑ Yes ❑ No

If Yes, please complete:
Material(s) Exchanged: _____

Annual Amount(s) of material transferred (est.). _____

SWIX FAX # (904) 385-4020

PLEASE RETURN BY DECEMBER 31, 1997

SAMPLE WAIVER, RELEASE AND FEE AGREEMENT
INDUSTRIAL WASTE RECYCLING AND PREVENTION PROGRAM (INWRAP)

The company, organization or other business identified below understands and acknowledges that INWRAP staff members are assisting us at our request. We agree that INWRAP staff members will not be held responsible for any damages, liability or any other matter which may hereafter occur or arise as a result of any waste or secondary materials reduction, reuse or recycling suggestions, recommendations, comments, alternatives or programs implemented at our facility(ies). The undersigned also understands and acknowledges that the INWRAP program its sponsors and funders make no representations, guarantees or warranties as to costs or savings that may be incurred or achieved by the undersigned as a consequence of implementing or failing to implement any or all of the measures as a result of INWRAP staff recommendation(s), referral(s) or report(s).

The undersigned company, organization or business further waives, releases and discharges all INWRAP staff members and their respective employer(s), and all official sponsors and funders of the INWRAP program, including the Empire State Development Office of Recycling Market Development, the New York City Industrial Technology Assistance Corporation, the New York City Department of Sanitation, the United States Environmental Protection Agency, The New York Community Trust, Consolidated Edison of New York and the Long Island City Business Development Corporation from any and all claims, causes of actions, suits or other matters arising from the INWRAP staff recommendation(s), referral(s) site assessment(s) or subsequent report(s).

In addition, the undersigned company, organization or business agrees to pay the LICBDC shared savings/revenues fees based on the successful implementation of waste reduction, reuse, recycling, disposal and purchasing cost savings recommendation(s), referral(s) and report(s). These fees will constitute 50% of the disposal and purchasing cost savings achieved and/or 50% of the revenues gained from the sale of secondary materials items or equipment on a per transaction basis. This fee agreement is in effect for a period of one year from the time any such savings/revenues are first achieved. No payment for any INWRAP service is required until actual savings or revenues are being realized.

Accepted and agreed to this _____ day of _____, 1997.

Duly Authorized Signature:

Printed Name of Signatory:

Company:

Appendix C-2
Reference List of Liability Articles

Hodge, John Adams. "Liability Concerns Do Not Have to be a Deterrent to the Use of a Waste Exchange." Presented to: Waste Minimization: Success through Waste Exchange; short course sponsored by the Southeast Waste Exchange, March-April 1989.

Hodge, John Adams. Implementing Recycling within the Regulations: "Reducing the Uncertainty Over Liability".

Sloan, William M., Allan E. Floro and Terry A. McHugh. "Managing Risk in Reusing Industrial Assets". Northeast Industrial Waste Exchange, Inc. 1995.

LIABILITY ASSOCIATED WITH WASTE EXCHANGES

by

Glenn Dunn, J.D., MCRP

Attorney, Solid & Hazardous Waste Management Branch
Department of Human Resources, State of North Carolina
(Presently Director of the Office of Legal Affairs,
Department of Natural Resources & Community Development,
State of North Carolina)

and

Nancy Brown Ginnis

Law Student
School of Law
University of North Carolina
Chapel Hill, North Carolina

June, 1984

A Report to
The Governor's Waste Management Board
325 N. Salisbury Street
Raleigh, North Carolina 27611

LIABILITY ASSOCIATED WITH WASTE EXCHANGE

Summary/Introduction

This paper examines the potential liability which may result from the use of a waste exchange. This liability is compared with liability associated with the use of other waste management options, viewed from the perspective of the three possible participants in a waste exchange transaction: a waste information exchange, a materials waste exchange, and a generator sending hazardous waste to either type of exchange.

Emphasis is given to liability imposed by CERCLA [known as "Superfund," 42 USC §9601 etc. (1980)] because this statute currently provides the broadest standard of liability for waste handlers. Thus, if a party is not held liable under the strict liability provisions of CERCLA, it is highly unlikely that it will be found liable for the same action under any narrower standard, such as negligence, or under the provisions of RCRA [Resource Conservation and Recovery Act, 42 USC §6901 et seq. (1976)].

The risk of exposure to either a generator or the exchange itself resulting from use of a waste exchange, or from recycling in general, is unclear. There appear to be no published opinions of cases involving this type of liability. Therefore, this analysis is based on the language of the statute and principles announced in the cases dealing with landfills. This opinion is, by its nature, speculative.

For the discussion of waste exchanges, the controlling factor in incurring liability under CERCLA is not necessarily the disposition of the waste, but whether the waste is treated. If a waste product is recycled or transferred through a waste exchange, then used without treatment, no liability attaches to the exchange or the generator for that waste. If, on the other hand, a generator or exchange takes ownership or possession of a waste and then treats it, potential liability will attach under CERCLA despite its final disposition. The varying degree, length, and magnitude of potential liability for treated waste handled in different ways is compared in this paper.

In summary, the degree of exposure from the three perspectives is as follows:

1. An information exchange will not incur liability under CERCLA because it never owns or physically possesses the waste material. An information exchange could conceivably be liable for injuries resulting from its negligence under established tort principles.

2. A materials waste exchange, will usually be liable for releases under CERCLA because in most cases it either owns or possesses the hazardous substance or is the owner or operator of a facility from which the hazardous substance is released.

3. A generator whose waste is treated, either on-site, by a waste exchange or by a user, can incur liability under CERCLA for releases from the treating facility, as one arranging for treatment of a hazardous substance.

Usually the liability imposed will be joint and several; only if a party can show that its waste or actions did not contribute to a release will it escape liability. Joint and several liability in this context is a mixed blessing, in that it spreads risk but may expose a party to liability for injuries caused in part by wastes or actions of others over whom he has little or no direct control. For these reasons, themes which run through this analysis of liability are (1) the need to choose reliable, responsible parties for any waste management alternative and (2) the need to keep accurate, complete records.

In comparing the potential liability from a generator's viewpoint, two options present the lowest risk of liability: detoxifying the waste on-site and recycling the waste to a user who will not treat it prior to reuse. Between the two options, exposure to liability from on-site treatment will be lowest if the waste is detoxified expeditiously and if the detoxification process allows little opportunity for release of the waste. Recycling the waste for reuse without treatment also presents very low exposure to liability because the generator has taken himself out of the two categories of liable persons under CERCLA; i.e. there is no longer a possibility that he will be liable as owner or operator of a facility from which a release occurs because the waste is no longer at the facility and there is no risk that he will be liable as a person who arranges for treatment of the waste because it is to be reused without treatment. Nevertheless, there is significant potential liability from recycling without treatment because the generator might be considered one of the manufacturers of any product(s) that the recycled waste is used to produce and will therefore face liability for damages caused by the product.

The risks of liability increase if waste is sent off-site to be treated as well as recycled, although such liability may well be shared with any subsequent handlers of the waste. From a legal liability perspective, a generator might conclude that on-site disposal is safer than off-site recycling with treatment because of the control the generator retains over management of the waste. However, it is unlikely that the reduction in exposure (if any) would outweigh extremely high costs associated with operating a disposal facility and the likely reduction of the value of the property.

Finally, it seems clear that disposition through a waste exchange will carry lower potential liability to a generator than disposal of waste off-site.

§1 Liability of a Waste Information Exchange

Waste information exchanges, as the name implies, act solely as intermediaries for the transfer of information. An information exchange compares the needs and waste products of users and generators and provides each with pertinent information about the other. Once this information has changed hands, the exchange withdraws from the transaction. This type of exchange never takes physical possession of the waste material.

It seems extremely unlikely that an information exchange could be held liable under the Comprehensive Environmental Response, Compensation and Liability Act, also known as "Superfund" or CERCLA, [42 USC §9601 et. seq. (1980)]. 42 USC §9707 imposes (1) liability on owners and operators of facilities from which there is a release of a hazardous substance and (2) on persons who arrange by contract for treatment or disposal of waste owned or possessed by such persons. Information exchanges, which do not actually handle any waste materials, obviously will never have a release. They might be construed as arranging for treatment by contract, although it appears most information exchanges do not become involved in the transfer, even on paper, to this extent, but merely refer parties to one another. Even if the information exchange's participation could be characterized as "treatment by contract," any liability must involve a hazardous substance owned or possessed by the exchange. Assuming that the standard practice of information exchanges is never to take title to or physical possession of the waste, they should not be subject to liability under CERCLA because they never "owned or possessed" the material.

Similarly, because the information exchange handles no material, it is not a facility regulated under the Resource Conservation and Recovery Act [RCRA, 42 USC §6901 et seq. (1976)] and should incur no legal liability under that law.

In referring information, a waste information exchange might incur liability under tort concepts of negligence if it were shown that the negligence caused some injury or release. This type of liability, arising solely from negligence in arranging the transfer, would not arise for materials waste exchanges and generators because CERCLA imposes strict liability on waste

handlers for injury or release even in the absence of negligence. Nevertheless, this risk to information exchanges can be seen as one which faces every type of business. The liability for negligence in the performance of duties, resulting in loss to another, is not unique to waste exchanges. While no firm conclusions can be drawn, it seems likely that most courts would impose liability for an exchange's negligence in referring information based on traditional elements of negligence, such as foreseeability of the harm done and the immediacy of causation.

§2 Liability of Materials Waste Exchange

Most materials waste exchanges physically accept and take title to the waste material they plan to resell or otherwise recycle. Any exchange which takes physical possession of waste should be held liable as the owner or operator of a facility under CERCLA if there is a release from that facility. ("Facilities" include buildings, tanks, trucks, and sites where substances have been deposited.) The liability provision of CERCLA (42 USC §9607) does not categorize potentially liable parties as generators, treaters, transporters, or disposers. Thus, the status of the actual facility at which waste is placed or located at a waste exchange is not important in assessing CERCLA liability. If the exchange owns or operates a facility at which waste is placed, stored, located, treated, or disposed and there is a release of hazardous substance from that facility, the exchange will be liable under CERCLA just as the owner of any other type of treatment or disposal facility would be.

The liability of a materials exchange which accepts title to waste but never physically takes control of it would depend on whether the waste were treated or not. If the exchange subcontracts for treatment of a waste before transfer to an ultimate user, the exchange should be liable under

§9607(a)(3) of CERCLA. This section imposes liability for releases from a facility on the one who contracts, agrees to, or arranges with the facility for treatment of hazardous substances which he owns, even though the facility is owned or operated by another.

CERCLA imposes liability only on owners and/or operators of a facility and on those who contract for treatment or disposal of hazardous substances. Therefore, a materials exchange which takes title to waste without ever accepting physical possession of it (perhaps by subcontracting transportation) and sends the waste directly for recycling without any processing or treatment should be relieved of liability under CERCLA.

Finally, an exchange which arranges for treatment or transfer without ever accepting the material or taking title to it should escape liability under CERCLA; however, this is not the usual method of transfer used by materials exchanges.

Once potential liability under CERCLA has been established for a party, the next considerations are the type and extent of liability to which the party may be exposed. The legislative history of CERCLA makes clear that the standard is strict liability--liability without fault. Legislative history also indicates, though not clearly, that courts are to impose joint and several liability under principles of common and statutory law. Study of the few cases decided thus far indicates that joint and several liability will be imposed in most cases. The rule applied in the majority of cases thus far decided, and likely to be applied in the future, allows apportionment of damages only if the injury is divisible and if a defendant can show a reasonable basis upon which to apportion damages, based on the defendant's contribution to the injury. Such a showing is factually difficult to make, and therefore joint and several liability will be applied to most defendants.

Thus, under CERCLA, the waste exchange's liability may be shared jointly and severally with other parties. An exchange liable because it owns or operates a treatment facility will benefit most because all generators contributing waste may share liability. Exchanges which contract for treatment at another facility may find their potential liability expanded under principles of joint and several liability for the whole injury resulting from a release at that facility, unless they can clearly show their specific contribution (or lack of it) to the injury.

Although CERCLA liability cannot be avoided by contract, the operator of one materials waste exchange suggests that other potential legal liabilities, such as product liability and warranty, can largely be dealt with by contract.

§3 Liability of a Generator for Waste Tranferred through Waste Exchange

A generator who transfers waste through either an information or a materials exchange without any treatment or processing should incur no liability under CERCLA. 42 USC §9607(2)(3) imposed liability on those who arrange "for treatment and disposal" of hazardous substance; in the absence of treatment, no liability should accrue to the generator, even though the waste is sent to a materials exchange at which other wastes are treated.

If transfer is arranged through a clearinghouse or information exchange for a waste which will be treated by the receiving user, the generator could incur liability under CERCLA. The statute merely imposes liability on those arranging for treatment of waste they own at a facility owned by another. The receiving facility need not be characterized further. In the event of a release from the receiving facility, the user (owner or operator of the receiving facility) would share joint and several liability with the generator,

subject to either's ability to show a reasonable basis for apportionment. The use of business records to show that a generator's waste is no longer on the user's site might well be an example of a basis for apportionment or for release from liability.

Transfer of waste through a materials exchange which also treats or subcontracts treatment also results in shared liability under CERCLA. In the event of a release from the treatment facility, the liability could be shared by the generator, the exchange, and the treatment facility. Here again, a showing that the generator's waste left a facility before the release should result in relief from liability.

The comparative liability to which a generator may expose himself by using a waste exchange depends on the risks involved in each of the various alternatives. The primary question for a generator is whether to send the waste off-site at all, either for recycling or for other treatment or disposal. As discussed above, in any situation in which the waste is shipped off-site and may incur CERCLA liability the generator may be held responsible, jointly and severally, for injuries in which this waste may be involved. Choice of any off-site alternatives includes a balancing between loss of control over the waste and the somewhat unpredictable share of liability which may accrue to the generator in the event of an injury. For the off-site options, the liability may be diluted because shared with a number of parties, yet the potential injury may be larger because of greater volumes of waste. The question of potential joint liability should be an incentive to exercise great care in choosing off-site waste handlers and options.

One of the two safest, most risk-free options involves detoxification or neutralization of the waste, rendering it nonhazardous. In such a case the period during which the generator is exposed to liability is of definite

duration and is known to be terminated once the waste is rendered nonhazardous.

Detoxification on-site carries the risks associated with storage (for example, leakage, explosion, personal injury to workers or trespassers) and the risk involved in the treatment process itself. All these elements can be controlled by the generator, but under CERCLA no liability would be shared. (As in all the options to be considered, other types of liability, such as that of manufacturers of products or designers of processes, might also apply in a particular situation.) When waste is transported off-site to be treated, there are both on- and off-site storage risks, transportation risks (leaks, contamination of waterways or land, personal injury), and processing risks. Depending on the arrangements, these risks might be shared with both a transporter and a treatment facility owner/operator. Once the waste is rendered nonhazardous, however, liability should end.

Because it greatly reduces liability, detoxification is probably freer of risks than recycling. Even recycling on-site may involve some questions of risk, because the substance is still in existence in some form. Recycling off-site involves some unresolved questions about liability. For example, how far does a generator's liability extend if the recycled waste is incorporated into a new product? Does treatment by a waste exchange cut off a generator's liability for a treated product?

Such questions may discourage a generator's use of recycling options because of his concern that he may expose himself to unexpected or unknown liability. Although potentially extending for a longer time, the risks and liabilities associated with traditional waste handling methods are known or predictable within established limits and concepts. Virtually all the litigation under CERCLA to date deals with landfills. It is possible that the legal analysis used in this litigation might not be entirely applicable to

other techniques of waste management. Uncertainty of liability, rather than the applicable liability itself, can be seen as the greatest disincentive concerning liability for waste handled through an exchange. Understandably, generators are hesitant to buy "a pig in a poke" when potentially large or long-term consequences may be involved. This uncertainty should be kept in mind when risks associated with waste exchange are compared with the risks of any other waste management option.

If a waste cannot be rendered nonhazardous, the traditional handling method considered most risk-free is treatment to render waste less hazardous, reduce it in volume, or make it more amenable for storage or disposal. If such treatment is done on-site, the generator is in full control of any pretreatment storage risks (when the waste is at full strength and presumably most hazardous) and of the treatment risk.

If waste treated on-site is transferred off-site for storage, disposal, or further treatment, the generator adds the additional risks of transportation, storage, and treatment by others. The transportation, off-site storage, treatment, and disposal risks are diminished by the lowered toxicity.

Another option is treatment off-site. In this situation the on-site storage, initial transportation, and treatment risks are based on the full strength waste, but any subsequent storage and disposal risks are diminished by the lowered hazard after treatment.

The risks and liabilities associated with treatment at these various combinations of sites are the same for waste treated prior to recycling or disposal. Under CERCLA no distinctions of liability are dependent upon the purpose of treatment. Any difference in the degree of risk based on treatment will be the result of individual characteristics of the material, potential for shared liability by involving other parties, and ability to show a reasonable

basis for apportionment of damages (for example, that the waste is no longer at the site). The focal point for comparing liability incurred by treated waste is not the treatment process but the method of disposition.

The risks of long-term disposal, such as land-filling, land-farming techniques, deep well injection, or indefinite secured storage, are difficult to foresee at the outset. They may include contamination of groundwater, injury or destruction to natural resources, personal injury from leachate or from more direct contact, and liability for remedial cleanup measures. No limit on the duration of these risks seems to be imposed by statute, except for the facility owner/operator's ability to transfer his liability to the post-closure fund upon meeting specified requirements. This has the effect of eliminating one potentially liable party.

If waste is disposed on-site, the generator maintains full control over its disposition until such time as he conveys the property in some way. The generator can probably more effectively monitor the area and remain better informed about his potential liability in this situation than in any other. On the other hand, the generator may find some difficulty in later selling or leasing (or even giving away) the property because of potential liability of subsequent owners. While 42 USC §9067(e)(1) permits a party to insure or indemnify another for liability under the section, it might well be cost-effective only for generators of large quantities of waste who are certain of staying in the same location for many years. Furthermore, the public relations aspect should not be overlooked as a barrier. Liability is known to continue and is unshared (except upon sale--also a potential problem) until termination and transfer to the post-closure fund. A comparison of the exposure to liability between recycling through a waste exchange and disposing on-site balances uncertain liabilities against reasonably certain ones. It seems

likely that those companies or other generators in a position to undertake large scale on-site disposal thereby maintaining control over management techniques, might be able to reduce their potential legal liability by doing so. However, the high cost of on-site disposal and the likely reduction of property value may well outweigh any reduction in potential liability, even for the most well-heeled generators.

Probably the worst case risk to generators among waste management options is disposal off-site in a medium-to-large facility. Pretreated waste lowers the risk of release resulting from the waste itself, but in a multi-user facility the cause of the release is immaterial. It is in the context of the disposal site that the "multiplier" effect of joint and several liability is most clearly seen. As larger numbers of generators contribute larger volumes of waste to a site, it becomes increasingly difficult to separate out the contribution of one generator's waste to any overall injury caused by the site. As the ability to perceive a divisible injury decreases, the likelihood increases that a generator will be held liable for a disproportionate share or all damages resulting from the site. Therefore, while the potential for sharing liability with others is increased, so is potential responsibility for extremely expensive injuries and site cleanup. The RCRA requirement that records be kept of all waste disposed of at a landfill should facilitate dividing the injury among the several generators, and therefore should reduce the potential exposure of any one generator.

The risk of potential great future liability associated with off-site land disposal may well outweigh remaining questions as to liability for recycling. Balancing possible results, recycling through a waste exchange should be the preferred method.

AmeriCorps

Find AmeriCorps*VISTA Programs in Your State:

Alabama
Alaska
Arizona
Arkansas
California
Colorado
Connecticut
Delaware
District of Columbia
Florida
Georgia
Hawaii
Idaho
Illinois
Indiana
Iowa
Kansas
Kentucky
Louisiana
Maine
Maryland
Massachusetts
Michigan
Minnesota
Mississippi
Missouri
Montana
Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Ohio
Oklahoma
Oregon
Pennsylvania
Puerto Rico
Rhode Island
South Carolina
South Dakota
Tennessee
Texas
Utah
Vermont
Virgin Islands

AmeriCorps*VISTA

What is AmeriCorps*VISTA?

It's part of the AmeriCorps national network of service programs. AmeriCorps*VISTA has been meeting the needs of low-income communities since 1965, when it was established as Volunteers in Service to America (VISTA). Since that time, more than 110,000 committed individuals have joined forces with 15,000 local sponsors -- public agencies and nonprofit groups -- to strengthen low-income communities across the nation and carry out the mission of AmeriCorps*VISTA.

The Mission

- To strengthen and supplement efforts to eliminate poverty and poverty-related problems;
- To encourage and enable persons from all walks of life and age groups, including elderly and retired Americans, to engage in constructive volunteer service;
- To generate the commitment of private sector resources;
- To encourage volunteer service at the local level;
- To strengthen the capacities of local agencies and organizations.

The Method

AmeriCorps*VISTA, with nearly 1,000 projects and more than 4,000 members, places individuals in disadvantaged communities for a full-time, full-year commitment to build the capacity of small community-based organizations. Members are assigned to local public and private non-profit organizations to work toward meeting the community needs determined by the community itself. The AmeriCorps*VISTA member's role in addressing the problems of poverty in a particular community are to mobilize community resources, increase the capacity of the low-income community to solve problems, and ensure that activities initiated or expanded by VISTAs are sustained by the community when they leave. The members address issues in the areas of human needs, health, education, public safety, and environment.

What are some examples of AmeriCorps*VISTA projects?

In Colorado, seventeen AmeriCorps*VISTA members serving with Habitat for Humanity have recruited more than 1,000 high school and college students, homemakers, office workers, and church members to serve each weekend to build homes. Over 3,000 construction workers devote time during weekends to help in various phases of framing, dry walling, and painting houses. Members secured cash grants amounting to more than $40,000. A new program coordinated by a VISTA member and staffed by community volunteers enables Habitat to resell excess donated goods (furniture, household items, tools, and gardening supplies) to reduce building and supply costs. VISTA services helped increase the production of new homes by 100 percent at affiliates in Colorado.

The Ohio Literacy Network operates a statewide literacy program consisting of a number of local affiliates. Members have recruited over 3,000 students

Virginia
Washington
West Virginia
Wisconsin
Wyoming

and 1,500 volunteers who provide thousands of hours of service for the local projects. In a Cincinnati housing project, members set up programs for family literacy, after-school homework assistance, and assistance for learning-disabled adults. The Literacy Network also started a family literacy program aimed specifically at fathers and sons in a Cleveland neighborhood recreation center.

In New York City, at the Highbridge Community Life Center in the Bronx, VISTAs have developed an Economic Development Team which has initiated contacts with 50 foundations, private funders and government agencies in efforts to secure financial support. A total of 12 responded with commitments totaling $337,800.00. This funding has supported community job banks, job training, youth services and neighborhood revitalization activities. VISTAs have also developed a job bank database of over 200 local businesses and initiated START UPS, a job readiness training program that prepares community residents for entry level, part-time positions with United Parcel Service Metro New York.

In Alleghany, Maryland, Allegheny Health Right developed a project using AmeriCorps*VISTAs to create a database of volunteer medical professionals who see low-income patients in their offices. Since 1993, five VISTAs have coordinated the efforts of over 100 community volunteers, and recruited over 150 physicians and dentists who provide free services. The VISTAs have also generated over $900,000 in medicines donated by pharmaceutical manufacturers such as Glaxo, DuPont and Ciba Geigy. More than 105,000 individuals have benefited from these services.

How do I apply? What if I'm ready to fill out an application now?

Grab an application, print it out and send it to the Corporation for National Service. For more information, call 1-800-942-2677.

Please send program questions to: kdaly@cns.gov

Appendix D-2

List of Web Sites contained in the Report

AmeriCorps*VISTA - http://www.cns.gov/americorps/ac_vista.html

California Materials Exchange Program (CALMAX) - http://www.ciwmb.ca.gov/mrt/calmax/calmax.htm

Chadwick Financial Corporation - http://www.inkindgift.com/boutchad.htm

Iowa Waste Exchange - http://www.recycleiowa.org/tech/bawss.html

New Hampshire Materials Exchange, (NHME) - http://www.wastecapnh.org

Southeast Minnesota Recyclers' Exchange, SEMREX - http://www.wwwwis.com/semrex

Southern Waste Information Exchange (SWIX) - http://www.enviroworld.com/SWIX/

Other Materials Exchange Listings - http://www.enviroworld.com/Resources/matexchs.html

Thanks to the Kentucky Industrial Materials Exchange for sponsoring this page!

Materials Exchanges — Material Exchanges on the Web

One Approach to Solving an Old Problem by Minimizing Industrial Waste Through Recycling and Resource Reuse

What is a Material Exchange?

A material exchange is a operation that enables industrial process wastes, by-products, surpluses, or materials that do not meet specifications to be transferred from one company to another company where they are used as a process input.

Because many of these materials are typically of low or negative value, it usually does not pay to transport these materials great distances. A material exchange is therefore a regional venture by nature while at the same time large enough to include a variety of industries.

List of Material Exchanges

(* = For-Profit Material Exchange)

Alaska Materials Exchange Non-Profit
Ms. Andrea Meyer
Anchorage Chamber of Commerce
441 W. 5th Avenue, Suite 300
Anchorage, AK 99501
USA
Phone: 907-272-2401
Second Phone:
FAX: 907-272-4117
Email:
Home Page:

Alberta Waste Materials Exchange Non-Profit

Alberta Waste Materials Exchange
Non-Profit
Ms. Licia Paddison
9915-108th Street
12th Floor, Petroleum Plaza South
Edmonton, Alberta T5K 2G8
CANADA
Phone: 403-427-6982
Second Phone: 800-463-6326
FAX: 403-427-1594
Email: wastenot@env.gov.ab.ca
Home Page:
http://www.gov.ab.ca/~env/camd/awme

American Plastics Exchange, Inc.
For-Profit
Mr. Alan Zenk
1425 Hampshire Avenue S, Suite 113
Minneapolis, MN 55426
USA
Phone: 612-544-1100
Second Phone:
FAX: 612-544-9811
Email:
Home Page:

Arizona Resource Exchange Non-Profit
Ms. Jean Nielsen
University of Arizona
Facility Management #49
Tucson, AZ 85721-0049
USA
Phone: 520-626-1266
Second Phone:
FAX: 520-621-6086
Email: azre@mail.fm.arizona.edu
Home Page:

Association for Resource
Conservation Non-Profit
Ms. Julie Sullivan
9 Bittersweet Court
Centerport, NY 11721
USA
Phone: 516-757-0894
Second Phone:
FAX: 516-757-0896
Email:
Home Page:

Atlantic Coastal Action Program
(ACAP) Non-Profit
Mr. Terrence Cormier
Post Office Box 6878
Station A
Saint John, New Brunswick E20 4S3
CANADA
Phone: 506-652-2227
Second Phone:
FAX: 506-633-2184
Email:
Home Page:

Barn Raisers, Inc. Non-Profit
Ms. Maryellen McPhee
227 S. Pearl Street
Albany, NY 12202
USA
Phone: 518-462-0139
Second Phone:
FAX:
Email:
Home Page:

British Columbia Materials Exchange
Non-Profit
Ms. Katherine Day
225 Smithe Street
Suite 201
Vancouver, B.C. V6B 4X7
CANADA
Phone: 604-683-6009
Second Phone:
FAX: 604-683-7255
Email:
Home Page:

Business Material Exchange of
Wisconsin Non-Profit
Ms. Connie Jones
136 West Grand Ave.
Beloit, WI 53511
USA
Phone: 608-364-1131
Second Phone:
FAX: 608-364-1161
Email: bmex@wr.net
Home Page:

California Materials Exchange Non-
Profit
Mr. Kevin Taylor
Integrated Waste Management Board
8800 Cal Center Drive Mail Station
#23
Sacramento, CA 95826
USA
Phone: 916-255-2369

Second Phone:
FAX: 916-255-4580
Email: calmax@ciwmb.ca.gov
Home Page:
http://www.ciwmb.ca.gov/mrt/calmax/calmax.htm

California Waste Exchange Non-Profit
Ms. Claudia Moore
Department of Toxic Substances Control
Post Office Box 806
Sacramento, CA 95812-0806
USA
Phone: 916-322-4742
Second Phone:
FAX: 916-327-4495
Email:
Home Page:

Canadian Chemical Exchange For-Profit
Mr. Philippe LaRoche
900 Blondin
Ste-Adele, Quebec J0R 1L0
CANADA
Phone: 514-229-6511
Second Phone: 800-561-6511
FAX: 514-229-5344
Email: cce@adicq.qc.ca
Home Page:

Canadian Waste Materials Exchange Non-Profit
Dr. Robert Laughlin
ORTECH Corporation
2395 Speakman Drive
Mississauga, Ontario L5K 1B3
CANADA
Phone: 905-822-4111, Ext. 265
Second Phone:
FAX: 905-822-7630
Email: blaughlin@ortech.on.ca
Home Page:

Commercial Materials Exchange For-Profit
Mr. David Burt
6439 W. Riverbend Road
Dunnellon, FL 34433
USA
Phone: 352-795-9625
Second Phone:
FAX: 352-795-9626
Email: dburtfl@juno.com
Home Page:

EnviroShare Materials Exchange Non-Profit
Mr. Rick Foote
Hall County Resource Recovery
Post Office Drawer 1435
Gainesville, GA 30503
USA
Phone: 770-535-8284
Second Phone:
FAX: 770-531-3966
Email: rfoote@mindspring.com
Home Page:
http://www.enviroshare.org

Florida Waste Exchange For-Profit
Mr. Maurice Baum
A Service of Environmental Research and Restoration Corp.
2848 N State Road #7
Hollywood, FL 33021
USA
Phone: 954-967-0011
Second Phone:
FAX: 954-989-3377
Email: dpkart@icanect.net
Home Page:

Hawaii Materials Exchange Non-Profit
Ms. S. Joy Webster
Post Office Box121
Wailuku, HI 96793
USA
Phone: 808-667-7744
Second Phone: 808-572-6668
FAX: 808-572-4817
Email: sjoy@maui.net
Home Page:
http://www.maui.net/~mrghimex

Hudson Valley Materials Exchange, Inc. Non-Profit
Ms. Jill Gruber
207 Miton Turn Pike
Milton, NY 12547
USA
Phone: 914-795-5507
Second Phone:
FAX:
Email:
Home Page:

Indiana Materials Exchange Non-Profit
Ms. Diane Mellinger
Post Office Box 2931
Indianapolis, IN 46206-2931
USA
Phone: 800-968-8764, Ext.7652
Second Phone:
FAX: 614-397-7649
Email: IMExchange@aol.com
Home Page:
http://www.ai.org/idem/imex

Industrial Materials Exchange (IMEX) Non-Profit
Mr. Bill Lawrence
First Interstate Center
999 3rd Avenue, Suite 700
Seattle, WA 98104-4099
USA
Phone: 206-296-4899
Second Phone:
FAX: 206-296-3997
Email: bill.lawrence@metrokc.gov
Home Page:
http://www.metrokc.gov/lhwmp/cesqg/imextoc.html

Industrial Materials Exchange Service Non-Profit
Ms. Diane Shockey
Post Office Box 19276, #34
Springfield, IL 62794-9276
USA
Phone: 217-782-0450
Second Phone:
FAX: 217-782-9142
Email: epa8605@epa.state.il.us
Home Page:

Iowa Waste Exchange Non-Profit
Ms. Jennifer Drenner
University of Northern Iowa
75-BRC
Cedar Falls, IA 50614-0185
USA
Phone: 800-422-3109
Second Phone: 319-273-2079
FAX: 319-273-2893
Email: jennifer.drenner@uni.edu
Home Page:

Kansas Materials Exchange Non-Profit
Mr. Russell Fallis, Jr.
Post Office Box 70
Hutchinson, KS 67504-0070
USA
Phone: 316-662-0551
Second Phone:
FAX: 316-662-1413
Email:
Home Page:

Kentucky Industrial Materials Exchange Non-Profit
Mr. Cam Metcalf
Kentucky Pollution Prevention Center
420 Academic Building, U of L
Louisville, KY 40292
USA
Phone: 502-852-0965
Second Phone: 800-334-8635
FAX: 502-852-0964
Email:
jcmetc01@ulkyvm.louisville.edu
Home Page:
http://www.louisville.edu/org/kppc

La Bourse Québécoise des Matiéres Secondaires Non-Profit
Ms. Nathalie Desrosiers
900, Place d'Youville
Bureau 210
Québec, G1R 3P7
CANADA
Phone: 418-528-0908
Second Phone: 800-668-6686
FAX: 418-643-6507
Email: bqms@recyc-quebec.gouv.qc.ca
Home Page: http://www.recyc-quebec.gouv.qc.ca

Manitoba Waste Exchange Non-Profit
Mr. Glen Koroluk
Resource Conservation Manitoba
2-70 Albert Street
Winipeg, Manitoba R3B 1E7
CANADA
Phone: 204-925-3777
Second Phone:
FAX: 204-942-4207
Email: glekor10@freenet.mb.ca
Home Page:
http://www.freenet.mb.ca/iphome/r/recycle

Minnesota Materials Exchange Non-Profit

Barb Nesheim
MnTAP
1313 5th Street
Minneapolis, MN 55014
USA
Phone: 612-627-4646
Second Phone: 612-627-4643
FAX: 612-627-4769
Email: neshe005@maroon.tc.umn.edu
Home Page:

Minnesota Materials Exchange Alliance Non-Profit
Ms. Stacy Stinson
Minnesota Office of Environmental Assistance
520 Lafayette Road, Second Floor
St. Paul, MN 55155-4100
USA
Phone: 612-215-0216
Second Phone:
FAX: 612-215-0246
Email:
stacy.stinson@moea.state.mn.us
Home Page:

MISSTAP Non-Profit
Ms. Caroline Hill
Post Office Box 9595
Mississippi State, MS 39762
USA
Phone: 601-325-8454
Second Phone:
FAX: 601-325-2482
Email:
Home Page:

Montana Material Exchange Non-Profit
Mr. Michael Vogel
MSU Extension Service
Taylor Hall
Bozeman, MT 59717
USA
Phone: 406-994-3451
Second Phone:
FAX: 406-994-5417
Email:
Home Page:
http://www.montana.edu/wwwated

Nebraska Materials Exchange Program Non-Profit
Ms. Jane Polson
Keep Nebraska Beautiful, Inc.
3201 Pioneers Blvd., Suite 306
Lincoln, NE 68502
USA
Phone: 402-486-4563
Second Phone: 800-486-4562
FAX:
Email:
Home Page:

New Hampshire Waste Exchange Non-Profit
Mr. Mark Toussaint
122 N. Main Street
Concord, NH 03301
USA
Phone: 603-224-5388
Second Phone:
FAX: 603-224-2872
Email: nhmex@aol.com
Home Page: http://www.wastecapnh.org

New Jersey Industrial Waste Information Exchange Non-Profit
Mr. William Payne
50 West State Street
Suite 1310
Trenton, NJ 08608
USA
Phone: 609-989-7888
Second Phone:
FAX: 609-989-9696
Email:
Home Page:

Northeast Industrial Waste Exchange, Inc. Non-Profit
Mr. Bill Sloan
Post Office Box 2171
Annapolis, MD 21404-2171
USA
Phone: 410-280-2080
Second Phone:
FAX: 410-280-0025
Email: niwe@pop.erols.com
Home Page:

Oklahoma Waste Exchange Program Non-Profit
Mr. Fenton Rude
100 NE 10th Street
Oklahoma City, OK 73117-1212
USA
Phone: 405-271-5338
Second Phone:

FAX: 405-271-8425
Email:
Home Page:

Olmsted County Materials Exchange Non-Profit
Mr. Jack Stansfield
Olmsted County Public Works
2122 Campus Drive
Rochester, MN 55904
USA
Phone: 507-285-8231
Second Phone:
FAX: 507-287-2320
Email:
Home Page:

Ontario Waste Exchange Non-Profit
Ms. Mary Jane Hanley
ORTECH Corporation
2395 Speakman Drive
Mississauga, Ontario L5K 1B3
CANADA
Phone: 905-822-4111, Ext. 358
Second Phone:
FAX: 905-822-7630
Email: mjhanley@ortech.on.ca
Home Page:

Portland Chemical Consortium Non-Profit
Dr. Bruce Brown
Post Office Box 751
Portland, OR 97207-0751
USA
Phone: 503-725-4270
Second Phone:
FAX: 503-725-3888
Email:
Home Page: http://www-adm.pdx.edu/user/pcc/default.htm

ProMax Non-Profit
Ms. Allison Fraley
Post Office Box 1188
Santa Cruz, CA 95061-1188
USA
Phone: 408-426-5925, x12
Second Phone:
FAX: 408-425-1404
Email: ecoact@crutio.com
Home Page:
http://www.crutio.com/~ecoact/ProMax.html

RENEW Non-Profit
Ms. Hope Castillo
Texas Natural Resource Concervation Commission
Post Office Box 13087, MC-112
Austin, TX 78711-3087
USA
Phone: 512-239-3171
Second Phone:
FAX: 512-239-3165
Email: hcastill@tnrcc.state.tx.us
Home Page:
http://www.tnrcc.state.tx.us/admin/topdoc/pd/002/

Renew Resource Exchange Non-Profit
Ms. Jocelyn Rennie
ARC Environment
Private Bag 68 912
Newton, Auckland DX CP28008
NEW ZEALAND
Phone: 09/366-2070
Second Phone:
FAX: 09/336-2155
Email:
Home Page:

Rocky Mountain Materials Exchange Non-Profit
Ms. Julie Klein
999 18th Street
Suite 2750
Denver, CO 80202
USA
Phone: 303-297-0180, Ext.103
Second Phone:
FAX: 303-297-0188
Email: rmorris@csn.net
Home Page: http://www.rmmex.com

Saskatchewan Waste Materials Exchange Non-Profit
Ms. Cindy Jackson
Saskatchewan Research Council
515 Henderson Drive
Regina, Saskatchewan S4N 5X1
CANADA
Phone: 306-787-9800
Second Phone:
FAX: 306-787-8811
Email:
Home Page:

ScrapMatch Non-Profit
Ms. Kym Patterson
Arkansas Industrial Development Commission
One State Capitol Mall
Little Rock, AR 72201
USA
Phone: 501-682-7332
Second Phone: 501-682-7317
FAX: 501-682-2703
Email: Kym_Patterson@aidc.state.ar.us
Home Page: http://www.aidc.state.ar.us

SEMREX Non-Profit
Ms. Anne Morse
171 West 3rd Street
Winona, MN 55987
USA
Phone: 507-457-6464
Second Phone:
FAX: 507-457-6469
Email: amorse@NT1.co.winona.mn.us
Home Page: http://www.wwwwis.com/SEMREX

Sonoma County Materials Exchange Non-Profit
Ms. Karina Mahl
575 Administration Drive, Room 117A
Santa Rosa, CA 95403
USA
Phone: 707-527-3668
Second Phone:
FAX: 707-527-3701
Email: sonomax@ap.net
Home Page: http://users.ap.net/~sonomax/

Southeast Waste Exchange Non-Profit
Ms. Maxie May
Urban Institute
UNC Charlotte 9201 University Blvd.
Charlotte, NC 28223-0001
USA
Phone: 704-547-4289
Second Phone:
FAX: 704-547-3178
Email: mlmay@unccvm.uncc.edu
Home Page:

Southern New England Materials Exchange Non-Profit
Ms. Shannon Haines
R.I. Resource Recovery Corporation
65 Shun Pike
Johnston, RI 02919
USA
Phone: 401-942-1430, Ext. 115
Second Phone:
FAX: 401-946-5174
Email: recycle@loa.com
Home Page: http://www.state.ri.us/rirrc/

Southern Waste Information Exchange Non-Profit
Mr. Eugene B. Jones
Post Office Box 960
Tallahassee, FL 32302
USA
Phone: 800-441-7949
Second Phone: 904-386-6280
FAX: 904-385-4020
Email: swix@mailer.fsu.edu
Home Page: http://www.webvista.com/swix/

Tennessee Materials Exchange Non-Profit
Dr. Richard Buggeln
226 Captol Blvd. Bldg.
Suite 606
Nashville, TN 37219
USA
Phone: 615-532-8881
Second Phone:
FAX: 615-532-4937
Email: buggeln@utk.edu
Home Page: Http://funnelweb.utcc.utk.edu/~cis/tme_frm.htm

Transcontinental Materials Exchange Non-Profit
Ms. Rita Czek
College of Civil & Environmental Engineering
Baton Rouge, LA 70803
USA
Phone: 504-388-4594
Second Phone:
FAX: 504-388-8652
Email: ceczek@eng.lsu.edu
Home Page:

TSDX Corporation For-Profit

Mr. Eliot Cooper
1667 Cole Blvd. Suite 400
Golden, CO 80401
USA
Phone: 303-202-6620
Second Phone:
FAX: 303-237-1103
Email: edc@tsdx.com
Home Page: http://www.tsdcentral.com

Ventura County Material Exchange (VCMAX) Non-Profit
Ms. Lorraine Timmons
800 S. Victria Avenue
Ventrua, CA 93009
USA
Phone: 805-648-9224
Second Phone: 805-654-2600
FAX: 805-648-9233
Email: swmd@rain.org
Home Page:
http://www.rain.org/~swmd/vcmax.html

Vermont Business Materials Exchange Non-Profit
Ms. Ellen Roffman
Post Office Box 430
Newfane, VT 05345
USA
Phone: 802-365-7991
Second Phone:
FAX: 802-365-7996
Email: ppress@sover.net
Home Page: http://www.enviro-source.com/vt/vt1a.cfm

Waste X change, Inc. For-Profit
Mr. Jose A. Sanchez
West 339 Calderon Street
San Juan, PR 00926
USA
Phone: 787-748-0433
Second Phone:
FAX:
Email: sanchez@coqui.net
Home Page:

Wastelink, Division of Tencon, Inc. For-Profit
Ms. Mary E. Malotke
140 Wooster Pike
Milford, OH 45150
USA
Phone: 513-248-0012
Second Phone:
FAX: 513-248-1094
Email:
Home Page:

WasteNot Recycling, Inc. Non-Profit
Mr. Jack Hope
13852 Park Center Road, Bay-A
Herndon, VA 20171
USA
Phone: 703-787-0200
Second Phone:
FAX: 703-787-0660
Email: wastenot@aol.com
Home Page:

Western Massachusetts Material Exchange Non-Profit
Mr. Jim Desmond
26 Market Street
Northampton, MA 01060
USA
Phone: 413-586-7350
Second Phone:
FAX: 413-586-7351
Email: cetnoho@aol.com
Home Page: