

## **APPENDIX B**

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### **HEALTH RISK ASSESSMENT**



## APPENDIX B: HEALTH RISK ASSESSMENT

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**Risk Assessment Calculations  
2003 Modifications Application  
Polychemie Inc. - Los Angeles, CA  
GESI Project No. 02512.01**

### Compliance with Rules 1401 and 212

Since there are multiple sources, ISCST3 modeling was used to estimate ambient impacts.

Model protocol was per instructions of SCAQMD. Met data was obtained from the SCAQMD website for the closest station located in downtown Los Angeles.

Model receptors were located along the facility's property line at 25 meter intervals and using a Cartesian coordinate system for off-site receptors. The Cartesian coordinate off-site receptors were placed at 25 meter grid intervals from the property line to approximately 1,000 meters from the center of the facility.

Since modeling was used, a modified Tier II assessment procedure from SCAQMD "Risk Assessment Procedure for Rules 1401 and 212" guidance book was followed to demonstrate compliance with Rules 1401 and 212:

- Total acute hazard index (HAI) < 1.0 for any target organ.
- Total maximum individual cancer risk (MICR) < 1.0 E-6

### Emission Rates

For modeling purposes, emission calculations are based on post-1990 production increases and permitted formaldehyde limits.

Formaldehyde emission rates from SC1 and SC2 are based on permit limits. Acrylamide emission rates and the formaldehyde emission rate for SC3 (new scrubber) are calculated. The calculations reflect the new process lines and the increased Mannich production of 300 MM pounds minus the pre-1990 Mannich production of 110 MM pounds. Therefore, the post-1990 emission calculations are based on 190 MM pounds of Mannich production and the new processes. Since standing/breathing losses from formaldehyde tank V3 and acrylamide tank V4 are pre-1990, they are not included with the post-1990 emissions. Also, throughputs for tanks V3 and V4 have been included with the new tank (V10 and V16) calculations. See the attached modeling emission calculations.

### Formaldehyde maximum hourly emissions (for HIA estimation)

Although annual throughput will increase for equipment venting to scrubber SC1, there will be no change in maximum hourly emissions since the mode of operation has not changed since 1990. Furthermore, since these same maximum hourly emissions were permitted pre-1990, they shall be excluded from modeling. Maximum hourly emissions to SC2 will be modeled at the current permit limit. Maximum hourly emissions to SC3 would occur during the filling of the formaldehyde storage tank. See calculations below.

#### **For V16 (to SC3)**

As a conservative estimate, assume a maximum fill rate of 10,000 gallons per hour.

Uncontrolled emissions = 0.0010 MV PVA (Q/42) [from AP 42]

$$\begin{aligned} \text{Formaldehyde tank emis.} &= 0.0010 (30.03) (0.01547\text{psi}) ((10,000 \text{ gal})/42) \\ &= 0.11061 \text{ lb/hr uncontrolled} \end{aligned}$$

Maximum hourly emissions by source (post 1990) are:

SC2 = permit limit	=	6.1000E-03	lb/hr
SC3 = filling tank	=	0.11061	lb/hr
Fugitive = 35.22 lb/yr /8760 hr/yr =		0.00402	lb/hr
Total =		0.12073	lb/hr

\* No HAI evaluation is required for acrylamide since there is no acute or chronic REL. Therefore, maximum hourly emissions do not need to be estimated for acrylamide.

# Polychemie Inc. – Facility Expansion Project

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Risk Assessment - 2003 Modifications  
Polychemie, Inc. - Los Angeles, California  
GESI Project No. 02512.01

December 2003

## Modeling (MICR) and Chronic HIA

### Acrylamide

Only acrylamide emissions permitted after 1990 are to be modeled (see modeling calculations).

Average annual lb/hr:

SC1 =	0.00762	lb/yr	/8760 hr/yr =	8.6972E-07	lb/hr
SC2 =	0.02133	lb/yr	/8760 hr/yr =	2.4352E-06	lb/hr
SC3 =	0.08774	lb/yr	/8760 hr/yr =	1.0016E-05	lb/hr

### Formaldehyde

Only formaldehyde emissions permitted after 1990 are modeled for SC3 (see modeling calculations).

Formaldehyde emission rates for SC1 and SC2 are based on permit limits. SC1 emissions are based on estimated annual average daily emissions at 160 MM pounds of Mannich (proposed increased production) minus the pre-1990 permitted limit of 0.034 lb/day (see attached hand written calculations on next page). SC2 is currently limited to 0.0061 lb/hr and this value is used for modeling. SC3 emissions are based on emission calculations.

Average annual lb/hr:

SC1 =	proposed emission rate (0.146 lb/day) - pre 1990 permit limit (0.034 lb/day)				
SC1 =	0.112 lb/day x 365 / 8760 hrs/yr	=		4.6667E-03	lb/hr
SC2 =	permit limit	=		6.1000E-03	lb/hr
SC3 =	5.13	lb/yr	/8760 hr/yr =	5.8530E-04	lb/hr
Fugitives =	35.22	lb/yr	/8760 hr/yr =	4.0209E-03	lb/hr

### Modeling Results- see attached data

Highest impacts are at fence line- to be used for off-site worker exposure.

At Max Hourly Rate:

Formaldehyde = 53.05 ug/m3

At Annual Hourly Rate:

Formaldehyde = 0.18093 ug/m3  
Acrylamide = 0.00027 ug/m3

Since residential/sensitive receptors are located much further away than off-site workers, it is appropriate to use modeling result at distance further than the fence-line concentrations presented above.

The closest residential/sensitive receptors are located ~500 meters from the northern fence line and ~600 meters from the eastern fence line. Residential/sensitive receptors are located greater than 600 meters away from the southern and western fence lines. Therefore, the highest concentrations at ~500 meters from the site will be used.

At Annual Hourly Rate:

Formaldehyde = 0.01594 ug/m3  
Acrylamide = 0.00002 ug/m3

By: NSB 12/10/2003  
Checked: KSD 12/10/2003



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Project Name: Polychem (LA, CA) 2003 Modifications  
 Project Number: 02512.01  
 Subject: Formaldehyde SCI model cases  
 Page: 1 By: NSB Checked: \_\_\_\_\_  
 Of: 1 Date: 12/9/03 Date: \_\_\_\_\_

SCI Formaldehyde Permit Limit - FOR modeling

The 1995 permitted formaldehyde limit for scrubber SCI was 0.034 lb/day. Since no changes occurred between 1990-1995, this limit shall be considered pre-1990.

Emissions to SCI after the 2003 Modifications are 53.12 lb/yr. Only post-1990 emissions are to be modeled.

Therefore,

SCI pre-1990 limit = 0.034 lb/day

SCI emissions after <sup>2003</sup> mod = 53.12 lb/yr ÷ 365 day/yr  
 = 0.146 lb/day

See App. B  
 @ 300MM lbs/yr  
 Mannheim

To be modeled = proposed emissions - pre-1990 emissions  
 = 0.146 lb/day - 0.034 lb/day  
 = 0.112 lb/day

annual ave lb/hr = 0.112 lb/day × 365 / 8760 hr/yr  
 = 0.0046 lb/hr (annual ave)



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Project Name: Polychemie (LA, CA) Expansion  
 Project Number: 02512.01  
 Subject: Risk Assessment - MIECR estimate  
 Page: 1 By: NSB Checked: Paul  
 Of: 1 Date: 2/10/03 Date: 12.10.03

Estimate MIECR (see previous)

Use impact based on annual period, using avg. hourly emission rate

$$MIECR = \underbrace{Q \times \frac{x}{Q} \times MET}_{\text{ug/m}^3 \text{ from modeling}} \times U \times MP \times LEA$$

Unit risk factor U (from Table 8A)

formaldehyde =  $6.00 \times 10^{-6}$   
 acrylamide =  $1.30 \times 10^{-3}$

multipathway factor MP (Table 8A)

formaldehyde = 1.00  
 acrylamide = 1.00

Lifetime Exposure Adjustment, LEA (Table 9)

worker = 0.66 (to allow for 24h/d, 365d/y operations) ✓  
 residential = 1.00 ✓

MIECR - Worker - based on maximum ambient conc. @ fence line

Acrylamide =  $0.00027 \frac{\text{ug}}{\text{m}^3} \times 1.30 \frac{10^{-3}}{\text{ug}} \times 1.00 \times 0.66 = 0.232 \text{ E-6} \checkmark$   
 Formaldehyde =  $0.18093 \frac{\text{ug}}{\text{m}^3} \times 6.00 \times 10^{-6} \frac{\text{ug}}{\text{m}^3} \times 1.00 \times 0.66 = 0.716 \text{ E-6} \checkmark$   
 0.948 E-6  
 < 1.0 E-6 OK ✓

MIECR - Residential - based on maximum concentration @ 500m

Acrylamide =  $0.00002 \frac{\text{ug}}{\text{m}^3} \times 1.30 \frac{10^{-3}}{\text{ug}} \times 1.00 \times 1.00 = 0.026 \text{ E-6}$   
 Formaldehyde =  $0.01594 \frac{\text{ug}}{\text{m}^3} \times 6.00 \times 10^{-6} \frac{\text{ug}}{\text{m}^3} \times 1.00 \times 1.00 = 0.096 \text{ E-6}$   
 < 1.0 x 10<sup>-6</sup> OK  
 0.122 E-6 ✓



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Project Name: Polychem - LA  
Project Number: 02512.01  
Subject: Formaldehyde HIA + HIC estimates  
Page: 1 By: NSB Checked: Sehl  
Of: 1 Date: 12/10/03 Date: 12.10.03

FOR FORMALDEHYDE

Acute Hazard Index (HIA) (see printouts)

• Use impact based on hourly average period

(using maximum hourly emission rate)

Acute REL for formaldehyde = 94.0  $\mu\text{g}/\text{m}^3$  (from Table 8A)

$$\begin{aligned} \text{Total HIA} &= (\mu\text{g}/\text{m}^3)_{\text{TAC}} / \text{REL} \\ &= 53.05 \mu\text{g}/\text{m}^3 / 94.0 \\ &= 0.5644 \end{aligned}$$

\* HIA OK, < 1

NOTE: model results =  $Q_{\text{hr}} \times X/Q \times \text{MET}$  (for Tier 2 screening)

Chronic Hazard Index (HIC)

• Use impact based on annual averaging period  
(using annual average daily emissions)

• Chronic REL = 3.0  $\mu\text{g}/\text{m}^3$  (from Table 8A)

$$\begin{aligned} \text{Chronic HIC} &= \text{model results} \times \text{MP} / \text{Chronic REL} \\ &= 0.18093 \mu\text{g}/\text{m}^3 \times 1.0 / 3.0 \\ &= 0.06031 \end{aligned}$$

\* HIC OK, < 1

\* note model results =  $Q_{\text{yr}} \times X/Q \times \text{MET}$



Tables Effective for Applications Deemed Complete on or after May 2, 2003

Table – 1A

Screening Emission Levels

THESE ARE NOT EMISSION LIMITS. Exceedances of these levels indicate that a screening risk assessment should be performed.

Original Date of Listing	Toxic Air Contaminant	CAS NO	Screening Emission Level (lbs/yr) 25 meters	Screening Emission Level (lbs/yr) 50 meters	Screening Emission Level (lbs/yr) 100 meters
December 7, 1990 September 8, 1998	Acetaldehyde	75-07-0	12.25	32.11	95.70
January 8, 1999	Acetamide	60-35-5	1.65	4.33	12.92
June 15, 2001 August 13, 1999	Acrolein	107-02-8	1.98 0.0001 lbs/hr	5.20 0.0002 lbs/hr	15.50 0.0005 lbs/hr
December 7, 1990 August 13, 1999	Acrylamide (or propenamide)	79-06-1	0.03	0.07	0.20
December 7, 1990 May 3, 2002	Acrylonitrile (or vinyl cyanide)	79-10-7 107-13-1	3.00 lbs/hr 0.11	6.00 lbs/hr 0.30	16.06 lbs/hr 0.89
January 8, 1999	Allyl chloride	107-05-1	5.51	14.45	43.07
January 8, 1999	Aminoanthraquinone, 2-	117-79-3	0.28	0.73	2.16
August 18, 2000 August 13, 1999	Ammonia	7664-41-7	6,610 1.60 lbs/hr	17,300 3.20 lbs/hr	51,700 8.57 lbs/hr
January 8, 1999	Aniline	62-53-3	20.66	54.18	161.50
December 7, 1990 June 15, 2001 August 13, 1999	Arsenic and arsenic compounds <sup>1</sup> , inorganic	7440-38-2	0.004 0.0001 lbs/hr	0.01 0.0002 lbs/hr	0.03 0.0005 lbs/hr
August 13, 1999	Arsine	7784-42-1	0.08 lbs/hr	0.16 lbs/hr	0.43 lbs/hr
June 1, 1990	Asbestos	1332-21-4	0.0005	0.001	0.004
June 1, 1990 August 18, 2000 August 13, 1999	Benzene (including benzene from gasoline)	71-43-2	1.14 0.739 lbs/hr	2.99 1.48 lbs/hr	8.91 3.96 lbs/hr
December 7, 1990	Benzidine (and its salts)	92-87-5	0.0002	0.0006	0.0018
September 8, 1998 August 13, 1999	Benzyl Chloride	100-44-7	0.67 0.12 lbs/hr	1.77 0.24 lbs/hr	5.27 0.64 lbs/hr
December 7, 1990 May 3, 2002	Beryllium and beryllium compounds <sup>1</sup>	7440-41-7	0.002	0.005	0.016
December 7, 1990	Bis(2-chloroethyl)ether (DCEE)	111-44-4	0.05	0.12	0.36
December 7, 1990	Bis(chloromethyl)ether	542-88-1	0.003	0.007	0.020
September 8, 1998	Bis(2-ethylhexyl)phthalate (DEHP)	117-81-7	14	36	108
December 7, 1990 June 15, 2001	Butadiene, 1,3-	106-99-0	0.19	0.51	1.52
June 1, 1990 June 15, 2001	Cadmium and cadmium compounds <sup>1</sup>	7440-43-9	0.008	0.02	0.06



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Tables Effective for Applications Deemed Complete on or after May 2, 2003

Table – 1A

**Screening Emission Levels**

THESE ARE NOT EMISSION LIMITS. Exceedances of these levels indicate that a screening risk assessment should be performed.

Original Date of Listing	Toxic Air Contaminant	CAS NO	Screening Emission Level (lbs/yr) 25 meters	Screening Emission Level (lbs/yr) 50 meters	Screening Emission Level (lbs/yr) 100 meters
June 1, 1990 May 3, 2002	Ethylene dibromide	106-93-4	0.47	1.22	3.64
June 1, 1990 June 15, 2001	Ethylene dichloride (or 1,2-dichloroethane)	107-06-2	1.50	3.94	11.74
August 18, 2000	Ethylene glycol	107-21-1	13,200	37,400	103,000
August 18, 2000	Ethylene glycol ethyl ether	110-80-5	2,310	6,070	18,100
February 10, 1999			<b>0.21 lbs/hr</b>	<b>0.42 lbs/hr</b>	<b>1.13 lbs/hr</b>
August 13, 1999	Ethylene glycol monobutyl ether	111-76-2	<b>7.00 lbs/hr</b>	<b>14.00 lbs/hr</b>	<b>37.48 lbs/hr</b>
August 18, 2000	Ethylene glycol monoethyl ether acetate	111-15-9	9,920	26,000	77,500
August 13, 1999			<b>0.08 lbs/hr</b>	<b>0.16 lbs/hr</b>	<b>0.43 lbs/hr</b>
August 18, 2000	Ethylene glycol monomethyl ether	109-86-4	1,980	5,200	15,500
August 13, 1999			<b>0.05 lbs/hr</b>	<b>0.11 lbs/hr</b>	<b>0.28 lbs/hr</b>
August 18, 2000	Ethylene glycol monomethyl ether acetate	110-49-6	2,980	7,800	23,300
June 1, 1990 June 15, 2001	Ethylene oxide	75-21-8	0.38	0.99	2.94
January 8, 1999	Ethylene thiourea	96-45-7	2.54	6.67	19.88
December 7, 1990 August 18, 2000 August 13, 1999	Formaldehyde	50-00-0	5.51	14.45	43.07
June 15, 2001			<b>0.05 lbs/hr</b>	<b>0.09 lbs/hr</b>	<b>0.25 lbs/hr</b>
June 15, 2001	Glutaraldehyde	111-30-8	2.65	6.94	20.7
December 7, 1990	Hexachlorobenzene	118-74-1	0.007	0.02	0.05
December 7, 1990	Hexachlorocyclohexane: technical grade	608-73-1	0.008	0.02	0.06
September 8, 1998	gamma- (lindane)	58-89-9	0.03	0.07	0.21
August 18, 2000	Hexane (n-)	110-54-3	231,000	607,000	1,810,000
September 8, 1998 June 15, 2001	Hydrazine	302-01-2	0.007	0.02	0.05
August 18, 2000	Hydrogen chloride (hydrochloric acid)	7647-01-0	298	780	2,330
August 13, 1999			<b>1.05 lbs/hr</b>	<b>2.10 lbs/hr</b>	<b>5.62 lbs/hr</b>
August 18, 2000	Hydrogen cyanide (hydrocyanic acid)	74-90-8	298	780	2,330
August 13, 1999			<b>0.17 lbs/hr</b>	<b>0.34 lbs/hr</b>	<b>0.91 lbs/hr</b>
August 13, 1999	Hydrogen fluoride (hydrofluoric acid)	7664-39-3	<b>0.12 lbs/hr</b>	<b>0.24 lbs/hr</b>	<b>0.64 lbs/hr</b>
August 13, 1999	Hydrogen selenide	7783-07-5	<b>0.003 lbs/hr</b>	<b>0.005 lbs/hr</b>	<b>0.013 lbs/hr</b>

Tables Effective for Applications Deemed Complete on or after May 2, 2003

Table – 8A

Unit Risk Factor (U), Reference Exposure Level (REL) and Multi Pathway Adjustment Factors (MP)

Toxic Air Contaminant	Unit Risk Factor	MP (MICR)	REL (Chronic)	MP (Chronic)	(Acute)	
					REL	Avg Hrs
Acetaldehyde	2.70E-06	1.00	9.00E+00	1.00		
Acetamide	2.00E-05	1.00				
Acrolein			6.00E-02	1.00	1.90E-01	1
Acrylamide (or propenamide)	1.30E-03	1.00				
Acrylic acid					6.00E+03	1
Acrylonitrile (or vinyl cyanide)	2.90E-04	1.00	5.00E+00	1.00		1
Allyl chloride	6.00E-06	1.00				
Aminoanthraquinone, 2-	9.40E-06	12.70				
Ammonia			2.00E+02	1.00	3.20E+03	1
Aniline	1.60E-06	1.00				
Arsenic	3.30E-03	2.70	3.00E-02	5.7	1.90E-01	4
Arsenic compounds (inorganic)	3.30E-03	2.70	3.00E-02	5.7	1.90E-01	4
Arsine					1.60E+02	1
Asbestos	6.30E-02	1.00				
Benzene (including benzene from gasoline)	2.90E-05	1.00	6.00E+01	1.00	1.30E+03	6
Benzidine (and it salts)	1.40E-01	1.00				
Benzyl chloride	4.90E-05	1.00			2.40E+02	1
Beryllium (and beryllium compounds)	2.40E-03	6.90	7.00E-03	1.00		
Bis(2-chloroethyl)ether (DCEE)	7.10E-04	1.00				
Bis(chloromethyl)ether	1.30E-02	1.00				
Bis(2-ethylhexyl)phthalate (DEHP)	2.40E-06	1.00				
Butadiene, 1,3-	1.70E-04	1.00	2.00E+01	1.00		
Cadmium and cadmium compounds	4.20E-03	1.00	2.00E-02	16.00		
Carbon disulfide			8.00E+02	1.0	6.20E+03	6
Carbon tetrachloride	4.20E-05	1.00	4.00E+01	1.00	1.90E+03	7
Chlorinated dioxins & dibenzofurans	3.80E+00	6.80	4.00E-05	82.00		
Heptachlorodibenzofuran, 1,2,3,4,6,7,8-	3.80E-01	1.00	4.00E-03	82.00		
Heptachlorodibenzofuran, 1,2,3,4,7,8,9-	3.80E-01	1.00	4.00E-03	82.00		
Heptachlorodibenzofuran, total	3.80E-01	1.00	4.00E-03	82.00		
Heptachlorodibenzo-p-dioxin, 1,2,3,4,6,7,8-	3.80E-01	1.00	4.0E-03	82.00		
Heptachlorodibenzo-p-dioxin, total	3.80E-01	1.00	4.00E-03	82.00		

**APPENDIX B: HEALTH RISK ASSESSMENT**

Tables Effective for Applications Deemed Complete on or after May 2, 2003

Table – 8A

Unit Risk Factor (U), Reference Exposure Level (REL) and Multi Pathway Adjustment Factors (MP)

Toxic Air Contaminant	Unit Risk Factor	MP (MICR)	REL (Chronic)	MP (Chronic)	(Acute)	
					REL	Avg Hrs
Ethylene glycol monomethyl ether			6.0E+01	1.00	9.30E+01	6
Ethylene glycol monomethyl ether acetate			9.0E+01	1.00		
Ethylene oxide	8.80E-05	1.00	3.00E+01	1.00		
Ethylene thiourea	1.30E-05	1.00				
Formaldehyde	6.00E-06	1.00	3.0E+00	1.00	9.40E+01	1
Glutaraldehyde			8.00E-02	1.00		
Hexachlorobenzene	5.10E-04	9.40				
Hexachlorocyclohexanes:						
technical grade	1.10E-03	4.00				
gamma- (lindane)	3.10E-04	4.00				
Hexane (n-)			7.00E+03	1.00		
Hydrazine	4.90E-03	1.00	2.00E-01	1.00		
Hydrogen chloride (hydrochloric acid)			9.00E+00	1.00	2.10E+03	1
Hydrogen cyanide (hydrocyanic acid)			9.00E+00	1.00	3.40E+02	1
Hydrogen fluoride (hydrofluoric acid)					2.40E+02	1
Hydrogen selenide					5.00E+00	1
Hydrogen sulfide			1.00E+01	1.00	4.20E+01	1
Isophorone			2.00E+03	1.00		
Isopropyl alcohol			7.00E+03	1.00	3.20E+03	1
Lead and lead compounds (inorganic, including elemental lead), including but not limited to:	1.20E-05	1.00				
Lead compounds, inorganic	1.20E-05	1.00				
Lead compounds (other than inorganic)	1.20E-05	1.00				
Lead acetate	1.20E-05	1.00				
Lead chromate	*	*				
Lead phosphate	1.20E-05	1.00				
Lead subacetate	1.20E-05	1.00				
Maleic anhydride			7.00E-01	1.00		
Manganese and manganese compounds			2.00E-01	1.00		

Tables Effective for Applications Deemed Complete on or after May 2, 2003

Table – 9  
Lifetime Exposure Adjustment (LEA) Factors

Type of Receptor	LEA Factor
Sensitive	1.0
Residential	1.0
Off-site Worker	0.14, if permit unit operates 24 hr/day, 365 days/yr 0.66, if permit unit does not operate 24 hr/day, 365 days/yr

When performing a screening risk assessment for offsite worker receptors, only 0.14 and 0.66 may be used for the LEA. Do not prorate for other operating schedules.

Table – 10A  
Target Organs Affected by Toxic Air Contaminants (Chronic Toxicity)

Toxic Air Contaminant	CV/BL	CNS/ PNS	ENDO	EYE	IMMUN	KIDN	ALIMEN (GILV)	REPR	RESP	SKIN
Acetaldehyde									x	
Acrylonitrile									x	
Acrolein				x					x	
Ammonia									x	
Arsenic	x	x						x		
Benzene	x	x						x		
Beryllium and beryllium compounds					x				x	
Butadiene								x		
Cadmium						x			x	
Carbon disulfide		x						x		
Carbon tetrachloride		x					x	x		
Chlorine									x	
Chlorine dioxide									x	
Chlorobenzene						x	x	x		
Chloroform						x	x	x		
Chloropicrin									x	
Chlorinated dioxins & dibenzofurans	x		x				x	x	x	
Chromic trioxide (as chromic acid mist)									x	
Chromium, hexavalent									x	
Cresol mixtures		x								
Dichlorobenzene		x								
Dichloroethylene						x	x		x	
Diethanolamine	x	x					x			
Dimethylformamide							x		x	
Dioxane	x					x	x			

**APPENDIX B: HEALTH RISK ASSESSMENT**

Modeling Inputs - Increased Mannich Production and New Process  
 2003 Modifications Application  
 Polychemie, Inc. - Los Angeles, CA  
 GESI Project No. 02512.01

Source ID	Description	Easting (X) (m)	Northing (Y) (m)	Base Elevation (m)	Stack Height (m)	Temp (K)	Exit Velocity (m/s)	Stack Diameter (m)	ACR (lb/hr)	FOR (lb/hr)	FOR-1HR (lb/hr)
SC1	Scrubber 1	390999.84	3769459.50	0	7.62	298.15	12.94	0.1524	8.70E-07	4.67E-03	0.00E+00
SC2	Scrubber 2	391003.60	3769452.00	0	7.62	298.15	12.94	0.1524	2.44E-06	6.10E-03	6.10E-03
SC3	Scrubber 3	391021.84	3769445.25	0	6.10	298.15	3.10	0.1524	1.01E-05	5.85E-04	1.11E-01

Source ID	Description	Easting (X) (m)	Northing (Y) (m)	Base Elevation (m)	Release Height (m)	Horizontal Dimension (m)	Vertical Dimension (m)	ACR (lb/hr)	FOR (lb/hr)	FOR-1HR (lb/hr)
FUGITIVE	Fugitives	391012.50	3769448.75	0	2.29	13.13	26.05	0	4.02E-03	4.02E-03

**Supporting Calculations**

Source ID	Height (ft)	Diameter (in)	Diameter (ft)	Diameter (m)	Flow Rate (cfm)	Flow Rate (cf/sec)	Flow Rate (m <sup>3</sup> /sec)	Exit Velocity (ft/sec)	Exit Velocity (m/sec)
SC1	25	6	0.5	0.1524	500	8.333	0.196	42.441	12.936
SC2	25	6	0.5	0.1524	500	8.333	0.196	42.441	12.936
SC3	20	6	0.5	0.1524	120	2.000	0.196	10.186	3.105

Source ID	Release Height (ft)	Horizontal Distance (m)	Vertical Distance (m)
FUGITIVE	7.5	56.46	56.01

Notes:

3,28083 feet in meters

Horizontal dimension = horizontal distance / 4.3 (as per Table 3-1 of EPA's User's Guide for the ISC3 Dispersion Models)

Vertical dimension = vertical distance / 2.15 (as per Table 3-1 of EPA's User's Guide for the ISC3 Dispersion Models)

By: NSB 12/10/2003

Checked: KSD 12/10/2003

**Polychemie Inc. – Facility Expansion Project**

**SUMMARY OF EMISSIONS TO BE MODELED - NEW PROCESS AND INCREASED MANNICH PRODUCTION**

2003 Modifications Application  
 Polychemie, Inc. - Los Angeles, California  
 GESI Project No. 02512.01

Equipment ID	Process Step	UNCONTROLLED EMISSIONS			
		Acrylamide		Formaldehyde	
		lbs/yr	ton/yr	lbs/yr	tons/yr
PT1	Fill reactor				
NR1, NR2 & NR4	Fill reactor	0.07	0.00		
	Sparge reactor	0.69	0.00		
<i>Scrubber 1 Total (SC1)</i>		0.76	0.00	CALC. FROM PERMIT VALUE	
PT2	Fill reactor				
NR3	Fill reactor	0.20	0.00		
	Sparge reactor	1.94	0.00		
<i>Scrubber 2 Total (SC2)</i>		2.13	0.00	CALC. FROM PERMIT VALUE	
V10	AM tank	3.27	0.00		
V16	FOR tank			5.13	0.00
CPR1 & CPR2	ADAM-quat	5.57	0.00		
<i>Scrubber 3 Total (SC3)</i>		8.83	0.00	5.13	0.00
	Fugitives			35.22	0.02

Equipment ID	Process Step	CONTROLLED EMISSIONS			
		Acrylamide		Formaldehyde	
		lbs/yr	ton/yr	lbs/yr	ton/yr
PT1	Fill reactor				
NR1, NR2 & NR4	Fill reactor	0.0007	0.0000		
	Sparge reactor	0.0069	0.0000		
<i>Scrubber 1 Total (SC1)</i>		0.0076	0.0000	CALC. FROM PERMIT VALUE	
PT2	Fill reactor				
NR3	Fill reactor	0.0020	0.0000		
	Sparge reactor	0.0194	0.0000		
<i>Scrubber 2 Total (SC2)</i>		0.0213	0.0000	CALC. FROM PERMIT VALUE	
V10	AM tank	0.0327	0.0000		
V16	FOR tank			5.1272	0.0026
CPR1 & CPR2	ADAM-quat	0.0557	0.0000		
<i>Scrubber 3 Total (SC3)</i>		0.0883	0.0000	5.1272	0.0026
	Fugitives			35.2235	0.0176

NOTES: - A blank indicates emission of constituent are not present or are negligible.

By: NSB 12/10/2003  
 Checked: KSD 12/10/2003

APPENDIX B: HEALTH RISK ASSESSMENT

FORMALDEHYDE MODELING RESULTS - 1 HOUR AVERAGING PERIOD  
 NOTE: NOT ALL INPUT/OUTPUT DATA SHOWN

\*\*BEE-Line Software: BEEST for Windows (Version 9.02) data input file  
 \*\* Model: ISCST3 File Creation Date: 12/10/2003 Time: 1:14:23 PM  
 \*\* ECHO

CO STARTING  
 CO TITLEONE Polypure Inc. - Los Angeles California  
 CO TITLETWO 2003 Modifications  
 CO MODELOPT CONC URBAN NOCALM  
 CO AVERTIME 1  
 CO POLLUTID FOR-1HR  
 CO TERRHGT FLAT  
 CO RUNORNOT RUN  
 CO FINISHED

SO STARTING  
 SO ELEVUNIT METERS  
 SO LOCATION SC2 POINT 391003.6 3769452. 0.  
 SO SRCPARAM SC2 0.0007686 7.62 298.15 12.936 0.1524  
 SO BUILDHGT SC2 12.19 12.19 0.00 0.00 0.00 0.00  
 SO BUILDHGT SC2 0.00 0.00 0.00 0.00 0.00 0.00  
 SO BUILDHGT SC2 0.00 0.00 0.00 0.00 0.00 0.00  
 SO BUILDHGT SC2 0.00 0.00 0.00 0.00 5.49 5.49  
 SO BUILDHGT SC2 5.49 5.49 5.49 0.00 0.00 0.00  
 SO BUILDHGT SC2 0.00 0.00 0.00 0.00 0.00 12.19  
 SO BUILDWID SC2 14.08 12.73 0.00 0.00 0.00 0.00  
 SO BUILDWID SC2 0.00 0.00 0.00 0.00 0.00 0.00  
 SO BUILDWID SC2 0.00 0.00 0.00 0.00 0.00 0.00  
 SO BUILDWID SC2 0.00 0.00 0.00 0.00 0.00 0.00  
 SO BUILDWID SC2 0.00 0.00 0.00 27.36 24.77 21.43  
 SO BUILDWID SC2 17.44 13.15 17.00 0.00 0.00 0.00  
 SO BUILDWID SC2 0.00 0.00 0.00 0.00 0.00 15.00  
 SO LOWBOUND SC2 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0  
 SO LOWBOUND SC2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
 SO LOCATION FUGITIVE VOLUME 391012.5 3769448.75 0.  
 SO SRCPARAM FUGITIVE 0.0005065 2.29 13.13 26.05  
 SO LOCATION SC3 POINT 391021.84 3769445.25 0.  
 SO SRCPARAM SC3 0.0139858 6.1 298.15 3.105 0.1524  
 SO BUILDHGT SC3 9.45 9.45 12.19 12.19 5.49 5.49  
 SO BUILDHGT SC3 0.00 0.00 0.00 0.00 0.00 0.00  
 SO BUILDHGT SC3 0.00 0.00 0.00 0.00 5.49 5.49  
 SO BUILDHGT SC3 5.49 5.49 5.49 5.49 5.49 5.49  
 SO BUILDHGT SC3 0.00 0.00 7.47 7.47 7.47 7.47  
 SO BUILDHGT SC3 7.47 7.47 0.00 5.49 5.49 9.45  
 SO BUILDWID SC3 22.30 20.93 12.93 13.84 24.77 21.43  
 SO BUILDWID SC3 0.00 0.00 0.00 0.00 0.00 0.00  
 SO BUILDWID SC3 0.00 0.00 0.00 28.37 27.46 29.00  
 SO BUILDWID SC3 29.95 29.99 29.11 27.36 24.77 21.43  
 SO BUILDWID SC3 0.00 0.00 78.00 80.98 81.50 79.55  
 SO BUILDWID SC3 75.18 68.52 0.00 28.37 27.46 23.00  
 SO SRCGROUP ALL  
 SO FINISHED

RE STARTING  
 RE DISCCART 390900.0 3769400.0  
 NOT ALL RE CARDS SHOWN  
 RE DISCCART 391273.0 3770502.0  
 RE FINISHED



## Polychemie Inc. – Facility Expansion Project

---

```
ME STARTING
ME INPUTFIL "P:\SNF\Polypure\Los Angeles\2003 LA expansion\ADAM &
DAD\Modeling\DLA.ASC"
ME ANEMHGHT 10.0000
ME SURFDATA 52075 1981
ME UAIRDATA 91919 1981
ME FINISHED
```

```
OU STARTING
OU RECTABLE 1 FIRST SECOND
OU PLOTFILE 1 ALL FIRST "P:\SNF\Polypure\Los Angeles\2003 LA expansion\ADAM &
DAD\Modeling\PPLA 190MM_81_FOR-1HR.GRF" 30
OU PLOTFILE 1 ALL SECOND "P:\SNF\Polypure\Los Angeles\2003 LA expansion\ADAM &
DAD\Modeling\PPLA 190MM_81_FOR-1HR.GRF" 30
OU FINISHED
```

BEE-Line ISCST3 "BEEST" Version 9.00

Input File - P:\SNF\Polypure\Los Angeles\2003 LA expansion\ADAM &  
DAD\Modeling\PPLA 190MM\_81\_FOR-1HR.DTA

Output File - P:\SNF\Polypure\Los Angeles\2003 LA expansion\ADAM &  
DAD\Modeling\PPLA 190MM\_81\_FOR-1HR.LST

Met File - P:\SNF\Polypure\Los Angeles\2003 LA expansion\ADAM &  
DAD\Modeling\DLA.ASC

```
*****
*** SETUP Finishes Successfully ***
*****
```

APPENDIX B: HEALTH RISK ASSESSMENT

\*\*\* ISCST3 - VERSION 02035 \*\*\*  
\*\*\* Polypure Inc. - Los Angeles California \*\*\*  
\*\*\* 2003 Modifications \*\*\*  
\*\*MODELOPTs:  
CONC URBAN FLAT NOCALM

12/10/03  
13:17:41  
PAGE 1

\*\*\* MODEL SETUP OPTIONS SUMMARY \*\*\*

-----  
\*\*Intermediate Terrain Processing is Selected  
\*\*Model Is Setup For Calculation of Average CONCentration Values.  
-- SCAVENGING/DEPOSITION LOGIC --  
\*\*Model Uses NO DRY DEPLETION. DDPLETE = F  
\*\*Model Uses NO WET DEPLETION. WDPLETE = F  
\*\*NO WET SCAVENGING Data Provided.  
\*\*NO GAS DRY DEPOSITION Data Provided.  
\*\*Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations  
\*\*Model Uses URBAN Dispersion.  
\*\*Model Uses User-Specified Options:  
1. Final Plume Rise.  
2. Stack-tip Downwash.  
3. Buoyancy-induced Dispersion.  
4. Not Use Calms Processing Routine.  
5. Not Use Missing Data Processing Routine.  
6. Default Wind Profile Exponents.  
7. Default Vertical Potential Temperature Gradients.  
\*\*Model Assumes Receptors on FLAT Terrain.  
\*\*Model Assumes No FLAGPOLE Receptor Heights.  
\*\*Model Calculates 1 Short Term Average(s) of: 1-HR  
\*\*This Run Includes: 3 Source(s); 1 Source Group(s); and 6198 Receptor(s)  
\*\*The Model Assumes A Pollutant Type of: FOR-1HR  
\*\*Model Set To Continue RUNNING After the Setup Testing.  
\*\*Output Options Selected:  
Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)  
Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)  
\*\*Misc. Inputs: Anem. Hgt. (m) = 10.00 ; Decay Coef. = 0.000 ;  
Rot. Angle = 0.0  
Emission Units = GRAMS/SEC  
Emission Rate Unit Factor = 0.10000E+07 ;  
Output Units = MICROGRAMS/M\*\*3  
\*\*Approximate Storage Requirements of Model = 1.6 MB of RAM.  
\*\*Input Runstream File: PPLA 190MM\_81\_FOR-1HR.DTA  
\*\*Output Print File: PPLA 190MM\_81\_FOR-1HR.LST

**Polychemie Inc. – Facility Expansion Project**

```

*** ISCST3 - VERSION 02035 ***
*** Polypure Inc. - Los Angeles California ***
*** 2003 Modifications ***
**MODELOPTs:
CONC  URBAN FLAT  NOCALM
12/10/03
13:17:41
PAGE 233
    
```

\*\*\* THE SUMMARY OF HIGHEST 1-HR RESULTS \*\*\*

\*\* CONC OF FOR-1HR IN MICROGRAMS/M\*\*3 \*\*

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR,YR,ZELEV,ZFLAG)	NETWORK OF TYPE GRID-ID
ALL	HIGH	1ST HIGH VALUE IS	53.05265	ON 81082605: AT ( 390983.00,
3769381.50,	0.00,	0.00)	DC NA	
	HIGH	2ND HIGH VALUE IS	52.98899	ON 81082705: AT ( 390983.00,
3769381.50,	0.00,	0.00)	DC NA	

```

*** RECEPTOR TYPES: GC = GRIDCART
                       GP = GRIDPOLR
                       DC = DISCCART
                       DP = DISCPOLR
                       BD = BOUNDARY
    
```

*Highest value  
of 1-hr ave  
per set based  
on maximum  
hourly emission.*

APPENDIX B: HEALTH RISK ASSESSMENT

---

```
*** ISCST3 - VERSION 02035 ***
*** Polypure Inc. - Los Angeles California ***
*** 2003 Modifications ***
**MODELOPTs:
CONC   URBAN FLAT   NOCALM
```

12/10/03  
13:17:41  
PAGE 234

\*\*\* Message Summary : ISCST3 Model Execution \*\*\*

```
----- Summary of Total Messages -----
A Total of          0 Fatal Error Message(s)
A Total of          0 Warning Message(s)
A Total of         692 Informational Message(s)
A Total of          692 Calm Hours Identified
```

```
***** FATAL ERROR MESSAGES *****
*** NONE ***
```

```
***** WARNING MESSAGES *****
*** NONE ***
```

```
*****
*** ISCST3 Finishes Successfully ***
*****
```

**ACRYLAMIDE MODELING RESULTS – ANNUAL AVERAGING PERIOD**  
**MICR WORKER- 25 Meter Receptors**  
**NOTE: NOT ALL INPUT/OUTPUT DATA SHOWN**

\*\*BEE-Line Software: BEEST for Windows (Version 9.02) data input file  
 \*\* Model: ISCST3 File Creation Date: 12/10/2003 Time: 1:14:22 PM  
 \*\* ECHO

```

CO STARTING
CO TITLEONE Polypure Inc. - Los Angeles California
CO TITLETWO 2003 Modifications
CO MODELOPT CONC URBAN NOCALM
CO AVERTIME PERIOD
CO POLLUTID ACRYLAMI
CO TERRHGTS FLAT
CO RUNORNOT RUN
CO FINISHED

SO STARTING
SO ELEVUNIT METERS
SO LOCATION SC1 POINT 390999.84 3769459.5 0.
SO SRCPARAM SC1 1.096182E-07 7.62 298.15 12.936 0.1524
SO BUILDHGT SC1 12.19 12.19 0.00 0.00 0.00 0.00
SO BUILDHGT SC1 0.00 0.00 0.00 0.00 0.00 0.00
SO BUILDHGT SC1 0.00 0.00 0.00 0.00 0.00 0.00
SO BUILDHGT SC1 0.00 0.00 0.00 0.00 0.00 0.00
SO BUILDHGT SC1 5.49 5.49 5.49 5.49 5.49 0.00
SO BUILDHGT SC1 0.00 0.00 0.00 0.00 0.00 12.19
SO BUILDWID SC1 14.08 12.73 0.00 0.00 0.00 0.00
SO BUILDWID SC1 0.00 0.00 0.00 0.00 0.00 0.00
SO BUILDWID SC1 0.00 0.00 0.00 0.00 0.00 0.00
SO BUILDWID SC1 0.00 0.00 0.00 0.00 0.00 0.00
SO BUILDWID SC1 17.44 13.15 17.00 20.91 24.18 0.00
SO BUILDWID SC1 0.00 0.00 0.00 0.00 0.00 15.00
SO LOCATION SC2 POINT 391003.6 3769452. 0.
SO SRCPARAM SC2 3.074348E-07 7.62 298.15 12.936 0.1524
SO BUILDHGT SC2 12.19 12.19 0.00 0.00 0.00 0.00
SO BUILDHGT SC2 0.00 0.00 0.00 0.00 0.00 0.00
SO BUILDHGT SC2 0.00 0.00 0.00 0.00 0.00 0.00
SO BUILDHGT SC2 0.00 0.00 0.00 5.49 5.49 5.49
SO BUILDHGT SC2 5.49 5.49 5.49 0.00 0.00 0.00
SO BUILDHGT SC2 0.00 0.00 0.00 0.00 0.00 12.19
SO BUILDWID SC2 14.08 12.73 0.00 0.00 0.00 0.00
SO BUILDWID SC2 0.00 0.00 0.00 0.00 0.00 0.00
SO BUILDWID SC2 0.00 0.00 0.00 0.00 0.00 0.00
SO BUILDWID SC2 0.00 0.00 0.00 27.36 24.77 21.43
SO BUILDWID SC2 17.44 13.15 17.00 0.00 0.00 0.00
SO BUILDWID SC2 0.00 0.00 0.00 0.00 0.00 15.00
SO LOWBOUND SC2 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0
SO LOWBOUND SC2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
SO LOCATION SC3 POINT 391021.84 3769445.25 0.
SO SRCPARAM SC3 1.272579E-06 6.1 298.15 3.105 0.1524
SO BUILDHGT SC3 9.45 9.45 12.19 12.19 5.49 5.49
SO BUILDHGT SC3 0.00 0.00 0.00 0.00 0.00 0.00
SO BUILDHGT SC3 0.00 0.00 0.00 5.49 5.49 5.49
SO BUILDHGT SC3 5.49 5.49 5.49 5.49 5.49 5.49
SO BUILDHGT SC3 0.00 0.00 7.47 7.47 7.47 7.47
SO BUILDHGT SC3 7.47 7.47 0.00 5.49 5.49 9.45
SO BUILDWID SC3 22.30 20.93 12.93 13.84 24.77 21.43
SO BUILDWID SC3 0.00 0.00 0.00 0.00 0.00 0.00
SO BUILDWID SC3 0.00 0.00 0.00 28.37 27.46 29.00
  
```

APPENDIX B: HEALTH RISK ASSESSMENT

---

```
SO BUILDWID SC3      29.95    29.99    29.11    27.36    24.77    21.43
SO BUILDWID SC3      0.00     0.00     78.00    80.98    81.50    79.55
SO BUILDWID SC3      75.18    68.52     0.00    28.37    27.46    23.00
SO SRCGROUP ALL
SO FINISHED
```

```
RE STARTING
RE DISCCART 390900.0 3769400.0
NOT ALL RE CARDS SHOWN
RE DISCCART 391273.0 3770502.0
RE FINISHED
```

```
ME STARTING
ME INPUTFIL "P:\SNF\Polypure\Los Angeles\2003 LA expansion\ADAM &
DAD\Modeling\DLA.ASC"
ME ANEMHGHT 10.0000
ME SURFDATA 52075 1981
ME UAIRDATA 91919 1981
ME FINISHED
```

```
OU STARTING
OU PLOTFILE PERIOD ALL "P:\SNF\Polypure\Los Angeles\2003 LA expansion\ADAM &
DAD\Modeling\PPLA 190MM_81_ACRYLAMI.GRF" 30
OU FINISHED
```

BEE-Line ISCST3 "BEEST" Version 9.00

Input File - P:\SNF\Polypure\Los Angeles\2003 LA expansion\ADAM & DAD\Modeling\PPLA 190MM\_81\_ACRYLAMI.DTA

Output File - P:\SNF\Polypure\Los Angeles\2003 LA expansion\ADAM & DAD\Modeling\PPLA 190MM\_81\_ACRYLAMI.LST

Met File - P:\SNF\Polypure\Los Angeles\2003 LA expansion\ADAM & DAD\Modeling\DLA.ASC

```
*****
*** SETUP Finishes Successfully ***
*****
```

**Polychemie Inc. – Facility Expansion Project**

---

```
*** ISCST3 - VERSION 02035 ***
*** Polypure Inc. - Los Angeles California ***
*** 2003 Modifications ***
**MODELOPTS:
CONC          URBAN FLAT          NOCALM
12/10/03
13:14:37
PAGE 1

***      MODEL SETUP OPTIONS SUMMARY      ***
-----

**Intermediate Terrain Processing is Selected

**Model Is Setup For Calculation of Average CONCentration Values.

  -- SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE = F
**Model Uses NO WET DEPLETION.  WDPLETE = F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses URBAN Dispersion.

**Model Uses User-Specified Options:
  1. Final Plume Rise.
  2. Stack-tip Downwash.
  3. Buoyancy-induced Dispersion.
  4. Not Use Calms Processing Routine.
  5. Not Use Missing Data Processing Routine.
  6. Default Wind Profile Exponents.
  7. Default Vertical Potential Temperature Gradients.

**Model Assumes Receptors on FLAT Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates PERIOD Averages Only

**This Run Includes:      3 Source(s);      1 Source Group(s); and      6198
Receptor(s)

**The Model Assumes A Pollutant Type of:  ACRYLAMI

**Model Set To Continue RUNNING After the Setup Testing.

**Output Options Selected:
  Model Outputs Tables of PERIOD Averages by Receptor
  Model Outputs External File(s) of High Values for Plotting (PLOTFILE
Keyword)

**Misc. Inputs:  Anem. Hgt. (m) = 10.00 ;  Decay Coef. = 0.000 ;
Rot. Angle = 0.0
                Emission Units = GRAMS/SEC
Emission Rate Unit Factor = 0.10000E+07
                Output Units = MICROGRAMS/M**3

**Approximate Storage Requirements of Model = 1.5 MB of RAM.

**Input Runstream File:      PPLA 190MM_81_ACRYLAMI.DTA
**Output Print File:        PPLA 190MM_81_ACRYLAMI.LST
```



**APPENDIX B: HEALTH RISK ASSESSMENT**

\*\*\* ISCST3 - VERSION 02035 \*\*\*  
 \*\*\* Polypure Inc. - Los Angeles California \*\*\*  
 \*\*\* 2003 Modifications \*\*\*  
 \*\*MODELOPTs:  
 CONC URBAN FLAT

12/10/03  
 13:14:37  
 PAGE 154  
 NOCALM

\*\*\* THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS \*\*\*

\*\* CONC OF ACRYLAMI IN MICROGRAMS/M\*\*3 \*\*

GROUP ID	AVERAGE CONC	RECEPTOR	(XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS		0.00027 AT (	390983.00,	3769381.50,
0.00,	0.00) DC	NA			
	2ND HIGHEST VALUE IS		0.00026 AT (	390969.00,	3769388.00,
0.00,	0.00) DC	NA			
	3RD HIGHEST VALUE IS		0.00025 AT (	390997.00,	3769375.00,
0.00,	0.00) DC	NA			
	4TH HIGHEST VALUE IS		0.00023 AT (	390973.00,	3769377.00,
0.00,	0.00) DC	NA			
	5TH HIGHEST VALUE IS		0.00022 AT (	390956.00,	3769391.50,
0.00,	0.00) DC	NA			
	6TH HIGHEST VALUE IS		0.00019 AT (	390948.00,	3769377.00,
0.00,	0.00) DC	NA			
	7TH HIGHEST VALUE IS		0.00018 AT (	390973.00,	3769352.00,
0.00,	0.00) DC	NA			
	8TH HIGHEST VALUE IS		0.00018 AT (	391028.50,	3769522.50,
0.00,	0.00) DC	NA			
	9TH HIGHEST VALUE IS		0.00017 AT (	391023.00,	3769527.00,
0.00,	0.00) DC	NA			
	10TH HIGHEST VALUE IS		0.00015 AT (	390948.00,	3769352.00,
0.00,	0.00) DC	NA			

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
 GP = GRIDPOLR  
 DC = DISCCART  
 DP = DISCPOLR  
 BD = BOUNDARY



APPENDIX B: HEALTH RISK ASSESSMENT

**FORMALDEHYDE MODELING RESULTS – ANNUAL AVERAGING PERIOD**  
**MICR WORKER- 25 Meter Receptors**  
**NOTE: NOT ALL INPUT/OUTPUT DATA SHOWN**

\*\*BEE-Line Software: BEEEST for Windows (Version 9.02) data input file  
 \*\* Model: ISCST3 File Creation Date: 12/10/2003 Time: 1:14:22 PM  
 \*\* ECHO

```

CO STARTING
CO TITLEONE Polypure Inc. - Los Angeles California
CO TITLETWO 2003 Modifications
CO MODELOPT CONC URBAN NOCALM
CO AVERTIME PERIOD
CO POLLUTID FORMALDE
CO TERRHGT5 FLAT
CO RUNORNOT RUN
CO FINISHED

SO STARTING
SO ELEVUNIT METERS
SO LOCATION SC1 POINT 390999.84 3769459.5 0.
SO SRCPARAM SC1 0.0005884 7.62 298.15 12.936 0.1524
SO BUILDHGT SC1 12.19 12.19 0.00 0.00 0.00 0.00
SO BUILDHGT SC1 0.00 0.00 0.00 0.00 0.00 0.00
SO BUILDHGT SC1 0.00 0.00 0.00 0.00 0.00 0.00
SO BUILDHGT SC1 0.00 0.00 0.00 0.00 0.00 0.00
SO BUILDHGT SC1 5.49 5.49 5.49 5.49 5.49 5.49
SO BUILDHGT SC1 0.00 0.00 0.00 0.00 0.00 0.00
SO BUILDWID SC1 14.08 12.73 0.00 0.00 0.00 12.19
SO BUILDWID SC1 0.00 0.00 0.00 0.00 0.00 0.00
SO BUILDWID SC1 0.00 0.00 0.00 0.00 0.00 0.00
SO BUILDWID SC1 0.00 0.00 0.00 0.00 0.00 0.00
SO BUILDWID SC1 17.44 13.15 17.00 20.91 24.18 0.00
SO BUILDWID SC1 0.00 0.00 0.00 0.00 0.00 15.00
SO LOCATION SC2 POINT 391003.6 3769452. 0.
SO SRCPARAM SC2 0.0007686 7.62 298.15 12.936 0.1524
SO BUILDHGT SC2 12.19 12.19 0.00 0.00 0.00 0.00
SO BUILDHGT SC2 0.00 0.00 0.00 0.00 0.00 0.00
SO BUILDHGT SC2 0.00 0.00 0.00 0.00 0.00 0.00
SO BUILDHGT SC2 0.00 0.00 0.00 5.49 5.49 5.49
SO BUILDHGT SC2 5.49 5.49 5.49 5.49 5.49 5.49
SO BUILDHGT SC2 0.00 0.00 0.00 0.00 0.00 0.00
SO BUILDHGT SC2 0.00 0.00 0.00 0.00 0.00 12.19
SO BUILDWID SC2 14.08 12.73 0.00 0.00 0.00 0.00
SO BUILDWID SC2 0.00 0.00 0.00 0.00 0.00 0.00
SO BUILDWID SC2 0.00 0.00 0.00 0.00 0.00 0.00
SO BUILDWID SC2 0.00 0.00 0.00 27.36 24.77 21.43
SO BUILDWID SC2 17.44 13.15 17.00 0.00 0.00 0.00
SO BUILDWID SC2 0.00 0.00 0.00 0.00 0.00 15.00
SO LOWBOUND SC2 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0
SO LOWBOUND SC2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
SO LOCATION SC3 POINT 391021.84 3769445.25 0.
SO SRCPARAM SC3 7.370876E-05 6.1 298.15 3.105 0.1524
SO BUILDHGT SC3 9.45 9.45 12.19 12.19 5.49 5.49
SO BUILDHGT SC3 0.00 0.00 0.00 0.00 0.00 0.00
SO BUILDHGT SC3 0.00 0.00 0.00 5.49 5.49 5.49
SO BUILDHGT SC3 5.49 5.49 5.49 5.49 5.49 5.49
SO BUILDHGT SC3 0.00 0.00 7.47 7.47 7.47 7.47
  
```

Polychemie Inc. – Facility Expansion Project

---

SO BUILDHGT SC3	7.47	7.47	0.00	5.49	5.49	9.45
SO BUILDWID SC3	22.30	20.93	12.93	13.84	24.77	21.43
SO BUILDWID SC3	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID SC3	0.00	0.00	0.00	28.37	27.46	29.00
SO BUILDWID SC3	29.95	29.99	29.11	27.36	24.77	21.43
SO BUILDWID SC3	0.00	0.00	78.00	80.98	81.50	79.55
SO BUILDWID SC3	75.18	68.52	0.00	28.37	27.46	23.00
SO SRCGROUP ALL						
SO FINISHED						

RE STARTING  
RE DISCCART 390900.0 3769400.0  
**NOT ALL RE CARDS SHOWN**  
RE DISCCART 391273.0 3770502.0  
RE DISCCART 391273.0 3770502.0  
RE FINISHED

ME STARTING  
ME INPUTFIL "P:\SNF\Polypure\Los Angeles\2003 LA expansion\ADAM &  
DAD\Modeling\DLA.ASC"  
ME ANEMHGHT 10.0000  
ME SUREDATA 52075 1981  
ME UAIRDATA 91919 1981  
ME FINISHED

OU STARTING  
OU PLOTFILE PERIOD ALL "P:\SNF\Polypure\Los Angeles\2003 LA expansion\ADAM &  
DAD\Modeling\PPLA 190MM\_81\_FORMALDE.GRF" 30  
OU FINISHED

BEE-Line ISCST3 "BEEST" Version 9.00

Input File - P:\SNF\Polypure\Los Angeles\2003 LA expansion\ADAM &  
DAD\Modeling\PPLA 190MM\_81\_FORMALDE.DTA

Output File - P:\SNF\Polypure\Los Angeles\2003 LA expansion\ADAM &  
DAD\Modeling\PPLA 190MM\_81\_FORMALDE.LST

Met File - P:\SNF\Polypure\Los Angeles\2003 LA expansion\ADAM &  
DAD\Modeling\DLA.ASC

\*\*\*\*\*  
\*\*\* SETUP Finishes Successfully \*\*\*  
\*\*\*\*\*

## APPENDIX B: HEALTH RISK ASSESSMENT

---

```
*** ISCST3 - VERSION 02035 ***
*** Polypure Inc. - Los Angeles California ***
*** 2003 Modifications ***
**MODELOPTs:
CONC      URBAN FLAT      NOCALM
12/10/03
13:15:57
PAGE 1

***      MODEL SETUP OPTIONS SUMMARY      ***
-----
**Intermediate Terrain Processing is Selected

**Model Is Setup For Calculation of Average CONCentration Values.

  -- SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE = F
**Model Uses NO WET DEPLETION.  WDPLETE = F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses URBAN Dispersion.

**Model Uses User-Specified Options:
  1. Final Plume Rise.
  2. Stack-tip Downwash.
  3. Buoyancy-induced Dispersion.
  4. Not Use Calms Processing Routine.
  5. Not Use Missing Data Processing Routine.
  6. Default Wind Profile Exponents.
  7. Default Vertical Potential Temperature Gradients.

**Model Assumes Receptors on FLAT Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates PERIOD Averages Only

**This Run Includes:      4 Source(s);      1 Source Group(s); and      6198
Receptor(s)

**The Model Assumes A Pollutant Type of: FORMALDE

**Model Set To Continue RUNNING After the Setup Testing.

**Output Options Selected:
  Model Outputs Tables of PERIOD Averages by Receptor
  Model Outputs External File(s) of High Values for Plotting (PLOTFILE
Keyword)

**Misc. Inputs:  Anem. Hgt. (m) = 10.00 ;      Decay Coef. = 0.000 ;
Rot. Angle = 0.0
                Emission Units = GRAMS/SEC
Emission Rate Unit Factor = 0.10000E+07
                Output Units = MICROGRAMS/M**3

**Approximate Storage Requirements of Model = 1.5 MB of RAM.

**Input Runstream File:      PPLA 190MM_81_FORMALDE.DTA
**Output Print File:      PPLA 190MM_81_FORMALDE.LST
```

**Polychemie Inc. – Facility Expansion Project**

```

*** ISCST3 - VERSION 02035 ***
*** Polypure Inc. - Los Angeles California ***
*** 2003 Modifications ***
**MODELOPTs:
CONC      URBAN FLAT      NOCALM
12/10/03
13:15:57
PAGE 155

```

\*\*\* THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS \*\*\*

\*\* CONC OF FORMALDE IN MICROGRAMS/M\*\*3 \*\*

GROUP ID	AVERAGE CONC	RECEPTOR	(XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS		0.18093 AT ( 391003.81,	3769522.25,	
0.00,	0.00) DC	NA			
	2ND HIGHEST VALUE IS		0.14785 AT ( 391023.00,	3769527.00,	
0.00,	0.00) DC	NA			
	3RD HIGHEST VALUE IS		0.14180 AT ( 390998.00,	3769527.00,	
0.00,	0.00) DC	NA			
	4TH HIGHEST VALUE IS		0.13397 AT ( 391028.50,	3769522.50,	
0.00,	0.00) DC	NA			
	5TH HIGHEST VALUE IS		0.12765 AT ( 390943.00,	3769395.00,	
0.00,	0.00) DC	NA			
	6TH HIGHEST VALUE IS		0.12736 AT ( 390956.00,	3769391.50,	
0.00,	0.00) DC	NA			
	7TH HIGHEST VALUE IS		0.11681 AT ( 390948.00,	3769377.00,	
0.00,	0.00) DC	NA			
	8TH HIGHEST VALUE IS		0.10970 AT ( 390923.00,	3769377.00,	
0.00,	0.00) DC	NA			
	9TH HIGHEST VALUE IS		0.10882 AT ( 390969.00,	3769388.00,	
0.00,	0.00) DC	NA			
	10TH HIGHEST VALUE IS		0.10832 AT ( 391023.00,	3769552.00,	
0.00,	0.00) DC	NA			

```

*** RECEPTOR TYPES:  GC = GRIDCART
                       GP = GRIDPOLR
                       DC = DISCCART
                       DP = DISCPOLR
                       BD = BOUNDARY

```

APPENDIX B: HEALTH RISK ASSESSMENT

---

```
*** ISCST3 - VERSION 02035 ***
*** Polypure Inc. - Los Angeles California ***
*** 2003 Modifications ***
**MODELOPTS:
CONC          URBAN FLAT          NOCALM
```

12/10/03  
13:15:57  
PAGE 156

\*\*\* Message Summary : ISCST3 Model Execution \*\*\*

```
----- Summary of Total Messages -----
A Total of          0 Fatal Error Message(s)
A Total of          0 Warning Message(s)
A Total of         692 Informational Message(s)
A Total of          692 Calm Hours Identified
```

```
***** FATAL ERROR MESSAGES *****
*** NONE ***
```

```
***** WARNING MESSAGES *****
*** NONE ***
```

```
*****
*** ISCST3 Finishes Successfully ***
*****
```



**ACRYLAMIDE MODELING RESULTS – ANNUAL AVERAGING PERIOD  
 MICR RESIDENTIAL- 500 Meter Receptors  
 NOTE: NOT ALL INPUT/OUTPUT DATA SHOWN**

\*\*BEE-Line Software: BEEST for Windows (Version 9.02) data input file  
 \*\* Model: ISCST3 File Creation Date: 12/10/2003 Time: 2:08:06 PM  
 \*\* ECHO

CO STARTING  
 CO TITLEONE Polypure Inc. - Los Angeles California  
 CO TITLETWO 2003 Modifications  
 CO MODELOPT CONC URBAN NOCALM  
 CO AVERTIME PERIOD  
 CO POLLUTID ACRYLAMI  
 CO TERRHGT5 PLAT  
 CO RUNORNOT RUN  
 CO FINISHED

SO STARTING  
 SO ELEVUNIT METERS  
 SO LOCATION SC1 POINT 390999.84 3769459.5 0.  
 SO SRCPARAM SC1 1.096182E-07 7.62 298.15 12.936 0.1524  
 SO BUILDHGT SC1 12.19 12.19 0.00 0.00 0.00 0.00  
 SO BUILDHGT SC1 0.00 0.00 0.00 0.00 0.00 0.00  
 SO BUILDHGT SC1 0.00 0.00 0.00 0.00 0.00 0.00  
 SO BUILDHGT SC1 0.00 0.00 0.00 0.00 0.00 0.00  
 SO BUILDHGT SC1 5.49 5.49 5.49 5.49 5.49 5.49  
 SO BUILDHGT SC1 0.00 0.00 0.00 0.00 0.00 12.19  
 SO BUILDWID SC1 14.08 12.73 0.00 0.00 0.00 0.00  
 SO BUILDWID SC1 0.00 0.00 0.00 0.00 0.00 0.00  
 SO BUILDWID SC1 0.00 0.00 0.00 0.00 0.00 0.00  
 SO BUILDWID SC1 0.00 0.00 0.00 0.00 0.00 0.00  
 SO BUILDWID SC1 17.44 13.15 17.00 20.91 24.18 0.00  
 SO BUILDWID SC1 0.00 0.00 0.00 0.00 0.00 15.00  
 SO LOCATION SC2 POINT 391003.6 3769452. 0.  
 SO SRCPARAM SC2 3.074348E-07 7.62 298.15 12.936 0.1524  
 SO BUILDHGT SC2 12.19 12.19 0.00 0.00 0.00 0.00  
 SO BUILDHGT SC2 0.00 0.00 0.00 0.00 0.00 0.00  
 SO BUILDHGT SC2 0.00 0.00 0.00 0.00 0.00 0.00  
 SO BUILDHGT SC2 0.00 0.00 0.00 5.49 5.49 5.49  
 SO BUILDHGT SC2 5.49 5.49 5.49 0.00 0.00 0.00  
 SO BUILDHGT SC2 0.00 0.00 0.00 0.00 0.00 12.19  
 SO BUILDWID SC2 14.08 12.73 0.00 0.00 0.00 0.00  
 SO BUILDWID SC2 0.00 0.00 0.00 0.00 0.00 0.00  
 SO BUILDWID SC2 0.00 0.00 0.00 0.00 0.00 0.00  
 SO BUILDWID SC2 0.00 0.00 0.00 27.36 24.77 21.43  
 SO BUILDWID SC2 17.44 13.15 17.00 0.00 0.00 0.00  
 SO BUILDWID SC2 0.00 0.00 0.00 0.00 0.00 15.00  
 SO LOWBOUND SC2 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0  
 SO LOWBOUND SC2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
 SO LOCATION FUGITIVE VOLUME 391012.5 3769448.75 0.  
 SO SRCPARAM FUGITIVE 0. 2.29 13.13 26.05  
 SO LOCATION SC3 POINT 391021.84 3769445.25 0.  
 SO SRCPARAM SC3 1.272579E-06 6.1 298.15 3.105 0.1524  
 SO BUILDHGT SC3 9.45 9.45 12.19 12.19 5.49 5.49  
 SO BUILDHGT SC3 0.00 0.00 0.00 0.00 0.00 0.00  
 SO BUILDHGT SC3 0.00 0.00 0.00 0.00 5.49 5.49  
 SO BUILDHGT SC3 5.49 5.49 5.49 5.49 5.49 5.49  
 SO BUILDHGT SC3 0.00 0.00 7.47 7.47 7.47 7.47  
 SO BUILDHGT SC3 7.47 7.47 0.00 5.49 5.49 9.45  
 SO BUILDWID SC3 22.30 20.93 12.93 13.84 24.77 21.43  
 SO BUILDWID SC3 0.00 0.00 0.00 0.00 0.00 0.00

**APPENDIX B: HEALTH RISK ASSESSMENT**

---

```

SO BUILDWID SC3          0.00    0.00    0.00    28.37    27.46    29.00
SO BUILDWID SC3          29.95    29.99    29.11    27.36    24.77    21.43
SO BUILDWID SC3          0.00    0.00    78.00    80.98    81.50    79.55
SO BUILDWID SC3          75.18    68.52    0.00    28.37    27.46    23.00
SO SRCGROUP ALL
SO FINISHED

```

```

RE STARTING
RE GRIDPOLR POLAR STA
RE GRIDPOLR POLAR ORIG FUGITIVE
RE GRIDPOLR POLAR DIST 500 525 550 575 600
RE GRIDPOLR POLAR DIST 625 650 675 700 725
RE GRIDPOLR POLAR DIST 750 775 800
RE GRIDPOLR POLAR GDIR 36 0 10
RE GRIDPOLR POLAR END
RE FINISHED

```

```

ME STARTING
ME INPUTFIL "P:\SNF\Polypure\Los Angeles\2003 LA expansion\ADAM &
DAD\Modeling\DLA.ASC"
ME ANEMHGHT 10.0000
ME SURFDATA 52075 1981
ME UAIRDATA 91919 1981
ME FINISHED

```

```

OU STARTING
OU PLOTFILE PERIOD ALL "P:\SNF\Polypure\Los Angeles\2003 LA expansion\ADAM &
DAD\Modeling\PPLA 500 grid_81_ACRYLAMI.GRF" 30
OU FINISHED

```

BEE-Line ISCST3 "BEEST" Version 9.00

Input File - P:\SNF\Polypure\Los Angeles\2003 LA expansion\ADAM & DAD\Modeling\PPLA 500 grid\_81\_ACRYLAMI.DTA

Output File - P:\SNF\Polypure\Los Angeles\2003 LA expansion\ADAM & DAD\Modeling\PPLA 500 grid\_81\_ACRYLAMI.LST

Met File - P:\SNF\Polypure\Los Angeles\2003 LA expansion\ADAM & DAD\Modeling\DLA.ASC

\*\*\* Message Summary For ISC3 Model Setup \*\*\*

----- Summary of Total Messages -----

```

A Total of          0 Fatal Error Message(s)
A Total of          1 Warning Message(s)
A Total of          0 Informational Message(s)

```

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
 \*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*  
 SO W320 49 VPARAM :Input Parameter May Be Out-of-Range for Parameter

QS

```

*****
*** SETUP Finishes Successfully ***
*****

```

\*\*\* ISCST3 - VERSION 02035 \*\*\*  
\*\*\* Polypure Inc. - Los Angeles California \*\*\*  
\*\*\* 2003 Modifications \*\*\*  
\*\*MODELOPTS:  
CONC            URBAN FLAT            NOCALM

12/10/03  
14:08:15  
PAGE 1

\*\*\*            MODEL SETUP OPTIONS SUMMARY            \*\*\*

-----  
-  
-  
-  
\*\*Intermediate Terrain Processing is Selected  
  
\*\*Model Is Setup For Calculation of Average CONCentration Values.  
  
  -- SCAVENGING/DEPOSITION LOGIC --  
\*\*Model Uses NO DRY DEPLETION.   DDPLETE = F  
\*\*Model Uses NO WET DEPLETION.   WDPLETE = F  
\*\*NO WET SCAVENGING Data Provided.  
\*\*NO GAS DRY DEPOSITION Data Provided.  
\*\*Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations  
  
\*\*Model Uses URBAN Dispersion.  
  
\*\*Model Uses User-Specified Options:  
    1. Final Plume Rise.  
    2. Stack-tip Downwash.  
    3. Buoyancy-induced Dispersion.  
    4. Not Use Calms Processing Routine.  
    5. Not Use Missing Data Processing Routine.  
    6. Default Wind Profile Exponents.  
    7. Default Vertical Potential Temperature Gradients.  
  
\*\*Model Assumes Receptors on FLAT Terrain.  
  
\*\*Model Assumes No FLAGPOLE Receptor Heights.  
  
\*\*Model Calculates PERIOD Averages Only  
  
\*\*This Run Includes:     4 Source(s);     1 Source Group(s); and     468  
Receptor(s)  
  
\*\*The Model Assumes A Pollutant Type of:  ACRYLAMI  
  
\*\*Model Set To Continue RUNning After the Setup Testing.  
  
\*\*Output Options Selected:  
    Model Outputs Tables of PERIOD Averages by Receptor  
    Model Outputs External File(s) of High Values for Plotting (PLOTFILE  
Keyword)  
  
\*\*Misc. Inputs:  Anem. Hgt. (m) =    10.00 ;    Decay Coef. =    0.000    ;  
Rot. Angle =    0.0  
                Emission Units = GRAMS/SEC  
Emission Rate Unit Factor =   0.10000E+07  
                Output Units    = MICROGRAMS/M\*\*3  
  
\*\*Approximate Storage Requirements of Model =    1.2 MB of RAM.  
  
\*\*Input Runstream File:           PPLA 500 grid\_81\_ACRYLAMI.DTA  
\*\*Output Print File:             PPLA 500 grid\_81\_ACRYLAMI.LST

APPENDIX B: HEALTH RISK ASSESSMENT

```

*** ISCST3 - VERSION 02035 ***
*** Polypure Inc. - Los Angeles California ***
*** 2003 Modifications ***
**MODELOPTs:
CONC          URBAN FLAT          NOCALM
12/10/03
14:08:15
PAGE 11
    
```

\*\*\* THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS \*\*\*

\*\* CONC OF ACRYLAMI IN MICROGRAMS/M\*\*3 \*\*

GROUP ID	AVERAGE CONC	RECEPTOR	(XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS				
0.00,	0.00) GP POLAR	0.00002	AT ( 390762.50,	3769015.75,	
	2ND HIGHEST VALUE IS				
0.00,	0.00) GP POLAR	0.00001	AT ( 390841.50,	3768979.00,	
	3RD HIGHEST VALUE IS				
0.00,	0.00) GP POLAR	0.00001	AT ( 390691.09,	3769065.75,	
	4TH HIGHEST VALUE IS				
0.00,	0.00) GP POLAR	0.00001	AT ( 390750.00,	3768994.00,	
	5TH HIGHEST VALUE IS				
0.00,	0.00) GP POLAR	0.00001	AT ( 390832.94,	3768955.50,	
	6TH HIGHEST VALUE IS				
0.00,	0.00) GP POLAR	0.00001	AT ( 390675.03,	3769046.50,	
	7TH HIGHEST VALUE IS				
0.00,	0.00) GP POLAR	0.00001	AT ( 390629.47,	3769127.25,	
	8TH HIGHEST VALUE IS				
0.00,	0.00) GP POLAR	0.00001	AT ( 390737.50,	3768972.50,	
	9TH HIGHEST VALUE IS				
0.00,	0.00) GP POLAR	0.00001	AT ( 390824.38,	3768932.00,	
	10TH HIGHEST VALUE IS				
0.00,	0.00) GP POLAR	0.00001	AT ( 390658.97,	3769027.50,	

```

*** RECEPTOR TYPES:  GC = GRIDCART
                        GP = GRIDPOLR
                        DC = DISCCART
                        DP = DISCPOLR
                        BD = BOUNDARY
    
```

**Polychemie Inc. – Facility Expansion Project**

---

```
*** ISCST3 - VERSION 02035 ***
*** Polypure Inc. - Los Angeles California ***
*** 2003 Modifications ***
**MODELOPTs:
CONC          URBAN FLAT          NOCALM
12/10/03
14:08:15
PAGE 12
```

\*\*\* Message Summary : ISCST3 Model Execution \*\*\*

----- Summary of Total Messages -----

```
A Total of          0 Fatal Error Message(s)
A Total of          1 Warning Message(s)
A Total of         692 Informational Message(s)
A Total of          692 Calm Hours Identified
```

```
***** FATAL ERROR MESSAGES *****
*** NONE ***
```

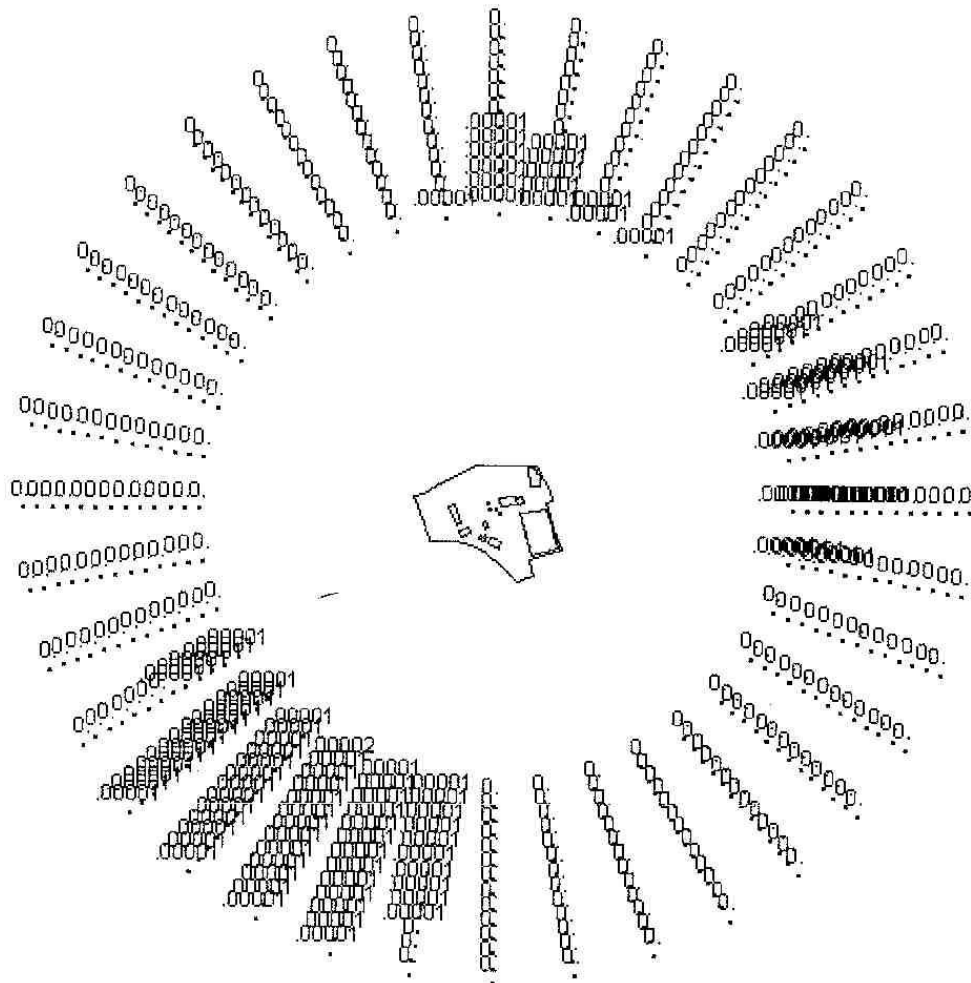
```
***** WARNING MESSAGES *****
SO W320 49 VPARAM :Input Parameter May Be Out-of-Range for Parameter QS
```

```
*****
*** ISCST3 Finishes Successfully ***
*****
```

**Acrylamide Modeling Results**

MICR- Residential (at 500 m from site)

Polychemie, Inc. – Los Angeles, California



ACRYLAMIDE RESULTS – Highest concentration = 0.00002 ug/m3

**FORMALDEHYDE MODELING RESULTS – ANNUAL AVERAGING PERIOD**  
**MICR RESIDENTIAL- 500 Meter Receptors**  
**NOTE: NOT ALL INPUT/OUTPUT DATA SHOWN**

\*\*BEE-Line Software: BEEST for Windows (Version 9.02) data input file  
 \*\* Model: ISCST3 File Creation Date: 12/10/2003 Time: 2:08:07 PM  
 \*\* ECHO

```

CO STARTING
CO TITLEONE Polypure Inc. - Los Angeles California
CO TITLETWO 2003 Modifications
CO MODELOPT CONC URBAN NOCALM
CO AVERTIME PERIOD
CO POLLUTID FORMALDE
CO TERRHGTS FLAT
CO RUNORNOT RUN
CO FINISHED

SO STARTING
SO ELEVUNIT METERS
SO LOCATION SC1 POINT 390999.84 3769459.5 0.
SO SRCPARAM SC1 0.0005884 7.62 298.15 12.936 0.1524
SO BUILDHGT SC1      12.19      12.19      0.00      0.00      0.00      0.00
SO BUILDHGT SC1      0.00      0.00      0.00      0.00      0.00      0.00
SO BUILDHGT SC1      0.00      0.00      0.00      0.00      0.00      0.00
SO BUILDHGT SC1      0.00      0.00      0.00      0.00      0.00      0.00
SO BUILDHGT SC1      5.49      5.49      5.49      5.49      5.49      0.00
SO BUILDHGT SC1      0.00      0.00      0.00      0.00      0.00      12.19
SO BUILDWID SC1     14.08      12.73      0.00      0.00      0.00      0.00
SO BUILDWID SC1      0.00      0.00      0.00      0.00      0.00      0.00
SO BUILDWID SC1      0.00      0.00      0.00      0.00      0.00      0.00
SO BUILDWID SC1      0.00      0.00      0.00      0.00      0.00      0.00
SO BUILDWID SC1     17.44      13.15      17.00     20.91     24.18      0.00
SO BUILDWID SC1      0.00      0.00      0.00      0.00      0.00      15.00
SO LOCATION SC2 POINT 391003.6 3769452. 0.
SO SRCPARAM SC2 0.0007686 7.62 298.15 12.936 0.1524
SO BUILDHGT SC2      12.19      12.19      0.00      0.00      0.00      0.00
SO BUILDHGT SC2      0.00      0.00      0.00      0.00      0.00      0.00
SO BUILDHGT SC2      0.00      0.00      0.00      0.00      0.00      0.00
SO BUILDHGT SC2      0.00      0.00      0.00      5.49      5.49      5.49
SO BUILDHGT SC2      5.49      5.49      5.49      0.00      0.00      0.00
SO BUILDHGT SC2      0.00      0.00      0.00      0.00      0.00      12.19
SO BUILDWID SC2     14.08      12.73      0.00      0.00      0.00      0.00
SO BUILDWID SC2      0.00      0.00      0.00      0.00      0.00      0.00
SO BUILDWID SC2      0.00      0.00      0.00      0.00      0.00      0.00
SO BUILDWID SC2      0.00      0.00      0.00      27.36     24.77     21.43
SO BUILDWID SC2     17.44      13.15      17.00      0.00      0.00      0.00
SO BUILDWID SC2      0.00      0.00      0.00      0.00      0.00      15.00
SO LOWBOUND SC2 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0
SO LOWBOUND SC2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
SO LOCATION FUGITIVE VOLUME 391012.5 3769448.75 0.
SO SRCPARAM FUGITIVE 0.0005065 2.29 13.13 26.05
SO LOCATION SC3 POINT 391021.84 3769445.25 0.
SO SRCPARAM SC3 7.370876E-05 6.1 298.15 3.105 0.1524
SO BUILDHGT SC3      9.45      9.45      12.19     12.19      5.49      5.49
SO BUILDHGT SC3      0.00      0.00      0.00      0.00      0.00      0.00
SO BUILDHGT SC3      0.00      0.00      0.00      5.49      5.49      5.49
SO BUILDHGT SC3      5.49      5.49      5.49      5.49      5.49      5.49
SO BUILDHGT SC3      0.00      0.00      7.47      7.47      7.47      7.47
  
```



APPENDIX B: HEALTH RISK ASSESSMENT

```
SO BUILDHGT SC3      7.47    7.47    0.00    5.49    5.49    9.45
SO BUILDWID SC3     22.30   20.93   12.93   13.84   24.77   21.43
SO BUILDWID SC3      0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID SC3      0.00    0.00    0.00   28.37   27.46   29.00
SO BUILDWID SC3     29.95   29.99   29.11   27.36   24.77   21.43
SO BUILDWID SC3      0.00    0.00    78.00   80.98   81.50   79.55
SO BUILDWID SC3     75.18   68.52    0.00   28.37   27.46   23.00
SO SRCGROUP ALL
SO FINISHED
```

```
RE STARTING
RE GRIDPOLR POLAR STA
RE GRIDPOLR POLAR ORIG FUGITIVE
RE GRIDPOLR POLAR DIST 500 525 550 575 600
RE GRIDPOLR POLAR DIST 625 650 675 700 725
RE GRIDPOLR POLAR DIST 750 775 800
RE GRIDPOLR POLAR GDIR 36 0 10
RE GRIDPOLR POLAR END
RE FINISHED
```

```
ME STARTING
ME INPUTFIL "P:\SNF\Polypure\Los Angeles\2003 LA expansion\ADAM &
DAD\Modeling\DLA.ASC"
ME ANEMHGHT 10.0000
ME SURFDATA 52075 1981
ME UAIRDATA 91919 1981
ME FINISHED
```

```
OU STARTING
OU PLOTFILE PERIOD ALL "P:\SNF\Polypure\Los Angeles\2003 LA expansion\ADAM &
DAD\Modeling\PPLA 500 grid_81_FORMALDE.GRF" 30
OU FINISHED
```

BEE-Line ISCST3 "BEEST" Version 9.00

Input File - P:\SNF\Polypure\Los Angeles\2003 LA expansion\ADAM & DAD\Modeling\PPLA 500 grid\_81\_FORMALDE.DTA

Output File - P:\SNF\Polypure\Los Angeles\2003 LA expansion\ADAM & DAD\Modeling\PPLA 500 grid\_81\_FORMALDE.LST

Met File - P:\SNF\Polypure\Los Angeles\2003 LA expansion\ADAM & DAD\Modeling\DLA.ASC

```
*****
*** SETUP Finishes Successfully ***
*****
```

\*\*\* ISCST3 - VERSION 02035 \*\*\*  
\*\*\* Polypure Inc. - Los Angeles California \*\*\*  
\*\*\* 2003 Modifications \*\*\*  
\*\*MODELOPTS:  
CONC            URBAN FLAT            NOCALM

12/10/03  
14:08:24  
PAGE 1

\*\*\*            MODEL SETUP OPTIONS SUMMARY            \*\*\*

-----  
\*\*Intermediate Terrain Processing is Selected

\*\*Model Is Setup For Calculation of Average CONCentration Values.

-- SCAVENGING/DEPOSITION LOGIC --  
\*\*Model Uses NO DRY DEPLETION.   DDPLETE = F  
\*\*Model Uses NO WET DEPLETION.   WDPLETE = F  
\*\*NO WET SCAVENGING Data Provided.  
\*\*NO GAS DRY DEPOSITION Data Provided.  
\*\*Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

\*\*Model Uses URBAN Dispersion.

\*\*Model Uses User-Specified Options:  
  1. Final Plume Rise.  
  2. Stack-tip Downwash.  
  3. Buoyancy-induced Dispersion.  
  4. Not Use Calms Processing Routine.  
  5. Not Use Missing Data Processing Routine.  
  6. Default Wind Profile Exponents.  
  7. Default Vertical Potential Temperature Gradients.

\*\*Model Assumes Receptors on FLAT Terrain.

\*\*Model Assumes No FLAGPOLE Receptor Heights.

\*\*Model Calculates PERIOD Averages Only

\*\*This Run Includes:     4 Source(s);     1 Source Group(s); and     468  
Receptor(s)

\*\*The Model Assumes A Pollutant Type of: FORMALDE

\*\*Model Set To Continue RUNning After the Setup Testing.

\*\*Output Options Selected:  
  Model Outputs Tables of PERIOD Averages by Receptor  
  Model Outputs External File(s) of High Values for Plotting (PLOTFILE  
Keyword)

\*\*Misc. Inputs: Anem. Hgt. (m) =   10.00 ;   Decay Coef. =   0.000 ;  
Rot. Angle =    0.0  
                  Emission Units = GRAMS/SEC ;  
Emission Rate Unit Factor =   0.10000E+07 ;  
                  Output Units   = MICROGRAMS/M\*\*3

\*\*Approximate Storage Requirements of Model =    1.2 MB of RAM.

\*\*Input Runstream File:           PPLA 500 grid\_81\_FORMALDE.DTA  
\*\*Output Print File:             PPLA 500 grid\_81\_FORMALDE.LST

**APPENDIX B: HEALTH RISK ASSESSMENT**

```

*** ISCST3 - VERSION 02035 ***
*** Polypure Inc. - Los Angeles California ***
*** 2003 Modifications ***
**MODELOPTs:
CONC  URBAN FLAT      NOCALM
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```

\*\*\* THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS \*\*\*

\*\* CONC OF FORMALDE IN MICROGRAMS/M\*\*3 \*\*

GROUP ID	AVERAGE CONC	RECEPTOR	(XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS				
0.00,	0.00) GP POLAR		0.01594 AT (	390762.50,	3769015.75,
	2ND HIGHEST VALUE IS				
0.00,	0.00) GP POLAR		0.01521 AT (	390691.09,	3769065.75,
	3RD HIGHEST VALUE IS				
0.00,	0.00) GP POLAR		0.01474 AT (	390750.00,	3768994.00,
	4TH HIGHEST VALUE IS				
0.00,	0.00) GP POLAR		0.01448 AT (	390841.50,	3768979.00,
	5TH HIGHEST VALUE IS				
0.00,	0.00) GP POLAR		0.01436 AT (	390629.47,	3769127.25,
	6TH HIGHEST VALUE IS				
0.00,	0.00) GP POLAR		0.01403 AT (	390675.03,	3769046.50,
	7TH HIGHEST VALUE IS				
0.00,	0.00) GP POLAR		0.01368 AT (	390737.50,	3768972.50,
	8TH HIGHEST VALUE IS				
0.00,	0.00) GP POLAR		0.01342 AT (	390832.94,	3768955.50,
	9TH HIGHEST VALUE IS				
0.00,	0.00) GP POLAR		0.01325 AT (	390610.31,	3769111.25,
	10TH HIGHEST VALUE IS				
0.00,	0.00) GP POLAR		0.01300 AT (	390658.97,	3769027.50,

```

*** RECEPTOR TYPES: GC = GRIDCART
                       GP = GRIDPOLR
                       DC = DISCCART
                       DP = DISCPOLR
                       BD = BOUNDARY
  
```

**Polychemie Inc. – Facility Expansion Project**

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\*\*\* ISCST3 - VERSION 02035 \*\*\*  
\*\*\* Polypure Inc. - Los Angeles California \*\*\*  
\*\*\* 2003 Modifications \*\*\*  
\*\*MODELOPTs:  
CONC URBAN FLAT NOCALM

12/10/03  
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\*\*\* Message Summary : ISCST3 Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
A Total of 0 Warning Message(s)  
A Total of 692 Informational Message(s)  
A Total of 692 Calm Hours Identified

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
\*\*\* NONE \*\*\*

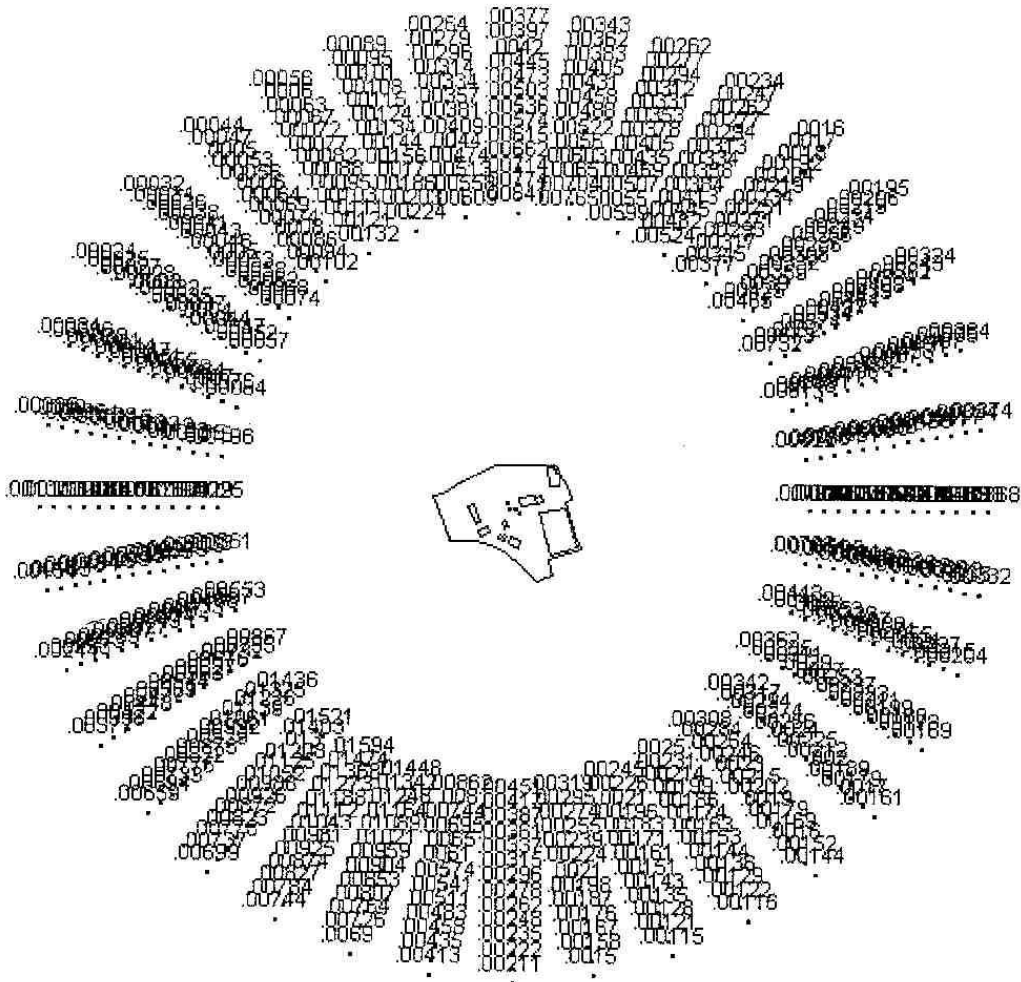
\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*  
\*\*\* NONE \*\*\*

\*\*\*\*\*  
\*\*\* ISCST3 Finishes Successfully \*\*\*  
\*\*\*\*\*

Formaldehyde Modeling Results

MICR- Residential (at 500 m from site)

Polychemie, Inc. – Los Angeles, California



FORMALDEHYDE RESULTS – Highest concentration = 0.01594 ug/m3