

RISK ASSESSMENT REPORT

HYDRO EXTRUSION PORTLAND, INC.
PORTLAND, OREGON



Prepared for
OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY
CLEANER AIR OREGON AIR TOXICS PROGRAM
May 30, 2023
Project No. M0201.10.002

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CONTENTS

TABLES AND FIGURES	V
ACRONYMS AND ABBREVIATIONS	VII
1 INTRODUCTION	1
2 FACILITY DESCRIPTION	3
2.1 FACILITY LOCATION	3
2.2 PROCESS DESCRIPTION	3
3 MODELED EMISSION UNITS	4
3.1 PRETREATMENT SYSTEM	4
3.2 VERTICAL PAINT LINE	4
3.3 TIE LINE	5
3.4 NATURAL GAS COMBUSTION TEUS	6
4 AIR DISPERSION MODELING METHODOLOGY	6
4.1 MODEL SELECTION	6
4.2 METEOROLOGICAL DATA	6
4.3 AERSURFACE LAND USE	8
4.4 BUILDING DOWNWASH AND TEU LOCATIONS	9
4.5 RECEPTOR LOCATIONS AND TERRAIN	9
4.6 UNIT EMISSION RATES	10
5 RISK ASSESSMETN METHODOLOGY	11
5.1 LAND-USE ZONING CLASSIFICATION DATA FOR DETERMINING EXPOSURE TYPES	11
5.2 EXPOSURE PATHWAYS	11
5.3 RISK-BASED CONCENTRATIONS	11
5.4 RISK ESTIMATES	12
6 RISK ASSESSMENT RESULT SUMMARY	12
6.1 EXCESS CANCER RISK	13
6.2 CHRONIC NONCANCER HAZARD INDEX	13
6.3 ACUTE NONCANCER HAZARD INDEX	14
6.4 UNCERTAINTY ANALYSIS	14
7 CLOSING	15
LIMITATIONS	
TABLES	
FIGURES	

TABLES AND FIGURES

TABLES

1-1	CAO PROCESS SUBMITTALS AND APPROVALS (IN REPORT TEXT)
1-2	LEVEL 3 RISK ASSESSMENT RESULT SUMMARY FOR SIGNIFICANT TEUS (IN REPORT TEXT)
1-3	LEVEL 3 RISK ASSESSMENT RESULT SUMMARY FOR GAS COMBUSTION TEUS (IN REPORT TEXT)
3-1	SIGNIFICANT TOXIC EMISSION UNITS EMISSION RATES—CANCER ASSESSMENT
3-2	SIGNIFICANT TOXIC EMISSION UNITS EMISSION RATES—CHRONIC NONCANCER ASSESSMENT
3-3	SIGNIFICANT TOXIC EMISSION UNITS EMISSION RATES—ACUTE ASSESSMENT
3-4	NATURAL GAS TOXIC EMISSION UNITS ANNUAL EMISSION RATES
3-5	NATURAL GAS TOXIC EMISSION UNITS DAILY EMISSION RATES
3-6	MODEL SOURCE PARAMETERS
4-1	MODEL SELECTION (IN REPORT TEXT)
4-2	METEOROLOGICAL AND TERRAIN DATA (IN REPORT TEXT)
4-3	ASSESSMENT OF MISSING METEOROLOGICAL DATA
4-4	AERSURFACE SETTINGS
4-5	SURFACE SOIL MOISTURE CONDITION ASSESSMENT
4-6	DOWNWASH STRUCTURE HEIGHTS
4-7	RECEPTOR LOCATIONS (IN REPORT TEXT)
4-8	IDENTIFICATION OF SENSITIVE EXPOSURE LOCATION (IN REPORT TEXT)
5-1	SUMMARY OF STATEWIDE ZONING AND EXPOSURE TYPE CATEGORIZATION
5-2	SUMMARY OF REVISIONS TO STATEWIDE ZONING
5-3	APPLICABLE RISK-BASED CONCENTRATIONS
6-1	MAXIMUM PREDICTED RISK EXPOSURE LOCATION PER TOXIC EMISSIONS UNIT
6-2	LEVEL 3 RISK ASSESSMENT RESULT SUMMARY (IN REPORT TEXT)
6-3	LEVEL 3 RISK ASSESSMENT RESULTS FOR SIGNIFICANT TOXIC EMISSION UNITS—CANCER ASSESSMENT
6-4	LEVEL 3 RISK ASSESSMENT RESULTS FOR SIGNIFICANT TOXIC EMISSION UNITS—CHRONIC AND ACUTE ASSESSMENT
6-5	LEVEL 3 RISK ASSESSMENT RESULTS FOR NATURAL GAS TOXIC EMISSION UNITS—CANCER ASSESSMENT

TABLES AND ILLUSTRATIONS (CONTINUED)

- 6-6 LEVEL 3 RISK ASSESSMENT RESULTS FOR NATURAL GAS TOXIC EMISSION UNITS—CHRONIC AND ACUTE ASSESSMENT
- 6-7 LIST OF TACS WITH NO PUBLISHED RISK-BASED CONCENTRATIONS

FIGURES

- 2-1 SITE LOCATION MAP
- 2-2 LOCAL TOPOGRAPHY
- 2-3 PROCESS FLOW DIAGRAM
- 4-1 WIND ROSE
- 4-2 DOWNWASH STRUCTURES AND SIGNIFICANT TOXIC EMISSION UNIT LOCATIONS
- 4-3 NATURAL GAS TOXIC EMISSION UNIT LOCATIONS
- 4-4 RECEPTOR LOCATIONS
- 4-5 RECEPTOR LOCATIONS IN THE IMMEDIATE AREA
- 5-1 EXISTING LAND-USE ZONING CLASSIFICATIONS
- 5-1 EXISTING LAND-USE ZONING CLASSIFICATIONS IN THE IMMEDIATE AREA
- 5-3 EXPOSURE CATEGORIZATION
- 5-4 EXPOSURE CATEGORIZATION IN THE IMMEDIATE AREA

ACRONYMS AND ABBREVIATIONS

ASOS	Automated Surface Observation Systems
CAO	Cleaner Air Oregon
DEQ	Oregon Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
facility	Hydro Extrusion Portland, Inc. facility located at 5325 NE Skyport Way, Portland, Oregon
°F	degrees Fahrenheit
g/s	gram(s) per second
Hydro	Hydro Extrusion Portland, Inc.
m/s	meters per second
MFA	Maul Foster & Alongi, Inc.
NCEI	National Center for Environmental Information
OAR	Oregon Administrative Rule
Portland met station	Portland International Airport monitoring station (ID 726980) located in Portland, Oregon
RAL	risk action level
RBC	risk-based concentration
RTO	regenerative thermal oxidizer
TAC	toxic air contaminant
TBACT	Toxics Best Available Control Technology
TEU	toxic emissions unit
TIE	Thermally Improved Extrusion
ug/m ³	microgram(s) per cubic meter
VPL	Vertical Paint Line

1 INTRODUCTION

Hydro Extrusion Portland, Inc. (Hydro) owns and operates a coatings facility located at 5325 NE Skyport Way in Portland, Oregon 97218 (facility). The facility currently operates under Standard Air Contaminant Discharge Permit No. 26-3241-ST-01 issued by the Oregon Department of Environmental Quality (DEQ) on November 21, 2018.

Hydro retained Maul Foster & Alongi, Inc. (MFA) to assist the facility with each step of the Cleaner Air Oregon (CAO) permitting process. A timeline of the CAO permitting process to date is presented in Table 1-1 below. Hydro is submitting an updated toxic air contaminant (TAC) emissions inventory, Modeling Protocol, and Risk Assessment Work Plan in tandem with this report consistent with the agreement detailed in the DEQ correspondence dated May 5, 2023.

Table 1-1. CAO Process Submittals and Approvals

CAO Requirement	Submittal Date	DEQ Approval Date
CAO Emissions Inventory	February 12, 2021 (Revised March 19, 2021) (Revised July 6, 2021) (Revised February 10, 2022) (Revised May 30, 2023)	May 20, 2022
CAO Modeling Protocol	June 19, 2022 (Revised January 9, 2023) (Revised May 30, 2023)	January 30, 2023
CAO Risk Assessment Work Plan	July 14, 2022 (Revised January 9, 2023) (Revised May 30, 2023)	January 30, 2023

Oregon Administrative Rule (OAR) 340-245-0030(1)(d)(ii) states that a risk assessment must be submitted to the DEQ after approval of the Level 3 risk assessment work plan. MFA performed a Level 3 Risk Assessment to estimate the potential cancer and noncancer risk impacts from the facility for comparison to the applicable risk action levels (RALs) shown in OAR 340-245-8010 Table 1.

The Level 3 Risk Assessment was completed according to the modeling protocol and risk assessment work plan, revised May 30, 2023. Table 1-2 shown below presents the results of the Level 3 Risk Assessment for significant toxic emissions units (TEUs) as defined under OAR 340-245-0020(52). As shown in Table 1-2, the maximum predicted excess cancer risk is below the community engagement RAL for existing sources per OAR 340-245-8010 Table 1. The maximum predicted chronic and acute noncancer hazard index are below the Toxics Best Available Control Technology (TBACT) RAL and community engagement RAL, respectively. Results from the Level 3 Risk Assessment for natural gas combustion TEUs per OAR 340-245-0050(5) are summarized in Table 1-3 below.

The remainder of this risk assessment report outlines the methodology used to complete the Level 3 Risk Assessment.

Table 1-2. Level 3 Risk Assessment Result Summary for Significant TEUs

Exposure Assessment	Facility Risk / Hazard Index	RAL Analysis (RAL)
Cancer Risk (chances-in-one-million)		
Residential	4	Below Community Engagement Level (25)
Nonresidential Child	0.1	Below Aggregate TEU Level (2.5)
Nonresidential Worker	2	Below Aggregate TEU Level (2.5)
Chronic Noncancer Hazard Index		
Residential	0.7	Below Community Engagement Level (1)
Nonresidential Child	<0.1	Below Aggregate TEU Level (0.1)
Nonresidential Worker	2	Below TBACT Level (5/3)
Acute Noncancer Hazard Index	0.6	Below Community Engagement Level (1)
Note < = less than.		

Table 1-3. Level 3 Risk Assessment Result Summary for Natural Gas Combustion TEUs

Exposure Assessment	Facility Risk / Hazard Index
Cancer Risk (chances-in-one-million)	
Residential	0.3
Nonresidential Child	<0.1
Nonresidential Worker	0.1
Chronic Noncancer Hazard Index	
Residential	<0.1
Nonresidential Child	<0.1
Nonresidential Worker	<0.1
Acute Noncancer Hazard Index	0.1
Note < = less than.	

2 FACILITY DESCRIPTION

2.1 Facility Location

The facility is located in Portland, Oregon, between the Columbia River and the Columbia Slough, and borders the Portland Air National Guard Base and the Portland International Airport. The area immediately surrounding the facility is characterized primarily by flat terrain. The facility is surrounded by a mixture of residential, mixed-use, and industrial land-use zones. An aerial image of the facility location is shown in Figure 2-1. The topography of the area immediately surrounding the facility is presented in Figure 2-2.

2.2 Process Description

The facility is an extruded aluminum surface coating operation. The facility receives aluminum extrusions from off-site sources. Extrusions are transported to the facility by truck and unloaded for on-site storage.

Aluminum extrusions are cleaned and treated by a corrosion resistant chromate conversion coating in the pretreatment area. The aluminum extrusions are hung vertically on a monorail system and travel through a narrow, enclosed tunnel in which the chromate conversion coating is applied by spray application. The tunnel is divided into five compartments that are each separated by baffles designed to minimize carryout. The five tunnel compartment contents are alkaline cleaning, rinse, chromate conversion coating, rinse, and final rinse. Each tunnel compartment is equipped with vertical risers with interspaced spray nozzles that spray the extrusions along their length as they move through. Each tunnel compartment has a dedicated tank (covered and isolated from room air) from which the liquid is pumped. Overspray that occurs in a tunnel compartment drains back down into the respective tank to be recirculated for reuse. Stage 1 and Stage 3 tanks are heated to approximately 135 degrees Fahrenheit (°F).

After exiting the final rinse in the pretreatment process, extrusions enter the drying oven and are dried at approximately 175 °F. Emissions from the drying oven are solely from natural gas combustion from the burners.

Following the drying oven, the extrusions enter the Vertical Paint Line (VPL) application booth. The VPL application booth incorporates electrostatic application equipment in the spray areas to coat the extrusions. Various paint formulations may be used depending on the desired customer specifications for the finished product. Coatings are mixed in a paint kitchen and transferred to the application line. After coating, the extrusions travel through a flash-off area and a curing oven. The curing oven is heated by natural gas burners. Emissions from the VPL application booth, flash off tunnel, paint kitchen, and curing oven are routed to the Telkamp Systems, Inc. regenerative thermal oxidizer (RTO), installed in 2014.

A small portion of extrusions are sent to the Thermally Improved Extrusion (TIE) Line. This process reduces thermal transfer and improves energy efficiency of the extrusions. A two-part polymer is poured into a small channel in the extrusions, then the polymer hardens into a structural insulating element. The metal “bridge” is mechanically removed by saws from the bottom of the channel, eliminating the conductive aluminum element and producing a non-metal to metal thermal barrier. All saws are equipped with saw enclosure cabinets with vacuum and dust filter systems, which vent indoors. No saws exhaust to the atmosphere.

The horizontal pretreatment and surface coating line previously operated by the facility was decommissioned in 2021.

A process flow diagram outlining the manufacturing process and points of emissions to atmosphere is presented in Figure 2-3.

3 MODELED EMISSION UNITS

Daily and annual TAC emission estimates for the process equipment and emission-control devices, considered to be TEUs as defined in OAR 340-245-0020(59), were prepared as shown in the TAC emissions inventory dated May 30, 2023. The annual and daily TAC emission estimates, presented in Tables 3-1 through 3-5, were converted to units of grams per second (g/s) for purposes of conducting the Level 3 Risk Assessment.

The TEUs identified in the modeling protocol dated May 30, 2023 were modeled using a unit emission rate, equivalent to 1 g/s for all modeled source types as presented in Table 3-6. Additional details describing unit emission rate modeling are provided in Section 4.6. The following subsections provide details for each modeled significant TEU and gas combustion TEU.

3.1 Pretreatment System

Emissions from the pretreatment system are uncontrolled. There are two vertical ducts at the ends of the pretreatment tunnel that vent to the separate roof exhaust stacks; one is above Stage 1, and the other is above Stage 5 compartment. The exhaust stacks for the pretreatment system were represented in the dispersion model as individual point sources with model IDs VPT1 and VPT2.

3.2 Vertical Paint Line

The VPL consists of a coating application area, flash off tunnel, curing oven, and paint kitchen. The VPL areas are all interconnected and are considered one source. The electrostatic application equipment has a 90 percent transfer efficiency, and the VPL is equipped with overspray filters that control 98.2 percent of particulate matter emissions.

The VPL was verified as a permanent total enclosure using U.S. Environmental Protection Agency (EPA) Method 204 on August 13, 2021. The EPA Method 204 was conducted according to the test

protocol dated July 28, 2021 that was approved by the DEQ. The VPL is a permanent total enclosure and 100 percent of process exhaust from all areas is routed to the RTO. The RTO is rated for a minimum destruction efficiency of 98 percent for volatile organic compound emissions. Therefore, the VPL has a combined volatile organic compound capture and control efficiency of 98 percent. The RTO stack was represented in the dispersion model as an individual point source with model ID RTO.

3.2.1 Toxicity Weighted Emission Rates

Production at the facility relies on a wide variety of coatings, each with a unique blend of constituents. Multiple coating formulations are used that may vary year-to-year, or potentially undergo periodic formula changes. As a result, MFA developed a worst-case TAC emissions scenario in order to demonstrate compliance with CAO permitting requirements.

MFA assessed cancer and noncancer risk using a toxicity weighted emission rate ranking methodology. A toxicity weighted emission rate was calculated for cancer risk (residential, nonresidential, and child), noncancer chronic risk (residential, nonresidential, and child) and acute risk for each coating within a given category. The coatings were ranked for each of the seven exposure types. MFA calculated a toxicity weighted emission rate for each coating using the following methodology:

- Using the calculation methodology identified in the DEQ-approved emissions inventory, MFA estimated TAC emissions for each individual coating assuming a normalized usage rate of 1 gallon.
- MFA divided the individual TAC emission rate estimated for each coating by the applicable chronic cancer, chronic noncancer, and acute noncancer risk-based concentration (RBC) from OAR 340-245-8010 Table 2. This resulted in a toxicity-weighted emission rate of the individual TAC for each exposure type in units of pound per microgram per cubic meter for each coating. The toxicity-weighted emission rates calculated for each TAC were summed together for each coating, resulting in a total toxicity-weighted emission rate for each coating and exposure type.
- As identified in the DEQ-approved emissions inventory, the coatings with the highest ranked toxicity-weighted emission rate for cancer risk, noncancer chronic risk, and noncancer acute risk were used as the basis for the worst-case scenario for the Level 3 Risk Assessment.

To estimate emissions from the worst-case scenario, emissions for the highest ranked coatings were calculated based on either the facility maximum daily or annual production rates, depending on the type of risk being assessed as presented in Tables 3-1, 3-2, and 3-3.

3.3 TIE Line

Emissions from the TIE Line are uncontrolled. There are two vertical stacks for the TIE Line, one for polymer mixing, and the other for the application area. The TIE Line exhaust stacks were represented in the dispersion model as individual point sources with model IDs TIE1 and TIE2.

3.4 Natural Gas Combustion TEUs

The specific procedures for assessing the risk of each TEU are dependent on the TEU designation per OAR 340-245-0050(4). Per OAR 340-245-0050(5), the gas combustion “exemption applies to TEUs that solely combust natural gas, propane, [or] liquefied petroleum gas.” The following TEUs represent sources of natural gas-fired combustion emissions only (shown with the corresponding dispersion model IDs in parentheses).

- Drying oven (OVEN).
- Pretreatment burners for Stage 1 and Stage 3 tanks (PTH1, PTH2).
- Air make-up units (AMUA, AMUB).
- Building heaters (C1H1, C1H2, C1H3, C1H4, C2H1, C2H2, C2H3, C2H4, C2H5).
- Natural gas combustion emissions routed through the RTO stack (RTO_NG) including:
 - the air make-up unit located in the area previously occupied by the horizontal paint line,
 - the curing oven burner, and
 - the RTO burner.

4 AIR DISPERSION MODELING METHODOLOGY

The following subsections detail the dispersion model methodology and setup, including input parameters and assumptions.

4.1 Model Selection

MFA used the model versions shown in Table 4-1 below. Lakes Environmental, a third-party overlay software, was used to execute the dispersion model.

Table 4-1. Model Selection

Model	Model Version
AERMOD	22112
AERMET	22112
AERMAP	18081
AERSURFACE	20060
AERMINUTE	15272
BPIP	04274

4.2 Meteorological Data

MFA developed the meteorological and terrain data files shown in Table 4-2 below.

Table 4-2. Meteorological and Terrain Data

Dataset	Station ID
Surface	Station ID 24229 (Portland International Airport)
Upper Air	Station ID 24232 for Salem, OR (National Oceanic and Atmospheric Administration/ Earth System Research Laboratory Radiosonde Database)
Terrain	USGS National Elevation Dataset (1/3-arc seconds with horizontal resolution of 10 meters)

4.2.1 Surface Meteorological Data

Surface meteorological data were collected from the Portland International Airport monitoring station (ID 24229) located in Portland, Oregon (Portland met station). Hourly wind speed, wind direction, cloud cover, and temperature data for the period between 2017 through 2021 were downloaded by file transfer protocol from the National Center for Environmental Information (NCEI). The Portland met station was chosen as the most representative, publicly available surface meteorological data for the facility for the following reasons:

- The Portland met station represents the closest meteorological station to the facility location with data available for download from the NCEI. The Portland met station is approximately 2.2 kilometers to the north of the facility.
- Both the Portland met station and the facility are located within close proximity to the dominant topographical feature of the area – the Columbia River.

The Portland met station is part of the National Weather Service Automated Surface Observation Systems (ASOS) network. The met station collects wind speed and wind direction, both of which are sampled once per second, with the average computed every five seconds. These data are referred to as “ASOS 1-minute.”

The Portland met station is part of the Ice-Free Winds Group within the ASOS network. Ice-Free Winds stations collect wind data, using a sonic anemometer, which has no minimum detection threshold to determine “calms.” The ASOS 1-minute data (TD-6405) for the period between 2017 through 2021 were extracted by file transfer protocol from the NCEI. These data were processed using the EPA AERMINUTE program.

4.2.2 Upper-Air Data

Upper-air meteorological data for Salem, OR (station ID 24232) were collected from the National Oceanic and Atmospheric Administration Earth System Research Laboratory Radiosonde Database in Forecast Systems Laboratory format. Upper-air meteorological data were extracted for the period between 2017 through 2021.

4.2.3 Data Processing—AERMET

The surface and upper air meteorological data were processed using the EPA AERMET program to produce five years of model-ready meteorological data for use in the AERMOD dispersion model. The adjustment to the surface frictional velocity (ADJ_U*) option was selected as part of the AERMET processing. The land use surface characteristics were processed using AERSURFACE, and AERMINUTE was used to process and incorporate the ASOS 1-minute wind data into AERMET.

When ASOS 1-minute data are used, AERMET enables a default wind speed adjustment option. This option adds 0.26 meters per second (m/s) to all wind speeds to account for wind speed truncation (in units of whole knots) applied by the ASOS quality assurance system. Per the EPA technical memorandum titled “Use of ASOS meteorological data in AERMOD dispersion modeling”¹ dated March 8, 2013, a minimum wind speed detection threshold of 0.5 m/s was used to account for the adjustment. Wind direction randomization was not selected when running AERMET because ASOS 1-minute data increase the precision of wind direction measurements and, unlike non-ASOS data, are rounded to the nearest ten whole degrees.

After executing AERMET for each calendar year, the surface and profile files were combined to create a complete 5-year meteorological dataset for use in the dispersion model. An analysis of the data completeness for the meteorological dataset was performed by MFA using the QA feature available in the Lakes Environmental software. As shown in Table 4-3, the surface and profile files produced by AERMET are more than 90 percent complete for each calendar quarter in the meteorological dataset.

A wind rose for the meteorological dataset described above is presented in Figure 4-1. The wind direction for this meteorological dataset is predominantly northwest to southeast bimodal distribution which is consistent with the orientation of the Columbia River at this location.

4.3 AERSURFACE Land Use

AERSURFACE was used to generate seasonal values for albedo, Bowen ratio, and surface roughness heights. State of Oregon National Land Cover Dataset land cover class definitions, along with concurrent percent impervious surface and percent tree canopy data were downloaded from the U.S. Geological Survey and processed using the AERSURFACE land-use tool to generate the surface characteristics necessary to run AERMET. The land use data were processed in AERSURFACE, using the settings described in Table 4-4.

Surface moisture conditions were determined following the methodology set forth in the AERSURFACE User’s Guide dated January 16, 2013 (AERSURFACE User’s Guide). Section 2.2 of the AERSURFACE User’s Guide states: “the surface moisture condition can be determined by comparing precipitation for the period of data to be processed to the 30-year climatological record, selecting “wet” conditions if precipitation is in the upper 30th-percentile, “dry” conditions if

¹ https://www3.epa.gov/ttn/scram/guidance/clarification/20130308_Met_Data_Clarification.pdf

precipitation is in the lower 30th-percentile, and “average” conditions if precipitation is in the middle 40th-percentile.”

As shown in Table 4-5, the average annual precipitation varied between the lower 30th percentile to greater than the 70th percentile of the 30-year climatological record. To account for this variability, AERSURFACE was executed for each year using the corresponding surface moisture condition associated with that year’s annual rainfall.

MFA executed the dispersion model using urban dispersion coefficients. To make this determination, MFA followed the land use procedure, as recommended by EPA’s “Guideline on Air Quality Models”², to conclude that 62.7 percent of the land use within a 3-kilometer radius about the facility is represented by the urban land use type. MFA used a population of 641,162 for the urban source group within AERMOD. This value was provided by letter from the DEQ dated January 30, 2023, and is based on the 2021 US Census count within the City of Portland, Oregon.

4.4 Building Downwash and TEU Locations

The most recent version of the EPA Building Profile Input Program for PRIME was used to execute the dispersion model as shown in Table 4-1. The locations of structures that influence downwash and each TEU location are presented in Figure 4-2 and Figure 4-3. Table 4-6 presents the heights of each downwash structure.

4.5 Receptor Locations and Terrain

Receptors were defined consistent with Section 2.4 of the DEQ’s guidance document (DEQ Recommended Procedures) as shown in Table 4-7 below. Figure 4-4 presents the receptor spacing and locations within the modeling domain. Figure 4-5 presents the receptor locations in the area immediately surrounding the facility.

² Appendix W to Part 51 – “Guideline on Air Quality Models”. See Section 7.2.1.1(b)(i).

Table 4-7. Receptor Locations

Receptor Spacing (meters)	Receptor Distance (meters)
25	Along the property boundary and out to at least 200 meters from the property boundary
50	200 to 1,000
100	1,000 to 2,000
200	2,000 to 5,000
500	5,000 to 10,000

Terrain elevations for model receptors, TEUs, and downwash structures were derived from U.S. Geological Survey National Elevation Dataset data at a resolution of 1/3 arc-seconds (a horizontal resolution of roughly 10 meters) and processed using the current version of AERMAP.

4.5.1 Sensitive Receptor

MFA identified a location considered to be a “sensitive receptor” (e.g., schools, daycares, or medical facilities) within approximately 1 kilometer of the facility property boundary as shown in Table 4-8. The identified sensitive receptor falls within the 50-meter spaced receptor grid.

Table 4-8. Identification of Sensitive Exposure Location

UTM Coordinates (m)		Sensitive Area
Easting	Northing	
530446.87	5046424.88	NAYA Early College Academy

4.6 Unit Emission Rates

Each TEU included in the dispersion model was modeled using a unit emission rate equivalent to 1 g/s for all modeled source types to predict dispersion factors for each TEU in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) per g/s. Results of the unit emission rate modeling for each TEU were used to derive the predicted concentration for each TAC emitted from a given TEU. Multiplying the dispersion factor (in $\mu\text{g}/\text{m}^3$ per g/s) by the TAC emission rate for the modeled TEU (in g/s) results in the predicted model concentration of the TAC (in $\mu\text{g}/\text{m}^3$).

MFA executed the dispersion model using unit emission rates for each TEU for both the annual and daily (e.g., 24-hour) averaging periods. The resulting dispersion factors, in combination with the TAC emission rates for each TEU in g/s and the RBCs in $\mu\text{g}/\text{m}^3$ set forth under OAR 340-245-8010 Table 2, were used to conduct the Level 3 Risk Assessment.

5 RISK ASSESSMENT METHODOLOGY

5.1 Land-Use Zoning Classification Data for Determining Exposure Types

MFA reviewed the Department of Land Conservation and Development's statewide zoning data to determine land-use classifications for areas within the modeling domain. The statewide zoning classifications provide the basis for the initial categorization of exposure classifications (i.e., residential, nonresidential worker, nonresidential child, or acute), as shown in Table 5-1. School locations were obtained from the Oregon Department of Human Services and the Oregon Health Authority.

MFA reviewed aerial imagery via Esri ArcGIS and Google Earth software to determine whether the existing zoning information reflects actual land-use and the corresponding exposure type categorization. Exposure locations falling within the state of Washington were not included in the Level 3 Risk Assessment as these exposure locations fall under the jurisdiction of a different state department and permitting program per OAR 340-245-0010(1).

The zoning data and internal MFA review process indicate that multiple locations fall within roadway and/or rail rights-of-way interstitial spaces as shown in blue in Figures 4-4 and 4-5. These locations were included in the dispersion model to maintain a uniform receptor grid. MFA did not conduct risk evaluations for any receptor locations in the Columbia Slough, roadways or rail rights-of-way inside the 50-m receptor grid. These locations are labeled as "Risk Not Assessed" in the crosswalk-of-receptors which is being provided to the DEQ in spreadsheet format due to the number of receptor locations.

Figure 5-1 presents the existing land-use zoning in the modeling domain, and Figure 5-2 presents existing land-use zoning for the area immediately surrounding the facility. Figure 5-3 and Figure 5-4 present the corresponding exposure location categorization for the modeling domain and the immediate area surrounding the facility, respectively.

5.2 Exposure Pathways

As stated in the risk assessment work plan, predicted cancer and noncancer risk from facility TEUs do not have additional exposure pathways (e.g., ingestion or dermal uptake) other than those already accounted for in each published RBC.

5.3 Risk-Based Concentrations

Excess cancer risk and chronic and acute noncancer risk were assessed using the established RBCs set forth in OAR 340-245-8010 Table 2. The RBCs used for the Level 3 Risk Assessment are presented in Table 5-3.

5.4 Risk Estimates

As mentioned in Section 4.6, MFA executed the dispersion model using unit emission rates (equivalent to 1 g/s) for each TEU, for the annual and daily (i.e., 24-hours) averaging periods. The unit emission rate model produces the dispersion factor, with units of ug/m³ per g/s, at each exposure location for each modeled TEU and averaging period. Risk estimates were calculated for each modeled TEU by multiplying the dispersion factor at a given location by the individual TAC emission rate in units of g/s, then dividing by the appropriate RBC. The resulting risk estimate for each TAC was summed for each modeled TEU. The total predicted risk at each TEU was then summed at each exposure location to calculate the cumulative predicted excess cancer risk, chronic noncancer hazard index, and acute noncancer hazard index for the facility.

5.4.1 Example Calculation—Level 3 Risk Assessment

Example calculations for estimating excess cancer risk and noncancer hazard index (chronic and acute) for a single exposure location are presented in Equations 1 through 3 to satisfy the requirements set forth under OAR 340-245-0210(2)(c).

Equation 1.

$$\text{Excess cancer risk (chances-in-a-million)} = \Sigma \frac{(\text{TAC annual emission rate [g/s]} \times (\text{TEU dispersion factor } [\frac{\text{ug/m}^3}{\text{g/s}}]))}{(\text{applicable RBC at exposure location [ug/m}^3\text{]})}$$

Equation 2.

$$\text{Chronic noncancer hazard index} = \Sigma \frac{(\text{TAC annual emission rate [g/s]} \times (\text{TEU dispersion factor } [\frac{\text{ug/m}^3}{\text{g/s}}]))}{(\text{applicable RBC at exposure location [ug/m}^3\text{]})}$$

Equation 3.

$$\text{Acute noncancer hazard index} = \Sigma \frac{(\text{TAC daily emission rate [g/s]} \times (\text{TEU dispersion factor } [\frac{\text{ug/m}^3}{\text{g/s}}]))}{(\text{applicable RBC at exposure location [ug/m}^3\text{]})}$$

The cumulative facility excess cancer risk and chronic and acute noncancer hazard index was derived by summing each individual TAC risk contribution at each exposure location for each applicable TEU.

6 RISK ASSESSMENT RESULT SUMMARY

MFA determined the total predicted excess cancer risk and chronic and acute noncancer risk (expressed numerically as the chronic and acute noncancer hazard index) at each modeled exposure location following the applicable requirements set forth in OAR 340-245-0050(1) for the Level 3 Risk Assessment. Significant TEUs and gas combustion TEUs were evaluated separately consistent with

OAR 340-245-0050(5). Excess cancer risk, and chronic and acute noncancer hazard index calculation methodologies are discussed in detail in Section 5.

The modeled dispersion factors at the locations of maximum predicted risk for each modeled TEU and exposure scenario are presented in Table 6-1. A summary of the Level 3 Risk Assessment results are presented in Table 6-2 below, which references the supporting calculation tables presenting TAC emission rates, modeled dispersion factors, and applicable RBCs for each risk or hazard index estimate. Table 6-2 presents the results of the Level 3 Risk Assessments rounded to the required number of significant figures per OAR 340-245-0200(4).

Table 6-2. Level 3 Risk Assessment Result Summary

Exposure Assessment/Scenario	Maximum Predicted Result	Calculation Table Reference
Significant TEUs		
Excess Cancer Risk (Residential)	4 chances-in-one-million	Table 6-3
Chronic Noncancer Hazard Index (Worker)	2	Table 6-4
Acute Noncancer Hazard Index	0.6	Table 6-4
Gas Combustion TEUs		
Excess Cancer Risk (Residential)	0.3 chances-in-one-million	Table 6-5
Chronic Noncancer Hazard Index (Residential)	<0.1	Table 6-6
Acute Noncancer Hazard Index	0.1	Table 6-6
Note < = less than.		

The Level 3 Risk Assessment was performed consistent with the CAO rules in effect on the date of issuance of this report.

6.1 Excess Cancer Risk

The maximum predicted excess cancer risk for significant TEUs is 4 additional chances of developing cancer in a population of 1,000,000 people (chances-in-one-million) as shown in Table 6-3. The maximum predicted excess cancer risk for gas combustion TEUs is 0.3 chances-in-one-million as shown in Table 6-5.

6.2 Chronic Noncancer Hazard Index

The maximum predicted chronic noncancer hazard index for significant TEUs is 2 as shown in Table 6-4. The maximum predicted chronic noncancer hazard index for gas combustion TEUs is less than 0.1 as shown in Table 6-6.

The maximum predicted chronic noncancer hazard index for significant TEUs is above the community engagement RAL, but below the TBACT RAL. This represents the highest applicable RAL from the Level 3 Risk Assessments. Therefore, the facility will comply with the community engagement requirements set forth under OAR 340-245-0120.

6.3 Acute Noncancer Hazard Index

The maximum predicted acute noncancer hazard index for significant TEUs is 0.6 as shown in Table 6-4. The maximum predicted acute noncancer hazard index for gas combustion TEUs is 0.1 as shown in Table 6-6.

6.4 Uncertainty Analysis

Although the Level 3 Risk Assessment was conducted using the most accurate and current information, there are various levels of uncertainty associated with the risk assessment. Per OAR 340-245-0210(2)(d), known quantitative and qualitative uncertainties with the Level 3 Risk Assessment include, but may not be limited to, the following:

Acute Assessments:

- To assess acute noncancer risk, the full 24-hour exposure duration was assumed. Acute exposure can occur anywhere from one to 24 hours. Although this risk assessment assumed 24 hours of exposure, it is very unlikely that any individual would be exposed for a full 24 hours outside of a residential location. However, if the toxicity reference value is based on data collected for a lower exposure duration than the 24-hour exposure duration, the estimated risk may differ. Therefore, for TACs with RBCs that were developed using toxicity reference values based on longer exposure durations, the Level 3 Risk Assessment may overestimate acute noncancer risk due to the 24-hour exposure duration assumption.
- The Level 3 Risk Assessment was conducted assuming each TEU at the facility is operating at maximum design capacity for 24 hours. It is highly unlikely that all TEUs at the facility will simultaneously operate at their maximum capacity for a 24-hour period. Therefore, the Level 3 Risk Assessment likely overestimates acute noncancer risk due to unrealistic operating conditions.
- The Level 3 Risk Assessment includes meteorological conditions which may only occur a few days or less in a one-year period that can result in worst-case dispersion characteristics. It is unlikely that these infrequent meteorological conditions would occur at the same time that the facility will be operating all TEUs at maximum capacity. Therefore, the Level 3 Risk Assessment likely overestimates acute noncancer risk because of the improbability of facility operations at maximum capacity aligning with worst-case meteorological conditions.
- Dispersion modeling was used to determine the daily dispersion factors per exposure location for use in risk estimate calculations. This method determines, for each TEU, a single day within the five-year period of hourly meteorological data, during which the highest predicted

concentration occurs at each exposure location. It is highly unlikely that the maximum predicted concentration at a given exposure location occurs on the same day for all TEUs at the facility. For example, the highest predicted concentration for the RTO may occur at exposure location “X” on March 1, while, due to differences in location, release characteristics (i.e., stack height, velocity, etc.), and meteorological variation, the highest predicted concentration for the TIE Line may occur at exposure location “X” on December 1. The maximum predicted concentrations are not paired-in-time such that maximum predicted concentrations per TEU may occur on different days within the meteorological dataset. Therefore, the Level 3 Risk Assessment likely overestimates acute noncancer risk because it is unlikely that the highest predicted concentration from each TEU occurs at every exposure location on the same day.

Cancer and Chronic Noncancer Assessments:

- The RBCs developed by the DEQ for excess cancer risk and chronic noncancer risk assume a 70-year exposure duration for 24 hours per day. It is unlikely that a person would remain at the same residence or in areas potentially impacted by emissions covered by the CAO program for 70 consecutive years for 24 hours per day. The risk assessment also accounts for a person being exposed to the local facility emission rate for the entire exposure duration. Therefore, the Level 3 Risk Assessment overestimates cancer and chronic noncancer risk due to the unrealistic exposure duration assumption.

All Assessments:

- Only excess cancer risk and chronic and acute noncancer hazard index from TACs that have RBCs published by the DEQ were assessed. Table 6-7 (attached) presents a list of the TACs emitted from the facility TEUs that do not have RBCs published by the DEQ. As a result, the Level 3 Risk Assessment may not accurately assess cancer and/or noncancer risk associated with those TACs that do not yet have an associated RBC. However, the development of RBCs generally has a level of conservatism that likely overestimates cancer and/or noncancer risk from TACs with known RBCs.

7 CLOSING

MFA looks forward to working with the DEQ throughout the CAO permit application process. If there are any questions or comments regarding this report, please contact Leslie Riley at (971) 570-5319.

LIMITATIONS

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TABLES



Table 3–1
Significant Toxic Emission Units Emission Rates—Cancer Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	RBC? (Yes/No)	Annual Emission Estimates											
			Vertical Paint Line		Pretreatment				TIE Line				Total	
			(lb/yr) ⁽¹⁾	(g/s) ^(a)	Total (lb/yr) ⁽¹⁾	Total (g/s) ^(a)	(g/s) ^(b)	(g/s) ^(b)	Total (lb/yr) ⁽¹⁾	Total (g/s) ^(a)	(g/s) ^(b)	(g/s) ^(b)	(lb/yr)	(g/s)
Model ID			RTO		--		VPT1	VPT2	--		TIE1	TIE2	--	
Emissions Fraction Estimate ⁽²⁾			--		--		0.50	0.50	--		0.50	0.50	--	
ORGANIC COMPOUNDS														
2-Butanone (Methyl ethyl ketone)	78-93-3	Yes	237	3.4E-03	--	--	--	--	--	--	--	--	237	3.4E-03
Benzene	71-43-2	Yes	0.066	9.5E-07	--	--	--	--	--	--	--	--	0.066	9.5E-07
Cumene	98-82-8	Yes	12.8	1.8E-04	--	--	--	--	--	--	--	--	12.8	1.8E-04
Ethylbenzene	100-41-4	Yes	723	0.010	--	--	--	--	--	--	--	--	723	0.010
Formaldehyde	50-00-0	Yes	1.46	2.1E-05	--	--	--	--	--	--	--	--	1.46	2.1E-05
Isopropyl acohol	67-63-0	Yes	--	--	2,546	0.037	0.018	0.018	--	--	--	--	2,546	0.037
Methylene diphenyl diisocyanate (MDI)	101-68-8	Yes	--	--	--	--	--	--	0.013	1.9E-07	9.5E-08	9.5E-08	0.013	1.9E-07
n-Butyl alcohol	71-36-3	No	46.6	6.7E-04	--	--	--	--	--	--	--	--	46.6	6.7E-04
Naphthalene	91-20-3	Yes	559	8.0E-03	--	--	--	--	--	--	--	--	559	8.0E-03
Toluene	108-88-3	Yes	2,962	0.043	--	--	--	--	--	--	--	--	2,962	0.043
1,2,3-Trimethylbenzene	526-73-8	Yes	24.0	3.5E-04	--	--	--	--	--	--	--	--	24.0	3.5E-04
1,2,4-Trimethylbenzene	95-63-6	Yes	175	2.5E-03	--	--	--	--	--	--	--	--	175	2.5E-03
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	Yes	3,341	0.048	--	--	--	--	--	--	--	--	3,341	0.048
METALS														
Barium and Compounds	7440-39-3	No	0.63	9.1E-06	--	--	--	--	--	--	--	--	0.63	9.1E-06
Chromium VI, chromate and dichromate particulate	18540-29-9	Yes	5.59	8.0E-05	--	--	--	--	--	--	--	--	5.59	8.0E-05
Chromium VI, chromic acid aerosol mist	7738-94-5	Yes	--	--	0.19	2.7E-06	1.4E-06	1.4E-06	--	--	--	--	0.19	2.7E-06
INORGANIC COMPOUNDS														
Hydrogen Fluoride	7664-39-3	Yes	--	--	2.12	3.1E-05	1.5E-05	1.5E-05	--	--	--	--	2.12	3.1E-05

Table 3–1
Significant Toxic Emission Units Emission Rates—Cancer Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	RBC? (Yes/No)	Annual Emission Estimates											
			Vertical Paint Line		Pretreatment				TIE Line				Total	
			(lb/yr) ⁽¹⁾	(g/s) ^(a)	Total (lb/yr) ⁽¹⁾	Total (g/s) ^(a)	(g/s) ^(b)	(g/s) ^(b)	Total (lb/yr) ⁽¹⁾	Total (g/s) ^(a)	(g/s) ^(b)	(g/s) ^(b)	(lb/yr)	(g/s)
Model ID			RTO		--		VPT1	VPT2	--		TIE1	TIE2	--	
Emissions Fraction Estimate ⁽²⁾			--		--		0.50	0.50	--		0.50	0.50	--	
GLYCOL/ETHERS														
Propylene glycol monomethyl ether acetate	108-65-6	No	603	8.7E-03	--	--	--	--	--	--	--	--	603	8.7E-03
Ethylene glycol monobutyl ether	111-76-2	Yes	1,240	0.018	--	--	--	--	--	--	--	--	1,240	0.018
Diethylene glycol monobutyl ether	112-34-5	Yes	1,733	0.025	--	--	--	--	--	--	--	--	1,733	0.025

NOTES:

- RBC = risk-based concentration.
- TIE = thermally improved extrusion.
- lb/yr = pound per year.
- g/s = gram per second.
- ^(a) Emission rate (g/s) = (annual emissions estimate [lb/yr]) x (453.592 g/lb) x (yr/8,760 hrs) x (hr/3,600 s)
- ^(b) Emission rate (g/s) = (total emission rate [g/s]) x (emissions fraction estimate)

REFERENCES:

- ⁽¹⁾ Emissions estimate obtained from revised emissions inventory submitted May 30, 2023.
- ⁽²⁾ Emissions fraction equally apportioned between ventilation points based on general orientation of the ventilation point in relation to the emission source.

Table 3–2
Significant Toxic Emission Units Emission Rates—Chronic Noncancer Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	RBC? (Yes/No)	Annual Emission Estimates											
			Vertical Paint Line		Pretreatment				TIE Line				Total	
			(lb/yr) ⁽¹⁾	(g/s) ^(a)	Total (lb/yr) ⁽¹⁾	Total (g/s) ^(a)	(g/s) ^(b)	(g/s) ^(b)	Total (lb/yr) ⁽¹⁾	Total (g/s) ^(a)	(g/s) ^(b)	(g/s) ^(b)	(lb/yr)	(g/s)
Model ID			RTO		--		VPT1	VPT2	--		TIE1	TIE2	--	
Emissions Fraction Estimate ⁽²⁾			--		--		0.50	0.50	--		0.50	0.50	--	
ORGANIC COMPOUNDS														
2-Butanone (Methyl ethyl ketone)	78-93-3	Yes	237	3.4E-03	--	--	--	--	--	--	--	--	237	3.4E-03
Benzene	71-43-2	Yes	0.066	9.5E-07	--	--	--	--	--	--	--	--	0.066	9.5E-07
Cumene	98-82-8	Yes	4.87	7.0E-05	--	--	--	--	--	--	--	--	4.87	7.0E-05
Dimethyl phthalate	131-11-3	No	1,768	0.025	--	--	--	--	--	--	--	--	1,768	0.025
Ethylbenzene	100-41-4	Yes	651	9.4E-03	--	--	--	--	--	--	--	--	651	9.4E-03
Formaldehyde	50-00-0	Yes	0.012	1.7E-07	--	--	--	--	--	--	--	--	0.012	1.7E-07
Isopropyl acohol	67-63-0	Yes	--	--	2,546	0.037	0.018	0.018	--	--	--	--	2,546	0.037
Methylene diphenyl diisocyanate (MDI)	101-68-8	Yes	--	--	--	--	--	--	0.013	1.9E-07	9.5E-08	9.5E-08	0.013	1.9E-07
Naphthalene	91-20-3	Yes	26.4	3.8E-04	--	--	--	--	--	--	--	--	26.4	3.8E-04
Toluene	108-88-3	Yes	4,628	0.067	--	--	--	--	--	--	--	--	4,628	0.067
1,2,3-Trimethylbenzene	526-73-8	Yes	72.7	1.0E-03	--	--	--	--	--	--	--	--	72.7	1.0E-03
1,2,4-Trimethylbenzene	95-63-6	Yes	446	6.4E-03	--	--	--	--	--	--	--	--	446	6.4E-03
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	Yes	3,063	0.044	--	--	--	--	--	--	--	--	3,063	0.044
METALS														
Chromium VI, chromate and dichromate particulate	18540-29-9	Yes	1.12	1.6E-05	--	--	--	--	--	--	--	--	1.12	1.6E-05
Chromium VI, chromic acid aerosol mist	7738-94-5	Yes	--	--	0.19	2.7E-06	1.4E-06	1.4E-06	--	--	--	--	0.19	2.7E-06
INORGANIC COMPOUNDS														
Ethene, 1,1-difluoro-, homopolymer	489	No	454	6.5E-03	--	--	--	--	--	--	--	--	454	6.5E-03
Hydrogen Fluoride	7664-39-3	Yes	--	--	2.12	3.1E-05	1.5E-05	1.5E-05	--	--	--	--	2.12	3.1E-05
GLYCOL/ETHERS														
Propylene glycol monomethyl ether acetate	108-65-6	No	871	0.013	--	--	--	--	--	--	--	--	871	0.013
Diethylene glycol monobutyl ether	112-34-5	Yes	4,663	0.067	--	--	--	--	--	--	--	--	4,663	0.067

Table 3–2
Significant Toxic Emission Units Emission Rates—Chronic Noncancer Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

NOTES:

- RBC = risk-based concentration.
- TIE = thermally improved extrusion.
- lb/yr = pound per year.
- g/s = gram per second.
- ^(a) Emission rate (g/s) = (annual emissions estimate [lb/yr]) x (453.592 g/lb) x (yr/8,760 hrs) x (hr/3,600 s)
- ^(b) Emission rate (g/s) = (total emission rate [g/s]) x (emissions fraction estimate)

REFERENCES:

- ⁽¹⁾ Emissions estimate obtained from revised emissions inventory submitted May 30, 2023.
- ⁽²⁾ Emissions fraction equally apportioned between ventilation points based on general orientation of the ventilation point in relation to the emission source.

Table 3–3
Significant Toxic Emission Units Emission Rates—Acute Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	RBC? (Yes/No)	Daily Emission Estimates															
			Vertical Paint Line		Pretreatment				TIE Line				Total					
			(lb/day) (1)	(g/s) ^(a)	Total (lb/day) (1)	Total (g/s) ^(a)	(g/s) ^(a)	(g/s) ^(a)	Total (lb/day) (1)	Total (g/s) ^(a)	(g/s) ^(a)	(g/s) ^(a)	(lb/yr)	(g/s)				
Model ID			RTO		--		VPT1		VPT2		--		TIE1		TIE2		--	
Emissions Fraction Estimate ⁽²⁾			--		--		0.50		0.50		--		0.50		0.50		--	
ORGANIC COMPOUNDS																		
2-Butanone (Methyl ethyl ketone)	78-93-3	Yes	27.2	0.14	--	--	--	--	--	--	--	--	--	27.2	0.14			
Benzene	71-43-2	Yes	1.1E-03	5.8E-06	--	--	--	--	--	--	--	--	--	1.1E-03	5.8E-06			
Cumene	98-82-8	Yes	0.28	1.5E-03	--	--	--	--	--	--	--	--	--	0.28	1.5E-03			
Dimethyl phthalate	131-11-3	No	20.4	0.11	--	--	--	--	--	--	--	--	--	20.4	0.11			
Ethylbenzene	100-41-4	Yes	8.51	0.045	--	--	--	--	--	--	--	--	--	8.51	0.045			
Isopropyl alcohol	67-63-0	Yes	--	--	8.73	0.046	0.023	0.023	--	--	--	--	--	8.73	0.046			
Methylene diphenyl diisocyanate (MDI)	101-68-8	Yes	--	--	--	--	--	--	7.5E-05	3.9E-07	2.0E-07	2.0E-07	--	7.5E-05	3.9E-07			
n-Butyl alcohol	71-36-3	No	1.01	5.3E-03	--	--	--	--	--	--	--	--	--	1.01	5.3E-03			
Naphthalene	91-20-3	Yes	1.00	5.2E-03	--	--	--	--	--	--	--	--	--	1.00	5.2E-03			
Toluene	108-88-3	Yes	356	1.87	--	--	--	--	--	--	--	--	--	356	1.87			
1,2,3-Trimethylbenzene	526-73-8	Yes	0.91	4.8E-03	--	--	--	--	--	--	--	--	--	0.91	4.8E-03			
1,2,4-Trimethylbenzene	95-63-6	Yes	9.24	0.049	--	--	--	--	--	--	--	--	--	9.24	0.049			
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	Yes	64.3	0.34	--	--	--	--	--	--	--	--	--	64.3	0.34			
METALS																		
Antimony and Compounds	7440-36-0	Yes	0.88	4.6E-03	--	--	--	--	--	--	--	--	--	0.88	4.6E-03			
Barium and Compounds	7440-39-3	No	0.014	7.3E-05	--	--	--	--	--	--	--	--	--	0.014	7.3E-05			
Chromium VI, chromate and dichromate particulate	18540-29-9	Yes	0.12	6.3E-04	--	--	--	--	--	--	--	--	--	0.12	6.3E-04			
Chromium VI, chromic acid aerosol mist	7738-94-5	Yes	--	--	5.2E-04	2.7E-06	1.4E-06	1.4E-06	--	--	--	--	--	5.2E-04	2.7E-06			
Cobalt and Compounds	7440-48-4	Yes	0.024	1.3E-04	--	--	--	--	--	--	--	--	--	0.024	1.3E-04			
INORGANIC COMPOUNDS																		
Ethene, 1,1-difluoro-, homopolymer	489	No	5.60	0.029	--	--	--	--	--	--	--	--	--	5.60	0.029			
Hydrogen Fluoride	7664-39-3	Yes	--	--	5.8E-03	3.1E-05	1.5E-05	1.5E-05	--	--	--	--	--	5.8E-03	3.1E-05			

Table 3–3
Significant Toxic Emission Units Emission Rates—Acute Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	RBC? (Yes/No)	Daily Emission Estimates											
			Vertical Paint Line		Pretreatment				TIE Line				Total	
			(lb/day) (1)	(g/s) (a)	Total (lb/day) (1)	Total (g/s) (a)	(g/s) (a)	(g/s) (a)	Total (lb/day) (1)	Total (g/s) (a)	(g/s) (a)	(g/s) (a)	(lb/yr)	(g/s)
Model ID			RTO		--		VPT1	VPT2	--		TIE1	TIE2	--	
Emissions Fraction Estimate ⁽²⁾			--		--		0.50	0.50	--		0.50	0.50	--	
GLYCOL/ETHERS														
Propylene glycol monomethyl ether acetate	108-65-6	No	21.9	0.12	--	--	--	--	--	--	--	--	21.9	0.12
Ethylene glycol monobutyl ether	111-76-2	Yes	3.79	0.020	--	--	--	--	--	--	--	--	3.79	0.020
Diethylene glycol monobutyl ether	112-34-5	Yes	37.8	0.20	--	--	--	--	--	--	--	--	37.8	0.20

NOTES:

RBC = risk-based concentration.

TIE = thermally improved extrusion.

lb/yr = pound per year.

g/s = gram per second.

^(a) Emission rate (g/s) = (daily emissions estimate [lb/day]) x (453.592 g/lb) x (day/24 hrs) x (hr/3,600 s)

^(b) Emission rate (g/s) = (total emission rate [g/s]) x (emissions fraction estimate)

REFERENCES:

⁽¹⁾ Emissions estimate obtained from revised emissions inventory submitted May 30, 2023.

⁽²⁾ Emissions fraction equally apportioned between ventilation points based on general orientation of the ventilation point in relation to the emission source.

Table 3–4
Natural Gas Toxic Emission Units Annual Emission Rates
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	RBC? (Yes/No)	Annual Emission Estimates																	
			Natural Gas																	
			Total (lb/yr) ⁽¹⁾	Total (g/s) ^(a)	(g/s) ^(b)	(g/s) ^(b)	(g/s) ^(b)	(g/s) ^(b)	(g/s) ^(b)	(g/s) ^(b)	(g/s) ^(b)	(g/s) ^(b)	(g/s) ^(b)	(g/s) ^(b)	(g/s) ^(b)	(g/s) ^(b)	(g/s) ^(b)	(g/s) ^(b)	(g/s) ^(b)	
Model ID			OVEN			PTH1	PTH2	AMUA	AMUB	C1H1	C1H2	C1H3	C1H4	C2H1	C2H2	C2H3	C2H4	C2H5	RTO	
Total Heat Input Rating for Sources Apportioned to Each Ventilation Point (MMBtu/hr) ⁽²⁾			4.50			5.00	3.80	0.70	0.70	0.15	0.15	0.15	0.15	0.25	0.25	0.25	0.20	0.20	9.74	
Emissions Fraction Estimate ^(c)			0.172			0.191	0.145	0.0267	0.0267	5.727E-03	5.727E-03	5.727E-03	5.727E-03	9.546E-03	9.546E-03	9.546E-03	7.637E-03	7.637E-03	0.372	
ORGANIC COMPOUNDS																				
Acetaldehyde	75-07-0	Yes	0.97	1.4E-05	2.4E-06	2.7E-06	2.0E-06	3.7E-07	3.7E-07	8.0E-08	8.0E-08	8.0E-08	8.0E-08	1.3E-07	1.3E-07	1.3E-07	1.1E-07	1.1E-07	5.2E-06	
Acrolein	107-02-8	Yes	0.61	8.7E-06	1.5E-06	1.7E-06	1.3E-06	2.3E-07	2.3E-07	5.0E-08	5.0E-08	5.0E-08	5.0E-08	8.3E-08	8.3E-08	8.3E-08	6.7E-08	6.7E-08	3.2E-06	
Ammonia	7664-41-7	Yes	720	0.010	1.8E-03	2.0E-03	1.5E-03	2.8E-04	2.8E-04	5.9E-05	5.9E-05	5.9E-05	5.9E-05	9.9E-05	9.9E-05	9.9E-05	7.9E-05	7.9E-05	3.8E-03	
Benzene	71-43-2	Yes	1.80	2.6E-05	4.4E-06	4.9E-06	3.8E-06	6.9E-07	6.9E-07	1.5E-07	1.5E-07	1.5E-07	1.5E-07	2.5E-07	2.5E-07	2.5E-07	2.0E-07	2.0E-07	9.6E-06	
Benzo(a)pyrene	50-32-8	Yes	2.7E-04	3.9E-09	6.7E-10	7.4E-10	5.6E-10	1.0E-10	1.0E-10	2.2E-11	2.2E-11	2.2E-11	2.2E-11	3.7E-11	3.7E-11	3.7E-11	3.0E-11	3.0E-11	1.4E-09	
Ethylbenzene	100-41-4	Yes	2.14	3.1E-05	5.3E-06	5.9E-06	4.5E-06	8.2E-07	8.2E-07	1.8E-07	1.8E-07	1.8E-07	1.8E-07	2.9E-07	2.9E-07	2.9E-07	2.3E-07	2.3E-07	1.1E-05	
Formaldehyde	50-00-0	Yes	3.82	5.5E-05	9.4E-06	1.0E-05	8.0E-06	1.5E-06	1.5E-06	3.1E-07	3.1E-07	3.1E-07	3.1E-07	5.2E-07	5.2E-07	5.2E-07	4.2E-07	4.2E-07	2.0E-05	
Hexane	110-54-3	Yes	1.42	2.0E-05	3.5E-06	3.9E-06	3.0E-06	5.4E-07	5.4E-07	1.2E-07	1.2E-07	1.2E-07	1.2E-07	1.9E-07	1.9E-07	1.9E-07	1.6E-07	1.6E-07	7.6E-06	
Naphthalene	91-20-3	Yes	0.067	9.7E-07	1.7E-07	1.9E-07	1.4E-07	2.6E-08	2.6E-08	5.6E-09	5.6E-09	5.6E-09	5.6E-09	9.3E-09	9.3E-09	9.3E-09	7.4E-09	7.4E-09	3.6E-07	
Polycyclic Aromatic Hydrocarbons	401	Yes	0.022	3.2E-07	5.6E-08	6.2E-08	4.7E-08	8.6E-09	8.6E-09	1.9E-09	1.9E-09	1.9E-09	1.9E-09	3.1E-09	3.1E-09	3.1E-09	2.5E-09	2.5E-09	1.2E-07	
Toluene	108-88-3	Yes	8.23	1.2E-04	2.0E-05	2.3E-05	1.7E-05	3.2E-06	3.2E-06	6.8E-07	6.8E-07	6.8E-07	6.8E-07	1.1E-06	1.1E-06	1.1E-06	9.0E-07	9.0E-07	4.4E-05	
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	Yes	6.12	8.8E-05	1.5E-05	1.7E-05	1.3E-05	2.4E-06	2.4E-06	5.0E-07	5.0E-07	5.0E-07	5.0E-07	8.4E-07	8.4E-07	8.4E-07	6.7E-07	6.7E-07	3.3E-05	
METALS																				
Arsenic and Compounds	7440-38-2	Yes	0.045	6.5E-07	1.1E-07	1.2E-07	9.4E-08	1.7E-08	1.7E-08	3.7E-09	3.7E-09	3.7E-09	3.7E-09	6.2E-09	6.2E-09	6.2E-09	4.9E-09	4.9E-09	2.4E-07	
Barium and Compounds	7440-39-3	No	0.99	1.4E-05	2.4E-06	2.7E-06	2.1E-06	3.8E-07	3.8E-07	8.2E-08	8.2E-08	8.2E-08	8.2E-08	1.4E-07	1.4E-07	1.4E-07	1.1E-07	1.1E-07	5.3E-06	
Beryllium and Compounds	7440-41-7	Yes	2.7E-03	3.9E-08	6.7E-09	7.4E-09	5.6E-09	1.0E-09	1.0E-09	2.2E-10	2.2E-10	2.2E-10	2.2E-10	3.7E-10	3.7E-10	3.7E-10	3.0E-10	3.0E-10	1.4E-08	
Cadmium and Compounds	7440-43-9	Yes	0.25	3.6E-06	6.1E-07	6.8E-07	5.2E-07	9.5E-08	9.5E-08	2.0E-08	2.0E-08	2.0E-08	2.0E-08	3.4E-08	3.4E-08	3.4E-08	2.7E-08	2.7E-08	1.3E-06	
Chromium VI, particulate	18540-29-9	Yes	0.013	1.8E-07	3.1E-08	3.5E-08	2.6E-08	4.8E-09	4.8E-09	1.0E-09	1.0E-09	1.0E-09	1.0E-09	1.7E-09	1.7E-09	1.7E-09	1.4E-09	1.4E-09	6.7E-08	
Cobalt and Compounds	7440-48-4	Yes	0.019	2.7E-07	4.7E-08	5.2E-08	3.9E-08	7.3E-09	7.3E-09	1.6E-09	1.6E-09	1.6E-09	1.6E-09	2.6E-09	2.6E-09	2.6E-09	2.1E-09	2.1E-09	1.0E-07	
Copper and Compounds	7440-50-8	Yes	0.19	2.7E-06	4.7E-07	5.2E-07	4.0E-07	7.3E-08	7.3E-08	1.6E-08	1.6E-08	1.6E-08	1.6E-08	2.6E-08	2.6E-08	2.6E-08	2.1E-08	2.1E-08	1.0E-06	
Lead and Compounds	7439-92-1	Yes	0.11	1.6E-06	2.8E-07	3.1E-07	2.3E-07	4.3E-08	4.3E-08	9.3E-09	9.3E-09	9.3E-09	9.3E-09	1.5E-08	1.5E-08	1.5E-08	1.2E-08	1.2E-08	6.0E-07	
Manganese and Compounds	7439-96-5	Yes	0.085	1.2E-06	2.1E-07	2.3E-07	1.8E-07	3.3E-08	3.3E-08	7.0E-09	7.0E-09	7.0E-09	7.0E-09	1.2E-08	1.2E-08	1.2E-08	9.4E-09	9.4E-09	4.6E-07	
Mercury and Compounds	7439-97-6	Yes	0.058	8.4E-07	1.4E-07	1.6E-07	1.2E-07	2.2E-08	2.2E-08	4.8E-09	4.8E-09	4.8E-09	4.8E-09	8.0E-09	8.0E-09	8.0E-09	6.4E-09	6.4E-09	3.1E-07	
Molybdenum trioxide	1313-27-5	No	0.37	5.3E-06	9.2E-07	1.0E-06	7.7E-07	1.4E-07	1.4E-07	3.1E-08	3.1E-08	3.1E-08	3.1E-08	5.1E-08	5.1E-08	5.1E-08	4.1E-08	4.1E-08	2.0E-06	
Nickel and Compounds	7440-02-0	Yes	0.47	6.8E-06	1.2E-06	1.3E-06	9.9E-07	1.8E-07	1.8E-07	3.9E-08	3.9E-08	3.9E-08	3.9E-08	6.5E-08	6.5E-08	6.5E-08	5.2E-08	5.2E-08	2.5E-06	
Selenium and Compounds	7782-49-2	Yes	5.4E-03	7.8E-08	1.3E-08	1.5E-08	1.1E-08	2.1E-09	2.1E-09	4.4E-10	4.4E-10	4.4E-10	4.4E-10	7.4E-10	7.4E-10	7.4E-10	5.9E-10	5.9E-10	2.9E-08	
Vanadium (fume or dust)	7440-62-2	Yes	0.52	7.4E-06	1.3E-06	1.4E-06	1.1E-06	2.0E-07	2.0E-07	4.3E-08	4.3E-08	4.3E-08	4.3E-08	7.1E-08	7.1E-08	7.1E-08	5.7E-08	5.7E-08	2.8E-06	
Zinc and Compounds	7440-66-6	No	6.52	9.4E-05	1.6E-05	1.8E-05	1.4E-05	2.5E-06	2.5E-06	5.4E-07	5.4E-07	5.4E-07	5.4E-07	9.0E-07	9.0E-07	9.0E-07	7.2E-07	7.2E-07	3.5E-05	

Table 3–4
Natural Gas Toxic Emission Units Annual Emission Rates
Hydro Extrusion Portland, Inc.—Portland, Oregon

NOTES:

g/s = gram per second.

lb/day = pound per day.

RBC = risk-based concentration.

TAC = toxic air contaminant.

^(a) Emission rate (g/s) = (annual emissions estimate [lb/yr]) x (453.592 g/lb) x (yr/8,760 hrs) x (hr/3,600 s)

^(b) Emission rate (g/s) = (total emission rate [g/s]) x (emissions fraction estimate)

^(c) Emissions fraction estimate = (total heat input rating apportioned to each ventiaction point [MMBtu/hr]) / (total facility combined natural gas heat input [MMBtu/hr])

Total facility combined natural gas heat input (MMBtu/hr) = 26.19 (3)

REFERENCES:

⁽¹⁾ Emissions estimate obtained from the emissions inventory submitted to the DEQ on May 30, 2023.

⁽²⁾ Emissions fraction apportioned between ventilation points based on the heat input rating of each emission source.

⁽³⁾ Total facility combined natural gas heat input obtained from the emissions inventory submitted to the DEQ on May 30, 2023.

Table 3–5
Natural Gas Toxic Emission Units Daily Emission Rates
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	RBC? (Yes/No)	Daily Emission Estimates																
			Natural Gas																
			Total (lb/day) ⁽¹⁾	Total (g/s) ^(a)	(g/s) ^(b)	(g/s) ^(b)	(g/s) ^(b)	(g/s) ^(b)	(g/s) ^(b)	(g/s) ^(b)	(g/s) ^(b)	(g/s) ^(b)	(g/s) ^(b)	(g/s) ^(b)	(g/s) ^(b)	(g/s) ^(b)	(g/s) ^(b)	(g/s) ^(b)	(g/s) ^(b)
Model ID					OVEN	PTH1	PTH2	AMUA	AMUB	C1H1	C1H2	C1H3	C1H4	C2H1	C2H2	C2H3	C2H4	C2H5	RTO
Total Heat Input Rating for Sources Apportioned to Each Ventilation Point (MMBtu/hr) ⁽²⁾					4.50	5.00	3.80	0.70	0.70	0.15	0.15	0.15	0.15	0.25	0.25	0.25	0.20	0.20	9.74
Emissions Fraction Estimate ^(c)					0.17	0.19	0.15	0.027	0.027	5.7E-03	5.7E-03	5.7E-03	5.7E-03	9.5E-03	9.5E-03	9.5E-03	7.6E-03	7.6E-03	0.37
ORGANIC COMPOUNDS																			
Acetaldehyde	75-07-0	Yes	2.7E-03	1.4E-05	2.4E-06	2.7E-06	2.0E-06	3.7E-07	3.7E-07	8.0E-08	8.0E-08	8.0E-08	8.0E-08	1.3E-07	1.3E-07	1.3E-07	1.1E-07	1.1E-07	5.2E-06
Acrolein	107-02-8	Yes	1.7E-03	8.8E-06	1.5E-06	1.7E-06	1.3E-06	2.3E-07	2.3E-07	5.0E-08	5.0E-08	5.0E-08	5.0E-08	8.4E-08	8.4E-08	8.4E-08	6.7E-08	6.7E-08	3.3E-06
Ammonia	7664-41-7	Yes	1.98	0.010	1.8E-03	2.0E-03	1.5E-03	2.8E-04	2.8E-04	6.0E-05	6.0E-05	6.0E-05	6.0E-05	9.9E-05	9.9E-05	9.9E-05	8.0E-05	8.0E-05	3.9E-03
Benzene	71-43-2	Yes	5.0E-03	2.6E-05	4.5E-06	5.0E-06	3.8E-06	7.0E-07	7.0E-07	1.5E-07	1.5E-07	1.5E-07	1.5E-07	2.5E-07	2.5E-07	2.5E-07	2.0E-07	2.0E-07	9.7E-06
Benzo(a)pyrene	50-32-8	Yes	7.4E-07	3.9E-09	6.7E-10	7.5E-10	5.7E-10	1.0E-10	1.0E-10	2.2E-11	2.2E-11	2.2E-11	2.2E-11	3.7E-11	3.7E-11	3.7E-11	3.0E-11	3.0E-11	1.5E-09
Ethylbenzene	100-41-4	Yes	5.9E-03	3.1E-05	5.3E-06	5.9E-06	4.5E-06	8.3E-07	8.3E-07	1.8E-07	1.8E-07	1.8E-07	1.8E-07	3.0E-07	3.0E-07	3.0E-07	2.4E-07	2.4E-07	1.1E-05
Formaldehyde	50-00-0	Yes	0.011	5.5E-05	9.5E-06	1.1E-05	8.0E-06	1.5E-06	1.5E-06	3.2E-07	3.2E-07	3.2E-07	3.2E-07	5.3E-07	5.3E-07	5.3E-07	4.2E-07	4.2E-07	2.1E-05
Hexane	110-54-3	Yes	3.9E-03	2.1E-05	3.5E-06	3.9E-06	3.0E-06	5.5E-07	5.5E-07	1.2E-07	1.2E-07	1.2E-07	1.2E-07	2.0E-07	2.0E-07	2.0E-07	1.6E-07	1.6E-07	7.6E-06
Naphthalene	91-20-3	Yes	1.9E-04	9.8E-07	1.7E-07	1.9E-07	1.4E-07	2.6E-08	2.6E-08	5.6E-09	5.6E-09	5.6E-09	5.6E-09	9.3E-09	9.3E-09	9.3E-09	7.5E-09	7.5E-09	3.6E-07
Polycyclic Aromatic Hydrocarbons	401	Yes	6.2E-05	3.3E-07	5.6E-08	6.2E-08	4.7E-08	8.7E-09	8.7E-09	1.9E-09	1.9E-09	1.9E-09	1.9E-09	3.1E-09	3.1E-09	3.1E-09	2.5E-09	2.5E-09	1.2E-07
Toluene	108-88-3	Yes	0.023	1.2E-04	2.0E-05	2.3E-05	1.7E-05	3.2E-06	3.2E-06	6.8E-07	6.8E-07	6.8E-07	6.8E-07	1.1E-06	1.1E-06	1.1E-06	9.1E-07	9.1E-07	4.4E-05
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	Yes	0.017	8.9E-05	1.5E-05	1.7E-05	1.3E-05	2.4E-06	2.4E-06	5.1E-07	5.1E-07	5.1E-07	5.1E-07	8.5E-07	8.5E-07	8.5E-07	6.8E-07	6.8E-07	3.3E-05
METALS																			
Arsenic and Compounds	7440-38-2	Yes	1.2E-04	6.5E-07	1.1E-07	1.2E-07	9.4E-08	1.7E-08	1.7E-08	3.7E-09	3.7E-09	3.7E-09	3.7E-09	6.2E-09	6.2E-09	6.2E-09	5.0E-09	5.0E-09	2.4E-07
Barium and Compounds	7440-39-3	No	2.7E-03	1.4E-05	2.5E-06	2.7E-06	2.1E-06	3.8E-07	3.8E-07	8.2E-08	8.2E-08	8.2E-08	8.2E-08	1.4E-07	1.4E-07	1.4E-07	1.1E-07	1.1E-07	5.3E-06
Beryllium and Compounds	7440-41-7	Yes	7.4E-06	3.9E-08	6.7E-09	7.5E-09	5.7E-09	1.0E-09	1.0E-09	2.2E-10	2.2E-10	2.2E-10	2.2E-10	3.7E-10	3.7E-10	3.7E-10	3.0E-10	3.0E-10	1.5E-08
Cadmium and Compounds	7440-43-9	Yes	6.8E-04	3.6E-06	6.2E-07	6.8E-07	5.2E-07	9.6E-08	9.6E-08	2.1E-08	2.1E-08	2.1E-08	2.1E-08	3.4E-08	3.4E-08	3.4E-08	2.7E-08	2.7E-08	1.3E-06
Chromium VI, particulate	18540-29-9	Yes	3.5E-05	1.8E-07	3.1E-08	3.5E-08	2.6E-08	4.9E-09	4.9E-09	1.0E-09	1.0E-09	1.0E-09	1.0E-09	1.7E-09	1.7E-09	1.7E-09	1.4E-09	1.4E-09	6.8E-08
Cobalt and Compounds	7440-48-4	Yes	5.2E-05	2.7E-07	4.7E-08	5.2E-08	4.0E-08	7.3E-09	7.3E-09	1.6E-09	1.6E-09	1.6E-09	1.6E-09	2.6E-09	2.6E-09	2.6E-09	2.1E-09	2.1E-09	1.0E-07
Copper and Compounds	7440-50-8	Yes	5.3E-04	2.8E-06	4.8E-07	5.3E-07	4.0E-07	7.4E-08	7.4E-08	1.6E-08	1.6E-08	1.6E-08	1.6E-08	2.6E-08	2.6E-08	2.6E-08	2.1E-08	2.1E-08	1.0E-06
Lead and Compounds	7439-92-1	Yes	3.1E-04	1.6E-06	2.8E-07	3.1E-07	2.4E-07	4.3E-08	4.3E-08	9.3E-09	9.3E-09	9.3E-09	9.3E-09	1.6E-08	1.6E-08	1.6E-08	1.2E-08	1.2E-08	6.1E-07
Manganese and Compounds	7439-96-5	Yes	2.4E-04	1.2E-06	2.1E-07	2.4E-07	1.8E-07	3.3E-08	3.3E-08	7.1E-09	7.1E-09	7.1E-09	7.1E-09	1.2E-08	1.2E-08	1.2E-08	9.4E-09	9.4E-09	4.6E-07
Mercury and Compounds	7439-97-6	Yes	1.6E-04	8.5E-07	1.5E-07	1.6E-07	1.2E-07	2.3E-08	2.3E-08	4.8E-09	4.8E-09	4.8E-09	4.8E-09	8.1E-09	8.1E-09	8.1E-09	6.5E-09	6.5E-09	3.1E-07
Molybdenum trioxide	1313-27-5	No	1.0E-03	5.4E-06	9.2E-07	1.0E-06	7.8E-07	1.4E-07	1.4E-07	3.1E-08	3.1E-08	3.1E-08	3.1E-08	5.1E-08	5.1E-08	5.1E-08	4.1E-08	4.1E-08	2.0E-06
Nickel and Compounds	7440-02-0	Yes	1.3E-03	6.8E-06	1.2E-06	1.3E-06	9.9E-07	1.8E-07	1.8E-07	3.9E-08	3.9E-08	3.9E-08	3.9E-08	6.5E-08	6.5E-08	6.5E-08	5.2E-08	5.2E-08	2.5E-06
Selenium and Compounds	7782-49-2	Yes	1.5E-05	7.8E-08	1.3E-08	1.5E-08	1.1E-08	2.1E-09	2.1E-09	4.5E-10	4.5E-10	4.5E-10	4.5E-10	7.5E-10	7.5E-10	7.5E-10	6.0E-10	6.0E-10	2.9E-08
Vanadium (fume or dust)	7440-62-2	Yes	1.4E-03	7.5E-06	1.3E-06	1.4E-06	1.1E-06	2.0E-07	2.0E-07	4.3E-08	4.3E-08	4.3E-08	4.3E-08	7.1E-08	7.1E-08	7.1E-08	5.7E-08	5.7E-08	2.8E-06
Zinc and Compounds	7440-66-6	No	0.018	9.4E-05	1.6E-05	1.8E-05	1.4E-05	2.5E-06	2.5E-06	5.4E-07	5.4E-07	5.4E-07	5.4E-07	9.0E-07	9.0E-07	9.0E-07	7.2E-07	7.2E-07	3.5E-05

NOTES:

g/s = gram per second.

lb/day = pound per day.

RBC = risk-based concentration.

TAC = toxic air contaminant.

^(a) Emission rate (g/s) = (daily emissions estimate [lb/day]) x (453.592 g/lb) x (day/24 hrs) x (hr/3,600 s)

^(b) Emission rate (g/s) = (total emission rate [g/s]) x (emissions fraction estimate)

^(c) Emissions fraction estimate = (total heat input rating apportioned to each ventilation point [MMBtu/hr]) / (total facility combined natural gas heat input [MMBtu/hr])

Total facility combined natural gas heat input (MMBtu/hr) = 26.19 (3)

REFERENCES:

⁽¹⁾ Emissions estimate obtained from the emissions inventory submitted to the DEQ on May 30, 2023.

⁽²⁾ Emissions fraction apportioned between ventilation points based on the heat input rating of each emission source.

⁽³⁾ Total facility combined natural gas heat input obtained from the emissions inventory submitted to the DEQ on May 30, 2023.

Table 3–6
Model Source Parameters
Hydro Extrusion Portland, Inc.—Portland, Oregon

Point Sources											
Model ID	Model Source Description	UTM Coordinates ⁽¹⁾ (m)		Emission Rate ⁽²⁾ (g/s)	Discharge Orientation ⁽¹⁾	Base Elevation ⁽³⁾ (m)	Release Height ⁽¹⁾ (m)	Stack Diameter ⁽¹⁾ (m)	Exit Velocity ⁽¹⁾ (m/s)	Exit Flowrate ^(a) (m³/s)	Exit Temperature ⁽¹⁾ (K)
		Easting	Northing								
Significant Toxic Emission Units											
RTO	Regenerative thermal oxidizer	530515.05	5047080.67	1	VERTICAL	5.53	10.4	1.11	12.6	12.2	382
VPT1	Pretreatment 1	530510.03	5047043.1	1	CAPPED	5.66	13.8	0.61	2.90	0.85	310
VPT2	Pretreatment 2	530538.56	5047044.18	1	CAPPED	5.65	13.8	0.61	2.90	0.85	310
TIE1	TIE Mixing Process Exhaust	530546.76	5047000.22	1	HORIZONTAL	5.26	7.82	0.36	9.17	0.91	295
TIE2	TIE Application Process (Hooded Area)	530541.434	5046999.28	1	VERTICAL	5.19	7.82	0.46	3.00	0.49	295
Natural Gas Toxic Emission Units											
OVEN	VPL Drying Oven Burner Exhaust	530516.88	5047052.31	1	CAPPED	5.74	14.6	0.41	8.64	1.12	379
PTH1	Pretreatment Burner 1 (Stage 1) Exhaust	530537.17	5047045.9	1	CAPPED	5.65	13.4	0.36	6.83	0.68	394
PTH2	Pretreatment Burner 2 (Stage 3) Exhaust	530524.707	5047048.01	1	CAPPED	5.67	13.4	0.30	1.60	0.12	342
AMUA	AMU-A natural gas burner exhausts	530538.366	5047065.61	1	CAPPED	5.57	13.1	0.15	2.84	0.052	340
AMUB	AMU-B burner exhausts	530532.806	5047065.48	1	CAPPED	5.52	13.1	0.15	2.84	0.052	340
C1H1	CTGS1 Space Heater (1)	530549.907	5047035.08	1	CAPPED	5.68	7.77	0.13	1.0E-03	1.27E-05	340
C1H2	CTGS1 Space Heater (2)	530539	5047024.13	1	CAPPED	5.5	7.77	0.13	1.0E-03	1.27E-05	340
C1H3	CTGS 1 Space Heater (3)	530507.66	5047007.97	1	CAPPED	5.21	7.77	0.13	1.0E-03	1.27E-05	340
C1H4	CTGS 1 Space Heater (4)	530560.441	5047005.89	1	CAPPED	5.40	7.77	0.13	1.0E-03	1.27E-05	340
C2H1	CTGS 2 Space Heater (1)	530563.33	5046999.28	1	CAPPED	5.49	7.77	0.25	1.0E-03	5.07E-05	340
C2H2	CTGS 2 Space Heater (2)	530538.06	5046996.67	1	CAPPED	5.18	7.77	0.20	1.0E-03	3.24E-05	340
C2H3	CTGS 2 Space Heater (3)	530508.06	5046996.45	1	CAPPED	5.13	7.77	0.20	1.0E-03	3.24E-05	340
C2H4	CTGS 2 Space Heater (4)	530507.83	5046972.18	1	CAPPED	5.30	7.77	0.20	1.0E-03	3.24E-05	340
C2H5	CTGS 2 Space Heater	530565.75	5046974.35	1	CAPPED	5.49	7.77	0.25	1.0E-03	5.07E-05	340
RTO	RTO Natural Gas Burner, VPL Cure Oven Burner Exhaust, HZPL Air Make-up Unit	530515.05	5047080.67	1	VERTICAL	5.53	10.4	1.11	12.6	12.2	382

Table 3–6
Model Source Parameters
Hydro Extrusion Portland, Inc.—Portland, Oregon

NOTES:

- g/s = grams per second.
- K = kelvin.
- m = meter.
- m/s = meters per second.
- m³/s = cubic meters per second.
- UTM = universal transverse mercator.
- ^(a) Exit flowrate (m³/s) = (π/4) x (stack diameter [m])² x (exit velocity [m/s])

REFERENCES:

- ⁽¹⁾ Value based on information provided by Hydro Extrusion Portland, Inc.
- ⁽²⁾ Dispersion model executed using unit-emission rates.
- ⁽³⁾ Base elevation derived from the US Geological Survey National Elevation Dataset downloaded and processed using AERMET.

Table 4–3
Assessment of Missing Meteorological Data
Hydro Extrusion Portland, Inc.—Portland, Oregon

Quarter ⁽¹⁾	Meteorological Data Assessment per Year														
	2017			2018			2019			2020			2021		
	Total Hours ⁽¹⁾	Missing Hours ⁽²⁾	Available ^(a) (%)	Total Hours ⁽¹⁾	Missing Hours ⁽²⁾	Available ^(a) (%)	Total Hours ⁽¹⁾	Missing Hours ⁽²⁾	Available ^(a) (%)	Total Hours ⁽¹⁾	Missing Hours ⁽²⁾	Available ^(a) (%)	Total Hours ⁽¹⁾	Missing Hours ⁽²⁾	Available ^(a) (%)
Q1	2,160	0	100%	2,160	10	99.5%	2,184	14	99.4%	2,184	7	99.7%	2,160	98	95.5%
Q2	2,184	24	98.9%	2,184	113	94.8%	2,184	0	100%	2,184	2	99.9%	2,184	58	97.3%
Q3	2,208	18	99.2%	2,208	108	95.1%	2,208	17	99.2%	2,208	1	100%	2,208	31	98.6%
Q4	2,208	10	99.5%	2,208	0	100%	2,208	9	99.6%	2,208	53	97.6%	2,208	31	98.6%

NOTES:

SFC = Surface

^(a) Available hours (%) = ([total hours] - [missing hours]) / (total hours) x (100)

REFERENCES:

⁽¹⁾ Meteorological data obtained from the National Oceanic and Atmospheric Administration National Climatic Data Center Integrated Surface Data for the Portland International Airport located in Portland, Oregon (WBAN: 24229).

⁽²⁾ The number of missing hours was determined by preparing an SFC QA excel file generated by AERMET version 21112.

Table 4–4
AERSURFACE Settings
Hydro Extrusion Portland, Inc.—Portland, Oregon

Parameter	Setting
Study radius for surface roughness	1.0 kilometer
Are the surface data collected at an airport?	Yes
Should continuous snow cover be assumed?	No
Is this an arid region?	No
Number of sectors	12
Months assumed to constitute “winter”	December, January, and February
Months assumed to constitute “spring”	March, April, and May
Months assumed to constitute “summer”	June, July, and August
Months assumed to constitute “autumn”	September, October, and November
Period for land use calculations	Monthly

Table 4–5
Surface Soil Moisture Condition Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Calendar Year	Annual Precipitation ⁽¹⁾ (in)	Climatic Significance ⁽²⁾	Calendar Year Soil Moisture ⁽³⁾
2017	45.80	Upper 70th Percentile	Wet
2018	27.30	Lower 30th Percentile	Dry
2019	26.67	Lower 30th Percentile	Dry
2020	32.44	Middle 40th Percentile	Average
2021	35.59	Middle 40th Percentile	Average

30-Year Climate Precipitation Data ⁽⁴⁾	
Average Annual Precipitation ⁽⁵⁾	35.85
Lower 30th Percentile Annual Precipitation ⁽⁶⁾	30.48
Upper 70th Percentile Annual Precipitation ⁽⁷⁾	41.18

REFERENCES:

- ⁽¹⁾ Climatological data obtained from National Oceanic and Atmospheric Administration National Climatic Data Center for Portland International Airport located in Portland, Oregon (WBAN: 24229).
- ⁽²⁾ Climatic significance represents annual precipitation compared to 30-year climatological period.
- ⁽³⁾ Surface moisture conditions correspond to "Dry", "Average" or "Wet" soil content determined by comparing annual precipitation to 30-year climatological period. This method is consistent with the methodology set forth in the current version of the US EPA AERSURFACE User's Guide dated January 16, 2013.
- ⁽⁴⁾ Represents 30-year period between 1992 and 2021. Period chosen as most current 30-year period available.
- ⁽⁵⁾ Represents average annual precipitation during 30-year climatological period.
- ⁽⁶⁾ Represents lower limit of middle 30th percentile annual precipitation during 30-year climatological period.
- ⁽⁷⁾ Represents upper limit of middle 70th percentile annual precipitation during 30-year climatological period.

Table 4–6
Downwash Structure Heights
Hydro Extrusion Portland, Inc.—Portland, Oregon

Downwash Structure Model ID	Base Elevation ⁽¹⁾		Number of Building Tiers	Tier Height ⁽²⁾	
	(ft)	(m)		(ft)	(m)
BLDG_4	18.2	5.56	1	30.0	9.14
BLDG_4B	18.2	5.56	1	41.4	12.6
BLDG_2	17.3	5.26	1	22.0	6.71
BLDG_3	18.6	5.67	1	22.0	6.71
BLD_1	18.3	5.58	1	18.0	5.49

REFERENCES:

- ⁽¹⁾ Base elevation derived from 1/3-arc second United States Geological Survey National Elevation Data processed using AERMAP.
- ⁽²⁾ Information provided by Hydro Extrusion Portland, Inc. Value represents height above base elevation.

Table 5-1
Summary of Statewide Zoning And Exposure Type Categorization
Hydro Extrusion Portland, Inc.—Portland, Oregon

Oregon Statewide Zoning Descriptions ⁽¹⁾	Corresponding Exposure Type Classification	Risk Assessments To Be Performed
Beaches and Dunes	Acute-only	Acute Noncancer
Coastal Estuarine	Acute-only	Acute Noncancer
Coastal Shorelands	Acute-only	Acute Noncancer
Combo equal emphasis	Acute-only	Acute Noncancer
Combo with priority emphasis	Acute-only	Acute Noncancer
Commercial - Central	Non-Residential Worker or Child (if applicable)	Cancer, Chronic and Acute Noncancer
Commercial - General	Non-Residential Worker or Child (if applicable)	Cancer, Chronic and Acute Noncancer
Commercial - Neighborhood	Non-Residential Worker or Child (if applicable)	Cancer, Chronic and Acute Noncancer
Commercial - Office	Non-Residential Worker or Child (if applicable)	Cancer, Chronic and Acute Noncancer
Exclusive Farm Use 160+	Residential for structure, Non-Residential Worker for property	Cancer, Chronic and Acute Noncancer
Exclusive Farm Use 20+	Residential for structure, Non-Residential Worker for property	Cancer, Chronic and Acute Noncancer
Exclusive Farm Use 40+	Residential for structure, Non-Residential Worker for property	Cancer, Chronic and Acute Noncancer
Exclusive Farm Use 80	Residential for structure, Non-Residential Worker for property	Cancer, Chronic and Acute Noncancer
Federal Forest	Acute-only	Acute Noncancer
Federal Range	Acute-only	Acute Noncancer
Forest	Acute-only	Acute Noncancer
Future Urban Development	Residential	Cancer, Chronic and Acute Noncancer
High-density Res.	Residential	Cancer, Chronic and Acute Noncancer
Indian reservation/tribal trust	Residential	Cancer, Chronic and Acute Noncancer
Industrial - Heavy	Non-Residential Worker	Cancer, Chronic and Acute Noncancer
Industrial - Light	Non-Residential Worker	Cancer, Chronic and Acute Noncancer
Industrial Campus	Non-Residential Worker	Cancer, Chronic and Acute Noncancer
Industrial Office	Non-Residential Worker	Cancer, Chronic and Acute Noncancer
Low-density Res.	Residential	Cancer, Chronic and Acute Noncancer
Marginal Farm Land 10+	Non-Residential Worker	Cancer, Chronic and Acute Noncancer
Medium High-density Res.	Residential	Cancer, Chronic and Acute Noncancer
Medium Low-density Res.	Residential	Cancer, Chronic and Acute Noncancer
Medium-density Res.	Residential	Cancer, Chronic and Acute Noncancer
Mineral and Aggregate	Non-Residential Worker	Cancer, Chronic and Acute Noncancer
Mixed Farm-Forest 160+	Residential for structure, Non-Residential Worker for property	Cancer, Chronic and Acute Noncancer
Mixed Farm-Forest 20	Residential for structure, Non-Residential Worker for property	Cancer, Chronic and Acute Noncancer
Mixed Farm-Forest 40	Residential for structure, Non-Residential Worker for property	Cancer, Chronic and Acute Noncancer
Mixed Farm-Forest 80	Residential for structure, Non-Residential Worker for property	Cancer, Chronic and Acute Noncancer
Mixed-Use Com. & Res. Extremely High	Residential	Cancer, Chronic and Acute Noncancer
Mixed-Use Com. & Res. High	Residential	Cancer, Chronic and Acute Noncancer
Mixed-Use Com. & Res. Low	Residential	Cancer, Chronic and Acute Noncancer
Mixed-Use Com. & Res. Med-high	Residential	Cancer, Chronic and Acute Noncancer
Mixed-Use Com. & Res. Medium	Residential	Cancer, Chronic and Acute Noncancer
Mixed-Use Com. & Res. V.High	Residential	Cancer, Chronic and Acute Noncancer
No Data	Acute-only	Acute Noncancer
Open Space/Conservation	Acute-only	Acute Noncancer
Other	Acute-only	Acute Noncancer
Parks & Open Space	Acute-only	Acute Noncancer
Prime Forest 80	Acute-only	Acute Noncancer
Public & semi-public Uses	Non-Residential Worker or Child (if applicable)	Cancer, Chronic and Acute Noncancer
Public Facilities	Non-Residential Worker or Child (if applicable)	Cancer, Chronic and Acute Noncancer
Rural Commercial	Non-Residential Worker	Cancer, Chronic and Acute Noncancer
Rural Industrial	Non-Residential Worker	Cancer, Chronic and Acute Noncancer
Rural Residential 1 acre	Residential	Cancer, Chronic and Acute Noncancer
Rural Residential 10 acres	Residential	Cancer, Chronic and Acute Noncancer
Rural Residential 2-4 acres	Residential	Cancer, Chronic and Acute Noncancer
Rural Residential 5 acres	Residential	Cancer, Chronic and Acute Noncancer
Secondary Forest 80	Acute-only	Acute Noncancer
UC Rural Commercial	Non-Residential Worker	Cancer, Chronic and Acute Noncancer
UC Rural Industrial	Non-Residential Worker	Cancer, Chronic and Acute Noncancer
Very High-density Res.	Residential	Cancer, Chronic and Acute Noncancer
Very Low-density Res.	Residential	Cancer, Chronic and Acute Noncancer

REFERENCES:

⁽¹⁾ Oregon statewide zoning descriptions obtained from the Department of Land Conservation and Development statewide zoning dataset.

Table 5-2
Summary of Revisions to Statewide Zoning
Hydro Extrusion Portland, Inc.—Portland, Oregon

UTM Coordinates (m)		Zoning Dataset Used for Exposure Classification	Exposure Type Classification	Reason for Exposure Type Classification Revision
Easting	Northing	Oregon Statewide		
530518.00	5046597.00	Industrial - Light	Child	Revised to child. School location.
530518.00	5046547.00	Industrial - Light	Child	Revised to child. School location.
530518.00	5046497.00	Industrial - Light	Child	Revised to child. School location.
530518.00	5046447.00	Industrial - Light	Child	Revised to child. School location.
530518.00	5046397.00	Industrial - Light	Child	Revised to child. School location.
530468.00	5046597.00	Industrial - Light	Child	Revised to child. School location.
530468.00	5046547.00	Industrial - Light	Child	Revised to child. School location.
530468.00	5046497.00	Industrial - Light	Child	Revised to child. School location.
530468.00	5046447.00	Industrial - Light	Child	Revised to child. School location.
530468.00	5046397.00	Industrial - Light	Child	Revised to child. School location.
530418.00	5046547.00	Industrial - Light	Child	Revised to child. School location.
530418.00	5046497.00	Industrial - Light	Child	Revised to child. School location.
530418.00	5046447.00	Industrial - Light	Child	Revised to child. School location.
530418.00	5046397.00	Industrial - Light	Child	Revised to child. School location.
530718.00	5045447.00	NonJoin	Child	Revised to child. School location.
530718.00	5045347.00	NonJoin	Child	Revised to child. School location.
529818.00	5045447.00	NonJoin	Child	Revised to child. School location.
529518.00	5045147.00	NonJoin	Child	Revised to child. School location.
529418.00	5045147.00	NonJoin	Child	Revised to child. School location.
528618.00	5046447.00	NonJoin	Child	Revised to child. School location.
528518.00	5046447.00	NonJoin	Child	Revised to child. School location.
532718.00	5043247.00	NonJoin	Child	Revised to child. School location.
533118.00	5045447.00	NonJoin	Child	Revised to child. School location.
533718.00	5044247.00	NonJoin	Child	Revised to child. School location.
533718.00	5044047.00	NonJoin	Child	Revised to child. School location.
533718.00	5042847.00	NonJoin	Child	Revised to child. School location.
533918.00	5042847.00	NonJoin	Child	Revised to child. School location.
534718.00	5044647.00	NonJoin	Child	Revised to child. School location.
535518.00	5042847.00	NonJoin	Child	Revised to child. School location.
532118.00	5043447.00	NonJoin	Child	Revised to child. School location.
531718.00	5044647.00	NonJoin	Child	Revised to child. School location.
530518.00	5044847.00	NonJoin	Child	Revised to child. School location.
529518.00	5044047.00	NonJoin	Child	Revised to child. School location.
529118.00	5042847.00	NonJoin	Child	Revised to child. School location.
528718.00	5042647.00	NonJoin	Child	Revised to child. School location.
528318.00	5043847.00	NonJoin	Child	Revised to child. School location.
527518.00	5044447.00	NonJoin	Child	Revised to child. School location.
526518.00	5044847.00	NonJoin	Child	Revised to child. School location.
525718.00	5044247.00	NonJoin	Child	Revised to child. School location.
525518.00	5043847.00	NonJoin	Child	Revised to child. School location.
527118.00	5046847.00	NonJoin	Child	Revised to child. School location.
526518.00	5049647.00	NonJoin	Child	Revised to child. School location.
537018.00	5042047.00	NonJoin	Child	Revised to child. School location.
537018.00	5039547.00	NonJoin	Child	Revised to child. School location.
538018.00	5043047.00	NonJoin	Child	Revised to child. School location.
540018.00	5042047.00	NonJoin	Child	Revised to child. School location.
540518.00	5040047.00	NonJoin	Child	Revised to child. School location.
535018.00	5040547.00	NonJoin	Child	Revised to child. School location.
534018.00	5037047.00	NonJoin	Child	Revised to child. School location.
533518.00	5040047.00	NonJoin	Child	Revised to child. School location.
531518.00	5037047.00	NonJoin	Child	Revised to child. School location.
522518.00	5040047.00	NonJoin	Child	Revised to child. School location.
522018.00	5039547.00	NonJoin	Child	Revised to child. School location.
521518.00	5037547.00	NonJoin	Child	Revised to child. School location.
520518.00	5048547.00	NonJoin	Child	Revised to child. School location.
530318.00	5046897.00	Industrial - Light	Residential	Revised to Residential based on aerial imagery.
530318.00	5046922.00	Industrial - Light	Residential	Revised to Residential based on aerial imagery.
530318.00	5046947.00	Industrial - Light	Residential	Revised to Residential based on aerial imagery.
530343.00	5046897.00	Industrial - Light	Residential	Revised to Residential based on aerial imagery.
530343.00	5046922.00	Industrial - Light	Residential	Revised to Residential based on aerial imagery.
530218.00	5047097.00	Industrial - Light	Residential	Revised to Residential based on aerial imagery.
530368.00	5046897.00	Industrial - Light	Residential	Revised to Residential based on aerial imagery.
530368.00	5046922.00	Industrial - Light	Residential	Revised to Residential based on aerial imagery.

Table 5-2
Summary of Revisions to Statewide Zoning
Hydro Extrusion Portland, Inc.—Portland, Oregon

[illegible]

Table 5-2
Summary of Revisions to Statewide Zoning
Hydro Extrusion Portland, Inc.—Portland, Oregon

[illegible]

Table 5-2
Summary of Revisions to Statewide Zoning
Hydro Extrusion Portland, Inc.—Portland, Oregon

UTM Coordinates (m)		Zoning Dataset Used for Exposure Classification	Exposure Type Classification	Reason for Exposure Type Classification Revision
Easting	Northing	Oregon Statewide		
528318.00	5048247.00	Parks & Open Space	Worker	Revised to worker based on aerial imagery.
528118.00	5048047.00	Parks & Open Space	Worker	Revised to worker based on aerial imagery.
528118.00	5048247.00	Parks & Open Space	Worker	Revised to worker based on aerial imagery.
527918.00	5048047.00	Parks & Open Space	Worker	Revised to worker based on aerial imagery.
527918.00	5048247.00	Parks & Open Space	Worker	Revised to worker based on aerial imagery.
527918.00	5048647.00	Parks & Open Space	Worker	Revised to worker based on aerial imagery.
527918.00	5048847.00	Parks & Open Space	Worker	Revised to worker based on aerial imagery.
527918.00	5049047.00	Parks & Open Space	Worker	Revised to worker based on aerial imagery.
527918.00	5049247.00	Parks & Open Space	Worker	Revised to worker based on aerial imagery.
527918.00	5049447.00	Parks & Open Space	Worker	Revised to worker based on aerial imagery.
527718.00	5048047.00	Parks & Open Space	Worker	Revised to worker based on aerial imagery.
527718.00	5049047.00	Parks & Open Space	Worker	Revised to worker based on aerial imagery.
527718.00	5049247.00	Parks & Open Space	Worker	Revised to worker based on aerial imagery.
527718.00	5049447.00	Parks & Open Space	Worker	Revised to worker based on aerial imagery.
527718.00	5049647.00	Parks & Open Space	Worker	Revised to worker based on aerial imagery.
527518.00	5049047.00	Parks & Open Space	Worker	Revised to worker based on aerial imagery.
527518.00	5049247.00	Parks & Open Space	Worker	Revised to worker based on aerial imagery.
527518.00	5049447.00	Parks & Open Space	Worker	Revised to worker based on aerial imagery.
527518.00	5049647.00	Parks & Open Space	Worker	Revised to worker based on aerial imagery.
527318.00	5049047.00	Parks & Open Space	Worker	Revised to worker based on aerial imagery.
527318.00	5049247.00	Parks & Open Space	Worker	Revised to worker based on aerial imagery.
527318.00	5049447.00	Parks & Open Space	Worker	Revised to worker based on aerial imagery.
534518.00	5040047.00	Mixed-Use Com. & Res. High	Worker	Revised to worker. Hospital location.
530868.00	5046097.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530918.00	5046997.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530918.00	5046747.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530918.00	5046097.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530968.00	5046847.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530968.00	5046747.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530968.00	5046247.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530318.00	5046872.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531018.00	5046947.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531018.00	5046247.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531018.00	5046047.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531068.00	5046947.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531068.00	5046697.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531068.00	5046047.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531118.00	5046947.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531118.00	5046697.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531118.00	5046047.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531168.00	5046947.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531168.00	5046697.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531168.00	5046197.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530318.00	5047147.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531218.00	5046897.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531218.00	5046697.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531218.00	5046647.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531218.00	5046197.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531268.00	5046897.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531268.00	5046197.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531318.00	5046847.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531318.00	5046497.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531318.00	5046447.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531318.00	5046397.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531318.00	5046347.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531318.00	5046297.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531318.00	5046247.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531318.00	5046197.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531368.00	5046847.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530343.00	5046872.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531468.00	5046597.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531468.00	5046547.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531468.00	5046147.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.

Table 5-2
Summary of Revisions to Statewide Zoning
Hydro Extrusion Portland, Inc.—Portland, Oregon

UTM Coordinates (m)		Zoning Dataset Used for Exposure Classification	Exposure Type Classification	Reason for Exposure Type Classification Revision
Easting	Northing	Oregon Statewide		
531518.00	5046597.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531518.00	5046547.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
531518.00	5046147.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530818.00	5046297.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530768.00	5046297.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530668.00	5046147.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530343.00	5047147.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530568.00	5046347.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530518.00	5046347.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530468.00	5046347.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530468.00	5046197.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530268.00	5046397.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530268.00	5046247.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530218.00	5046397.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530218.00	5046247.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530118.00	5046697.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530118.00	5046647.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530118.00	5046597.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530118.00	5046497.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530368.00	5046872.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530068.00	5046297.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530018.00	5046447.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530018.00	5046297.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530218.00	5047122.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529968.00	5046447.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529918.00	5046447.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529818.00	5046347.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529768.00	5046497.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530368.00	5047147.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529718.00	5046497.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529668.00	5046397.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529618.00	5046697.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529618.00	5046647.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529618.00	5046597.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529618.00	5046547.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530218.00	5047147.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529618.00	5046397.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529568.00	5046547.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530168.00	5047147.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530168.00	5047197.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530118.00	5046747.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530118.00	5046797.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530118.00	5046847.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530118.00	5046897.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530118.00	5046947.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530118.00	5046997.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530118.00	5047047.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530118.00	5047097.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530118.00	5047147.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530118.00	5047197.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530068.00	5047147.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530068.00	5047197.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530393.00	5046872.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529968.00	5046897.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529968.00	5046947.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529968.00	5047247.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529918.00	5046897.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529918.00	5047297.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530393.00	5047122.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530393.00	5047147.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529818.00	5047347.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529768.00	5046997.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529668.00	5047097.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.

Table 5-2
Summary of Revisions to Statewide Zoning
Hydro Extrusion Portland, Inc.—Portland, Oregon

UTM Coordinates (m)		Zoning Dataset Used for Exposure Classification	Exposure Type Classification	Reason for Exposure Type Classification Revision
Easting	Northing	Oregon Statewide		
529668.00	5047247.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529668.00	5047297.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529618.00	5046747.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529618.00	5046797.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529618.00	5046847.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529618.00	5046897.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529618.00	5046947.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529618.00	5047147.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529618.00	5047197.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529618.00	5047297.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530418.00	5046872.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529568.00	5047247.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529518.00	5046847.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529518.00	5046897.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
529518.00	5047247.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530418.00	5047122.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530418.00	5047147.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530443.00	5046872.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530443.00	5047122.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530443.00	5047147.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530468.00	5046872.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530468.00	5047122.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530468.00	5047147.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530493.00	5046847.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530493.00	5046872.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530493.00	5047122.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530493.00	5047147.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530518.00	5046847.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530518.00	5047122.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530243.00	5046872.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530243.00	5046897.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530543.00	5046847.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530543.00	5047122.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530543.00	5047147.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530568.00	5046822.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530568.00	5046847.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530568.00	5047097.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530568.00	5047147.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530593.00	5046822.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530593.00	5047072.00	Industrial - Light	Not Assessed for Risk	Receptor falls within right-of-way.
530593.00	5047097.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530593.00	5047122.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530618.00	5046797.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530618.00	5046822.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530618.00	5046972.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530243.00	5047072.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530618.00	5047072.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530618.00	5047097.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530643.00	5046797.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530243.00	5047122.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530643.00	5046972.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530643.00	5047047.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530643.00	5047072.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530643.00	5047097.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530243.00	5047147.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530668.00	5046797.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530668.00	5046972.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530668.00	5047047.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530668.00	5047072.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530693.00	5046772.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530693.00	5046797.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530693.00	5046972.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530693.00	5047072.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.

Table 5-2
Summary of Revisions to Statewide Zoning
Hydro Extrusion Portland, Inc.—Portland, Oregon

UTM Coordinates (m)		Zoning Dataset Used for Exposure Classification	Exposure Type Classification	Reason for Exposure Type Classification Revision
Easting	Northing	Oregon Statewide		
530718.00	5046772.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530718.00	5047072.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530743.00	5046772.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530743.00	5046897.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530743.00	5047022.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530743.00	5047047.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530743.00	5047072.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530768.00	5046772.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530768.00	5046897.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530768.00	5047022.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530768.00	5047047.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530793.00	5046772.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530793.00	5046897.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530268.00	5046872.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530793.00	5047022.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530793.00	5047047.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530818.00	5046772.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530818.00	5046997.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530218.00	5046872.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530268.00	5047072.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530268.00	5047122.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530268.00	5047147.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530507.06	5047110.12	Industrial - Light	Not Assessed for Risk	Receptor falls within right-of-way.
530520.86	5047108.54	Industrial - Light	Not Assessed for Risk	Receptor falls within right-of-way.
530531.27	5047106.73	Industrial - Light	Not Assessed for Risk	Receptor falls within right-of-way.
530541.23	5047102.88	Industrial - Light	Not Assessed for Risk	Receptor falls within right-of-way.
530549.38	5047099.03	Industrial - Light	Not Assessed for Risk	Receptor falls within right-of-way.
530559.79	5047093.60	Industrial - Light	Not Assessed for Risk	Receptor falls within right-of-way.
530568.38	5047087.26	Industrial - Light	Not Assessed for Risk	Receptor falls within right-of-way.
530576.08	5047080.93	Industrial - Light	Not Assessed for Risk	Receptor falls within right-of-way.
530582.64	5047074.59	Industrial - Light	Not Assessed for Risk	Receptor falls within right-of-way.
530589.43	5047070.29	Industrial - Light	Not Assessed for Risk	Receptor falls within right-of-way.
530595.31	5047067.35	Industrial - Light	Not Assessed for Risk	Receptor falls within right-of-way.
530603.91	5046979.55	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530601.65	5046977.28	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530596.67	5046977.51	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530596.22	5046966.42	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530596.45	5046963.71	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.
530503.66	5047010.55	Industrial - Light	Not Assessed for Risk	Receptor falls within right-of-way.
530218.00	5046897.00	NonJoin	Not Assessed for Risk	Receptor falls within right-of-way.

Table 5-3
Applicable Risk-Based Concentrations
Hydro Extrusion Portland, Inc.—Portland, Oregon

Pollutant	CAS	Regulatory Category		Risk-Based Concentration ⁽¹⁾ (µg/m ³)						
				Residential Chronic		Nonresidential Chronic				Acute
		TAC	RBC	Cancer	Noncancer	Child Cancer	Child Noncancer	Worker Cancer	Worker Noncancer	
Arsenic and Compounds	7440-38-2	Yes	Yes	0.000024	0.00017	0.0013	0.0024	0.00062	0.0024	0.2
Antimony and Compounds	7440-36-0	Yes	Yes	--	0.3	--	1.3	--	1.3	1
Beryllium and Compounds	7440-41-7	Yes	Yes	0.00042	0.007	0.011	0.031	0.005	0.031	0.02
Cadmium and Compounds	7440-43-9	Yes	Yes	0.00056	0.005	0.014	0.037	0.0067	0.037	0.03
Chromium VI, chromate and dichromate particulate	18540-29-9	Yes	Yes	0.000031	0.083	0.00052	0.88	0.001	0.88	0.3
Chromium VI, chromic acid aerosol mist	7738-94-5	Yes	Yes	0.000031	0.0021	0.00052	0.022	0.001	0.022	0.005
Cobalt and Compounds	7440-48-4	Yes	Yes	--	0.1	--	0.44	--	0.44	--
Copper and Compounds	7440-50-8	Yes	Yes	--	--	--	--	--	--	100
Lead and Compounds	7439-92-1	Yes	Yes	--	0.15	--	0.66	--	0.66	0.15
Manganese and Compounds	7439-96-5	Yes	Yes	--	0.09	--	0.4	--	0.4	0.3
Mercury and Compounds	7439-97-6	Yes	Yes	--	0.077	--	0.63	--	0.63	0.6
Nickel and Compounds	7440-02-0	Yes	Yes	0.0038	0.014	0.1	0.062	0.046	0.062	0.2
Selenium and Compounds	7782-49-2	Yes	Yes	--	--	--	--	--	--	2
Vanadium (fume or dust)	7440-62-2	Yes	Yes	--	0.1	--	0.44	--	0.44	0.8
Acetaldehyde	75-07-0	Yes	Yes	0.45	140	12	620	5.5	620	470
Acrolein	107-02-8	Yes	Yes	--	0.35	--	1.5	--	1.5	6.9
Ammonia	7664-41-7	Yes	Yes	--	500	--	2200	--	2200	1200
Benzene	71-43-2	Yes	Yes	0.13	3	3.3	13	1.5	13	29
Ethylbenzene	100-41-4	Yes	Yes	0.4	260	10	1100	4.8	1100	22000
Formaldehyde	50-00-0	Yes	Yes	0.17	9	4.3	40	2	40	49
Hexane	110-54-3	Yes	Yes	--	700	--	3100	--	3100	--
Isopropyl alcohol	67-63-0	Yes	Yes	--	200	--	880	--	880	3200
Toluene	108-88-3	Yes	Yes	--	5000	--	22000	--	22000	7500
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	Yes	Yes	--	220	--	970	--	970	8700
2-Butanone (Methyl ethyl ketone)	78-93-3	Yes	Yes	--	5000	--	22000	--	22000	5000

Table 5-3
Applicable Risk-Based Concentrations
Hydro Extrusion Portland, Inc.—Portland, Oregon

Pollutant	CAS	Regulatory Category		Risk-Based Concentration ⁽¹⁾ (µg/m ³)						
				Residential Chronic		Nonresidential Chronic				Acute
		TAC	RBC	Cancer	Noncancer	Child Cancer	Child Noncancer	Worker Cancer	Worker Noncancer	
Cumene	98-82-8	Yes	Yes	--	400	--	1800	--	1800	--
1,2,4-Trimethylbenzene	95-63-6	Yes	Yes	--	60	--	260	--	260	--
1,2,3-Trimethylbenzene	526-73-8	Yes	Yes	--	60	--	260	--	260	--
Ethylene glycol monobutyl ether	111-76-2	Yes	Yes	--	82	--	360	--	360	29000
Hydrogen Fluoride	7664-39-3	Yes	Yes	--	2.1	--	19	--	19	16
Methylene Diphenyl Diisocyanate (MDI)	101-68-8	Yes	Yes	--	0.08	--	0.35	--	0.35	12
Diethylene glycol monobutyl ether	112-34-5	Yes	Yes	--	0.1	--	0.44	--	0.44	--
Polycyclic Aromatic Hydrocarbons (PAH)	401	Yes	Yes	0.000043	--	0.0016	--	0.003	--	--
Benzo(a)pyrene	50-32-8	Yes	Yes	0.000043	0.002	0.0016	0.0088	0.003	0.0088	0.002
Naphthalene	91-20-3	Yes	Yes	0.029	3.7	0.76	16	0.35	16	200

NOTES:

HAP = hazardous air pollutant.

RBC = risk-based concentration.

TAC = toxic air contaminant.

µg/m³ = micrograms per cubic meter.

REFERENCES:

⁽¹⁾ Oregon Administrative Rule 340-245-8010 Table 2.

Table 6-1
Maximum Predicted Risk Exposure Location per Toxic Emission Unit
Hydro Extrusion Portland, Inc.—Portland, Oregon

Modeled TEU	Cancer						Chronic Noncancer						Acute Noncancer	
	Residential		Child		Worker		Residential		Child		Worker			
	Exposure Location ⁽¹⁾ (Location of Maximum Risk)	Dispersion Factor (ug/m ³ /[g/s])	Exposure Location ⁽¹⁾ (Location of Maximum Risk)	Dispersion Factor (ug/m ³ /[g/s])	Exposure Location ⁽¹⁾ (Location of Maximum Risk)	Dispersion Factor (ug/m ³ /[g/s])	Exposure Location ⁽¹⁾ (Location of Maximum Risk)	Dispersion Factor (ug/m ³ /[g/s])	Exposure Location ⁽¹⁾ (Location of Maximum Risk)	Dispersion Factor (ug/m ³ /[g/s])	Exposure Location ⁽¹⁾ (Location of Maximum Risk)	Dispersion Factor (ug/m ³ /[g/s])	Exposure Location ⁽¹⁾ (Location of Maximum Risk)	Dispersion Factor (ug/m ³ /[g/s])
SIGNIFICANT TEUS														
RTO	65	1.0746	1445	0.27098	6779	13.85147	65	1.07458	1445	0.27098	6779	13.85147	6779	68.42635
VPT1	65	9.31331	1445	2.68592	6779	41.89445	65	9.31331	1445	2.68592	6779	41.89445	6779	197.84580
VPT2	65	10.58701	1445	2.33918	6779	28.79527	65	10.58701	1445	2.33918	6779	28.79527	6779	134.60388
TIE1	65	14.70849	1445	3.15885	6779	146.92721	65	14.70849	1445	3.15885	6779	146.92721	6779	1,459.22048
TIE2	65	14.82012	1445	3.30346	6779	125.91701	65	14.82012	1445	3.30346	6779	125.91701	6779	1,241.19331
NATURAL GAS TEUS														
OVEN	65	6.08591	1445	1.80676	6786	36.87269	65	6.08591	1445	1.80676	6786	36.87269	6787	264.14926
PTH1	65	9.61346	1445	1.90965	6786	107.81072	65	9.61346	1445	1.90965	6786	107.81072	6787	602.28906
PTH2	65	12.34814	1445	3.25341	6786	154.5398	65	12.34814	1445	3.25341	6786	154.5398	6787	753.04683
AMUA	65	11.30962	1445	2.95606	6786	123.55089	65	11.30962	1445	2.95606	6786	123.55089	6787	731.89401
AMUB	65	11.67181	1445	3.03495	6786	133.45277	65	11.67181	1445	3.03495	6786	133.45277	6787	750.14287
C1H1	65	15.16987	1445	4.51765	6786	165.9129	65	15.16987	1445	4.51765	6786	165.9129	6787	881.31988
C1H2	65	15.45008	1445	4.39187	6786	128.42397	65	15.45008	1445	4.39187	6786	128.42397	6787	795.44679
C1H3	65	22.21384	1445	4.3918	6786	89.05356	65	22.21384	1445	4.3918	6786	89.05356	6787	401.24684
C1H4	65	14.19493	1445	3.17494	6786	119.91801	65	14.19493	1445	3.17494	6786	119.91801	6787	540.66226
C2H1	65	14.12815	1445	3.74008	6786	105.03798	65	14.12815	1445	3.74008	6786	105.03798	6787	487.89643
C2H2	65	16.31703	1445	3.67225	6786	87.14012	65	16.31703	1445	3.67225	6786	87.14012	6787	490.82128
C2H3	65	20.58101	1445	4.21054	6786	67.15567	65	20.58101	1445	4.21054	6786	67.15567	6787	371.34454
C2H4	65	17.03727	1445	5.47754	6786	39.87849	65	17.03727	1445	5.47754	6786	39.87849	6787	282.95621
C2H5	65	13.61129	1445	4.12941	6786	57.337	65	13.61129	1445	4.12941	6786	57.337	6787	358.46807
RTO_NG	65	1.07458	1445	0.27098	6786	0.96458	65	1.07458	1445	0.27098	6786	0.96458	6787	4.58281

Table 6-1
Maximum Predicted Risk Exposure Location per Toxic Emission Unit
Hydro Extrusion Portland, Inc.—Portland, Oregon

NOTES:
TEU = toxic emission unit
ug/m³ = micrograms per cubic meter.

REFERENCES:
(1) Exposure location represents the following receptor ID coordinates in the unit emission rate dispersion model that represents the highest predicted cululative cancer or noncancer risk:

Receptor ID	UTM X (m)	UTM Y (m)
65	530,268.00	5,047,097.00
1,445	530,518.00	5,046,597.00
6,779	530,603.34	5,047,000.82
6,786	530,492.89	5,047,051.06
6,787	530,492.26	5,047,071.20

Table 6-3
Level 3 Risk Assessment Results for Significant Toxic Emission Units—Cancer Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	TAC Emission Rate ⁽¹⁾ (g/s)	Cancer								
			Residential			Nonresidential Child			Nonresidential Worker		
			Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)
Exposure Location ⁽³⁾			65			1,445			6,779		
Cumulative Facility-wide Risk			--	--	4	--	--	0.1	--	--	2
RTO											
Cumulative TEU Risk			--	--	3.11	--	--	0.045	--	--	1.46
Dispersion Factor (µg/m ³ /[g/s])			1.07			0.27			13.9		
2-Butanone (Methyl ethyl ketone)	78-93-3	3.4E-03	3.7E-03	--	(4)	9.2E-04	--	(4)	0.047	--	(4)
Benzene	71-43-2	9.5E-07	1.0E-06	0.13	7.8E-06	2.6E-07	3.30	7.8E-08	1.3E-05	1.50	8.8E-06
Cumene	98-82-8	1.8E-04	2.0E-04	--	(4)	5.0E-05	--	(4)	2.6E-03	--	(4)
Ethylbenzene	100-41-4	0.010	0.011	0.40	0.028	2.8E-03	10.0	2.8E-04	0.14	4.80	0.030
Formaldehyde	50-00-0	2.1E-05	2.3E-05	0.17	1.3E-04	5.7E-06	4.30	1.3E-06	2.9E-04	2.00	1.5E-04
n-Butyl alcohol	71-36-3	6.7E-04	7.2E-04	--	(4)	1.8E-04	--	(4)	9.3E-03	--	(4)
Naphthalene	91-20-3	8.0E-03	8.6E-03	0.029	0.30	2.2E-03	0.76	2.9E-03	0.11	0.35	0.32
Toluene	108-88-3	0.043	0.046	--	(4)	0.012	--	(4)	0.59	--	(4)
1,2,4-Trimethylbenzene	95-63-6	2.5E-03	2.7E-03	--	(4)	6.8E-04	--	(4)	0.035	--	(4)
1,2,4-Trimethylbenzene	526-73-8	3.5E-04	3.7E-04	--	(4)	9.4E-05	--	(4)	4.8E-03	--	(4)
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	0.048	0.052	--	(4)	0.013	--	(4)	0.67	--	(4)
Barium and Compounds	7440-39-3	9.1E-06	9.7E-06	--	(4)	2.5E-06	--	(4)	1.3E-04	--	(4)
Chromium VI, particulate	18540-29-9	8.0E-05	8.6E-05	3.1E-05	2.79	2.2E-05	5.2E-04	0.042	1.1E-03	1.0E-03	1.11
Propylene glycol monomethyl ether acetate	108-65-6	8.7E-03	9.3E-03	--	(4)	2.3E-03	--	(4)	0.12	--	(4)
Ethylene glycol monobutyl ether	111-76-2	0.018	0.019	--	(4)	4.8E-03	--	(4)	0.25	--	(4)
Diethylene glycol monobutyl ether	112-34-5	0.025	0.027	--	(4)	6.8E-03	--	(4)	0.35	--	(4)
VPT1											
Cumulative TEU Risk			--	--	0.41	--	--	7.1E-03	--	--	0.057
Dispersion Factor (µg/m ³ /[g/s])			9.31			2.69			41.9		
Isopropyl acohol	67-63-0	0.018	0.17	--	(4)	0.049	--	(4)	0.77	--	(4)
Chromium VI, chromic acid aerosol mist	7738-94-5	1.4E-06	1.3E-05	3.1E-05	0.41	3.7E-06	5.2E-04	7.1E-03	5.7E-05	1.0E-03	0.057
Hydrogen Fluoride	7664-39-3	1.5E-05	1.4E-04	--	(4)	4.1E-05	--	(4)	6.4E-04	--	(4)
VPT2											
Cumulative TEU Risk			--	--	0.47	--	--	6.1E-03	--	--	0.039
Dispersion Factor (µg/m ³ /[g/s])			10.6			2.34			28.8		
Isopropyl acohol	67-63-0	0.018	0.19	--	(4)	0.043	--	(4)	0.53	--	(4)
Chromium VI, chromic acid aerosol mist	7738-94-5	1.4E-06	1.4E-05	3.1E-05	0.47	3.2E-06	5.2E-04	6.1E-03	3.9E-05	1.0E-03	0.039
Hydrogen Fluoride	7664-39-3	1.5E-05	1.6E-04	--	(4)	3.6E-05	--	(4)	4.4E-04	--	(4)

Table 6-3
Level 3 Risk Assessment Results for Significant Toxic Emission Units—Cancer Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	TAC Emission Rate ⁽¹⁾ (g/s)	Cancer								
			Residential			Nonresidential Child			Nonresidential Worker		
			Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)
Exposure Location ⁽³⁾			65			1,445			6,779		
Cumulative Facility-wide Risk			--	--	4	--	--	0.1	--	--	2
TIE1											
Cumulative TEU Risk			--	--	0	--	--	0	--	--	0
Dispersion Factor (ug/m ³ /[g/s])			14.7			3.16			147		
Methylene diphenyl diisocyanate (MDI)	101-68-8	9.5E-08	1.4E-06	--	⁽⁴⁾	3.0E-07	--	⁽⁴⁾	1.4E-05	--	⁽⁴⁾
TIE2											
Cumulative TEU Risk			--	--	0	--	--	0	--	--	0
Dispersion Factor (ug/m ³ /[g/s])			14.8			3.30			126		
Methylene diphenyl diisocyanate (MDI)	101-68-8	9.5E-08	1.4E-06	--	⁽⁴⁾	3.1E-07	--	⁽⁴⁾	1.2E-05	--	⁽⁴⁾

NOTES:

- RBC = risk-based concentration.
TEU = toxic emission unit.
TAC = toxic air contaminant.
ug/m³ = micrograms per cubic meter.
- ^(a) Calculated concentration (ug/m³) = (dispersion factor [(ug/m³)/{g/s}]) x (TAC emission rate per TEU [g/s])
^(b) Predicted risk (chances-in-1,000,000) = (calculated concentration [ug/m³]) / (risk-based concentration [ug/m³])

REFERENCES:

- ⁽¹⁾ See Table 3–1, Significant Toxic Emission Units Emission Rates—Cancer Assessment.
⁽²⁾ Oregon Administrative Rule 340-245-8010, Table 2.
⁽³⁾ See Table 6-1, Maximum Predicted Risk Exposure Location per Toxic Emission Unit.
⁽⁴⁾ TAC does not have an established RBC for this exposure category per Oregon Administrative Rule 340-245-8040, Table 4.

Table 6-4
Level 3 Risk Assessment Results for Significant Toxic Emission Units—Chronic and Acute Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	Annual TAC Emission Rate ⁽¹⁾ (g/s)	Daily TAC Emission Rate ⁽²⁾ (g/s)	Chronic Noncancer									Acute Noncancer		
				Residential			Nonresidential Child			Nonresidential Worker					
				Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)
Exposure Location ⁽⁴⁾				65			1,445			6,779			6,779		
Cumulative Facility-wide Risk				--	--	0.7	--	--	0.04	--	--	2	--	--	0.6
RTO															
Cumulative TEU Risk				--	--	0.72	--	--	0.041	--	--	2.11	--	--	0.48
Dispersion Factor (µg/m ³ /[g/s])				1.07			0.27			13.9			68.4		
2-Butanone (Methyl ethyl ketone)	78-93-3	3.4E-03	0.14	3.7E-03	5,000	7.3E-07	9.2E-04	22,000	4.2E-08	0.047	22,000	2.1E-06	9.79	5,000	2.0E-03
Benzene	71-43-2	9.5E-07	5.8E-06	1.0E-06	3.00	3.4E-07	2.6E-07	13.0	2.0E-08	1.3E-05	13.0	1.0E-06	4.0E-04	29.0	1.4E-05
Cumene	98-82-8	7.0E-05	1.5E-03	7.5E-05	400	1.9E-07	1.9E-05	1,800	1.1E-08	9.7E-04	1,800	5.4E-07	0.10	--	⁽⁵⁾
Dimethyl phthalate	131-11-3	2.5E-02	0.11	0.027	--	⁽⁵⁾	6.9E-03	--	⁽⁵⁾	0.35	--	⁽⁵⁾	7.33	--	⁽⁵⁾
Ethene, 1,1-difluoro-, homopolymer	489	6.5E-03	0.029	7.0E-03	--	⁽⁵⁾	1.8E-03	--	⁽⁵⁾	0.090	--	⁽⁵⁾	2.01	--	⁽⁵⁾
Ethylbenzene	100-41-4	9.4E-03	0.045	0.010	260	3.9E-05	2.5E-03	1,100	2.3E-06	0.13	1,100	1.2E-04	3.06	22,000	1.4E-04
Formaldehyde	50-00-0	1.7E-07	--	1.9E-07	9.00	2.1E-08	4.7E-08	40.0	1.2E-09	2.4E-06	40.0	6.0E-08	--	49.0	⁽⁵⁾
n-Butyl alcohol	71-36-3	--	5.3E-03	--	--	⁽⁵⁾	--	--	⁽⁵⁾	--	--	⁽⁵⁾	0.36	--	⁽⁵⁾
Naphthalene	91-20-3	3.8E-04	5.2E-03	4.1E-04	3.70	1.1E-04	1.0E-04	16.0	6.4E-06	5.3E-03	16.0	3.3E-04	0.36	200	1.8E-03
Toluene	108-88-3	6.7E-02	1.87	0.072	5,000	1.4E-05	0.018	22,000	8.2E-07	0.92	22,000	4.2E-05	128	7,500	0.017
1,2,4-Trimethylbenzene	95-63-6	6.4E-03	0.049	6.9E-03	60.0	1.1E-04	1.7E-03	260	6.7E-06	0.089	260	3.4E-04	3.32	--	⁽⁵⁾
1,2,4-Trimethylbenzene	526-73-8	1.0E-03	4.8E-03	1.1E-03	60.0	1.9E-05	2.8E-04	260	1.1E-06	0.014	260	5.6E-05	0.33	--	⁽⁵⁾
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	4.4E-02	0.34	0.047	220	2.2E-04	0.012	970	1.2E-05	0.61	970	6.3E-04	23.1	8,700	2.7E-03
Anitmony and Compounds	7440-36-0	--	4.6E-03	--	0.30	⁽⁵⁾	--	1.30	⁽⁵⁾	--	1.30	⁽⁵⁾	0.32	1.00	0.32
Barium and Compounds	7440-39-3	--	7.3E-05	--	--	⁽⁵⁾	--	--	⁽⁵⁾	--	--	⁽⁵⁾	5.0E-03	--	⁽⁵⁾
Chromium VI, chromate and dichromate partic	18540-29-9	1.6E-05	6.3E-04	1.7E-05	0.083	2.1E-04	4.4E-06	0.88	5.0E-06	2.2E-04	0.88	2.5E-04	0.043	0.30	0.14
Cobalt and Compounds	7440-48-4	--	1.3E-04	--	0.10	⁽⁵⁾	--	0.44	⁽⁵⁾	--	0.44	⁽⁵⁾	8.6E-03	--	⁽⁵⁾
Propylene glycol monomethyl ether acetate	108-65-6	1.3E-02	0.12	0.013	--	⁽⁵⁾	3.4E-03	--	⁽⁵⁾	0.17	--	⁽⁵⁾	7.87	--	⁽⁵⁾
Ethylene glycol monobutyl ether	111-76-2	--	0.020	--	82.0	⁽⁵⁾	--	360	⁽⁵⁾	--	360	⁽⁵⁾	1.36	29,000	4.7E-05
Diethylene glycol monobutyl ether	112-34-5	6.7E-02	0.20	0.072	0.10	0.72	0.018	0.44	0.041	0.93	0.44	2.11	13.6	--	⁽⁵⁾
VPT1															
Cumulative TEU Risk				--	--	7.0E-03	--	--	2.2E-04	--	--	3.5E-03	--	--	0.056
Dispersion Factor (µg/m ³ /[g/s])				9.31			2.69			41.9			198		
Isopropyl acohol	67-63-0	1.8E-02	0.023	0.17	200	8.5E-04	0.049	880	5.6E-05	0.77	880	8.7E-04	4.53	3,200	1.4E-03
Chromium VI, chromic acid aerosol mist	7738-94-5	1.4E-06	1.4E-06	1.3E-05	2.1E-03	6.1E-03	3.7E-06	0.022	1.7E-04	5.7E-05	0.022	2.6E-03	2.7E-04	5.0E-03	0.054
Hydrogen Fluoride	7664-39-3	1.5E-05	1.5E-05	1.4E-04	2.10	6.8E-05	4.1E-05	19.0	2.2E-06	6.4E-04	19.0	3.4E-05	3.0E-03	16.0	1.9E-04

Table 6-4
Level 3 Risk Assessment Results for Significant Toxic Emission Units—Chronic and Acute Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	Annual TAC Emission Rate ⁽¹⁾ (g/s)	Daily TAC Emission Rate ⁽²⁾ (g/s)	Chronic Noncancer									Acute Noncancer		
				Residential			Nonresidential Child			Nonresidential Worker					
				Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)
Exposure Location ⁽⁴⁾				65			1,445			6,779			6,779		
Cumulative Facility-wide Risk				--	--	0.7	--	--	0.04	--	--	2	--	--	0.6
VPT2															
Cumulative TEU Risk				--	--	7.9E-03	--	--	2.0E-04	--	--	2.4E-03	--	--	0.038
Dispersion Factor (µg/m ³ /[g/s])				10.6			2.34			28.8			135		
Isopropyl acohol	67-63-0	1.8E-02	0.023	0.19	200	9.7E-04	0.043	880	4.9E-05	0.53	880	6.0E-04	3.08	3,200	9.6E-04
Chromium VI, chromic acid aerosol mist	7738-94-5	1.4E-06	1.4E-06	1.4E-05	2.1E-03	6.9E-03	3.2E-06	0.022	1.5E-04	3.9E-05	0.022	1.8E-03	1.8E-04	5.0E-03	0.037
Hydrogen Fluoride	7664-39-3	1.5E-05	1.5E-05	1.6E-04	2.10	7.7E-05	3.6E-05	19.0	1.9E-06	4.4E-04	19.0	2.3E-05	2.1E-03	16.0	1.3E-04
TIE1															
Cumulative TEU Risk				--	--	1.7E-05	--	--	8.6E-07	--	--	4.0E-05	--	--	2.4E-05
Dispersion Factor (µg/m ³ /[g/s])				14.7			3.16			147			1,459		
Methylene diphenyl diisocyanate (MDI)	101-68-8	9.5E-08	2.0E-07	1.4E-06	0.080	1.7E-05	3.0E-07	0.35	8.6E-07	1.4E-05	0.35	4.0E-05	2.9E-04	12.0	2.4E-05
TIE2															
Cumulative TEU Risk				--	--	1.8E-05	--	--	9.0E-07	--	--	3.4E-05	--	--	2.0E-05
Dispersion Factor (µg/m ³ /[g/s])				14.8			3.30			126			1,241		
Methylene diphenyl diisocyanate (MDI)	101-68-8	9.5E-08	2.0E-07	1.4E-06	0.080	1.8E-05	3.1E-07	0.35	9.0E-07	1.2E-05	0.35	3.4E-05	2.4E-04	12.0	2.0E-05

NOTES:

- RBC = risk-based concentration.
- TEU = toxic emission unit.
- TAC = toxic air contaminant.
- ug/m³ = micrograms per cubic meter.
- ^(a) Calculated concentration (ug/m³) = (dispersion factor [{ug/m³}/{g/s}]) x (TAC emission rate per TEU [g/s])
- ^(b) Predicted risk (chances-in-1,000,000) = (calculated concentration [ug/m³]) / (risk-based concentration [ug/m³])

REFERENCES:

- ⁽¹⁾ See Table 3–2, Significant Toxic Emission Units Emission Rates—Chronic Noncancer Assessment.
- ⁽²⁾ See Table 3–3, Significant Toxic Emission Units Emission Rates—Acute Assessment.
- ⁽³⁾ Oregon Administrative Rule 340-245-8010, Table 2.
- ⁽⁴⁾ See Table 6-1, Maximum Predicted Risk Exposure Location per Toxic Emission Unit.
- ⁽⁵⁾ TAC does not have an established RBC for this exposure category per Oregon Administrative Rule 340-245-8040, Table 4.

Table 6-5
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Cancer Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	TAC Emission Rate ⁽¹⁾ (g/s)	Cancer								
			Residential			Nonresidential Child			Nonresidential Worker		
			Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)
Exposure Location ⁽³⁾			65			1,445			6,786		
Cumulative Facility-wide Risk			--	--	0.3	--	--	0.002	--	--	0.1
OVEN											
Cumulative TEU Risk			--	--	0.052	--	--	4.4E-04	--	--	0.013
Dispersion Factor (µg/m ³ /[g/s])			6.09			1.81			36.9		
Acetaldehyde	75-07-0	2.4E-06	1.5E-05	0.45	3.2E-05	4.3E-06	12.0	3.6E-07	8.8E-05	5.50	1.6E-05
Acrolein	107-02-8	1.5E-06	9.1E-06	--	⁽⁴⁾	2.7E-06	--	⁽⁴⁾	5.5E-05	--	⁽⁴⁾
Ammonia	7664-41-7	1.8E-03	0.011	--	⁽⁴⁾	3.2E-03	--	⁽⁴⁾	0.066	--	⁽⁴⁾
Benzene	71-43-2	4.4E-06	2.7E-05	0.13	2.1E-04	8.0E-06	3.30	2.4E-06	1.6E-04	1.50	1.1E-04
Benzo(a)pyrene	50-32-8	6.7E-10	4.1E-09	4.3E-05	9.4E-05	1.2E-09	1.6E-03	7.5E-07	2.5E-08	3.0E-03	8.2E-06
Ethylbenzene	100-41-4	5.3E-06	3.2E-05	0.40	8.0E-05	9.5E-06	10.0	9.5E-07	1.9E-04	4.80	4.1E-05
Formaldehyde	50-00-0	9.4E-06	5.8E-05	0.17	3.4E-04	1.7E-05	4.30	4.0E-06	3.5E-04	2.00	1.7E-04
Hexane	110-54-3	3.5E-06	2.1E-05	--	⁽⁴⁾	6.3E-06	--	⁽⁴⁾	1.3E-04	--	⁽⁴⁾
Naphthalene	91-20-3	1.7E-07	1.0E-06	0.029	3.5E-05	3.0E-07	0.76	4.0E-07	6.1E-06	0.35	1.8E-05
Polycyclic Aromatic Hydrocarbons (PAH)	401	5.6E-08	3.4E-07	4.3E-05	7.9E-03	1.0E-07	1.6E-03	6.3E-05	2.0E-06	3.0E-03	6.8E-04
Toluene	108-88-3	2.0E-05	1.2E-04	--	⁽⁴⁾	3.7E-05	--	⁽⁴⁾	7.5E-04	--	⁽⁴⁾
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	1.5E-05	9.2E-05	--	⁽⁴⁾	2.7E-05	--	⁽⁴⁾	5.6E-04	--	⁽⁴⁾
Arsenic and Compounds	7440-38-2	1.1E-07	6.8E-07	2.4E-05	0.028	2.0E-07	1.3E-03	1.5E-04	4.1E-06	6.2E-04	6.6E-03
Barium and Compounds	7440-39-3	2.4E-06	1.5E-05	--	⁽⁴⁾	4.4E-06	--	⁽⁴⁾	9.0E-05	--	⁽⁴⁾
Beryllium and Compounds	7440-41-7	6.7E-09	4.1E-08	4.2E-04	9.7E-05	1.2E-08	0.011	1.1E-06	2.5E-07	5.0E-03	4.9E-05
Cadmium and Compounds	7440-43-9	6.1E-07	3.7E-06	5.6E-04	6.6E-03	1.1E-06	0.014	7.9E-05	2.3E-05	6.7E-03	3.4E-03
Chromium VI, particulate	18540-29-9	3.1E-08	1.9E-07	3.1E-05	6.1E-03	5.6E-08	5.2E-04	1.1E-04	1.1E-06	1.0E-03	1.1E-03
Cobalt and Compounds	7440-48-4	4.7E-08	2.8E-07	--	⁽⁴⁾	8.4E-08	--	⁽⁴⁾	1.7E-06	--	⁽⁴⁾
Copper and Compounds	7440-50-8	4.7E-07	2.9E-06	--	⁽⁴⁾	8.5E-07	--	⁽⁴⁾	1.7E-05	--	⁽⁴⁾
Lead and Compounds	7439-92-1	2.8E-07	1.7E-06	--	⁽⁴⁾	5.0E-07	--	⁽⁴⁾	1.0E-05	--	⁽⁴⁾
Manganese and Compounds	7439-96-5	2.1E-07	1.3E-06	--	⁽⁴⁾	3.8E-07	--	⁽⁴⁾	7.8E-06	--	⁽⁴⁾
Mercury and Compounds	7439-97-6	1.4E-07	8.8E-07	--	⁽⁴⁾	2.6E-07	--	⁽⁴⁾	5.3E-06	--	⁽⁴⁾
Molybdenum trioxide	1313-27-5	9.2E-07	5.6E-06	--	⁽⁴⁾	1.7E-06	--	⁽⁴⁾	3.4E-05	--	⁽⁴⁾
Nickel and Compounds	7440-02-0	1.2E-06	7.1E-06	3.8E-03	1.9E-03	2.1E-06	0.10	2.1E-05	4.3E-05	0.046	9.4E-04
Selenium and Compounds	7782-49-2	1.3E-08	8.1E-08	--	⁽⁴⁾	2.4E-08	--	⁽⁴⁾	4.9E-07	--	⁽⁴⁾
Vanadium (fume or dust)	7440-62-2	1.3E-06	7.8E-06	--	⁽⁴⁾	2.3E-06	--	⁽⁴⁾	4.7E-05	--	⁽⁴⁾
Zinc and Compounds	7440-66-6	1.6E-05	9.8E-05	--	⁽⁴⁾	2.9E-05	--	⁽⁴⁾	5.9E-04	--	⁽⁴⁾

Table 6-5
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Cancer Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	TAC Emission Rate ⁽¹⁾ (g/s)	Cancer								
			Residential			Nonresidential Child			Nonresidential Worker		
			Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)
Exposure Location ⁽³⁾			65			1,445			6,786		
Cumulative Facility-wide Risk			--	--	0.3	--	--	0.002	--	--	0.1
PTH1											
Cumulative TEU Risk			--	--	0.091	--	--	5.1E-04	--	--	0.043
Dispersion Factor (µg/m ³ /[g/s])			9.61			1.91			108		
Acetaldehyde	75-07-0	2.7E-06	2.6E-05	0.45	5.7E-05	5.1E-06	12.0	4.2E-07	2.9E-04	5.50	5.2E-05
Acrolein	107-02-8	1.7E-06	1.6E-05	--	⁽⁴⁾	3.2E-06	--	⁽⁴⁾	1.8E-04	--	⁽⁴⁾
Ammonia	7664-41-7	2.0E-03	0.019	--	⁽⁴⁾	3.8E-03	--	⁽⁴⁾	0.21	--	⁽⁴⁾
Benzene	71-43-2	4.9E-06	4.7E-05	0.13	3.7E-04	9.4E-06	3.30	2.9E-06	5.3E-04	1.50	3.6E-04
Benzo(a)pyrene	50-32-8	7.4E-10	7.1E-09	4.3E-05	1.7E-04	1.4E-09	1.6E-03	8.8E-07	8.0E-08	3.0E-03	2.7E-05
Ethylbenzene	100-41-4	5.9E-06	5.6E-05	0.40	1.4E-04	1.1E-05	10.0	1.1E-06	6.3E-04	4.80	1.3E-04
Formaldehyde	50-00-0	1.0E-05	1.0E-04	0.17	5.9E-04	2.0E-05	4.30	4.7E-06	1.1E-03	2.00	5.7E-04
Hexane	110-54-3	3.9E-06	3.7E-05	--	⁽⁴⁾	7.4E-06	--	⁽⁴⁾	4.2E-04	--	⁽⁴⁾
Naphthalene	91-20-3	1.9E-07	1.8E-06	0.029	6.1E-05	3.5E-07	0.76	4.7E-07	2.0E-05	0.35	5.7E-05
Polycyclic Aromatic Hydrocarbons (PAH)	401	6.2E-08	5.9E-07	4.3E-05	0.014	1.2E-07	1.6E-03	7.4E-05	6.7E-06	3.0E-03	2.2E-03
Toluene	108-88-3	2.3E-05	2.2E-04	--	⁽⁴⁾	4.3E-05	--	⁽⁴⁾	2.4E-03	--	⁽⁴⁾
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	1.7E-05	1.6E-04	--	⁽⁴⁾	3.2E-05	--	⁽⁴⁾	1.8E-03	--	⁽⁴⁾
Arsenic and Compounds	7440-38-2	1.2E-07	1.2E-06	2.4E-05	0.049	2.4E-07	1.3E-03	1.8E-04	1.3E-05	6.2E-04	0.021
Barium and Compounds	7440-39-3	2.7E-06	2.6E-05	--	⁽⁴⁾	5.2E-06	--	⁽⁴⁾	2.9E-04	--	⁽⁴⁾
Beryllium and Compounds	7440-41-7	7.4E-09	7.1E-08	4.2E-04	1.7E-04	1.4E-08	0.011	1.3E-06	8.0E-07	5.0E-03	1.6E-04
Cadmium and Compounds	7440-43-9	6.8E-07	6.5E-06	5.6E-04	0.012	1.3E-06	0.014	9.3E-05	7.3E-05	6.7E-03	0.011
Chromium VI, chromate and dichromate particulate	18540-29-9	3.5E-08	3.3E-07	3.1E-05	0.011	6.6E-08	5.2E-04	1.3E-04	3.7E-06	1.0E-03	3.7E-03
Cobalt and Compounds	7440-48-4	5.2E-08	5.0E-07	--	⁽⁴⁾	9.9E-08	--	⁽⁴⁾	5.6E-06	--	⁽⁴⁾
Copper and Compounds	7440-50-8	5.2E-07	5.0E-06	--	⁽⁴⁾	1.0E-06	--	⁽⁴⁾	5.7E-05	--	⁽⁴⁾
Lead and Compounds	7439-92-1	3.1E-07	3.0E-06	--	⁽⁴⁾	5.9E-07	--	⁽⁴⁾	3.3E-05	--	⁽⁴⁾
Manganese and Compounds	7439-96-5	2.3E-07	2.3E-06	--	⁽⁴⁾	4.5E-07	--	⁽⁴⁾	2.5E-05	--	⁽⁴⁾
Mercury and Compounds	7439-97-6	1.6E-07	1.5E-06	--	⁽⁴⁾	3.1E-07	--	⁽⁴⁾	1.7E-05	--	⁽⁴⁾
Molybdenum trioxide	1313-27-5	1.0E-06	9.8E-06	--	⁽⁴⁾	1.9E-06	--	⁽⁴⁾	1.1E-04	--	⁽⁴⁾
Nickel and Compounds	7440-02-0	1.3E-06	1.2E-05	3.8E-03	3.3E-03	2.5E-06	0.10	2.5E-05	1.4E-04	0.046	3.0E-03
Selenium and Compounds	7782-49-2	1.5E-08	1.4E-07	--	⁽⁴⁾	2.8E-08	--	⁽⁴⁾	1.6E-06	--	⁽⁴⁾
Vanadium (fume or dust)	7440-62-2	1.4E-06	1.4E-05	--	⁽⁴⁾	2.7E-06	--	⁽⁴⁾	1.5E-04	--	⁽⁴⁾
Zinc and Compounds	7440-66-6	1.8E-05	1.7E-04	--	⁽⁴⁾	3.4E-05	--	⁽⁴⁾	1.9E-03	--	⁽⁴⁾

Table 6-5
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Cancer Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	TAC Emission Rate ⁽¹⁾ (g/s)	Cancer								
			Residential			Nonresidential Child			Nonresidential Worker		
			Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)
Exposure Location ⁽³⁾			65			1,445			6,786		
Cumulative Facility-wide Risk			--	--	0.3	--	--	0.002	--	--	0.1
PTH2											
Cumulative TEU Risk			--	--	0.088	--	--	6.6E-04	--	--	0.047
Dispersion Factor (ug/m ³ /[g/s])			12.3			3.25			155		
Acetaldehyde	75-07-0	2.0E-06	2.5E-05	0.45	5.5E-05	6.6E-06	12.0	5.5E-07	3.1E-04	5.50	5.7E-05
Acrolein	107-02-8	1.3E-06	1.6E-05	--	⁽⁴⁾	4.1E-06	--	⁽⁴⁾	2.0E-04	--	⁽⁴⁾
Ammonia	7664-41-7	1.5E-03	0.019	--	⁽⁴⁾	4.9E-03	--	⁽⁴⁾	0.23	--	⁽⁴⁾
Benzene	71-43-2	3.8E-06	4.6E-05	0.13	3.6E-04	1.2E-05	3.30	3.7E-06	5.8E-04	1.50	3.9E-04
Benzo(a)pyrene	50-32-8	5.6E-10	7.0E-09	4.3E-05	1.6E-04	1.8E-09	1.6E-03	1.1E-06	8.7E-08	3.0E-03	2.9E-05
Ethylbenzene	100-41-4	4.5E-06	5.5E-05	0.40	1.4E-04	1.5E-05	10.0	1.5E-06	6.9E-04	4.80	1.4E-04
Formaldehyde	50-00-0	8.0E-06	9.9E-05	0.17	5.8E-04	2.6E-05	4.30	6.0E-06	1.2E-03	2.00	6.2E-04
Hexane	110-54-3	3.0E-06	3.7E-05	--	⁽⁴⁾	9.6E-06	--	⁽⁴⁾	4.6E-04	--	⁽⁴⁾
Naphthalene	91-20-3	1.4E-07	1.7E-06	0.029	6.0E-05	4.6E-07	0.76	6.0E-07	2.2E-05	0.35	6.2E-05
Polycyclic Aromatic Hydrocarbons (PAH)	401	4.7E-08	5.8E-07	4.3E-05	0.013	1.5E-07	1.6E-03	9.5E-05	7.3E-06	3.0E-03	2.4E-03
Toluene	108-88-3	1.7E-05	2.1E-04	--	⁽⁴⁾	5.6E-05	--	⁽⁴⁾	2.7E-03	--	⁽⁴⁾
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	1.3E-05	1.6E-04	--	⁽⁴⁾	4.2E-05	--	⁽⁴⁾	2.0E-03	--	⁽⁴⁾
Arsenic and Compounds	7440-38-2	9.4E-08	1.2E-06	2.4E-05	0.048	3.1E-07	1.3E-03	2.3E-04	1.5E-05	6.2E-04	0.023
Barium and Compounds	7440-39-3	2.1E-06	2.6E-05	--	⁽⁴⁾	6.7E-06	--	⁽⁴⁾	3.2E-04	--	⁽⁴⁾
Beryllium and Compounds	7440-41-7	5.6E-09	7.0E-08	4.2E-04	1.7E-04	1.8E-08	0.011	1.7E-06	8.7E-07	5.0E-03	1.7E-04
Cadmium and Compounds	7440-43-9	5.2E-07	6.4E-06	5.6E-04	0.011	1.7E-06	0.014	1.2E-04	8.0E-05	6.7E-03	0.012
Chromium VI, chromate and dichromate particulate	18540-29-9	2.6E-08	3.2E-07	3.1E-05	0.010	8.6E-08	5.2E-04	1.6E-04	4.1E-06	1.0E-03	4.1E-03
Cobalt and Compounds	7440-48-4	3.9E-08	4.9E-07	--	⁽⁴⁾	1.3E-07	--	⁽⁴⁾	6.1E-06	--	⁽⁴⁾
Copper and Compounds	7440-50-8	4.0E-07	4.9E-06	--	⁽⁴⁾	1.3E-06	--	⁽⁴⁾	6.2E-05	--	⁽⁴⁾
Lead and Compounds	7439-92-1	2.3E-07	2.9E-06	--	⁽⁴⁾	7.6E-07	--	⁽⁴⁾	3.6E-05	--	⁽⁴⁾
Manganese and Compounds	7439-96-5	1.8E-07	2.2E-06	--	⁽⁴⁾	5.8E-07	--	⁽⁴⁾	2.8E-05	--	⁽⁴⁾
Mercury and Compounds	7439-97-6	1.2E-07	1.5E-06	--	⁽⁴⁾	4.0E-07	--	⁽⁴⁾	1.9E-05	--	⁽⁴⁾
Molybdenum trioxide	1313-27-5	7.7E-07	9.6E-06	--	⁽⁴⁾	2.5E-06	--	⁽⁴⁾	1.2E-04	--	⁽⁴⁾
Nickel and Compounds	7440-02-0	9.9E-07	1.2E-05	3.8E-03	3.2E-03	3.2E-06	0.10	3.2E-05	1.5E-04	0.046	3.3E-03
Selenium and Compounds	7782-49-2	1.1E-08	1.4E-07	--	⁽⁴⁾	3.7E-08	--	⁽⁴⁾	1.7E-06	--	⁽⁴⁾
Vanadium (fume or dust)	7440-62-2	1.1E-06	1.3E-05	--	⁽⁴⁾	3.5E-06	--	⁽⁴⁾	1.7E-04	--	⁽⁴⁾
Zinc and Compounds	7440-66-6	1.4E-05	1.7E-04	--	⁽⁴⁾	4.4E-05	--	⁽⁴⁾	2.1E-03	--	⁽⁴⁾

Table 6-5
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Cancer Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	TAC Emission Rate ⁽¹⁾ (g/s)	Cancer								
			Residential			Nonresidential Child			Nonresidential Worker		
			Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)
Exposure Location ⁽³⁾			65			1,445			6,786		
Cumulative Facility-wide Risk			--	--	0.3	--	--	0.002	--	--	0.1
AMUA											
Cumulative TEU Risk			--	--	0.015	--	--	1.1E-04	--	--	6.9E-03
Dispersion Factor (ug/m ³ /[g/s])			11.3			2.96			124		
Acetaldehyde	75-07-0	3.7E-07	4.2E-06	0.45	9.3E-06	1.1E-06	12.0	9.2E-08	4.6E-05	5.50	8.4E-06
Acrolein	107-02-8	2.3E-07	2.6E-06	--	⁽⁴⁾	6.9E-07	--	⁽⁴⁾	2.9E-05	--	⁽⁴⁾
Ammonia	7664-41-7	2.8E-04	3.1E-03	--	⁽⁴⁾	8.2E-04	--	⁽⁴⁾	0.034	--	⁽⁴⁾
Benzene	71-43-2	6.9E-07	7.8E-06	0.13	6.0E-05	2.0E-06	3.30	6.2E-07	8.5E-05	1.50	5.7E-05
Benzo(a)pyrene	50-32-8	1.0E-10	1.2E-09	4.3E-05	2.7E-05	3.1E-10	1.6E-03	1.9E-07	1.3E-08	3.0E-03	4.3E-06
Ethylbenzene	100-41-4	8.2E-07	9.3E-06	0.40	2.3E-05	2.4E-06	10.0	2.4E-07	1.0E-04	4.80	2.1E-05
Formaldehyde	50-00-0	1.5E-06	1.7E-05	0.17	9.8E-05	4.3E-06	4.30	1.0E-06	1.8E-04	2.00	9.1E-05
Hexane	110-54-3	5.4E-07	6.2E-06	--	⁽⁴⁾	1.6E-06	--	⁽⁴⁾	6.7E-05	--	⁽⁴⁾
Naphthalene	91-20-3	2.6E-08	2.9E-07	0.029	1.0E-05	7.7E-08	0.76	1.0E-07	3.2E-06	0.35	9.2E-06
Polycyclic Aromatic Hydrocarbons (PAH)	401	8.6E-09	9.8E-08	4.3E-05	2.3E-03	2.6E-08	1.6E-03	1.6E-05	1.1E-06	3.0E-03	3.6E-04
Toluene	108-88-3	3.2E-06	3.6E-05	--	⁽⁴⁾	9.4E-06	--	⁽⁴⁾	3.9E-04	--	⁽⁴⁾
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	2.4E-06	2.7E-05	--	⁽⁴⁾	7.0E-06	--	⁽⁴⁾	2.9E-04	--	⁽⁴⁾
Arsenic and Compounds	7440-38-2	1.7E-08	2.0E-07	2.4E-05	8.1E-03	5.1E-08	1.3E-03	3.9E-05	2.1E-06	6.2E-04	3.4E-03
Barium and Compounds	7440-39-3	3.8E-07	4.3E-06	--	⁽⁴⁾	1.1E-06	--	⁽⁴⁾	4.7E-05	--	⁽⁴⁾
Beryllium and Compounds	7440-41-7	1.0E-09	1.2E-08	4.2E-04	2.8E-05	3.1E-09	0.011	2.8E-07	1.3E-07	5.0E-03	2.6E-05
Cadmium and Compounds	7440-43-9	9.5E-08	1.1E-06	5.6E-04	1.9E-03	2.8E-07	0.014	2.0E-05	1.2E-05	6.7E-03	1.8E-03
Chromium VI, chromate and dichromate particulate	18540-29-9	4.8E-09	5.5E-08	3.1E-05	1.8E-03	1.4E-08	5.2E-04	2.8E-05	6.0E-07	1.0E-03	6.0E-04
Cobalt and Compounds	7440-48-4	7.3E-09	8.2E-08	--	⁽⁴⁾	2.1E-08	--	⁽⁴⁾	9.0E-07	--	⁽⁴⁾
Copper and Compounds	7440-50-8	7.3E-08	8.3E-07	--	⁽⁴⁾	2.2E-07	--	⁽⁴⁾	9.1E-06	--	⁽⁴⁾
Lead and Compounds	7439-92-1	4.3E-08	4.9E-07	--	⁽⁴⁾	1.3E-07	--	⁽⁴⁾	5.3E-06	--	⁽⁴⁾
Manganese and Compounds	7439-96-5	3.3E-08	3.7E-07	--	⁽⁴⁾	9.7E-08	--	⁽⁴⁾	4.1E-06	--	⁽⁴⁾
Mercury and Compounds	7439-97-6	2.2E-08	2.5E-07	--	⁽⁴⁾	6.6E-08	--	⁽⁴⁾	2.8E-06	--	⁽⁴⁾
Molybdenum trioxide	1313-27-5	1.4E-07	1.6E-06	--	⁽⁴⁾	4.2E-07	--	⁽⁴⁾	1.8E-05	--	⁽⁴⁾
Nickel and Compounds	7440-02-0	1.8E-07	2.1E-06	3.8E-03	5.4E-04	5.4E-07	0.10	5.4E-06	2.2E-05	0.046	4.9E-04
Selenium and Compounds	7782-49-2	2.1E-09	2.3E-08	--	⁽⁴⁾	6.1E-09	--	⁽⁴⁾	2.6E-07	--	⁽⁴⁾
Vanadium (fume or dust)	7440-62-2	2.0E-07	2.2E-06	--	⁽⁴⁾	5.9E-07	--	⁽⁴⁾	2.5E-05	--	⁽⁴⁾
Zinc and Compounds	7440-66-6	2.5E-06	2.8E-05	--	⁽⁴⁾	7.4E-06	--	⁽⁴⁾	3.1E-04	--	⁽⁴⁾

Table 6-5
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Cancer Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	TAC Emission Rate ⁽¹⁾ (g/s)	Cancer								
			Residential			Nonresidential Child			Nonresidential Worker		
			Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)
Exposure Location ⁽³⁾			65			1,445			6,786		
Cumulative Facility-wide Risk			--	--	0.3	--	--	0.002	--	--	0.1
AMUB											
Cumulative TEU Risk			--	--	0.015	--	--	1.1E-04	--	--	7.4E-03
Dispersion Factor (µg/m ³ /[g/s])			11.7			3.03			133		
Acetaldehyde	75-07-0	3.7E-07	4.3E-06	0.45	9.6E-06	1.1E-06	12.0	9.4E-08	5.0E-05	5.50	9.0E-06
Acrolein	107-02-8	2.3E-07	2.7E-06	--	⁽⁴⁾	7.1E-07	--	⁽⁴⁾	3.1E-05	--	⁽⁴⁾
Ammonia	7664-41-7	2.8E-04	3.2E-03	--	⁽⁴⁾	8.4E-04	--	⁽⁴⁾	0.037	--	⁽⁴⁾
Benzene	71-43-2	6.9E-07	8.1E-06	0.13	6.2E-05	2.1E-06	3.30	6.4E-07	9.2E-05	1.50	6.2E-05
Benzo(a)pyrene	50-32-8	1.0E-10	1.2E-09	4.3E-05	2.8E-05	3.1E-10	1.6E-03	2.0E-07	1.4E-08	3.0E-03	4.6E-06
Ethylbenzene	100-41-4	8.2E-07	9.6E-06	0.40	2.4E-05	2.5E-06	10.0	2.5E-07	1.1E-04	4.80	2.3E-05
Formaldehyde	50-00-0	1.5E-06	1.7E-05	0.17	1.0E-04	4.5E-06	4.30	1.0E-06	2.0E-04	2.00	9.8E-05
Hexane	110-54-3	5.4E-07	6.4E-06	--	⁽⁴⁾	1.7E-06	--	⁽⁴⁾	7.3E-05	--	⁽⁴⁾
Naphthalene	91-20-3	2.6E-08	3.0E-07	0.029	1.0E-05	7.9E-08	0.76	1.0E-07	3.5E-06	0.35	9.9E-06
Polycyclic Aromatic Hydrocarbons (PAH)	401	8.6E-09	1.0E-07	4.3E-05	2.3E-03	2.6E-08	1.6E-03	1.6E-05	1.2E-06	3.0E-03	3.8E-04
Toluene	108-88-3	3.2E-06	3.7E-05	--	⁽⁴⁾	9.6E-06	--	⁽⁴⁾	4.2E-04	--	⁽⁴⁾
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	2.4E-06	2.7E-05	--	⁽⁴⁾	7.1E-06	--	⁽⁴⁾	3.1E-04	--	⁽⁴⁾
Arsenic and Compounds	7440-38-2	1.7E-08	2.0E-07	2.4E-05	8.4E-03	5.2E-08	1.3E-03	4.0E-05	2.3E-06	6.2E-04	3.7E-03
Barium and Compounds	7440-39-3	3.8E-07	4.4E-06	--	⁽⁴⁾	1.2E-06	--	⁽⁴⁾	5.1E-05	--	⁽⁴⁾
Beryllium and Compounds	7440-41-7	1.0E-09	1.2E-08	4.2E-04	2.9E-05	3.1E-09	0.011	2.9E-07	1.4E-07	5.0E-03	2.8E-05
Cadmium and Compounds	7440-43-9	9.5E-08	1.1E-06	5.6E-04	2.0E-03	2.9E-07	0.014	2.1E-05	1.3E-05	6.7E-03	1.9E-03
Chromium VI, chromate and dichromate partic	18540-29-9	4.8E-09	5.7E-08	3.1E-05	1.8E-03	1.5E-08	5.2E-04	2.8E-05	6.5E-07	1.0E-03	6.5E-04
Cobalt and Compounds	7440-48-4	7.3E-09	8.5E-08	--	⁽⁴⁾	2.2E-08	--	⁽⁴⁾	9.7E-07	--	⁽⁴⁾
Copper and Compounds	7440-50-8	7.3E-08	8.6E-07	--	⁽⁴⁾	2.2E-07	--	⁽⁴⁾	9.8E-06	--	⁽⁴⁾
Lead and Compounds	7439-92-1	4.3E-08	5.0E-07	--	⁽⁴⁾	1.3E-07	--	⁽⁴⁾	5.8E-06	--	⁽⁴⁾
Manganese and Compounds	7439-96-5	3.3E-08	3.8E-07	--	⁽⁴⁾	1.0E-07	--	⁽⁴⁾	4.4E-06	--	⁽⁴⁾
Mercury and Compounds	7439-97-6	2.2E-08	2.6E-07	--	⁽⁴⁾	6.8E-08	--	⁽⁴⁾	3.0E-06	--	⁽⁴⁾
Molybdenum trioxide	1313-27-5	1.4E-07	1.7E-06	--	⁽⁴⁾	4.3E-07	--	⁽⁴⁾	1.9E-05	--	⁽⁴⁾
Nickel and Compounds	7440-02-0	1.8E-07	2.1E-06	3.8E-03	5.6E-04	5.5E-07	0.10	5.5E-06	2.4E-05	0.046	5.3E-04
Selenium and Compounds	7782-49-2	2.1E-09	2.4E-08	--	⁽⁴⁾	6.3E-09	--	⁽⁴⁾	2.8E-07	--	⁽⁴⁾
Vanadium (fume or dust)	7440-62-2	2.0E-07	2.3E-06	--	⁽⁴⁾	6.0E-07	--	⁽⁴⁾	2.7E-05	--	⁽⁴⁾
Zinc and Compounds	7440-66-6	2.5E-06	2.9E-05	--	⁽⁴⁾	7.6E-06	--	⁽⁴⁾	3.3E-04	--	⁽⁴⁾

Table 6-5
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Cancer Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	TAC Emission Rate ⁽¹⁾ (g/s)	Cancer								
			Residential			Nonresidential Child			Nonresidential Worker		
			Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)
Exposure Location ⁽³⁾			65			1,445			6,786		
Cumulative Facility-wide Risk			--	--	0.3	--	--	0.002	--	--	0.1
C1H1											
Cumulative TEU Risk			--	--	4.3E-03	--	--	3.6E-05	--	--	2.0E-03
Dispersion Factor (ug/m ³ /[g/s])			15.2			4.52			166		
Acetaldehyde	75-07-0	8.0E-08	1.2E-06	0.45	2.7E-06	3.6E-07	12.0	3.0E-08	1.3E-05	5.50	2.4E-06
Acrolein	107-02-8	5.0E-08	7.6E-07	--	⁽⁴⁾	2.3E-07	--	⁽⁴⁾	8.3E-06	--	⁽⁴⁾
Ammonia	7664-41-7	5.9E-05	9.0E-04	--	⁽⁴⁾	2.7E-04	--	⁽⁴⁾	9.8E-03	--	⁽⁴⁾
Benzene	71-43-2	1.5E-07	2.2E-06	0.13	1.7E-05	6.7E-07	3.30	2.0E-07	2.5E-05	1.50	1.6E-05
Benzo(a)pyrene	50-32-8	2.2E-11	3.4E-10	4.3E-05	7.8E-06	1.0E-10	1.6E-03	6.3E-08	3.7E-09	3.0E-03	1.2E-06
Ethylbenzene	100-41-4	1.8E-07	2.7E-06	0.40	6.7E-06	8.0E-07	10.0	8.0E-08	2.9E-05	4.80	6.1E-06
Formaldehyde	50-00-0	3.1E-07	4.8E-06	0.17	2.8E-05	1.4E-06	4.30	3.3E-07	5.2E-05	2.00	2.6E-05
Hexane	110-54-3	1.2E-07	1.8E-06	--	⁽⁴⁾	5.3E-07	--	⁽⁴⁾	1.9E-05	--	⁽⁴⁾
Naphthalene	91-20-3	5.6E-09	8.4E-08	0.029	2.9E-06	2.5E-08	0.76	3.3E-08	9.2E-07	0.35	2.6E-06
Polycyclic Aromatic Hydrocarbons (PAH)	401	1.9E-09	2.8E-08	4.3E-05	6.5E-04	8.4E-09	1.6E-03	5.2E-06	3.1E-07	3.0E-03	1.0E-04
Toluene	108-88-3	6.8E-07	1.0E-05	--	⁽⁴⁾	3.1E-06	--	⁽⁴⁾	1.1E-04	--	⁽⁴⁾
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	5.0E-07	7.6E-06	--	⁽⁴⁾	2.3E-06	--	⁽⁴⁾	8.4E-05	--	⁽⁴⁾
Arsenic and Compounds	7440-38-2	3.7E-09	5.6E-08	2.4E-05	2.3E-03	1.7E-08	1.3E-03	1.3E-05	6.1E-07	6.2E-04	9.9E-04
Barium and Compounds	7440-39-3	8.2E-08	1.2E-06	--	⁽⁴⁾	3.7E-07	--	⁽⁴⁾	1.4E-05	--	⁽⁴⁾
Beryllium and Compounds	7440-41-7	2.2E-10	3.4E-09	4.2E-04	8.0E-06	1.0E-09	0.011	9.1E-08	3.7E-08	5.0E-03	7.4E-06
Cadmium and Compounds	7440-43-9	2.0E-08	3.1E-07	5.6E-04	5.5E-04	9.2E-08	0.014	6.6E-06	3.4E-06	6.7E-03	5.0E-04
Chromium VI, chromate and dichromate particulate	18540-29-9	1.0E-09	1.6E-08	3.1E-05	5.1E-04	4.7E-09	5.2E-04	9.0E-06	1.7E-07	1.0E-03	1.7E-04
Cobalt and Compounds	7440-48-4	1.6E-09	2.4E-08	--	⁽⁴⁾	7.0E-09	--	⁽⁴⁾	2.6E-07	--	⁽⁴⁾
Copper and Compounds	7440-50-8	1.6E-08	2.4E-07	--	⁽⁴⁾	7.1E-08	--	⁽⁴⁾	2.6E-06	--	⁽⁴⁾
Lead and Compounds	7439-92-1	9.3E-09	1.4E-07	--	⁽⁴⁾	4.2E-08	--	⁽⁴⁾	1.5E-06	--	⁽⁴⁾
Manganese and Compounds	7439-96-5	7.0E-09	1.1E-07	--	⁽⁴⁾	3.2E-08	--	⁽⁴⁾	1.2E-06	--	⁽⁴⁾
Mercury and Compounds	7439-97-6	4.8E-09	7.3E-08	--	⁽⁴⁾	2.2E-08	--	⁽⁴⁾	8.0E-07	--	⁽⁴⁾
Molybdenum trioxide	1313-27-5	3.1E-08	4.6E-07	--	⁽⁴⁾	1.4E-07	--	⁽⁴⁾	5.1E-06	--	⁽⁴⁾
Nickel and Compounds	7440-02-0	3.9E-08	5.9E-07	3.8E-03	1.6E-04	1.8E-07	0.10	1.8E-06	6.5E-06	0.046	1.4E-04
Selenium and Compounds	7782-49-2	4.4E-10	6.7E-09	--	⁽⁴⁾	2.0E-09	--	⁽⁴⁾	7.4E-08	--	⁽⁴⁾
Vanadium (fume or dust)	7440-62-2	4.3E-08	6.5E-07	--	⁽⁴⁾	1.9E-07	--	⁽⁴⁾	7.1E-06	--	⁽⁴⁾
Zinc and Compounds	7440-66-6	5.4E-07	8.2E-06	--	⁽⁴⁾	2.4E-06	--	⁽⁴⁾	8.9E-05	--	⁽⁴⁾

Table 6-5
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Cancer Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	TAC Emission Rate ⁽¹⁾ (g/s)	Cancer								
			Residential			Nonresidential Child			Nonresidential Worker		
			Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)
Exposure Location ⁽³⁾			65			1,445			6,786		
Cumulative Facility-wide Risk			--	--	0.3	--	--	0.002	--	--	0.1
C1H2											
Cumulative TEU Risk			--	--	4.4E-03	--	--	3.5E-05	--	--	1.5E-03
Dispersion Factor (ug/m ³ /[g/s])			15.5			4.39			128		
Acetaldehyde	75-07-0	8.0E-08	1.2E-06	0.45	2.7E-06	3.5E-07	12.0	2.9E-08	1.0E-05	5.50	1.9E-06
Acrolein	107-02-8	5.0E-08	7.7E-07	--	(4)	2.2E-07	--	(4)	6.4E-06	--	(4)
Ammonia	7664-41-7	5.9E-05	9.2E-04	--	(4)	2.6E-04	--	(4)	7.6E-03	--	(4)
Benzene	71-43-2	1.5E-07	2.3E-06	0.13	1.8E-05	6.5E-07	3.30	2.0E-07	1.9E-05	1.50	1.3E-05
Benzo(a)pyrene	50-32-8	2.2E-11	3.4E-10	4.3E-05	8.0E-06	9.8E-11	1.6E-03	6.1E-08	2.9E-09	3.0E-03	9.5E-07
Ethylbenzene	100-41-4	1.8E-07	2.7E-06	0.40	6.8E-06	7.7E-07	10.0	7.7E-08	2.3E-05	4.80	4.7E-06
Formaldehyde	50-00-0	3.1E-07	4.9E-06	0.17	2.9E-05	1.4E-06	4.30	3.2E-07	4.0E-05	2.00	2.0E-05
Hexane	110-54-3	1.2E-07	1.8E-06	--	(4)	5.1E-07	--	(4)	1.5E-05	--	(4)
Naphthalene	91-20-3	5.6E-09	8.6E-08	0.029	3.0E-06	2.4E-08	0.76	3.2E-08	7.1E-07	0.35	2.0E-06
Polycyclic Aromatic Hydrocarbons (PAH)	401	1.9E-09	2.9E-08	4.3E-05	6.7E-04	8.1E-09	1.6E-03	5.1E-06	2.4E-07	3.0E-03	7.9E-05
Toluene	108-88-3	6.8E-07	1.0E-05	--	(4)	3.0E-06	--	(4)	8.7E-05	--	(4)
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	5.0E-07	7.8E-06	--	(4)	2.2E-06	--	(4)	6.5E-05	--	(4)
Arsenic and Compounds	7440-38-2	3.7E-09	5.7E-08	2.4E-05	2.4E-03	1.6E-08	1.3E-03	1.3E-05	4.8E-07	6.2E-04	7.7E-04
Barium and Compounds	7440-39-3	8.2E-08	1.3E-06	--	(4)	3.6E-07	--	(4)	1.0E-05	--	(4)
Beryllium and Compounds	7440-41-7	2.2E-10	3.4E-09	4.2E-04	8.2E-06	9.8E-10	0.011	8.9E-08	2.9E-08	5.0E-03	5.7E-06
Cadmium and Compounds	7440-43-9	2.0E-08	3.1E-07	5.6E-04	5.6E-04	9.0E-08	0.014	6.4E-06	2.6E-06	6.7E-03	3.9E-04
Chromium VI, chromate and dichromate particulate	18540-29-9	1.0E-09	1.6E-08	3.1E-05	5.2E-04	4.6E-09	5.2E-04	8.8E-06	1.3E-07	1.0E-03	1.3E-04
Cobalt and Compounds	7440-48-4	1.6E-09	2.4E-08	--	(4)	6.8E-09	--	(4)	2.0E-07	--	(4)
Copper and Compounds	7440-50-8	1.6E-08	2.4E-07	--	(4)	6.9E-08	--	(4)	2.0E-06	--	(4)
Lead and Compounds	7439-92-1	9.3E-09	1.4E-07	--	(4)	4.1E-08	--	(4)	1.2E-06	--	(4)
Manganese and Compounds	7439-96-5	7.0E-09	1.1E-07	--	(4)	3.1E-08	--	(4)	9.0E-07	--	(4)
Mercury and Compounds	7439-97-6	4.8E-09	7.4E-08	--	(4)	2.1E-08	--	(4)	6.2E-07	--	(4)
Molybdenum trioxide	1313-27-5	3.1E-08	4.7E-07	--	(4)	1.3E-07	--	(4)	3.9E-06	--	(4)
Nickel and Compounds	7440-02-0	3.9E-08	6.0E-07	3.8E-03	1.6E-04	1.7E-07	0.10	1.7E-06	5.0E-06	0.046	1.1E-04
Selenium and Compounds	7782-49-2	4.4E-10	6.9E-09	--	(4)	2.0E-09	--	(4)	5.7E-08	--	(4)
Vanadium (fume or dust)	7440-62-2	4.3E-08	6.6E-07	--	(4)	1.9E-07	--	(4)	5.5E-06	--	(4)
Zinc and Compounds	7440-66-6	5.4E-07	8.3E-06	--	(4)	2.4E-06	--	(4)	6.9E-05	--	(4)

Table 6-5
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Cancer Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	TAC Emission Rate ⁽¹⁾ (g/s)	Cancer								
			Residential			Nonresidential Child			Nonresidential Worker		
			Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)
Exposure Location ⁽³⁾			65			1,445			6,786		
Cumulative Facility-wide Risk			--	--	0.3	--	--	0.002	--	--	0.1
C1H3											
Cumulative TEU Risk			--	--	6.3E-03	--	--	3.5E-05	--	--	1.1E-03
Dispersion Factor (ug/m ³ /[g/s])			22.2			4.39			89.1		
Acetaldehyde	75-07-0	8.0E-08	1.8E-06	0.45	3.9E-06	3.5E-07	12.0	2.9E-08	7.1E-06	5.50	1.3E-06
Acrolein	107-02-8	5.0E-08	1.1E-06	--	(4)	2.2E-07	--	(4)	4.5E-06	--	(4)
Ammonia	7664-41-7	5.9E-05	1.3E-03	--	(4)	2.6E-04	--	(4)	5.3E-03	--	(4)
Benzene	71-43-2	1.5E-07	3.3E-06	0.13	2.5E-05	6.5E-07	3.30	2.0E-07	1.3E-05	1.50	8.8E-06
Benzo(a)pyrene	50-32-8	2.2E-11	4.9E-10	4.3E-05	1.1E-05	9.8E-11	1.6E-03	6.1E-08	2.0E-09	3.0E-03	6.6E-07
Ethylbenzene	100-41-4	1.8E-07	3.9E-06	0.40	9.8E-06	7.7E-07	10.0	7.7E-08	1.6E-05	4.80	3.3E-06
Formaldehyde	50-00-0	3.1E-07	7.0E-06	0.17	4.1E-05	1.4E-06	4.30	3.2E-07	2.8E-05	2.00	1.4E-05
Hexane	110-54-3	1.2E-07	2.6E-06	--	(4)	5.1E-07	--	(4)	1.0E-05	--	(4)
Naphthalene	91-20-3	5.6E-09	1.2E-07	0.029	4.3E-06	2.4E-08	0.76	3.2E-08	4.9E-07	0.35	1.4E-06
Polycyclic Aromatic Hydrocarbons (PAH)	401	1.9E-09	4.1E-08	4.3E-05	9.6E-04	8.1E-09	1.6E-03	5.1E-06	1.6E-07	3.0E-03	5.5E-05
Toluene	108-88-3	6.8E-07	1.5E-05	--	(4)	3.0E-06	--	(4)	6.0E-05	--	(4)
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	5.0E-07	1.1E-05	--	(4)	2.2E-06	--	(4)	4.5E-05	--	(4)
Arsenic and Compounds	7440-38-2	3.7E-09	8.2E-08	2.4E-05	3.4E-03	1.6E-08	1.3E-03	1.3E-05	3.3E-07	6.2E-04	5.3E-04
Barium and Compounds	7440-39-3	8.2E-08	1.8E-06	--	(4)	3.6E-07	--	(4)	7.3E-06	--	(4)
Beryllium and Compounds	7440-41-7	2.2E-10	4.9E-09	4.2E-04	1.2E-05	9.8E-10	0.011	8.9E-08	2.0E-08	5.0E-03	4.0E-06
Cadmium and Compounds	7440-43-9	2.0E-08	4.5E-07	5.6E-04	8.1E-04	9.0E-08	0.014	6.4E-06	1.8E-06	6.7E-03	2.7E-04
Chromium VI, chromate and dichromate particulate	18540-29-9	1.0E-09	2.3E-08	3.1E-05	7.4E-04	4.6E-09	5.2E-04	8.8E-06	9.2E-08	1.0E-03	9.2E-05
Cobalt and Compounds	7440-48-4	1.6E-09	3.5E-08	--	(4)	6.8E-09	--	(4)	1.4E-07	--	(4)
Copper and Compounds	7440-50-8	1.6E-08	3.5E-07	--	(4)	6.9E-08	--	(4)	1.4E-06	--	(4)
Lead and Compounds	7439-92-1	9.3E-09	2.1E-07	--	(4)	4.1E-08	--	(4)	8.2E-07	--	(4)
Manganese and Compounds	7439-96-5	7.0E-09	1.6E-07	--	(4)	3.1E-08	--	(4)	6.3E-07	--	(4)
Mercury and Compounds	7439-97-6	4.8E-09	1.1E-07	--	(4)	2.1E-08	--	(4)	4.3E-07	--	(4)
Molybdenum trioxide	1313-27-5	3.1E-08	6.8E-07	--	(4)	1.3E-07	--	(4)	2.7E-06	--	(4)
Nickel and Compounds	7440-02-0	3.9E-08	8.6E-07	3.8E-03	2.3E-04	1.7E-07	0.10	1.7E-06	3.5E-06	0.046	7.5E-05
Selenium and Compounds	7782-49-2	4.4E-10	9.9E-09	--	(4)	2.0E-09	--	(4)	4.0E-08	--	(4)
Vanadium (fume or dust)	7440-62-2	4.3E-08	9.5E-07	--	(4)	1.9E-07	--	(4)	3.8E-06	--	(4)
Zinc and Compounds	7440-66-6	5.4E-07	1.2E-05	--	(4)	2.4E-06	--	(4)	4.8E-05	--	(4)

Table 6-5
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Cancer Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	TAC Emission Rate ⁽¹⁾ (g/s)	Cancer								
			Residential			Nonresidential Child			Nonresidential Worker		
			Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)
Exposure Location ⁽³⁾			65			1,445			6,786		
Cumulative Facility-wide Risk			--	--	0.3	--	--	0.002	--	--	0.1
C1H4											
Cumulative TEU Risk			--	--	4.0E-03	--	--	2.6E-05	--	--	1.4E-03
Dispersion Factor (ug/m ³ /[g/s])			14.2			3.17			120		
Acetaldehyde	75-07-0	8.0E-08	1.1E-06	0.45	2.5E-06	2.5E-07	12.0	2.1E-08	9.6E-06	5.50	1.7E-06
Acrolein	107-02-8	5.0E-08	7.1E-07	--	⁽⁴⁾	1.6E-07	--	⁽⁴⁾	6.0E-06	--	⁽⁴⁾
Ammonia	7664-41-7	5.9E-05	8.4E-04	--	⁽⁴⁾	1.9E-04	--	⁽⁴⁾	7.1E-03	--	⁽⁴⁾
Benzene	71-43-2	1.5E-07	2.1E-06	0.13	1.6E-05	4.7E-07	3.30	1.4E-07	1.8E-05	1.50	1.2E-05
Benzo(a)pyrene	50-32-8	2.2E-11	3.2E-10	4.3E-05	7.3E-06	7.1E-11	1.6E-03	4.4E-08	2.7E-09	3.0E-03	8.9E-07
Ethylbenzene	100-41-4	1.8E-07	2.5E-06	0.40	6.2E-06	5.6E-07	10.0	5.6E-08	2.1E-05	4.80	4.4E-06
Formaldehyde	50-00-0	3.1E-07	4.5E-06	0.17	2.6E-05	1.0E-06	4.30	2.3E-07	3.8E-05	2.00	1.9E-05
Hexane	110-54-3	1.2E-07	1.7E-06	--	⁽⁴⁾	3.7E-07	--	⁽⁴⁾	1.4E-05	--	⁽⁴⁾
Naphthalene	91-20-3	5.6E-09	7.9E-08	0.029	2.7E-06	1.8E-08	0.76	2.3E-08	6.7E-07	0.35	1.9E-06
Polycyclic Aromatic Hydrocarbons (PAH)	401	1.9E-09	2.6E-08	4.3E-05	6.1E-04	5.9E-09	1.6E-03	3.7E-06	2.2E-07	3.0E-03	7.4E-05
Toluene	108-88-3	6.8E-07	9.6E-06	--	⁽⁴⁾	2.2E-06	--	⁽⁴⁾	8.1E-05	--	⁽⁴⁾
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	5.0E-07	7.2E-06	--	⁽⁴⁾	1.6E-06	--	⁽⁴⁾	6.0E-05	--	⁽⁴⁾
Arsenic and Compounds	7440-38-2	3.7E-09	5.3E-08	2.4E-05	2.2E-03	1.2E-08	1.3E-03	9.0E-06	4.4E-07	6.2E-04	7.2E-04
Barium and Compounds	7440-39-3	8.2E-08	1.2E-06	--	⁽⁴⁾	2.6E-07	--	⁽⁴⁾	9.8E-06	--	⁽⁴⁾
Beryllium and Compounds	7440-41-7	2.2E-10	3.2E-09	4.2E-04	7.5E-06	7.1E-10	0.011	6.4E-08	2.7E-08	5.0E-03	5.3E-06
Cadmium and Compounds	7440-43-9	2.0E-08	2.9E-07	5.6E-04	5.2E-04	6.5E-08	0.014	4.6E-06	2.4E-06	6.7E-03	3.6E-04
Chromium VI, chromate and dichromate particulate	18540-29-9	1.0E-09	1.5E-08	3.1E-05	4.8E-04	3.3E-09	5.2E-04	6.3E-06	1.2E-07	1.0E-03	1.2E-04
Cobalt and Compounds	7440-48-4	1.6E-09	2.2E-08	--	⁽⁴⁾	4.9E-09	--	⁽⁴⁾	1.9E-07	--	⁽⁴⁾
Copper and Compounds	7440-50-8	1.6E-08	2.2E-07	--	⁽⁴⁾	5.0E-08	--	⁽⁴⁾	1.9E-06	--	⁽⁴⁾
Lead and Compounds	7439-92-1	9.3E-09	1.3E-07	--	⁽⁴⁾	2.9E-08	--	⁽⁴⁾	1.1E-06	--	⁽⁴⁾
Manganese and Compounds	7439-96-5	7.0E-09	1.0E-07	--	⁽⁴⁾	2.2E-08	--	⁽⁴⁾	8.4E-07	--	⁽⁴⁾
Mercury and Compounds	7439-97-6	4.8E-09	6.8E-08	--	⁽⁴⁾	1.5E-08	--	⁽⁴⁾	5.8E-07	--	⁽⁴⁾
Molybdenum trioxide	1313-27-5	3.1E-08	4.3E-07	--	⁽⁴⁾	9.7E-08	--	⁽⁴⁾	3.7E-06	--	⁽⁴⁾
Nickel and Compounds	7440-02-0	3.9E-08	5.5E-07	3.8E-03	1.5E-04	1.2E-07	0.10	1.2E-06	4.7E-06	0.046	1.0E-04
Selenium and Compounds	7782-49-2	4.4E-10	6.3E-09	--	⁽⁴⁾	1.4E-09	--	⁽⁴⁾	5.3E-08	--	⁽⁴⁾
Vanadium (fume or dust)	7440-62-2	4.3E-08	6.0E-07	--	⁽⁴⁾	1.4E-07	--	⁽⁴⁾	5.1E-06	--	⁽⁴⁾
Zinc and Compounds	7440-66-6	5.4E-07	7.6E-06	--	⁽⁴⁾	1.7E-06	--	⁽⁴⁾	6.4E-05	--	⁽⁴⁾

Table 6-5
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Cancer Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	TAC Emission Rate ⁽¹⁾ (g/s)	Cancer								
			Residential			Nonresidential Child			Nonresidential Worker		
			Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)
Exposure Location ⁽³⁾			65			1,445			6,786		
Cumulative Facility-wide Risk			--	--	0.3	--	--	0.002	--	--	0.1
C2H1											
Cumulative TEU Risk			--	--	6.7E-03	--	--	5.0E-05	--	--	2.1E-03
Dispersion Factor (µg/m ³ /[g/s])			14.1			3.74			105		
Acetaldehyde	75-07-0	1.3E-07	1.9E-06	0.45	4.2E-06	5.0E-07	12.0	4.1E-08	1.4E-05	5.50	2.5E-06
Acrolein	107-02-8	8.3E-08	1.2E-06	--	⁽⁴⁾	3.1E-07	--	⁽⁴⁾	8.8E-06	--	⁽⁴⁾
Ammonia	7664-41-7	9.9E-05	1.4E-03	--	⁽⁴⁾	3.7E-04	--	⁽⁴⁾	0.010	--	⁽⁴⁾
Benzene	71-43-2	2.5E-07	3.5E-06	0.13	2.7E-05	9.2E-07	3.30	2.8E-07	2.6E-05	1.50	1.7E-05
Benzo(a)pyrene	50-32-8	3.7E-11	5.2E-10	4.3E-05	1.2E-05	1.4E-10	1.6E-03	8.7E-08	3.9E-09	3.0E-03	1.3E-06
Ethylbenzene	100-41-4	2.9E-07	4.1E-06	0.40	1.0E-05	1.1E-06	10.0	1.1E-07	3.1E-05	4.80	6.4E-06
Formaldehyde	50-00-0	5.2E-07	7.4E-06	0.17	4.4E-05	2.0E-06	4.30	4.6E-07	5.5E-05	2.00	2.8E-05
Hexane	110-54-3	1.9E-07	2.7E-06	--	⁽⁴⁾	7.3E-07	--	⁽⁴⁾	2.0E-05	--	⁽⁴⁾
Naphthalene	91-20-3	9.3E-09	1.3E-07	0.029	4.5E-06	3.5E-08	0.76	4.6E-08	9.7E-07	0.35	2.8E-06
Polycyclic Aromatic Hydrocarbons (PAH)	401	3.1E-09	4.4E-08	4.3E-05	1.0E-03	1.2E-08	1.6E-03	7.2E-06	3.2E-07	3.0E-03	1.1E-04
Toluene	108-88-3	1.1E-06	1.6E-05	--	⁽⁴⁾	4.2E-06	--	⁽⁴⁾	1.2E-04	--	⁽⁴⁾
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	8.4E-07	1.2E-05	--	⁽⁴⁾	3.1E-06	--	⁽⁴⁾	8.8E-05	--	⁽⁴⁾
Arsenic and Compounds	7440-38-2	6.2E-09	8.7E-08	2.4E-05	3.6E-03	2.3E-08	1.3E-03	1.8E-05	6.5E-07	6.2E-04	1.0E-03
Barium and Compounds	7440-39-3	1.4E-07	1.9E-06	--	⁽⁴⁾	5.1E-07	--	⁽⁴⁾	1.4E-05	--	⁽⁴⁾
Beryllium and Compounds	7440-41-7	3.7E-10	5.2E-09	4.2E-04	1.2E-05	1.4E-09	0.011	1.3E-07	3.9E-08	5.0E-03	7.8E-06
Cadmium and Compounds	7440-43-9	3.4E-08	4.8E-07	5.6E-04	8.6E-04	1.3E-07	0.014	9.1E-06	3.6E-06	6.7E-03	5.3E-04
Chromium VI, chromate and dichromate particulate	18540-29-9	1.7E-09	2.4E-08	3.1E-05	7.9E-04	6.5E-09	5.2E-04	1.2E-05	1.8E-07	1.0E-03	1.8E-04
Cobalt and Compounds	7440-48-4	2.6E-09	3.7E-08	--	⁽⁴⁾	9.7E-09	--	⁽⁴⁾	2.7E-07	--	⁽⁴⁾
Copper and Compounds	7440-50-8	2.6E-08	3.7E-07	--	⁽⁴⁾	9.8E-08	--	⁽⁴⁾	2.8E-06	--	⁽⁴⁾
Lead and Compounds	7439-92-1	1.5E-08	2.2E-07	--	⁽⁴⁾	5.8E-08	--	⁽⁴⁾	1.6E-06	--	⁽⁴⁾
Manganese and Compounds	7439-96-5	1.2E-08	1.7E-07	--	⁽⁴⁾	4.4E-08	--	⁽⁴⁾	1.2E-06	--	⁽⁴⁾
Mercury and Compounds	7439-97-6	8.0E-09	1.1E-07	--	⁽⁴⁾	3.0E-08	--	⁽⁴⁾	8.4E-07	--	⁽⁴⁾
Molybdenum trioxide	1313-27-5	5.1E-08	7.2E-07	--	⁽⁴⁾	1.9E-07	--	⁽⁴⁾	5.4E-06	--	⁽⁴⁾
Nickel and Compounds	7440-02-0	6.5E-08	9.2E-07	3.8E-03	2.4E-04	2.4E-07	0.10	2.4E-06	6.8E-06	0.046	1.5E-04
Selenium and Compounds	7782-49-2	7.4E-10	1.0E-08	--	⁽⁴⁾	2.8E-09	--	⁽⁴⁾	7.8E-08	--	⁽⁴⁾
Vanadium (fume or dust)	7440-62-2	7.1E-08	1.0E-06	--	⁽⁴⁾	2.7E-07	--	⁽⁴⁾	7.5E-06	--	⁽⁴⁾
Zinc and Compounds	7440-66-6	9.0E-07	1.3E-05	--	⁽⁴⁾	3.3E-06	--	⁽⁴⁾	9.4E-05	--	⁽⁴⁾

Table 6-5
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Cancer Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	TAC Emission Rate ⁽¹⁾ (g/s)	Cancer								
			Residential			Nonresidential Child			Nonresidential Worker		
			Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)
Exposure Location ⁽³⁾			65			1,445			6,786		
Cumulative Facility-wide Risk			--	--	0.3	--	--	0.002	--	--	0.1
C2H2											
Cumulative TEU Risk			--	--	7.7E-03	--	--	4.9E-05	--	--	1.7E-03
Dispersion Factor (µg/m ³ /[g/s])			16.3			3.67			87.1		
Acetaldehyde	75-07-0	1.3E-07	2.2E-06	0.45	4.8E-06	4.9E-07	12.0	4.1E-08	1.2E-05	5.50	2.1E-06
Acrolein	107-02-8	8.3E-08	1.4E-06	--	⁽⁴⁾	3.1E-07	--	⁽⁴⁾	7.3E-06	--	⁽⁴⁾
Ammonia	7664-41-7	9.9E-05	1.6E-03	--	⁽⁴⁾	3.6E-04	--	⁽⁴⁾	8.6E-03	--	⁽⁴⁾
Benzene	71-43-2	2.5E-07	4.0E-06	0.13	3.1E-05	9.1E-07	3.30	2.7E-07	2.2E-05	1.50	1.4E-05
Benzo(a)pyrene	50-32-8	3.7E-11	6.0E-10	4.3E-05	1.4E-05	1.4E-10	1.6E-03	8.5E-08	3.2E-09	3.0E-03	1.1E-06
Ethylbenzene	100-41-4	2.9E-07	4.8E-06	0.40	1.2E-05	1.1E-06	10.0	1.1E-07	2.6E-05	4.80	5.3E-06
Formaldehyde	50-00-0	5.2E-07	8.6E-06	0.17	5.0E-05	1.9E-06	4.30	4.5E-07	4.6E-05	2.00	2.3E-05
Hexane	110-54-3	1.9E-07	3.2E-06	--	⁽⁴⁾	7.1E-07	--	⁽⁴⁾	1.7E-05	--	⁽⁴⁾
Naphthalene	91-20-3	9.3E-09	1.5E-07	0.029	5.2E-06	3.4E-08	0.76	4.5E-08	8.1E-07	0.35	2.3E-06
Polycyclic Aromatic Hydrocarbons (PAH)	401	3.1E-09	5.0E-08	4.3E-05	1.2E-03	1.1E-08	1.6E-03	7.1E-06	2.7E-07	3.0E-03	9.0E-05
Toluene	108-88-3	1.1E-06	1.8E-05	--	⁽⁴⁾	4.2E-06	--	⁽⁴⁾	9.8E-05	--	⁽⁴⁾
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	8.4E-07	1.4E-05	--	⁽⁴⁾	3.1E-06	--	⁽⁴⁾	7.3E-05	--	⁽⁴⁾
Arsenic and Compounds	7440-38-2	6.2E-09	1.0E-07	2.4E-05	4.2E-03	2.3E-08	1.3E-03	1.7E-05	5.4E-07	6.2E-04	8.7E-04
Barium and Compounds	7440-39-3	1.4E-07	2.2E-06	--	⁽⁴⁾	5.0E-07	--	⁽⁴⁾	1.2E-05	--	⁽⁴⁾
Beryllium and Compounds	7440-41-7	3.7E-10	6.0E-09	4.2E-04	1.4E-05	1.4E-09	0.011	1.2E-07	3.2E-08	5.0E-03	6.5E-06
Cadmium and Compounds	7440-43-9	3.4E-08	5.5E-07	5.6E-04	9.9E-04	1.2E-07	0.014	8.9E-06	3.0E-06	6.7E-03	4.4E-04
Chromium VI, chromate and dichromate particulate	18540-29-9	1.7E-09	2.8E-08	3.1E-05	9.1E-04	6.3E-09	5.2E-04	1.2E-05	1.5E-07	1.0E-03	1.5E-04
Cobalt and Compounds	7440-48-4	2.6E-09	4.2E-08	--	⁽⁴⁾	9.5E-09	--	⁽⁴⁾	2.3E-07	--	⁽⁴⁾
Copper and Compounds	7440-50-8	2.6E-08	4.3E-07	--	⁽⁴⁾	9.6E-08	--	⁽⁴⁾	2.3E-06	--	⁽⁴⁾
Lead and Compounds	7439-92-1	1.5E-08	2.5E-07	--	⁽⁴⁾	5.7E-08	--	⁽⁴⁾	1.3E-06	--	⁽⁴⁾
Manganese and Compounds	7439-96-5	1.2E-08	1.9E-07	--	⁽⁴⁾	4.3E-08	--	⁽⁴⁾	1.0E-06	--	⁽⁴⁾
Mercury and Compounds	7439-97-6	8.0E-09	1.3E-07	--	⁽⁴⁾	2.9E-08	--	⁽⁴⁾	7.0E-07	--	⁽⁴⁾
Molybdenum trioxide	1313-27-5	5.1E-08	8.3E-07	--	⁽⁴⁾	1.9E-07	--	⁽⁴⁾	4.4E-06	--	⁽⁴⁾
Nickel and Compounds	7440-02-0	6.5E-08	1.1E-06	3.8E-03	2.8E-04	2.4E-07	0.10	2.4E-06	5.7E-06	0.046	1.2E-04
Selenium and Compounds	7782-49-2	7.4E-10	1.2E-08	--	⁽⁴⁾	2.7E-09	--	⁽⁴⁾	6.5E-08	--	⁽⁴⁾
Vanadium (fume or dust)	7440-62-2	7.1E-08	1.2E-06	--	⁽⁴⁾	2.6E-07	--	⁽⁴⁾	6.2E-06	--	⁽⁴⁾
Zinc and Compounds	7440-66-6	9.0E-07	1.5E-05	--	⁽⁴⁾	3.3E-06	--	⁽⁴⁾	7.8E-05	--	⁽⁴⁾

Table 6-5
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Cancer Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	TAC Emission Rate ⁽¹⁾ (g/s)	Cancer								
			Residential			Nonresidential Child			Nonresidential Worker		
			Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)
Exposure Location ⁽³⁾			65			1,445			6,786		
Cumulative Facility-wide Risk			--	--	0.3	--	--	0.002	--	--	0.1
C2H3											
Cumulative TEU Risk			--	--	9.7E-03	--	--	5.6E-05	--	--	1.3E-03
Dispersion Factor (ug/m ³ /[g/s])			20.6			4.21			67.2		
Acetaldehyde	75-07-0	1.3E-07	2.7E-06	0.45	6.1E-06	5.6E-07	12.0	4.7E-08	8.9E-06	5.50	1.6E-06
Acrolein	107-02-8	8.3E-08	1.7E-06	--	(4)	3.5E-07	--	(4)	5.6E-06	--	(4)
Ammonia	7664-41-7	9.9E-05	2.0E-03	--	(4)	4.2E-04	--	(4)	6.6E-03	--	(4)
Benzene	71-43-2	2.5E-07	5.1E-06	0.13	3.9E-05	1.0E-06	3.30	3.2E-07	1.7E-05	1.50	1.1E-05
Benzo(a)pyrene	50-32-8	3.7E-11	7.6E-10	4.3E-05	1.8E-05	1.6E-10	1.6E-03	9.8E-08	2.5E-09	3.0E-03	8.3E-07
Ethylbenzene	100-41-4	2.9E-07	6.0E-06	0.40	1.5E-05	1.2E-06	10.0	1.2E-07	2.0E-05	4.80	4.1E-06
Formaldehyde	50-00-0	5.2E-07	1.1E-05	0.17	6.4E-05	2.2E-06	4.30	5.1E-07	3.5E-05	2.00	1.8E-05
Hexane	110-54-3	1.9E-07	4.0E-06	--	(4)	8.2E-07	--	(4)	1.3E-05	--	(4)
Naphthalene	91-20-3	9.3E-09	1.9E-07	0.029	6.6E-06	3.9E-08	0.76	5.1E-08	6.2E-07	0.35	1.8E-06
Polycyclic Aromatic Hydrocarbons (PAH)	401	3.1E-09	6.4E-08	4.3E-05	1.5E-03	1.3E-08	1.6E-03	8.1E-06	2.1E-07	3.0E-03	6.9E-05
Toluene	108-88-3	1.1E-06	2.3E-05	--	(4)	4.8E-06	--	(4)	7.6E-05	--	(4)
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	8.4E-07	1.7E-05	--	(4)	3.5E-06	--	(4)	5.6E-05	--	(4)
Arsenic and Compounds	7440-38-2	6.2E-09	1.3E-07	2.4E-05	5.3E-03	2.6E-08	1.3E-03	2.0E-05	4.1E-07	6.2E-04	6.7E-04
Barium and Compounds	7440-39-3	1.4E-07	2.8E-06	--	(4)	5.7E-07	--	(4)	9.1E-06	--	(4)
Beryllium and Compounds	7440-41-7	3.7E-10	7.6E-09	4.2E-04	1.8E-05	1.6E-09	0.011	1.4E-07	2.5E-08	5.0E-03	5.0E-06
Cadmium and Compounds	7440-43-9	3.4E-08	7.0E-07	5.6E-04	1.2E-03	1.4E-07	0.014	1.0E-05	2.3E-06	6.7E-03	3.4E-04
Chromium VI, chromate and dichromate particulate	18540-29-9	1.7E-09	3.6E-08	3.1E-05	1.1E-03	7.3E-09	5.2E-04	1.4E-05	1.2E-07	1.0E-03	1.2E-04
Cobalt and Compounds	7440-48-4	2.6E-09	5.3E-08	--	(4)	1.1E-08	--	(4)	1.7E-07	--	(4)
Copper and Compounds	7440-50-8	2.6E-08	5.4E-07	--	(4)	1.1E-07	--	(4)	1.8E-06	--	(4)
Lead and Compounds	7439-92-1	1.5E-08	3.2E-07	--	(4)	6.5E-08	--	(4)	1.0E-06	--	(4)
Manganese and Compounds	7439-96-5	1.2E-08	2.4E-07	--	(4)	4.9E-08	--	(4)	7.9E-07	--	(4)
Mercury and Compounds	7439-97-6	8.0E-09	1.7E-07	--	(4)	3.4E-08	--	(4)	5.4E-07	--	(4)
Molybdenum trioxide	1313-27-5	5.1E-08	1.0E-06	--	(4)	2.1E-07	--	(4)	3.4E-06	--	(4)
Nickel and Compounds	7440-02-0	6.5E-08	1.3E-06	3.8E-03	3.5E-04	2.7E-07	0.10	2.7E-06	4.4E-06	0.046	9.5E-05
Selenium and Compounds	7782-49-2	7.4E-10	1.5E-08	--	(4)	3.1E-09	--	(4)	5.0E-08	--	(4)
Vanadium (fume or dust)	7440-62-2	7.1E-08	1.5E-06	--	(4)	3.0E-07	--	(4)	4.8E-06	--	(4)
Zinc and Compounds	7440-66-6	9.0E-07	1.8E-05	--	(4)	3.8E-06	--	(4)	6.0E-05	--	(4)

Table 6-5
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Cancer Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	TAC Emission Rate ⁽¹⁾ (g/s)	Cancer								
			Residential			Nonresidential Child			Nonresidential Worker		
			Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)
Exposure Location ⁽³⁾			65			1,445			6,786		
Cumulative Facility-wide Risk			--	--	0.3	--	--	0.002	--	--	0.1
C2H4											
Cumulative TEU Risk			--	--	6.4E-03	--	--	5.9E-05	--	--	6.3E-04
Dispersion Factor (µg/m ³ /[g/s])			17.0			5.48			39.9		
Acetaldehyde	75-07-0	1.1E-07	1.8E-06	0.45	4.0E-06	5.8E-07	12.0	4.8E-08	4.2E-06	5.50	7.7E-07
Acrolein	107-02-8	6.7E-08	1.1E-06	--	⁽⁴⁾	3.7E-07	--	⁽⁴⁾	2.7E-06	--	⁽⁴⁾
Ammonia	7664-41-7	7.9E-05	1.3E-03	--	⁽⁴⁾	4.3E-04	--	⁽⁴⁾	3.2E-03	--	⁽⁴⁾
Benzene	71-43-2	2.0E-07	3.4E-06	0.13	2.6E-05	1.1E-06	3.30	3.3E-07	7.9E-06	1.50	5.3E-06
Benzo(a)pyrene	50-32-8	3.0E-11	5.1E-10	4.3E-05	1.2E-05	1.6E-10	1.6E-03	1.0E-07	1.2E-09	3.0E-03	3.9E-07
Ethylbenzene	100-41-4	2.3E-07	4.0E-06	0.40	1.0E-05	1.3E-06	10.0	1.3E-07	9.4E-06	4.80	1.9E-06
Formaldehyde	50-00-0	4.2E-07	7.2E-06	0.17	4.2E-05	2.3E-06	4.30	5.3E-07	1.7E-05	2.00	8.4E-06
Hexane	110-54-3	1.6E-07	2.7E-06	--	⁽⁴⁾	8.5E-07	--	⁽⁴⁾	6.2E-06	--	⁽⁴⁾
Naphthalene	91-20-3	7.4E-09	1.3E-07	0.029	4.4E-06	4.1E-08	0.76	5.3E-08	3.0E-07	0.35	8.4E-07
Polycyclic Aromatic Hydrocarbons (PAH)	401	2.5E-09	4.2E-08	4.3E-05	9.8E-04	1.4E-08	1.6E-03	8.5E-06	9.9E-08	3.0E-03	3.3E-05
Toluene	108-88-3	9.0E-07	1.5E-05	--	⁽⁴⁾	5.0E-06	--	⁽⁴⁾	3.6E-05	--	⁽⁴⁾
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	6.7E-07	1.1E-05	--	⁽⁴⁾	3.7E-06	--	⁽⁴⁾	2.7E-05	--	⁽⁴⁾
Arsenic and Compounds	7440-38-2	4.9E-09	8.4E-08	2.4E-05	3.5E-03	2.7E-08	1.3E-03	2.1E-05	2.0E-07	6.2E-04	3.2E-04
Barium and Compounds	7440-39-3	1.1E-07	1.9E-06	--	⁽⁴⁾	6.0E-07	--	⁽⁴⁾	4.3E-06	--	⁽⁴⁾
Beryllium and Compounds	7440-41-7	3.0E-10	5.1E-09	4.2E-04	1.2E-05	1.6E-09	0.011	1.5E-07	1.2E-08	5.0E-03	2.4E-06
Cadmium and Compounds	7440-43-9	2.7E-08	4.6E-07	5.6E-04	8.3E-04	1.5E-07	0.014	1.1E-05	1.1E-06	6.7E-03	1.6E-04
Chromium VI, chromate and dichromate partic	18540-29-9	1.4E-09	2.4E-08	3.1E-05	7.6E-04	7.6E-09	5.2E-04	1.5E-05	5.5E-08	1.0E-03	5.5E-05
Cobalt and Compounds	7440-48-4	2.1E-09	3.5E-08	--	⁽⁴⁾	1.1E-08	--	⁽⁴⁾	8.3E-08	--	⁽⁴⁾
Copper and Compounds	7440-50-8	2.1E-08	3.6E-07	--	⁽⁴⁾	1.2E-07	--	⁽⁴⁾	8.4E-07	--	⁽⁴⁾
Lead and Compounds	7439-92-1	1.2E-08	2.1E-07	--	⁽⁴⁾	6.8E-08	--	⁽⁴⁾	4.9E-07	--	⁽⁴⁾
Manganese and Compounds	7439-96-5	9.4E-09	1.6E-07	--	⁽⁴⁾	5.1E-08	--	⁽⁴⁾	3.7E-07	--	⁽⁴⁾
Mercury and Compounds	7439-97-6	6.4E-09	1.1E-07	--	⁽⁴⁾	3.5E-08	--	⁽⁴⁾	2.6E-07	--	⁽⁴⁾
Molybdenum trioxide	1313-27-5	4.1E-08	6.9E-07	--	⁽⁴⁾	2.2E-07	--	⁽⁴⁾	1.6E-06	--	⁽⁴⁾
Nickel and Compounds	7440-02-0	5.2E-08	8.8E-07	3.8E-03	2.3E-04	2.8E-07	0.10	2.8E-06	2.1E-06	0.046	4.5E-05
Selenium and Compounds	7782-49-2	5.9E-10	1.0E-08	--	⁽⁴⁾	3.2E-09	--	⁽⁴⁾	2.4E-08	--	⁽⁴⁾
Vanadium (fume or dust)	7440-62-2	5.7E-08	9.7E-07	--	⁽⁴⁾	3.1E-07	--	⁽⁴⁾	2.3E-06	--	⁽⁴⁾
Zinc and Compounds	7440-66-6	7.2E-07	1.2E-05	--	⁽⁴⁾	3.9E-06	--	⁽⁴⁾	2.9E-05	--	⁽⁴⁾

Table 6-5
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Cancer Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	TAC Emission Rate ⁽¹⁾ (g/s)	Cancer								
			Residential			Nonresidential Child			Nonresidential Worker		
			Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)
Exposure Location ⁽³⁾			65			1,445			6,786		
Cumulative Facility-wide Risk			--	--	0.3	--	--	0.002	--	--	0.1
C2H5											
Cumulative TEU Risk			--	--	5.1E-03	--	--	4.4E-05	--	--	9.1E-04
Dispersion Factor (µg/m ³ /[g/s])			13.6			4.13			57.3		
Acetaldehyde	75-07-0	1.1E-07	1.4E-06	0.45	3.2E-06	4.4E-07	12.0	3.7E-08	6.1E-06	5.50	1.1E-06
Acrolein	107-02-8	6.7E-08	9.1E-07	--	⁽⁴⁾	2.8E-07	--	⁽⁴⁾	3.8E-06	--	⁽⁴⁾
Ammonia	7664-41-7	7.9E-05	1.1E-03	--	⁽⁴⁾	3.3E-04	--	⁽⁴⁾	4.5E-03	--	⁽⁴⁾
Benzene	71-43-2	2.0E-07	2.7E-06	0.13	2.1E-05	8.2E-07	3.30	2.5E-07	1.1E-05	1.50	7.6E-06
Benzo(a)pyrene	50-32-8	3.0E-11	4.0E-10	4.3E-05	9.4E-06	1.2E-10	1.6E-03	7.7E-08	1.7E-09	3.0E-03	5.7E-07
Ethylbenzene	100-41-4	2.3E-07	3.2E-06	0.40	8.0E-06	9.7E-07	10.0	9.7E-08	1.3E-05	4.80	2.8E-06
Formaldehyde	50-00-0	4.2E-07	5.7E-06	0.17	3.4E-05	1.7E-06	4.30	4.0E-07	2.4E-05	2.00	1.2E-05
Hexane	110-54-3	1.6E-07	2.1E-06	--	⁽⁴⁾	6.4E-07	--	⁽⁴⁾	8.9E-06	--	⁽⁴⁾
Naphthalene	91-20-3	7.4E-09	1.0E-07	0.029	3.5E-06	3.1E-08	0.76	4.0E-08	4.2E-07	0.35	1.2E-06
Polycyclic Aromatic Hydrocarbons (PAH)	401	2.5E-09	3.4E-08	4.3E-05	7.8E-04	1.0E-08	1.6E-03	6.4E-06	1.4E-07	3.0E-03	4.7E-05
Toluene	108-88-3	9.0E-07	1.2E-05	--	⁽⁴⁾	3.7E-06	--	⁽⁴⁾	5.2E-05	--	⁽⁴⁾
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	6.7E-07	9.1E-06	--	⁽⁴⁾	2.8E-06	--	⁽⁴⁾	3.9E-05	--	⁽⁴⁾
Arsenic and Compounds	7440-38-2	4.9E-09	6.7E-08	2.4E-05	2.8E-03	2.0E-08	1.3E-03	1.6E-05	2.8E-07	6.2E-04	4.6E-04
Barium and Compounds	7440-39-3	1.1E-07	1.5E-06	--	⁽⁴⁾	4.5E-07	--	⁽⁴⁾	6.2E-06	--	⁽⁴⁾
Beryllium and Compounds	7440-41-7	3.0E-10	4.0E-09	4.2E-04	9.6E-06	1.2E-09	0.011	1.1E-07	1.7E-08	5.0E-03	3.4E-06
Cadmium and Compounds	7440-43-9	2.7E-08	3.7E-07	5.6E-04	6.6E-04	1.1E-07	0.014	8.0E-06	1.6E-06	6.7E-03	2.3E-04
Chromium VI, chromate and dichromate particulate	18540-29-9	1.4E-09	1.9E-08	3.1E-05	6.1E-04	5.7E-09	5.2E-04	1.1E-05	7.9E-08	1.0E-03	7.9E-05
Cobalt and Compounds	7440-48-4	2.1E-09	2.8E-08	--	⁽⁴⁾	8.6E-09	--	⁽⁴⁾	1.2E-07	--	⁽⁴⁾
Copper and Compounds	7440-50-8	2.1E-08	2.9E-07	--	⁽⁴⁾	8.7E-08	--	⁽⁴⁾	1.2E-06	--	⁽⁴⁾
Lead and Compounds	7439-92-1	1.2E-08	1.7E-07	--	⁽⁴⁾	5.1E-08	--	⁽⁴⁾	7.1E-07	--	⁽⁴⁾
Manganese and Compounds	7439-96-5	9.4E-09	1.3E-07	--	⁽⁴⁾	3.9E-08	--	⁽⁴⁾	5.4E-07	--	⁽⁴⁾
Mercury and Compounds	7439-97-6	6.4E-09	8.7E-08	--	⁽⁴⁾	2.7E-08	--	⁽⁴⁾	3.7E-07	--	⁽⁴⁾
Molybdenum trioxide	1313-27-5	4.1E-08	5.5E-07	--	⁽⁴⁾	1.7E-07	--	⁽⁴⁾	2.3E-06	--	⁽⁴⁾
Nickel and Compounds	7440-02-0	5.2E-08	7.1E-07	3.8E-03	1.9E-04	2.1E-07	0.10	2.1E-06	3.0E-06	0.046	6.5E-05
Selenium and Compounds	7782-49-2	5.9E-10	8.1E-09	--	⁽⁴⁾	2.4E-09	--	⁽⁴⁾	3.4E-08	--	⁽⁴⁾
Vanadium (fume or dust)	7440-62-2	5.7E-08	7.7E-07	--	⁽⁴⁾	2.3E-07	--	⁽⁴⁾	3.3E-06	--	⁽⁴⁾
Zinc and Compounds	7440-66-6	7.2E-07	9.8E-06	--	⁽⁴⁾	3.0E-06	--	⁽⁴⁾	4.1E-05	--	⁽⁴⁾

Table 6-5
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Cancer Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	TAC Emission Rate ⁽¹⁾ (g/s)	Cancer								
			Residential			Nonresidential Child			Nonresidential Worker		
			Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)
Exposure Location ⁽³⁾			65			1,445			6,786		
Cumulative Facility-wide Risk			--	--	0.3	--	--	0.002	--	--	0.1
RTO_NG											
Cumulative TEU Risk			--	--	0.020	--	--	1.4E-04	--	--	7.4E-04
Dispersion Factor (µg/m ³ /[g/s])			1.07			0.27			0.96		
Acetaldehyde	75-07-0	5.2E-06	5.6E-06	0.45	1.2E-05	1.4E-06	12.0	1.2E-07	5.0E-06	5.50	9.1E-07
Acrolein	107-02-8	3.2E-06	3.5E-06	--	(4)	8.8E-07	--	(4)	3.1E-06	--	(4)
Ammonia	7664-41-7	3.8E-03	4.1E-03	--	(4)	1.0E-03	--	(4)	3.7E-03	--	(4)
Benzene	71-43-2	9.6E-06	1.0E-05	0.13	8.0E-05	2.6E-06	3.30	7.9E-07	9.3E-06	1.50	6.2E-06
Benzo(a)pyrene	50-32-8	1.4E-09	1.6E-09	4.3E-05	3.6E-05	3.9E-10	1.6E-03	2.4E-07	1.4E-09	3.0E-03	4.6E-07
Ethylbenzene	100-41-4	1.1E-05	1.2E-05	0.40	3.1E-05	3.1E-06	10.0	3.1E-07	1.1E-05	4.80	2.3E-06
Formaldehyde	50-00-0	2.0E-05	2.2E-05	0.17	1.3E-04	5.5E-06	4.30	1.3E-06	2.0E-05	2.00	9.9E-06
Hexane	110-54-3	7.6E-06	8.1E-06	--	(4)	2.1E-06	--	(4)	7.3E-06	--	(4)
Naphthalene	91-20-3	3.6E-07	3.9E-07	0.029	1.3E-05	9.8E-08	0.76	1.3E-07	3.5E-07	0.35	9.9E-07
Polycyclic Aromatic Hydrocarbons (PAH)	401	1.2E-07	1.3E-07	4.3E-05	3.0E-03	3.3E-08	1.6E-03	2.0E-05	1.2E-07	3.0E-03	3.9E-05
Toluene	108-88-3	4.4E-05	4.7E-05	--	(4)	1.2E-05	--	(4)	4.2E-05	--	(4)
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	3.3E-05	3.5E-05	--	(4)	8.9E-06	--	(4)	3.2E-05	--	(4)
Arsenic and Compounds	7440-38-2	2.4E-07	2.6E-07	2.4E-05	0.011	6.5E-08	1.3E-03	5.0E-05	2.3E-07	6.2E-04	3.7E-04
Barium and Compounds	7440-39-3	5.3E-06	5.7E-06	--	(4)	1.4E-06	--	(4)	5.1E-06	--	(4)
Beryllium and Compounds	7440-41-7	1.4E-08	1.6E-08	4.2E-04	3.7E-05	3.9E-09	0.011	3.6E-07	1.4E-08	5.0E-03	2.8E-06
Cadmium and Compounds	7440-43-9	1.3E-06	1.4E-06	5.6E-04	2.5E-03	3.6E-07	0.014	2.6E-05	1.3E-06	6.7E-03	1.9E-04
Chromium VI, chromate and dichromate particulate	18540-29-9	6.7E-08	7.2E-08	3.1E-05	2.3E-03	1.8E-08	5.2E-04	3.5E-05	6.5E-08	1.0E-03	6.5E-05
Cobalt and Compounds	7440-48-4	1.0E-07	1.1E-07	--	(4)	2.7E-08	--	(4)	9.7E-08	--	(4)
Copper and Compounds	7440-50-8	1.0E-06	1.1E-06	--	(4)	2.8E-07	--	(4)	9.9E-07	--	(4)
Lead and Compounds	7439-92-1	6.0E-07	6.5E-07	--	(4)	1.6E-07	--	(4)	5.8E-07	--	(4)
Manganese and Compounds	7439-96-5	4.6E-07	4.9E-07	--	(4)	1.2E-07	--	(4)	4.4E-07	--	(4)
Mercury and Compounds	7439-97-6	3.1E-07	3.4E-07	--	(4)	8.5E-08	--	(4)	3.0E-07	--	(4)
Molybdenum trioxide	1313-27-5	2.0E-06	2.1E-06	--	(4)	5.4E-07	--	(4)	1.9E-06	--	(4)
Nickel and Compounds	7440-02-0	2.5E-06	2.7E-06	3.8E-03	7.1E-04	6.8E-07	0.10	6.8E-06	2.4E-06	0.046	5.3E-05
Selenium and Compounds	7782-49-2	2.9E-08	3.1E-08	--	(4)	7.8E-09	--	(4)	2.8E-08	--	(4)
Vanadium (fume or dust)	7440-62-2	2.8E-06	3.0E-06	--	(4)	7.5E-07	--	(4)	2.7E-06	--	(4)
Zinc and Compounds	7440-66-6	3.5E-05	3.7E-05	--	(4)	9.5E-06	--	(4)	3.4E-05	--	(4)

NOTES:

RBC = risk-based concentration.

TEU = toxic emission unit.

TAC = toxic air contaminant.

Table 6-5
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Cancer Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	TAC Emission Rate ⁽¹⁾ (g/s)	Cancer								
			Residential			Nonresidential Child			Nonresidential Worker		
			Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽²⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)
Exposure Location ⁽³⁾			65			1,445			6,786		
Cumulative Facility-wide Risk			--	--	0.3	--	--	0.002	--	--	0.1

ug/m³ = micrograms per cubic meter.

^(a) Calculated concentration (ug/m³) = (dispersion factor [{ug/m³}/{g/s}]) x (TAC emission rate per TEU [g/s])
^(b) Predicted risk (chances-in-1,000,000) = (calculated concentration [ug/m³]) / (risk-based concentration [ug/m³])

REFERENCES:
⁽¹⁾ See Table 3–4, Natural Gas Toxic Emission Units Annual Emission Rates.
⁽²⁾ Oregon Administrative Rule 340-245-8010, Table 2.
⁽³⁾ See Table 6-1, Maximum Predicted Risk Exposure Location per Toxic Emission Unit.
⁽⁴⁾ TAC does not have an established RBC for this exposure category per Oregon Administrative Rule 340-245-8040, Table 4.

Table 6-6
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Chronic and Acute Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	Annual TAC Emission Rate ⁽¹⁾ (g/s)	Daily TAC Emission Rate ⁽²⁾ (g/s)	Chronic Noncancer									Acute Noncancer		
				Residential			Nonresidential Child			Nonresidential Worker					
				Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)
Exposure Location ⁽⁴⁾				65			1,445			6,786			6,787		
Cumulative Facility-wide Risk				--	--	0.04	--	--	0.001	--	--	0.03	--	--	0.1
OVEN															
Cumulative TEU Risk				--	--	5.4E-03	--	--	1.6E-04	--	--	3.3E-03	--	--	9.0E-03
Dispersion Factor (µg/m ³ /[g/s])				6.09			1.81			36.9			264		
Acetaldehyde	75-07-0	2.4E-06	2.4E-06	1.5E-05	140	1.0E-07	4.3E-06	620	7.0E-09	8.8E-05	620	1.4E-07	6.4E-04	470	1.4E-06
Acrolein	107-02-8	1.5E-06	1.5E-06	9.1E-06	0.35	2.6E-05	2.7E-06	1.50	1.8E-06	5.5E-05	1.50	3.7E-05	4.0E-04	6.90	5.8E-05
Ammonia	7664-41-7	1.8E-03	1.8E-03	0.011	500	2.2E-05	3.2E-03	2,200	1.5E-06	0.066	2,200	3.0E-05	0.47	1,200	3.9E-04
Benzene	71-43-2	4.4E-06	4.5E-06	2.7E-05	3.00	9.0E-06	8.0E-06	13.0	6.2E-07	1.6E-04	13.0	1.3E-05	1.2E-03	29.0	4.1E-05
Benzo(a)pyrene	50-32-8	6.7E-10	6.7E-10	4.1E-09	2.0E-03	2.0E-06	1.2E-09	8.8E-03	1.4E-07	2.5E-08	8.8E-03	2.8E-06	1.8E-07	2.0E-03	8.9E-05
Ethylbenzene	100-41-4	5.3E-06	5.3E-06	3.2E-05	260	1.2E-07	9.5E-06	1,100	8.7E-09	1.9E-04	1,100	1.8E-07	1.4E-03	22,000	6.4E-08
Formaldehyde	50-00-0	9.4E-06	9.5E-06	5.8E-05	9.00	6.4E-06	1.7E-05	40.0	4.3E-07	3.5E-04	40.0	8.7E-06	2.5E-03	49.0	5.1E-05
Hexane	110-54-3	3.5E-06	3.5E-06	2.1E-05	700	3.0E-08	6.3E-06	3,100	2.0E-09	1.3E-04	3,100	4.2E-08	9.3E-04	--	⁽⁵⁾
Naphthalene	91-20-3	1.7E-07	1.7E-07	1.0E-06	3.70	2.7E-07	3.0E-07	16.0	1.9E-08	6.1E-06	16.0	3.8E-07	4.4E-05	200	2.2E-07
Polycyclic Aromatic Hydrocarbons (PAH)	401	5.6E-08	5.6E-08	3.4E-07	--	⁽⁵⁾	1.0E-07	--	⁽⁵⁾	2.0E-06	--	⁽⁵⁾	1.5E-05	--	⁽⁵⁾
Toluene	108-88-3	2.0E-05	2.0E-05	1.2E-04	5,000	2.5E-08	3.7E-05	22,000	1.7E-09	7.5E-04	22,000	3.4E-08	5.4E-03	7,500	7.2E-07
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	1.5E-05	1.5E-05	9.2E-05	220	4.2E-07	2.7E-05	970	2.8E-08	5.6E-04	970	5.7E-07	4.0E-03	8,700	4.6E-07
Arsenic and Compounds	7440-38-2	1.1E-07	1.1E-07	6.8E-07	1.7E-04	4.0E-03	2.0E-07	2.4E-03	8.4E-05	4.1E-06	2.4E-03	1.7E-03	3.0E-05	0.20	1.5E-04
Barium and Compounds	7440-39-3	2.4E-06	2.5E-06	1.5E-05	--	⁽⁵⁾	4.4E-06	--	⁽⁵⁾	9.0E-05	--	⁽⁵⁾	6.5E-04	--	⁽⁵⁾
Beryllium and Compounds	7440-41-7	6.7E-09	6.7E-09	4.1E-08	7.0E-03	5.8E-06	1.2E-08	0.031	3.9E-07	2.5E-07	0.031	7.9E-06	1.8E-06	0.020	8.9E-05
Cadmium and Compounds	7440-43-9	6.1E-07	6.2E-07	3.7E-06	5.0E-03	7.4E-04	1.1E-06	0.037	3.0E-05	2.3E-05	0.037	6.1E-04	1.6E-04	0.030	5.4E-03
Chromium VI, chromate and dichromate particulate	18540-29-9	3.1E-08	3.1E-08	1.9E-07	0.083	2.3E-06	5.6E-08	0.88	6.4E-08	1.1E-06	0.88	1.3E-06	8.3E-06	0.30	2.8E-05
Cobalt and Compounds	7440-48-4	4.7E-08	4.7E-08	2.8E-07	0.10	2.8E-06	8.4E-08	0.44	1.9E-07	1.7E-06	0.44	3.9E-06	1.2E-05	--	⁽⁵⁾
Copper and Compounds	7440-50-8	4.7E-07	4.8E-07	2.9E-06	--	⁽⁵⁾	8.5E-07	--	⁽⁵⁾	1.7E-05	--	⁽⁵⁾	1.3E-04	100	1.3E-06
Lead and Compounds	7439-92-1	2.8E-07	2.8E-07	1.7E-06	0.15	1.1E-05	5.0E-07	0.66	7.6E-07	1.0E-05	0.66	1.6E-05	7.4E-05	0.15	4.9E-04
Manganese and Compounds	7439-96-5	2.1E-07	2.1E-07	1.3E-06	0.090	1.4E-05	3.8E-07	0.40	9.5E-07	7.8E-06	0.40	1.9E-05	5.6E-05	0.30	1.9E-04
Mercury and Compounds	7439-97-6	1.4E-07	1.5E-07	8.8E-07	0.077	1.1E-05	2.6E-07	0.63	4.1E-07	5.3E-06	0.63	8.5E-06	3.8E-05	0.60	6.4E-05
Molybdenum trioxide	1313-27-5	9.2E-07	9.2E-07	5.6E-06	--	⁽⁵⁾	1.7E-06	--	⁽⁵⁾	3.4E-05	--	⁽⁵⁾	2.4E-04	--	⁽⁵⁾
Nickel and Compounds	7440-02-0	1.2E-06	1.2E-06	7.1E-06	0.014	5.1E-04	2.1E-06	0.062	3.4E-05	4.3E-05	0.062	6.9E-04	3.1E-04	0.20	1.6E-03
Selenium and Compounds	7782-49-2	1.3E-08	1.3E-08	8.1E-08	--	⁽⁵⁾	2.4E-08	--	⁽⁵⁾	4.9E-07	--	⁽⁵⁾	3.5E-06	2.00	1.8E-06
Vanadium (fume or dust)	7440-62-2	1.3E-06	1.3E-06	7.8E-06	0.10	7.8E-05	2.3E-06	0.44	5.2E-06	4.7E-05	0.44	1.1E-04	3.4E-04	0.80	4.2E-04
Zinc and Compounds	7440-66-6	1.6E-05	1.6E-05	9.8E-05	--	⁽⁵⁾	2.9E-05	--	⁽⁵⁾	5.9E-04	--	⁽⁵⁾	4.3E-03	--	⁽⁵⁾
PTH1															
Cumulative TEU Risk				--	--	9.5E-03	--	--	1.9E-04	--	--	0.011	--	--	0.023
Dispersion Factor (µg/m ³ /[g/s])				9.61			1.91			108			602		

Table 6-6
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Chronic and Acute Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	Annual TAC Emission Rate ⁽¹⁾ (g/s)	Daily TAC Emission Rate ⁽²⁾ (g/s)	Chronic Noncancer									Acute Noncancer		
				Residential			Nonresidential Child			Nonresidential Worker					
				Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)
Exposure Location ⁽⁴⁾				65			1,445			6,786			6,787		
Cumulative Facility-wide Risk				--	--	0.04	--	--	0.001	--	--	0.03	--	--	0.1
Acetaldehyde	75-07-0	2.7E-06	2.7E-06	2.6E-05	140	1.8E-07	5.1E-06	620	8.2E-09	2.9E-04	620	4.6E-07	1.6E-03	470	3.4E-06
Acrolein	107-02-8	1.7E-06	1.7E-06	1.6E-05	0.35	4.6E-05	3.2E-06	1.50	2.1E-06	1.8E-04	1.50	1.2E-04	1.0E-03	6.90	1.5E-04
Ammonia	7664-41-7	2.0E-03	2.0E-03	0.019	500	3.8E-05	3.8E-03	2,200	1.7E-06	0.21	2,200	9.7E-05	1.20	1,200	1.0E-03
Benzene	71-43-2	4.9E-06	5.0E-06	4.7E-05	3.00	1.6E-05	9.4E-06	13.0	7.3E-07	5.3E-04	13.0	4.1E-05	3.0E-03	29.0	1.0E-04
Benzo(a)pyrene	50-32-8	7.4E-10	7.5E-10	7.1E-09	2.0E-03	3.6E-06	1.4E-09	8.8E-03	1.6E-07	8.0E-08	8.8E-03	9.1E-06	4.5E-07	2.0E-03	2.2E-04
Ethylbenzene	100-41-4	5.9E-06	5.9E-06	5.6E-05	260	2.2E-07	1.1E-05	1,100	1.0E-08	6.3E-04	1,100	5.8E-07	3.6E-03	22,000	1.6E-07
Formaldehyde	50-00-0	1.0E-05	1.1E-05	1.0E-04	9.00	1.1E-05	2.0E-05	40.0	5.0E-07	1.1E-03	40.0	2.8E-05	6.4E-03	49.0	1.3E-04
Hexane	110-54-3	3.9E-06	3.9E-06	3.7E-05	700	5.3E-08	7.4E-06	3,100	2.4E-09	4.2E-04	3,100	1.4E-07	2.4E-03	--	⁽⁵⁾
Naphthalene	91-20-3	1.9E-07	1.9E-07	1.8E-06	3.70	4.8E-07	3.5E-07	16.0	2.2E-08	2.0E-05	16.0	1.2E-06	1.1E-04	200	5.6E-07
Polycyclic Aromatic Hydrocarbons (PAH)	401	6.2E-08	6.2E-08	5.9E-07	--	⁽⁵⁾	1.2E-07	--	⁽⁵⁾	6.7E-06	--	⁽⁵⁾	3.7E-05	--	⁽⁵⁾
Toluene	108-88-3	2.3E-05	2.3E-05	2.2E-04	5,000	4.3E-08	4.3E-05	22,000	2.0E-09	2.4E-03	22,000	1.1E-07	0.014	7,500	1.8E-06
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	1.7E-05	1.7E-05	1.6E-04	220	7.3E-07	3.2E-05	970	3.3E-08	1.8E-03	970	1.9E-06	0.010	8,700	1.2E-06
Arsenic and Compounds	7440-38-2	1.2E-07	1.2E-07	1.2E-06	1.7E-04	7.0E-03	2.4E-07	2.4E-03	9.8E-05	1.3E-05	2.4E-03	5.5E-03	7.5E-05	0.20	3.7E-04
Barium and Compounds	7440-39-3	2.7E-06	2.7E-06	2.6E-05	--	⁽⁵⁾	5.2E-06	--	⁽⁵⁾	2.9E-04	--	⁽⁵⁾	1.6E-03	--	⁽⁵⁾
Beryllium and Compounds	7440-41-7	7.4E-09	7.5E-09	7.1E-08	7.0E-03	1.0E-05	1.4E-08	0.031	4.6E-07	8.0E-07	0.031	2.6E-05	4.5E-06	0.020	2.2E-04
Cadmium and Compounds	7440-43-9	6.8E-07	6.8E-07	6.5E-06	5.0E-03	1.3E-03	1.3E-06	0.037	3.5E-05	7.3E-05	0.037	2.0E-03	4.1E-04	0.030	0.014
Chromium VI, chromate and dichromate particulate	18540-29-9	3.5E-08	3.5E-08	3.3E-07	0.083	4.0E-06	6.6E-08	0.88	7.5E-08	3.7E-06	0.88	4.2E-06	2.1E-05	0.30	7.0E-05
Cobalt and Compounds	7440-48-4	5.2E-08	5.2E-08	5.0E-07	0.10	5.0E-06	9.9E-08	0.44	2.3E-07	5.6E-06	0.44	1.3E-05	3.1E-05	--	⁽⁵⁾
Copper and Compounds	7440-50-8	5.2E-07	5.3E-07	5.0E-06	--	⁽⁵⁾	1.0E-06	--	⁽⁵⁾	5.7E-05	--	⁽⁵⁾	3.2E-04	100	3.2E-06
Lead and Compounds	7439-92-1	3.1E-07	3.1E-07	3.0E-06	0.15	2.0E-05	5.9E-07	0.66	8.9E-07	3.3E-05	0.66	5.0E-05	1.9E-04	0.15	1.2E-03
Manganese and Compounds	7439-96-5	2.3E-07	2.4E-07	2.3E-06	0.090	2.5E-05	4.5E-07	0.40	1.1E-06	2.5E-05	0.40	6.3E-05	1.4E-04	0.30	4.7E-04
Mercury and Compounds	7439-97-6	1.6E-07	1.6E-07	1.5E-06	0.077	2.0E-05	3.1E-07	0.63	4.9E-07	1.7E-05	0.63	2.7E-05	9.7E-05	0.60	1.6E-04
Molybdenum trioxide	1313-27-5	1.0E-06	1.0E-06	9.8E-06	--	⁽⁵⁾	1.9E-06	--	⁽⁵⁾	1.1E-04	--	⁽⁵⁾	6.2E-04	--	⁽⁵⁾
Nickel and Compounds	7440-02-0	1.3E-06	1.3E-06	1.2E-05	0.014	8.9E-04	2.5E-06	0.062	4.0E-05	1.4E-04	0.062	2.3E-03	7.9E-04	0.20	3.9E-03
Selenium and Compounds	7782-49-2	1.5E-08	1.5E-08	1.4E-07	--	⁽⁵⁾	2.8E-08	--	⁽⁵⁾	1.6E-06	--	⁽⁵⁾	9.0E-06	2.00	4.5E-06
Vanadium (fume or dust)	7440-62-2	1.4E-06	1.4E-06	1.4E-05	0.10	1.4E-04	2.7E-06	0.44	6.2E-06	1.5E-04	0.44	3.5E-04	8.6E-04	0.80	1.1E-03
Zinc and Compounds	7440-66-6	1.8E-05	1.8E-05	1.7E-04	--	⁽⁵⁾	3.4E-05	--	⁽⁵⁾	1.9E-03	--	⁽⁵⁾	0.011	--	⁽⁵⁾

Table 6-6
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Chronic and Acute Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	Annual TAC Emission Rate ⁽¹⁾ (g/s)	Daily TAC Emission Rate ⁽²⁾ (g/s)	Chronic Noncancer									Acute Noncancer		
				Residential			Nonresidential Child			Nonresidential Worker					
				Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)
Exposure Location ⁽⁴⁾				65			1,445			6,786			6,787		
Cumulative Facility-wide Risk				--	--	0.04	--	--	0.001	--	--	0.03	--	--	0.1
PTH2															
Cumulative TEU Risk				--	--	9.3E-03	--	--	2.4E-04	--	--	0.012	--	--	0.022
Dispersion Factor (µg/m ³ /[g/s])				12.3			3.25			155			753		
Acetaldehyde	75-07-0	2.0E-06	2.0E-06	2.5E-05	140	1.8E-07	6.6E-06	620	1.1E-08	3.1E-04	620	5.0E-07	1.5E-03	470	3.3E-06
Acrolein	107-02-8	1.3E-06	1.3E-06	1.6E-05	0.35	4.5E-05	4.1E-06	1.50	2.7E-06	2.0E-04	1.50	1.3E-04	9.6E-04	6.90	1.4E-04
Ammonia	7664-41-7	1.5E-03	1.5E-03	0.019	500	3.7E-05	4.9E-03	2,200	2.2E-06	0.23	2,200	1.1E-04	1.14	1,200	9.5E-04
Benzene	71-43-2	3.8E-06	3.8E-06	4.6E-05	3.00	1.5E-05	1.2E-05	13.0	9.4E-07	5.8E-04	13.0	4.5E-05	2.8E-03	29.0	9.8E-05
Benzo(a)pyrene	50-32-8	5.6E-10	5.7E-10	7.0E-09	2.0E-03	3.5E-06	1.8E-09	8.8E-03	2.1E-07	8.7E-08	8.8E-03	9.9E-06	4.3E-07	2.0E-03	2.1E-04
Ethylbenzene	100-41-4	4.5E-06	4.5E-06	5.5E-05	260	2.1E-07	1.5E-05	1,100	1.3E-08	6.9E-04	1,100	6.3E-07	3.4E-03	22,000	1.5E-07
Formaldehyde	50-00-0	8.0E-06	8.0E-06	9.9E-05	9.00	1.1E-05	2.6E-05	40.0	6.5E-07	1.2E-03	40.0	3.1E-05	6.0E-03	49.0	1.2E-04
Hexane	110-54-3	3.0E-06	3.0E-06	3.7E-05	700	5.2E-08	9.6E-06	3,100	3.1E-09	4.6E-04	3,100	1.5E-07	2.2E-03	--	⁽⁵⁾
Naphthalene	91-20-3	1.4E-07	1.4E-07	1.7E-06	3.70	4.7E-07	4.6E-07	16.0	2.9E-08	2.2E-05	16.0	1.4E-06	1.1E-04	200	5.3E-07
Polycyclic Aromatic Hydrocarbons (PAH)	401	4.7E-08	4.7E-08	5.8E-07	--	⁽⁵⁾	1.5E-07	--	⁽⁵⁾	7.3E-06	--	⁽⁵⁾	3.6E-05	--	⁽⁵⁾
Toluene	108-88-3	1.7E-05	1.7E-05	2.1E-04	5,000	4.2E-08	5.6E-05	22,000	2.5E-09	2.7E-03	22,000	1.2E-07	0.013	7,500	1.7E-06
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	1.3E-05	1.3E-05	1.6E-04	220	7.2E-07	4.2E-05	970	4.3E-08	2.0E-03	970	2.0E-06	9.7E-03	8,700	1.1E-06
Arsenic and Compounds	7440-38-2	9.4E-08	9.4E-08	1.2E-06	1.7E-04	6.8E-03	3.1E-07	2.4E-03	1.3E-04	1.5E-05	2.4E-03	6.0E-03	7.1E-05	0.20	3.6E-04
Barium and Compounds	7440-39-3	2.1E-06	2.1E-06	2.6E-05	--	⁽⁵⁾	6.7E-06	--	⁽⁵⁾	3.2E-04	--	⁽⁵⁾	1.6E-03	--	⁽⁵⁾
Beryllium and Compounds	7440-41-7	5.6E-09	5.7E-09	7.0E-08	7.0E-03	9.9E-06	1.8E-08	0.031	5.9E-07	8.7E-07	0.031	2.8E-05	4.3E-06	0.020	2.1E-04
Cadmium and Compounds	7440-43-9	5.2E-07	5.2E-07	6.4E-06	5.0E-03	1.3E-03	1.7E-06	0.037	4.5E-05	8.0E-05	0.037	2.2E-03	3.9E-04	0.030	0.013
Chromium VI, chromate and dichromate particulate	18540-29-9	2.6E-08	2.6E-08	3.2E-07	0.083	3.9E-06	8.6E-08	0.88	9.7E-08	4.1E-06	0.88	4.6E-06	2.0E-05	0.30	6.6E-05
Cobalt and Compounds	7440-48-4	3.9E-08	4.0E-08	4.9E-07	0.10	4.9E-06	1.3E-07	0.44	2.9E-07	6.1E-06	0.44	1.4E-05	3.0E-05	--	⁽⁵⁾
Copper and Compounds	7440-50-8	4.0E-07	4.0E-07	4.9E-06	--	⁽⁵⁾	1.3E-06	--	⁽⁵⁾	6.2E-05	--	⁽⁵⁾	3.0E-04	100	3.0E-06
Lead and Compounds	7439-92-1	2.3E-07	2.4E-07	2.9E-06	0.15	1.9E-05	7.6E-07	0.66	1.2E-06	3.6E-05	0.66	5.5E-05	1.8E-04	0.15	1.2E-03
Manganese and Compounds	7439-96-5	1.8E-07	1.8E-07	2.2E-06	0.090	2.4E-05	5.8E-07	0.40	1.5E-06	2.8E-05	0.40	6.9E-05	1.4E-04	0.30	4.5E-04
Mercury and Compounds	7439-97-6	1.2E-07	1.2E-07	1.5E-06	0.077	2.0E-05	4.0E-07	0.63	6.3E-07	1.9E-05	0.63	3.0E-05	9.2E-05	0.60	1.5E-04
Molybdenum trioxide	1313-27-5	7.7E-07	7.8E-07	9.6E-06	--	⁽⁵⁾	2.5E-06	--	⁽⁵⁾	1.2E-04	--	⁽⁵⁾	5.9E-04	--	⁽⁵⁾
Nickel and Compounds	7440-02-0	9.9E-07	9.9E-07	1.2E-05	0.014	8.7E-04	3.2E-06	0.062	5.2E-05	1.5E-04	0.062	2.5E-03	7.5E-04	0.20	3.7E-03
Selenium and Compounds	7782-49-2	1.1E-08	1.1E-08	1.4E-07	--	⁽⁵⁾	3.7E-08	--	⁽⁵⁾	1.7E-06	--	⁽⁵⁾	8.5E-06	2.00	4.3E-06
Vanadium (fume or dust)	7440-62-2	1.1E-06	1.1E-06	1.3E-05	0.10	1.3E-04	3.5E-06	0.44	8.0E-06	1.7E-04	0.44	3.8E-04	8.2E-04	0.80	1.0E-03
Zinc and Compounds	7440-66-6	1.4E-05	1.4E-05	1.7E-04	--	⁽⁵⁾	4.4E-05	--	⁽⁵⁾	2.1E-03	--	⁽⁵⁾	0.010	--	⁽⁵⁾

Table 6-6
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Chronic and Acute Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	Annual TAC Emission Rate ⁽¹⁾ (g/s)	Daily TAC Emission Rate ⁽²⁾ (g/s)	Chronic Noncancer									Acute Noncancer		
				Residential			Nonresidential Child			Nonresidential Worker					
				Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)
Exposure Location ⁽⁴⁾				65			1,445			6,786			6,787		
Cumulative Facility-wide Risk				--	--	0.04	--	--	0.001	--	--	0.03	--	--	0.1
AMUA															
Cumulative TEU Risk				--	--	1.6E-03	--	--	4.1E-05	--	--	2.1E-03	--	--	3.9E-03
Dispersion Factor (µg/m ³ /[g/s])				11.3			2.96			124			732		
Acetaldehyde	75-07-0	3.7E-07	3.7E-07	4.2E-06	140	3.0E-08	1.1E-06	620	1.8E-09	5.7E-05	620	9.3E-08	2.7E-04	470	5.8E-07
Acrolein	107-02-8	2.3E-07	2.3E-07	2.6E-06	0.35	7.5E-06	6.9E-07	1.50	4.6E-07	3.6E-05	1.50	2.4E-05	1.7E-04	6.90	2.5E-05
Ammonia	7664-41-7	2.8E-04	2.8E-04	3.1E-03	500	6.3E-06	8.2E-04	2,200	3.7E-07	0.043	2,200	1.9E-05	0.20	1,200	1.7E-04
Benzene	71-43-2	6.9E-07	7.0E-07	7.8E-06	3.00	2.6E-06	2.0E-06	13.0	1.6E-07	1.1E-04	13.0	8.2E-06	5.1E-04	29.0	1.8E-05
Benzo(a)pyrene	50-32-8	1.0E-10	1.0E-10	1.2E-09	2.0E-03	5.9E-07	3.1E-10	8.8E-03	3.5E-08	1.6E-08	8.8E-03	1.8E-06	7.6E-08	2.0E-03	3.8E-05
Ethylbenzene	100-41-4	8.2E-07	8.3E-07	9.3E-06	260	3.6E-08	2.4E-06	1,100	2.2E-09	1.3E-04	1,100	1.2E-07	6.0E-04	22,000	2.7E-08
Formaldehyde	50-00-0	1.5E-06	1.5E-06	1.7E-05	9.00	1.8E-06	4.3E-06	40.0	1.1E-07	2.3E-04	40.0	5.7E-06	1.1E-03	49.0	2.2E-05
Hexane	110-54-3	5.4E-07	5.5E-07	6.2E-06	700	8.8E-09	1.6E-06	3,100	5.2E-10	8.4E-05	3,100	2.7E-08	4.0E-04	--	⁽⁵⁾
Naphthalene	91-20-3	2.6E-08	2.6E-08	2.9E-07	3.70	7.9E-08	7.7E-08	16.0	4.8E-09	4.0E-06	16.0	2.5E-07	1.9E-05	200	9.6E-08
Polycyclic Aromatic Hydrocarbons (PAH)	401	8.6E-09	8.7E-09	9.8E-08	--	⁽⁵⁾	2.6E-08	--	⁽⁵⁾	1.3E-06	--	⁽⁵⁾	6.4E-06	--	⁽⁵⁾
Toluene	108-88-3	3.2E-06	3.2E-06	3.6E-05	5,000	7.2E-09	9.4E-06	22,000	4.3E-10	4.9E-04	22,000	2.2E-08	2.3E-03	7,500	3.1E-07
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	2.4E-06	2.4E-06	2.7E-05	220	1.2E-07	7.0E-06	970	7.2E-09	3.6E-04	970	3.7E-07	1.7E-03	8,700	2.0E-07
Arsenic and Compounds	7440-38-2	1.7E-08	1.7E-08	2.0E-07	1.7E-04	1.2E-03	5.1E-08	2.4E-03	2.1E-05	2.7E-06	2.4E-03	1.1E-03	1.3E-05	0.20	6.4E-05
Barium and Compounds	7440-39-3	3.8E-07	3.8E-07	4.3E-06	--	⁽⁵⁾	1.1E-06	--	⁽⁵⁾	5.9E-05	--	⁽⁵⁾	2.8E-04	--	⁽⁵⁾
Beryllium and Compounds	7440-41-7	1.0E-09	1.0E-09	1.2E-08	7.0E-03	1.7E-06	3.1E-09	0.031	9.9E-08	1.6E-07	0.031	5.2E-06	7.6E-07	0.020	3.8E-05
Cadmium and Compounds	7440-43-9	9.5E-08	9.6E-08	1.1E-06	5.0E-03	2.2E-04	2.8E-07	0.037	7.6E-06	1.5E-05	0.037	4.0E-04	7.0E-05	0.030	2.3E-03
Chromium VI, chromate and dichromate particulate	18540-29-9	4.8E-09	4.9E-09	5.5E-08	0.083	6.6E-07	1.4E-08	0.88	1.6E-08	7.5E-07	0.88	8.5E-07	3.6E-06	0.30	1.2E-05
Cobalt and Compounds	7440-48-4	7.3E-09	7.3E-09	8.2E-08	0.10	8.2E-07	2.1E-08	0.44	4.9E-08	1.1E-06	0.44	2.6E-06	5.3E-06	--	⁽⁵⁾
Copper and Compounds	7440-50-8	7.3E-08	7.4E-08	8.3E-07	--	⁽⁵⁾	2.2E-07	--	⁽⁵⁾	1.1E-05	--	⁽⁵⁾	5.4E-05	100	5.4E-07
Lead and Compounds	7439-92-1	4.3E-08	4.3E-08	4.9E-07	0.15	3.3E-06	1.3E-07	0.66	1.9E-07	6.7E-06	0.66	1.0E-05	3.2E-05	0.15	2.1E-04
Manganese and Compounds	7439-96-5	3.3E-08	3.3E-08	3.7E-07	0.090	4.1E-06	9.7E-08	0.40	2.4E-07	5.1E-06	0.40	1.3E-05	2.4E-05	0.30	8.1E-05
Mercury and Compounds	7439-97-6	2.2E-08	2.3E-08	2.5E-07	0.077	3.3E-06	6.6E-08	0.63	1.1E-07	3.5E-06	0.63	5.5E-06	1.7E-05	0.60	2.8E-05
Molybdenum trioxide	1313-27-5	1.4E-07	1.4E-07	1.6E-06	--	⁽⁵⁾	4.2E-07	--	⁽⁵⁾	2.2E-05	--	⁽⁵⁾	1.1E-04	--	⁽⁵⁾
Nickel and Compounds	7440-02-0	1.8E-07	1.8E-07	2.1E-06	0.014	1.5E-04	5.4E-07	0.062	8.7E-06	2.8E-05	0.062	4.5E-04	1.3E-04	0.20	6.7E-04
Selenium and Compounds	7782-49-2	2.1E-09	2.1E-09	2.3E-08	--	⁽⁵⁾	6.1E-09	--	⁽⁵⁾	3.2E-07	--	⁽⁵⁾	1.5E-06	2.00	7.6E-07
Vanadium (fume or dust)	7440-62-2	2.0E-07	2.0E-07	2.2E-06	0.10	2.2E-05	5.9E-07	0.44	1.3E-06	3.1E-05	0.44	7.0E-05	1.5E-04	0.80	1.8E-04
Zinc and Compounds	7440-66-6	2.5E-06	2.5E-06	2.8E-05	--	⁽⁵⁾	7.4E-06	--	⁽⁵⁾	3.9E-04	--	⁽⁵⁾	1.8E-03	--	⁽⁵⁾

Table 6-6
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Chronic and Acute Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	Annual TAC Emission Rate ⁽¹⁾ (g/s)	Daily TAC Emission Rate ⁽²⁾ (g/s)	Chronic Noncancer									Acute Noncancer		
				Residential			Nonresidential Child			Nonresidential Worker					
				Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)
Exposure Location ⁽⁴⁾				65			1,445			6,786			6,787		
Cumulative Facility-wide Risk				--	--	0.04	--	--	0.001	--	--	0.03	--	--	0.1
AMUB															
Cumulative TEU Risk				--	--	1.6E-03	--	--	4.2E-05	--	--	1.8E-03	--	--	4.0E-03
Dispersion Factor (µg/m ³ /[g/s])				11.7			3.03			133			750		
Acetaldehyde	75-07-0	3.7E-07	3.7E-07	4.3E-06	140	3.1E-08	1.1E-06	620	1.8E-09	5.0E-05	620	8.0E-08	2.8E-04	470	6.0E-07
Acrolein	107-02-8	2.3E-07	2.3E-07	2.7E-06	0.35	7.8E-06	7.1E-07	1.50	4.7E-07	3.1E-05	1.50	2.1E-05	1.8E-04	6.90	2.6E-05
Ammonia	7664-41-7	2.8E-04	2.8E-04	3.2E-03	500	6.5E-06	8.4E-04	2,200	3.8E-07	0.037	2,200	1.7E-05	0.21	1,200	1.7E-04
Benzene	71-43-2	6.9E-07	7.0E-07	8.1E-06	3.00	2.7E-06	2.1E-06	13.0	1.6E-07	9.2E-05	13.0	7.1E-06	5.2E-04	29.0	1.8E-05
Benzo(a)pyrene	50-32-8	1.0E-10	1.0E-10	1.2E-09	2.0E-03	6.1E-07	3.1E-10	8.8E-03	3.6E-08	1.4E-08	8.8E-03	1.6E-06	7.8E-08	2.0E-03	3.9E-05
Ethylbenzene	100-41-4	8.2E-07	8.3E-07	9.6E-06	260	3.7E-08	2.5E-06	1,100	2.3E-09	1.1E-04	1,100	1.0E-07	6.2E-04	22,000	2.8E-08
Formaldehyde	50-00-0	1.5E-06	1.5E-06	1.7E-05	9.00	1.9E-06	4.5E-06	40.0	1.1E-07	2.0E-04	40.0	4.9E-06	1.1E-03	49.0	2.3E-05
Hexane	110-54-3	5.4E-07	5.5E-07	6.4E-06	700	9.1E-09	1.7E-06	3,100	5.3E-10	7.3E-05	3,100	2.3E-08	4.1E-04	--	⁽⁵⁾
Naphthalene	91-20-3	2.6E-08	2.6E-08	3.0E-07	3.70	8.2E-08	7.9E-08	16.0	4.9E-09	3.5E-06	16.0	2.2E-07	2.0E-05	200	9.8E-08
Polycyclic Aromatic Hydrocarbons (PAH)	401	8.6E-09	8.7E-09	1.0E-07	--	⁽⁵⁾	2.6E-08	--	⁽⁵⁾	1.2E-06	--	⁽⁵⁾	6.5E-06	--	⁽⁵⁾
Toluene	108-88-3	3.2E-06	3.2E-06	3.7E-05	5,000	7.4E-09	9.6E-06	22,000	4.4E-10	4.2E-04	22,000	1.9E-08	2.4E-03	7,500	3.2E-07
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	2.4E-06	2.4E-06	2.7E-05	220	1.2E-07	7.1E-06	970	7.4E-09	3.1E-04	970	3.2E-07	1.8E-03	8,700	2.0E-07
Arsenic and Compounds	7440-38-2	1.7E-08	1.7E-08	2.0E-07	1.7E-04	1.2E-03	5.2E-08	2.4E-03	2.2E-05	2.3E-06	2.4E-03	9.6E-04	1.3E-05	0.20	6.5E-05
Barium and Compounds	7440-39-3	3.8E-07	3.8E-07	4.4E-06	--	⁽⁵⁾	1.2E-06	--	⁽⁵⁾	5.1E-05	--	⁽⁵⁾	2.9E-04	--	⁽⁵⁾
Beryllium and Compounds	7440-41-7	1.0E-09	1.0E-09	1.2E-08	7.0E-03	1.7E-06	3.1E-09	0.031	1.0E-07	1.4E-07	0.031	4.5E-06	7.8E-07	0.020	3.9E-05
Cadmium and Compounds	7440-43-9	9.5E-08	9.6E-08	1.1E-06	5.0E-03	2.2E-04	2.9E-07	0.037	7.8E-06	1.3E-05	0.037	3.4E-04	7.2E-05	0.030	2.4E-03
Chromium VI, chromate and dichromate particulate	18540-29-9	4.8E-09	4.9E-09	5.7E-08	0.083	6.8E-07	1.5E-08	0.88	1.7E-08	6.5E-07	0.88	7.3E-07	3.7E-06	0.30	1.2E-05
Cobalt and Compounds	7440-48-4	7.3E-09	7.3E-09	8.5E-08	0.10	8.5E-07	2.2E-08	0.44	5.0E-08	9.7E-07	0.44	2.2E-06	5.5E-06	--	⁽⁵⁾
Copper and Compounds	7440-50-8	7.3E-08	7.4E-08	8.6E-07	--	⁽⁵⁾	2.2E-07	--	⁽⁵⁾	9.8E-06	--	⁽⁵⁾	5.5E-05	100	5.5E-07
Lead and Compounds	7439-92-1	4.3E-08	4.3E-08	5.0E-07	0.15	3.4E-06	1.3E-07	0.66	2.0E-07	5.8E-06	0.66	8.7E-06	3.3E-05	0.15	2.2E-04
Manganese and Compounds	7439-96-5	3.3E-08	3.3E-08	3.8E-07	0.090	4.3E-06	1.0E-07	0.40	2.5E-07	4.4E-06	0.40	1.1E-05	2.5E-05	0.30	8.3E-05
Mercury and Compounds	7439-97-6	2.2E-08	2.3E-08	2.6E-07	0.077	3.4E-06	6.8E-08	0.63	1.1E-07	3.0E-06	0.63	4.8E-06	1.7E-05	0.60	2.8E-05
Molybdenum trioxide	1313-27-5	1.4E-07	1.4E-07	1.7E-06	--	⁽⁵⁾	4.3E-07	--	⁽⁵⁾	1.9E-05	--	⁽⁵⁾	1.1E-04	--	⁽⁵⁾
Nickel and Compounds	7440-02-0	1.8E-07	1.8E-07	2.1E-06	0.014	1.5E-04	5.5E-07	0.062	8.9E-06	2.4E-05	0.062	3.9E-04	1.4E-04	0.20	6.9E-04
Selenium and Compounds	7782-49-2	2.1E-09	2.1E-09	2.4E-08	--	⁽⁵⁾	6.3E-09	--	⁽⁵⁾	2.8E-07	--	⁽⁵⁾	1.6E-06	2.00	7.8E-07
Vanadium (fume or dust)	7440-62-2	2.0E-07	2.0E-07	2.3E-06	0.10	2.3E-05	6.0E-07	0.44	1.4E-06	2.7E-05	0.44	6.0E-05	1.5E-04	0.80	1.9E-04
Zinc and Compounds	7440-66-6	2.5E-06	2.5E-06	2.9E-05	--	⁽⁵⁾	7.6E-06	--	⁽⁵⁾	3.3E-04	--	⁽⁵⁾	1.9E-03	--	⁽⁵⁾

Table 6-6
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Chronic and Acute Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	Annual TAC Emission Rate ⁽¹⁾ (g/s)	Daily TAC Emission Rate ⁽²⁾ (g/s)	Chronic Noncancer									Acute Noncancer		
				Residential			Nonresidential Child			Nonresidential Worker					
				Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)
Exposure Location ⁽⁴⁾				65			1,445			6,786			6,787		
Cumulative Facility-wide Risk				--	--	0.04	--	--	0.001	--	--	0.03	--	--	0.1
C1H1															
Cumulative TEU Risk				--	--	4.5E-04	--	--	1.3E-05	--	--	4.9E-04	--	--	1.0E-03
Dispersion Factor (µg/m ³ /[g/s])				15.2			4.52			166			881		
Acetaldehyde	75-07-0	8.0E-08	8.0E-08	1.2E-06	140	8.6E-09	3.6E-07	620	5.8E-10	1.3E-05	620	2.1E-08	7.1E-05	470	1.5E-07
Acrolein	107-02-8	5.0E-08	5.0E-08	7.6E-07	0.35	2.2E-06	2.3E-07	1.50	1.5E-07	8.3E-06	1.50	5.5E-06	4.4E-05	6.90	6.4E-06
Ammonia	7664-41-7	5.9E-05	6.0E-05	9.0E-04	500	1.8E-06	2.7E-04	2,200	1.2E-07	9.8E-03	2,200	4.5E-06	0.053	1,200	4.4E-05
Benzene	71-43-2	1.5E-07	1.5E-07	2.2E-06	3.00	7.5E-07	6.7E-07	13.0	5.2E-08	2.5E-05	13.0	1.9E-06	1.3E-04	29.0	4.5E-06
Benzo(a)pyrene	50-32-8	2.2E-11	2.2E-11	3.4E-10	2.0E-03	1.7E-07	1.0E-10	8.8E-03	1.1E-08	3.7E-09	8.8E-03	4.2E-07	2.0E-08	2.0E-03	9.9E-06
Ethylbenzene	100-41-4	1.8E-07	1.8E-07	2.7E-06	260	1.0E-08	8.0E-07	1,100	7.2E-10	2.9E-05	1,100	2.7E-08	1.6E-04	22,000	7.1E-09
Formaldehyde	50-00-0	3.1E-07	3.2E-07	4.8E-06	9.00	5.3E-07	1.4E-06	40.0	3.6E-08	5.2E-05	40.0	1.3E-06	2.8E-04	49.0	5.7E-06
Hexane	110-54-3	1.2E-07	1.2E-07	1.8E-06	700	2.5E-09	5.3E-07	3,100	1.7E-10	1.9E-05	3,100	6.2E-09	1.0E-04	--	⁽⁵⁾
Naphthalene	91-20-3	5.6E-09	5.6E-09	8.4E-08	3.70	2.3E-08	2.5E-08	16.0	1.6E-09	9.2E-07	16.0	5.8E-08	4.9E-06	200	2.5E-08
Polycyclic Aromatic Hydrocarbons (PAH)	401	1.9E-09	1.9E-09	2.8E-08	--	⁽⁵⁾	8.4E-09	--	⁽⁵⁾	3.1E-07	--	⁽⁵⁾	1.6E-06	--	⁽⁵⁾
Toluene	108-88-3	6.8E-07	6.8E-07	1.0E-05	5,000	2.1E-09	3.1E-06	22,000	1.4E-10	1.1E-04	22,000	5.1E-09	6.0E-04	7,500	8.0E-08
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	5.0E-07	5.1E-07	7.6E-06	220	3.5E-08	2.3E-06	970	2.3E-09	8.4E-05	970	8.6E-08	4.5E-04	8,700	5.1E-08
Arsenic and Compounds	7440-38-2	3.7E-09	3.7E-09	5.6E-08	1.7E-04	3.3E-04	1.7E-08	2.4E-03	7.0E-06	6.1E-07	2.4E-03	2.6E-04	3.3E-06	0.20	1.6E-05
Barium and Compounds	7440-39-3	8.2E-08	8.2E-08	1.2E-06	--	⁽⁵⁾	3.7E-07	--	⁽⁵⁾	1.4E-05	--	⁽⁵⁾	7.2E-05	--	⁽⁵⁾
Beryllium and Compounds	7440-41-7	2.2E-10	2.2E-10	3.4E-09	7.0E-03	4.8E-07	1.0E-09	0.031	3.2E-08	3.7E-08	0.031	1.2E-06	2.0E-07	0.020	9.9E-06
Cadmium and Compounds	7440-43-9	2.0E-08	2.1E-08	3.1E-07	5.0E-03	6.2E-05	9.2E-08	0.037	2.5E-06	3.4E-06	0.037	9.1E-05	1.8E-05	0.030	6.0E-04
Chromium VI, chromate and dichromate particulate	18540-29-9	1.0E-09	1.0E-09	1.6E-08	0.083	1.9E-07	4.7E-09	0.88	5.3E-09	1.7E-07	0.88	2.0E-07	9.2E-07	0.30	3.1E-06
Cobalt and Compounds	7440-48-4	1.6E-09	1.6E-09	2.4E-08	0.10	2.4E-07	7.0E-09	0.44	1.6E-08	2.6E-07	0.44	5.9E-07	1.4E-06	--	⁽⁵⁾
Copper and Compounds	7440-50-8	1.6E-08	1.6E-08	2.4E-07	--	⁽⁵⁾	7.1E-08	--	⁽⁵⁾	2.6E-06	--	⁽⁵⁾	1.4E-05	100	1.4E-07
Lead and Compounds	7439-92-1	9.3E-09	9.3E-09	1.4E-07	0.15	9.4E-07	4.2E-08	0.66	6.3E-08	1.5E-06	0.66	2.3E-06	8.2E-06	0.15	5.5E-05
Manganese and Compounds	7439-96-5	7.0E-09	7.1E-09	1.1E-07	0.090	1.2E-06	3.2E-08	0.40	8.0E-08	1.2E-06	0.40	2.9E-06	6.2E-06	0.30	2.1E-05
Mercury and Compounds	7439-97-6	4.8E-09	4.8E-09	7.3E-08	0.077	9.5E-07	2.2E-08	0.63	3.5E-08	8.0E-07	0.63	1.3E-06	4.3E-06	0.60	7.1E-06
Molybdenum trioxide	1313-27-5	3.1E-08	3.1E-08	4.6E-07	--	⁽⁵⁾	1.4E-07	--	⁽⁵⁾	5.1E-06	--	⁽⁵⁾	2.7E-05	--	⁽⁵⁾
Nickel and Compounds	7440-02-0	3.9E-08	3.9E-08	5.9E-07	0.014	4.2E-05	1.8E-07	0.062	2.8E-06	6.5E-06	0.062	1.0E-04	3.5E-05	0.20	1.7E-04
Selenium and Compounds	7782-49-2	4.4E-10	4.5E-10	6.7E-09	--	⁽⁵⁾	2.0E-09	--	⁽⁵⁾	7.4E-08	--	⁽⁵⁾	3.9E-07	2.00	2.0E-07
Vanadium (fume or dust)	7440-62-2	4.3E-08	4.3E-08	6.5E-07	0.10	6.5E-06	1.9E-07	0.44	4.4E-07	7.1E-06	0.44	1.6E-05	3.8E-05	0.80	4.7E-05
Zinc and Compounds	7440-66-6	5.4E-07	5.4E-07	8.2E-06	--	⁽⁵⁾	2.4E-06	--	⁽⁵⁾	8.9E-05	--	⁽⁵⁾	4.8E-04	--	⁽⁵⁾

Table 6-6
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Chronic and Acute Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	Annual TAC Emission Rate ⁽¹⁾ (g/s)	Daily TAC Emission Rate ⁽²⁾ (g/s)	Chronic Noncancer									Acute Noncancer		
				Residential			Nonresidential Child			Nonresidential Worker					
				Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)
Exposure Location ⁽⁴⁾				65			1,445			6,786			6,787		
Cumulative Facility-wide Risk				--	--	0.04	--	--	0.001	--	--	0.03	--	--	0.1
C1H2															
Cumulative TEU Risk				--	--	4.6E-04	--	--	1.3E-05	--	--	3.8E-04	--	--	9.1E-04
Dispersion Factor (µg/m ³ /[g/s])				15.5			4.39			128			795		
Acetaldehyde	75-07-0	8.0E-08	8.0E-08	1.2E-06	140	8.8E-09	3.5E-07	620	5.6E-10	1.0E-05	620	1.7E-08	6.4E-05	470	1.4E-07
Acrolein	107-02-8	5.0E-08	5.0E-08	7.7E-07	0.35	2.2E-06	2.2E-07	1.50	1.5E-07	6.4E-06	1.50	4.3E-06	4.0E-05	6.90	5.8E-06
Ammonia	7664-41-7	5.9E-05	6.0E-05	9.2E-04	500	1.8E-06	2.6E-04	2,200	1.2E-07	7.6E-03	2,200	3.5E-06	0.047	1,200	4.0E-05
Benzene	71-43-2	1.5E-07	1.5E-07	2.3E-06	3.00	7.6E-07	6.5E-07	13.0	5.0E-08	1.9E-05	13.0	1.5E-06	1.2E-04	29.0	4.1E-06
Benzo(a)pyrene	50-32-8	2.2E-11	2.2E-11	3.4E-10	2.0E-03	1.7E-07	9.8E-11	8.8E-03	1.1E-08	2.9E-09	8.8E-03	3.2E-07	1.8E-08	2.0E-03	8.9E-06
Ethylbenzene	100-41-4	1.8E-07	1.8E-07	2.7E-06	260	1.0E-08	7.7E-07	1,100	7.0E-10	2.3E-05	1,100	2.1E-08	1.4E-04	22,000	6.4E-09
Formaldehyde	50-00-0	3.1E-07	3.2E-07	4.9E-06	9.00	5.4E-07	1.4E-06	40.0	3.5E-08	4.0E-05	40.0	1.0E-06	2.5E-04	49.0	5.1E-06
Hexane	110-54-3	1.2E-07	1.2E-07	1.8E-06	700	2.6E-09	5.1E-07	3,100	1.7E-10	1.5E-05	3,100	4.8E-09	9.3E-05	--	⁽⁵⁾
Naphthalene	91-20-3	5.6E-09	5.6E-09	8.6E-08	3.70	2.3E-08	2.4E-08	16.0	1.5E-09	7.1E-07	16.0	4.5E-08	4.4E-06	200	2.2E-08
Polycyclic Aromatic Hydrocarbons (PAH)	401	1.9E-09	1.9E-09	2.9E-08	--	⁽⁵⁾	8.1E-09	--	⁽⁵⁾	2.4E-07	--	⁽⁵⁾	1.5E-06	--	⁽⁵⁾
Toluene	108-88-3	6.8E-07	6.8E-07	1.0E-05	5,000	2.1E-09	3.0E-06	22,000	1.4E-10	8.7E-05	22,000	4.0E-09	5.4E-04	7,500	7.2E-08
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	5.0E-07	5.1E-07	7.8E-06	220	3.5E-08	2.2E-06	970	2.3E-09	6.5E-05	970	6.7E-08	4.0E-04	8,700	4.6E-08
Arsenic and Compounds	7440-38-2	3.7E-09	3.7E-09	5.7E-08	1.7E-04	3.4E-04	1.6E-08	2.4E-03	6.8E-06	4.8E-07	2.4E-03	2.0E-04	3.0E-06	0.20	1.5E-05
Barium and Compounds	7440-39-3	8.2E-08	8.2E-08	1.3E-06	--	⁽⁵⁾	3.6E-07	--	⁽⁵⁾	1.0E-05	--	⁽⁵⁾	6.5E-05	--	⁽⁵⁾
Beryllium and Compounds	7440-41-7	2.2E-10	2.2E-10	3.4E-09	7.0E-03	4.9E-07	9.8E-10	0.031	3.1E-08	2.9E-08	0.031	9.2E-07	1.8E-07	0.020	8.9E-06
Cadmium and Compounds	7440-43-9	2.0E-08	2.1E-08	3.1E-07	5.0E-03	6.3E-05	9.0E-08	0.037	2.4E-06	2.6E-06	0.037	7.1E-05	1.6E-05	0.030	5.4E-04
Chromium VI, chromate and dichromate particulate	18540-29-9	1.0E-09	1.0E-09	1.6E-08	0.083	1.9E-07	4.6E-09	0.88	5.2E-09	1.3E-07	0.88	1.5E-07	8.3E-07	0.30	2.8E-06
Cobalt and Compounds	7440-48-4	1.6E-09	1.6E-09	2.4E-08	0.10	2.4E-07	6.8E-09	0.44	1.6E-08	2.0E-07	0.44	4.5E-07	1.2E-06	--	⁽⁵⁾
Copper and Compounds	7440-50-8	1.6E-08	1.6E-08	2.4E-07	--	⁽⁵⁾	6.9E-08	--	⁽⁵⁾	2.0E-06	--	⁽⁵⁾	1.3E-05	100	1.3E-07
Lead and Compounds	7439-92-1	9.3E-09	9.3E-09	1.4E-07	0.15	9.5E-07	4.1E-08	0.66	6.2E-08	1.2E-06	0.66	1.8E-06	7.4E-06	0.15	4.9E-05
Manganese and Compounds	7439-96-5	7.0E-09	7.1E-09	1.1E-07	0.090	1.2E-06	3.1E-08	0.40	7.7E-08	9.0E-07	0.40	2.3E-06	5.6E-06	0.30	1.9E-05
Mercury and Compounds	7439-97-6	4.8E-09	4.8E-09	7.4E-08	0.077	9.7E-07	2.1E-08	0.63	3.4E-08	6.2E-07	0.63	9.8E-07	3.9E-06	0.60	6.4E-06
Molybdenum trioxide	1313-27-5	3.1E-08	3.1E-08	4.7E-07	--	⁽⁵⁾	1.3E-07	--	⁽⁵⁾	3.9E-06	--	⁽⁵⁾	2.4E-05	--	⁽⁵⁾
Nickel and Compounds	7440-02-0	3.9E-08	3.9E-08	6.0E-07	0.014	4.3E-05	1.7E-07	0.062	2.8E-06	5.0E-06	0.062	8.1E-05	3.1E-05	0.20	1.6E-04
Selenium and Compounds	7782-49-2	4.4E-10	4.5E-10	6.9E-09	--	⁽⁵⁾	2.0E-09	--	⁽⁵⁾	5.7E-08	--	⁽⁵⁾	3.6E-07	2.00	1.8E-07
Vanadium (fume or dust)	7440-62-2	4.3E-08	4.3E-08	6.6E-07	0.10	6.6E-06	1.9E-07	0.44	4.3E-07	5.5E-06	0.44	1.2E-05	3.4E-05	0.80	4.3E-05
Zinc and Compounds	7440-66-6	5.4E-07	5.4E-07	8.3E-06	--	⁽⁵⁾	2.4E-06	--	⁽⁵⁾	6.9E-05	--	⁽⁵⁾	4.3E-04	--	⁽⁵⁾

Table 6-6
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Chronic and Acute Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	Annual TAC Emission Rate ⁽¹⁾ (g/s)	Daily TAC Emission Rate ⁽²⁾ (g/s)	Chronic Noncancer									Acute Noncancer		
				Residential			Nonresidential Child			Nonresidential Worker					
				Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)
Exposure Location ⁽⁴⁾				65			1,445			6,786			6,787		
Cumulative Facility-wide Risk				--	--	0.04	--	--	0.001	--	--	0.03	--	--	0.1
C1H3															
Cumulative TEU Risk				--	--	6.6E-04	--	--	1.3E-05	--	--	2.6E-04	--	--	4.6E-04
Dispersion Factor (ug/m ³ /[g/s])				22.2			4.39			89.1			401		
Acetaldehyde	75-07-0	8.0E-08	8.0E-08	1.8E-06	140	1.3E-08	3.5E-07	620	5.6E-10	7.1E-06	620	1.1E-08	3.2E-05	470	6.8E-08
Acrolein	107-02-8	5.0E-08	5.0E-08	1.1E-06	0.35	3.2E-06	2.2E-07	1.50	1.5E-07	4.5E-06	1.50	3.0E-06	2.0E-05	6.90	2.9E-06
Ammonia	7664-41-7	5.9E-05	6.0E-05	1.3E-03	500	2.6E-06	2.6E-04	2,200	1.2E-07	5.3E-03	2,200	2.4E-06	0.024	1,200	2.0E-05
Benzene	71-43-2	1.5E-07	1.5E-07	3.3E-06	3.00	1.1E-06	6.5E-07	13.0	5.0E-08	1.3E-05	13.0	1.0E-06	6.0E-05	29.0	2.1E-06
Benzo(a)pyrene	50-32-8	2.2E-11	2.2E-11	4.9E-10	2.0E-03	2.5E-07	9.8E-11	8.8E-03	1.1E-08	2.0E-09	8.8E-03	2.2E-07	9.0E-09	2.0E-03	4.5E-06
Ethylbenzene	100-41-4	1.8E-07	1.8E-07	3.9E-06	260	1.5E-08	7.7E-07	1,100	7.0E-10	1.6E-05	1,100	1.4E-08	7.1E-05	22,000	3.2E-09
Formaldehyde	50-00-0	3.1E-07	3.2E-07	7.0E-06	9.00	7.8E-07	1.4E-06	40.0	3.5E-08	2.8E-05	40.0	7.0E-07	1.3E-04	49.0	2.6E-06
Hexane	110-54-3	1.2E-07	1.2E-07	2.6E-06	700	3.7E-09	5.1E-07	3,100	1.7E-10	1.0E-05	3,100	3.4E-09	4.7E-05	--	⁽⁵⁾
Naphthalene	91-20-3	5.6E-09	5.6E-09	1.2E-07	3.70	3.3E-08	2.4E-08	16.0	1.5E-09	4.9E-07	16.0	3.1E-08	2.2E-06	200	1.1E-08
Polycyclic Aromatic Hydrocarbons (PAH)	401	1.9E-09	1.9E-09	4.1E-08	--	⁽⁵⁾	8.1E-09	--	⁽⁵⁾	1.6E-07	--	⁽⁵⁾	7.5E-07	--	⁽⁵⁾
Toluene	108-88-3	6.8E-07	6.8E-07	1.5E-05	5,000	3.0E-09	3.0E-06	22,000	1.4E-10	6.0E-05	22,000	2.7E-09	2.7E-04	7,500	3.7E-08
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	5.0E-07	5.1E-07	1.1E-05	220	5.1E-08	2.2E-06	970	2.3E-09	4.5E-05	970	4.6E-08	2.0E-04	8,700	2.3E-08
Arsenic and Compounds	7440-38-2	3.7E-09	3.7E-09	8.2E-08	1.7E-04	4.8E-04	1.6E-08	2.4E-03	6.8E-06	3.3E-07	2.4E-03	1.4E-04	1.5E-06	0.20	7.5E-06
Barium and Compounds	7440-39-3	8.2E-08	8.2E-08	1.8E-06	--	⁽⁵⁾	3.6E-07	--	⁽⁵⁾	7.3E-06	--	⁽⁵⁾	3.3E-05	--	⁽⁵⁾
Beryllium and Compounds	7440-41-7	2.2E-10	2.2E-10	4.9E-09	7.0E-03	7.1E-07	9.8E-10	0.031	3.1E-08	2.0E-08	0.031	6.4E-07	9.0E-08	0.020	4.5E-06
Cadmium and Compounds	7440-43-9	2.0E-08	2.1E-08	4.5E-07	5.0E-03	9.1E-05	9.0E-08	0.037	2.4E-06	1.8E-06	0.037	4.9E-05	8.2E-06	0.030	2.7E-04
Chromium VI, chromate and dichromate particulate	18540-29-9	1.0E-09	1.0E-09	2.3E-08	0.083	2.8E-07	4.6E-09	0.88	5.2E-09	9.2E-08	0.88	1.0E-07	4.2E-07	0.30	1.4E-06
Cobalt and Compounds	7440-48-4	1.6E-09	1.6E-09	3.5E-08	0.10	3.5E-07	6.8E-09	0.44	1.6E-08	1.4E-07	0.44	3.1E-07	6.3E-07	--	⁽⁵⁾
Copper and Compounds	7440-50-8	1.6E-08	1.6E-08	3.5E-07	--	⁽⁵⁾	6.9E-08	--	⁽⁵⁾	1.4E-06	--	⁽⁵⁾	6.4E-06	100	6.4E-08
Lead and Compounds	7439-92-1	9.3E-09	9.3E-09	2.1E-07	0.15	1.4E-06	4.1E-08	0.66	6.2E-08	8.2E-07	0.66	1.2E-06	3.7E-06	0.15	2.5E-05
Manganese and Compounds	7439-96-5	7.0E-09	7.1E-09	1.6E-07	0.090	1.7E-06	3.1E-08	0.40	7.7E-08	6.3E-07	0.40	1.6E-06	2.8E-06	0.30	9.5E-06
Mercury and Compounds	7439-97-6	4.8E-09	4.8E-09	1.1E-07	0.077	1.4E-06	2.1E-08	0.63	3.4E-08	4.3E-07	0.63	6.8E-07	1.9E-06	0.60	3.2E-06
Molybdenum trioxide	1313-27-5	3.1E-08	3.1E-08	6.8E-07	--	⁽⁵⁾	1.3E-07	--	⁽⁵⁾	2.7E-06	--	⁽⁵⁾	1.2E-05	--	⁽⁵⁾
Nickel and Compounds	7440-02-0	3.9E-08	3.9E-08	8.6E-07	0.014	6.2E-05	1.7E-07	0.062	2.8E-06	3.5E-06	0.062	5.6E-05	1.6E-05	0.20	7.9E-05
Selenium and Compounds	7782-49-2	4.4E-10	4.5E-10	9.9E-09	--	⁽⁵⁾	2.0E-09	--	⁽⁵⁾	4.0E-08	--	⁽⁵⁾	1.8E-07	2.00	9.0E-08
Vanadium (fume or dust)	7440-62-2	4.3E-08	4.3E-08	9.5E-07	0.10	9.5E-06	1.9E-07	0.44	4.3E-07	3.8E-06	0.44	8.6E-06	1.7E-05	0.80	2.2E-05
Zinc and Compounds	7440-66-6	5.4E-07	5.4E-07	1.2E-05	--	⁽⁵⁾	2.4E-06	--	⁽⁵⁾	4.8E-05	--	⁽⁵⁾	2.2E-04	--	⁽⁵⁾

Table 6-6
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Chronic and Acute Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	Annual TAC Emission Rate ⁽¹⁾ (g/s)	Daily TAC Emission Rate ⁽²⁾ (g/s)	Chronic Noncancer									Acute Noncancer		
				Residential			Nonresidential Child			Nonresidential Worker					
				Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)
Exposure Location ⁽⁴⁾				65			1,445			6,786			6,787		
Cumulative Facility-wide Risk				--	--	0.04	--	--	0.001	--	--	0.03	--	--	0.1
C1H4															
Cumulative TEU Risk				--	--	4.2E-04	--	--	9.4E-06	--	--	3.5E-04	--	--	6.2E-04
Dispersion Factor (µg/m ³ /[g/s])				14.2			3.17			120			541		
Acetaldehyde	75-07-0	8.0E-08	8.0E-08	1.1E-06	140	8.1E-09	2.5E-07	620	4.1E-10	9.6E-06	620	1.5E-08	4.3E-05	470	9.2E-08
Acrolein	107-02-8	5.0E-08	5.0E-08	7.1E-07	0.35	2.0E-06	1.6E-07	1.50	1.1E-07	6.0E-06	1.50	4.0E-06	2.7E-05	6.90	3.9E-06
Ammonia	7664-41-7	5.9E-05	6.0E-05	8.4E-04	500	1.7E-06	1.9E-04	2,200	8.6E-08	7.1E-03	2,200	3.2E-06	0.032	1,200	2.7E-05
Benzene	71-43-2	1.5E-07	1.5E-07	2.1E-06	3.00	7.0E-07	4.7E-07	13.0	3.6E-08	1.8E-05	13.0	1.4E-06	8.1E-05	29.0	2.8E-06
Benzo(a)pyrene	50-32-8	2.2E-11	2.2E-11	3.2E-10	2.0E-03	1.6E-07	7.1E-11	8.8E-03	8.0E-09	2.7E-09	8.8E-03	3.0E-07	1.2E-08	2.0E-03	6.0E-06
Ethylbenzene	100-41-4	1.8E-07	1.8E-07	2.5E-06	260	9.6E-09	5.6E-07	1,100	5.1E-10	2.1E-05	1,100	1.9E-08	9.6E-05	22,000	4.4E-09
Formaldehyde	50-00-0	3.1E-07	3.2E-07	4.5E-06	9.00	5.0E-07	1.0E-06	40.0	2.5E-08	3.8E-05	40.0	9.4E-07	1.7E-04	49.0	3.5E-06
Hexane	110-54-3	1.2E-07	1.2E-07	1.7E-06	700	2.4E-09	3.7E-07	3,100	1.2E-10	1.4E-05	3,100	4.5E-09	6.3E-05	--	⁽⁵⁾
Naphthalene	91-20-3	5.6E-09	5.6E-09	7.9E-08	3.70	2.1E-08	1.8E-08	16.0	1.1E-09	6.7E-07	16.0	4.2E-08	3.0E-06	200	1.5E-08
Polycyclic Aromatic Hydrocarbons (PAH)	401	1.9E-09	1.9E-09	2.6E-08	--	⁽⁵⁾	5.9E-09	--	⁽⁵⁾	2.2E-07	--	⁽⁵⁾	1.0E-06	--	⁽⁵⁾
Toluene	108-88-3	6.8E-07	6.8E-07	9.6E-06	5,000	1.9E-09	2.2E-06	22,000	9.8E-11	8.1E-05	22,000	3.7E-09	3.7E-04	7,500	4.9E-08
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	5.0E-07	5.1E-07	7.2E-06	220	3.3E-08	1.6E-06	970	1.6E-09	6.0E-05	970	6.2E-08	2.7E-04	8,700	3.2E-08
Arsenic and Compounds	7440-38-2	3.7E-09	3.7E-09	5.3E-08	1.7E-04	3.1E-04	1.2E-08	2.4E-03	4.9E-06	4.4E-07	2.4E-03	1.9E-04	2.0E-06	0.20	1.0E-05
Barium and Compounds	7440-39-3	8.2E-08	8.2E-08	1.2E-06	--	⁽⁵⁾	2.6E-07	--	⁽⁵⁾	9.8E-06	--	⁽⁵⁾	4.4E-05	--	⁽⁵⁾
Beryllium and Compounds	7440-41-7	2.2E-10	2.2E-10	3.2E-09	7.0E-03	4.5E-07	7.1E-10	0.031	2.3E-08	2.7E-08	0.031	8.6E-07	1.2E-07	0.020	6.0E-06
Cadmium and Compounds	7440-43-9	2.0E-08	2.1E-08	2.9E-07	5.0E-03	5.8E-05	6.5E-08	0.037	1.7E-06	2.4E-06	0.037	6.6E-05	1.1E-05	0.030	3.7E-04
Chromium VI, chromate and dichromate particulate	18540-29-9	1.0E-09	1.0E-09	1.5E-08	0.083	1.8E-07	3.3E-09	0.88	3.7E-09	1.2E-07	0.88	1.4E-07	5.6E-07	0.30	1.9E-06
Cobalt and Compounds	7440-48-4	1.6E-09	1.6E-09	2.2E-08	0.10	2.2E-07	4.9E-09	0.44	1.1E-08	1.9E-07	0.44	4.2E-07	8.5E-07	--	⁽⁵⁾
Copper and Compounds	7440-50-8	1.6E-08	1.6E-08	2.2E-07	--	⁽⁵⁾	5.0E-08	--	⁽⁵⁾	1.9E-06	--	⁽⁵⁾	8.6E-06	100	8.6E-08
Lead and Compounds	7439-92-1	9.3E-09	9.3E-09	1.3E-07	0.15	8.8E-07	2.9E-08	0.66	4.5E-08	1.1E-06	0.66	1.7E-06	5.0E-06	0.15	3.4E-05
Manganese and Compounds	7439-96-5	7.0E-09	7.1E-09	1.0E-07	0.090	1.1E-06	2.2E-08	0.40	5.6E-08	8.4E-07	0.40	2.1E-06	3.8E-06	0.30	1.3E-05
Mercury and Compounds	7439-97-6	4.8E-09	4.8E-09	6.8E-08	0.077	8.9E-07	1.5E-08	0.63	2.4E-08	5.8E-07	0.63	9.2E-07	2.6E-06	0.60	4.4E-06
Molybdenum trioxide	1313-27-5	3.1E-08	3.1E-08	4.3E-07	--	⁽⁵⁾	9.7E-08	--	⁽⁵⁾	3.7E-06	--	⁽⁵⁾	1.7E-05	--	⁽⁵⁾
Nickel and Compounds	7440-02-0	3.9E-08	3.9E-08	5.5E-07	0.014	3.9E-05	1.2E-07	0.062	2.0E-06	4.7E-06	0.062	7.5E-05	2.1E-05	0.20	1.1E-04
Selenium and Compounds	7782-49-2	4.4E-10	4.5E-10	6.3E-09	--	⁽⁵⁾	1.4E-09	--	⁽⁵⁾	5.3E-08	--	⁽⁵⁾	2.4E-07	2.00	1.2E-07
Vanadium (fume or dust)	7440-62-2	4.3E-08	4.3E-08	6.0E-07	0.10	6.0E-06	1.4E-07	0.44	3.1E-07	5.1E-06	0.44	1.2E-05	2.3E-05	0.80	2.9E-05
Zinc and Compounds	7440-66-6	5.4E-07	5.4E-07	7.6E-06	--	⁽⁵⁾	1.7E-06	--	⁽⁵⁾	6.4E-05	--	⁽⁵⁾	2.9E-04	--	⁽⁵⁾

Table 6-6
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Chronic and Acute Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	Annual TAC Emission Rate ⁽¹⁾ (g/s)	Daily TAC Emission Rate ⁽²⁾ (g/s)	Chronic Noncancer									Acute Noncancer		
				Residential			Nonresidential Child			Nonresidential Worker					
				Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)
Exposure Location ⁽⁴⁾				65			1,445			6,786			6,787		
Cumulative Facility-wide Risk				--	--	0.04	--	--	0.001	--	--	0.03	--	--	0.1
C2H1															
Cumulative TEU Risk				--	--	7.0E-04	--	--	1.8E-05	--	--	5.2E-04	--	--	9.3E-04
Dispersion Factor (µg/m ³ /[g/s])				14.1			3.74			105			488		
Acetaldehyde	75-07-0	1.3E-07	1.3E-07	1.9E-06	140	1.3E-08	5.0E-07	620	8.0E-10	1.4E-05	620	2.2E-08	6.5E-05	470	1.4E-07
Acrolein	107-02-8	8.3E-08	8.4E-08	1.2E-06	0.35	3.4E-06	3.1E-07	1.50	2.1E-07	8.8E-06	1.50	5.8E-06	4.1E-05	6.90	5.9E-06
Ammonia	7664-41-7	9.9E-05	9.9E-05	1.4E-03	500	2.8E-06	3.7E-04	2,200	1.7E-07	0.010	2,200	4.7E-06	0.049	1,200	4.0E-05
Benzene	71-43-2	2.5E-07	2.5E-07	3.5E-06	3.00	1.2E-06	9.2E-07	13.0	7.1E-08	2.6E-05	13.0	2.0E-06	1.2E-04	29.0	4.2E-06
Benzo(a)pyrene	50-32-8	3.7E-11	3.7E-11	5.2E-10	2.0E-03	2.6E-07	1.4E-10	8.8E-03	1.6E-08	3.9E-09	8.8E-03	4.4E-07	1.8E-08	2.0E-03	9.1E-06
Ethylbenzene	100-41-4	2.9E-07	3.0E-07	4.1E-06	260	1.6E-08	1.1E-06	1,100	1.0E-09	3.1E-05	1,100	2.8E-08	1.4E-04	22,000	6.5E-09
Formaldehyde	50-00-0	5.2E-07	5.3E-07	7.4E-06	9.00	8.2E-07	2.0E-06	40.0	4.9E-08	5.5E-05	40.0	1.4E-06	2.6E-04	49.0	5.3E-06
Hexane	110-54-3	1.9E-07	2.0E-07	2.7E-06	700	3.9E-09	7.3E-07	3,100	2.3E-10	2.0E-05	3,100	6.6E-09	9.6E-05	--	⁽⁵⁾
Naphthalene	91-20-3	9.3E-09	9.3E-09	1.3E-07	3.70	3.5E-08	3.5E-08	16.0	2.2E-09	9.7E-07	16.0	6.1E-08	4.5E-06	200	2.3E-08
Polycyclic Aromatic Hydrocarbons (PAH)	401	3.1E-09	3.1E-09	4.4E-08	--	⁽⁵⁾	1.2E-08	--	⁽⁵⁾	3.2E-07	--	⁽⁵⁾	1.5E-06	--	⁽⁵⁾
Toluene	108-88-3	1.1E-06	1.1E-06	1.6E-05	5,000	3.2E-09	4.2E-06	22,000	1.9E-10	1.2E-04	22,000	5.4E-09	5.5E-04	7,500	7.4E-08
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	8.4E-07	8.5E-07	1.2E-05	220	5.4E-08	3.1E-06	970	3.2E-09	8.8E-05	970	9.1E-08	4.1E-04	8,700	4.7E-08
Arsenic and Compounds	7440-38-2	6.2E-09	6.2E-09	8.7E-08	1.7E-04	5.1E-04	2.3E-08	2.4E-03	9.6E-06	6.5E-07	2.4E-03	2.7E-04	3.0E-06	0.20	1.5E-05
Barium and Compounds	7440-39-3	1.4E-07	1.4E-07	1.9E-06	--	⁽⁵⁾	5.1E-07	--	⁽⁵⁾	1.4E-05	--	⁽⁵⁾	6.7E-05	--	⁽⁵⁾
Beryllium and Compounds	7440-41-7	3.7E-10	3.7E-10	5.2E-09	7.0E-03	7.5E-07	1.4E-09	0.031	4.5E-08	3.9E-08	0.031	1.3E-06	1.8E-07	0.020	9.1E-06
Cadmium and Compounds	7440-43-9	3.4E-08	3.4E-08	4.8E-07	5.0E-03	9.6E-05	1.3E-07	0.037	3.4E-06	3.6E-06	0.037	9.6E-05	1.7E-05	0.030	5.6E-04
Chromium VI, chromate and dichromate particulate	18540-29-9	1.7E-09	1.7E-09	2.4E-08	0.083	2.9E-07	6.5E-09	0.88	7.3E-09	1.8E-07	0.88	2.1E-07	8.5E-07	0.30	2.8E-06
Cobalt and Compounds	7440-48-4	2.6E-09	2.6E-09	3.7E-08	0.10	3.7E-07	9.7E-09	0.44	2.2E-08	2.7E-07	0.44	6.2E-07	1.3E-06	--	⁽⁵⁾
Copper and Compounds	7440-50-8	2.6E-08	2.6E-08	3.7E-07	--	⁽⁵⁾	9.8E-08	--	⁽⁵⁾	2.8E-06	--	⁽⁵⁾	1.3E-05	100	1.3E-07
Lead and Compounds	7439-92-1	1.5E-08	1.6E-08	2.2E-07	0.15	1.5E-06	5.8E-08	0.66	8.7E-08	1.6E-06	0.66	2.5E-06	7.6E-06	0.15	5.1E-05
Manganese and Compounds	7439-96-5	1.2E-08	1.2E-08	1.7E-07	0.090	1.8E-06	4.4E-08	0.40	1.1E-07	1.2E-06	0.40	3.1E-06	5.8E-06	0.30	1.9E-05
Mercury and Compounds	7439-97-6	8.0E-09	8.1E-09	1.1E-07	0.077	1.5E-06	3.0E-08	0.63	4.8E-08	8.4E-07	0.63	1.3E-06	3.9E-06	0.60	6.6E-06
Molybdenum trioxide	1313-27-5	5.1E-08	5.1E-08	7.2E-07	--	⁽⁵⁾	1.9E-07	--	⁽⁵⁾	5.4E-06	--	⁽⁵⁾	2.5E-05	--	⁽⁵⁾
Nickel and Compounds	7440-02-0	6.5E-08	6.5E-08	9.2E-07	0.014	6.5E-05	2.4E-07	0.062	3.9E-06	6.8E-06	0.062	1.1E-04	3.2E-05	0.20	1.6E-04
Selenium and Compounds	7782-49-2	7.4E-10	7.5E-10	1.0E-08	--	⁽⁵⁾	2.8E-09	--	⁽⁵⁾	7.8E-08	--	⁽⁵⁾	3.6E-07	2.00	1.8E-07
Vanadium (fume or dust)	7440-62-2	7.1E-08	7.1E-08	1.0E-06	0.10	1.0E-05	2.7E-07	0.44	6.0E-07	7.5E-06	0.44	1.7E-05	3.5E-05	0.80	4.4E-05
Zinc and Compounds	7440-66-6	9.0E-07	9.0E-07	1.3E-05	--	⁽⁵⁾	3.3E-06	--	⁽⁵⁾	9.4E-05	--	⁽⁵⁾	4.4E-04	--	⁽⁵⁾

Table 6-6
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Chronic and Acute Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	Annual TAC Emission Rate ⁽¹⁾ (g/s)	Daily TAC Emission Rate ⁽²⁾ (g/s)	Chronic Noncancer									Acute Noncancer		
				Residential			Nonresidential Child			Nonresidential Worker					
				Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)
Exposure Location ⁽⁴⁾				65			1,445			6,786			6,787		
Cumulative Facility-wide Risk				--	--	0.04	--	--	0.001	--	--	0.03	--	--	0.1
C2H2															
Cumulative TEU Risk				--	--	8.1E-04	--	--	1.8E-05	--	--	4.3E-04	--	--	9.3E-04
Dispersion Factor (µg/m ³ /[g/s])				16.3			3.67			87.1			491		
Acetaldehyde	75-07-0	1.3E-07	1.3E-07	2.2E-06	140	1.5E-08	4.9E-07	620	7.9E-10	1.2E-05	620	1.9E-08	6.6E-05	470	1.4E-07
Acrolein	107-02-8	8.3E-08	8.4E-08	1.4E-06	0.35	3.9E-06	3.1E-07	1.50	2.0E-07	7.3E-06	1.50	4.8E-06	4.1E-05	6.90	6.0E-06
Ammonia	7664-41-7	9.9E-05	9.9E-05	1.6E-03	500	3.2E-06	3.6E-04	2,200	1.6E-07	8.6E-03	2,200	3.9E-06	0.049	1,200	4.1E-05
Benzene	71-43-2	2.5E-07	2.5E-07	4.0E-06	3.00	1.3E-06	9.1E-07	13.0	7.0E-08	2.2E-05	13.0	1.7E-06	1.2E-04	29.0	4.2E-06
Benzo(a)pyrene	50-32-8	3.7E-11	3.7E-11	6.0E-10	2.0E-03	3.0E-07	1.4E-10	8.8E-03	1.5E-08	3.2E-09	8.8E-03	3.7E-07	1.8E-08	2.0E-03	9.2E-06
Ethylbenzene	100-41-4	2.9E-07	3.0E-07	4.8E-06	260	1.8E-08	1.1E-06	1,100	9.8E-10	2.6E-05	1,100	2.3E-08	1.4E-04	22,000	6.6E-09
Formaldehyde	50-00-0	5.2E-07	5.3E-07	8.6E-06	9.00	9.5E-07	1.9E-06	40.0	4.8E-08	4.6E-05	40.0	1.1E-06	2.6E-04	49.0	5.3E-06
Hexane	110-54-3	1.9E-07	2.0E-07	3.2E-06	700	4.5E-09	7.1E-07	3,100	2.3E-10	1.7E-05	3,100	5.5E-09	9.6E-05	--	⁽⁵⁾
Naphthalene	91-20-3	9.3E-09	9.3E-09	1.5E-07	3.70	4.1E-08	3.4E-08	16.0	2.1E-09	8.1E-07	16.0	5.0E-08	4.6E-06	200	2.3E-08
Polycyclic Aromatic Hydrocarbons (PAH)	401	3.1E-09	3.1E-09	5.0E-08	--	⁽⁵⁾	1.1E-08	--	⁽⁵⁾	2.7E-07	--	⁽⁵⁾	1.5E-06	--	⁽⁵⁾
Toluene	108-88-3	1.1E-06	1.1E-06	1.8E-05	5,000	3.7E-09	4.2E-06	22,000	1.9E-10	9.8E-05	22,000	4.5E-09	5.6E-04	7,500	7.4E-08
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	8.4E-07	8.5E-07	1.4E-05	220	6.2E-08	3.1E-06	970	3.2E-09	7.3E-05	970	7.5E-08	4.1E-04	8,700	4.8E-08
Arsenic and Compounds	7440-38-2	6.2E-09	6.2E-09	1.0E-07	1.7E-04	5.9E-04	2.3E-08	2.4E-03	9.4E-06	5.4E-07	2.4E-03	2.2E-04	3.1E-06	0.20	1.5E-05
Barium and Compounds	7440-39-3	1.4E-07	1.4E-07	2.2E-06	--	⁽⁵⁾	5.0E-07	--	⁽⁵⁾	1.2E-05	--	⁽⁵⁾	6.7E-05	--	⁽⁵⁾
Beryllium and Compounds	7440-41-7	3.7E-10	3.7E-10	6.0E-09	7.0E-03	8.6E-07	1.4E-09	0.031	4.4E-08	3.2E-08	0.031	1.0E-06	1.8E-07	0.020	9.2E-06
Cadmium and Compounds	7440-43-9	3.4E-08	3.4E-08	5.5E-07	5.0E-03	1.1E-04	1.2E-07	0.037	3.4E-06	3.0E-06	0.037	8.0E-05	1.7E-05	0.030	5.6E-04
Chromium VI, chromate and dichromate particulate	18540-29-9	1.7E-09	1.7E-09	2.8E-08	0.083	3.4E-07	6.3E-09	0.88	7.2E-09	1.5E-07	0.88	1.7E-07	8.5E-07	0.30	2.8E-06
Cobalt and Compounds	7440-48-4	2.6E-09	2.6E-09	4.2E-08	0.10	4.2E-07	9.5E-09	0.44	2.2E-08	2.3E-07	0.44	5.1E-07	1.3E-06	--	⁽⁵⁾
Copper and Compounds	7440-50-8	2.6E-08	2.6E-08	4.3E-07	--	⁽⁵⁾	9.6E-08	--	⁽⁵⁾	2.3E-06	--	⁽⁵⁾	1.3E-05	100	1.3E-07
Lead and Compounds	7439-92-1	1.5E-08	1.6E-08	2.5E-07	0.15	1.7E-06	5.7E-08	0.66	8.6E-08	1.3E-06	0.66	2.0E-06	7.6E-06	0.15	5.1E-05
Manganese and Compounds	7439-96-5	1.2E-08	1.2E-08	1.9E-07	0.090	2.1E-06	4.3E-08	0.40	1.1E-07	1.0E-06	0.40	2.6E-06	5.8E-06	0.30	1.9E-05
Mercury and Compounds	7439-97-6	8.0E-09	8.1E-09	1.3E-07	0.077	1.7E-06	2.9E-08	0.63	4.7E-08	7.0E-07	0.63	1.1E-06	4.0E-06	0.60	6.6E-06
Molybdenum trioxide	1313-27-5	5.1E-08	5.1E-08	8.3E-07	--	⁽⁵⁾	1.9E-07	--	⁽⁵⁾	4.4E-06	--	⁽⁵⁾	2.5E-05	--	⁽⁵⁾
Nickel and Compounds	7440-02-0	6.5E-08	6.5E-08	1.1E-06	0.014	7.6E-05	2.4E-07	0.062	3.8E-06	5.7E-06	0.062	9.1E-05	3.2E-05	0.20	1.6E-04
Selenium and Compounds	7782-49-2	7.4E-10	7.5E-10	1.2E-08	--	⁽⁵⁾	2.7E-09	--	⁽⁵⁾	6.5E-08	--	⁽⁵⁾	3.7E-07	2.00	1.8E-07
Vanadium (fume or dust)	7440-62-2	7.1E-08	7.1E-08	1.2E-06	0.10	1.2E-05	2.6E-07	0.44	5.9E-07	6.2E-06	0.44	1.4E-05	3.5E-05	0.80	4.4E-05
Zinc and Compounds	7440-66-6	9.0E-07	9.0E-07	1.5E-05	--	⁽⁵⁾	3.3E-06	--	⁽⁵⁾	7.8E-05	--	⁽⁵⁾	4.4E-04	--	⁽⁵⁾

Table 6-6
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Chronic and Acute Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	Annual TAC Emission Rate ⁽¹⁾ (g/s)	Daily TAC Emission Rate ⁽²⁾ (g/s)	Chronic Noncancer									Acute Noncancer		
				Residential			Nonresidential Child			Nonresidential Worker					
				Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)
Exposure Location ⁽⁴⁾				65			1,445			6,786			6,787		
Cumulative Facility-wide Risk				--	--	0.04	--	--	0.001	--	--	0.03	--	--	0.1
C2H3															
Cumulative TEU Risk				--	--	1.0E-03	--	--	2.1E-05	--	--	3.3E-04	--	--	7.1E-04
Dispersion Factor (µg/m ³ /[g/s])				20.6			4.21			67.2			371		
Acetaldehyde	75-07-0	1.3E-07	1.3E-07	2.7E-06	140	2.0E-08	5.6E-07	620	9.0E-10	8.9E-06	620	1.4E-08	5.0E-05	470	1.1E-07
Acrolein	107-02-8	8.3E-08	8.4E-08	1.7E-06	0.35	4.9E-06	3.5E-07	1.50	2.3E-07	5.6E-06	1.50	3.7E-06	3.1E-05	6.90	4.5E-06
Ammonia	7664-41-7	9.9E-05	9.9E-05	2.0E-03	500	4.1E-06	4.2E-04	2,200	1.9E-07	6.6E-03	2,200	3.0E-06	0.037	1,200	3.1E-05
Benzene	71-43-2	2.5E-07	2.5E-07	5.1E-06	3.00	1.7E-06	1.0E-06	13.0	8.0E-08	1.7E-05	13.0	1.3E-06	9.2E-05	29.0	3.2E-06
Benzo(a)pyrene	50-32-8	3.7E-11	3.7E-11	7.6E-10	2.0E-03	3.8E-07	1.6E-10	8.8E-03	1.8E-08	2.5E-09	8.8E-03	2.8E-07	1.4E-08	2.0E-03	6.9E-06
Ethylbenzene	100-41-4	2.9E-07	3.0E-07	6.0E-06	260	2.3E-08	1.2E-06	1,100	1.1E-09	2.0E-05	1,100	1.8E-08	1.1E-04	22,000	5.0E-09
Formaldehyde	50-00-0	5.2E-07	5.3E-07	1.1E-05	9.00	1.2E-06	2.2E-06	40.0	5.5E-08	3.5E-05	40.0	8.8E-07	2.0E-04	49.0	4.0E-06
Hexane	110-54-3	1.9E-07	2.0E-07	4.0E-06	700	5.7E-09	8.2E-07	3,100	2.6E-10	1.3E-05	3,100	4.2E-09	7.3E-05	--	⁽⁵⁾
Naphthalene	91-20-3	9.3E-09	9.3E-09	1.9E-07	3.70	5.2E-08	3.9E-08	16.0	2.4E-09	6.2E-07	16.0	3.9E-08	3.5E-06	200	1.7E-08
Polycyclic Aromatic Hydrocarbons (PAH)	401	3.1E-09	3.1E-09	6.4E-08	--	⁽⁵⁾	1.3E-08	--	⁽⁵⁾	2.1E-07	--	⁽⁵⁾	1.2E-06	--	⁽⁵⁾
Toluene	108-88-3	1.1E-06	1.1E-06	2.3E-05	5,000	4.7E-09	4.8E-06	22,000	2.2E-10	7.6E-05	22,000	3.4E-09	4.2E-04	7,500	5.6E-08
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	8.4E-07	8.5E-07	1.7E-05	220	7.9E-08	3.5E-06	970	3.6E-09	5.6E-05	970	5.8E-08	3.1E-04	8,700	3.6E-08
Arsenic and Compounds	7440-38-2	6.2E-09	6.2E-09	1.3E-07	1.7E-04	7.5E-04	2.6E-08	2.4E-03	1.1E-05	4.1E-07	2.4E-03	1.7E-04	2.3E-06	0.20	1.2E-05
Barium and Compounds	7440-39-3	1.4E-07	1.4E-07	2.8E-06	--	⁽⁵⁾	5.7E-07	--	⁽⁵⁾	9.1E-06	--	⁽⁵⁾	5.1E-05	--	⁽⁵⁾
Beryllium and Compounds	7440-41-7	3.7E-10	3.7E-10	7.6E-09	7.0E-03	1.1E-06	1.6E-09	0.031	5.0E-08	2.5E-08	0.031	8.0E-07	1.4E-07	0.020	6.9E-06
Cadmium and Compounds	7440-43-9	3.4E-08	3.4E-08	7.0E-07	5.0E-03	1.4E-04	1.4E-07	0.037	3.9E-06	2.3E-06	0.037	6.2E-05	1.3E-05	0.030	4.2E-04
Chromium VI, chromate and dichromate particulate	18540-29-9	1.7E-09	1.7E-09	3.6E-08	0.083	4.3E-07	7.3E-09	0.88	8.3E-09	1.2E-07	0.88	1.3E-07	6.5E-07	0.30	2.2E-06
Cobalt and Compounds	7440-48-4	2.6E-09	2.6E-09	5.3E-08	0.10	5.3E-07	1.1E-08	0.44	2.5E-08	1.7E-07	0.44	4.0E-07	9.7E-07	--	⁽⁵⁾
Copper and Compounds	7440-50-8	2.6E-08	2.6E-08	5.4E-07	--	⁽⁵⁾	1.1E-07	--	⁽⁵⁾	1.8E-06	--	⁽⁵⁾	9.8E-06	100	9.8E-08
Lead and Compounds	7439-92-1	1.5E-08	1.6E-08	3.2E-07	0.15	2.1E-06	6.5E-08	0.66	9.8E-08	1.0E-06	0.66	1.6E-06	5.8E-06	0.15	3.8E-05
Manganese and Compounds	7439-96-5	1.2E-08	1.2E-08	2.4E-07	0.090	2.7E-06	4.9E-08	0.40	1.2E-07	7.9E-07	0.40	2.0E-06	4.4E-06	0.30	1.5E-05
Mercury and Compounds	7439-97-6	8.0E-09	8.1E-09	1.7E-07	0.077	2.1E-06	3.4E-08	0.63	5.4E-08	5.4E-07	0.63	8.6E-07	3.0E-06	0.60	5.0E-06
Molybdenum trioxide	1313-27-5	5.1E-08	5.1E-08	1.0E-06	--	⁽⁵⁾	2.1E-07	--	⁽⁵⁾	3.4E-06	--	⁽⁵⁾	1.9E-05	--	⁽⁵⁾
Nickel and Compounds	7440-02-0	6.5E-08	6.5E-08	1.3E-06	0.014	9.5E-05	2.7E-07	0.062	4.4E-06	4.4E-06	0.062	7.0E-05	2.4E-05	0.20	1.2E-04
Selenium and Compounds	7782-49-2	7.4E-10	7.5E-10	1.5E-08	--	⁽⁵⁾	3.1E-09	--	⁽⁵⁾	5.0E-08	--	⁽⁵⁾	2.8E-07	2.00	1.4E-07
Vanadium (fume or dust)	7440-62-2	7.1E-08	7.1E-08	1.5E-06	0.10	1.5E-05	3.0E-07	0.44	6.8E-07	4.8E-06	0.44	1.1E-05	2.7E-05	0.80	3.3E-05
Zinc and Compounds	7440-66-6	9.0E-07	9.0E-07	1.8E-05	--	⁽⁵⁾	3.8E-06	--	⁽⁵⁾	6.0E-05	--	⁽⁵⁾	3.3E-04	--	⁽⁵⁾

Table 6-6
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Chronic and Acute Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	Annual TAC Emission Rate ⁽¹⁾ (g/s)	Daily TAC Emission Rate ⁽²⁾ (g/s)	Chronic Noncancer									Acute Noncancer		
				Residential			Nonresidential Child			Nonresidential Worker					
				Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)
Exposure Location ⁽⁴⁾				65			1,445			6,786			6,787		
Cumulative Facility-wide Risk				--	--	0.04	--	--	0.001	--	--	0.03	--	--	0.1
C2H4															
Cumulative TEU Risk				--	--	6.7E-04	--	--	2.2E-05	--	--	1.6E-04	--	--	4.3E-04
Dispersion Factor (ug/m ³ /[g/s])				17.0			5.48			39.9			283		
Acetaldehyde	75-07-0	1.1E-07	1.1E-07	1.8E-06	140	1.3E-08	5.8E-07	620	9.4E-10	4.2E-06	620	6.8E-09	3.0E-05	470	6.4E-08
Acrolein	107-02-8	6.7E-08	6.7E-08	1.1E-06	0.35	3.2E-06	3.7E-07	1.50	2.4E-07	2.7E-06	1.50	1.8E-06	1.9E-05	6.90	2.8E-06
Ammonia	7664-41-7	7.9E-05	8.0E-05	1.3E-03	500	2.7E-06	4.3E-04	2,200	2.0E-07	3.2E-03	2,200	1.4E-06	0.023	1,200	1.9E-05
Benzene	71-43-2	2.0E-07	2.0E-07	3.4E-06	3.00	1.1E-06	1.1E-06	13.0	8.3E-08	7.9E-06	13.0	6.1E-07	5.6E-05	29.0	1.9E-06
Benzo(a)pyrene	50-32-8	3.0E-11	3.0E-11	5.1E-10	2.0E-03	2.5E-07	1.6E-10	8.8E-03	1.8E-08	1.2E-09	8.8E-03	1.3E-07	8.4E-09	2.0E-03	4.2E-06
Ethylbenzene	100-41-4	2.3E-07	2.4E-07	4.0E-06	260	1.5E-08	1.3E-06	1,100	1.2E-09	9.4E-06	1,100	8.5E-09	6.7E-05	22,000	3.0E-09
Formaldehyde	50-00-0	4.2E-07	4.2E-07	7.2E-06	9.00	7.9E-07	2.3E-06	40.0	5.8E-08	1.7E-05	40.0	4.2E-07	1.2E-04	49.0	2.4E-06
Hexane	110-54-3	1.6E-07	1.6E-07	2.7E-06	700	3.8E-09	8.5E-07	3,100	2.7E-10	6.2E-06	3,100	2.0E-09	4.4E-05	--	⁽⁵⁾
Naphthalene	91-20-3	7.4E-09	7.5E-09	1.3E-07	3.70	3.4E-08	4.1E-08	16.0	2.5E-09	3.0E-07	16.0	1.8E-08	2.1E-06	200	1.1E-08
Polycyclic Aromatic Hydrocarbons (PAH)	401	2.5E-09	2.5E-09	4.2E-08	--	⁽⁵⁾	1.4E-08	--	⁽⁵⁾	9.9E-08	--	⁽⁵⁾	7.0E-07	--	⁽⁵⁾
Toluene	108-88-3	9.0E-07	9.1E-07	1.5E-05	5,000	3.1E-09	5.0E-06	22,000	2.3E-10	3.6E-05	22,000	1.6E-09	2.6E-04	7,500	3.4E-08
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	6.7E-07	6.8E-07	1.1E-05	220	5.2E-08	3.7E-06	970	3.8E-09	2.7E-05	970	2.8E-08	1.9E-04	8,700	2.2E-08
Arsenic and Compounds	7440-38-2	4.9E-09	5.0E-09	8.4E-08	1.7E-04	5.0E-04	2.7E-08	2.4E-03	1.1E-05	2.0E-07	2.4E-03	8.2E-05	1.4E-06	0.20	7.0E-06
Barium and Compounds	7440-39-3	1.1E-07	1.1E-07	1.9E-06	--	⁽⁵⁾	6.0E-07	--	⁽⁵⁾	4.3E-06	--	⁽⁵⁾	3.1E-05	--	⁽⁵⁾
Beryllium and Compounds	7440-41-7	3.0E-10	3.0E-10	5.1E-09	7.0E-03	7.2E-07	1.6E-09	0.031	5.2E-08	1.2E-08	0.031	3.8E-07	8.4E-08	0.020	4.2E-06
Cadmium and Compounds	7440-43-9	2.7E-08	2.7E-08	4.6E-07	5.0E-03	9.3E-05	1.5E-07	0.037	4.0E-06	1.1E-06	0.037	2.9E-05	7.7E-06	0.030	2.6E-04
Chromium VI, chromate and dichromate particulate	18540-29-9	1.4E-09	1.4E-09	2.4E-08	0.083	2.8E-07	7.6E-09	0.88	8.6E-09	5.5E-08	0.88	6.3E-08	3.9E-07	0.30	1.3E-06
Cobalt and Compounds	7440-48-4	2.1E-09	2.1E-09	3.5E-08	0.10	3.5E-07	1.1E-08	0.44	2.6E-08	8.3E-08	0.44	1.9E-07	5.9E-07	--	⁽⁵⁾
Copper and Compounds	7440-50-8	2.1E-08	2.1E-08	3.6E-07	--	⁽⁵⁾	1.2E-07	--	⁽⁵⁾	8.4E-07	--	⁽⁵⁾	6.0E-06	100	6.0E-08
Lead and Compounds	7439-92-1	1.2E-08	1.2E-08	2.1E-07	0.15	1.4E-06	6.8E-08	0.66	1.0E-07	4.9E-07	0.66	7.5E-07	3.5E-06	0.15	2.3E-05
Manganese and Compounds	7439-96-5	9.4E-09	9.4E-09	1.6E-07	0.090	1.8E-06	5.1E-08	0.40	1.3E-07	3.7E-07	0.40	9.4E-07	2.7E-06	0.30	8.9E-06
Mercury and Compounds	7439-97-6	6.4E-09	6.5E-09	1.1E-07	0.077	1.4E-06	3.5E-08	0.63	5.6E-08	2.6E-07	0.63	4.1E-07	1.8E-06	0.60	3.0E-06
Molybdenum trioxide	1313-27-5	4.1E-08	4.1E-08	6.9E-07	--	⁽⁵⁾	2.2E-07	--	⁽⁵⁾	1.6E-06	--	⁽⁵⁾	1.2E-05	--	⁽⁵⁾
Nickel and Compounds	7440-02-0	5.2E-08	5.2E-08	8.8E-07	0.014	6.3E-05	2.8E-07	0.062	4.6E-06	2.1E-06	0.062	3.3E-05	1.5E-05	0.20	7.4E-05
Selenium and Compounds	7782-49-2	5.9E-10	6.0E-10	1.0E-08	--	⁽⁵⁾	3.2E-09	--	⁽⁵⁾	2.4E-08	--	⁽⁵⁾	1.7E-07	2.00	8.4E-08
Vanadium (fume or dust)	7440-62-2	5.7E-08	5.7E-08	9.7E-07	0.10	9.7E-06	3.1E-07	0.44	7.1E-07	2.3E-06	0.44	5.1E-06	1.6E-05	0.80	2.0E-05
Zinc and Compounds	7440-66-6	7.2E-07	7.2E-07	1.2E-05	--	⁽⁵⁾	3.9E-06	--	⁽⁵⁾	2.9E-05	--	⁽⁵⁾	2.0E-04	--	⁽⁵⁾

Table 6-6
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Chronic and Acute Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	Annual TAC Emission Rate ⁽¹⁾ (g/s)	Daily TAC Emission Rate ⁽²⁾ (g/s)	Chronic Noncancer									Acute Noncancer		
				Residential			Nonresidential Child			Nonresidential Worker					
				Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in- 10 ⁶)
Exposure Location ⁽⁴⁾				65			1,445			6,786			6,787		
Cumulative Facility-wide Risk				--	--	0.04	--	--	0.001	--	--	0.03	--	--	0.1
C2H5															
Cumulative TEU Risk				--	--	5.4E-04	--	--	1.6E-05	--	--	2.3E-04	--	--	5.5E-04
Dispersion Factor (µg/m ³ /[g/s])				13.6			4.13			57.3			358		
Acetaldehyde	75-07-0	1.1E-07	1.1E-07	1.4E-06	140	1.0E-08	4.4E-07	620	7.1E-10	6.1E-06	620	9.8E-09	3.8E-05	470	8.2E-08
Acrolein	107-02-8	6.7E-08	6.7E-08	9.1E-07	0.35	2.6E-06	2.8E-07	1.50	1.8E-07	3.8E-06	1.50	2.5E-06	2.4E-05	6.90	3.5E-06
Ammonia	7664-41-7	7.9E-05	8.0E-05	1.1E-03	500	2.2E-06	3.3E-04	2,200	1.5E-07	4.5E-03	2,200	2.1E-06	0.029	1,200	2.4E-05
Benzene	71-43-2	2.0E-07	2.0E-07	2.7E-06	3.00	9.0E-07	8.2E-07	13.0	6.3E-08	1.1E-05	13.0	8.7E-07	7.1E-05	29.0	2.5E-06
Benzo(a)pyrene	50-32-8	3.0E-11	3.0E-11	4.0E-10	2.0E-03	2.0E-07	1.2E-10	8.8E-03	1.4E-08	1.7E-09	8.8E-03	1.9E-07	1.1E-08	2.0E-03	5.3E-06
Ethylbenzene	100-41-4	2.3E-07	2.4E-07	3.2E-06	260	1.2E-08	9.7E-07	1,100	8.8E-10	1.3E-05	1,100	1.2E-08	8.5E-05	22,000	3.8E-09
Formaldehyde	50-00-0	4.2E-07	4.2E-07	5.7E-06	9.00	6.4E-07	1.7E-06	40.0	4.3E-08	2.4E-05	40.0	6.0E-07	1.5E-04	49.0	3.1E-06
Hexane	110-54-3	1.6E-07	1.6E-07	2.1E-06	700	3.0E-09	6.4E-07	3,100	2.1E-10	8.9E-06	3,100	2.9E-09	5.6E-05	--	⁽⁵⁾
Naphthalene	91-20-3	7.4E-09	7.5E-09	1.0E-07	3.70	2.7E-08	3.1E-08	16.0	1.9E-09	4.2E-07	16.0	2.7E-08	2.7E-06	200	1.3E-08
Polycyclic Aromatic Hydrocarbons (PAH)	401	2.5E-09	2.5E-09	3.4E-08	--	⁽⁵⁾	1.0E-08	--	⁽⁵⁾	1.4E-07	--	⁽⁵⁾	8.9E-07	--	⁽⁵⁾
Toluene	108-88-3	9.0E-07	9.1E-07	1.2E-05	5,000	2.5E-09	3.7E-06	22,000	1.7E-10	5.2E-05	22,000	2.4E-09	3.3E-04	7,500	4.3E-08
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	6.7E-07	6.8E-07	9.1E-06	220	4.2E-08	2.8E-06	970	2.9E-09	3.9E-05	970	4.0E-08	2.4E-04	8,700	2.8E-08
Arsenic and Compounds	7440-38-2	4.9E-09	5.0E-09	6.7E-08	1.7E-04	4.0E-04	2.0E-08	2.4E-03	8.5E-06	2.8E-07	2.4E-03	1.2E-04	1.8E-06	0.20	8.9E-06
Barium and Compounds	7440-39-3	1.1E-07	1.1E-07	1.5E-06	--	⁽⁵⁾	4.5E-07	--	⁽⁵⁾	6.2E-06	--	⁽⁵⁾	3.9E-05	--	⁽⁵⁾
Beryllium and Compounds	7440-41-7	3.0E-10	3.0E-10	4.0E-09	7.0E-03	5.8E-07	1.2E-09	0.031	3.9E-08	1.7E-08	0.031	5.5E-07	1.1E-07	0.020	5.3E-06
Cadmium and Compounds	7440-43-9	2.7E-08	2.7E-08	3.7E-07	5.0E-03	7.4E-05	1.1E-07	0.037	3.0E-06	1.6E-06	0.037	4.2E-05	9.8E-06	0.030	3.3E-04
Chromium VI, chromate and dichromate particulate	18540-29-9	1.4E-09	1.4E-09	1.9E-08	0.083	2.3E-07	5.7E-09	0.88	6.5E-09	7.9E-08	0.88	9.0E-08	5.0E-07	0.30	1.7E-06
Cobalt and Compounds	7440-48-4	2.1E-09	2.1E-09	2.8E-08	0.10	2.8E-07	8.6E-09	0.44	1.9E-08	1.2E-07	0.44	2.7E-07	7.5E-07	--	⁽⁵⁾
Copper and Compounds	7440-50-8	2.1E-08	2.1E-08	2.9E-07	--	⁽⁵⁾	8.7E-08	--	⁽⁵⁾	1.2E-06	--	⁽⁵⁾	7.6E-06	100	7.6E-08
Lead and Compounds	7439-92-1	1.2E-08	1.2E-08	1.7E-07	0.15	1.1E-06	5.1E-08	0.66	7.7E-08	7.1E-07	0.66	1.1E-06	4.5E-06	0.15	3.0E-05
Manganese and Compounds	7439-96-5	9.4E-09	9.4E-09	1.3E-07	0.090	1.4E-06	3.9E-08	0.40	9.7E-08	5.4E-07	0.40	1.3E-06	3.4E-06	0.30	1.1E-05
Mercury and Compounds	7439-97-6	6.4E-09	6.5E-09	8.7E-08	0.077	1.1E-06	2.7E-08	0.63	4.2E-08	3.7E-07	0.63	5.8E-07	2.3E-06	0.60	3.9E-06
Molybdenum trioxide	1313-27-5	4.1E-08	4.1E-08	5.5E-07	--	⁽⁵⁾	1.7E-07	--	⁽⁵⁾	2.3E-06	--	⁽⁵⁾	1.5E-05	--	⁽⁵⁾
Nickel and Compounds	7440-02-0	5.2E-08	5.2E-08	7.1E-07	0.014	5.0E-05	2.1E-07	0.062	3.5E-06	3.0E-06	0.062	4.8E-05	1.9E-05	0.20	9.4E-05
Selenium and Compounds	7782-49-2	5.9E-10	6.0E-10	8.1E-09	--	⁽⁵⁾	2.4E-09	--	⁽⁵⁾	3.4E-08	--	⁽⁵⁾	2.1E-07	2.00	1.1E-07
Vanadium (fume or dust)	7440-62-2	5.7E-08	5.7E-08	7.7E-07	0.10	7.7E-06	2.3E-07	0.44	5.3E-07	3.3E-06	0.44	7.4E-06	2.0E-05	0.80	2.6E-05
Zinc and Compounds	7440-66-6	7.2E-07	7.2E-07	9.8E-06	--	⁽⁵⁾	3.0E-06	--	⁽⁵⁾	4.1E-05	--	⁽⁵⁾	2.6E-04	--	⁽⁵⁾

Table 6-6
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Chronic and Acute Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	Annual TAC Emission Rate ⁽¹⁾ (g/s)	Daily TAC Emission Rate ⁽²⁾ (g/s)	Chronic Noncancer									Acute Noncancer		
				Residential			Nonresidential Child			Nonresidential Worker					
				Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)
Exposure Location ⁽⁴⁾				65			1,445			6,786			6,787		
Cumulative Facility-wide Risk				--	--	0.04	--	--	0.001	--	--	0.03	--	--	0.1
RTO_NG															
Cumulative TEU Risk				--	--	2.1E-03	--	--	5.2E-05	--	--	1.8E-04	--	--	3.4E-04
Dispersion Factor (µg/m ³ /[g/s])				1.07			0.27			0.96			4.58		
Acetaldehyde	75-07-0	5.2E-06	5.2E-06	5.6E-06	140	4.0E-08	1.4E-06	620	2.3E-09	5.0E-06	620	8.0E-09	2.4E-05	470	5.1E-08
Acrolein	107-02-8	3.2E-06	3.3E-06	3.5E-06	0.35	1.0E-05	8.8E-07	1.50	5.9E-07	3.1E-06	1.50	2.1E-06	1.5E-05	6.90	2.2E-06
Ammonia	7664-41-7	3.8E-03	3.9E-03	4.1E-03	500	8.3E-06	1.0E-03	2,200	4.7E-07	3.7E-03	2,200	1.7E-06	0.018	1,200	1.5E-05
Benzene	71-43-2	9.6E-06	9.7E-06	1.0E-05	3.00	3.4E-06	2.6E-06	13.0	2.0E-07	9.3E-06	13.0	7.1E-07	4.4E-05	29.0	1.5E-06
Benzo(a)pyrene	50-32-8	1.4E-09	1.5E-09	1.6E-09	2.0E-03	7.8E-07	3.9E-10	8.8E-03	4.4E-08	1.4E-09	8.8E-03	1.6E-07	6.7E-09	2.0E-03	3.3E-06
Ethylbenzene	100-41-4	1.1E-05	1.1E-05	1.2E-05	260	4.7E-08	3.1E-06	1,100	2.8E-09	1.1E-05	1,100	1.0E-08	5.3E-05	22,000	2.4E-09
Formaldehyde	50-00-0	2.0E-05	2.1E-05	2.2E-05	9.00	2.4E-06	5.5E-06	40.0	1.4E-07	2.0E-05	40.0	4.9E-07	9.4E-05	49.0	1.9E-06
Hexane	110-54-3	7.6E-06	7.6E-06	8.1E-06	700	1.2E-08	2.1E-06	3,100	6.6E-10	7.3E-06	3,100	2.4E-09	3.5E-05	--	⁽⁵⁾
Naphthalene	91-20-3	3.6E-07	3.6E-07	3.9E-07	3.70	1.0E-07	9.8E-08	16.0	6.1E-09	3.5E-07	16.0	2.2E-08	1.7E-06	200	8.3E-09
Polycyclic Aromatic Hydrocarbons (PAH)	401	1.2E-07	1.2E-07	1.3E-07	--	⁽⁵⁾	3.3E-08	--	⁽⁵⁾	1.2E-07	--	⁽⁵⁾	5.5E-07	--	⁽⁵⁾
Toluene	108-88-3	4.4E-05	4.4E-05	4.7E-05	5,000	9.5E-09	1.2E-05	22,000	5.4E-10	4.2E-05	22,000	1.9E-09	2.0E-04	7,500	2.7E-08
Xylene (m-xylene, o-xylene, p-xylene)	1330-20-7	3.3E-05	3.3E-05	3.5E-05	220	1.6E-07	8.9E-06	970	9.1E-09	3.2E-05	970	3.3E-08	1.5E-04	8,700	1.7E-08
Arsenic and Compounds	7440-38-2	2.4E-07	2.4E-07	2.6E-07	1.7E-04	1.5E-03	6.5E-08	2.4E-03	2.7E-05	2.3E-07	2.4E-03	9.7E-05	1.1E-06	0.20	5.5E-06
Barium and Compounds	7440-39-3	5.3E-06	5.3E-06	5.7E-06	--	⁽⁵⁾	1.4E-06	--	⁽⁵⁾	5.1E-06	--	⁽⁵⁾	2.4E-05	--	⁽⁵⁾
Beryllium and Compounds	7440-41-7	1.4E-08	1.5E-08	1.6E-08	7.0E-03	2.2E-06	3.9E-09	0.031	1.3E-07	1.4E-08	0.031	4.5E-07	6.7E-08	0.020	3.3E-06
Cadmium and Compounds	7440-43-9	1.3E-06	1.3E-06	1.4E-06	5.0E-03	2.8E-04	3.6E-07	0.037	9.7E-06	1.3E-06	0.037	3.4E-05	6.1E-06	0.030	2.0E-04
Chromium VI, chromate and dichromate particulate	18540-29-9	6.7E-08	6.8E-08	7.2E-08	0.083	8.7E-07	1.8E-08	0.88	2.1E-08	6.5E-08	0.88	7.4E-08	3.1E-07	0.30	1.0E-06
Cobalt and Compounds	7440-48-4	1.0E-07	1.0E-07	1.1E-07	0.10	1.1E-06	2.7E-08	0.44	6.2E-08	9.7E-08	0.44	2.2E-07	4.7E-07	--	⁽⁵⁾
Copper and Compounds	7440-50-8	1.0E-06	1.0E-06	1.1E-06	--	⁽⁵⁾	2.8E-07	--	⁽⁵⁾	9.9E-07	--	⁽⁵⁾	4.7E-06	100	4.7E-08
Lead and Compounds	7439-92-1	6.0E-07	6.1E-07	6.5E-07	0.15	4.3E-06	1.6E-07	0.66	2.5E-07	5.8E-07	0.66	8.8E-07	2.8E-06	0.15	1.8E-05
Manganese and Compounds	7439-96-5	4.6E-07	4.6E-07	4.9E-07	0.090	5.5E-06	1.2E-07	0.40	3.1E-07	4.4E-07	0.40	1.1E-06	2.1E-06	0.30	7.0E-06
Mercury and Compounds	7439-97-6	3.1E-07	3.1E-07	3.4E-07	0.077	4.4E-06	8.5E-08	0.63	1.3E-07	3.0E-07	0.63	4.8E-07	1.4E-06	0.60	2.4E-06
Molybdenum trioxide	1313-27-5	2.0E-06	2.0E-06	2.1E-06	--	⁽⁵⁾	5.4E-07	--	⁽⁵⁾	1.9E-06	--	⁽⁵⁾	9.2E-06	--	⁽⁵⁾
Nickel and Compounds	7440-02-0	2.5E-06	2.5E-06	2.7E-06	0.014	1.9E-04	6.8E-07	0.062	1.1E-05	2.4E-06	0.062	3.9E-05	1.2E-05	0.20	5.8E-05
Selenium and Compounds	7782-49-2	2.9E-08	2.9E-08	3.1E-08	--	⁽⁵⁾	7.8E-09	--	⁽⁵⁾	2.8E-08	--	⁽⁵⁾	1.3E-07	2.00	6.7E-08
Vanadium (fume or dust)	7440-62-2	2.8E-06	2.8E-06	3.0E-06	0.10	3.0E-05	7.5E-07	0.44	1.7E-06	2.7E-06	0.44	6.1E-06	1.3E-05	0.80	1.6E-05
Zinc and Compounds	7440-66-6	3.5E-05	3.5E-05	3.7E-05	--	⁽⁵⁾	9.5E-06	--	⁽⁵⁾	3.4E-05	--	⁽⁵⁾	1.6E-04	--	⁽⁵⁾

Table 6-6
Level 3 Risk Assessment Results for Natural Gas Toxic Emission Units—Chronic and Acute Assessment
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	Annual TAC Emission Rate ⁽¹⁾ (g/s)	Daily TAC Emission Rate ⁽²⁾ (g/s)	Chronic Noncancer									Acute Noncancer		
				Residential			Nonresidential Child			Nonresidential Worker					
				Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)	Calculated Conc. ^(a) (ug/m ³)	RBC ⁽³⁾ (ug/m ³)	Risk ^(b) (chances-in-10 ⁶)
Exposure Location ⁽⁴⁾				65			1,445			6,786			6,787		
Cumulative Facility-wide Risk				--	--	0.04	--	--	0.001	--	--	0.03	--	--	0.1

NOTES:

RBC = risk-based concentration.

TEU = toxic emission unit.

TAC = toxic air contaminant.

ug/m³ = micrograms per cubic meter.

^(a) Calculated concentration (ug/m³) = (dispersion factor [{ug/m³}/{g/s}]) x (TAC emission rate per TEU [g/s])

^(b) Predicted risk (chances-in-1,000,000) = (calculated concentration [ug/m³]) / (risk-based concentration [ug/m³])

REFERENCES:

⁽¹⁾ See Table 3–5, Natural Gas Toxic Emission Units Daily Emission Rates.

⁽²⁾ See Table 3–5, Natural Gas Toxic Emission Units Daily Emission Rates.

⁽³⁾ Oregon Administrative Rule 340-245-8010, Table 2.

⁽⁴⁾ See Table 6-1, Maximum Predicted Risk Exposure Location per Toxic Emission Unit.

⁽⁵⁾ TAC does not have an established RBC for this exposure category per Oregon Administrative Rule 340-245-8040, Table 4.

Table 6-7
List of TACs With No Published Risk-Based Concentrations
Hydro Extrusion Portland, Inc.—Portland, Oregon

Toxic Air Contaminant	CAS	Risk-Based Concentration? ⁽¹⁾ (Yes/No)
Barium and Compounds	7440-39-3	No
Zinc and Compounds	7440-66-6	No
Ethene, 1,1-difluoro-, homopolymer	489	No
n-Butyl alcohol	71-36-3	No
Propylene glycol monomethyl ether acetate	108-65-6	No
Dimethyl phthalate	131-11-3	No
Molybdenum trioxide	1313-27-5	No

NOTES:

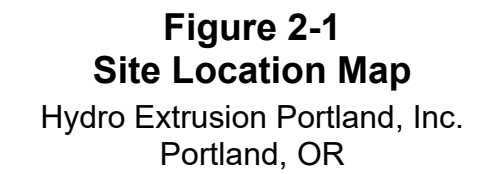
TAC = Toxic air contaminant.

REFERENCES:

⁽¹⁾ See Oregon Administrative Rule 340-245-8020 Table 2.

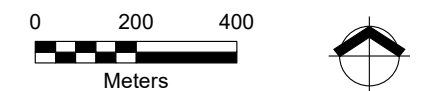
FIGURES





- Property Boundary
- School Location (2015-16)
- UTM Grid Guideline

A map of the state of Oregon. The word "OREGON" is written in large, gray, sans-serif capital letters in the center of the state. A black dot is located on the northern coast of Oregon, and the word "Portland" is written in black text to its right.



Sources: Aerial photograph obtained from Mapbox.
School locations obtained from Oregon Dept. of
Human Services & Oregon Health Authority.



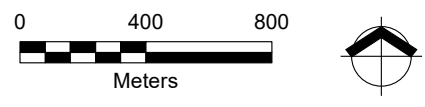
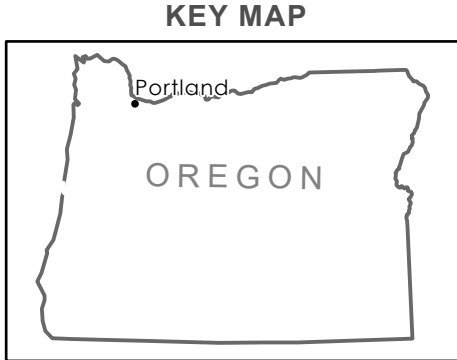
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Print Date: 10/7/2021
Approved By:
Produced By: aguse
Project: 0201_10



Figure 2-2
Local Topography
Hydro Extrusion Portland, Inc.
Portland, OR

- Legend**
- + UTM Grid Guideline
 - Property Boundary



Source: Basemap obtained from Esri.

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Filename: Hydro_Process Flow Diagram_2022-0607.dwg

Printed by Tessa Shabram

Date: 6/7/2022 4:44:37 PM

- LEGEND:**
- | | | | |
|---|---------------|---|-------------------------------|
|  | PRODUCT |  | PROCESS |
|  | RAW MATERIALS |  | CONTROL DEVICE |
|  | EMISSIONS |  | ATMOSPHERE |
|  | HEAT INPUT |  | REGENERATIVE THERMAL OXIDIZER |

 EMISSIONS TO ATMOSPHERE

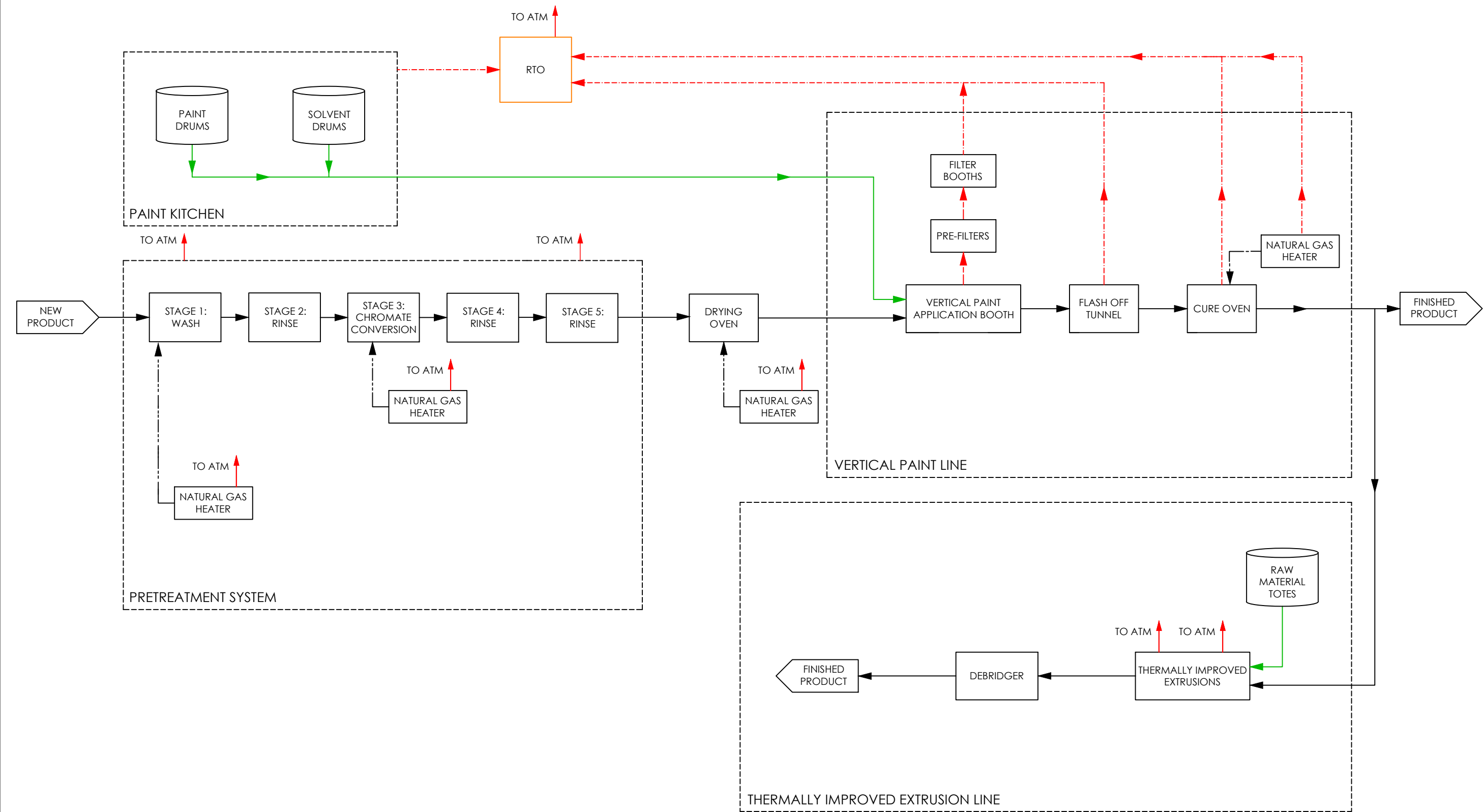
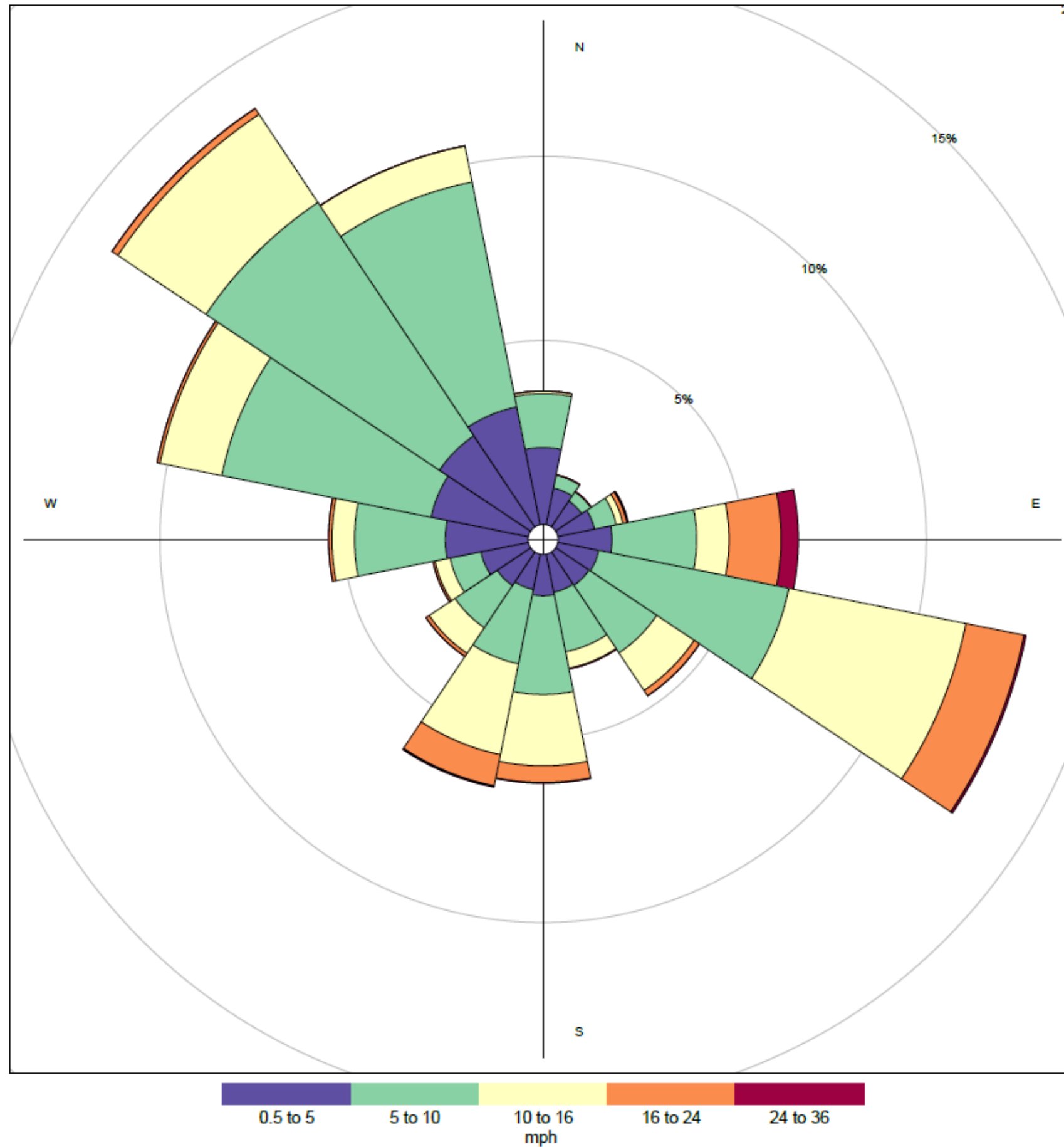


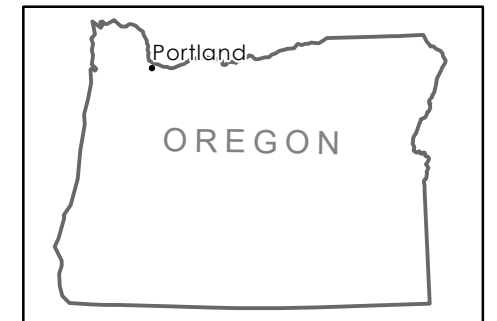
Figure 2-3 Process Flow Diagram
Hydro Extrusion Portland, Inc.
Portland, Oregon



**Figure 4-1
Wind Rose**

Hydro Extrusion Portland, Inc.
Portland, Oregon

KEY MAP



Notes:
Data from Station #24225 - Portland
International Airport, OR, for dates
1/1/2017 - 12/31/2021.
Total number of hours = 43,848
Wind direction = blowing from

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Print Date: 6/15/2022
Approved By:
Produced By: aguse
Project: 0201_10

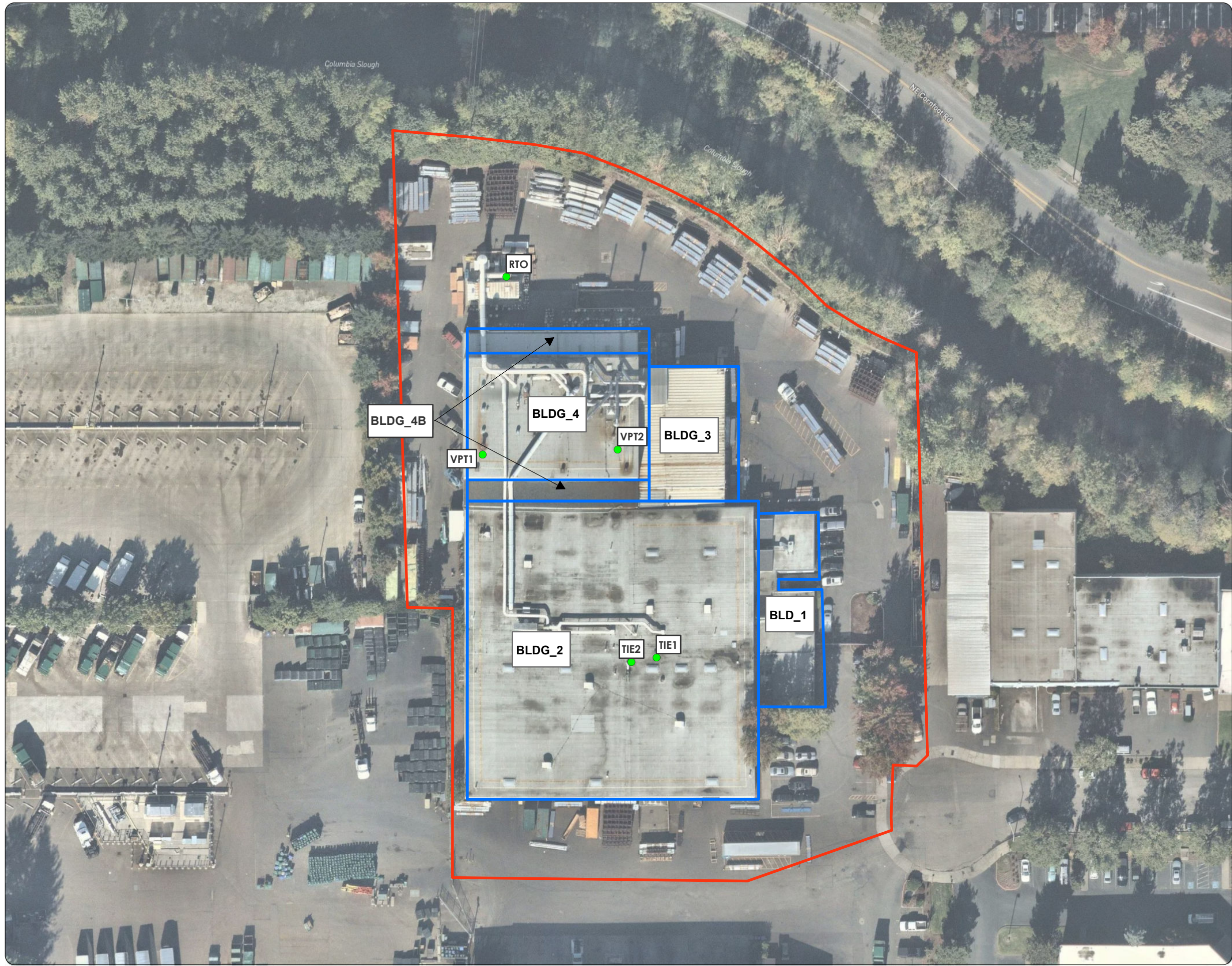


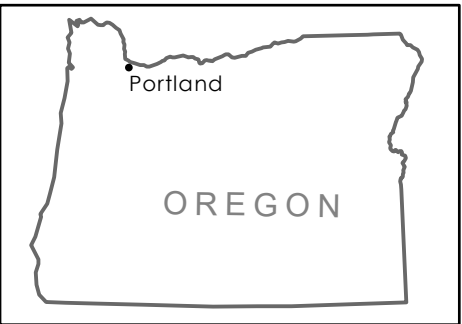
Figure 4-2
Downwash Structures
and Significant Toxic
Emission Unit Locations

Hydro Extrusion Portland, Inc.
Portland, OR

Legend

- Point Source Location
- Property Boundary
- Buildings

KEY MAP



Source: Aerial imagery obtained from Mapbox.

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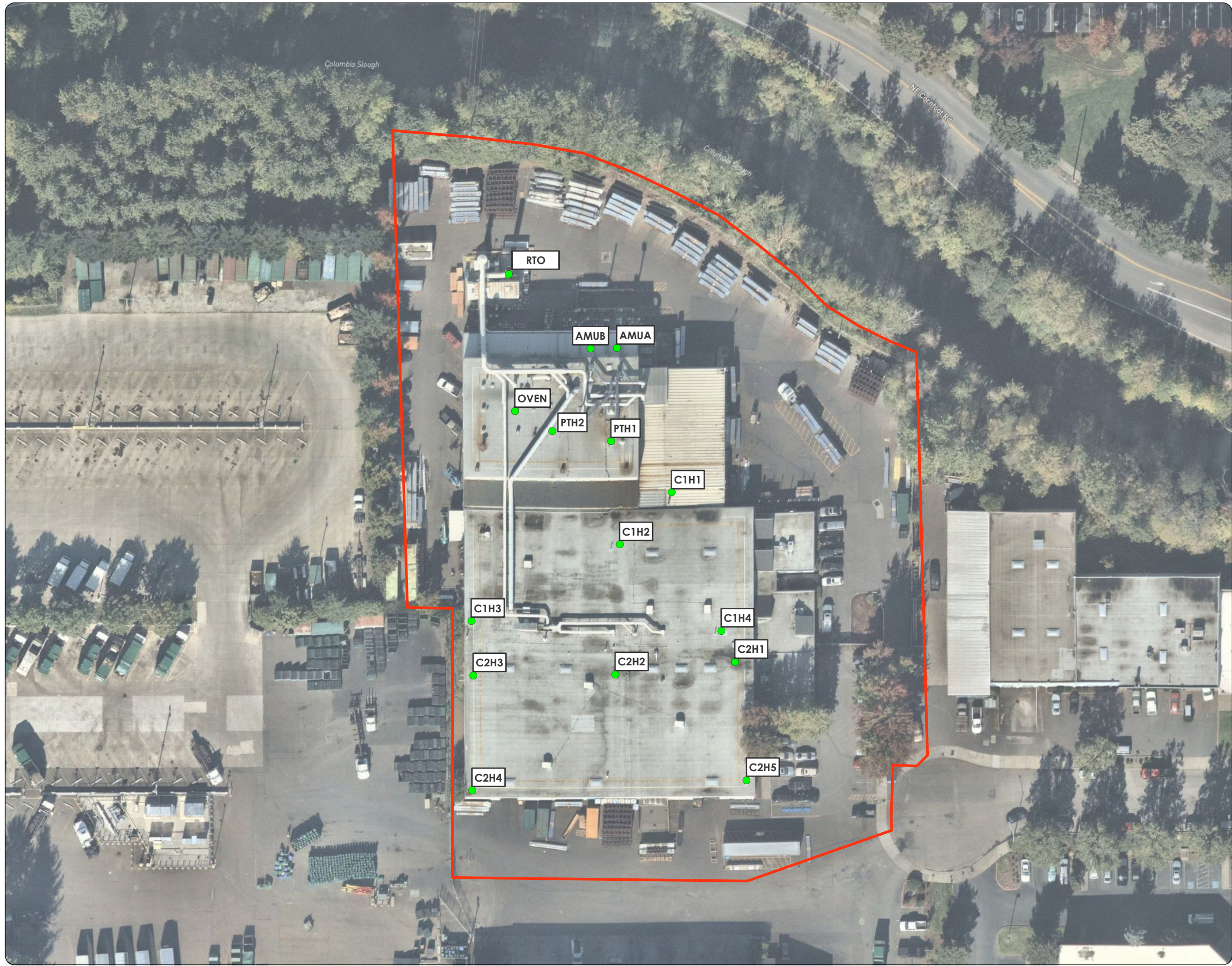


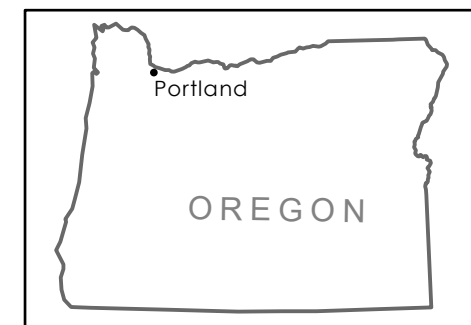
Figure 4-3
Natural Gas Toxic
Emission Unit Locations

Hydro Extrusion Portland, Inc.
Portland, OR

Legend

- Point Source Location
- Property Boundary

KEY MAP



Source: Aerial imagery obtained from Mapbox.



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Print Date: 6/15/2022
Approved By: aguse
Produced By: aguse
Project: 0201_10

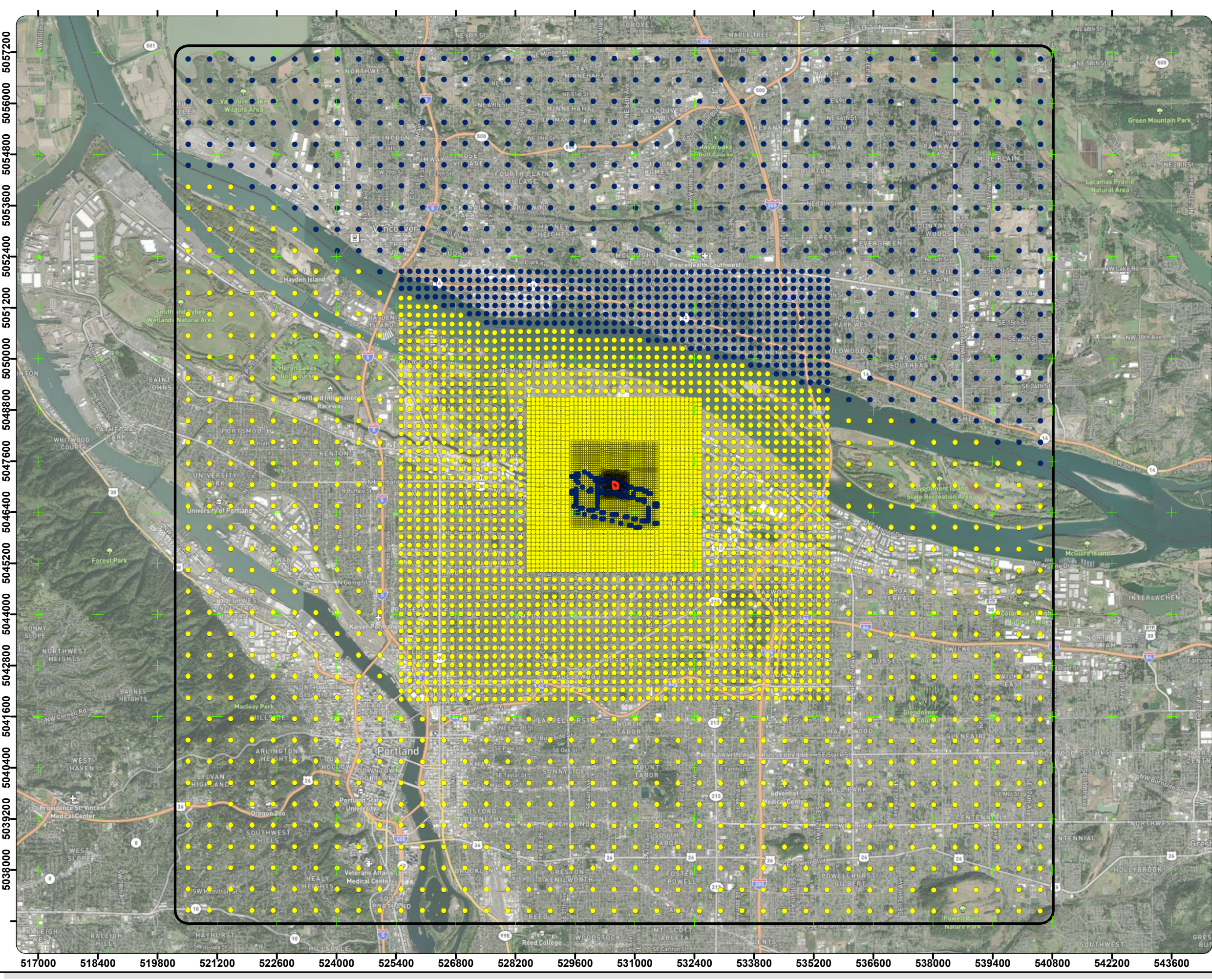
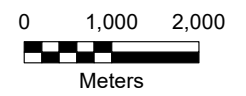
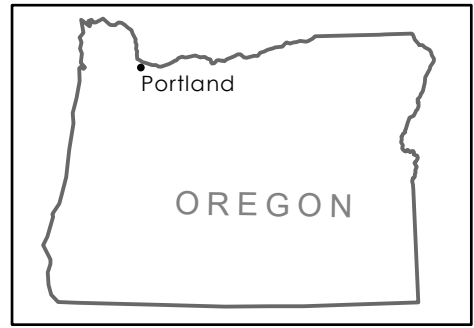


Figure 4-4
Receptor Locations
Hydro Extrusion Portland, Inc.
Portland, OR

Legend

- Receptor
- Receptor in Road, Rail
Right-of-Way, or Outside
Oregon State Border
- + UTM Grid Guideline
- Property Boundary
- ▭ Modeling Domain
Extents

KEY MAP



Source: Aerial imagery obtained from Mapbox.

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Print Date: 9/16/2022
Approved By:
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Project: 0201_10

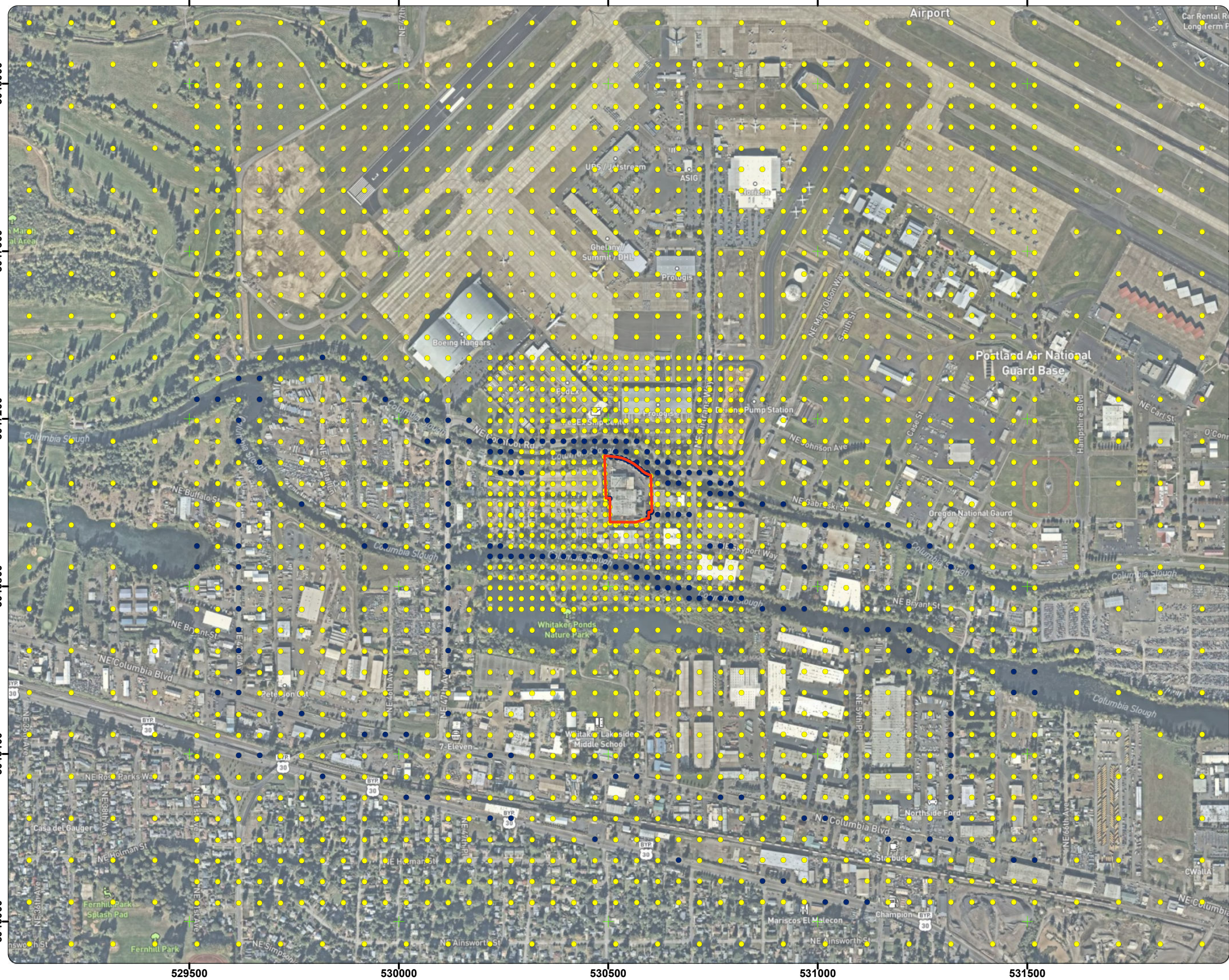


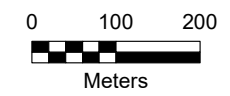
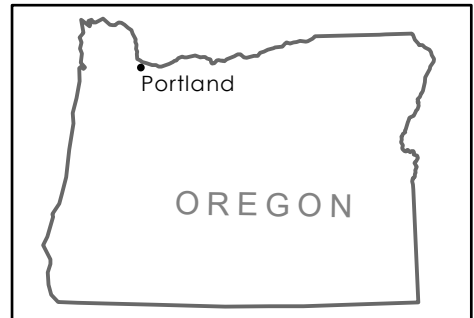
Figure 4-5
Receptor Locations in the Immediate Area

Hydro Extrusion Portland, Inc.
Portland, OR

Legend

- Property Boundary
- Receptor
- Receptor in Road, Rail Right-of-Way or Outside Oregon State Border
- UTM Grid Guideline

KEY MAP



Source: Aerial imagery obtained from Mapbox.

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Print Date: 6/15/2022
Approved By:
Produced By: aguse
Project: 0201.10

Legend

Zoning

Zoning Description

- No Data / Other
- Beaches and Dunes
- Coastal Estuarine
- Coastal Shorelands
- UC Rural Commercial
- Commercial - Central
- Commercial - General
- Commercial - Neighborhood
- Commercial - Office
- Rural Commercial
- Indian reservation/tribal trust
- Industrial - Heavy
- Industrial - Light
- Industrial Campus
- Industrial Office
- Rural Industrial
- UC Rural Industrial
- Rural Residential 1 acre; Rural Residential 10 acres; Rural Residential 2-4 acres; Rural Residential 5 acres
- Very Low-density Res.
- Low-density Res.
- Medium Low-density Res.
- Medium High-density Res.
- Medium-density Res.
- High-density Res.
- Very High-density Res.
- Future Urban Development
- Mixed-Use Com. & Res. Extremely High; Mixed-Use Com. & Res. High; Mixed-Use Com. & Res. Low; Mixed-Use Com. & Res. Med-high; Mixed-Use Com. & Res. Medium; Mixed-Use Com. & Res. V.High
- Mineral and
- Open Space/Conservation
- Exclusive Farm Use
- Marginal Farm Land 10+
- Federal Range
- Mixed Farm-Forest 160+; Mixed Farm-Forest 20; Mixed Farm-Forest 40; Mixed Farm-Forest 80
- Forest
- Federal Forest
- Prime Forest 80
- Secondary Forest 80
- Parks & Open Space
- Public & Semi-public Uses
- Public Facilities

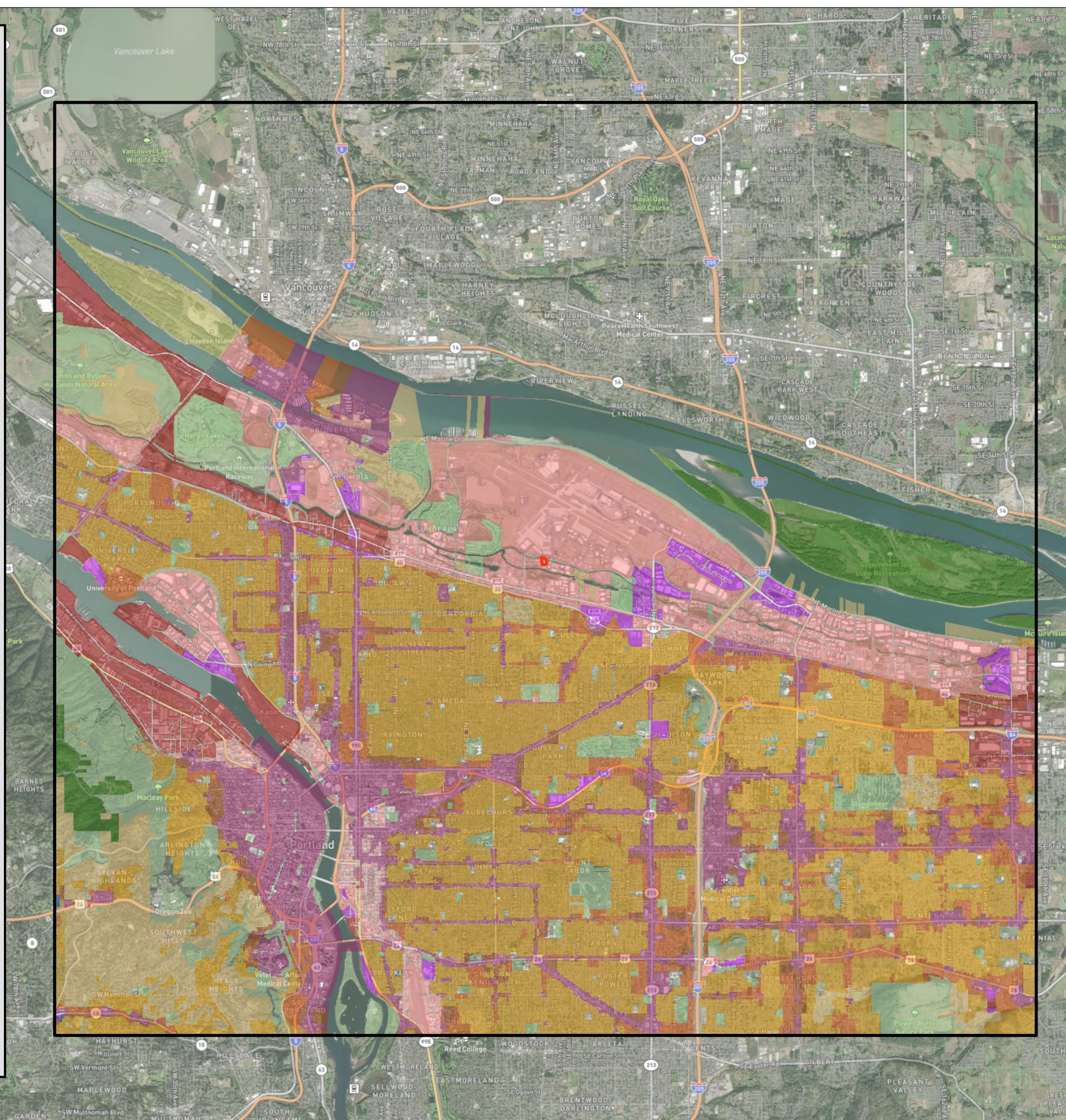


Figure 5-1
Existing Land-Use
Zoning Classifications
Hydro Extrusion Portland, Inc.
Portland, OR

Legend

- Property Boundary
- Modeling Domain Extents

0 1,000 2,000
Meters

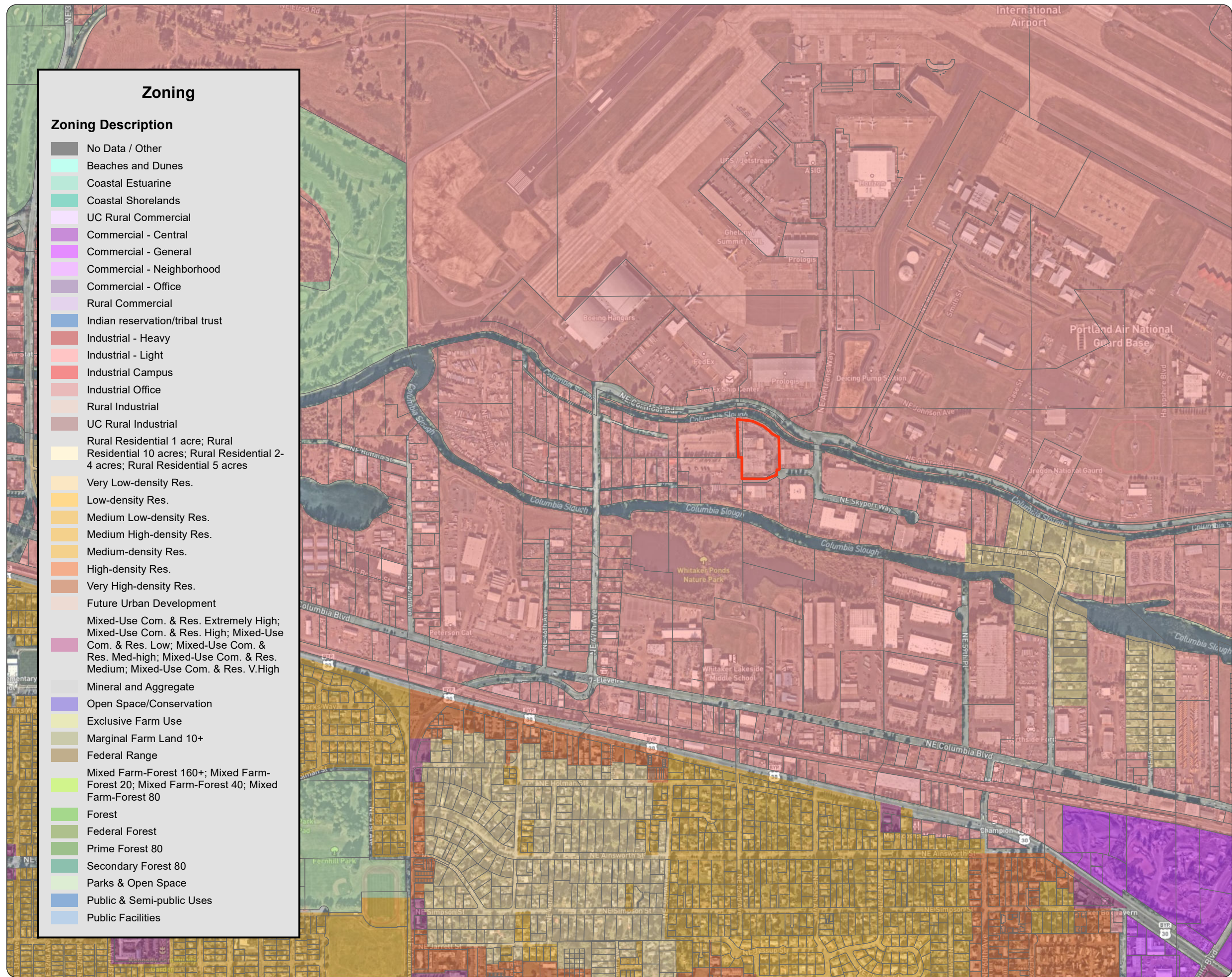


Source: Aerial imagery obtained from Mapbox.
Zoning obtained from the Oregon
Dept. of Land Conservation and Development.

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Print Date: 9/15/2022
Approved By:
Produced By: aguse
Project: 0201.10



Zoning

Zoning Description

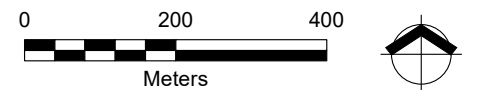
- No Data / Other
- Beaches and Dunes
- Coastal Estuarine
- Coastal Shorelands
- UC Rural Commercial
- Commercial - Central
- Commercial - General
- Commercial - Neighborhood
- Commercial - Office
- Rural Commercial
- Indian reservation/tribal trust
- Industrial - Heavy
- Industrial - Light
- Industrial Campus
- Industrial Office
- Rural Industrial
- UC Rural Industrial
- Rural Residential 1 acre; Rural Residential 10 acres; Rural Residential 2-4 acres; Rural Residential 5 acres
- Very Low-density Res.
- Low-density Res.
- Medium Low-density Res.
- Medium High-density Res.
- Medium-density Res.
- High-density Res.
- Very High-density Res.
- Future Urban Development
- Mixed-Use Com. & Res. Extremely High; Mixed-Use Com. & Res. High; Mixed-Use Com. & Res. Low; Mixed-Use Com. & Res. Med-high; Mixed-Use Com. & Res. Medium; Mixed-Use Com. & Res. V.High
- Mineral and Aggregate
- Open Space/Conservation
- Exclusive Farm Use
- Marginal Farm Land 10+
- Federal Range
- Mixed Farm-Forest 160+; Mixed Farm-Forest 20; Mixed Farm-Forest 40; Mixed Farm-Forest 80
- Forest
- Federal Forest
- Prime Forest 80
- Secondary Forest 80
- Parks & Open Space
- Public & Semi-public Uses
- Public Facilities

Figure 5-2
Existing Land-Use
Zoning Classifications
in the Immediate Area

Hydro Extrusion Portland, Inc.
Portland, OR

Legend

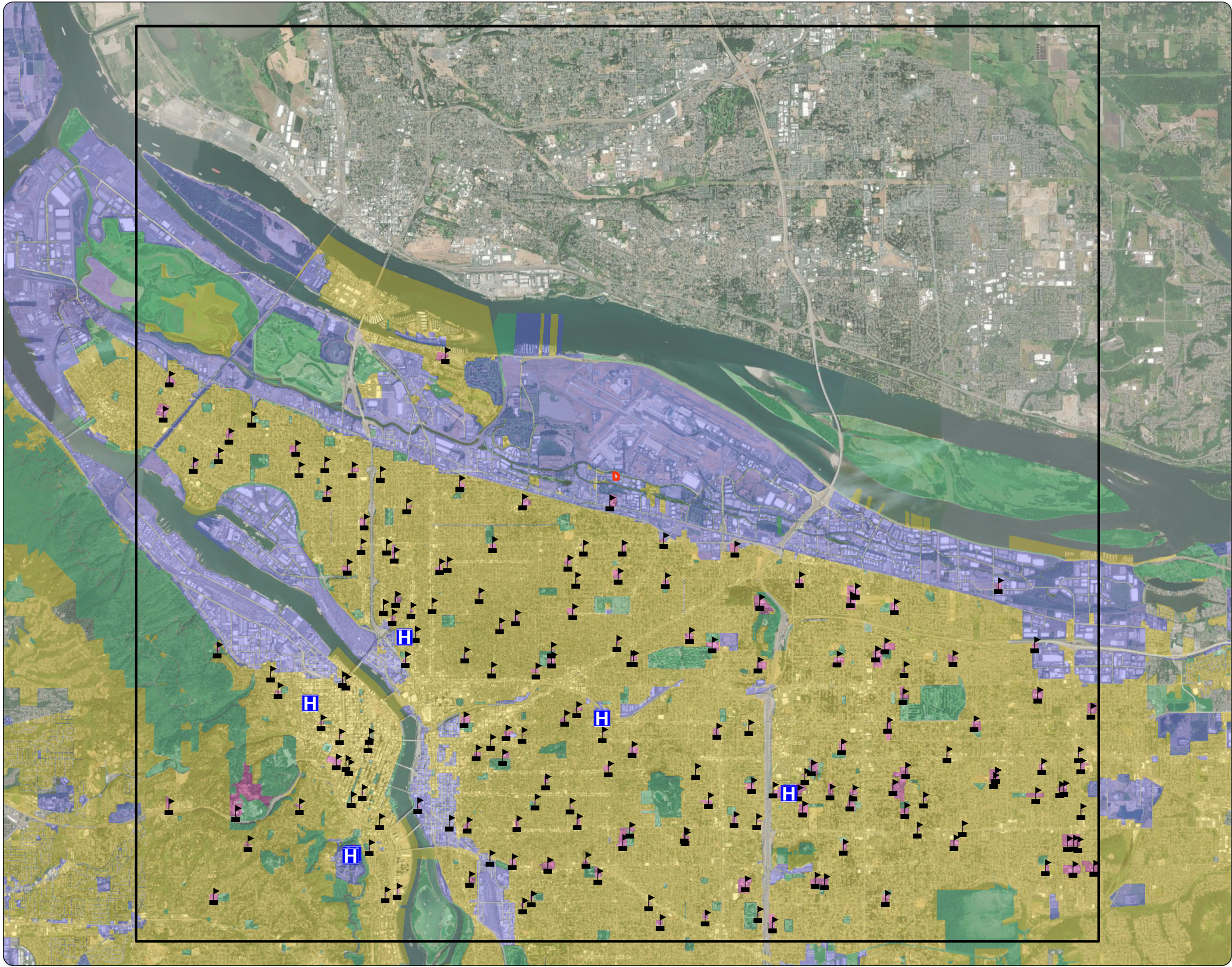
- Property Boundary
- Parcel



Source: Aerial imagery obtained from Mapbox.
Zoning obtained from the Oregon
Dept. of Land Conservation and Development.

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**Figure 5-3
Exposure
Categorization**

Hydro Extrusion Portland, Inc.
Portland, OR

Legend

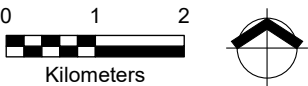
-  Hospital Location (2014)
-  School Location (2015-16)
-  Property Boundary

Exposure Classification

RBC Basis

-  Residential
-  Child
-  Worker
-  Acute

1. Zoning data obtained from the Oregon Dept. of Land Conservation and Development.
2. Existing land use classifications revised to reflect one of the four risk-based concentration categories presented in Oregon Administrative Rule 340-245-8040 Table 4.
3. Non-taxlot land use areas (e.g., interstate right-of-way) will not be assessed for cancer or noncancer risk.



Sources: Aerial photograph obtained from Mapbox.
Schools obtained from Oregon Dept. of Human Services & Oregon Health Authority.



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Figure 5-4
Exposure
Categorization in the
Immediate Area

Hydro Extrusion Portland, Inc.
Portland, OR

Legend

 School Location (2015-16)

 Property Boundary

Exposure Classification

RBC Basis

 Residential

 Child

 Worker

 Acute

1. Zoning data obtained from the Oregon Dept. of Land Conservation and Development.
2. Existing land use classifications revised to reflect one of the four risk-based concentration categories presented in Oregon Administrative Rule 340-245-8040 Table 4.
3. Non-taxlot land use areas (e.g., interstate right-of-way) will not be assessed for cancer or noncancer risk.



Sources: Aerial photograph obtained from Mapbox.
Schools obtained from Oregon Dept. of Human
Services & Oregon Health Authority.



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