Special Report:
The Quantified Impact of Tropical Storm Lee Flooding on Northeastern Pennsylvania’s Manufacturing Industry

Flood water from the Susquehanna River covers the west end of Bloomsburg, including Rieter Automotive North America, Inc., manufacturer of automotive carpeting, 16 hours before the river crested at record heights.

Prepared by the Northeastern Pennsylvania Industrial Resource Center (NEPIRC)
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Susquehanna River flood waters cover the Bloomsburg Airport and the Kawneer NA manufacturing facility, an Alcoa company.

Flood water from the Susquehanna River surrounds the Windsor Foods plant in Bloomsburg.
On September 8, 2011, the remnants of Tropical Storm Lee began dropping what would eventually become a record level of single-storm continuous rainfall onto communities throughout northeastern Pennsylvania. Unlike the region’s most recent previous natural disaster, Hurricane Agnes in 1972, Tropical Storm Lee traveled directly along the Susquehanna River Basin, depositing nearly 14 inches of rainfall into the river and its tributaries. Rain quickly found its way to low-lying areas and began to accumulate in large, expected pools, as the ground, already saturated by the third (3rd) highest level of August rainfall in more than a century, could not absorb the new precipitation. Nearly two-thirds of August rain fell during the last week of the month as Hurricane Irene made its way through northeastern Pennsylvania, and many communities were repairing flood and high-wind damage from that weather event when Tropical Storm Lee arrived. The result was devastating regional flooding.

While relatively new levee systems protected some towns from river, stream and tributary overflows, and improved storm drains handled heavy rainfall in certain communities, other areas of northeastern Pennsylvania were not as fortunate. Towns such as Pittston, West Pittston, Tunkhannock, Edwardsville, West Nanticoke, Athens and Towanda experienced extreme flooding. In some areas, entire towns were destroyed. In total, over 100,000 people were displaced by the storm and related flooding. When Tropical Storm Lee continued its northeasterly path into New England, it left northeastern Pennsylvania with flood conditions that in many respects rivaled that of Hurricane Agnes 39 years earlier. In the end, 26 Pennsylvania counties were declared Disaster Areas by the Federal Emergency Management Agency (FEMA).

In response to the devastating flooding caused by Tropical Storm Lee, NEPIRC – the Northeastern Pennsylvania Industrial Resource Center – has been reaching out to northeastern Pennsylvania manufacturers offering information, providing free rebuilding assistance, and gathering data. In total, over 500 regional manufacturers were contacted so that their flood damage, if any, could be assessed, their immediate needs could be identified, and assistance could be provided.

The intent of this report is to act as the collective voice for northeastern Pennsylvania manufacturers by identifying any obstacles to achieving and surpassing pre-disaster production levels and by conveying manufacturer needs to local, state and federal agencies so that support and assistance resources can be authorized and allocated in ways that will obtain maximum results.

The Aftermath of Tropical Storm Lee

- Worst flooding in nearly 40 years
- **13 citizen deaths**
- Over **100,000 residents displaced**
- **26 Pennsylvania counties** declared Disaster Areas by FEMA
- Over **35% of Pennsylvania’s land mass impacted** by flooding
- Over **12,000 miles of roads and 3,000 miles of bridges damaged**
Background

There are 1,071 manufacturing companies located throughout northeastern Pennsylvania. Collectively, they provide family-sustaining jobs to over 47,000 individuals each workday and generate nearly $5.4 billion of Gross State Product each year. Six (6) northeastern Pennsylvania counties – Bradford, Columbia, Luzerne, Sullivan, Susquehanna and Wyoming – were severely impacted by Tropical Storm Lee flooding and subsequently declared Disaster Areas by FEMA. Those counties are home to 567 manufacturers that provide a total of 29,134 full-time jobs.

Manufacturing is the top employment sector within two (2) of those six (6) counties, the second (2nd) highest employment sector within another county and among the top four (4) employment sectors within each of the remaining three (3) counties. Overall, manufacturing accounts for one (1) out of every seven (7) jobs within the flood-affected counties, or 14.28% of total employment. The average annual manufacturing salary within the six (6) counties is $42,510, not inclusive of benefits.

Process

Beginning on September 9, 2011, NEPIRC began outreach efforts to contact and assist all manufacturers within flooded regions of northeastern Pennsylvania.

- On September 9, 2011 over 1,700 emails offering assistance were sent to multiple contacts within manufacturers throughout flood-affected counties;
- On September 12, 2011 a second (2nd) volley of over 1,700 emails was sent announcing five (5) special assistance programs authorized by NEPIRC’s Board of Directors;
- On September 14, 2011 NEPIRC began calling each of the 567 manufacturers within the six (6) flood-impacted counties;
- On September 16, 2011, NEPIRC began conducting personal visits to manufacturers that had not responded to email and telephone correspondence.

Through these outreach efforts, NEPIRC was able to connect with or otherwise determine the status of 88% (or 503) of the 567 targeted manufacturers. The status of the remaining 12% (or 64) of manufacturers remains unknown. Thus, the impact of the flood on those companies is not reflected within this report.

Manufacturing Within the Six Northeastern Pennsylvania Disaster Areas

- 567 manufacturing establishments
- 29,134 full-time jobs (2nd largest industry overall)
- $3.35 billion of annual Gross State Product
- $1.24 billion of annual payroll
- $94.9 million of annual federal employer payroll taxes (est.)
- $38.1 million of annual state payroll tax (est.)

NEPIRC confirmed the post-flood status of 88% of these manufacturers.
Results

For purposes of this report, direct impact is defined as significant damage to the manufacturing facility, damage to manufacturing equipment beyond that which is easily repairable, loss of finished inventory or work-in-process inventory and/or loss of productive capacity for a period beyond 15 business days due to other reasons associated with flooding. Indirect impact is defined as temporary disruption in production due to issues affecting the manufacturer’s workforce, vendors, customers, transportation, utilities and other business inputs.

Nearly 96% of the manufacturers contacted reported being indirectly affected by the flood. Among this group, the great majority reported that they experienced more than one (1) indirect impact. The most frequent types of indirect impact were labor losses due to employee time away from work, material shortages and late incoming or outgoing deliveries due to transportation disruptions, and/or productivity losses due to power outages and time-consuming equipment restart protocols. Over 100 companies attributed their indirect impact to supply chain disruptions other than material transportation issues, with the most common cause being the temporary or long-term cessation of production at another flood-affected company within their Pennsylvania-based supply chain.

In most cases, the cause(s) of indirect flood impact were remedied within 8 to 12 business days, with the exception of labor losses, as some employees remained away from work for longer periods to address personal issues resulting from the flood. Most manufacturers with indirect impacts estimated their unrecoverable productivity losses at between three (3) and five (5) days of production. Based upon average per-day and per-employee production statistics confirmed by a 2011 Cleveland State University study of the manufacturing industry within northeastern Pennsylvania, that amounts to between $28.47 million and $47.46 million of lost production.

These same manufacturers cautioned, however, that the flood caused additional losses that could not be quantified at the time of NEPIRC’s communication with them, such as delays in order delivery, lost sales, potential lost customers and costs associated with late-delivery penalties or additional product shipping fees.

While only a small percentage of the manufacturers NEPIRC contacted reported direct impacts from the flood, those companies, which support 1,954 full-time jobs, sustained considerable damage and expressed an immediate need for assistance.

Several flood-affected manufacturers were unable to provide NEPIRC with dollar-value estimates of their flood losses, citing either company confidentiality policies and/or the lack of reliable loss estimates at the time of NEPIRC’s interview. However, those that were able to quantify and disclose loss information reported over $65.3 million in flood-related losses. Of that amount, a total of $17.8 million was assigned to machinery/equipment losses and $6.4 million was attributed to inventory losses. This group also reported the loss of nearly $4.4 million in sales due to the lack of production capability. Slightly more than $2 million was associated with building damage or loss, although NEPIRC believes that amount to be understated, as several respondents were renting their facility at the time of the flood and, therefore, may have included only the level of building enhancement damage in their loss estimates – not the level of building structural damage.

Indirect Impacts of Flooding

• 96% of manufacturers contacted reported one (1) or more type(s) of indirect impact
• Most manufacturers lost between three (3) and five (5) days of productivity
• Between $28.47 million and $47.46 million of total lost production
At the time of NEPIRC’s interviews, companies that reported $33.4 million of direct flood impact were not authorized to provide additional details. Although Figure 1 summarizes total manufacturer-reported direct flood impacts as of September 30, 2011, it should be noted that most directly-affected manufacturers reported the potential for significant future losses that could not be quantified at the time of NEPIRC’s interviews – particularly the permanent loss of customers and employees.

These companies, which together reported over $65.3 million in flood-related losses, indicated only $6.7 million in total flood insurance coverage. Thus, their total net loss exposure surpasses $58.6 million.

**Manufacturer Response**

Fortunately, each flood-affected company reported a high desire to rebuild. At the time of NEPIRC’s surveys, 41% of affected companies intended to re-open at their existing facility after performing substantial reconstruction and purchasing new equipment. Of those that cited a reason for that decision, most stated that it was important that they remain proximate to their workforce. Others expressed an overall commitment to the communities in which they reside. Nearly 20% of affected companies plan to re-open at a new facility within the same general area of their currently-damaged location, with a strong bias towards Keystone Opportunity Zone properties. Nearly 40% of the group exhibited a willingness to re-open, but had not yet decided on whether to rebuild at their current location, move to a different nearby facility or relocate outside of the area altogether.

When asked to rate each of six (6) possible flood assistance programs in terms of their expected efficiency and effectiveness in helping them recover from the floods of Tropical Storm Lee, 73% of directly-affected companies expressed support for low-interest or interest-free plant and equipment loans.
as an effective mechanism to facilitate rebuilding efforts, 64% identified the provision of reduced-cost or subsidized technical business assistance (e.g. shop floor layout assistance, new equipment selection assistance, project management assistance, etc...) as an effective business rebuilding tool and 36% favored the provision of free site selection assistance. While 27% of the group believed that the approval of additional industrial sites as Keystone Opportunity Zone properties would be an effective means of assistance, only 9% of respondents expressed a preference for tax credits or other tax-reducing incentives as a way to recover from flood damage. Figure 2 provides more detail regarding the responses received.

In addition to ranking the six (6) initiatives shown in Figure 2, this group of manufacturers was also asked to self-identify possible Commonwealth of Pennsylvania-funded or federally-funded initiatives that they felt would yield significant flood recovery results. Their recommendations include:

- **Low-interest or interest-free working capital loans:** to cover periods of temporary negative cashflow that may occur from October, 2011 through December, 2011 as a result of low/no sales during the months of September, 2011 and October, 2011;

- **Quick-turnaround loans against signed customer purchase orders** sufficient to enable manufacturers to secure the raw materials needed to fulfill those orders;

- **Subsidies for workforce training costs** that may be incurred to train new and existing employees on the proper use of new equipment and updated technology; and

- **Subsidies for the provision of professional services to identify new customers and new markets** as a means to replace customers that have been, or will be, lost during the rebuilding process.

Manufacturer-Recommended Federally-Funded or State-Funded Flood Recovery Initiatives

- **Low Interest or Interest-Free Working Capital Loans** to cover periods of negative cashflow from lost sales

- **Quick-Turnaround Loans Based Upon Signed Customer Purchase Orders** to purchase raw materials to fulfill those orders

- **Subsidies for Workforce Training Costs** to train new and existing employees on the proper use of new equipment and updated technology

- **Subsidies for Professional Services to Identify New Customers and New Markets** to replace lost customers

**Figure 2. Effectiveness of Proposed Flood Relief Programs**

(as reported by manufacturers)

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Effectiveness</th>
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<tbody>
<tr>
<td>Low-Interest or Interest-Free P&amp;E Loans</td>
<td>73%</td>
</tr>
<tr>
<td>Reduced-Cost or Subsidized Technical Business Assistance</td>
<td>64%</td>
</tr>
<tr>
<td>Site Selection Assistance</td>
<td>36%</td>
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<tr>
<td>Creation of Additional KOZ Locations</td>
<td>27%</td>
</tr>
<tr>
<td>Outsourced Production Services</td>
<td>18%</td>
</tr>
<tr>
<td>Tax Credits or Other Tax Incentives</td>
<td>9%</td>
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</tbody>
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Summary

Tropical Storm Lee impacted, either directly or indirectly, nearly every manufacturer within the six (6) FEMA-declared Disaster Areas of northeastern Pennsylvania.

Nearly all manufacturers within Bradford, Columbia, Luzerne, Sullivan, Susquehanna and Wyoming counties reported indirect impacts, which are estimated at between $28.47 million and $47.46 million at a minimum.

A smaller number of manufacturers reported direct impacts from Tropical Storm Lee flooding, primarily in the areas of lost machinery and equipment, lost inventory and lost sales. In total, $65.3 million of direct flood-related losses were confirmed.

Given the timing of NEPIRC’s interviews and respondent uncertainties regarding the exact time at which they will return to full productivity, the ability of their workforce to proficiently operate new equipment, and the reactions of customers to their temporary loss of production capability, the full extent of flood-related impacts on northeastern Pennsylvania’s manufacturing industry could not be exactly ascertained. While this report quantifies total flood impact at between $93.8 million and $112.8 million, actual impacts could greatly exceed those levels.

These losses are severe enough to warrant federal agency and Commonwealth of Pennsylvania support for manufacturing-specific flood relief efforts.

Manufacturers demonstrated widespread support for low-interest and interest free loans, the provision of reduced-cost or subsidized technical assistance and free site selection assistance as effective tools for expediting their return to full productivity.

Manufacturers also suggested the creation of working capital loan funds, quick-turnaround loan funds, subsidies for workforce training costs and subsidies for efforts to identify new customers and new markets as federally-funded or Commonwealth of Pennsylvania-funded initiatives that will accelerate their recovery and thereby preserve and create jobs within northeastern Pennsylvania.

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Milazzo Industries, Inc., in Pittston, suffered very large losses of raw material and product.

NEPIRC is a publicly-funded organization that exists to enhance the profitability of northeastern Pennsylvania’s manufacturers and thereby create jobs within the Commonwealth of Pennsylvania. NEPIRC receives support from the Commonwealth of Pennsylvania Department of Community & Economic Development and the U.S. Department of Commerce National Institute of Standards & Technology Manufacturing Extension Partnership Program to pursue its mission.

Information contained within this report was obtained from the National Oceanic and Atmospheric Administration (NOAA), Pennsylvania Department of Labor & Industry’s Center for Workforce Information & Analysis (September, 2011) and Pennsylvania’s True Commonwealth: The State of Manufacturing – Challenges and Opportunities (February, 2011).

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