



# INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

*We Protect Hoosiers and Our Environment.*

*Mitchell E. Daniels Jr.*  
Governor

*Thomas W. Easterly*  
Commissioner

100 North Senate Avenue  
Indianapolis, Indiana 46204  
(317) 232-8603  
Toll Free (800) 451-6027  
[www.idem.IN.gov](http://www.idem.IN.gov)

TO: Interested Parties / Applicant

DATE: November 28, 2012

RE: Futurex, Inc. / 121 - 32303 - 00012

FROM: Matthew Stuckey, Branch Chief  
Permits Branch  
Office of Air Quality

## Notice of Decision: Approval - Registration

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to IC 4-21.5-3-4(d) this order is effective when it is served. When served by U.S. mail, the order is effective three (3) calendar days from the mailing of this notice pursuant to IC 4-21.5-3-2(e).

If you wish to challenge this decision, IC 4-21.5-3-7 requires that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, 100 North Senate Avenue, Government Center North, Suite N 501E, Indianapolis, IN 46204, **within eighteen (18) calendar days of the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

- (1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
- (2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
- (3) The date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

- (1) the name and address of the person making the request;
- (2) the interest of the person making the request;
- (3) identification of any persons represented by the person making the request;
- (4) the reasons, with particularity, for the request;
- (5) the issues, with particularity, proposed for considerations at any hearing; and
- (6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosures  
FN-REGIS.dot 1/2/08



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**REGISTRATION  
OFFICE OF AIR QUALITY**

**Futurex, Inc.  
80 East Smith Street,  
70 North Main Street, and  
196 East Smith Street  
Bloomington, Indiana 47832**

Pursuant to 326 IAC 2-5.1 (Construction of New Sources: Registrations) and 326 IAC 2-5.5 (Registrations), (herein known as the Registrant) is hereby authorized to construct and operate subject to the conditions contained herein, the source described in Section A (Source Summary) of this registration.

|  |                                     |
|--|-------------------------------------|
| Registration No.: M121-32303-00012   |                                     |
| Issued by:<br><br>Iryn Calilung, Section Chief<br>Permits Branch<br>Office of Air Quality | Issuance Date:<br>November 28, 2012 |

## SECTION A

## SOURCE SUMMARY

This registration is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the source contained in conditions A.1 and A.2 is descriptive information and does not constitute enforceable conditions. However, the Registrant should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Registrant to obtain additional permits pursuant to 326 IAC 2.

### A.1 General Information

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The Registrant owns and operates a stationary plastic extrusion plant.

|                              |   |
|------------------------------|---|
| Source Address:              | 80 East Smith Street, Bloomington, Indiana 47832<br>70 North Main Street, Bloomington, Indiana 47832<br>196 East Smith Street, Bloomington, Indiana 47832                     |
| General Source Phone Number: | (765) 592-1127  |
| SIC Code:                    | 3089 (Plastics Products, Not Elsewhere Classified)  |
| County Location:             | Parke   |
| Source Location Status:      | Attainment for all criteria pollutants  |
| Source Status:               | Minor Source Operating Permit Program<br>Minor Source, under PSD and Emission Offset Rules<br>Minor Source, Section 112 of the Clean Air Act<br>Not 1 of 28 Source Categories |

### A.2 Source Definition

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This source consists of the following plants:

- (a) Plant 1 is located at 80 East Smith Street, Bloomington, Indiana, Plant ID: 121-00012;
- (b) Plant 2 is located at 70 North Main Street, Bloomington, Indiana, Plant ID: 121-00012;  
and
- (c) Plant 3 is located at 196 East Smith Street, Bloomington, Indiana Plant ID: 121-00013.

These plants are located on contiguous properties, have the same SIC codes of 3089 and are under common control, therefore they will be considered one (1) source, as defined by 326 IAC 2-7-1(22).

For permitting purposes, this source will now use the Plant ID 121-00012.

### A.3 Emission Units and Pollution Control Equipment Summary

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This stationary source consists of the following emission units and pollution control devices:

#### Plant 1 (80 East Smith Street)

- (a) Two (2) blenders, identified as blender 1 and blender 2, constructed in 1975, with a combined maximum capacity of 511 pounds of polyethylene pellets and colorant per hour, using no controls and exhausting inside the building.
- (b) Five (5) electric extruders, each with a maximum capacity 102.4 lbs polyethylene pellets and colorant per hour using no controls and exhausting inside the building consisting of:
  - (1) Line 1, constructed in 1975,
  - (2) Line 2, constructed in 1976,
  - (3) Line 3, constructed in 1976,

- (4) Line 4, constructed in 1975, and
- (5) Line 5 constructed in 1978.
- (c) Five (5) electric treaters, each with a maximum capacity of 102.4 lbs of plastic (polyethylene) sheet per hour, using no controls and exhausting inside the building.
- (d) One (1) cutting operation using a cyclone for particulate control, exhausting inside the building, and consisting of:
  - One (1) 20" vertical band saw, constructed in 1990, with maximum capacity of 511 pounds of polyethylene per hour.
- (e) Five (5) granulators, each with a maximum capacity 102.4 lbs polyethylene pellets and colorant per hour using no controls and exhausting inside the building consisting of:
  - (1) Line 1, constructed in 1975,
  - (2) Line 2, constructed in 1976,
  - (3) Line 3, constructed in 1976,
  - (4) Line 4, constructed in 1975, and
  - (5) Line 5 constructed in 1978.
- (f) Six (6) storage silos, identified as Silo 1 through Silo 6, with a maximum storage capacity of 42.5 tons of polystyrene pellets each.
- (g) Natural gas-fired combustion sources with heat input equal to or less than ten (10) million Btu per hour, including the following:
  - (1) Two (2) natural gas-fired heaters, with a maximum heat input capacity of 0.15 MMBtu/hr, each, using no controls and exhausting inside.
  - (2) One (1) natural gas-fired forced air furnace, with a maximum heat input capacity of 0.10 MMBtu/hr, using no controls and exhausting inside.
- (h) Paved roads and unpaved roads.

**Plant 2 (70 North Main Street)**

- (i) One (1) silk screen operation, consisting of:
  - (1) Two (2) silk screening lines, identified as line 1 and 2, constructed in 2006, with a maximum speed line of 114 feet per minute and maximum printing width of 3 feet, using no control and exhausting inside.
  - (2) One (1) silk screening lines, identified as line 3, constructed in 2006, with a maximum speed line of 208 feet per minute and maximum printing width of 3 feet, using no control and exhausting inside.
- (j) Natural gas-fired combustion sources with heat input equal to or less than ten (10) million Btu per hour, including the following:

- (1) One (1) natural gas-fired forced air furnace, with a maximum heat input capacity of 0.20 MMBtu/hr, using no controls and exhausting inside.
  - (2) Three (3) natural gas-fired heaters, with a maximum heat input capacity of 0.25 MMBtu/hr, each, using no controls and exhausting inside.
  - (3) Two (2) natural gas-fired heater, with a maximum heat input capacity of 0.15 MMBtu/hr, using no controls and exhausting inside.
  - (4) One (1) natural gas-fired forced air furnace, with a maximum heat input capacity of 0.112 MMBtu/hr, using no controls and exhausting inside.
  - (5) One (1) natural gas-fired heat pump, with a maximum heat input capacity of 0.12 MMBtu/hr, using no controls and exhausting inside.
- (k) Paved roads and unpaved roads.

**Plant 3 (196 East Smith Street)**

- (l) Two (2) blenders, identified as blender 1 and blender 2, constructed in 1975, with a combined maximum capacity of 511 pounds of polyethylene pellets and colorant per hour, using no controls and exhausting inside the building.
- (m) Ten (10) electric extruders, each with a maximum capacity 126.67 lbs polyethylene pellets, 125 lbs of polystyrene and colorant per hour using no controls and exhausting inside the building consisting of:
  - (1) Line 22, constructed in 2011,
  - (2) Line 23, constructed in 1984,
  - (3) Line 24, constructed in 1985,
  - (4) Line 25, constructed in 1985,
  - (5) Line 26 constructed in 1987,
  - (6) Line 28, constructed in 1987,
  - (7) Line 31, constructed in 2009,
  - (8) Line 32, constructed in 1992,
  - (9) Line 33, constructed in 2008, and
  - (10) Line 34, constructed in 2008.
- (n) One (1) cutting operation using a cyclone for particulate control, exhausting inside the building, and consisting of:

One (1) 20" vertical band saw, identified as band saw, constructed in 1984, with maximum capacity of 1,140 pounds of polystyrene per hour.
- (o) One (1) woodworking operation, identified as miter saw, constructed in 2011, with a maximum capacity of 2,500 pounds of wood per hour, using no controls and exhausting inside the building.

- (p) Two (2) GMAW welders, constructed in 1975 and 1999, with a combined maximum capacity of 371 lbs of E70S-6 electrodes per year, using no controls, and exhausting inside the building.
- (q) One (1) plasma cutter, constructed in 2009, with a maximum cutting rate of 20 inches per hour.
- (r) One (1) parts washer, constructed in 2002, that does not exceed 18 gallons per twelve (12) months.
- (s) Twelve (12) granulators, using no controls and exhausting inside the building consisting of:
  - (1) Line 22, with a maximum capacity of 126.67 pounds of polyethylene per hour and constructed in 2011,
  - (2) Line 23 with a maximum capacity of 126.67 pounds of polyethylene per hour and constructed in 2004,
  - (3) Line 24, with maximum capacity of 126.67 pounds of polyethylene per hour and constructed in 2008,
  - (4) Line 25, with maximum capacity of 126.67 pounds of polyethylene per hour and constructed in 2004.
  - (5) Line 26, with maximum capacity of 126.67 pounds of polyethylene per hour and constructed in 2004,
  - (6) Line 28 with maximum capacity of 126.67 pounds of polyethylene per hour and constructed in 2004,
  - (7) Line 31, with maximum capacity of 126.67 pounds of polyethylene per hour and constructed in 2009,
  - (8) Line 32, with maximum capacity of 126.67 pounds of polyethylene per hour and constructed in 2004,
  - (9) Line 33, with a maximum capacity of 126.67 pounds of polyethylene per hour and constructed in 2008,
  - (10) Line 34, with a maximum capacity of 125 lbs of polystyrene, constructed in 2008,
  - (11) North Grinding West, constructed in 2007, and
  - (12) North Grinding East constructed in 2008.
- (t) Ten (10) storage silos, identified as Silo 1 through Silo 10, with a maximum storage capacity of 85,000 lbs of Polyethylene pellets or polystyrene pellets, each.
- (u) Natural gas-fired combustion sources with heat input equal to or less than ten (10) million Btu per hour, including the following:
  - (1) One (1) natural gas-fired heater, with a maximum heat input capacity of 0.15 MMBtu/hr, using no controls and exhausting inside.

- (2) One (1) natural gas-fired heater, with a maximum heat input capacity of 0.1 MMBtu/hr, using no controls and exhausting inside.
- (3) One (1) natural gas-fired heater, with a maximum heat input capacity of 0.075 MMBtu/hr, using no controls and exhausting inside.
- (v) Paved roads and unpaved roads.

## **SECTION B GENERAL CONDITIONS**

### **B.1 Definitions [326 IAC 2-1.1-1]**

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Terms in this registration shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, the applicable definitions found in the statutes or regulations (IC 13-11, 326 IAC 1-2 and 326 IAC 2-1.1-1) shall prevail.

### **B.2 Effective Date of Registration [IC 13-15-5-3]**

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Pursuant to IC 13-15-5-3, this registration is effective immediately, unless a petition for stay of effectiveness is filed and granted according to IC 13-15-6-3, and may be revoked or modified in accordance with the provisions of IC 13-15-7-1.

### **B.3 Registration Revocation [326 IAC 2-1.1-9]**

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Pursuant to 326 IAC 2-1.1-9 (Revocation), this registration to operate may be revoked for any of the following causes:

- (a) Violation of any conditions of this registration.
- (b) Failure to disclose all the relevant facts, or misrepresentation in obtaining this registration.
- (c) Changes in regulatory requirements that mandate either a temporary or permanent reduction of discharge of contaminants. However, the amendment of appropriate sections of this registration shall not require revocation of this registration.
- (d) For any cause which establishes in the judgment of IDEM the fact that continuance of this registration is not consistent with purposes of this article.

### **B.4 Prior Permits Superseded [326 IAC 2-1.1-9.5]**

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- (a) All terms and conditions of permits established prior to Registration No. 121-32303-00012 and issued pursuant to permitting programs approved into the state implementation plan have been either:
  - (1) incorporated as originally stated,
  - (2) revised, or
  - (3) deleted.
- (b) All previous registrations and permits are superseded by this registration.

### **B.5 Annual Notification [326 IAC 2-5.1-2(f)(3)] [326 IAC 2-5.5-4(a)(3)]**

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Pursuant to 326 IAC 2-5.1-2(f)(3) and 326 IAC 2-5.5-4(a)(3):

- (a) An annual notification shall be submitted by an authorized individual to the Office of Air Quality stating whether or not the source is in operation and in compliance with the terms and conditions contained in this registration.
- (b) The annual notice shall be submitted in the format attached no later than March 1 of each year to:

Indiana Department of Environmental Management  
Compliance and Enforcement Branch, Office of Air Quality  
100 North Senate Avenue  
MC 61-53 IGCN 1003  
Indianapolis, IN 46204-2251

- (c) The notification shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

**B.6 Source Modification Requirement [326 IAC 2-5.5-6(a)]**

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Pursuant to 326 IAC 2-5.5-6(a), an application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

**B.7 Registrations [326 IAC 2-5.1-2(i)]**

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Pursuant to 326 IAC 2-5.1-2(i), this registration does not limit the source's potential to emit.

**B.8 Preventive Maintenance Plan [326 IAC 1-6-3]**

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- (a) If required by specific condition(s) in Section D of this registration, the Registrant shall prepare and maintain Preventive Maintenance Plans (PMPs) no later than ninety (90) days after issuance of this registration or ninety (90) days after initial start-up, whichever is later, including the following information on each facility:

- (1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;
- (2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and
- (3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

If, due to circumstances beyond the Registrant's control, the PMPs cannot be prepared and maintained within the above time frame, the Registrant may extend the date an additional ninety (90) days provided the Registrant notifies:

Indiana Department of Environmental Management  
Compliance and Enforcement Branch, Office of Air Quality  
100 North Senate Avenue  
MC 61-53 IGCN 1003  
Indianapolis, Indiana 46204-2251

The Registrant shall implement the PMPs.

- (b) A copy of the PMPs shall be submitted to IDEM, OAQ upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ may require the Registrant to revise its PMPs whenever lack of proper maintenance causes or is the primary contributor to an exceedance of any limitation on emissions.
- (c) To the extent the Registrant is required by 40 CFR Part 60 or 40 CFR Part 63 to have an Operation Maintenance, and Monitoring (OMM) Plan for a unit, such OMM Plan is deemed to satisfy the PMP requirements of 326 IAC 1-6-3 for that unit.

**SECTION C**

**SOURCE OPERATION CONDITIONS**

Entire Source

**Emission Limitations and Standards [326 IAC 2-5.1-2(g)] [326 IAC 2-5.5-4(b)]**

**C.1 Opacity [326 IAC 5-1]**

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Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this registration:

- (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

**C.2 Fugitive Dust Emissions [326 IAC 6-4]**

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The Registrant shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions).

**SECTION D.1**

**OPERATION CONDITIONS**

**Facility Description [326 IAC 2-5.1-2(f)(2)] [326 IAC 2-5.5-4(a)(2)]:**

**Plant 1 (80 East Smith Street)**

- (a) Two (2) blenders, identified as blender 1 and blender 2, constructed in 1975, with a combined maximum capacity of 511 pounds of polyethylene pellets and colorant per hour, using no controls and exhausting inside the building.
- (b) Five (5) electric extruders, each with a maximum capacity 102.4 lbs polyethylene pellets and colorant per hour using no controls and exhausting inside the building consisting of:
  - (1) Line 1, constructed in 1975,
  - (2) Line 2, constructed in 1976,
  - (3) Line 3, constructed in 1976,
  - (4) Line 4, constructed in 1975, and
  - (5) Line 5 constructed in 1978.
- (c) Five (5) electric treaters, each with a maximum capacity of 102.4 lbs of plastic (polyethylene) sheet per hour, using no controls and exhausting inside the building.
- (d) One (1) cutting operation using a cyclone for particulate control, exhausting inside the building, and consisting of:

One (1) 20" vertical band saw, constructed in 1990, with maximum capacity of 511 pounds of polyethylene per hour.
- (e) Five (5) granulators, each with a maximum capacity 102.4 lbs polyethylene pellets and colorant per hour using no controls and exhausting inside the building consisting of:
  - (1) Line 1, constructed in 1975,
  - (2) Line 2, constructed in 1976,
  - (3) Line 3, constructed in 1976,
  - (4) Line 4, constructed in 1975, and
  - (5) Line 5 constructed in 1978.
- (f) Six (6) storage silos, identified as Silo 1 through Silo 6, with a maximum storage capacity of 42.5 tons of polystyrene pellets each.
- (g) Natural gas-fired combustion sources with heat input equal to or less than ten (10) million Btu per hour, including the following:
  - (1) Two (2) natural gas-fired heaters, with a maximum heat input capacity of 0.15 MMBtu/hr, each, using no controls and exhausting inside.

- (2) One (1) natural gas-fired forced air furnace, with a maximum heat input capacity of 0.10 MMBtu/hr, using no controls and exhausting inside.

(h) Paved roads and unpaved roads.

**Plant 2 (70 North Main Street)**

(i) One (1) silk screen operation, consisting of:

- (1) Two (2) silk screening lines, identified as line 1 and 2, constructed in 2006, with a maximum speed line of 114 feet per minute and maximum printing width of 3 feet, using no control and exhausting inside.
- (2) One (1) silk screening lines, identified as line 3, constructed in 2006, with a maximum speed line of 208 feet per minute and maximum printing width of 3 feet, using no control and exhausting inside.

(j) Natural gas-fired combustion sources with heat input equal to or less than ten (10) million Btu per hour, including the following:

- (1) One (1) natural gas-fired forced air furnace, with a maximum heat input capacity of 0.20 MMBtu/hr, using no controls and exhausting inside.
- (2) Three (3) natural gas-fired heaters, with a maximum heat input capacity of 0.25 MMBtu/hr, each, using no controls and exhausting inside.
- (3) Two (2) natural gas-fired heater, with a maximum heat input capacity of 0.15 MMBtu/hr, using no controls and exhausting inside.
- (4) One (1) natural gas-fired forced air furnace, with a maximum heat input capacity of 0.112 MMBtu/hr, using no controls and exhausting inside.
- (5) One (1) natural gas-fired heat pump, with a maximum heat input capacity of 0.12 MMBtu/hr, using no controls and exhausting inside.

(k) Paved roads and unpaved roads.

**Plant 3 (196 East Smith Street)**

(l) Two (2) blenders, identified as blender 1 and blender 2, constructed in 1975, with a combined maximum capacity of 511 pounds of polyethylene pellets and colorant per hour, using no controls and exhausting inside the building.

(m) Ten (10) electric extruders, each with a maximum capacity 126.67 lbs polyethylene pellets, 125 lbs of polystyrene and colorant per hour using no controls and exhausting inside the building consisting of:

- (1) Line 22, constructed in 2011,
- (2) Line 23, constructed in 1984,
- (3) Line 24, constructed in 1985,
- (4) Line 25, constructed in 1985,

- (5) Line 26 constructed in 1987,
  - (6) Line 28, constructed in 1987,
  - (7) Line 31, constructed in 2009,
  - (8) Line 32, constructed in 1992,
  - (9) Line 33, constructed in 2008, and
  - (10) Line 34, constructed in 2008.
- (n) One (1) cutting operation using a cyclone for particulate control, exhausting inside the building, and consisting of:
- One (1) 20" vertical band saw, identified as band saw, constructed in 1984, with maximum capacity of 1,140 pounds of polystyrene per hour.
- (o) One (1) woodworking operation, identified as miter saw, constructed in 2011, with a maximum capacity of 2,500 pounds of wood per hour, using no controls and exhausting inside the building.
- (p) Two (2) GMAW welders, constructed in 1975 and 1999, with a combined maximum capacity of 371 lbs of E70S-6 electrodes per year, using no controls, and exhausting inside the building.
- (q) One (1) plasma cutter, constructed in 2009, with a maximum cutting rate of 20 inches per hour.
- (r) One (1) parts washer, constructed in 2002, that does not exceed 18 gallons per twelve (12) months.
- (s) Twelve (12) granulators, using no controls and exhausting inside the building consisting of:
- (1) Line 22, with a maximum capacity of 126.67 pounds of polyethylene per hour and constructed in 2011,
  - (2) Line 23 with a maximum capacity of 126.67 pounds of polyethylene per hour and constructed in 2004,
  - (3) Line 24, with maximum capacity of 126.67 pounds of polyethylene per hour and constructed in 2008,
  - (4) Line 25, with maximum capacity of 126.67 pounds of polyethylene per hour and constructed in 2004.
  - (5) Line 26, with maximum capacity of 126.67 pounds of polyethylene per hour and constructed in 2004,
  - (6) Line 28 with maximum capacity of 126.67 pounds of polyethylene per hour and constructed in 2004,
  - (7) Line 31, with maximum capacity of 126.67 pounds of polyethylene per hour and constructed in 2009,

- (8) Line 32, with maximum capacity of 126.67 pounds of polyethylene per hour and constructed in 2004,
  - (9) Line 33, with a maximum capacity of 126.67 pounds of polyethylene per hour and constructed in 2008,
  - (10) Line 34, with a maximum capacity of 125 lbs of polystyrene, constructed in 2008,
  - (11) North Grinding West, constructed in 2007, and
  - (12) North Grinding East constructed in 2008.
- (t) Ten (10) storage silos, identified as Silo 1 through Silo 10, with a maximum storage capacity of 85,000 lbs of Polyethylene pellets or polystyrene pellets, each.
- (u) Natural gas-fired combustion sources with heat input equal to or less than ten (10) million Btu per hour, including the following:
- (1) One (1) natural gas-fired heater, with a maximum heat input capacity of 0.15 MMBtu/hr, using no controls and exhausting inside.
  - (2) One (1) natural gas-fired heater, with a maximum heat input capacity of 0.1 MMBtu/hr, using no controls and exhausting inside.
  - (3) One (1) natural gas-fired heater, with a maximum heat input capacity of 0.075 MMBtu/hr, using no controls and exhausting inside.
- (v) Paved roads and unpaved roads.
- (The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

**Emission Limitations and Standards [326 IAC 2-5.1-2(f)(1)] [326 IAC 2-5.5-4(a)(1)]**

**D.1.1 Particulate [326 IAC 6-3-2]**

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), particulate emissions from the processes listed in the table below shall be limited by the following:

| Emission Unit         | Process Weight Rate |           | Allowable PM Limit (lbs/hr) |
|-----------------------|---------------------|-----------|-----------------------------|
|                       | (lbs/hr)            | (tons/hr) |                             |
| <b>Plant 1</b>        |                     |           |                             |
| Extruder Line 1       | 102.20              | 0.051     | 0.56                        |
| Extruder Line 2       | 102.20              | 0.051     | 0.56                        |
| Extruder Line 3       | 102.20              | 0.051     | 0.56                        |
| Extruder Line 4       | 102.20              | 0.051     | 0.56                        |
| Extruder Line 5       | 102.20              | 0.051     | 0.56                        |
| 20" vertical band saw | 511                 | 0.26      | 1.64                        |
| <b>Plant 3</b>        |                     |           |                             |
| Extruder Line 22      | 126.67              | 0.06      | 0.65                        |
| Extruder Line 23      | 126.67              | 0.06      | 0.65                        |
| Extruder Line 24      | 126.67              | 0.06      | 0.65                        |

| Emission Unit         | Process Weight Rate |           | Allowable PM Limit<br>(lbs/hr) |
|-----------------------|---------------------|-----------|--------------------------------|
|                       | (lbs/hr)            | (tons/hr) |                                |
| Extruder Line 25      | 126.67              | 0.06      | 0.65                           |
| Extruder Line 26      | 126.67              | 0.06      | 0.65                           |
| Extruder Line 28      | 126.67              | 0.06      | 0.65                           |
| Extruder Line 31      | 126.67              | 0.06      | 0.65                           |
| Extruder Line 32      | 126.67              | 0.06      | 0.65                           |
| Extruder Line 33      | 126.67              | 0.06      | 0.65                           |
| Extruder Line 34      | 125.00              | 0.06      | 0.64                           |
| 20" vertical band saw | 1,140               | 0.57      | 2.81                           |
| Woodworking Operation | 2,500               | 1.25      | 4.76                           |

**D.1.2 Particulate Control**

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In order to comply with Condition D.1.1, the cyclone shall be in operation and control emissions at all times the vertical band saws at Plant 1 and Plant 3 are in operation.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE AND ENFORCEMENT BRANCH**

**REGISTRATION  
ANNUAL NOTIFICATION**

This form should be used to comply with the notification requirements under 326 IAC 2-5.1-2(f)(3) and 326 IAC 2-5.5-4(a)(3).

|                          |                            |
|--------------------------|----------------------------|
| <b>Company Name:</b>     | Futurex, Inc.              |
| <b>Address:</b>          | 80 East Smith Street       |
| <b>City:</b>             | Bloomington, Indiana 47832 |
| <b>Phone Number:</b>     | (765) 592-1127             |
| <b>Registration No.:</b> | R121-32303-00012           |

I hereby certify that Futurex, Inc. is :

still in operation.

I hereby certify that Futurex, Inc. is :

no longer in operation.

in compliance with the requirements of Registration No. 121-32303-00012.

not in compliance with the requirements of Registration No. 121-32303-00012.

|                                       |
|---------------------------------------|
| <b>Authorized Individual (typed):</b> |
| <b>Title:</b>                         |
| <b>Signature:</b>                     |
| <b>Phone Number:</b>                  |
| <b>Date:</b>                          |

If there are any conditions or requirements for which the source is not in compliance, provide a narrative description of how the source did or will achieve compliance and the date compliance was, or will be achieved.

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|-----------------------|
| <b>Noncompliance:</b> |
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**Indiana Department of Environmental Management  
Office of Air Quality**

Technical Support Document (TSD) for a Registration

**Source Description and Location**

|                          |  |
|--------------------------|--|
| <b>Source Name:</b>      | <b>Futurex, Inc.</b>   |
| <b>Source Location:</b>  | <b>80 East Smith Street, Bloomingtondale, Indiana 47832<br/>70 North Main Street, Bloomingtondale, Indiana 47832<br/>196 East Smith Street, Bloomingtondale, Indiana 47832</b> |
| <b>County:</b>           | <b>Parke</b>   |
| <b>SIC Code:</b>         | <b>3089 (Plastics Products, Not Elsewhere Classified)</b>  |
| <b>Registration No.:</b> | <b>121-32303-00012</b>   |
| <b>Permit Reviewer:</b>  | <b>Bruce Farrar</b>  |

On September 12, 2012, the Office of Air Quality (OAQ) received an application from Futurex, Inc. related to the construction and operation of new emission units and the continued operation of an existing stationary plastic extrusion plant.

**Source Definition**

This source consists of the following plants:

- (a) Plant 1 is located at 80 East Smith Street, Bloomingtondale, Indiana, Plant ID: 121-00012;
- (b) Plant 2 is located at 70 North Main Street, Bloomingtondale, Indiana, Plant ID: 121-00012; and
- (c) Plant 3 is located at 196 East Smith Street, Bloomingtondale, Indiana Plant ID: 121-00013.

In order to consider both plants as one single source, all three of the following criteria must be met:

- (1) The plants must have common ownership/control;
- (2) The plants must have the same SIC code; and
- (3) The plants must be located on contiguous or adjacent properties.

These plants are located on contiguous properties, have the same SIC codes of 3089 and are under common control, therefore they will be considered one (1) source, as defined by 326 IAC 2-7-1(22).

For permitting purposes, this source will now use the Plant ID 121-00012.

**Existing Approvals**

The source has been operating under:

- (a) Registration No. 121-3760-00012, issued on September 7, 1994 (80 East Smith Street)
- (b) Registration No. 121-3792-00013, issued on September 7, 1994 (196 East Smith Street)

**County Attainment Status**

The source is located in Parke County.

| Pollutant   | Designation   |
|---|---|
| SO <sub>2</sub>   | Better than national standards.   |
| CO  | Unclassifiable or attainment effective November 15, 1990.   |
| O <sub>3</sub>  | Unclassifiable or attainment effective June 15, 2004, for the 8-hour ozone standard. <sup>1</sup> |
| PM <sub>10</sub>  | Unclassifiable effective November 15, 1990.   |
| NO <sub>2</sub>   | Cannot be classified or better than national standards.   |
| Pb  | Not designated.   |
| <sup>1</sup> Unclassifiable or attainment effective October 18, 2000, for the 1-hour ozone standard which was revoked effective June 15, 2005.<br>Unclassifiable or attainment effective April 5, 2005, for PM <sub>2.5</sub> . |   |

- (a) **Ozone Standards**  
 Volatile organic compounds (VOC) and Nitrogen Oxides (NOx) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NOx emissions are considered when evaluating the rule applicability relating to ozone. Parke County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.
- (b) **PM<sub>2.5</sub>**  
 Parke County has been classified as attainment for PM<sub>2.5</sub>. On May 8, 2008 U.S. EPA promulgated the requirements for Prevention of Significant Deterioration (PSD) for PM<sub>2.5</sub> emissions. These rules became effective on July 15, 2008. On May 4, 2011 the air pollution control board issued an emergency rule establishing the direct PM<sub>2.5</sub> significant level at ten (10) tons per year. This rule became effective, June 28, 2011. Therefore, direct PM<sub>2.5</sub> and SO<sub>2</sub> emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability – Entire Source section.
- (c) **Other Criteria Pollutants**  
 Parke County has been classified as attainment or unclassifiable in Indiana for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

**Fugitive Emissions**

The fugitive emissions of criteria pollutants, hazardous air pollutants, and greenhouse gases are counted toward the determination of 326 IAC 2-5.5 (Registrations) applicability.

**Background and Description of Emission Units and Pollution Control Equipment**

The Office of Air Quality (OAQ) has reviewed an application, submitted by Futurex, Inc. on September 12, 2012, relating to the continued operation of a Registration with the addition of new equipment. The source has requested that the 196 East Smith Street plant (Registration 121-3793-00013) be considered part of this source (see source determination above).

The source consists of the following existing emission units:

**Plant 1 (80 East Smith Street)**

- (a) Two (2) blenders, identified as blender 1 and blender 2, constructed in 1975, with a combined maximum capacity of 511 pounds of polyethylene pellets and colorant per hour, using no controls and exhausting inside the building.

- (b) Five (5) electric extruders, each with a maximum capacity of 102.4 lbs polyethylene pellets and colorant per hour using no controls and exhausting inside the building consisting of:
  - (1) Line 1, constructed in 1975,
  - (2) Line 2, constructed in 1976,
  - (3) Line 3, constructed in 1976,
  - (4) Line 4, constructed in 1975, and
  - (5) Line 5 constructed in 1978.
- (c) Five (5) electric treaters, each with a maximum capacity of 102.4 lbs of plastic (polyethylene) sheet per hour, using no controls and exhausting inside the building.
- (d) One (1) cutting operation using a cyclone for particulate control, exhausting inside the building, and consisting of:

One (1) 20" vertical band saw, constructed in 1990, with maximum capacity of 511 pounds of polyethylene per hour.
- (e) Five (5) granulators, each with a maximum capacity 102.4 lbs polyethylene pellets and colorant per hour using no controls and exhausting inside the building consisting of:
  - (1) Line 1, constructed in 1975,
  - (2) Line 2, constructed in 1976,
  - (3) Line 3, constructed in 1976,
  - (4) Line 4, constructed in 1975, and
  - (5) Line 5 constructed in 1978.
- (f) Six (6) storage silos, identified as Silo 1 through Silo 6, with a maximum storage capacity of 42.5 tons of polystyrene pellets each.
- (g) Natural gas-fired combustion sources with heat input equal to or less than ten (10) million Btu per hour, including the following:
  - (1) Two (2) natural gas-fired heaters, with a maximum heat input capacity of 0.15 MMBtu/hr, each, using no controls and exhausting inside.
  - (2) One (1) natural gas-fired forced air furnace, with a maximum heat input capacity of 0.10 MMBtu/hr, using no controls and exhausting inside.
- (h) Paved roads and unpaved roads.

**Plant 2 (70 North Main Street)**

- (i) Natural gas-fired combustion sources with heat input equal to or less than ten (10) million Btu per hour, including the following:
  - (1) One (1) natural gas-fired forced air furnace, with a maximum heat input capacity of 0.20

MMBtu/hr, using no controls and exhausting inside.

- (2) Three (3) natural gas-fired heaters, with a maximum heat input capacity of 0.25 MMBtu/hr, each, using no controls and exhausting inside.
- (3) Two (2) natural gas-fired heater, with a maximum heat input capacity of 0.15 MMBtu/hr, using no controls and exhausting inside.
- (4) One (1) natural gas-fired forced air furnace, with a maximum heat input capacity of 0.112 MMBtu/hr, using no controls and exhausting inside.
- (5) One (1) natural gas-fired heat pump, with a maximum heat input capacity of 0.12 MMBtu/hr, using no controls and exhausting inside.

(j) Paved roads and unpaved roads.

**Plant 3 (196 East Smith Street)**

- (k) Two (2) blenders, identified as blender 1 and blender 2, constructed in 1975, with a combined maximum capacity of 511 pounds of polyethylene pellets and colorant per hour, using no controls and exhausting inside the building.
- (l) Ten (10) electric extruders, each with a maximum capacity 126.67 lbs polyethylene pellets, 125 lbs of polystyrene and colorant per hour using no controls and exhausting inside the building consisting of:
  - (1) Line 23, constructed in 1984,
  - (2) Line 24, constructed in 1985,
  - (3) Line 25, constructed in 1985,
  - (4) Line 26 constructed in 1987,
  - (5) Line 28, constructed in 1987,
  - (6) Line 32, constructed in 1992,
- (m) One (1) cutting operation using a cyclone for particulate control, exhausting inside the building, and consisting of:

One (1) 20" vertical band saw, identified as band saw, constructed in 1984, with maximum capacity of 1,140 pounds of polystyrene per hour.
- (n) Two (2) GMAW welders, constructed in 1975 and 1999, with a combined maximum capacity of 371 lbs of E70S-6 electrodes per year, using no controls, and exhausting inside the building.
- (o) Ten (10) storage silos, identified as Silo 1 through Silo 10, with a maximum storage capacity of 85,000 lbs of Polyethylene pellets or polystyrene pellets, each.
- (p) Natural gas-fired combustion sources with heat input equal to or less than ten (10) million Btu per hour, including the following:
  - (1) One (1) natural gas-fired heater, with a maximum heat input capacity of 0.15 MMBtu/hr, using no controls and exhausting inside.

- (2) One (1) natural gas-fired heater, with a maximum heat input capacity of 0.1 MMBtu/hr, using no controls and exhausting inside.
- (3) One (1) natural gas-fired heater, with a maximum heat input capacity of 0.075 MMBtu/hr, using no controls and exhausting inside.
- (q) Paved roads and unpaved roads.

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| <b>Unpermitted Emission Units and Pollution Control Equipment</b> |
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The source consists of the following unpermitted emission unit(s):

**Plant 2 (70 North Main Street)**

- (a) One (1) silk screen operation, consisting of:
  - (1) Two (2) silk screening lines, identified as line 1 and 2, constructed in 2006, each with a maximum speed line of 114 feet per minute and maximum printing width of 3 feet, using no control and exhausting inside.
  - (2) One (1) silk screening lines, identified as line 3, constructed in 2006, with a maximum speed line of 208 feet per minute and maximum printing width of 3 feet, using no control and exhausting inside.

**Plant 3 (196 East Smith Street)**

- (b) Ten (10) electric extruders, each with a maximum capacity 126.67 lbs polyethylene pellets, 125 lbs of polystyrene and colorant per hour using no controls and exhausting inside the building consisting of:
  - (1) Line 22, constructed in 2011,
  - (2) Line 33, constructed in 2008, and
  - (3) Line 34, constructed in 2008.
- (c) One (1) woodworking operation, identified as miter saw, constructed in 2011, with a maximum capacity of 2,500 pounds of wood per hour, using no controls and exhausting inside the building.
- (d) One (1) plasma cutter, constructed in 2009, with a maximum cutting rate of 20 inches per hour.
- (e) One (1) parts washer, constructed in 2002, that does not exceed 18 gallons per twelve (12) months.
- (f) Twelve (12) granulators, using no controls and exhausting inside the building consisting of:
  - (1) Line 22, with a maximum capacity of 126.67 pounds of polyethylene per hour and constructed in 2011,
  - (2) Line 23 with a maximum capacity of 126.67 pounds of polyethylene per hour and constructed in 2004,

- (3) Line 24, with maximum capacity of 126.67 pounds of polyethylene per hour and constructed in 2008,
- (4) Line 25, with maximum capacity of 126.67 pounds of polyethylene per hour and constructed in 2004.
- (5) Line 26, with maximum capacity of 126.67 pounds of polyethylene per hour and constructed in 2004,
- (6) Line 28 with maximum capacity of 126.67 pounds of polyethylene per hour and constructed in 2004,
- (7) Line 31, with maximum capacity of 126.67 pounds of polyethylene per hour and constructed in 2009,
- (8) Line 32, with maximum capacity of 126.67 pounds of polyethylene per hour and constructed in 2004,
- (9) Line 33, with a maximum capacity of 126.67 pounds of polyethylene per hour and constructed in 2008,
- (10) Line 34, with a maximum capacity of 125 lbs of polystyrene, constructed in 2008,
- (11) North Grinding West, constructed in 2007, and
- (12) North Grinding East constructed in 2008.

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| <b>Enforcement Issues</b> |
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Futurex Inc. was issued an old construction registration No. 121-3760-00012 on September 7, 1994, for Plant 1 (80 East Smith Street) and Plant 2 (70 North Main Street) and old construction registration No. 121-3792-00013 on September 7, 1994 for Plant 3 (196 East Smith Street). Pursuant to 326 IAC 2-5.5-2(b), the source was required to apply for registration by December 25, 2000. On September 12, 2012, IDEM, OAQ received an application from Futurex Inc. IDEM is reviewing this matter and will take the appropriate action. This proposed approval is intended to satisfy the requirements of the operating permit rules.

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| <b>Emission Calculations</b> |
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See Appendix A of this TSD for detailed emission calculations.

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| <b>Permit Level Determination – Registration</b> |
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The following table reflects the unlimited potential to emit (PTE) of the entire source before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

| Process/<br>Emission Unit  | Potential To Emit of the Entire Source (tons/year) |              |              |                 |             |             |             |                                   |               |                          |
|--|--|--------------|--------------|-----------------|-------------|-------------|-------------|-----------------------------------|---------------|--------------------------|
|  | PM   | PM10*        | PM2.5        | SO <sub>2</sub> | NOx         | VOC         | CO          | GHGs<br>as<br>CO <sub>2</sub> e** | Total<br>HAPs | Worst<br>Single<br>HAP   |
| <b>Plant 1 (80 East Smith Street)</b>  |  |              |              |                 |             |             |             |                                   |               |                          |
| Silos <sup>α</sup>   | -  | -            | -            | -               | -           | -           | -           | -                                 | -             | -                        |
| Blender <sup>β</sup>   | -  | -            | -            | -               | -           | -           | -           | -                                 | -             | -                        |
| Granulators <sup>γ</sup>   | -  | -            | -            | -               | -           | -           | -           | -                                 | -             | -                        |
| Extruder   | 0.03   | 0.03         | 0.03         | -               | -           | 0.03        | -           | -                                 | -             | -                        |
| Treater  | -  | -            | -            | -               | -           | -           | -           | -                                 | -             | -                        |
| Cutting/Grinding   | 0.31   | 0.31         | 0.31         | -               | -           | -           | -           | -                                 | -             | -                        |
| Natural Gas<br>Combustion  | 3.3E-03  | 0.01         | 0.01         | 1.0E-03         | 0.17        | 0.01        | 0.14        | 207                               | 3.24E-03      | 3.1E-03<br>Hexane        |
| <b>Plant 2 (70 North Main Street)</b>  |  |              |              |                 |             |             |             |                                   |               |                          |
| Silos <sup>α</sup>   | -  | -            | -            | -               | -           | -           | -           | -                                 | -             | -                        |
| Blender <sup>β</sup>   | -  | -            | -            | -               | -           | -           | -           | -                                 | -             | -                        |
| Granulators <sup>γ</sup>   | -  | -            | -            | -               | -           | -           | -           | -                                 | -             | -                        |
| Extruder   | 0.07   | 0.07         | 0.07         | -               | -           | -           | -           | -                                 | -             | -                        |
| Woodworking  | 17.52  | 17.52        | 17.52        | -               | -           | -           | -           | -                                 | -             | -                        |
| Welding/Plasma<br>cutting  | 8.65E-03   | 8.65E-03     | 8.65E-03     | -               | -           | -           | -           | -                                 | 5.95E-03      | 5.90E-03<br>Manganese    |
| Parts Washer   | -  | -            | -            | -               | -           | 0.06        | -           | -                                 | -             | -                        |
| Cutting/Grinding   | 0.31   | 0.31         | 0.31         | -               | -           | -           | -           | -                                 | -             | -                        |
| Natural Gas<br>Combustion  | 2.7E-03  | 0.01         | 0.01         | 8.4E-04         | 0.14        | 0.01        | 0.12        | 168                               | 2.6E-03       | 2.5E-03<br>Hexane        |
| <b>Plant 3 (196 East Smith Street)</b>   |  |              |              |                 |             |             |             |                                   |               |                          |
| Silk Screen<br>Printing  | -  | -            | -            | -               | -           | 9.51        | -           | -                                 | -             | -                        |
| Natural Gas<br>Combustion  | 0.01   | 0.05         | 0.05         | 3.63E-03        | 0.60        | 0.03        | 0.51        | 729                               | 0.011         | 0.01<br>Hexane           |
| Fugitive<br>Emissions  | 1.92   | 0.45         | 0.06         | -               | -           | -           | -           | -                                 | -             | -                        |
| <b>Total PTE of<br/>Entire Source</b>  | <b>20.18</b>                                       | <b>18.77</b> | <b>18.38</b> | <b>0.01</b>     | <b>0.92</b> | <b>9.65</b> | <b>0.77</b> | <b>1,105</b>                      | <b>0.02</b>   | <b>0.02<br/>(hexane)</b> |
| Registration<br>Levels**   | 25   | 25           | 25           | 25              | 25          | 25          | 100         | 100,000                           | 25            | 10                       |
| - = negligible<br>*Under the Part 70 Permit program (40 CFR 70), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM10), not particulate matter (PM), is considered as a "regulated air pollutant".<br>**The 100,000 CO <sub>2</sub> e threshold represents the Title V and PSD subject to regulation thresholds for GHGs in order to determine whether a source's emissions are a regulated NSR pollutant under Title V and PSD.<br>α - Silos emissions are negligible pursuant to AP 42 (6.6.3 Polystyrene) table 6.6.3-1 (item F, storage), (reformatted 1/95).<br>β - Blenders have negligible emissions, pursuant to AP42-6.6.2 (Polyethylene Terephthalate), table 6.6.2-1 (item B, mix tanks), (reformatted 1/95).<br>γ - Granulators have negligible emissions as provided by the source. |  |              |              |                 |             |             |             |                                   |               |                          |

- (a) The potential to emit (PTE) (as defined in 326 IAC 2-1.1-1) of PM, PM10, PM2.5 and VOC are within the ranges listed in 326 IAC 2-5.5-1(b)(1). The PTE of all other regulated criteria pollutants are less than the ranges listed in 326 IAC 2-5.5-1(b)(1). Therefore, the

source is subject to the provisions of 326 IAC 2-5.5 (Registrations). A Registration will be issued.

- (b) The potential to emit (PTE) (as defined in 326 IAC 2-1.1-1) of any single HAP is less than ten (10) tons per year and the PTE of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, this source is an area source under Section 112 of the Clean Air Act (CAA) and not subject to the provisions of 326 IAC 2-7.
- (c) The potential to emit (PTE) (as defined in 326 IAC 2-1.1-1) greenhouse gases (GHGs) is less than the Title V subject to regulation threshold of one hundred thousand (100,000) tons of CO<sub>2</sub> equivalent emissions (CO<sub>2</sub>e) per year. Therefore, the source is not subject to the provisions of 326 IAC 2-7.

### Federal Rule Applicability Determination

#### New Source Performance Standards (NSPS)

- (a) The requirements of the Standards of Performance for the Graphic Arts Industry: Publication Rotogravure Printing, 40 CFR 60.430, Subpart QQ are not included in the permit, since this source does use rotogravure printing, but uses silk screening printing.
- (b) The requirements of the Standards of Performance for the Flexible Vinyl and Urethane Coating and Printing, 40 CFR 60.580, Subpart FFF are not included in the permit, since this source does use rotogravure printing, but uses silk screening printing.
- (c) There are no New Source Performance Standards (NSPS) (326 IAC 12 and 40 CFR Part 60) included in the permit.

#### National Emission Standards for Hazardous Air Pollutants (NESHAP)

- (d) The requirements of the National Emission Standards for Halogenated Solvent Cleaning, 40 CFR 63.460, Subpart T (326 IAC 20-6), are not included in the permit, since this source does not use any solvent containing methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride or chloroform.
- (e) The requirements of the National Emission Standards for Hazardous Air Pollutant Emissions NESHAP): Group IV Polymers and Resins, 40 CFR 63.1310, Subpart JJJ (326 IAC 20), are not included in the permit, since this source does not use a thermoplastic product process units (TPPU) and does not produce the polymers but uses the product in a pellet form.
- (f) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Surface Coating of Plastic Parts and Products, 40 CFR 63.4480, Subpart PPPP (326 IAC 20), are not included in the permit, since this source uses screen printing (pursuant to 40 CFR 63.4481(c)(17)).
- (g) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs): Reinforced Plastic Composites Production, 40 CFR 63.5780, Subpart WWWW (326 IAC 20), are not included in the permit, since this source does not produce reinforced plastic composites.
- (h) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs): Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources, 40 CFR 63.11169, Subpart HHHHHH (6H) (326 IAC 20), are not included in the permit, since this source does use surface coating in any production.
- (i) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14, 326 IAC 20 and 40 CFR Part 63) included in the permit.

### Compliance Assurance Monitoring (CAM)

- (j) Pursuant to 40 CFR 64.2, Compliance Assurance Monitoring (CAM) is not included in the permit, because the unlimited potential to emit of the source is less than the Title V major source thresholds and the source is not required to obtain a Part 70 or Part 71 permit.

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| <b>State Rule Applicability Determination</b> |
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The following state rules are applicable to the source:

- (a) 326 IAC 2-5.5 (Registrations)  
Registration applicability is discussed under the Permit Level Determination – Registration section above.
- (b) 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))  
The potential to emit of any single HAP is less than ten (10) tons per year and the potential to emit of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, this source is an area source under Section 112 of the Clean Air Act (CAA) and not subject to the provisions of 326 IAC 2-4.1.
- (c) 326 IAC 2-6 (Emission Reporting)  
Pursuant to 326 IAC 2-6-1, this source is not subject to this rule, because it is not required to have an operating permit under 326 IAC 2-7 (Part 70), it is not located in Lake, Porter, or LaPorte County, and it does not emit lead into the ambient air at levels equal to or greater than 5 tons per year. Therefore, 326 IAC 2-6 does not apply.
- (d) 326 IAC 5-1 (Opacity Limitations)  
Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:
- (1) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
  - (2) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.
- (e) 326 IAC 6-4 (Fugitive Dust Emissions Limitations)  
Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions Limitations), the source shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4.
- (f) 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)  
The source is not subject to the requirements of 326 IAC 6-5, because the source does not have potential fugitive particulate emissions greater than 25 tons per year. Therefore, 326 IAC 6-5 does not apply.
- (h) 326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)  
Each of the emission units at this source is not subject to the requirements of 326 IAC 8-1-6, since the unlimited VOC potential emissions from each emission unit is less than twenty-five (25) tons per year.

Blenders 1 and 2 (Plant 1) and Blenders 1 and 2 (Plant 3)

- (i) 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)  
 326 IAC 6-3-2 does not apply to the 4 blenders, because they have negligible particulate emissions.
- (j) 326 IAC 8-1 (Volatile Organic Compound Rule)  
 326 IAC 8-1 does not apply to the 4 blenders, because they have no VOC emissions.

Electric Extruders Line 1 through Line 5 (Plant 1) and Line 22 through 26, Line 28, Line 31 through Line 34 (Plant 3)

- (k) 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)  
 Pursuant to 326 IAC 6-3-2, the particulate matter (PM) from the processes listed in the table below shall be limited by the following:

| Emission Unit  | Process Weight Rate (lbs/hr) | Process Weight Rate (tons/hr) | Allowable PM Limit (lbs/hr) |
|----------------|------------------------------|-------------------------------|-----------------------------|
| <b>Plant 1</b> |                              |                               |                             |
| Line 1         | 102.20                       | 0.051                         | 0.56                        |
| Line 2         | 102.20                       | 0.051                         | 0.56                        |
| Line 3         | 102.20                       | 0.051                         | 0.56                        |
| Line 4         | 102.20                       | 0.051                         | 0.56                        |
| Line 5         | 102.20                       | 0.051                         | 0.56                        |
| <b>Plant 3</b> |                              |                               |                             |
| Line 22        | 126.67                       | 0.06                          | 0.65                        |
| Line 23        | 126.67                       | 0.06                          | 0.65                        |
| Line 24        | 126.67                       | 0.06                          | 0.65                        |
| Line 25        | 126.67                       | 0.06                          | 0.65                        |
| Line 26        | 126.67                       | 0.06                          | 0.65                        |
| Line 28        | 126.67                       | 0.06                          | 0.65                        |
| Line 31        | 126.67                       | 0.06                          | 0.65                        |
| Line 32        | 126.67                       | 0.06                          | 0.65                        |
| Line 33        | 126.67                       | 0.06                          | 0.65                        |
| Line 34        | 125.00                       | 0.06                          | 0.64                        |

The pound per hour limitation was calculated with the following equation:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour and } P = \text{process weight rate in tons per hour}$$

Based on calculations, a control device is not needed to comply with this limit.

- (l) 326 IAC 8-1 (Volatile Organic Compound Rule)  
 Pursuant to 326 IAC 8-1-1(b), the extruder lines 12 through 15 each has potential VOC emission less than 15 lbs per day. Therefore, 326 IAC 8-1 does not apply to extruder lines 12 through 15.

Treaters (Plant 1)

Treaters are used to prepare the plastic sheets for surface coating, by the source or customers. Polyethylene has chemically inert and nonporous surfaces with low surface tensions causing it to be non-receptive to bonding with printing inks, coatings, and adhesives. Standard utility electrical power is converted into higher frequency power which is then supplied to the treater station. The treater station applies this power through ceramic or metal electrodes over an air gap onto the material's surface.

- (m) 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)  
 326 IAC 6-3-2 does not apply to the treaters, because they have no particulate emissions.
- (n) 326 IAC 8-1 (Volatile Organic Compound Rule)  
 326 IAC 8-1 does not apply to the treaters, because they have no VOC emissions.

Cutting operation (Plants 1 and 3)

- (o) 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)  
 Pursuant to 326 IAC 6-3-2, the particulate matter (PM) from the processes listed in the table below shall be limited by the following:

| Emission Unit         | Process Weight Rate (lbs/hr) | Process Weight Rate (tons/hr) | Allowable PM Limit (lbs/hr) |
|-----------------------|------------------------------|-------------------------------|-----------------------------|
| <b>Plant 1</b>        |                              |                               |                             |
| 20" vertical band saw | 511                          | 0.26                          | 1.64                        |
| <b>Plant 3</b>        |                              |                               |                             |
| 20" vertical band saw | 1,140                        | 0.57                          | 2.81                        |

The pound per hour limitation was calculated with the following equation:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour and} \\ P = \text{process weight rate in tons per hour}$$

Based on calculations, the cyclone is not needed to comply with this limit. However, since the emission factor is based on collections from the cyclone, the cyclone shall be in operation at all times the cutting operation is in operation.

Woodworking Operation (Plant 3)

- (p) 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)  
 Pursuant to 326 IAC 6-3-2, the particulate matter (PM) from the woodworking operation, identified as miter saw, shall not exceed 4.76 pounds per hour when operating at a process weight rate of 1.25 tons per hour. The pound per hour limitation was calculated with the following equation:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour and} \\ P = \text{process weight rate in tons per hour}$$

Based on calculations, a control device is not needed to comply with this limit.

Parts Washer (Plant 3)

- (q) Pursuant to 326 IAC 8-1-1(b) the parts washer is exempt from the requirements of 326 IAC 8-3 because the parts washer potential to emit VOC before add-on control is below fifteen (15) pounds per day.

Welding Operation (Plant 3)

- (r) (326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)  
Pursuant to 326 IAC 6-3-1(b)(9), the two GMAW welding units are exempt from the requirements of 326 IAC 6-3-2 because they consume less than 625 pounds of rod or wire per day.

Plasma Cutting (Plant 2)

- (s) (326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)  
Pursuant to 326 IAC 6-3-1(b)(10), the plasma cutting unit is exempt from the requirements of 326 IAC 6-3-2 because it cuts less than three thousand four hundred (3,400) inches per hour of stock one (1) inch thickness or less.

Five (5) Granulators (Plant 1) and 12 Granulators (Plant 3)

- (t) 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)  
326 IAC 6-3-2 does not apply to the granulators, because they have negligible particulate emissions.
- (u) 326 IAC 8-1 (Volatile Organic Compound Rule)  
326 IAC 8-1 does not apply to the granulators, because they have no VOC emissions.

Six (6) Storage Silos (Plant 1) and Ten (10) Storage Silos (Plant 3)

- (v) 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)  
326 IAC 6-3-2 does not apply to the storage silos, because they have negligible particulate emissions.

Silk Screen Operation (Plant 2)

- (w) 326 IAC 8-1-6 (New facilities; general reduction requirements) does not apply because line 1, line 2, and line 3 of the silkscreen operation have PTE for VOC less than 25 tons per year.
- (x) 326 IAC 8-2 (Surface Coating Emission Limitations) does not apply because the silkscreen operation does not surface coat any of the listed substrates.

|                                      |
|--------------------------------------|
| <b>Conclusion and Recommendation</b> |
|--------------------------------------|

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant. An application for the purposes of this review was received on September 12, 2012.

The operation of this source shall be subject to the conditions of the attached proposed Registration No. 121-32303-00012. The staff recommends to the Commissioner that this Registration be approved.

|                     |
|---------------------|
| <b>IDEM Contact</b> |
|---------------------|

- (a) Questions regarding this proposed permit can be directed to Bruce Farrar at the Indiana Department Environmental Management, Office of Air Quality, Permits Branch, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204-2251 or by telephone at (317) 234-5401 or toll free at 1-800-451-6027 extension 4-5401.
- (b) A copy of the findings is available on the Internet at: <http://www.in.gov/ai/appfiles/idem-caats/>
- (c) For additional information about air permits and how the public and interested parties can participate, refer to the IDEM's Guide for Citizen Participation and Permit Guide on the Internet at: [www.in.gov/idem](http://www.in.gov/idem)

**Appendix A: Emissions Calculations  
Summary of Emissions**

**Company Name:** Futurex, Inc.  
**Address City IN Zip:** 80 East Smith Street, Bloomington, IN 47832  
 196 East Smith Street, Bloomington, Indiana 47832  
 70 North Main Street, Bloomington, Indiana 47832  
**Registration Number:** R121-32303-00012  
**Reviewer:** Bruce Farrar  
**Date:** September 12, 2012

| Process/Emission Unit    | Uncontrolled Potential Emissions (tons/yr) |              |              |             |             |             |             |                              |                  |                    |
|--------------------------|--|--------------|--------------|-------------|-------------|-------------|-------------|------------------------------|------------------|--------------------|
|                          | PM   | PM10         | PM2.5        | SO2         | NOX         | VOC         | CO          | GHGs<br>as CO <sub>2</sub> e | Combined<br>HAPs | Single HAP         |
| <b>Plant 1</b>           |  |              |              |             |             |             |             |                              |                  |                    |
| Silos <sup>α</sup>       | -  | -            | -            | -           | -           | -           | -           | -                            | -                | -                  |
| Blender <sup>β</sup>     | -  | -            | -            | -           | -           | -           | -           | -                            | -                | -                  |
| Granulators <sup>γ</sup> | -  | -            | -            | -           | -           | -           | -           | -                            | -                | -                  |
| Extruder                 | 0.03                                       | 0.03         | 0.03         | -           | -           | 0.03        | -           | -                            | -                | -                  |
| Treater <sup>δ</sup>     | -  | -            | -            | -           | -           | -           | -           | -                            | -                | -                  |
| Cutting/Grinding         | 0.31                                       | 0.31         | 0.31         | -           | -           | -           | -           | -                            | -                | -                  |
| Natural Gas Combustion   | 3.3E-03                                    | 0.01         | 0.01         | 1.0E-03     | 0.17        | 0.01        | 0.14        | 207                          | 3.24E-03         | 3.1E-03 Hexane     |
| <b>Plant 2</b>           |  |              |              |             |             |             |             |                              |                  |                    |
| Silos <sup>α</sup>       | -  | -            | -            | -           | -           | -           | -           | -                            | -                | -                  |
| Blender <sup>β</sup>     | -  | -            | -            | -           | -           | -           | -           | -                            | -                | -                  |
| Granulators <sup>γ</sup> | -  | -            | -            | -           | -           | -           | -           | -                            | -                | -                  |
| Extruder                 | 0.07                                       | 0.07         | 0.07         | -           | -           | -           | -           | -                            | -                | -                  |
| Woodworking              | 17.52                                      | 17.52        | 17.52        | -           | -           | -           | -           | -                            | -                | -                  |
| Welding/Plasma cutting   | 8.65E-03                                   | 8.65E-03     | 8.65E-03     | -           | -           | -           | -           | -                            | 5.95E-03         | 5.90E-03 Manganese |
| Parts Washer             | -  | -            | -            | -           | -           | 0.06        | -           | -                            | -                | -                  |
| Cutting/Grinding         | 0.31                                       | 0.31         | 0.31         | -           | -           | -           | -           | -                            | -                | -                  |
| Natural Gas Combustion   | 2.7E-03                                    | 0.01         | 0.01         | 8.4E-04     | 0.14        | 0.01        | 0.12        | 168                          | 2.6E-03          | 2.5E-03 Hexane     |
| <b>Plant 3</b>           |  |              |              |             |             |             |             |                              |                  |                    |
| Silk Screen Printing     | -  | -            | -            | -           | -           | 9.51        | -           | -                            | -                | -                  |
| Natural Gas Combustion   | 0.01                                       | 0.05         | 0.05         | 3.63E-03    | 0.60        | 0.03        | 0.51        | 729                          | 0.011            | 0.01 Hexane        |
| Fugitive Emissions       | 1.92                                       | 0.45         | 0.06         | -           | -           | -           | -           | -                            | -                | -                  |
| <b>Total</b>             | <b>20.18</b>                               | <b>18.77</b> | <b>18.38</b> | <b>0.01</b> | <b>0.92</b> | <b>9.65</b> | <b>0.77</b> | <b>1,105</b>                 | <b>0.02</b>      | <b>0.02 Hexane</b> |

<sup>α</sup> Silos emissions are negligible pursuant to AP 42 (6.6.3 Polystyrene) table 6.6.3-1 (item F, storage), (reformated 1/95).

<sup>β</sup> Blenders have negligible emissions, pursuant to AP42-6.6.2 (Polyethylene Terephthalate), table 6.6.2-1 (item B, mix tanks), (reformatted 1/95).

<sup>γ</sup> Granulators have negligible emissions as provided by the source.

<sup>δ</sup> - Used for surface treating plastic surfaces to improve adhesion, by using 6,500 volt electric shock. No emissions.

**Appendix A: Emissions Calculations  
Emissions From Thermoforming Operations**

**Company Name:** Futurex, Inc.  
**Address City IN Zip:** 80 East Smith Street, Bloomington, IN 47832  
 70 North Main Street, Bloomington, IN 47832  
 196 East Smith Street, Bloomington, IN 47832  
**Registration Number:** R121-32303-00012  
**Reviewer:** Bruce Farrar  
**Date:** September 12, 2012

| Emission Unit                          | Maximum Capacity (lbs/hr) | PM Emission Factor (lbs/ton) | VOC Emission Factor (lbs/ton) | PM (Tons/Year) | VOC (Tons/Year) |
|--|---------------------------|------------------------------|-------------------------------|----------------|-----------------|
| <b>Plant 1 (80 East Smith Street)</b>  |                           |                              |                               |                |                 |
| Extruder (Line 1)<br>Polyethylene      | 102.20                    | 0.04                         | 0.05                          | 0.01           | 0.01            |
| Extruder (Line 2)<br>polystyrene       | 102.20                    | 0.04                         | 0.05                          | 0.01           | 0.01            |
| Extruder (Line 3)<br>Polyethylene      | 102.20                    | 0.04                         | 0.05                          | 0.01           | 0.01            |
| Extruder (Line 4)<br>Polyethylene      | 102.20                    | 0.04                         | 0.05                          | 0.01           | 0.01            |
| Extruder (Line 5)<br>polystyrene       | 102.20                    | 0.04                         | 0.05                          | 0.01           | 0.01            |
| <b>Total:</b>                          |                           |                              |                               | <b>0.03</b>    | <b>0.03</b>     |
| <b>Plant 3 (196 East Smith Street)</b> |                           |                              |                               |                |                 |
| Extruder (Line 22)<br>Polyethylene     | 126.67                    | 0.04                         | 0.05                          | 0.01           | 0.01            |
| Extruder (Line 23)<br>Polyethylene     | 126.67                    | 0.04                         | 0.05                          | 0.01           | 0.01            |
| Extruder (Line 24)<br>Polyethylene     | 126.67                    | 0.04                         | 0.05                          | 0.01           | 0.01            |
| Extruder (Line 25)<br>Polyethylene     | 126.67                    | 0.04                         | 0.05                          | 0.03           | 0.03            |
| Extruder (Line 26)<br>Polyethylene     | 126.67                    | 0.04                         | 0.05                          | 0.01           | 0.01            |
| Extruder (Line 28)<br>Polyethylene     | 126.67                    | 0.04                         | 0.05                          | 0.01           | 0.01            |
| Extruder (Line 31)<br>Polyethylene     | 126.67                    | 0.04                         | 0.05                          | 0.01           | 0.01            |
| Extruder (Line 32)<br>Polyethylene     | 126.67                    | 0.04                         | 0.05                          | 0.01           | 0.01            |
| Extruder (Line 33)<br>Polyethylene     | 126.67                    | 0.04                         | 0.05                          | 0.01           | 0.01            |
| Extruder (Line 34)<br>polystyrene      | 125.00                    | 0.04                         | 0.05                          | 0.01           | 0.01            |
| <b>Total:</b>                          |                           |                              |                               | <b>0.07</b>    | <b>0.08</b>     |

**Notes:**

α. Emission Factor is from "Development of Emission Factors for Polyethylene Processing", JAWMA, Vol 46, June 1996. AP-42 has Assume PM = PM10 and PM2.5  
 PM emission factor = 19.58 lbs/1 million lbs = (19.58 lbs/1,000,000 lbs) \* (2,000 lbs/ 1 ton) = .04 lbs/ton  
 VOC emission factor = 25.0 lbs/1 million lbs = (25.0 lbs/1,000,000 lbs) \* (2,000 lbs/ 1 ton) = .05 lbs/ton

**Methodology:**

Potential PM/VOC Emissions (lbs/hr) = ((Maximum Capacity (lbs/hr)) \* (1ton/2000 lbs)) \* (Emission Factor (lbs/ton))  
 Potential PM/VOC Emissions (tons/yr) = (PM/VOC emissions (lbs/hr)) \* 8760 hrs/yr \* (1 ton/2000 lb)  
 HDPE PM and VOC emission factors is  $y = mt+c$ , where "t" is extrusion temperature (°F) and "y" is emission quantity in lbs per million Particulates =  $(380 * 0.141) - 34.0 = 19.58$  lbs per million lbs of Polystyrene or ABS.  
 VOC =  $(380 * 0.27) - 77.6 = 25.0$  lbs per million lbs of Polystyrene or ABS.

**Appendix A: Emissions Calculations  
Emissions From Cutting Operations**

**Company Name: Futurex, Inc.  
Address City IN Zip: 80 East Smith Street, Bloomington, IN 47832  
Registration Number: R121-32303-00012  
Reviewer: Bruce Farrar  
Date: September 12, 2012**

| <b>Emission Unit</b> | <b>PM Emission (lbs/hr)</b> | <b>PM emissions</b> | <b>Controlled PM (lb/hr)</b> | <b>Controlled PM (ton/yr)</b> |
|----------------------|-----------------------------|---------------------|------------------------------|-------------------------------|
| Vertical Saws        | 0.07                        | 0.31                | 0.03                         | 0.12                          |

**Notes:**

Information Provided by the Source: 3 lbs collected @ 72 hours.

PTE = (3.0 lbs / 72 hours / 60% efficiency of cyclone) = 0.07 lbs per hour of PM

Uncontrolled PM/PM10 emissions = amount of dust collected (lbs/collection) x (1 collection/No. of hours of operation) / (control efficiency)

Cyclone Control Efficiency: 60%

One (1) 18" Vertical Band Saw installed in 2009

**Methodology:**

Uncontrolled PM Emissions (lbs/hr) = 0.69 lbs

Uncontrolled Emissions (tons/yr) = Particulate Emission Rate (lb/hr)\* 8760 hr/yr \* 1 ton/2,000 lbs

Controlled PM Emissions (lbs/hr) = 0.69 lbs \* (1- control efficiency)

Controlled PM Emissions (tons/yr) = Controlled PM Emission (lb/hr)\* 8760 hr/yr \* 1 ton/2,000 lbs

**Appendix A: Emissions Calculations  
Natural Gas Combustion Only  
MM BTU/HR <100**

**Company Name: Futurex, Inc.  
Address City IN Zip: 80 East Smith Street, Bloomington, IN 47832  
Registration Number: R121-32303-00012  
Reviewer: Bruce Farrar  
Date: September 12, 2012**

|                                 |                       |                                 |
|---------------------------------|-----------------------|---------------------------------|
| Heat Input Capacity<br>MMBtu/hr | HHV<br>mmBtu<br>mmscf | Potential Throughput<br>MMCF/yr |
| 0.4                             | 1020                  | 3.4                             |

| Emission Factor in lb/MMCF    | Pollutant |       |               |          |                           |      |      |
|-------------------------------|-----------|-------|---------------|----------|---------------------------|------|------|
|                               | PM*       | PM10* | direct PM2.5* | SO2      | NOx<br>100<br>**see below | VOC  | CO   |
| Potential Emission in tons/yr | 0.00      | 0.01  | 0.01          | 1.03E-03 | 0.17                      | 0.01 | 0.14 |

\*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

PM2.5 emission factor is filterable and condensable PM2.5 combined.

\*\*Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

**Methodology**

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,020 MMBtu

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

See page 5 for HAPs emissions calculations.

**Appendix A: Emissions Calculations**  
**Natural Gas Combustion Only**  
**MM BTU/HR <100**  
**HAPs Emissions**

**Company Name:** Futurex, Inc.  
**Address City IN Zip:** 80 East Smith Street, Bloomington, IN 47832  
**Registration Number:** R121-32303-00012  
**Reviewer:** Bruce Farrar  
**Date:** September 12, 2012

| HAPs - Organics               |                    |                            |                         |                   |                    |
|-------------------------------|--------------------|----------------------------|-------------------------|-------------------|--------------------|
| Emission Factor in lb/MMcf    | Benzene<br>2.1E-03 | Dichlorobenzene<br>1.2E-03 | Formaldehyde<br>7.5E-02 | Hexane<br>1.8E+00 | Toluene<br>3.4E-03 |
| Potential Emission in tons/yr | 3.607E-06          | 2.061E-06                  | 1.288E-04               | 3.092E-03         | 5.840E-06          |

| HAPs - Metals                 |                 |                    |                     |                      |                   |
|-------------------------------|-----------------|--------------------|---------------------|----------------------|-------------------|
| Emission Factor in lb/MMcf    | Lead<br>5.0E-04 | Cadmium<br>1.1E-03 | Chromium<br>1.4E-03 | Manganese<br>3.8E-04 | Nickel<br>2.1E-03 |
| Potential Emission in tons/yr | 8.588E-07       | 1.889E-06          | 2.405E-06           | 6.527E-07            | 3.607E-06         |

Methodology is the same as page 4.

The five highest organic and metal HAPs emission factors are provided above.  
 Additional HAPs emission factors are available in AP-42, Chapter 1.4.  
 See Page 6 for Greenhouse Gas calculations.

**Appendix A: Emissions Calculations  
Natural Gas Combustion Only  
MM BTU/HR <100  
Greenhouse Gas Emissions**

**Company Name: Futurex, Inc.  
Address City IN Zip: 80 East Smith Street, Bloomington, IN 47832  
Registration Number: R121-32303-00012  
Reviewer: Bruce Farrar  
Date: September 12, 2012**

| Emission Factor in lb/MMcf            | Greenhouse Gas |     |     |
|---------------------------------------|----------------|-----|-----|
|                                       | CO2            | CH4 | N2O |
| 120,000                               | 2.3            | 2.2 |     |
| Potential Emission in tons/yr         | 206            | 0.0 | 0.0 |
| Summed Potential Emissions in tons/yr | 206            |     |     |
| CO2e Total in tons/yr                 | 207            |     |     |

**Methodology**

The N2O Emission Factor for uncontrolled is 2.2. The N2O Emission Factor for low Nox burner is 0.64.

Emission Factors are from AP 42, Table 1.4-2 SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03.

Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (21) + N2O Potential Emission ton/yr x N2O GWP (310).

**Appendix A: Emissions Calculations**  
**Emissions From Woodworking Operation (Plant 2)**

**Company Name:** Futurex, Inc.  
**Address City IN Zip:** 196 East Smith Street, Bloomington, Indiana 47832  
**Registration Number:** R121-32303-00012  
**Reviewer:** Bruce Farrar  
**Date:** September 12, 2012

| <b>Emission Unit</b> | <b>PM Emission (lbs/hr)</b> | <b>PM emissions</b> |
|----------------------|-----------------------------|---------------------|
| Miter Saw            | 4                           | 17.52               |

**Notes:**

Information Provided by the Source: 8 lbs collected @ 2 hours. Collections from drop box located behind the saw.

$PTE = (8 \text{ lbs} / 2 \text{ hours}) = 4.00 \text{ lbs per hour of PM}$

Uncontrolled PM/PM10 emissions = amount of dust collected (lbs/collection) x (1 collection/No. of hours of operation)

One (1) Dewalt 12" Compound Miter Saw installed in 2011

**Methodology:**

Uncontrolled PM Emissions (lbs/hr) = 2 lbs

Uncontrolled Emissions (tons/yr) = Particulate Emission Rate (lb/hr)\* 8760 hr/yr \* 1 ton/2,000 lbs

**Appendix A: Emissions Calculations  
Welding**

**Company Name:** Futurex, Inc.  
**Address City IN Zip:** 196 East Smith Street, Bloomington, Indiana 47832  
**Registration Number:** R121-32303-00012  
**Reviewer:** Bruce Farrar  
**Date:** September 12, 2012

| Source | Electrode Type | PM <sub>10</sub> Emission Factor <sup>1</sup><br>(lb/1,000 lb Electrode Consumed ) | Electrodes Consumed per year (lb) | Maximum Electrodes Consumed per day (lb) | Annual Emissions |
|--------|----------------|--|-----------------------------------|--|------------------|
|        |                |  |                                   |  | (ton/yr)         |
| Total  |                |  |                                   |  |                  |
| GMAW   | E70S-6         | 5  | 371                               | 1.0                                      | 0.001            |

HAP Emission Factors

| Source | HAP Emission Factor <sup>1</sup> (lb/10,000 lb Electrode Consumed ) |        |      |        |      |      | Percent Control Efficiency <sup>3</sup> | Electrodes Consumed per year (lb) |
|--------|---|--------|------|--------|------|------|---|-----------------------------------|
|        | Cr  | Cr(VI) | Co   | Mn     | Ni   | Pb   |   |                                   |
| GMAW   | 1.00  | 0.00   | 1.00 | 318.00 | 1.00 | 0.00 | 0%                                      | 371                               |

HAP Emissions

| Source | Annual Emissions (ton/yr) |         |         |         |         |         |
|--------|---------------------------|---------|---------|---------|---------|---------|
|        | Cr                        | Cr(VI)  | Co      | Mn      | Ni      | Pb      |
| GMAW   | 1.9E-05                   | 0.0E+00 | 1.9E-05 | 5.9E-03 | 1.9E-05 | 0.0E+00 |

**Note:** Welding consist of 2 GMAW welders

**Methodology**

<sup>1</sup>AP-42 Emission Factor, Section 12.19, Table 12.19-1 (PM-PM10) and 12.19-2 (HAPs).

Emission Factors are default values for carbon steel unless a specific electrode type is noted in the Process column.

Welding emissions, lb/hr: (# of stations)(max. lbs of electrode used/hr/station)(emission factor, lb. pollutant/lb. of electrode used)

Emissions, lbs/day = emissions, lbs/hr x 24 hrs/day

Emissions, tons/yr = emissions, lb/hr x 8,760 hrs/year x 1 ton/2,000 lbs.

**Appendix A: Emissions Calculations  
Thermal Cutting**

**Company Name: Futurex, Inc.**  
**Address City IN Zip: 196 East Smith Street, Bloomington, Indiana 47832**  
**Registration Number: R121-32303-00012**  
**Reviewer: Bruce Farrar**  
**Date: September 12, 2012**

| FLAME CUTTING                 | Number of Stations | Max. Metal Thickness Cut (in.) | Max. Metal Cutting Rate (in./minute) | EMISSION FACTORS<br>(lb pollutant/1,000 inches cut, 1" thick)** |    |    |    | EMISSIONS<br>(lbs/hr) |       |       |       | HAPS<br>(lbs/hr) |
|-------------------------------|--------------------|--------------------------------|--------------------------------------|---|----|----|----|-----------------------|-------|-------|-------|------------------|
|                               |                    |                                |                                      | PM = PM10   | Mn | Ni | Cr | PM = PM10             | Mn    | Ni    | Cr    |                  |
| Plasma**                      | 1                  | 0.375                          | 20                                   | 0.0039  |    |    |    | 0.002                 | 0.000 | 0.000 | 0.000 | 0.000            |
| <b>EMISSION TOTALS</b>        |                    |                                |                                      |   |    |    |    |                       |       |       |       |                  |
| Potential Emissions lbs/hr    |                    |                                |                                      |   |    |    |    | 0.00                  |       |       |       | 0.00             |
| Potential Emissions lbs/day   |                    |                                |                                      |   |    |    |    | 0.04                  |       |       |       | 0.00             |
| Potential Emissions tons/year |                    |                                |                                      |   |    |    |    | 0.01                  |       |       |       | 0.00             |

**Methodology:**

\*Emission Factors are default values for carbon steel unless a specific electrode type is noted in the Process column.

\*\*Emission Factor for plasma cutting from American Welding Society (AWS). Trials reported for wet cutting of 8 mm thick mild steel with 3.5 m/min cutting speed (at 0.2 g/min emitted). Therefore, the emission factor for plasma cutting is for 8 mm thick rather than 1 inch, and the maximum metal thickness is not used in calculating the emissions.

Using AWS average values: (0.25 g/min)/(3.6 m/min) x (0.0022 lb/g)/(39.37 in./m) x (1,000 in.) = 0.0039 lb/1,000 in. cut, 8 mm thick

Plasma cutting emissions, lb/hr: (# of stations)(max. cutting rate, in./min.)(60 min./hr.)(emission factor, lb. pollutant/1,000 in. cut, 8 mm thick)

Cutting emissions, lb/hr: (# of stations)(max. metal thickness, in.)(max. cutting rate, in./min.)(60 min./hr.)(emission factor, lb. pollutant/1,000 in. cut, 1" thick)

Welding emissions, lb/hr: (# of stations)(max. lbs of electrode used/hr/station)(emission factor, lb. pollutant/lb. of electrode used)

Emissions, lbs/day = emissions, lbs/hr x 24 hrs/day

Emissions, tons/yr = emissions, lb/hr x 8,760 hrs/year x 1 ton/2,000 lbs

**Appendix A: Emissions Calculations**  
**Emissions From Parts Washer**

**Company Name:** Futurex, Inc.  
**Address City IN Zip:** 196 East Smith Street, Bloomington, Indiana 47832  
**Registration Number:** R121-32303-00012  
**Reviewer:** Bruce Farrar  
**Date:** September 12, 2012

| Material       | Usage Rate (gals/yr) | Density (lbs/gal) | VOC Content (%) | Potential Emissions (tons/yr) |
|----------------|----------------------|-------------------|-----------------|-------------------------------|
| Mineral Spirit | 18                   | 6.44              | 100%            | 0.06                          |

**Notes:**

Usage per year = 18 gallons/year, as provided by the source  
Density is 6.44 lbs/gal, as taken from the MSDS  
Zep Dyna Brute Parts Cleaner installed in 2002

**Methodology:**

Potential VOC emissions (tons/yr) = Usage rate (gals/yr) x Density (lbs/gal) x VOC Content (%) x 1 ton/2000 lbs

**Appendix A: Emissions Calculations  
Emissions From Cutting Operations**

**Company Name: Futurex, Inc.  
Address City IN Zip: 196 East Smith Street, Bloomington, Indiana 47832  
Registration Number: R121-32303-00012  
Reviewer: Bruce Farrar  
Date: September 12, 2012**

| <b>Emission Unit</b> | <b>PM Emission (lbs/hr)</b> | <b>PM emissions</b> | <b>Controlled PM (lb/hr)</b> | <b>Controlled PM (ton/yr)</b> |
|----------------------|-----------------------------|---------------------|------------------------------|-------------------------------|
| 20" Band Saw         | 0.07                        | 0.31                | 0.03                         | 0.12                          |

**Notes:**

Information Provided by the Source: 1.5 lbs collected @ 35.5 hours.

PTE = (1.5 lbs / 35.5 hours / 60% efficiency of cycone) = 0.07 lbs per hour of PM

Uncontrolled PM/PM10 emissions = amount of dust collected (lbs/collection) x (1 collection/No. of hours of operation) / (control efficiency)

Cyclone Control Efficiency: 60%

One (1) 18" Vertical Band Saw installed in 2009

**Methodology:**

Uncontrolled PM Emissions (lbs/hr) = 0.70 lbs

Uncontrolled Emissions (tons/yr) = Particulate Emission Rate (lb/hr)\* 8760 hr/yr \* 1 ton/2,000 lbs

Controlled PM Emissions (lbs/hr) = 0.70 lbs \* (1- control efficiency)

Controlled PM Emissions (tons/yr) = Controlled PM Emission (lb/hr)\* 8760 hr/yr \* 1 ton/2,000 lbs

**Appendix A: Emissions Calculations  
Natural Gas Combustion Only  
MM BTU/HR <100**

**Company Name: Futurex, Inc.  
Address City IN Zip: 196 East Smith Street, Bloomington, Indiana 47832  
Registration Number: R121-32303-00012  
Reviewer: Bruce Farrar  
Date: September 12, 2012**

|                                 |                       |                                 |
|---------------------------------|-----------------------|---------------------------------|
| Heat Input Capacity<br>MMBtu/hr | HHV<br>mmBtu<br>mmscf | Potential Throughput<br>MMCF/yr |
| 0.3                             | 1020                  | 2.8                             |

| Emission Factor in lb/MMCF    | Pollutant |       |               |          |                           |      |      |
|-------------------------------|-----------|-------|---------------|----------|---------------------------|------|------|
|                               | PM*       | PM10* | direct PM2.5* | SO2      | NOx<br>100<br>**see below | VOC  | CO   |
| Potential Emission in tons/yr | 0.00      | 0.01  | 0.01          | 8.37E-04 | 0.14                      | 0.01 | 0.12 |

\*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

PM2.5 emission factor is filterable and condensable PM2.5 combined.

\*\*Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

**Methodology**

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,020 MMBtu

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

See page 13 for HAPs emissions calculations.

**Appendix A: Emissions Calculations  
Natural Gas Combustion Only  
MM BTU/HR <100  
HAPs Emissions**

**Company Name:** Futurex, Inc.  
**Address City IN Zip:** 196 East Smith Street, Bloomington, Indiana 47832  
**Registration Number:** R121-32303-00012  
**Reviewer:** Bruce Farrar  
**Date:** September 12, 2012

| HAPs - Organics               |                    |                            |                         |                   |                    |
|-------------------------------|--------------------|----------------------------|-------------------------|-------------------|--------------------|
| Emission Factor in lb/MMcf    | Benzene<br>2.1E-03 | Dichlorobenzene<br>1.2E-03 | Formaldehyde<br>7.5E-02 | Hexane<br>1.8E+00 | Toluene<br>3.4E-03 |
| Potential Emission in tons/yr | 2.931E-06          | 1.675E-06                  | 1.047E-04               | 2.512E-03         | 4.745E-06          |

| HAPs - Metals                 |                 |                    |                     |                      |                   |
|-------------------------------|-----------------|--------------------|---------------------|----------------------|-------------------|
| Emission Factor in lb/MMcf    | Lead<br>5.0E-04 | Cadmium<br>1.1E-03 | Chromium<br>1.4E-03 | Manganese<br>3.8E-04 | Nickel<br>2.1E-03 |
| Potential Emission in tons/yr | 6.978E-07       | 1.535E-06          | 1.954E-06           | 5.303E-07            | 2.931E-06         |

Methodology is the same as page 12.

The five highest organic and metal HAPs emission factors are provided above.  
 Additional HAPs emission factors are available in AP-42, Chapter 1.4.  
 See Page 14 for Greenhouse Gas calculations.

**Appendix A: Emissions Calculations  
 Natural Gas Combustion Only  
 MM BTU/HR <100  
 Greenhouse Gas Emissions**

**Company Name: Futurex, Inc.  
 Address City IN Zip: 196 East Smith Street, Bloomington, Indiana 47832  
 Registration Number: R121-32303-00012  
 Reviewer: Bruce Farrar  
 Date: September 12, 2012**

| Emission Factor in lb/MMcf            | Greenhouse Gas |     |     |
|---------------------------------------|----------------|-----|-----|
|                                       | CO2            | CH4 | N2O |
| 120,000                               | 2.3            | 2.2 |     |
| Potential Emission in tons/yr         | 167            | 0.0 | 0.0 |
| Summed Potential Emissions in tons/yr | 167            |     |     |
| CO2e Total in tons/yr                 | 168            |     |     |

**Methodology**

The N2O Emission Factor for uncontrolled is 2.2. The N2O Emission Factor for low Nox burner is 0.64.  
 Emission Factors are from AP 42, Table 1.4-2 SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03.  
 Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.  
 Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton  
 CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (21) + N2O Potential Emission ton/yr x N2O GWP (310).

**Appendix A: Emissions Calculations  
VOC From Printing Press Operations**

**Company Name: Futurex, Inc.  
Address City IN Zip: 80 East Smith Street, Bloomington, IN 47832  
Registration Number: R121-32303-00012  
Reviewer: Bruce Farrar  
Date: September 12, 2012**

| THROUGHPUT |                                  |                                 |                         |
|------------|----------------------------------|---------------------------------|-------------------------|
| Press I.D. | MAXIMUM LINE SPEED<br>(FEET/MIN) | MAXIMUM PRINT WIDTH<br>(INCHES) | MMin <sup>2</sup> /YEAR |
| Line 1     | 114                              | 36                              | 25885                   |
| Line 2     | 114                              | 36                              | 25885                   |
| Line 3     | 208                              | 36                              | 47228                   |

| INK VOCS                     |  |                     |             |   |                          |
|------------------------------|--|---------------------|-------------|---|--------------------------|
| Ink Name<br>Press Id         | Maxium Coverage<br>'(lbs/MMin <sup>2</sup> ) | Weight % Volatiles* | Flash Off % | Throughput<br>(MMin <sup>2</sup> /Year) | Emissions<br>(TONS/YEAR) |
| Line 1<br>Representative Ink | 0.36   | 52%                 | 100.00%     | 25885                                   | 2.42                     |
| Line 2<br>Representative Ink | 0.36   | 52%                 | 100.00%     | 25885                                   | 2.42                     |
| Line 3<br>Representative Ink | 0.38   | 52%                 | 100.00%     | 47228                                   | 4.67                     |

|                              |                    |
|------------------------------|--------------------|
| <b>Total VOC Emissions =</b> | <b>9.51 Ton/yr</b> |
|------------------------------|--------------------|

\*VOC (Tons/Year) = Maximum Coverage pounds per MMin<sup>2</sup> \* Weight % volatiles (weight % of water & organics - weight % of water = weight % organics) \* Flash off \* Throughput

**METHODOLOGY**

Throughput = Maxium line speed feet per minute \* Convert feet to inches \* Maximum print width inches \* 60 minutes per hour \* 8760 hours per year = MMin<sup>2</sup> per  
 VOC = Maximum Coverage pounds per MMin<sup>2</sup> \* Weight percentage volatiles (water minus organics) \* Flash off \* Throughput \* Tons per 2000 pounds = Tons per

NOTE: HEAT SET OFFSET PRINTING HAS AN ASSUMED FLASH OFF OF 80%. OTHER TYPES OF PRINTERS HAVE A FLASH OFF OF 10%

(Source -OAQPS Draft Guidance, "Control of Volatile Organic Compound Emissions from Offset Lithographic Printing (9/93)

**Appendix A: Emissions Calculations  
Natural Gas Combustion Only  
MM BTU/HR <100**

**Company Name: Futurex, Inc.  
Address City IN Zip: 70 North Main Street, Bloomington, Indiana 47832  
Registration Number: R121-32303-00012  
Reviewer: Bruce Farrar  
Date: September 12, 2012**

|                                 |                       |                                 |
|---------------------------------|-----------------------|---------------------------------|
| Heat Input Capacity<br>MMBtu/hr | HHV<br>mmBtu<br>mmscf | Potential Throughput<br>MMCF/yr |
| 1.4                             | 1020                  | 12.1                            |

| Emission Factor in lb/MMCF    | Pollutant |       |               |          |                           |      |      |
|-------------------------------|-----------|-------|---------------|----------|---------------------------|------|------|
|                               | PM*       | PM10* | direct PM2.5* | SO2      | NOx<br>100<br>**see below | VOC  | CO   |
| Potential Emission in tons/yr | 0.01      | 0.05  | 0.05          | 3.63E-03 | 0.60                      | 0.03 | 0.51 |

\*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

PM2.5 emission factor is filterable and condensable PM2.5 combined.

\*\*Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

**Methodology**

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,020 MMBtu

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

See page 17 for HAPs emissions calculations.

**Appendix A: Emissions Calculations  
 Natural Gas Combustion Only  
 MM BTU/HR <100  
 HAPs Emissions**

**Company Name:** Futurex, Inc.  
**Address City IN Zip:** 70 North Main Street, Bloomington, Indiana 47832  
**Registration Number:** R121-32303-00012  
**Reviewer:** Bruce Farrar  
**Date:** September 12, 2012

| HAPs - Organics               |                    |                            |                         |                   |                    |
|-------------------------------|--------------------|----------------------------|-------------------------|-------------------|--------------------|
| Emission Factor in lb/MMcf    | Benzene<br>2.1E-03 | Dichlorobenzene<br>1.2E-03 | Formaldehyde<br>7.5E-02 | Hexane<br>1.8E+00 | Toluene<br>3.4E-03 |
| Potential Emission in tons/yr | 1.269E-05          | 7.250E-06                  | 4.531E-04               | 1.088E-02         | 2.054E-05          |

| HAPs - Metals                 |                 |                    |                     |                      |                   |
|-------------------------------|-----------------|--------------------|---------------------|----------------------|-------------------|
| Emission Factor in lb/MMcf    | Lead<br>5.0E-04 | Cadmium<br>1.1E-03 | Chromium<br>1.4E-03 | Manganese<br>3.8E-04 | Nickel<br>2.1E-03 |
| Potential Emission in tons/yr | 3.021E-06       | 6.646E-06          | 8.459E-06           | 2.296E-06            | 1.269E-05         |

Methodology is the same as page 16.

The five highest organic and metal HAPs emission factors are provided above.  
 Additional HAPs emission factors are available in AP-42, Chapter 1.4.  
 See Page 18 for Greenhouse Gas calculations.

**Appendix A: Emissions Calculations  
 Natural Gas Combustion Only  
 MM BTU/HR <100  
 Greenhouse Gas Emissions**

**Company Name: Futurex, Inc.  
 Address City IN Zip: 70 North Main Street, Bloomington, Indiana 47832  
 Registration Number: R121-32303-00012  
 Reviewer: Bruce Farrar  
 Date: September 12, 2012**

| Emission Factor in lb/MMcf            | Greenhouse Gas |     |     |
|---------------------------------------|----------------|-----|-----|
|                                       | CO2            | CH4 | N2O |
| 120,000                               | 2.3            | 2.2 |     |
| Potential Emission in tons/yr         | 725            | 0.0 | 0.0 |
| Summed Potential Emissions in tons/yr | 725            |     |     |
| CO2e Total in tons/yr                 | 729            |     |     |

**Methodology**

The N2O Emission Factor for uncontrolled is 2.2. The N2O Emission Factor for low Nox burner is 0.64.  
 Emission Factors are from AP 42, Table 1.4-2 SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03.  
 Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.  
 Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton  
 CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (21) + N2O Potential Emission ton/yr x N2O GWP (310).

**Appendix A: Emission Calculations**  
**Fugitive Dust Emissions - Paved Roads**

**Company Name:** Futurex, Inc.  
**Address City IN Zip:** 80 East Smith Street, Bloomington, IN 47832  
 196 East Smith Street, Bloomington, Indiana 47832  
 70 North Main Street, Bloomington, Indiana 47832  
**Registration Number:** R121-32303-00012  
**Reviewer:** Bruce Farrar  
**Date:** September 12, 2012

**Paved Roads at Industrial Site**

The following calculations determine the amount of emissions created by paved roads, based on 8,760 hours of use and AP-42, Ch 13.2.1 (1/2011).

**Vehicle Information (provided by source)**

| Type                                    | Maximum number of vehicles per day | Number of one-way trips per day per vehicle | Maximum trips per day (trip/day) | Maximum Weight Loaded (tons/trip) | Total Weight driven per day | Maximum one-way distance (feet/trip) | Maximum one-way distance (mi/trip) | Maximum one-way miles (miles/day) | Maximum one-way miles (miles/yr) |
|---|------------------------------------|---|----------------------------------|-----------------------------------|-----------------------------|--------------------------------------|------------------------------------|-----------------------------------|----------------------------------|
| Vehicle (entering plant) (one-way trip) | 15.0                               | 1.0   | 15.0                             | 40.0                              | 600.0                       | 250                                  | 0.047                              | 0.7                               | 259.2                            |
| Vehicle (leaving plant) (one-way trip)  | 15.0                               | 1.0   | 15.0                             | 40.0                              | 600.0                       | 250                                  | 0.047                              | 0.7                               | 259.2                            |
| Front Loader                            | 3.0                                | 20.0  | 60.0                             | 3.0                               | 180.0                       | 50                                   | 0.009                              | 0.6                               | 207.4                            |
| <b>Totals</b>                           |                                    |   | <b>90.0</b>                      |                                   | <b>1380.0</b>               |                                      |                                    | <b>2.0</b>                        | <b>725.9</b>                     |

Average Vehicle Weight Per Trip = 15.3 tons/trip  
 Average Miles Per Trip = 0.02 miles/trip

Unmitigated Emission Factor, Ef = [k \* (sL)^0.91 \* (W)^1.02] (Equation 1 from AP-42 13.2.1)

|           | PM    | PM10   | PM2.5   |   |
|-----------|-------|--------|---------|---|
| where k = | 0.011 | 0.0022 | 0.00054 | lb/VMT = particle size multiplier (AP-42 Table 13.2.1-1)  |
| W =       | 19.8  | 19.8   | 19.8    | tons = average vehicle weight (provided by source)  |
| sL =      | 9.7   | 9.7    | 9.7     | g/m <sup>2</sup> = silt loading value for paved roads at iron and steel production facilities - Table 13.2.1-3) |

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor, Eext = E \* [1 - (p/4N)] (Equation 2 from AP-42 13.2.1)

Mitigated Emission Factor, Eext = Ef \* [1 - (p/4N)]  
 where p = 125 days of rain greater than or equal to 0.01 inches (see Fig. 13.2.1-2)  
 N = 365 days per year

|                                   | PM    | PM10  | PM2.5 |         |
|-----------------------------------|-------|-------|-------|---------|
| Unmitigated Emission Factor, Ef = | 1.830 | 0.366 | 0.090 | lb/mile |
| Mitigated Emission Factor, Eext = | 1.673 | 0.335 | 0.082 | lb/mile |

| Process                                 | Unmitigated PTE of PM (tons/yr) | Unmitigated PTE of PM10 (tons/yr) | Unmitigated PTE of PM2.5 (tons/yr) | Mitigated PTE of PM (tons/yr) | Mitigated PTE of PM10 (tons/yr) | Mitigated PTE of PM2.5 (tons/yr) |
|---|---------------------------------|-----------------------------------|------------------------------------|-------------------------------|---------------------------------|----------------------------------|
| Vehicle (entering plant) (one-way trip) | 0.24                            | 0.05                              | 0.01                               | 0.22                          | 0.04                            | 0.01                             |
| Vehicle (leaving plant) (one-way trip)  | 0.24                            | 0.04                              | 0.01                               | 0.22                          | 0.04                            | 0.01                             |
| Loader                                  | 0.19                            | 0.03                              | 0.01                               | 0.17                          | 0.03                            | 0.01                             |
| <b>Totals</b>                           | <b>0.69</b>                     | <b>0.13</b>                       | <b>0.03</b>                        | <b>0.63</b>                   | <b>0.13</b>                     | <b>0.03</b>                      |

**Methodology**

Total Weight driven per day (ton/day) = [Maximum Weight Loaded (tons/trip)] \* [Maximum trips per day (trip/day)]  
 Maximum one-way distance (mi/trip) = [Maximum one-way distance (feet/trip)] / [5280 ft/mile]  
 Maximum one-way miles (miles/day) = [Maximum trips per year (trip/day)] \* [Maximum one-way distance (mi/trip)]  
 Average Vehicle Weight Per Trip (ton/trip) = SUM[Total Weight driven per day (ton/day)] / SUM[Maximum trips per day (trip/day)]  
 Average Miles Per Trip (miles/trip) = SUM[Maximum one-way miles (miles/day)] / SUM[Maximum trips per year (trip/day)]  
 Unmitigated PTE (tons/yr) = [Maximum one-way miles (miles/yr)] \* [Unmitigated Emission Factor (lb/mile)] \* (ton/2000 lbs)  
 Mitigated PTE (tons/yr) = [Maximum one-way miles (miles/yr)] \* [Mitigated Emission Factor (lb/mile)] \* (ton/2000 lbs)  
 Controlled PTE (tons/yr) = [Mitigated PTE (tons/yr)] \* [1 - Dust Control Efficiency]

**Abbreviations**

PM = Particulate Matter  
 PM10 = Particulate Matter (<10 um)  
 PM2.5 = Particle Matter (<2.5 um)  
 PTE = Potential to Emit

**Appendix A: Emission Calculations**  
**Fugitive Dust Emissions - Unpaved Roads**  
 Company Name: Futurex, Inc.  
 Address City IN Zip: 80 East Smith Street, Bloomington, IN 47832  
 196 East Smith Street, Bloomington, Indiana 47832  
 70 North Main Street, Bloomington, Indiana 47832  
 Registration Number: R121-32303-00012  
 Reviewer: Bruce Farrar  
 Date: September 12, 2012

**Unpaved Roads at Industrial Site**

The following calculations determine the amount of emissions created by unpaved roads, based on 8,760 hours of use and AP-42, Ch 13.2.2 (11/2006).

Vehicle Information (provided by source)

| Type                                    | Maximum number of vehicles | Number of one-way trips per day per vehicle | Maximum trips per day (trip/day) | Maximum Weight Loaded (tons/trip) | Total Weight driven per day (ton/day) | Maximum one way distance (feet/trip) | Maximum one way distance (mi/trip) | Maximum one-way miles (miles/day) | Maximum one-way miles (miles/yr) |
|---|----------------------------|---|----------------------------------|-----------------------------------|---------------------------------------|--------------------------------------|------------------------------------|-----------------------------------|----------------------------------|
| Vehicle (entering plant) (one-way trip) | 15.0                       | 1.0   | 15.0                             | 40.0                              | 600.0                                 | 250                                  | 0.047                              | 0.7                               | 259.2                            |
| Vehicle (leaving plant) (one-way trip)  | 15.0                       | 1.0   | 15.0                             | 40.0                              | 600.0                                 | 250                                  | 0.047                              | 0.7                               | 259.2                            |
| Front Loader                            | 3.0                        | 20.0  | 60.0                             | 3.0                               | 180.0                                 | 50                                   | 0.009                              | 0.6                               | 207.4                            |
| <b>Totals</b>                           |                            |   | <b>90.0</b>                      |                                   | <b>1380.0</b>                         |                                      |                                    | <b>2.0</b>                        | <b>725.9</b>                     |

Average Vehicle Weight Per Trip = 15.3 tons/trip  
 Average Miles Per Trip = 0.02 miles/trip

Unmitigated Emission Factor, Ef =  $k \cdot [(s/12)^a] \cdot [(W/3)^b]$  (Equation 1a from AP-42 13.2.2)

|           | PM   | PM10 | PM2.5 |  |
|-----------|------|------|-------|--|
| where k = | 4.9  | 1.5  | 0.15  | lb/mi = particle size multiplier (AP-42 Table 13.2.2-2 for Industrial Roads)                 |
| s =       | 4.8  | 4.8  | 4.8   | % = mean % silt content of unpaved roads (AP-42 Table 13.2.2-1 Sand/Gravel Processing Plant) |
| a =       | 0.7  | 0.9  | 0.9   | = constant (AP-42 Table 13.2.2-2 for Industrial Roads)                                       |
| W =       | 15.3 | 15.3 | 15.3  | tons = average vehicle weight (provided by source)   |
| b =       | 0.45 | 0.45 | 0.45  | = constant (AP-42 Table 13.2.2-2 for Industrial Roads)                                       |

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor, Eext =  $E \cdot [(365 - P)/365]$  (Equation 2 from AP-42 13.2.2)

Mitigated Emission Factor, Eext =  $E \cdot [(365 - P)/365]$

where P = 125 days of rain greater than or equal to 0.01 inches (see Fig. 13.2.2-1)

|                                   | PM   | PM10 | PM2.5 |         |
|-----------------------------------|------|------|-------|---------|
| Unmitigated Emission Factor, Ef = | 5.38 | 1.37 | 0.14  | lb/mile |
| Mitigated Emission Factor, Eext = | 3.53 | 0.90 | 0.09  | lb/mile |

| Process                                 | Unmitigated PTE of PM (tons/yr) | Unmitigated PTE of PM10 (tons/yr) | Unmitigated PTE of PM2.5 (tons/yr) | Mitigated PTE of PM (tons/yr) | Mitigated PTE of PM10 (tons/yr) | Mitigated PTE of PM2.5 (tons/yr) |
|---|---------------------------------|-----------------------------------|------------------------------------|-------------------------------|---------------------------------|----------------------------------|
| Vehicle (entering plant) (one-way trip) | 0.70                            | 0.18                              | 0.02                               | 0.46                          | 0.12                            | 0.01                             |
| Vehicle (leaving plant) (one-way trip)  | 0.70                            | 0.18                              | 0.02                               | 0.46                          | 0.12                            | 0.01                             |
| Front Loader                            | 0.56                            | 0.14                              | 0.01                               | 0.37                          | 0.09                            | 0.01                             |
| <b>Totals</b>                           | <b>1.95</b>                     | <b>0.50</b>                       | <b>0.05</b>                        | <b>1.28</b>                   | <b>0.33</b>                     | <b>0.03</b>                      |

**Methodology**

Total Weight driven per day (ton/day) = [Maximum Weight Loaded (tons/trip)] \* [Maximum trips per day (trip/day)]  
 Maximum one-way distance (mi/trip) = [Maximum one-way distance (feet/trip)] / [5280 ft/mile]  
 Maximum one-way miles (miles/day) = [Maximum trips per year (trip/day)] \* [Maximum one-way distance (mi/trip)]  
 Average Vehicle Weight Per Trip (ton/trip) = SUM[Total Weight driven per day (ton/day)] / SUM[Maximum trips per day (trip/day)]  
 Average Miles Per Trip (miles/trip) = SUM[Maximum one-way miles (miles/day)] / SUM[Maximum trips per year (trip/day)]  
 Unmitigated PTE (tons/yr) = (Maximum one-way miles (miles/yr)) \* (Unmitigated Emission Factor (lb/mile)) \* (ton/2000 lbs)  
 Mitigated PTE (tons/yr) = (Maximum one-way miles (miles/yr)) \* (Mitigated Emission Factor (lb/mile)) \* (ton/2000 lbs)  
 Controlled PTE (tons/yr) = (Mitigated PTE (tons/yr)) \* (1 - Dust Control Efficiency)

**Abbreviations**

PM = Particulate Matter  
 PM10 = Particulate Matter (<10 um)  
 PM2.5 = Particulate Matter (<2.5 um)  
 PTE = Potential to Emit



# INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

*We Protect Hoosiers and Our Environment.*

*Mitchell E. Daniels Jr.*  
**Governor**

*Thomas W. Easterly*  
**Commissioner**

100 North Senate Avenue  
Indianapolis, Indiana 46204  
(317) 232-8603  
Toll Free (800) 451-6027  
[www.idem.IN.gov](http://www.idem.IN.gov)

## **SENT VIA U.S. MAIL: CONFIRMED DELIVERY AND SIGNATURE REQUESTED**

**TO:** Mark Eldridge  
Futurex, Inc.  
80 E Main St  
Bloomington, IN 47832

**DATE:** November 28, 2012

**FROM:** Matt Stuckey, Branch Chief  
Permits Branch  
Office of Air Quality

**SUBJECT:** Final Decision  
Registration - Reregistration  
121 - 32303 - 00012

Enclosed is the final decision and supporting materials for the air permit application referenced above. Please note that this packet contains the original, signed, permit documents.

The final decision is being sent to you because our records indicate that you are the contact person for this application. However, if you are not the appropriate person within your company to receive this document, please forward it to the correct person.

A copy of the final decision and supporting materials has also been sent via standard mail to:  
Brent Thompson, President  
Katherine Holcomb August Mack Environmental  
OAQ Permits Branch Interested Parties List

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178, or toll-free at 1-800-451-6027 (ext. 3-0178), and ask to speak to the permit reviewer who prepared the permit. If you think you have received this document in error, please contact Joanne Smiddie-Brush of my staff at 1-800-451-6027 (ext 3-0185), or via e-mail at [jbrush@idem.IN.gov](mailto:jbrush@idem.IN.gov).

Final Applicant Cover letter.dot 11/30/07

# Mail Code 61-53

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| IDEM Staff                 | LPOGOST 11/28/2012<br>Futurex, Incorporated 121 - 32303 - 00012 final)            |   | Type of Mail:<br><br><b>CERTIFICATE OF MAILING ONLY</b> | AFFIX STAMP<br>HERE IF<br>USED AS<br>CERTIFICATE<br>OF MAILING |
| Name and address of Sender |  | Indiana Department of Environmental Management<br>Office of Air Quality – Permits Branch<br>100 N. Senate<br>Indianapolis, IN 46204 |   |  |

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| 1    |                | Mark Eldridge Futurex, Incorporated 80 E Main St Bloomingdale IN 47832 (Source CAATS) Via confirmed delivery            |         |                  |                            |               |                 |          |          |          |                |
| 2    |                | Brent Thompson President Futurex, Incorporated 70 N Main St Bloomingdale IN 47832 (RO CAATS)                            |         |                  |                            |               |                 |          |          |          |                |
| 3    |                | Parke County Commissioners 116 West High Street Rockville IN 47872 (Affected Party)                                     |         |                  |                            |               |                 |          |          |          |                |
| 4    |                | Mr. Gary Hanner Hanner Hanner & Hanner P.O. Box 122 Rockville IN 47872 (Affected Party)                                 |         |                  |                            |               |                 |          |          |          |                |
| 5    |                | Parke County Health Department 116 W. High St. Room 10 Rockville IN 47872 (Health Department)                           |         |                  |                            |               |                 |          |          |          |                |
| 6    |                | Parke County Board of Commissioners 121 W. High St. Rockville IN 47872 (Local Official)                                 |         |                  |                            |               |                 |          |          |          |                |
| 7    |                | Katherine Holcomb August Mack Environmental, Inc. 1302 N. Meridian Street, Suite 300 Indianapolis IN 46202 (Consultant) |         |                  |                            |               |                 |          |          |          |                |
| 8    |                |   |         |                  |                            |               |                 |          |          |          |                |
| 9    |                |   |         |                  |                            |               |                 |          |          |          |                |
| 10   |                |   |         |                  |                            |               |                 |          |          |          |                |
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