AGENDA ITEM: VIII-4

MILPITAS PLANNING COMMISSION AGENDA REPORT

PUBLIC HEARING Meeting Date: July 27, 2011

APPLICATION:	**CONDITIONAL USE PERMIT AMENDMENT NO. UA11-0002**
APPLICATION SUMMARY:	A request to expand an existing religious facility by approximately 12,550 square feet within an existing building.
LOCATION:	380 Montague Expressway (APN: 086-36-044)
APPLICANT:	John Ha, 1288 Kifer Road #207, Sunnyvale, Ca 94086
OWNER:	Joseph Sun, 380 Montague Expressway, Milpitas, CA 95035
RECOMMENDATION:	**Staff recommends that the Planning Commission: Adopt Resolution No. 11-032, subject to the conditions of approval.**
PROJECT DATA:	
General Plan/ Zoning Designation:	Mixed Use Very High Density with Site and Architectural Overlay (MXD3-S) and within the Transit Area Specific Plan.
Related Permits:	Conditional Use Permit No. UP2004-16 and EA2004-7
CEQA Determination:	Addendum to Mitigated Negative Declaration No. EA2004-7
PLANNER:	Tiffany Brown, Assistant Planner
PJ:	2712.
ATTACHMENTS:	A. Resolution No. 11-032 B. Site Plans C. Letter from the Applicant, Church schedule D. 2011 Risk Assessment E. Addendum to Mitigated Negative Declaration F. Adopted Mitigated Negative Declaration for the existing 2,450 square foot church facility

LOCATION MAP

N

No scale

BACKGROUND

In 1983, a Site and Architectural permit was approved for an approximate 15,000 square foot industrial building at the southeast corner of Sango Court and Montague Expressway.

In October of 2004 a Conditional Use Permit was reviewed and approved to convert a portion (2,450 square feet) of the industrial building into a religious facility that includes classrooms, offices, restrooms, and a 120 seat sanctuary.

On April 8, 2011, John Ha submitted an application per Section 10.57.04 of the Milpitas Municipal Code, requesting to amend the Conditional Use Permit No. UP2004-16 to expand the church use, which would encompass the entire building at 380 Montague Expressway.

PROJECT DESCRIPTION

The project site is located on a 1-acre parcel with a 15,000 square foot Industrial building that is surrounded by parking on the northern and eastern sides. Landscaping is located on all sides of the facility; however, the majority is located along the western and northern ends of the site. The site has one large garbage collection area that is physically separated from the parking lot by a fence with slats. The subject site and surrounding zoning is zoned Mixed Use Very High Density (MXD3) and is part of the Transit Area Specific Plan. A vicinity map of the subject site location is included on the previous page.

The applicant requests to expand the existing church facility, encompassing the entire building. The church facility will include offices, classrooms, a fellowship dinning area, a library, and 235 fixed seated sanctuary. There are no proposed changes to the exterior of the building or parking lot at this time. The week day hours of operation for classes are from 7:30am. to 9:00am and 7:30pm to 9:00pm with office hours from 9:00am to 5:00pm. The peak operation hours for Sunday will be from 9:00am to around 2:30pm. See a summary of events in Attachment C.

Parking

The project site has 61 parking spaces. Because the church offers a variety of services and activities at differing times it is not anticipated that the facility would operate at full capacity (e.g. there is no time that every room within the church will be fully occupied concurrently) resulting in a fluctuating parking demand throughout the week. It is expected that the same people coming for an event would migrate throughout the building, thus the capacity and demand is the same throughout the event. Parking requirements for churches are typical based on the peak activity/event that generates the highest parking demand rather then the maximum amount of parking required if the building were at full capacity. It is anticipated that the maximum peak activity/event time occurs on Sundays between 9:00am and 2:30pm. During this time the facility requires a maximum of 56 parking spaces. *(See chart on following page)*

Table 1
Required Parking

	Zoning Ordinance	Spaces
Main Chapel	1 per 5 seats	47
Office	1 per 240 square feet	3
Classrooms	1 per classroom	6
	Total Required	**56**

ADOPTED PLANS AND ORDINANCES CONSISTENCY

General Plan
The table below outlines the project's consistency with applicable General Plan Guiding Principles and Implementing Policies:

Table 2
General Plan Consistency

Policy	Consistency Finding
2.d-G-2: Development adequate civic, recreational, and cultural centers in locations for the best service to the community and in ways which will protect and promote community beauty and growth	**Consistent.**

The proposed project is consistent with the Milpitas General Plan in that it provides a religious facility in a location that will serve the both the immediate and larger neighborhood (Citywide).

Zoning Ordinance
The proposed church at the proposed location is compatible with the Zoning Ordinance Per Table XI-10-6.02-1 for places of assembly in that it is a conditionally permitted use and will not be detrimental or injurious to property or improvements in the vicinity nor to the public health, safety, and general welfare.

Transit Area Specific Plan
The Transit Area Specific Plan High Density Mixed Use district is intended to be a true mixed use are with retail, restaurants, and services located on the ground floor, with residential or office uses on floors above. However, this applicant intends to utilize the existing legal non-conforming structure and proposes no changes to the exterior of the building. A place of assembly is a use consistent with the Transit Area Specific plan in that it provides a service to the neighboring and surrounding residential communities on the ground floor.

ENVIRONMENTAL REVIEW

Back in 2004, the project site was zoned Industrial and had surrounding industrial uses. When an applicant with sensitive receptors (children and older people) proposes to locate in an industrial area of the city there is always the concern of the appropriateness/compatibility of the

two uses (religious facility and industrial) next to each other. Because of the risk from hazardous materials that may be in use in close proximity to the sensitive receptors, staff required a risk assessment to ensure that all hazardous material impacts were identified and analyzed mitigated through the Mitigated Negative Declaration for the 2,450 square foot church.

In 2008, the Transit Area Specific Plan was adopted, rezoning this area from Industrial to Mixed Use Very High Density and Multi-Family Residential Very High Density. Because of the history of the site (the zoning) staff requested a new Risk Assessment be conducted. Staff conducted an initial environmental assessment of the project in accordance with the California Environmental Quality Act (CEQA) that summarizes the expansion of the church should have no significant impacts. An Addendum to the Mitigated Negative Declaration was prepared (See Attachment E).

PUBLIC COMMENT/OUTREACH

Staff publicly noticed the application in accordance with City and State law. As of the time of writing this report, there have been no inquiries from the public.

CONCLUSION

The church use is a conditionally permitted use within this zoning district and is in compliance with all the zoning standards. The church expansion supports the Milpitas residents and surrounding communities by offering a larger public facility to meet the social needs of the church members.

RECOMMENDATION

STAFF RECOMMENDS THAT the Planning Commission close the public hearing after hearing testimony and adopt Resolution No. approving CONDITIONAL USE PERMIT AMENDMENT NO. UA11-0002 subject to the attached Resolution and Conditions of Approval.

Attachments:

A. Resolution No. 11-032
B. Site Plans
C. Letter from the Applicant, Church schedule
D. 2011 Risk Assessment
E. Addendum to Mitigated Negative Declaration
F. Adopted Mitigated Negative Declaration for the existing 2,450 square foot church facility

ATTACHMENT A.

RESOLUTION NO. 11-032

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MILPITAS, CALIFORNIA, APPROVING CONDITIONAL USE PERMIT AMENDMENT NO. UA11-0002, ARK BAPTIST CHRUCH, TO ALLOW FOR THE EXPANSION OF AN EXISTING CHURCH, LOCATED AT 380 MONTAGUE EXPRESSWAY

WHEREAS, on April 8, 2011, an application was submitted by John Ha, 1288 Kifer Road #207, Sunnyvale, CA 94086, to expand an existing religious facility by approximately 12,550 square feet within an existing building at 380 Montague expressway. The property is located within the Mixed Use Very High Density with Site and Architectural Overlay (MXD3-S) and within the Transit Area Specific Plan (APN: 086-36-044); and

WHEREAS, the Planning Division completed an environmental assessment for the project in accordance with the California Environmental Quality Act (CEQA), and recommends that the Planning Commission adopt the Addendum to the Mitigated Negative Declaration.

WHEREAS, on July 27, 2011, the Planning Commission held a duly noticed public hearing on the subject application, and considered evidence presented by City staff, the applicant, and other interested parties.

NOW THEREFORE, the Planning Commission of the City of Milpitas hereby finds, determines and resolves as follows:

Section 1: The recitals set forth above are true and correct and incorporated herein by reference.

Section 2: The Addendum to Mitigated Negative Declaration No. EA2004-7 is approved. The project proposal is consistent with Section 15164 of the California Environmental Quality Act Guidelines in that the change from the approved 2,450 square foot church to a 15,000 square foot church will have a less than significant impact and the change to remove the approved mitigation measures which no longer apply will not result in a significant impact. The MND remains in effect except for the minor technical changes detailed in the addendum: 1) the scope of the project has changed to include the entire building; 2) No additional significant impacts are created; and 3) the mitigation for the hazardous materials is no longer necessary.

Section 3: The proposed project is consistent with the Milpitas General Plan Policy 2.d-G-2 in that The proposed project is consistent with the Milpitas General Plan in that it provides a religious facility in a location that will serve the both the immediate and larger neighborhood (Citywide).

Section 4: The proposed church at the proposed location is compatible with the Zoning Ordinance Per Table XI-10-6.02-1 for places of assembly in that it is a conditionally permitted use and will not be detrimental or injurious to property or improvements in the vicinity nor to the public health, safety, and general welfare.

Section 5: The Planning Commission of the City of Milpitas hereby approves Conditional Use Permit Amendment No. UA11-0002, Ark Baptist Church, subject to the above Findings, and Conditions of Approval attached hereto as Exhibit 1.

PASSED AND ADOPTED at a regular meeting of the Planning Commission of the City of Milpitas on July 27, 2011.

_____
Chair

TO WIT:

I HEREBY CERTIFY that the following resolution was duly adopted at a regular meeting of the Planning Commission of the City of Milpitas on July 27, 2011 and carried by the following roll call vote:

COMMISSIONER	AYES	NOES	ABSENT	ABSTAIN
Lawrence Ciardella				
Sudhir Mandal				
Zeya Mohsin				
Gurdev Sandhu				
Steve Tao				
Noella Tabladillo				
Mark Tiernan				
John Luk				

EXHIBIT 1

RESTATED CONDITIONS OF APPROVAL
CONDITIONAL USE PERMIT AMENDMENT NO. UA11-0002
A request to expand an existing religious facility by approximately 12,550 square feet within an existing building.
380 Montague Expressway (APN: 086-36-044)

General Conditions

1. The owner or designee shall develop the approved project in conformance with the approved plans and color and materials sample boards approved by the Planning Commission on July 27, 2011, in accordance with these Conditions of Approval.

   Any deviation from the approved site plan, floor plans, or other approved submittal shall require that, prior to the issuance of building permits, the owner or designee shall submit modified plans and any other applicable materials as required by the City for review and obtain the approval of the Planning Director or Designee. If the Planning Director or designee determines that the deviation is significant, the owner or designee shall be required to apply for review and obtain approval of the Planning Commission, in accordance with the Zoning Ordinance. **(P)**

   UA11-0002 shall become null and void if the project is not commenced within two (2) years from the date of approval unless in conjunction with a tentative map, then the project life coincides with the life of the map. Pursuant to Section 64.06(B) of the Zoning Ordinance of the City of Milpitas, commencement shall be:

   a. Completes a foundation associated with the project; or
   b. Dedicates any land or easement as required from the zoning action; or
   c. Complies with all legal requirements necessary to commence the use, or obtains an occupancy permit, whichever is sooner.

2. Pursuant to Section 64.06(1), the owner or designee shall have the right to request an extension of UA11-0002 if said request is made, filed and approved by the Planning Commission prior to expiration dates set forth herein. **(P)**

3. Prior to the issuance of building permits, the owner or designee shall include within the four first pages of the working drawings for a plan check, a list of all conditions of approval imposed by the final approval of the project. **(P)**

4. UA11-0002 is for the approval to expand the existing church facility by approximately 12,550 square feet within the existing building at 380 Montague Expressway. The facility includes offices, class rooms, a fellowship dinning area, a library, and 235 fixed seated sanctuary. Classrooms may be utilized throughout the week for adult and family purposes and on Sunday for Sunday school peruses. Sunday school is defined as class for children and toddlers during mass hours only, the parents never leave the premise. If the applicant at any

time would like to utilize the classrooms as a daycare or childcare, it will require an amendment to this conditional use permit. **(P)**

5. If at the time of application for permit there is a project job account balance due to the City for recovery of review fees, review of permits will not be initiated until the balance is paid in full. **(P)**

(P) = Planning

ARK BAPTIST CHURCH
CONDITIONAL USE PERMIT

380 MONTAGUE EXPRESSWAY
MILPITAS, CA 95035

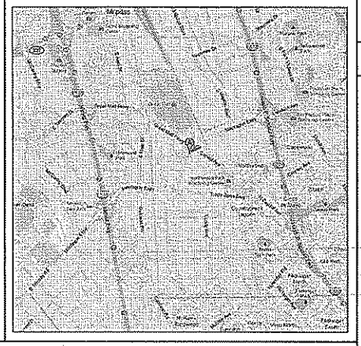
CONTACTS

OWNER:
JOE SUN
2340 HARRIS WAY.
SAN JOSE, CA 95131
TEL: (408) 526-1312
FAX:

ARCHITECT:
JOHN HA, AIA
1288 , KIFER ROAD # 207
SUNNYVALE, CA 94086
TEL: (408) 245-0991
FAX: (408) 245-0319

DRAWING INDEX

VICINITY MAP



PROJECT DESCRIPTIONS

THIS PROJECT IS TO PROPOSE CONDITIONAL USE PERMIT FOR CHURCH USE IN A EXISTING CHURCH AND OFFICE USE BUILDING.

TABULATION

A.P.N.	086-36-044	
SITE AREA:	.93	ACRES
	40,511	SQ. FT.
PROPOSED FIRST FLOOR AREA:	15,016 (EXISTING)	SQ. FT.
PROPOSED PARKING PROVIDED:	39	STANDARD STALLS
	18	COMPACT STALLS
	4	HANDICAP STALLS
TOTAL:	61	STALLS
MAXIMUM HEIGHT ALLOWED:	EXISTING	
PROPOSED HEIGHT:	EXISTING	
PARKING AREA:	EXISTING	SQ. FT.
PARKING RATIO:	EXISTING	%
LANDSCAPE/PAVED AREA:	EXISTING	SQ. FT.
LANDSCAPING/PAVED RATIO:	EXISTING	%

BUILDING SET BACK	PROVIDED	REQUIRED
FRONT YARD	EXISTING	
RIGHT SIDE YARD	EXISTING	
LEFT SIDE YARD	EXISTING	
REAR YARDS	EXISTING	
TYPE OF CONSTRUCTION:	TYPE III	
OCCUPANCY	A-3	
USE ZONE	MXD-3	
FIRE SPRINKLER SYSTEM	YES	
C.B.C	2010	
C.F.C	2010	
C.P.C	2010	
C.E.C	2010	
CALIFORNIA TITLE 24	2008	
C.M.C.	2010	
CHEMICAL/ HAZARDOUS METERIALS STORED AT SITE:	NO	
TOTAL NUMBER OF STORIES	ONE STORY	

IDA
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ARK BAPTIST CHURCH
CONDITIONAL USE PERMIT
TENANT IMPROVEMENT
380 MONTAGUE EXPRESSWAY
MILPITAS, CA 95035

REVISIONS:

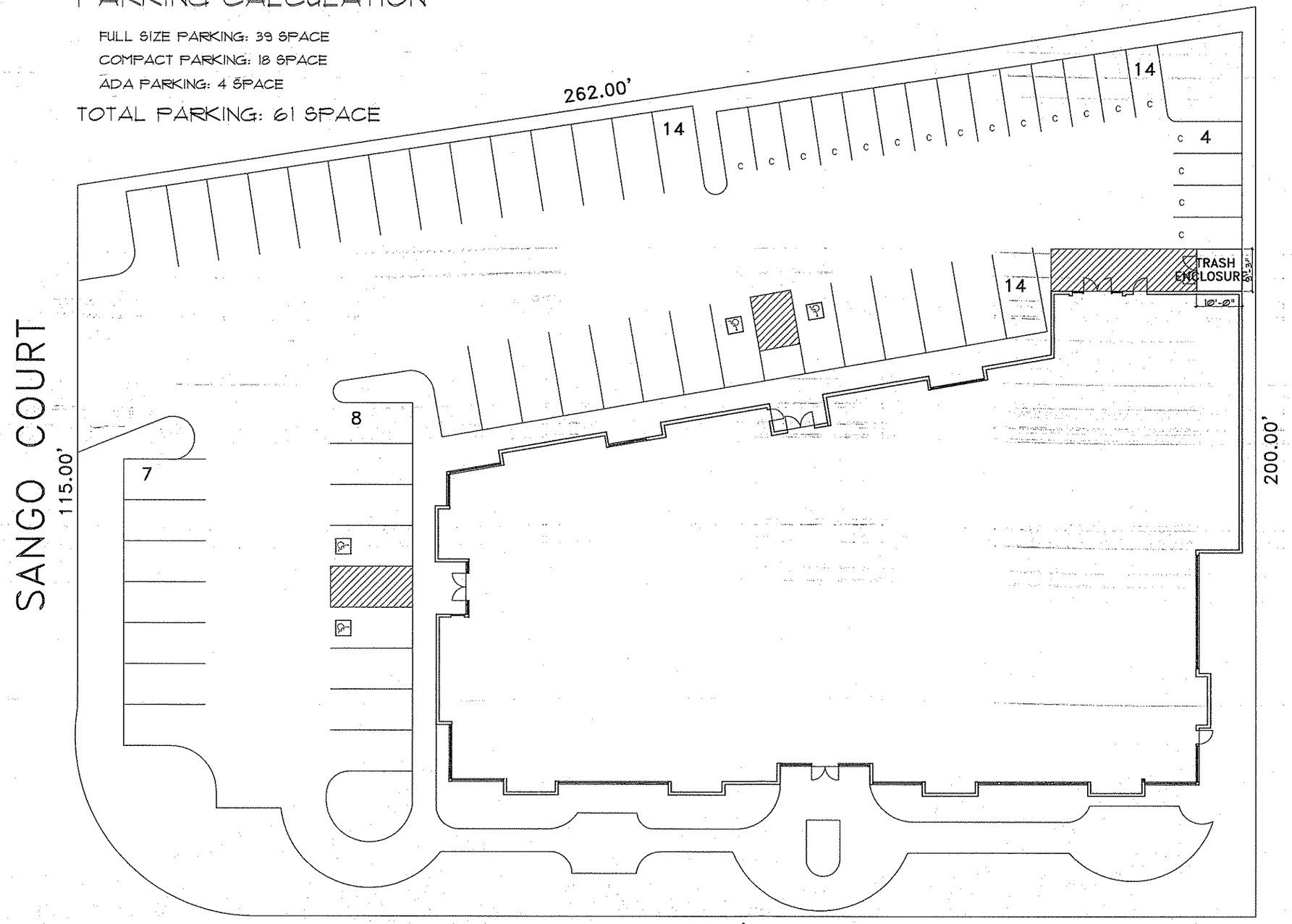
SHEET TITLE:
TITLE SHEET

DATE -
PROJECT NO. 11-194
SCALE - AS SHOWN
DRAWN JH/JW
SHEET
A-0
OF SHEETS

PARKING CALCULATION

FULL SIZE PARKING: 39 SPACE
COMPACT PARKING: 18 SPACE
ADA PARKING: 4 SPACE

TOTAL PARKING: 61 SPACE



SITE PLAN | 3/32" | 1

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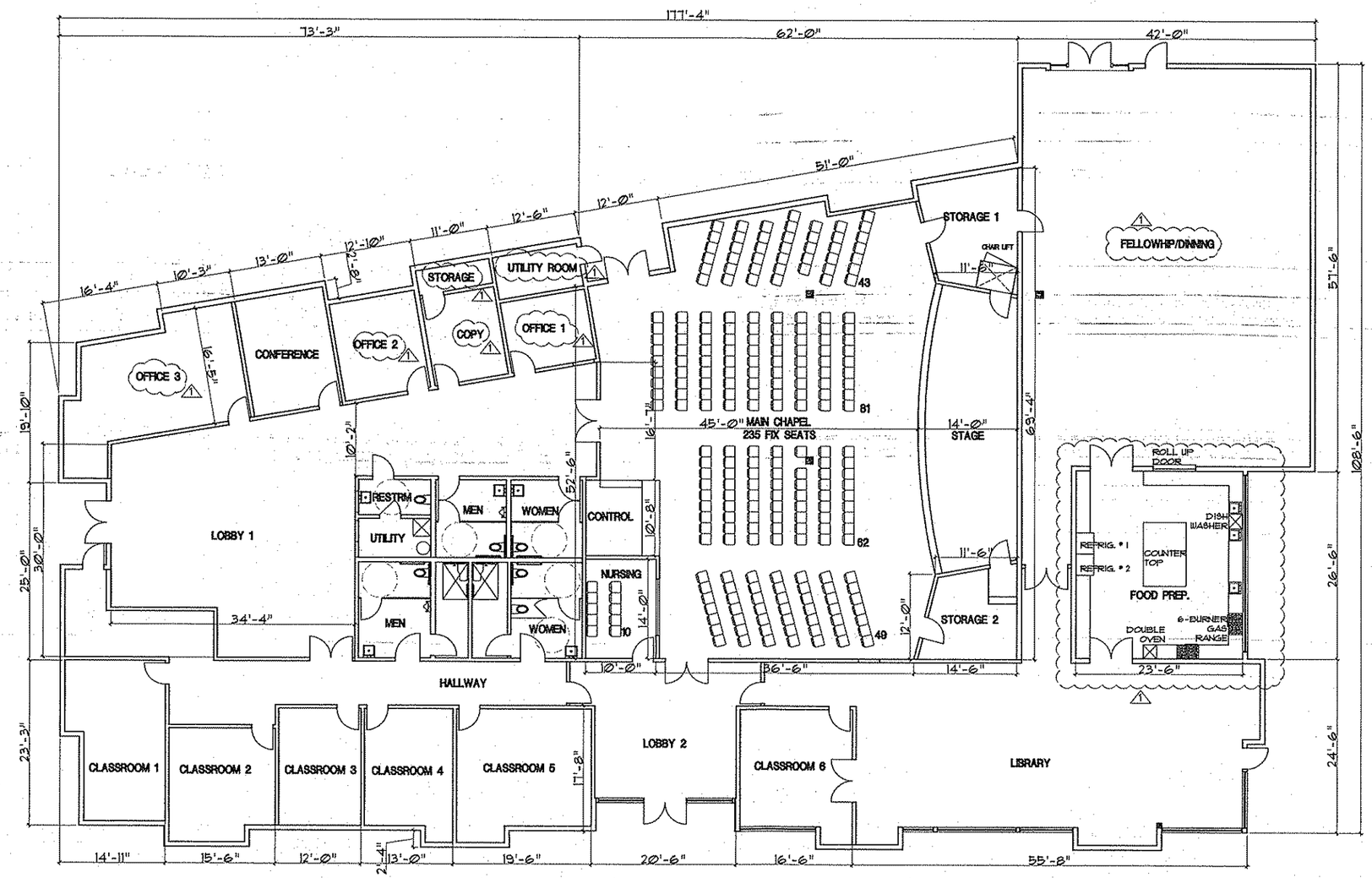
ARK BAPTIST CHURCH
CONDITIONAL USE PERMIT
TENANT IMPROVEMENT
380 MONTAGUE EXPRESSWAY
MILPITAS, CA 95035

REVISIONS:

SHEET TITLE:
SITE PLAN

DATE 04/08/2011
PROJECT NO. 11-1294
SCALE - AS SHOWN
DRAWN JH/JW
SHEET
A-1.1
OF SHEETS



FLOOR PLAN | 1/8" | 1

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ARK BAPTIST CHURCH
CONDITIONAL USE PERMIT
TENANT IMPROVEMENT

380 MONTAGUE EXPRESSWAY
MILPITAS, CA 95035

REVISIONS:
1ST PLANNING COMMENT
1 5/12/2011

SHEET TITLE:
FLOOR PLAN

DATE: 04/28/2011
PROJECT NO.: 11-1284
SCALE: - AS SHOWN
DRAWN: JH/AW
SHEET
A-2.1
OF SHEETS

ATTACHMENT C.

方舟浸信教會
Ark Baptist Church

To: Planning Commission and City Staff of City of Milpitas

From: Joseph Sun, Ark Baptist Church

Date: April 8, 2011

Re: CUP update/amendment for 380 Montague Expressway

We recently bought a commercial building located on 380 Montague Expressway (APN: 086-36-044). Part of this building was permitted for religious use under a still operative Conditional Use Permit (UP2004-16). The remainder of the building was leased to an electronics company. At this time, we would like to apply for a CUP amendment for the entire building for religious use.

We are a Christian Church founded in 1988. Our current congregation is approximately 90 people including children. We are projecting to grow to 200 or so within 10 years. We are moving from 2340 Harris Way, San Jose, which is less than a mile from this newly purchased building. With the facility at this site, including the building and the revised parking capacity, we are able to accommodate the projected growth of our church for the next 7 to10 years. Anticipated traffic impact to the neighborhood will be very minimal. The proposed improvements affect primarily the interior with revised spatial configuration. Exterior of the building and site will remain virtually unchanged.

Our church's focus is in major part on families. In the past years we had performed many programs to enrich family relationships in the community, including parenting seminars in public libraries, community craft classes, Children Character Camp, marriage enhancement advisory and classes, among other programs. Our goal is to strengthen family structure and by extension strengthen the fabric of our society. We would like to be an integral part of the Milpitas community fabric, contributing to the growth and well being of our new home town. All good work starts with a solid base, a well designed, well care for and maintained facility where we may worship, pray, gather, and utilize the updated building to perform many of our activities and contribute to our local community.

We appreciate your consideration and review of this application. We look forward to working with the staff in this process. We would like to express our appreciation in advance for your guidance and working with myself and our consultants through the CUP application process. Please do not hesitate to contact me for any suggestions or questions at (408)526-1312.

Sincerely Yours,

Joseph Sun
Pastor, Ark Baptist Church

380 Montague Expressway, Milpitas, CA 95035 Tel: (408)526-1312 Fax: (408)946-4749 www.arkbaptistchurch.org

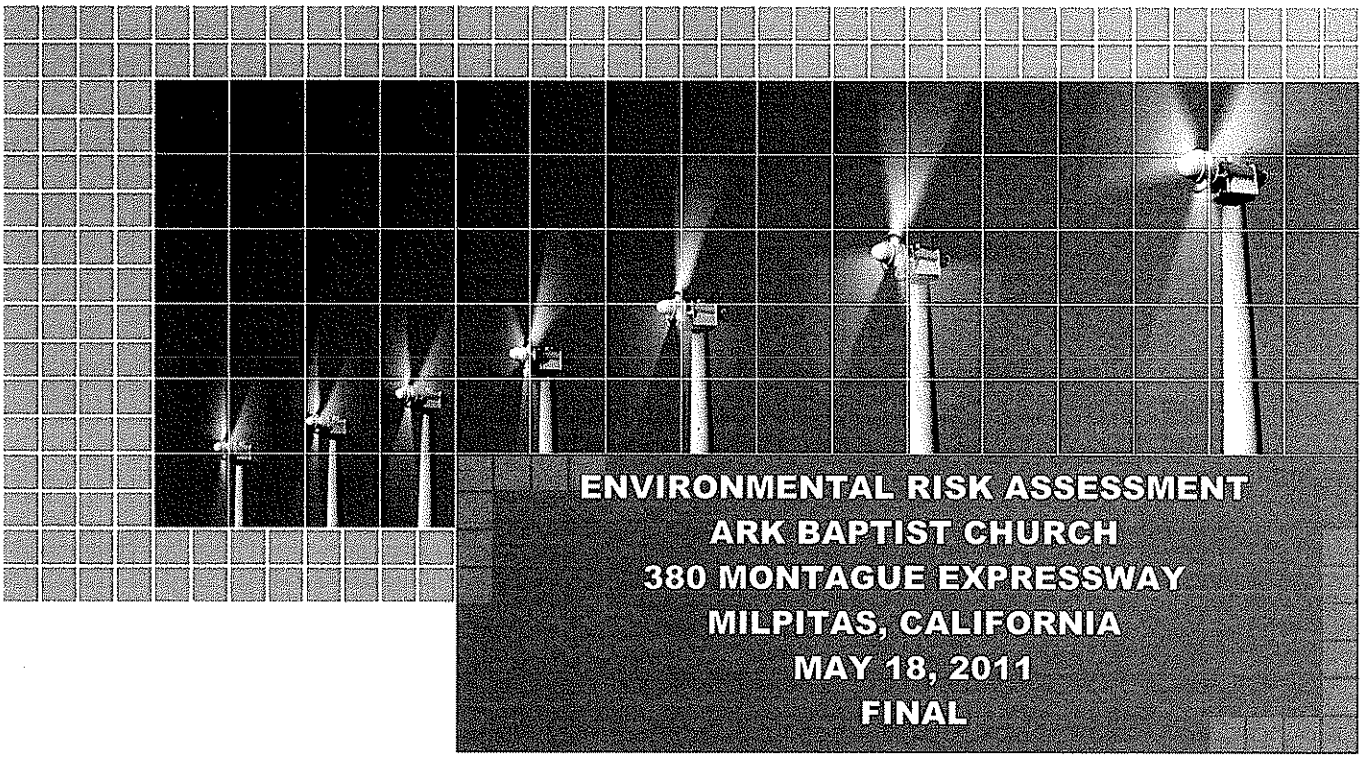
OPERATION HOURS DATA FOR WEEKDAYS + SATURDAY				
ROOM NO.	ROOM NAME	HOURS	NUMBER OF ATTENDANCE	
			CURRENT (2011)	FUTURE (7-10 years)
	Class RM 1	7:30pm-9:00pm (Tue & Sat small groups)	0	10
	Class RM 2	-	0	0
	Class RM 3	-	0	0
	Class RM 4	-	0	0
	Class RM 5	7:30pm-9:00pm (Tue & Sat small groups)	8	16
	Class RM 6	7:30pm-9:00pm (Tue & Sat small groups)	8	14
	Office 1	9:00am-5:00pm (Mon - Fri)	1	1
	Copy Room	-	0	0
	Office 2	9:00am-5:00pm (Mon - Fri)	0	1
	Office 3	9:00am-5:00pm (Mon - Fri)	0	4
	Conference	-	0	0
	Rest Room	-	0	0
	Men	-	0	0
	Women	-	0	0
	Men	-	0	0
	Women	-	0	0
	Control	-	0	0
	Nursing	-	0	0
	Main Chapel	7:30pm-9:00pm (Tue & Sat small groups)	15	40
	Library	-	0	0
	Fellowship/Dining	-	0	0
	Food Preparation	-	0	0

No children daycare program on weekdays & Saturday.

PEAK OPERATION HOURS DATA FOR SUNDAY							
ROOM NO.	ROOM NAME	NUMBER OF ATTENDANCE (CURRENT / Future, 7-10 years)					
		9:00am-10:00am Worship Preparation	10:00am-10:30am Family Worship	10:30am - 11:45am Preaching & Children Sunday School	11:45am - 12:30pm Adult Sunday School	12:30pm - 1:30pm Fellowship	1:30pm - 2:30pm Meeting
	Class RM 1	0	0	6 / 16	6 / 10	0	0
	Class RM 2	0	0	6 / 12	6 / 10	0	0
	Class RM 3	0	0	6 / 10	0 / 10	0	0
	Class RM 4	0	0	6 / 12	0 / 10	0	0
	Class RM 5	0	0	6 / 18	10 / 10	0	0
	Class RM 6	0	0	6 / 15	0	0	0
	Office 1	1 / 1	0	0	0	0	0
	Copy Room	0	0	0	0	0	0
	Office 2	0 / 1	0	0	0	0	0
	Office 3	0 / 4	0	0	0	0	2 / 4
	Conference	0 / 2	0	0	0	0	6 / 9 (every 1st Sunday)
	Rest Room	0	0	0	0	0	0
	Men	0	0	0	0	0	0
	Women	0	0	0	0	0	0
	Men	0	0	0	0	0	0
	Women	0	0	0	0	0	0
	Control	0	1 / 1	1 / 1	0	0	0
	Nursing	0	4/ 7	4 / 7	0	0	0
	Main Chapel	10 / 20	88 / 235	52 / 152	39 / 101	0	0
	Library	0	0	0	5/ 10	5 / 10	5 / 10
	Fellowship/Dining	0	0	0	0 / 0	61 / 150	0
	Food Preparation	0	0	0	2 / 3	2 / 4	0
	Total	11 / 28	93 / 243	93 / 243	68 / 164	68 / 164	13 / 23

Any given time the total number of people will not exceed 243.

ATTACHMENT D.



ENVIRONMENTAL RISK ASSESSMENT
ARK BAPTIST CHURCH
380 MONTAGUE EXPRESSWAY
MILPITAS, CALIFORNIA
MAY 18, 2011
FINAL

PRIVILEGED & CONFIDENTIAL

RESTRICTED DISTRIBUTION

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WSP

QM

Issue/revision	Issue 1	Revision 1	Revision 2	Revision 3
Remarks				
Date	1/28/2004	5/18/2011		
Prepared by	Betsy Mitton	Betsy Mitton		
Checked by				
Authorized by				
Project number				
File reference				

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Contents

1 Introduction

On behalf of Ark Baptist Church (Church), WSP Environment & Energy (WSP) conducted a Risk Assessment of the area surrounding the Church property. The Church is applying for a Conditional Use Permit from the Milpitas Planning Commission to establish a place of worship within an existing building currently zoned for mixed use, very high density. This risk assessment evaluates the potential for health and safety risks to individuals from exposure to hazardous materials, which may occur at the Church due to its location within an industrial zone. The risk assessment was conducted in accordance with the Milpitas Fire Department document: *Guideline for Preparation of Risk Assessments.*

The area evaluated in the risk assessment includes facilities within 0.25-mile of the Church. WSP conducted a visual assessment of the surrounding sites within 0.25-mile of the Church and concluded that four industrial facilities in the area may pose a concern to the Church. These facilities include: Dynamic Details, Inc. (1831, 1841 & 1992 Tarob Court), Olympus America (2400 Ringwood Avenue), Fortune Data Center (2001 Fortune Drive), and Micrel Semiconductor (1849 and 2180 Fortune Drive). These four facilities were reviewed as part of the risk assessment.

WSP reviewed files for the four industrial facilities on the Milpitas Fire Department and the San Jose Fire Department online databases under the Freedom of Information Act. Additionally, federal online database searches of the four facilities were conducted on the Environmental Protection Agency's website to determine the potential for the Church to be affected by releases from these neighboring properties. Chemicals of concern within the neighboring businesses were identified and included extremely hazardous chemicals and/or chemicals exceeding the threshold quantities required for reporting under the California Accidental Release Program (Cal-ARP). The chemicals that met these criteria were identified and worst-case models of hypothetical chemical releases were used to determine if a chemical release could affect individuals attending the Church. Additionally, WSP provided worst-case plume models for the following chemicals stored at Micrel Semiconductor: hydrogen chloride, ammonia, 15% phosphine and boron trichloride.

1.1 DISCLAIMER

Portions of this report are based on documents and oral information which have not been independently verified. While this report is accurate to the best of WSP's knowledge and belief, WSP cannot guarantee the completeness or accuracy of any description or conclusions based on the supplied information.

2 Risk Assessment of Ark Baptist Church Located at 380 Montague Expressway in Milpitas, California

2.1 GENERAL DESCRIPTION

The Ark Baptist Church (Church) is an approximately 15,000 square foot building located at 380 Montague Expressway, Milpitas, Santa Clara County, California (Figure 1). The Church will include the main chapel, classrooms, offices, lobby, fellowship/dining area, food preparation area, conference room, library and restrooms (Figure 2). The building, situated on approximately one acre near the intersection of Sango Court and Montague Expressway, was constructed in approximately 1983 and is currently owned by Ark Baptist Church. The building is constructed of concrete tilt-up walls with paved parking and landscaping areas surrounding the site. The property is zoned for mixed use, very high density (MXD3). Surrounding properties include light industrial uses, auto repair facilities, an athletic club, vacant office buildings and multi-tenant buildings.

Operations conducted at the Church will include one church service on Sundays (10:00 am to 12:00 pm) with Fellowship meetings from 12:00 pm to 2:30 pm. Weekday meetings will take place on Tuesday and Friday nights (7:30 pm to 9:00 pm). The Church offices will be occupied daily from 9:00 am to 5:00 pm. The Church estimates the sanctuary will be able to accommodate 243 individuals, including men, women, children, and the elderly. The Church currently has approximately 93 members, however, they are expecting to expand in the future.

2.2 SITE RECONNAISSANCE AND FILE REVIEW

On April 18, 2011, WSP conducted a drive-by reconnaissance of neighboring businesses and activities within 0.25-mile of the Church that could have potential environmental impacts. WSP referenced a list of facilities researched by Environmental Data Resources. WSP conducted an online file review of the Milpitas Fire Department and San Jose Fire Department databases.

As part of the file review, WSP obtained copies of the most recent Hazardous Materials Business Plans (HMBPs) for each facility and copies of relevant hazardous materials inspections. The available HMBPs are included as Appendix A. Dynamic Details, Inc. was identified as having three locations: 1831 Tarob Court, 1841 Tarob Court and 1992 Tarob Court. The 1841 Tarob Court address was not identified in the Milpitas Fire Department files; therefore, WSP assumed this facility does not store or use any hazardous materials that could pose an environmental risk to the Church. Micrel Inc. is located at 1849 and 2180 Fortune Drive. The HMBP's have all been filed under the 1849 Fortune Drive address. The relevant HMBP records are described below.

2.3 SUMMARY OF CHEMICAL STORAGE AND USE IN AREA

Based on information obtained from the Milpitas and San Jose Fire Department online databases, the following is a summary of chemicals stored and used at the neighboring properties included in the risk assessment.

2.3.1 Dynamic Details Inc.(1831, 1992 Tarob Court, Milpitas)

Dynamic Details, Inc. (DDI) is identified as a printed circuit board manufacturer with its headquarters in Anaheim, California and a satellite facility in Milpitas, California. According to the facility's October 5, 2007 HMBP, DDI stores the following materials at the 1992 Tarob Court location: isopropyl alcohol, n-methyl pyridine and argon. Isopropyl alcohol is stored in 1 gallon and 20 gallon containers. N-methyl pyridine is

stored in 1 gallon containers and argon is stored in 124 cubic foot containers. Reportedly, there are no extremely hazardous substances stored at 1992 Tarob Court. None of the chemicals listed on the HMBP for 1992 Tarob Court are required to be reported under the Cal ARP requirements.

As noted in the 2005 to 2007 HMBP's for 1831Tarob Court, the following hazardous materials are stored at this location: acid cleaner and strippers consisting of hydrochloric, sulfuric and nitric acids (55 gal drums; 20-100 gal ASTs), sodium bisulfate, corrosive acid, alkaline cleaner, ethylene glycol, solder mask remover consisting of sodium hydroxide, sodium hypophosphate, potassium hydroxide mixture, ethdenediamine (EHS-2x55), high speed cleaners containing ammonia chloride, copper chloride, and sodium hydroxide, isopropyl alcohol, formaldehyde solutions (ehs-55 gal), liquid nitrogen, oxygen, propane and acetylene, developer concentrate consisting of potassium carbonate and hydrochloric acid with copper chloride (150-250-300 gal. tanks), diesel fuel, solder melt containing tin and lead (1500 gal AST), plating tanks with nickel, gold, copper, potassium, electroless solutions (40 gal to 500 gal),

According to the HMBP, the aboveground tanks and drums are equipped with secondary containment, automatic sensors, and monitored at least visually on a daily basis. Additionally, any releases from tanks, drums, or containers would remain at the site or discharge to the public wastewater system.

Based on the types of chemicals stored onsite and the chemical storage practices, it is unlikely that a release of any of these chemicals would impact the Church or pose an environmental risk to individuals attending the Church.

2.3.2 Olympus America (2400 Ringwood Avenue, San Jose)

Olympus America, Inc. (Olympus) is identified as the national service center and conducts miscellaneous repairs and services on Olympus products. According to Olympus' 2004 HMMP, the facility does not store or use any extremely hazardous substances onsite. Chemicals stored onsite include small quantities of alcohol, oils, thinners, soaps and cleaners, polish and brighteners, acid solutions, and solder flux. These chemicals are stored indoors and in maximum quantities less than 5 gallons and/or 25 pounds. Compressed gases stored onsite include a 250 cubic foot nitrogen tank. Other materials stored onsite include one 500-gallon container of ethanol and Instapak A and B components used for packaging, which include one 470 and one 550 gallon container. The maximum quantities of materials stored onsite is less than 2,500 pounds.

Based on the types of chemicals stored onsite and the small container sizes, it is unlikely that a release of any of these chemicals would impact the Church or pose an environmental risk to individuals attending the Church.

2.3.3 Fortune Data Center (2001 Fortune Drive, San Jose)

Fortune Data Center is a multi-tenant information technology data center. According to the facility's 2010 HMMP, Fortune Data Center stores sulfuric acid in five containers or battery packs ranging in size from 100 gallons to 4,032 gallons. Sulfuric acid is an extremely hazardous substance; however, the amount of sulfuric acid stored onsite is not required to be reported under the Cal ARP requirements. Other chemicals stored and used onsite includes diesel fuel stored in one 3,000 gallon and one 21,000 gallon aboveground storage tanks; and chlorine and bromine in 40 gallon containers. All of the sulfuric acid is stored indoors in the electric rooms and the diesel aboveground tanks are associated with backup generators for the facility.

Based on the types of chemicals stored onsite and the chemical storage practices, it is unlikely that a release of any of these chemicals would impact the Church or pose an environmental risk to individuals attending the Church.

2.3.4 Micrel Semiconductor (2180 Fortune Drive, San Jose)

Micrel, Inc. (Micrel) is a leading manufacturer of analog and mixed-signal semiconductors manufactured for the fiber-optic telecommunications and networking, cellular telephones, consumer electronics and power supplies industries. WSP reviewed the Micrel file at the San Jose City Hall, San Jose Fire

Department Data Room. The most recent submittal was dated August 20, 2010; however, the complete chemical inventory and HMBP documents were not included in the file. Other documents presented in the file included certification statements from 2004 and 2005 that indicated Micrel personnel approved the HMBP submittals. No other files indicating a revision of the HMMP was available for review.

According to Micrel, Inc.'s 2004 HMMP, the hazardous materials used onsite are similar to those used in the semiconductor industry and include etchants, developers, hydrochloric and hydrofluoric acids, phosphine, thrichlorosilane, chlorine, boron trifluoride, arsine, hydrogen, and nitrogen. Additionally, the facility operates an onsite wastewater treatment plant and stores chemicals used for wastewater neutralization and pH adjustment.

Based on the review of the RTK Net database, Micrel has not submitted a Risk Management Plan to the EPA for any of the chemicals stored onsite. Based on the 2004 HMMP, Micrel, Inc. stores chlorine onsite in amounts that exceed the Cal ARP threshold quantity. The onsite amount reported in 2004 is significantly less than the amount reported in 1998 (aggregate amounts of 810 pounds in 2004 compared to 1,483 pounds in 1998). Nonetheless, chlorine is considered a chemical of concern due to the potential for a release of this chemical to pose an environmental risk to individuals attending the Church. WSP provided worst-case plume models for the following chemicals stored at Micrel Semiconductor: hydrogen chloride, ammonia, 15% phosphine and boron trichloride. These chemicals are also considered chemicals of concern due to the potential for a release of these chemicals to impact the proposed Church facility.

2.4 GOVERNMENT RECORDS SEARCH

WSP reviewed the Resource Conservation and Recovery Act (RCRA) Information System (RCRIS) and Comprehensive Environmental Response, Compensation, and Liability Act Information System (CERCLIS) lists on EPA's Envirofacts and The Right-To-Know Network's (RTK Net) online database sites for neighboring facilities that could have potential environmental impacts on the Church. Envirofacts provides access to several EPA databases that offer information about environmental activities that may affect air, water, and land anywhere in the United States. The Right-to-Know Network provides free access to numerous databases, text files, and conferences on the environment, housing, and sustainable development.

Additionally, WSP reviewed EPA's Enforcement and Compliance History Online (ECHO) database. The information provided on ECHO relates to facilities regulated as Clean Air Act stationary sources, as Clean Water Act permitted dischargers (under the National Pollutant Discharge Elimination System), and RCRA hazardous waste generators/handlers.

ECHO was used to determine whether compliance inspections have been conducted by EPA or state/local governments, whether violations have been detected, and whether any enforcement actions taken and penalties assessed for neighboring facilities could have potential environmental impacts on the Church.

2.4.1 Dynamic Details, Inc.

Dynamic Details, Inc., listed at 1831 Tarob Court, is identified on the Envirofacts and ECHO databases as a RCRA hazardous waste generator and on the Toxic Release Inventory (TRI) database as manufacturing, processing or otherwise using chemicals above the reporting threshold which are released to the environment. The chemicals listed on the TRI database for 2009 include copper compounds, lead compounds, and sodium dimethyldithiocarbamate. The ECHO database indicates there have been several compliance inspections at the facility with violations cited in 2008; however, no spills, releases or incidents have been reported for Dynamic Details, Inc. The Dynamic Details, Inc. facility is not listed on the RTK Net website.

2.4.2 Olympus

Olympus is not listed on the Envirofacts and ECHO databases at 2400 Ringwood Avenue; however, Olympus Corporation, located at 2185 Fortune Drive, is listed on the RCRIS database as an inactive hazardous waste facility. According to the ECHO and Envirofacts databases, no inspections or compliance actions were identified for the facility. Additionally, the facility is not listed on the RTK Net database.

2.4.3 Fortune Data Centers

The facility was not listed on any of the database searched.

2.4.4 Micrel

The RCRIS databases identified Micrel as a LQG of hazardous waste. The 2009 TRIS database identified Micrel as having total air emissions of 773 pounds per year. The amount of onsite releases included 773 pounds and the amount of off-site transfers included 7,325 pounds. These releases include 250 pounds of hydrochloric acid and 7,848 pounds of hydrogen fluoride. This is a slight increase from the amount of hydrogen fluoride released in 2007 but less than the amount of hydrogen fluoride released in 2005 and 2006. No violations or penalties were identified for Micrel. Micrel has not prepared or submitted a Risk Management Plan for any chemicals stored onsite.

According to ECHO, a written informal notice for a RCRA violation was issued to the facility in 2008. No other violations, penalties, or enforcement actions were identified over the past two years.

2.5 CHEMICALS OF CONCERN

Based on WSP's drive-by reconnaissance and the review of HMBPs filed with the Milpitas Fire Department and the San Jose Fire Department, five chemicals of concern were identified as having the potential to cause offsite impacts if catastrophically released. Micrel stores chlorine, hydrogen chloride, ammonia, 15% phosphine and boron trichloride onsite in sufficient quantities that may allow offsite transport (airborne) after a release.

2.6 EVALUATION OF CHEMICALS OF CONCERN

WSP obtained information on the chemicals of concern from Micrel's 2004 HMMP. A worst-case release model was completed for chlorine, hydrogen chloride, ammonia, 15% phosphine, and boron trichloride, which included assumptions for several parameters. The air modeling is based on a worst-case release of the largest volume gas cylinders with no engineering controls in place. The largest volume gas cylinder stored at the Micrel facility for each chemical of concern is as follows: chlorine is 486 cubic feet; hydrogen chloride is 636 cubic feet; ammonia is 1,035 cubic feet; 15% phosphine is 11.023 pounds (126 cubic feet); and boron trichloride is 330 cubic feet. The release model was used to determine if a catastrophic release would result in a release at 1/10 of the Immediately Dangerous to Life and Health (IDLH) concentrations near the Church. It should be noted that Micrel began operations in 1978 and the current facility has several emergency response measures in place including toxic gas detectors and alarm systems. Additionally, the facility maintains air permits for emissions generated onsite.

A gaussian plume air dispersion model, SCREEN3, was used to simulate chemical concentrations in air at the Church due to a potential catastrophic release from Micrel (Appendix C). The SCREEN3 model is the US EPA's current regulatory screening model for many New Source Reviews (NSR) and other air permitting applications. SCREEN3 is based on typical steady-state Gaussian plume algorithms and is applicable for estimating ambient impacts from point, area, and volume sources out to a distance of about 50 kilometers. The SCREEN3 model utilizes a matrix of meteorological conditions covering a range of wind speed and stability classes. (Stability classes are measures of the stability of the prevailing

wind ranging from extremely stable to neutral to extremely unstable wind conditions. Six stability classes have been defined.) The model is designed to automatically select the combination of wind speed and stability class that results in the maximum ground level contaminant concentrations. This worst-case approach provides a conservative screening technique.

The most sensitive (critical) input parameter for SCREEN3 is the source emission rate. For the five chemicals of concern, the emission rate was calculated based on the assumption that the largest chemical vessel released its entire contents over the default model time period of one hour. It is assumed that the release occurs outside the building with no engineering controls in place to provide a worst-case estimate of downwind chlorine concentrations.

Other model assumptions include a 6.1 meter (20 foot) release point, gas and air temperatures of 20°C, and urban (worst-case) dispersion coefficients. In addition, the worst-case meteorological matrix was used, assuming a stability class of 6 and the wind speed that results in the maximum ground level chemical concentrations.

The air modeling input parameters and simulation results are presented in Appendix D. Figures 3 through 7 show the simulated chemical plumes. The Church is approximately 500 meters north of Micrel, and, as indicated in the plume maps, none of the simulated chemical concentrations reach the 1/10 IDLH levels at the Church. Therefore, based on the screening modeling results for the 2004 chemical inventory, there does not appear to be a significant threat to the Church due to a potential catastrophic release of toxic gases from the Micrel facility.

3 Conclusions

Based on the results of drive-by reconnaissance, HMBP review, and SCREEN3 air dispersion model for chlorine, hydrogen chloride, ammonia, 15% phosphine and boron trichloride stored at Micrel, it is unlikely that the Church or individuals attending church services would be impacted by a worst-case release of chemicals from neighboring facilities. In addition, the neighboring facilities appear to be in compliance with environmental agencies and past releases were not identified, therefore, there is a low potential of a catastrophic event occurring in the area of the Ark Baptist Church.

4 References

Milpitas Fire Department. April 25, 2011. File Review.

San Jose Fire Department. April 27, 2011. File Review.

U.S. Geological Survey. 1980. Milpitas, California, Quadrangle, 7.5 Minute Series (Topographic). Scale 1:24,000.

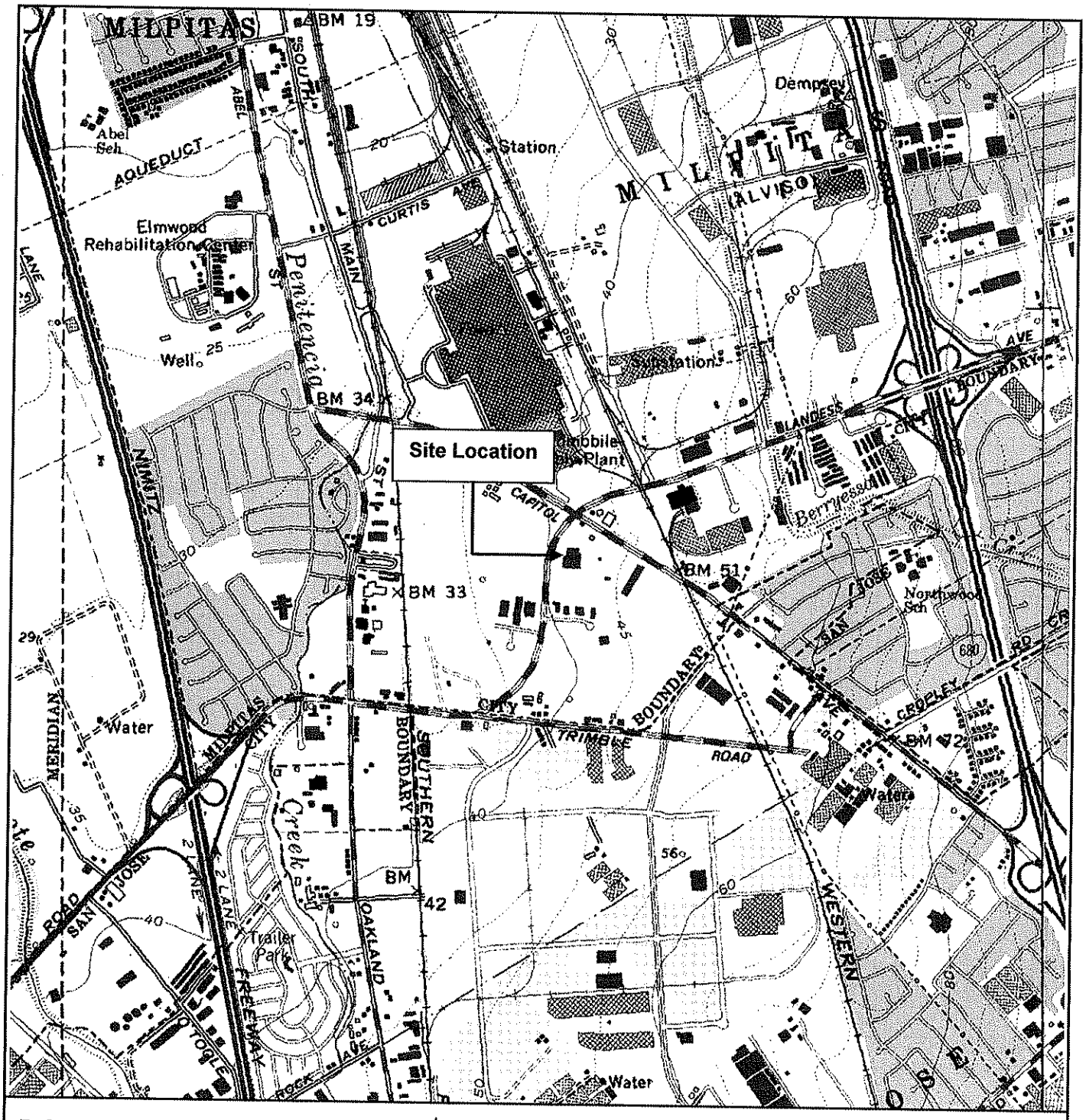
U.S. Environmental Protection Agency. April 20, 2011. Envirofacts Online Database Search.

U.S. Environmental Protection Agency. April 20, 2011. Environmental Compliance History Online Database Search.

U.S. Environmental Protection Agency. Right-to-Know Database. April 20, 2011. Online Database Search.

U.S. Environmental Protection Agency. October 12, 2004. SCREEN3 Air Dispersion Model.

Figures



Reference
7.5 Minute Series Topographic Quadrangle
Milpitas, California
Photorevised 1980 Scale 1:24,000

N

CALIF

Quadrangle Location

1000 0 2000 4000

Scale in feet

WSP Environment & Energy
2025 GATEWAY PLACE
SUITE 435
SAN JOSE, CALIFORNIA 95110
408-453-6100

Figure 1
Site Location
Ark Baptist Church
Milpitas, California

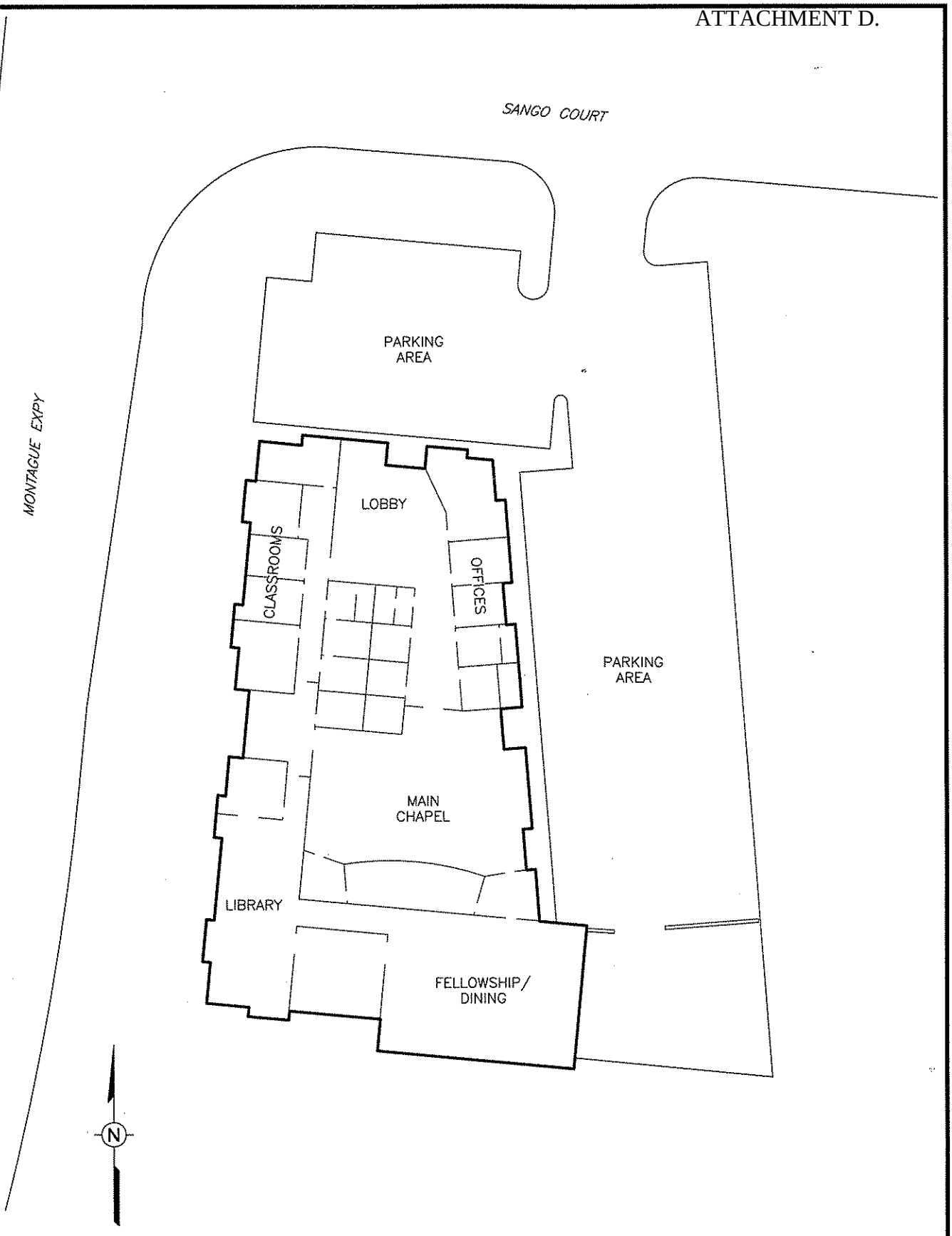


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Figure 2

SITE LAYOUT

ARK BAPTIST CHURCH
MILPITAS, CALIFORNIA

PREPARED FOR
ARK BAPTIST CHURCH

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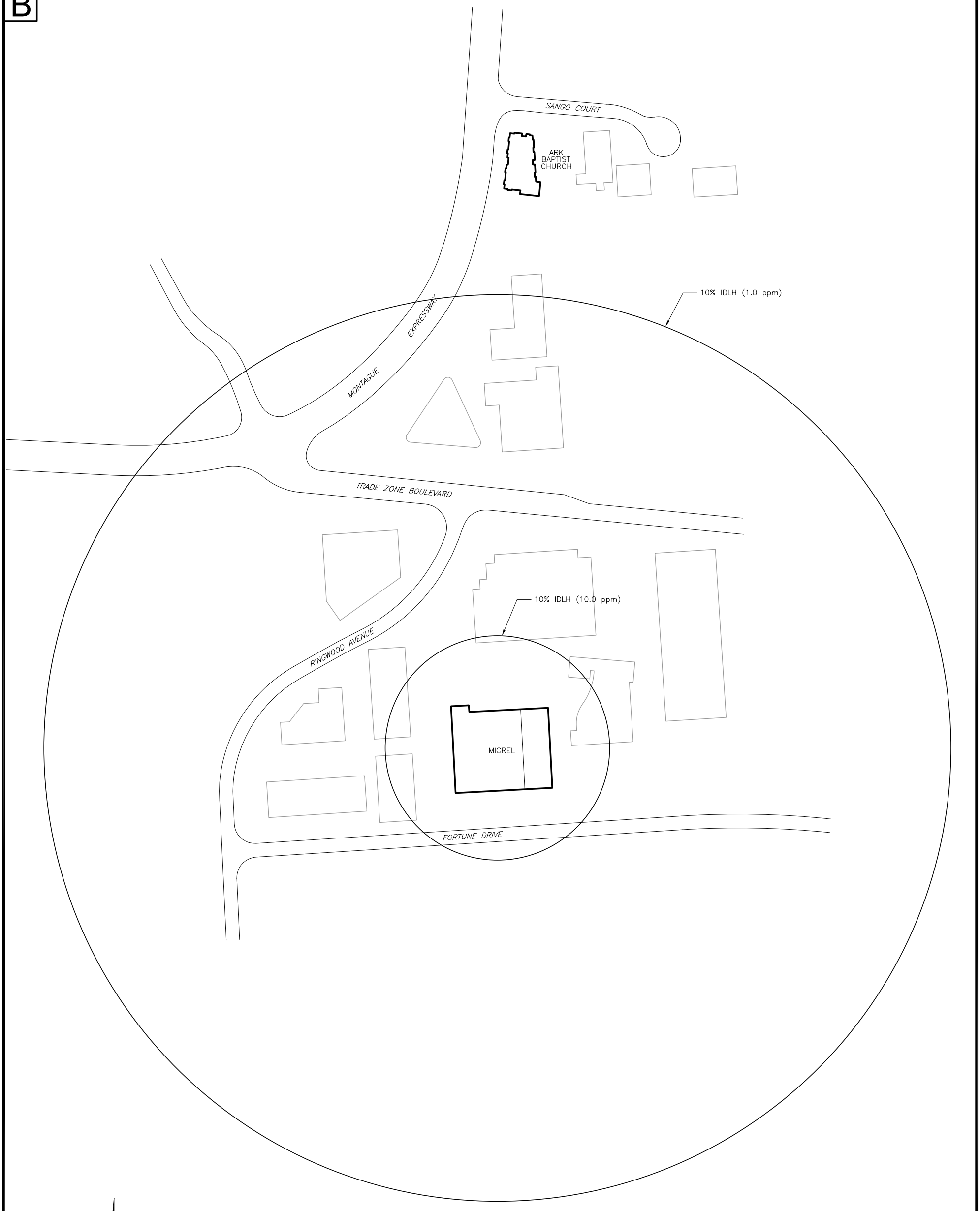

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Figure 3

AIR DISPERSION MODEL RESULTS
CHLORINE

ARK BAPTIST CHRUCH
MILPITAS, CALIFORNIA

PREPARED FOR
ARK BAPTIST CHURCH

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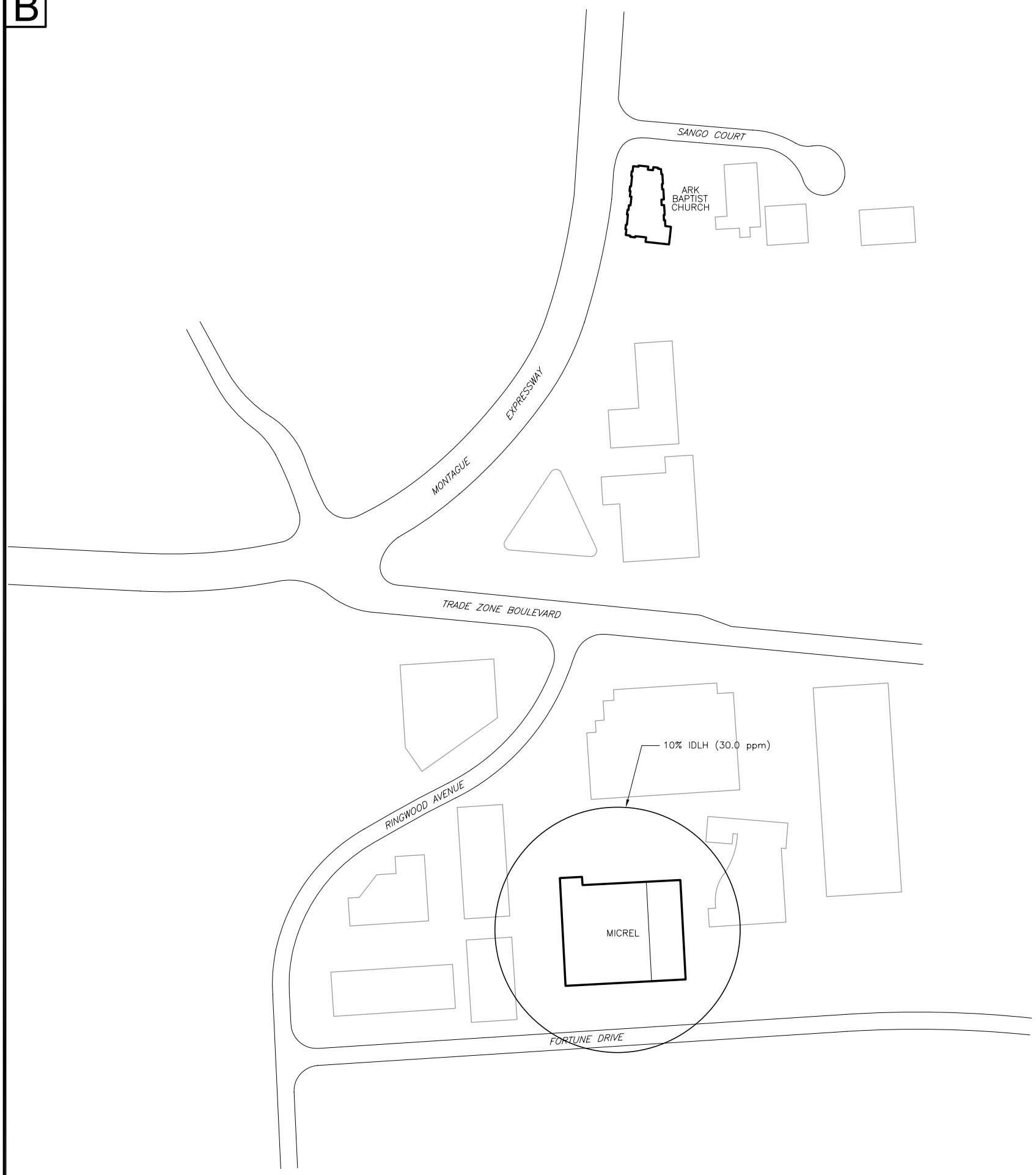

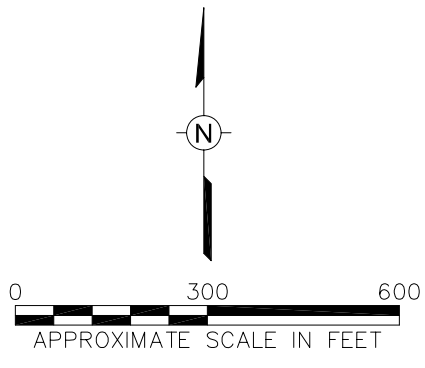

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Figure 4

AIR DISPERSION MODEL RESULTS
AMMONIA

ARK BAPTIST CHRUCH
MILPITAS, CALIFORNIA

PREPARED FOR
ARK BAPTIST CHURCH

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Approved:		03\42011
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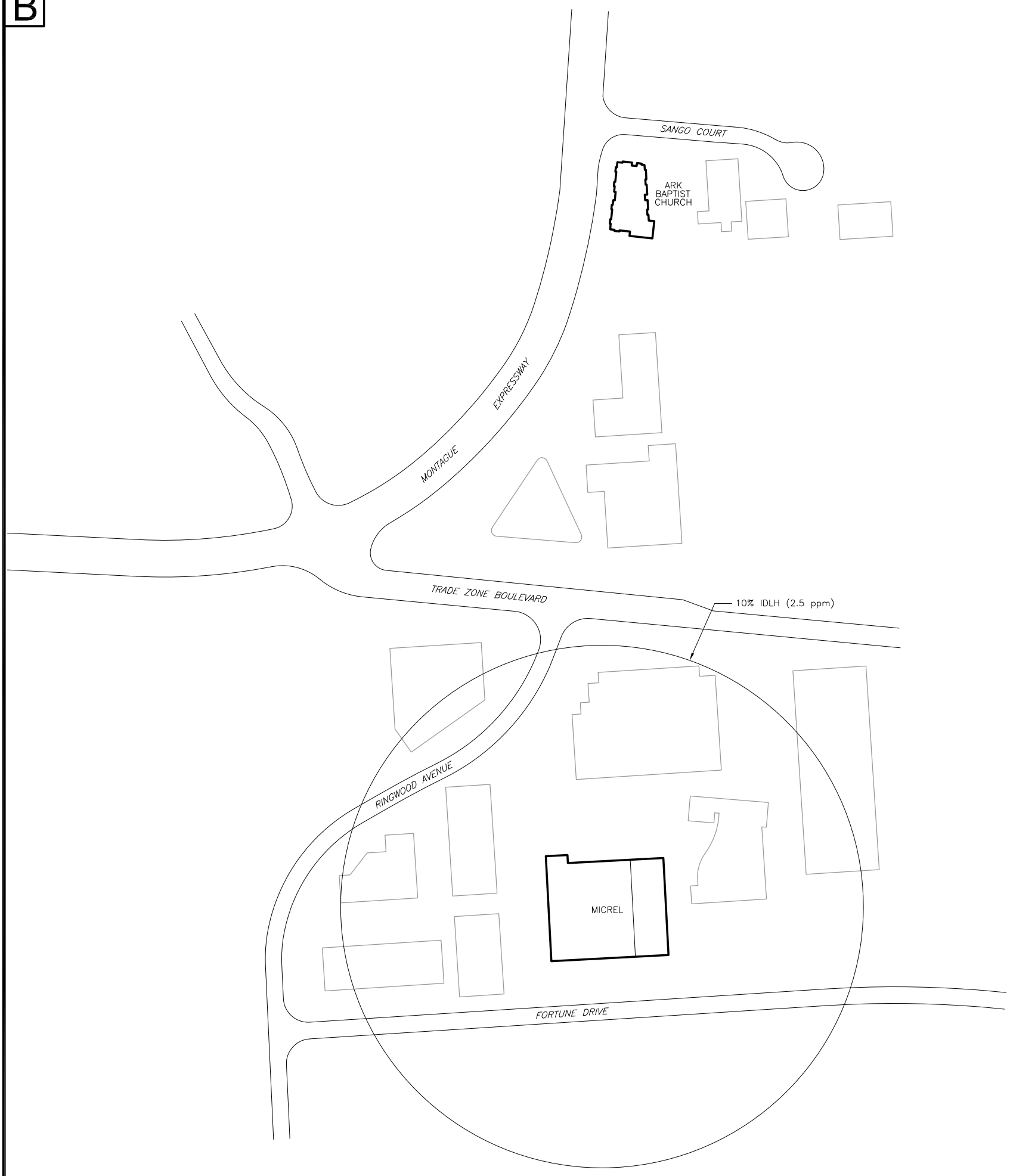

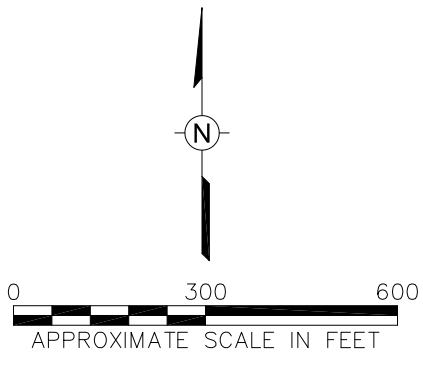

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Figure 5

AIR DISPERSION MODEL RESULTS
BORON TRICHORIDE

ARK BAPTIST CHRUCH
MILPITAS, CALIFORNIA

PREPARED FOR
ARK BAPTIST CHURCH

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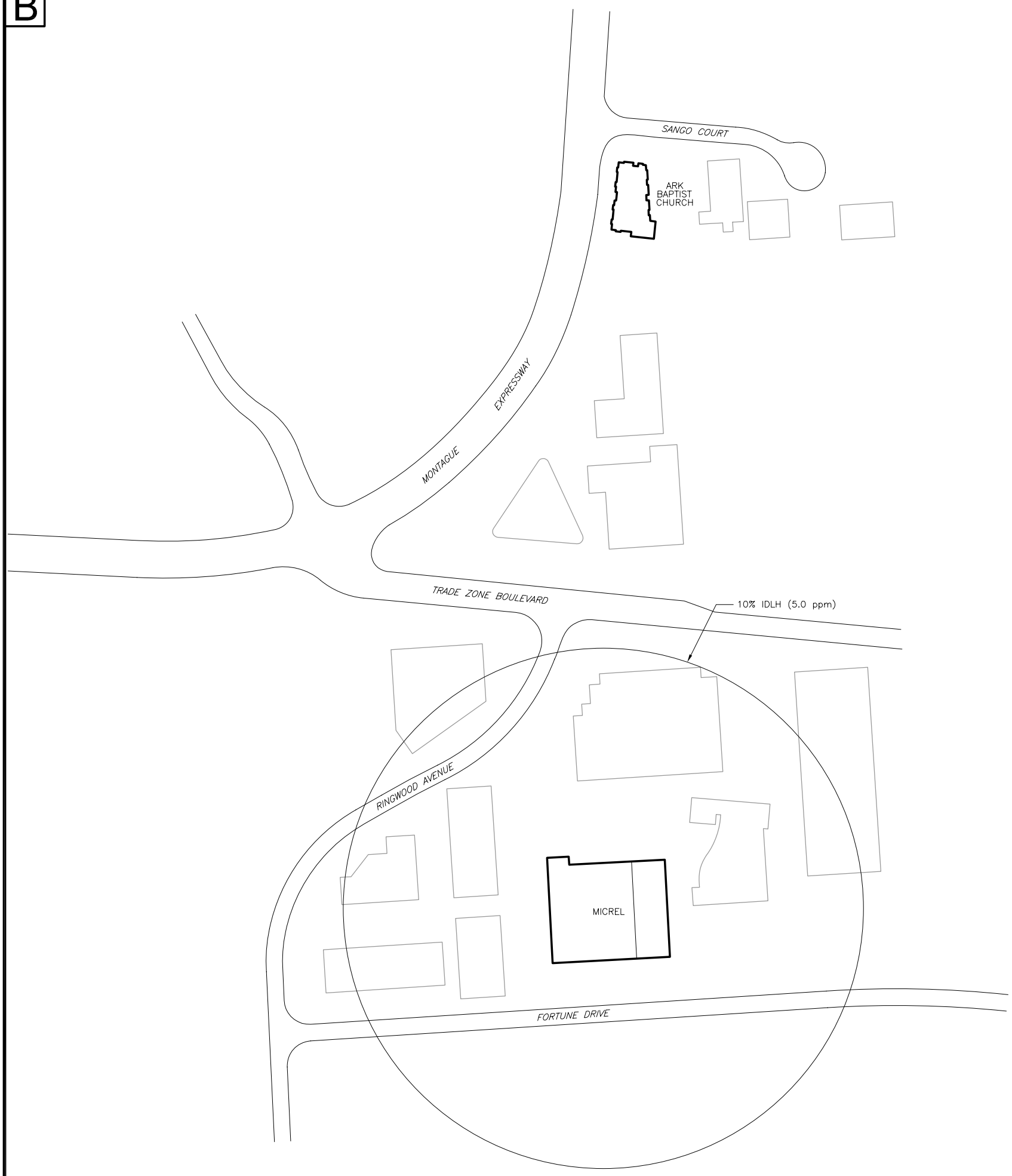

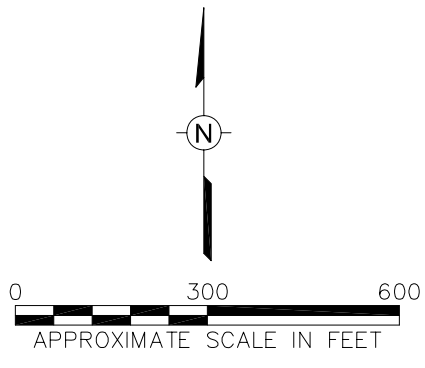

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Figure 6

AIR DISPERSION MODEL RESULTS
HYDROGEN CHLORIDE

ARK BAPTIST CHRUCH
MILPITAS, CALIFORNIA

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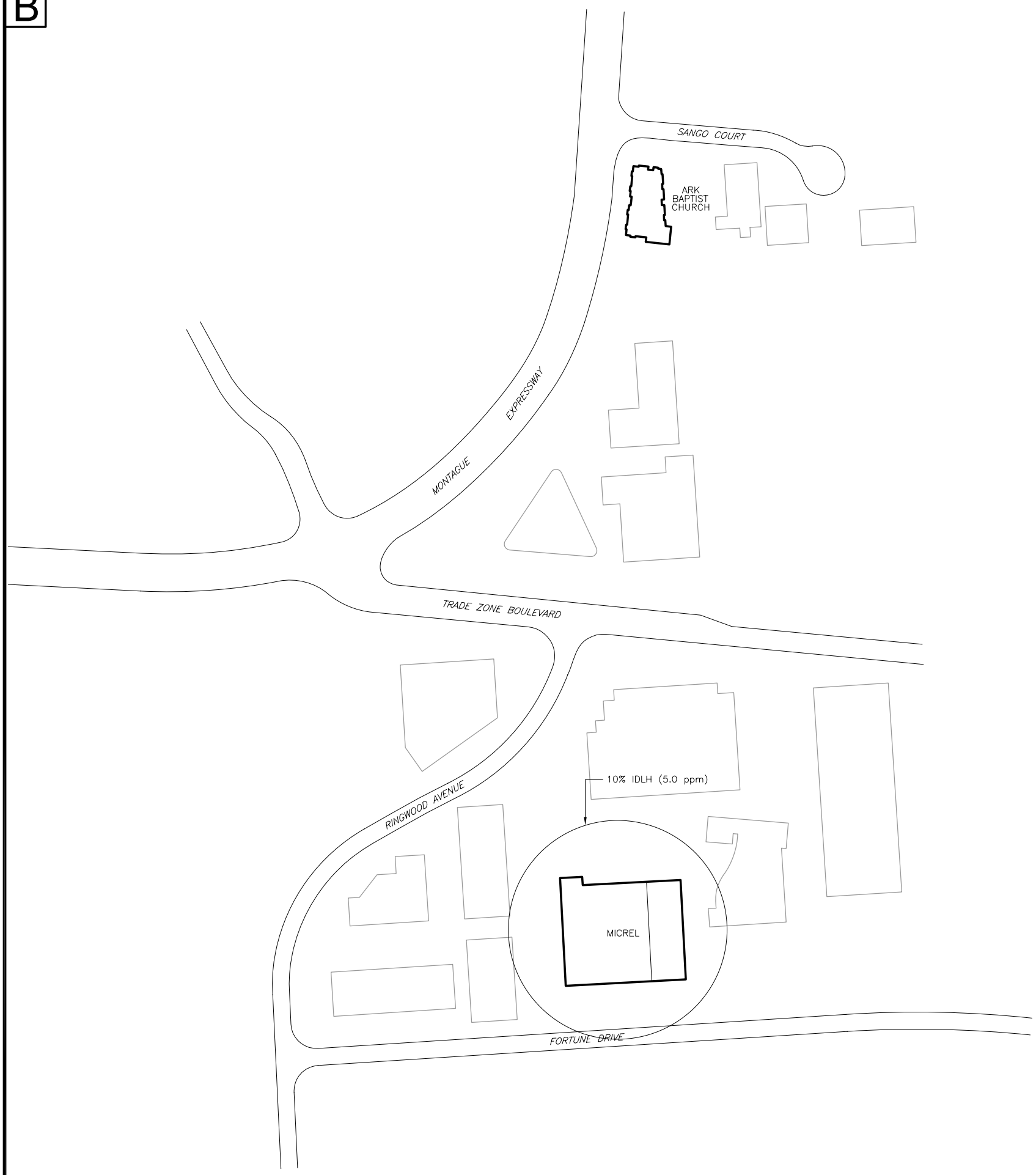

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0 300 600

APPROXIMATE SCALE IN FEET

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Figure 7

AIR DISPERSION MODEL RESULTS
PHOSPHINE

ARK BAPTIST CHRUCH
MILPITAS, CALIFORNIA

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ARK BAPTIST CHURCH

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Checked:		03\42011
Approved:		03\42011
DWG Name:	00022334-006	

Appendix A – Fire Department Records

Non-Waste Hazardous Materials Inventory Statement

For use by Unidocs Member Agencies or where approved by your Local Jurisdiction

Date: 7/27/2007

Business Name: DDI INC
(Same as Facility Name)

Type of Report on This Page: ☐ Add; ☐ Delete; ☐ Revise

Page ____ of ____
(Storage per building or area)

Chemical Location: A and B
(Building/Storage Area)

EPCRA Confidential Location? ☐ Yes; ☒ No
Trade Secret Information? ☐ Yes; ☒ No

Facility ID #
(Agency Use Only)

1. Haz. Class	2. Map and Grid or Location Code	3. Common Name	4. Hazardous Components (For mixtures only) Chemical Name	% Wt.	EHS	CAS No.	5. Type and Physical State	6. Quantities Max. Daily	Average Daily	Largest Quan.	7. Units	8. Storage Codes Storage Pressure	Storage Temp.	9. Hazard Categories
FL	FINAL A	ISOPROPYL alcohol	ISOPROPYL alcohol	70%	☐	67-63-0	☐ pure ☐ mixture	6	4	1	☒ gallons ☐ pounds ☐ cu. feet ☐ tons	☒ ambient ☐ cryogenic ☐ compressed	☒ ambient ☐ cryogenic ☐ compressed	☒ fire ☐ reactive ☐ pressure ☐ acute health ☐ chronic health ☐ radioactive
		CAS No:			☐		☐ solid ☒ liquid ☐ gas	Control (if restricted)	Days On Site:	Storage Containers*				
FL	FINAL A	OMEGA Mister	Isopropyl alcohol	70%	☐	67-63-0	☒ pure ☐ mixture	20	20	20	☒ gallons ☐ pounds ☐ cu. feet ☐ tons	☒ ambient ☐ cryogenic ☐ compressed	☒ ambient ☐ cryogenic ☐ compressed	☒ fire ☐ reactive ☐ pressure ☐ acute health ☐ chronic health ☐ radioactive
		CAS No:			☐		☐ solid ☐ liquid ☐ gas	Control (if restricted)	Days On Site: 365	Storage Containers* N				
corr	TEST A	Rinse Aid 2500	N-Methyl pyrrolidine	<5	☐	872-50-4	☐ pure ☒ mixture	5	5	5	☒ gallons ☐ pounds ☐ cu. feet ☐ tons	☒ ambient ☐ cryogenic ☐ compressed	☒ ambient ☐ cryogenic ☐ compressed	☐ fire ☒ reactive ☐ pressure ☐ acute health ☐ chronic health ☐ radioactive
		CAS No:	monoethanolamine	<1	☐	41-43-5	☐ solid ☐ liquid ☐ gas	Control (if restricted)	Days On Site: 365	Storage Containers* n				
			diethylene glycol mono butyl ether	1<1	☐	12-34-5								
NA	TEST A	Argon	Argon		☐	744-28	☒ pure ☐ mixture	248	248	124	☐ gallons ☐ pounds ☒ cu. feet ☐ tons	☒ ambient ☐ cryogenic ☐ compressed	☒ ambient ☐ cryogenic ☐ compressed	☐ fire ☒ reactive ☐ pressure ☐ acute health ☐ chronic health ☐ radioactive
		CAS No:			☐		☐ solid ☐ liquid ☐ gas	Control (if restricted)	Days On Site:	Storage Containers*				
					☐		☐ pure ☐ mixture				☐ gallons ☐ pounds ☐ cu. feet ☐ tons	☐ ambient ☐ cryogenic ☐ compressed	☐ ambient ☐ cryogenic ☐ compressed	☐ fire ☐ reactive ☐ pressure ☐ acute health ☐ chronic health ☐ radioactive
		CAS No:			☐		☐ solid ☐ liquid ☐ gas	Control (if restricted)	Days On Site:	Storage Containers*				
					☐		☐ pure ☐ mixture				☐ gallons ☐ pounds ☐ cu. feet ☐ tons	☐ ambient ☐ cryogenic ☐ compressed	☐ ambient ☐ cryogenic ☐ compressed	☐ fire ☐ reactive ☐ pressure ☐ acute health ☐ chronic health ☐ radioactive
		CAS No:			☐		☐ solid ☐ liquid ☐ gas	Control (if restricted)	Days On Site:	Storage Containers*				

* Code Storage Type: A Aboveground Tank; B Belowground Tank; C Tank Inside Building; D Steel Drum; E Fiberglass/Nonmetallic Drum; F Can; G Carton; H Silo; I Fiber Drum; J Bag; K Box; L Cylinder; M Glass Bottle or Jug; N Plastic Bottle or Jug; O Tote Bin; P Tank Wagon; Q Roll Off; R Other

If EPCRA, sign below:

UN-SDI - 1/07 www.unidocs.org Rev. 07/24/06

Non-Waste Hazardous Materials Inventory Statement

Date: 7/27/2007

For use by Uniform Member Agencies or where approved by your Local Jurisdiction

Business Name: DDI INC (Enter as Facility Name)

Type of Report on This Page: ☐ Add; ☐ Delete; ☐ Revise

Page ____ **of** ____ (One page per building or area)

Chemical Location: (Building/Storage Area) 9 C

EPCRA Confidential Location? ☐ Yes; ☒ No

Trade Secret Information? ☐ Yes; ☒ No

Facility ID # (Agency Use Only)

1. Haz. Class	2. Map and Grid or Location Code	3. Common Name	4. Hazardous Components (For mixtures only) — Chemical Name	% Wt.	EHS	CAS No.	5. Type and Physical State	6. Quantities — Max. Daily	Average Daily	Largest Cont.	7. Units	8. Storage Codes — Storage Pressure	Storage Temp.	9. Hazard Categories
FL	Q C	ISOPROPYL alcohol	ISOPROPYL alcohol	70%	☐	67-63-0	☐ pure ☐ mixture	5	4	1	☒ gallons ☐ pounds ☐ cu. feet ☐ tons	☒ ambient ☐ >amb. ☐ <amb.	☒ ambient ☐ >amb. ☐ <amb. ☐ cryogenic	☒ fire ☐ reactive ☐ pressure release ☐ acute health ☐ chronic health ☐ radioactive
		CAS No:			☐		☐ solid ☒ liquid ☐ gas	Curie: (if radioactive)	Days On Site:	Storage Container:*				
FL	Q C	OMEGA Mister	Isopropyl alcohol	70%	☐	67-63-0	☒ pure ☐ mixture	20	20	20	☒ gallons ☐ pounds ☐ cu. feet ☐ tons	☒ ambient ☐ >amb. ☐ <amb.	☒ ambient ☐ >amb. ☐ <amb. ☐ cryogenic	☒ fire ☐ reactive ☐ pressure release ☐ acute health ☐ chronic health ☐ radioactive
		CAS No:			☐		☐ solid ☐ liquid ☐ gas	Curie: (if radioactive)	Days On Site: 365	Storage Container: N				
					☐		☐ pure ☐ mixture				☐ gallons ☐ pounds ☐ cu. feet ☐ tons	☐ ambient ☐ >amb. ☐ <amb.	☐ ambient ☐ >amb. ☐ <amb. ☐ cryogenic	☐ fire ☐ reactive ☐ pressure release ☐ acute health ☐ chronic health ☐ radioactive
		CAS No:			☐		☐ solid ☐ liquid ☐ gas	Curie: (if radioactive)	Days On Site:	Storage Container:*				
N/A					☐		☐ pure ☐ mixture				☐ gallons ☐ pounds ☐ cu. feet ☐ tons	☐ ambient ☐ >amb. ☐ <amb.	☐ ambient ☐ >amb. ☐ <amb. ☐ cryogenic	☐ fire ☐ reactive ☐ pressure release ☐ acute health ☐ chronic health ☐ radioactive
		CAS No:			☐		☐ solid ☐ liquid ☐ gas	Curie: (if radioactive)	Days On Site:	Storage Container:*				
					☐		☐ pure ☐ mixture				☐ gallons ☐ pounds ☐ cu. feet ☐ tons	☐ ambient ☐ >amb. ☐ <amb.	☐ ambient ☐ >amb. ☐ <amb. ☐ cryogenic	☐ fire ☐ reactive ☐ pressure release ☐ acute health ☐ chronic health ☐ radioactive
		CAS No:			☐		☐ solid ☐ liquid ☐ gas	Curie: (if radioactive)	Days On Site:	Storage Container:*				
					☐		☐ pure ☐ mixture				☐ gallons ☐ pounds ☐ cu. feet ☐ tons	☐ ambient ☐ >amb. ☐ <amb.	☐ ambient ☐ >amb. ☐ <amb. ☐ cryogenic	☐ fire ☐ reactive ☐ pressure release ☐ acute health ☐ chronic health ☐ radioactive
		CAS No:			☐		☐ solid ☐ liquid ☐ gas	Curie: (if radioactive)	Days On Site:	Storage Container:*				

* Code — Storage Type

A Aboveground Tank; B Belowground Tank; C Tank Inside Building; D Steel Drum; E Plastic/Non-metallic Drum; F Can; G Carboy; H Silo; I Fiber Drum; J Bag; K Box; L Cylinder; M Glass Bottle or Jar; N Plastic Bottle or Jug; O Tote Bin; P Tank Wagon; Q Rail Car; R Other

IF EPCRA, sign below: _____

Non-Waste Hazardous Materials Inventory Statement

For use by Uniform Member Agencies or where approved by your Local Jurisdiction

Date: 7/27/2007

Business Name: DDI INC 1992 MARKET ST RICHMOND CA 94805
(Name as Facility Name)

Chemical Location: A and B
(Building/Storage Area)

EPCRA Confidential Location? ☐ Yes; ☒ No
Trade Secret Information? ☐ Yes; ☒ No

Facility ID # (Agency Use Only)

Type of Report on This Page: ☐ Add; ☐ Delete; ☐ Revise

Page ___ of ___ (One page per building or area)

1. Haz. Class	2. Map and Grid or Location Code	3. Common Name	4. Hazardous Components (For mixtures only) Chemical Name	% Wt.	EHS	CAS No.	5. Type and Physical State	6. Quantities Max. Daily	Average Daily	Largest Cont.	7. Units	8. Storage Codes Storage Pressure	Storage Temp.	9. Hazard Categories
FL	STOCK ROOM	ISOPROPYL alcohol	ISOPROPYL alcohol	70%	☐	67-63-0	☐ pure ☐ mixture	8	4	1	☒ gallons ☐ pounds ☐ cu. feet ☐ tons	☒ ambient ☐ > amb. ☐ < amb.	☒ ambient ☐ > amb. ☐ < amb. ☐ cryogenic	☒ fire ☐ reactive ☐ pressure release ☐ toxic/health ☐ chronic health ☐ radioactive
		CAS No:			☐		☐ solid ☒ liquid ☐ gas	Center: (If different)	Days On Site:	Storage Container*:				
FL	Q C	OMEGA Meter	Isopropyl alcohol	70%	☐	67-63-0	☒ pure ☐ mixture	20	20	20	☒ gallons ☐ pounds ☐ cu. feet ☐ tons	☒ ambient ☐ > amb. ☐ < amb.	☒ ambient ☐ > amb. ☐ < amb. ☐ cryogenic	☒ fire ☐ reactive ☐ pressure release ☐ toxic/health ☐ chronic health ☐ radioactive
		CAS No:			☐		☐ solid ☐ liquid ☐ gas	Center: (If different)	Days On Site: 365	Storage Container*: N				
					☐		☐ pure ☐ mixture				☐ gallons ☐ pounds ☐ cu. feet ☐ tons	☐ ambient ☐ > amb. ☐ < amb.	☐ ambient ☐ > amb. ☐ < amb. ☐ cryogenic	☐ fire ☐ reactive ☐ pressure release ☐ toxic/health ☐ chronic health ☐ radioactive
		CAS No:			☐		☐ solid ☐ liquid ☐ gas	Center: (If different)	Days On Site:	Storage Container*:				
N/A					☐		☐ pure ☐ mixture				☐ gallons ☐ pounds ☐ cu. feet ☐ tons	☐ ambient ☐ > amb. ☐ < amb.	☐ ambient ☐ > amb. ☐ < amb. ☐ cryogenic	☐ fire ☐ reactive ☐ pressure release ☐ toxic/health ☐ chronic health ☐ radioactive
		CAS No:			☐		☐ solid ☐ liquid ☐ gas	Center: (If different)	Days On Site:	Storage Container*:				
					☐		☐ pure ☐ mixture				☐ gallons ☐ pounds ☐ cu. feet ☐ tons	☐ ambient ☐ > amb. ☐ < amb.	☐ ambient ☐ > amb. ☐ < amb. ☐ cryogenic	☐ fire ☐ reactive ☐ pressure release ☐ toxic/health ☐ chronic health ☐ radioactive
		CAS No:			☐		☐ solid ☐ liquid ☐ gas	Center: (If different)	Days On Site:	Storage Container*:				
					☐		☐ pure ☐ mixture				☐ gallons ☐ pounds ☐ cu. feet ☐ tons	☐ ambient ☐ > amb. ☐ < amb.	☐ ambient ☐ > amb. ☐ < amb. ☐ cryogenic	☐ fire ☐ reactive ☐ pressure release ☐ toxic/health ☐ chronic health ☐ radioactive
		CAS No:			☐		☐ solid ☐ liquid ☐ gas	Center: (If different)	Days On Site:	Storage Container*:				

* Code Storage Type: A Above-ground Tank; B Below-ground Tank; C Tank Inside Building; D Steel Drum; E Plastic/Non-metallic Drum; F Can; G Carboy; H Silo; I Other Drum; J Bag; K Box; L Cylinder; M Other Bottle or Jug; N Plastic Bottle or Jug; O Tote Bin; P Tank Wagon; Q Rail Car; R Other

If EPCRA, sign below: _____

UN-020 - 7/17

www.uniforms.org

Rev. 07/21/06

HAZARDOUS MATERIALS BUSINESS PLAN CERTIFICATION FORM

For Use by Unidocs Member Agencies or where approved by your Local Jurisdiction
Authority Cited: Health and Safety Code §25503.3(c); 19 CCR §2729.5(c)

To: Agency Name: **Milpitas Fire Department**
Agency Mailing Address: **455 E. Calaveras Blvd.**
Milpitas, CA 95035

Pursuant to Section 25503.3(c) of California Health and Safety Code (HSC), the Hazardous Materials Business Plan (HMBP) certification described below is hereby submitted for the following facility:

Facility Name: **DDi**

Facility Street Address: **1992 Tarob Court** City: **Milpitas**

Date of Current HMBP: ~~2/1/2006~~ 7/27/2007

I certify that: *(Check the appropriate box.)*

☒ I have personally reviewed the Hazardous Materials Business Plan currently on file with your agency and certify that the HMBP is complete and accurate. *(See bottom of page for details.)* If this facility is subject to Federal Emergency Planning and Community Right to Know Act (EPCRA) reporting requirements, I have submitted the following documents with this Certification Form: Unified Program Consolidated Form (UPCF) Business Activities page; UPCF Business Owner/Operator Identification page with current signature and date; Hazardous Materials Inventory Statement page(s) with an original signature, photocopy of an original signature, or signature stamp on each page for all Extremely Hazardous Substances (EHS) handled at or above their Federal Threshold Planning Quantity (TPQ) or 500 pounds, whichever is less.

or

☐ Revisions to the Hazardous Materials Business Plan are necessary. The HMBP as revised is complete and accurate and is being implemented. A copy of the revisions has been electronically submitted or is enclosed with this Certification along with a signed UPCF Business Owner/Operator Identification page and UPCF Business Activities page if the HMBP revision include changes to the Hazardous Materials Inventory Statement.

OWNER/OPERATOR CERTIFICATION: I hereby certify under penalty of law that, based upon my inquiry of those individuals responsible for obtaining the information reported above, I believe that the submitted information is true, accurate, and complete. I understand that a revised HMBP must be submitted within 30 days of any change in this facility's storage or handling of hazardous materials that would require updating of the HMBP.

Name of Owner/Operator *(Print)*: **Victor Hemingway** Title: **Vice President - Operations**

Phone: **(408) 263-0940** Signature: Date: **11/29/2007**

By checking the upper box on this form, you are certifying that:

- The information contained in the HMBP most recently submitted is complete, accurate, and up-to-date; and
- There has been no change in the quantity of any hazardous material as reported in the most recently submitted Hazardous Materials Inventory forms; and
- The facility has not begun handling any hazardous material in a HMBP reportable quantity that is not currently listed in the Hazardous Materials Inventory; and
- The most recently submitted HMBP contains the information required by Section 11022 of Title 42 of the United States Code; and
- There have been no substantial changes in the facility's operations that would require revision of the current HMBP.

Appendix B – Emergency Action Plan

EMERGENCY RESPONSE PLAN
ARK BAPTIST CHURCH
380 MONTAGUE EXPRESSWAY
MILPITAS, CALIFORNIA

PREPARED

BY

WSP ENVIRONMENT & ENERGY

MAY 18, 2011

Contents

Certification Statement

This Emergency Response Plan was prepared by WSP Environment & Energy on behalf of Ark Baptist Church in accordance with Section 8001.16.6.1.9 of the California Fire Code, 2001 Edition. The Emergency Response Plan for Ark Baptist Church has been reviewed and found to comply with the Milpitas Fire Department minimum and/or recommended requirements.

5/20/11

Pastor Joe Sun
Ark Baptist Church

Date

1.0 Introduction

General

The Ark Baptist Church (Church) is an approximately 15,000 square foot building located at 380 Montague Expressway, Milpitas, Santa Clara County, California. The Church will include the main chapel, classrooms, offices, lobby, fellowship/dining area, food preparation area, conference room, library and restrooms. The building, situated on approximately one acre near the intersection of Sango Court and Montague Expressway, was constructed in approximately 1983 and is currently owned by Ark Baptist Church. This Emergency Response Plan (ERP) addresses events including natural disasters and fires. Pastor Joe Sun has the primary responsibility for developing and implementing the site ERP.

Operations conducted at the Church will include one church service on Sundays (10:00 am to 12:00 pm) with Fellowship meetings from 12:00 pm to 2:30 pm. Weekday meetings will take place on Tuesday and Friday nights (7:30 pm to 9:00 pm). The Church offices will be occupied daily from 9:00 am to 5:00 pm. The Church estimates the sanctuary will be able to accommodate 243 individuals, including men, women, children, and the elderly. The Church currently has approximately 93 members, however, they are expecting to expand in the future.

Purpose and Scope

The purpose of this ERP is to enable the church to effectively handle an emergency before an emergency occurs. Parishioners must understand that the emergency response procedures are necessary and are conducted for their safety. Planning, preparation, and training will help the church's staff learn the course of actions necessary when faced with an emergency. The ERP will be reviewed annually to reflect updated procedures.

Emergency Response Organization

During an emergency, centralized direction and control is the most effective approach to managing emergency procedures. The Emergency Response Team (ERT) Coordinator of the church is Pastor Joe Sun. The duties of the Emergency Response Team Coordinator include:

- Assessing the situation and determining whether an emergency exists that requires activating the emergency procedures;
- Directing all efforts in the area including evacuating parishioners; and
- Ensuring that outside emergency services (i.e. medical aid, the Milpitas fire department) are called in when necessary.

ERT members are identified in Table 1. The ERT members will assist the ERT coordinator in the event of an emergency. They are responsible for ERP training of parishioners and conducting drills. They are capable of administering CPR and emergency first aid.

Table 1 Emergency Response Team

Name	Role	Number
Pastor Joe Sun	Emergency Response Team Coordinator	408-786-4542
Arthur Chan	Emergency Response Team Member	408-802-2296

Emergency Notification Procedures

In case of an emergency that is beyond the capabilities of the site to handle, the Emergency Response Team members will coordinate with local emergency response agencies. In the event of an emergency, a member of the Emergency Response Team will notify the appropriate emergency response agency by calling 911. Contact numbers are given in Table 2 and are posted in the Church office, hallway and food preparation area.

Table 2 Emergency Contact Numbers

Public Safety Agencies	Number
General Emergency	911
Ambulances: Golden State Ambulance American Medical Response West	 408-879-1400 408-574-3825
Hospitals: Santa Clara Valley Medical Center Good Samaritan Hospital	 408-885-5000 408-229-5100
Poison Control	800-876-4766
Floods/Storms: Santa Clara Valley Water District American Red Cross-Santa Clara Valley	 408-265-2600 408-577-1000
Power Outage	800-743-5000

2.0 Emergency Resources

Emergency Kit

The church will maintain emergency supplies on hand. Emergency supplies to be maintained at the church include:

- Water
- Food
- Can opener
- Battery-powered radio
- Flashlight
- Extra batteries
- Whistle
- Pliers/wrench (to turn off utilities)
- Plastic sheeting and duct tape (to shelter-in-place)
- Scissors

The first aid kit should include the following items:

- Sterile gloves
- Sterile bandages
- Soap/ antibiotic towelettes to disinfect
- Antibiotic ointment
- Burn ointment
- Adhesive bandages
- Eye wash solution
- Thermometer
- Scissors
- Tweezers

Communication Systems

In an emergency, crucial messages must be conveyed quickly and accurately. The ERT members must be able to communicate information such as the location of injured persons, orders to evacuate the site, and notice of blocked evacuation routes, even through noise and confusion. Internal emergency communication to alert parishioners of danger will be via verbal orders and hand signals.

Offsite public safety agencies may need to be contacted for assistance. The telephone is the most common mode of offsite communication. All Church personnel must be familiar with the protocol for contacting public emergency agencies such as fire departments, ambulance units, and hospitals.

3.0 Duties and Responsibilities

Training and Certification

Specific training will be conducted for the ERT members. General training will also be conducted for parishioners to make them aware of the evacuation plan, reporting procedures, and the types of potential emergencies. All training will be conducted on an annual basis. A drill will be held annually and the plan's effectiveness will be evaluated by the ERT members.

Signs and Postings

The California Fire Code, California Building Code, and the Life Safety Code of the National Fire Protection Association (NFPA 101) require that approved exit signs be provided in specific locations in the building to designate the means of evacuation from the building. The codes specify the minimum size, graphics, power supply, visibility, and conditions for installation of exit signs. Access to exits must be marked by an exit sign when the exit or exit pathway is not immediately visible to the occupants. Emergency exit signs are installed at the site at all required exit doorways and where necessary to indicate clearly the direction of egress.

4.0 Emergency Procedures

Shelter-in-Place

Shelter-in-place should be followed if large amounts of debris are visible in the air, or if local authorities say the air is badly contaminated. Should it be necessary to shelter-in-place, the order will be verbally communicated by the ERT Coordinator to the parishioners. Everyone should go to the main room of the church. All windows, doors, and air vents should be closed. Plastic sheeting and duct tape should be used to tape up windows, doors and air vents in order to seal off the room. This will create a barrier between parishioners and potentially contaminated air outside.

Evacuation

Should it become necessary to evacuate, the ERT Coordinator will verbally communicate the order to parishioners. The routes for emergency evacuation are depicted in Figure 1. There are three sets of emergency exit doors at the church. An alternate evacuation route has also been established in the event that an emergency prevents access to the normal exit. Parishioners are directed to exit the building and meet in the parking lot at a designated location to account for everyone following the evacuation. Once all parishioners have assembled at the meeting place, the ERT Coordinator will verify that everyone is accounted for. If someone is missing, the ERT Coordinator will notify the Fire Department that this person is missing.

Fire

Portable (fire extinguisher) and fixed (smoke detector) fire protection equipment are provided throughout the church. Evacuation procedures will be followed in the event of a fire. The fire emergency will be immediately reported to the Milpitas Fire Department by calling 911. ERT members or other individuals trained in use of a fire extinguisher should attempt to extinguish the fire only once everyone has left the building, or is leaving the building; the fire department has been called; the fire is small and is confined to the area in which it started; and there is a safe escape route.

Medical Emergencies

First-aid supplies are located in the church's kitchenette area. Medical treatment may range from bandaging minor cuts and abrasions to performing life-saving-techniques. Apply first aid if the affected person is not breathing, circulation has stopped, heavy bleeding is occurring. In the event of a serious injury, call for help and instruct a bystander to call 911 for medical aid. If possible, isolate the affected person. Seriously injured persons should not be moved unless they are in immediate danger of further injury. Designate a member of the ERT to accompany the injured/ill person to the hospital.

Earthquake

In the event of an earthquake, parishioners will be instructed to remain indoors, as there may be falling debris outside. Everyone should get under a desk/table or stand against an interior wall, preferably a corner - duck, cover, and hold. Parishioners should stay away from windows and heavy objects that may fall. Candles, matches, electrical switches, or other open flames should not be used during or after the earthquake because there may be gas leaks. ERT members should assess the damage. If they smell gas or suspect a leak, they will turn off the main gas valve, open windows, and evacuate everyone as soon as possible. Report gas leaks to the utility company. Listen to the radio for further instructions.

Flood and Storm

In the event of a flood or storm, the ERT coordinator should advise parishioners to remain indoors. Travelling by car during a storm should be avoided. In the event of a flood, turn off all utilities at the main switch and turn off the gas valve if instructed to do so by local authorities. Listen to the radio for further instructions, and if necessary, follow evacuation routes indicated by local authorities.

Hazardous Materials

In the event of a hazardous materials event occurring near Church property, the fire department or local authorities will notify the Church. The fire officer in charge of the scene will recommend shelter or evacuation actions. ERT members should instruct parishioners to follow procedures for sheltering or evacuation. Normal operations can be resumed after consulting with fire officials.

Appendix C – SCREEN3 Air Dispersion Model User's Guide

EPA-454/B-95-004

SCREEN3 Model User's Guide

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Emissions, Monitoring, and Analysis Division
Research Triangle Park, North Carolina 27711

September 1995

DISCLAIMER

The information in this document has been reviewed in its entirety by the U.S. Environmental Protection Agency (EPA), and approved for publication as an EPA document. Any mention of trade names, products, or services does not convey, and should not be interpreted as conveying official EPA approval, endorsement, or recommendation.

PREFACE

The SCREEN3 Model User's Guide is an update to Appendix A of "Screening Procedures for Estimating the Air Quality Impact of Stationary Sources" (EPA, 1988), which was later revised and published as a separate document (EPA, 1995a). The SCREEN3 model includes several modifications and enhancements to the original SCREEN model, including updates to the code to ensure consistency with the dispersion algorithms in the Industrial Source Complex (ISC3) model (EPA, 1995b). Also, three new non-regulatory options were added to the code.

Although attempts are made to thoroughly check computer programs with a wide variety of input data, errors are occasionally found. Any suspected errors and technical questions regarding the use of the SCREEN3 model should be directed to Chief, Air Quality Modeling Group, OAQPS/EMAD, MD-14, Research Triangle Park, NC 27711. Copies of the SCREEN3 model may be obtained from the National Technical Information Service (NTIS), U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161, telephone (703) 487-4650, or may be downloaded from the Support Center for Regulatory Air Models (SCRAM) Bulletin Board System (BBS). The SCRAM BBS may be accessed at (919) 541-5742. Questions related to connecting to SCRAM should be directed to the TTN Helpline at (919) 541-5384.

ACKNOWLEDGEMENTS

This report has been funded by the United States Environmental Protection Agency (EPA) under contract 68D00124 to Pacific Environmental Services, Inc. (PES).

Mr. Roger W. Brode, Pacific Environmental Services, Inc. (PES), is the principal contributor to the SCREEN3 Model User's Guide. In addition, this document was reviewed and commented upon by Mr. Dennis G. Atkinson (EPA, OAQPS), Mr. James L. Dicke (EPA, OAQPS), and Mr. John S. Irwin (EPA, OAQPS). Revisions to the original SCREEN3 User's Guide were reviewed and commented upon by Dennis G. Atkinson (EPA, OAQPS), the SCREEN3 Work Assignment Manager and Mr. Peter A. Eckhoff (EPA, OAQPS).

CONTENTS

FIGURES

TABLES

1. INTRODUCTION

1.1 Overview of User's Guide

It will be easier to understand this user's guide and the SCREEN model if you are already familiar with the "Screening Procedures for Estimating the Air Quality Impact of Stationary Sources" (EPA, 1995a).

This introduction should answer most of your general questions about what the SCREEN model can (and cannot) do, and explain its relationship to the Screening Procedures Document (SPD) above.

Section 2 provides several examples of how to run the SCREEN model and will also help the novice user get started. The point source example provides the most detailed description and should be read before the other examples. If you are already familiar with personal computers and with the screening procedures, you probably will not have much trouble simply running SCREEN and "experimenting" with it. It runs interactively, and the prompts should be self explanatory.

Section 3 provides background technical information as a reference for those who want to know more about how SCREEN makes certain calculations. The discussion in Section 3 is intended to be as brief as possible, with reference to other documents for more detailed descriptions.

1.2 Purpose of SCREEN

The SCREEN model was developed to provide an easy-to-use method of obtaining pollutant concentration estimates based on the screening procedures document. By taking advantage of the rapid growth in the availability and use of personal computers (PCs), the SCREEN model makes screening calculations accessible to a wide range of users.

1.3 What is needed in order to use SCREEN?

SCREEN will run on an IBM-PC compatible personal computer with at least 256K of RAM. You will need at least one 5 1/4 inch double-sided, double-density (360K) or a 5 1/4 inch high density (1.2MB) disk drive. The program will run with or without a math coprocessor chip. Execution time will be greatly enhanced with a math coprocessor chip present (about a factor of 5 in computer time) and will also benefit from the use of a hard disk drive. SCREEN will write a date and time to the output file, provided that a real time clock is available.

1.4 What will SCREEN do?

SCREEN runs interactively on the PC, meaning that the program asks the user a series of questions in order to obtain the necessary input data, and to determine which options to exercise. SCREEN can perform all of the single source, short-term calculations in the screening procedures document, including estimating maximum ground-level concentrations and the distance to the maximum (Step 4 of Section 4.2, SPD), incorporating the effects of building downwash on the maximum concentrations for both the near wake and far wake regions (Section 4.5.1), estimating concentrations in the cavity recirculation zone (Section 4.5.1), estimating concentrations due to inversion break-up and shoreline fumigation (Section 4.5.3), and determining plume rise for flare releases (Step 1 of Section 4.2). The model can incorporate the effects of simple elevated terrain on maximum concentrations (Section 4.2), and can also estimate 24-hour average concentrations due to plume impaction in complex terrain using the VALLEY model 24-hour screening procedure (Section 4.5.2). Simple area sources can be modeled with SCREEN using a numerical integration approach. The SCREEN model can also be used to model the effects of simple volume sources using a virtual point source procedure. The area and volume source algorithms are described in Volume II of the ISC model user's guide (EPA, 1995b). The SCREEN model can also calculate the maximum concentration at any number of user-specified distances in flat or elevated simple terrain (Section 4.3), including distances out to 100km for long-range transport (Section 4.5.6).

1.5 What will SCREEN not do?

SCREEN can not explicitly determine maximum impacts from multiple sources, except for the procedure to handle multiple nearby stacks by merging emissions into a single "representative" stack (Section 2.2). The user is directed to the MPTER (Pierce and Turner, 1980) or ISC (EPA, 1995b) models on EPA's Support Center for Regulatory Air Models (SCRAM) Bulletin Board System (BBS) to model short-term impacts for multiple sources. With the exception of the 24-hour estimate for complex terrain impacts, the results from SCREEN are estimated maximum 1-hour concentrations. To handle longer period averages, the screening procedures document contains recommended adjustment factors to estimate concentrations out to 24 hours from the maximum 1-hour value (Section 4.2, Step 5). For seasonal or annual averages, Section 4.4 of the screening procedures document contains a procedure using hand calculations, but the use of ISCLT (EPA, 1995b) or another long-term model on the SCRAM BBS is recommended.

1.6 How will SCREEN results compare to hand calculations from the document?

The SCREEN model is based on the same modeling assumptions that are incorporated into the screening procedures and nomographs, and for many sources the results will be very comparable, with estimated maximum concentrations differing by less than about 5 percent across a range of source characteristics. However, there are a few differences of which the user should be aware. For some sources, particularly taller sources with greater buoyancy, the differences in estimated concentrations will be larger, with the hand calculation exceeding the SCREEN model result by as much as 25 percent. These differences are described in more detail below.

The SCREEN model can provide estimated concentrations for distances less than 100 meters (down to one meter as in other regulatory models), whereas the nomographs used in the hand calculations are limited to distances greater than or equal to 100 meters. The SCREEN model is also not limited to plume heights of 300 meters, whereas the nomographs are. In both cases, caution should be used in interpreting results that are outside the range of the nomographs.

In addition, SCREEN examines a full range of meteorological conditions, including all stability classes and wind speeds (see Section 3) to find maximum impacts, whereas to keep the hand calculations tractable only a subset of meteorological conditions (stability classes A, C, and E or F) likely to contribute to the maximum concentration are examined. The use of a full set of meteorological conditions is required in SCREEN because maximum concentrations are also given as a function of distance, and because A, C, and E or F stability may not be controlling for sources with building downwash (not included in the hand calculations). SCREEN explicitly calculates the effects of multiple reflections of the plume off the elevated inversion and off the ground when calculating concentrations under limited mixing conditions. To account for these reflections, the hand calculation screening procedure (Procedure (a) of Step 4 in Section 4.2, SPD) increases the calculated maximum concentrations for A stability by a factor ranging from 1.0 to 2.0. The factor is intended to be a conservative estimate of the increase due to limited mixing, and may be slightly higher (about 5 to 10 percent) than the increase obtained from SCREEN using the multiple reflections, depending on the source. Also, SCREEN handles the near neutral/high wind speed case [Procedure (b)] by examining a range of wind speeds for stability class C and selecting the maximum. In contrast, the hand calculations are based on the maximum concentration estimated using stability class C with a calculated critical wind speed and a 10 meter wind speed of 10 m/s. This difference should result in differences in maximum concentrations of less than about 5 percent for those

sources where the near neutral/high wind speed case is controlling.

The SCREEN model results also include the effects of buoyancy-induced dispersion (BID), which are not accounted for by the hand calculations (except for fumigation). The inclusion of BID in SCREEN may either increase or decrease the estimated concentrations, depending on the source and distance. For sources with plume heights below the 300 meter limit of the hand calculations, the effect of BID on estimated maximum concentrations will usually be less than about ± 10 percent. For elevated sources with relatively large buoyancy, the inclusion of BID may be expected to decrease the estimated maximum concentration by as much as 25 percent.

1.7 How does SCREEN differ from PTPLU, PTMAX and PTDIS?

The PT-series of models have been used in the past to obtain results for certain screening procedures in Volume 10R (EPA, 1977). The SCREEN model is designed specifically as a computerized implementation of the revised screening procedures, and is much more complete than the earlier models, as described above. The SCREEN model also requires less manual "postprocessing" than the earlier models by listing the maximum concentrations in the output. However, many of the algorithms in SCREEN are the same as those contained in PTPLU-2.0 (Pierce, 1986). For the same source parameters and for given meteorological conditions, the two models will give comparable results. SCREEN also incorporates the option to estimate concentrations at discrete user-specified distances, which was available with PTDIS, but is not included in PTPLU.

1.8 What changes have been incorporated into SCREEN?

The SCREEN3 model (dated 95250) includes one major revision to the previous version of SCREEN (dated 92245). The finite line segment algorithm for modeling area sources has been replaced with a numerical integration algorithm based on the ISCST (EPA, 1995b) model. The new algorithm allows the user to model rectangular area sources with aspect ratios (length/width) of up to 10:1. The new algorithm also provides estimates of concentration within the area source itself and also includes three non-regulatory options.

Three new non-regulatory optional features have been added to this model. The first feature is the inclusion of an alternative mixing height algorithm (Brode, 1991). The alternative mixing height is determined by using the maximum of a predetermined mixing height or a value adjusted slightly higher than the plume height, whichever is greater. Both the mixing height and adjustment values to the plume height are based on stability class. Selection of this algorithm results in

concentrations that are generally more conservative than output from the ISCST3 model.

The second feature allows the optional input of an anemometer height in place of the default height of 10 meters. This affects the stack top wind speeds for Choice of Meteorology selections 1 and 2. For Choice of Meteorology selection 3, the user is prompted to entered a 10 meter wind speed which is unaffected by any optionally entered anemometer height.

The third feature is the inclusion of an alternative building cavity algorithm (Schulman and Scire, 1993). The published concentration results using this algorithm model the sampled wind tunnel test concentrations better than the regulatory algorithm for the range selected.

The options are activated by adding flags and a value to the line in the input file containing the source type input.

1.9 What constitutes the regulatory default in SCREEN?

Regulatory default consists of: 1) entering the appropriate input source characteristics, 2) selecting the appropriate regulatory options (see Figure 1), and 3) then using the recommended SCREEN defaults. Discussion of the SCREEN inputs, regulatory options, and defaults can be found in Section 2 of this document and throughout Section 4 of the Screening Procedures document (See References). Regulatory default does not include the use of any of the three new non-regulatory options mentioned in Section 1.8.

2. TUTORIAL

2.1 What is needed?

- IBM-PC compatible with at least 256K bytes of RAM, and a 5 1/4 inch double-sided, double-density or high density disk drive.
- Diskette provided with SCREEN software (or files downloaded from the SCRAM BBS).
- Hard or floppy disk drive (minimum of 1 MB memory available).
- Math coprocessor chip (optional but recommended).
- Blank diskette for use in making a backup copy of software.

2.2 Setup on the PC

Using the DISKCOPY command of DOS (Disk Operating System) or similar routine, make a backup copy of the SCREEN software. Store the original SCREEN software diskette in a safe location. The DISKCOPY command will also format the blank disk if needed.

The following set-up instructions assume that the user has a system with a hard disk drive and the "pkunzip" decompression program resident on the hard disk drive. The "pkunzip" program can be obtained via the Support Center for Regulatory Air Models (SCRAM) Bulletin Board System (BBS) by accessing the archivers/dearchivers option under system utilities on the top menu.

Insert the SCREEN diskette in floppy drive A: and enter the following command at the DOS prompt from drive C: (either from the root directory or a subdirectory):

```
PKUNZIP A:SCREEN3
```

This command will decompress the six files from the SCREEN diskette and place them on the hard disk. The hard disk will now contain the executable file of SCREEN, called SCREEN3.EXE, as well as the FORTRAN source files, SCREEN3.FOR and MAIN.INC, an example input file, EXAMPLE.DAT, an associated output file EXAMPLE.OUT, and this document, the SCREEN3 Model User's Guide (in WordPerfect 5.1 format), SCREEN3.WPF.

2.3 Executing the Model

The SCREEN model is written as an interactive program for the PC, as described earlier. Therefore, SCREEN is normally executed by simply typing SCREEN from any drive and directory

that contains the SCREEN3.EXE file, and responding to the prompts provided by the program. However, a mechanism has been provided to accommodate the fact that for some applications of SCREEN the user might want to perform several runs for the same source changing only one or a few input parameters. This mechanism takes advantage of the fact that the Disk Operating System (DOS) on PCs allows for the redirection of input that is normally provided via the keyboard to be read from a file instead. As an example, to run the sample problem provided on the disk one would type:

```
SCREEN3 <EXAMPLE.DAT
```

at the DOS prompt. The SCREEN model will then read the responses to its prompts from the EXAMPLE.DAT file rather than from the keyboard. The output from this run will be stored in a file called SCREEN.OUT, which can then be compared with the EXAMPLE.OUT file provided on the program disk. The file containing the redirected input data may be given any valid DOS pathname. To facilitate the creation of the input file for the SCREEN model, SCREEN has been programmed to write out all inputs provided to a file called SCREEN.DAT during execution. Therefore, at the completion of a run, if the user types

```
SCREEN3 <SCREEN.DAT
```

the last run will be duplicated exactly. Alternatively, the SCREEN.DAT file may be edited as an ASCII file using a text or line editor, and selected input parameters changed before rerunning the model. Since the original SCREEN.DAT file will be overwritten each time the model is run, it is advisable to save the modified inputs under a different file name.

Some cautions are needed regarding the use of redirected input with SCREEN. Because of the way some input errors are handled by SCREEN, the SCREEN.DAT file may contain some of the errors from the original input. While SCREEN.DAT should still reproduce the correct results, it will be easier to work with the file if the original input does not contain any errors. More importantly, since the inputs requested by SCREEN depend on the options selected, it is not advisable to edit the SCREEN.DAT file and try to change the options selected. An experienced user may be able to do this, especially with the help of the input flow charts provided later in this section, but it may be easier simply to rerun SCREEN with the new options.

2.4 Point Source Example

When running SCREEN for a point source, or for flare releases and area sources discussed below, the user is first asked to provide a one line title (up to 79 characters) that will appear on the output file. The user will then be asked to

identify the source type, and should enter 'P' or 'p' for a point source (the model will identify either upper or lower case letters and will repeat the prompt until a valid response is given).

For a point source, the user will be asked to provide the following inputs:

Point Source Inputs

Emission rate (g/s)
Stack height (m)
Stack inside diameter (m)
Stack gas exit velocity (m/s) or
  flow rate (ft^3/min or m^3/s)
Stack gas temperature (K)
Ambient temperature (K) (use default of 293K if
  not known)
Receptor height above ground (may be used to
  define flagpole receptors) (m)
Urban/rural option (U = urban, R = rural)

The SCREEN model uses free format to read the numerical input data, with the exception of the exit velocity/flow rate option. The default choice for this input is stack gas exit velocity, which SCREEN will read as free format. However, if the user precedes the input with the characters VF= in columns 1-3, then SCREEN will interpret the input as flow rate in actual cubic feet per minute (ACFM). Alternatively, if the user inputs the characters VM= in columns 1-3, then SCREEN will interpret the input as flow rate in m^3/s. The user can input either upper or lower case characters for VF and VM. The flow rate values are then converted to exit velocity in m/s for use in the plume rise equations, based on the diameter of the stack.

SCREEN allows for the selection of urban or rural dispersion coefficients. The urban dispersion option is selected by entering a 'U' (lower or upper case) in column 1, while the rural dispersion option is selected by entering an 'R' (upper or lower case) in column 1. For compatibility with the previous version of the model, SCREEN also allows for an input of '1' to select the urban option, or a '2' to select the rural option. Determination of the applicability of urban or rural dispersion is based upon land use or population density. In general, if 50 percent or more of an area 3 km around the source satisfies the urban criteria (Auer, 1978), the site is deemed in an urban setting. Of the two methods, the land use procedure is considered more definitive. For more detailed guidance on land use classification for urban and rural, refer to Section 8.2.8 of Appendix W to 40 CFR Part 51 (*Guideline on Air Quality Models*).

Figure 1 presents the order of regulatory options within the

SCREEN model for point sources and is annotated with the corresponding sections from the screening procedures document. In order to obtain results from SCREEN corresponding to the procedures in Step 4 of Section 4.2, the user should select the full meteorology option, the automated distance array option, and, if applicable for the source, the simple elevated terrain option. The simple elevated terrain option would be used if the terrain rises above the stack base elevation but is less than the height of the physical stack. These, as well as the other options in Figure 1, are explained in more detail below. A flagpole receptor is defined as any receptor which is located above local ground level, e.g., to represent the roof or balcony of a building.

2.4.1 Building Downwash Option

There are two downwash options available with this model, a regulatory and a non-regulatory option. Both are discussed below.

2.4.1.1 Regulatory Building Downwash Option

Following the basic input of source characteristics, a SCREEN prompt asks if building downwash is to be considered, and if so, prompts for building height, minimum horizontal dimension, and maximum horizontal dimension, in meters, are presented. The downwash screening procedure assumes that the building can be approximated by a simple rectangular box. Wake effects are included in any calculations made using the automated distance array or discrete distance options (described below). Cavity calculations are made for two building orientations - first with the minimum horizontal building dimension alongwind, and second with the maximum horizontal dimension alongwind. The cavity calculations are summarized at the end of the distance-dependent calculations. Refer to Section 3.6 for more details on the building downwash cavity and wake screening procedure.

2.4.1.2 Non-Regulatory Building Downwash Option

A Schulman-Scire Building Downwash/Cavity option can be selected along with two other non-regulatory options by entering the appropriate flag, SS, on the line containing the source type input. The program will later ask for the building height, minimum horizontal dimension, and maximum horizontal dimension in meters as is done for the regulatory cavity option. However, for this option only, the program will ask for the position of the source on the building with respect to the two building orientations mentioned in 2.4.1.1. The response will need to be in the form of a ratio of the stack distance from a building centerline drawn perpendicular to the wind over the horizontal dimension of the side of the building which is parallel to the wind. The program will show a figure on how to calculate the

correct ratio for a particular orientation.

2.4.2 Complex Terrain Option

The complex terrain option of SCREEN allows the user to estimate impacts for cases where terrain elevations exceed stack height. If the user elects this option, then SCREEN will calculate and print out a final stable plume height and distance to final rise for the VALLEY model 24-hour screening technique. This technique assumes stability class F (E for urban) and a stack height wind speed of 2.5 m/s. For complex terrain, maximum impacts are expected to occur for plume impaction on the elevated terrain under stable conditions. The user is therefore instructed to enter minimum distances and terrain heights for which impaction is likely, given the plume height calculated, and taking into account complex terrain closer than the distance to final rise. If the plume is at or below the terrain height for the distance entered, then SCREEN will make a 24-hour concentration estimate using the VALLEY screening technique. If the terrain is above stack height but below plume centerline height for the distance entered, then SCREEN will make a VALLEY 24-hour estimate (assuming E or F and 2.5 m/s), and also estimate the maximum concentration across a full range of meteorological conditions using simple terrain procedures with terrain "chopped off" at physical stack height. The higher of the two estimates is selected as controlling for that distance and terrain height (both estimates are printed out for comparison). The simple terrain estimate is adjusted to represent a 24-hour average by multiplying by a factor of 0.4, while the VALLEY 24-hour estimate incorporates the 0.25 factor used in the VALLEY model. Calculations continue for each terrain height/distance combination entered until a terrain height of zero is entered. The user will then have the option to continue with simple terrain calculations or to exit the program. It should be noted that SCREEN will not consider building downwash effects in either the VALLEY or the simple terrain component of the complex terrain screening procedure, even if the building downwash option is selected. SCREEN also uses a receptor height above ground of 0.0m (i.e. no flagpole receptors) in the complex terrain option even if a non-zero value is entered. The original receptor height is saved for later calculations. Refer to Section 3 for more details on the complex terrain screening procedure.

2.4.3 Simple Elevated or Flat Terrain Option

The user is given the option in SCREEN of modeling either simple elevated terrain, where terrain heights exceed stack base but are below stack height, or simple flat terrain, where terrain heights are assumed not to exceed stack base elevation. If the user elects not to use the option for simple terrain screening with terrain above stack base, then flat terrain is assumed and

the terrain height is assigned a value of zero. If the simple elevated terrain option is used, SCREEN will prompt the user to enter a terrain height above stack base. If terrain heights above physical stack height are entered by the user for this option, they are chopped off at the physical stack height.

The simple elevated terrain screening procedure assumes that the plume elevation above sea level is not affected by the elevated terrain. Concentration estimates are made by reducing the calculated plume height by the user-supplied terrain height above stack base. Neither the plume height nor terrain height are allowed to go below zero. The user can model simple elevated terrain using either or both of the distance options described below, i.e., the automated distance array or the discrete distance option. When the simple elevated terrain calculations for each distance option are completed, the user will have the option of continuing simple terrain calculations for that option with a new terrain height. (For flat terrain the user will not be given the option to continue with a new terrain height). For conservatism and to discourage the user from modeling terrain heights that decrease with distance, the new terrain height for the automated distances cannot be lower than the previous height for that run. The user is still given considerable flexibility to model the effects of elevated terrain below stack height across a wide range of situations.

For relatively uniform elevated terrain, or as a "first cut" conservative estimate of terrain effects, the user should input the maximum terrain elevation (above stack base) within 50 km of the source, and exercise the automated distance array option out to 50 km. For isolated terrain features a separate calculation can be made using the discrete distance option for the distance to the terrain feature, with the terrain height input as the maximum height of the feature above stack base. Where terrain heights vary with distance from the source, then the SCREEN model can be run on each of several concentric rings using the minimum and maximum distance inputs of the automated distance option to define each ring, and using the maximum terrain elevation above stack base within each ring for terrain height input. As noted above, the terrain heights are not allowed to decrease with distance in SCREEN. If terrain decreasing with distance (in all directions) can be justified for a particular source, then the distance rings would have to be modeled using separate SCREEN runs, and the results combined. The overall maximum concentration would then be the controlling value. The optimum ring sizes will depend on how the terrain heights vary with distance, but as a "first cut" it is suggested that ring sizes of about 5 km be used (i.e., 0-5km, 5-10km, etc.). The application of SCREEN to evaluating the effects of elevated terrain should be done in consultation with the permitting agency.

2.4.4 Choice of Meteorology

For simple elevated or flat terrain screening, the user will be given the option of selecting from three choices of meteorology: (1) full meteorology (all stability classes and wind speeds); (2) specifying a single stability class; or (3) specifying a single stability class and wind speed. Generally, the full meteorology option should be selected. The other two options were originally included for testing purposes only, but may be useful when particular meteorological conditions are of concern. Refer to Section 3 for more details on the determination of worst case meteorological conditions by SCREEN.

2.4.5 Automated Distance Array Option

The automated distance array option of SCREEN gives the user the option of using a pre-selected array of 50 distances ranging from 100m out to 50 km. Increments of 100m are used out to 3,000m, with 500m increments from 3,000m to 10 km, 5 km increments from 10 km to 30 km, and 10 km increments out to 50 km. When using the automated distance array, SCREEN prompts the user for a minimum and maximum distance to use, which should be input in free format, i.e., separated by a comma or a space. SCREEN then calculates the maximum concentration across a range of meteorological conditions for the minimum distance given ($\geq$ 1 meter), and then for each distance in the array larger than the minimum and less than or equal to the maximum. Thus, the user can input the minimum site boundary distance as the minimum distance for calculation and obtain a concentration estimate at the site boundary and beyond, while ignoring distances less than the site boundary.

If the automated distance array is used, then the SCREEN model will use an iteration routine to determine the maximum value and associated distance to the nearest meter. If the minimum and maximum distances entered do not encompass the true maximum concentration, then the maximum value calculated by SCREEN may not be the true maximum. Therefore, it is recommended that the maximum distance be set sufficiently large initially to ensure that the maximum concentration is found. This distance will depend on the source, and some "trial and error" may be necessary, however, the user can input a distance of 50,000m to examine the entire array. The iteration routine stops after 50 iterations and prints out a message if the maximum is not found. Also, since there may be several local maxima in the concentration distribution associated with different wind speeds, it is possible that SCREEN will not identify the overall maximum in its iteration. This is not likely to be a frequent occurrence, but will be more likely for stability classes C and D due to the larger number of wind speeds examined.

2.4.6 Discrete Distance Option

The discrete distance option of SCREEN allows the user to

input specific distances. Any number of distances (≥ 1 meter) can be input by the user and the maximum concentration for each distance will be calculated. The user will always be given this option whether or not the automated distance array option is used. The option is terminated by entering a distance of zero (0). SCREEN will accept distances out to 100 km for long-range transport estimates with the discrete distance option. However, for distances greater than 50 km, SCREEN sets the minimum 10 meter wind speed at 2 m/s to avoid unrealistic transport times.

2.4.7 Fumigation Option

Once the distance-dependent calculations are completed, SCREEN will give the user the option of estimating maximum concentrations and distance to the maximum associated with inversion break-up fumigation, and shoreline fumigation. The option for fumigation calculations is applicable only for rural inland sites with stack heights greater than or equal to 10 meters (within 3,000m onshore from a large body of water.) The fumigation algorithm also ignores any potential effects of elevated terrain.

Once all calculations are completed, SCREEN summarizes the maximum concentrations for each of the calculation procedures considered. Before execution is stopped, whether it is after complex terrain calculations are completed or at the end of the simple terrain calculations, the user is given the option of printing a hardcopy of the results. Whether or not a hardcopy is printed, the results of the session, including all input data and concentration estimates, are stored in a file called SCREEN.OUT. This file is opened by the model each time it is run. If a file named SCREEN.OUT already exists, then its contents will be overwritten and lost. Thus, if you wish to save results of a particular run, then change the name of the output file using the DOS RENAME command, e.g., type 'REN SCREEN.OUT SAMPLE1.OUT', or print the file using the option at the end of the program. If SCREEN.OUT is later printed using the DOS PRINT command, the FORTRAN carriage controls will not be observed. (Instructions are included in Section 4 for simple modifications to the SCREEN code that allow the user to specify an output filename for each run.)

Figure 2 shows an example using the complex terrain screen only. Figure 3 shows an example for an urban point source which uses the building downwash option. In the DWASH column of the output, 'NO' indicates that no downwash is included, 'HS' means that Huber-Snyder downwash is included, 'SS' means that Schulman-Scire downwash is included, and 'NA' means that downwash is not applicable since the downwind distance is less than $3L_b$. A blank in the DWASH column means that no calculation was made for that distance because the concentration was so small.

Figure 4 presents a flow chart of all the inputs and various options of SCREEN for point sources. Also illustrated are all of the outputs from SCREEN. If a cell on the flow chart does not contain the words "Enter" or "Print out", then it is an internal test or process of the program, and is included to show the flow of the program.

2.5 Flare Release Example

By answering 'F' or 'f' to the question on source type the user selects the flare release option. This option is similar to the point source described above except for the inputs needed to calculate plume rise. The inputs for flare releases are as follows:

Flare Release Inputs

Emission rate (g/s)
Flare stack height (m)
Total heat release rate (cal/s)
Receptor height above ground (m)
Urban/rural option (U = urban, R = rural)

The SCREEN model calculates plume rise for flares based on an effective buoyancy flux parameter. An ambient temperature of 293K is assumed in this calculation and therefore none is input by the user. It is assumed that 55 percent of the total heat is lost due to radiation. Plume rise is calculated from the top of the flame, assuming that the flame is bent 45 degrees from the vertical. SCREEN calculates and prints out the effective release height for the flare. SCREEN provides the same options for flares as described earlier for point sources, including building downwash, complex and/or simple terrain, fumigation, and the automated and/or discrete distances. The order of these options and the user prompts are the same as described for the point source example.

While building downwash is included as an option for flare releases, it should be noted that SCREEN assumes an effective stack gas exit velocity (v_s) of 20 m/s and an effective stack gas exit temperature (T_s) of 1,273K, and calculates an effective stack diameter based on the heat release rate. These effective stack parameters are somewhat arbitrary, but the resulting buoyancy flux estimate is expected to give reasonable final plume rise estimates for flares. However, since building downwash estimates depend on transitional momentum plume rise and transitional buoyant plume rise calculations, the selection of effective stack parameters could influence the estimates. Therefore, building downwash estimates should be used with extra caution for flare releases. If more realistic stack parameters can be determined, then the estimate could alternatively be made

with the point source option of SCREEN. In doing so, care should be taken to account for the vertical height of the flame in specifying the release height (see Section 3). Figure 5 shows an example for a flare release, and Figure 6 shows a flow chart of the flare release inputs, options, and output.

2.6 Area Source Example

The third source type option in SCREEN is for area sources, which is selected by entering 'A' or 'a' for source type. The area source algorithm in SCREEN is based on a numerical integration approach, and allows for the area source to be approximated by a rectangular area. The inputs requested for area sources are as follows:

Area Source Inputs

Emission rate [g/(s-m^2)]
Source release height (m)
Length of larger side of the rectangular area (m)
Length of smaller side of the rectangular area (m)
Receptor height above ground (m)
Urban/rural option (U = urban, R = rural)
Wind direction search option (if no, specify desired angle)

Note that the emission rate for area sources is input as an emission rate per unit area in units of g/(s-m^2). These units are consistent with the ISCST model.

Since the concentration at a particular distance downwind from a rectangular area is dependent on the orientation of the area relative to the wind direction, the SCREEN model provides the user with two options for treating wind direction. The first option, which should be used for most applications of SCREEN and is the regulatory default, is for the model to search through a range of wind directions to find the maximum concentration. The range of directions used in the search is determined from a set of look-up tables based on the aspect ratio of the area source, the stability category, and the downwind distance. The SCREEN model also provides the user an option to specify a wind direction orientation relative to the long axis of the rectangular area. The second option may be used to estimate the concentration at a particular receptor location relative to the area. The output table for area sources includes the wind direction associated with the maximum concentration at each distance.

The user has the same options for handling distances and the same choices of meteorology as described above for point sources,

but no complex terrain, elevated simple terrain, building downwash, or fumigation calculations are made for area sources. Distances are measured from the center of the rectangular area. Since the numerical integration algorithm can estimate concentrations within the area source, the user can enter any value for the minimum distance. Figure 7 shows an example of SCREEN for an area source, using both the automated and discrete distance options. Figure 8 provides a flow chart of inputs, options, and outputs for area sources.

2.7 Volume Source Example

The fourth source type option in SCREEN is for volume sources, which is selected by entering 'V' or 'v' for source type. The volume source algorithm is based on a virtual point source approach, and may be used for non-buoyant sources whose emissions occupy some initial volume. The inputs requested for volume sources are as follows:

Volume Source Inputs

Emission rate (g/s)
Source release height (m)
Initial lateral dimension of volume (m)
Initial vertical dimension of volume (m)
Receptor height above ground (m)
Urban/rural option (U = urban, R = rural)

The user must determine the initial dimensions of the volume source plume before exercising the SCREEN model volume source. Table 1 provides guidance on determining these inputs. Since the volume source algorithm cannot estimate concentrations within the volume source, the model will give a concentration of zero for distances (measured from the center of the volume) of less than 2.15 σ_{yo}. Figure 9 shows an example of SCREEN for a volume source, and Figure 10 provides a flow chart of inputs, options, and outputs for volume sources.

TABLE 1.
SUMMARY OF SUGGESTED PROCEDURES FOR ESTIMATING
INITIAL LATERAL DIMENSIONS (σ_{yo}) AND
INITIAL VERTICAL DIMENSIONS (σ_{zo}) FOR VOLUME SOURCES

Description of Source	Initial Dimension
(a) Initial Lateral Dimensions (σ_{yo})	
Single Volume Source	σ_{yo} = length of side divided by 4.3
(b) Initial Vertical Dimensions (σ_{zo})	
Surface-Based Source ($h_e \sim 0$)	σ_{zo} = vertical dimension of source divided by 2.15
Elevated Source ($h_e > 0$) on or Adjacent to a Building	σ_{zo} = building height divided by 2.15
Elevated Source ($h_e > 0$) not on or Adjacent to a Building	σ_{zo} = vertical dimension of source divided by 4.3

2.8 Non-regulatory Options

On the same source type input line, the program allows the input of three additional input, N, nn.n, and SS. Where 'nn.n' represents a numerical anemometer height such as 7.5 meters. These input, when entered, cause the program to use the non-regulatory Brode 2 Mixing Height (1991) option (N), a user-specified anemometer height (nn.n), and/or a non-regulatory building downwash/cavity option (Schulman and Scire, 1993)(SS, in SCREEN printout). While additional input is required for the Schulman-Scire Building Downwash/Cavity option, as was discussed in Section 2.4.1.2, no additional input data are required for the other two options.

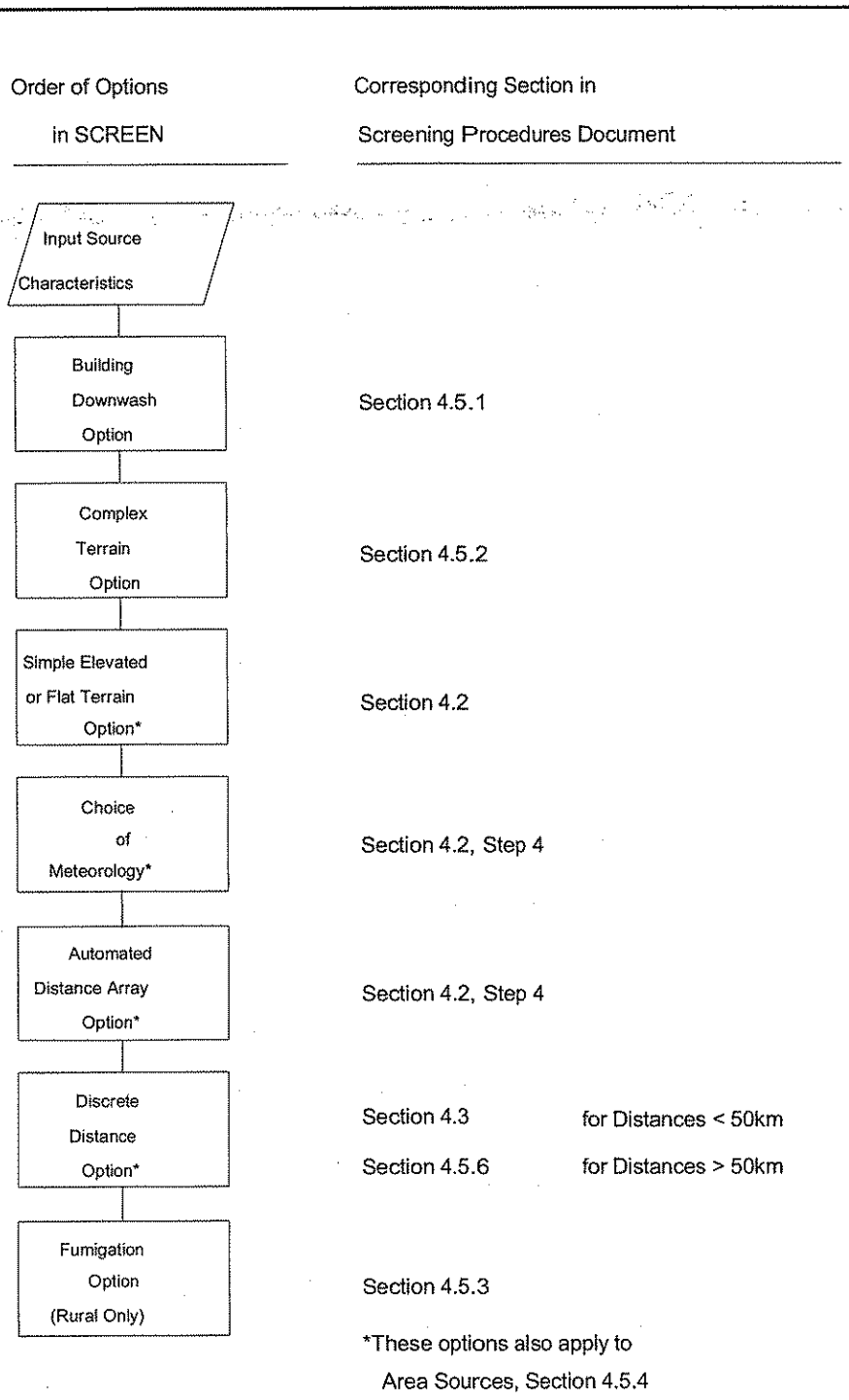

Figure 1. Point Source Options in SCREEN

09/07/95
12:00:00

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 95250 ***

POINT SOURCE EXAMPLE WITH COMPLEX TERRAIN

COMPLEX TERRAIN INPUTS:
SOURCE TYPE = POINT
EMISSION RATE (G/S) = 100.000
STACK HT (M) = 100.0000
STACK DIAMETER (M) = 2.5000
STACK VELOCITY (M/S) = 25.0000
STACK GAS TEMP (K) = 450.0000
AMBIENT AIR TEMP (K) = 293.0000
RECEPTOR HEIGHT (M) = .0000
URBAN/RURAL OPTION = RURAL

BUOY. FLUX = 133.643 M**4/S**3; MOM. FLUX = 635.851 M**4/S**2.

FINAL STABLE PLUME HEIGHT (M) = 192.9
DISTANCE TO FINAL RISE (M) = 151.3

		VALLEY 24-HR CALCS	**SIMPLE TERRAIN 24-HR CALCS**						
TERR HT (M)	MAX 24-HR DIST (M)	CONC (UG/M**3)	PLUME HT CONC (UG/M**3)	ABOVE STK BASE (M)	PLUME HT CONC (UG/M**3)	ABOVE STK HGT (M)	U10M SC	USTK (M/S)	
150.	1000.	243.4	243.4	192.9	161.1	32.9	4	15.0	21.2
200.	2000.	284.3	284.3	192.9	.0000	.0	0	.0	.0
200.	5000.	91.39	91.39	192.9	.0000	.0	0	.0	.0
200.	10000.	37.36	37.36	192.9	.0000	.0	0	.0	.0

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)	
COMPLEX TERRAIN	284.3	2000.	200.	(24-HR CONC)

```
**************************************************
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
**************************************************
```

Figure 2. SCREEN Point Source Example for Complex Terrain

09/07/95
12:00:00

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 95250 ***

POINT SOURCE EXAMPLE WITH BUILDING DOWNWASH

SIMPLE TERRAIN INPUTS:
SOURCE TYPE = POINT
EMISSION RATE (G/S) = 100.000
STACK HEIGHT (M) = 100.0000
STK INSIDE DIAM (M) = 2.0000
STK EXIT VELOCITY (M/S)= 15.0000
STK GAS EXIT TEMP (K) = 450.0000
AMBIENT AIR TEMP (K) = 293.0000
RECEPTOR HEIGHT (M) = .0000
URBAN/RURAL OPTION = URBAN
BUILDING HEIGHT (M) = 80.0000
MIN HORIZ BLDG DIM (M) = 80.0000
MAX HORIZ BLDG DIM (M) = 100.0000

BUOY. FLUX = 51.319 M**4/S**3; MOM. FLUX = 146.500 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
100.	.0000	0	.0	.0	.0	.00	.00	.00	NA
200.	.0000	0	.0	.0	.0	.00	.00	.00	NA
300.	631.6	1	1.5	2.1	480.0	125.11	90.71	82.09	SS
400.	517.4	1	1.5	2.1	480.0	140.59	118.85	113.59	SS
500.	494.6	6	1.0	2.0	10000.0	113.08	50.21	50.05	SS
600.	578.0	6	1.0	2.0	10000.0	113.08	59.27	54.62	SS
700.	638.4	6	1.0	2.0	10000.0	113.08	68.06	59.18	SS
800.	715.3	6	1.0	2.0	10000.0	113.08	76.59	65.44	SS

```
 900.  699.4     6   1.0   2.0 10000.0  113.08   84.89   68.33   SS
1000.  681.9     6   1.0   2.0 10000.0  113.08   92.97   71.13   SS

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND   100. M:
 800.  715.3     6   1.0   2.0 10000.0  113.08   76.59   65.44   SS

DWASH=   MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB
```

Figure 3. SCREEN Point Source Example with Building Downwash (Page 1 of 2)

```
*** CAVITY CALCULATION - 1 ***      *** CAVITY CALCULATION - 2 ***
 CONC (UG/M**3)    =   3168.       CONC (UG/M**3)    =   1691.
 CRIT WS @10M (M/S) =    3.32      CRIT WS @10M (M/S) =    7.77
 CRIT WS @ HS (M/S) =    5.26      CRIT WS @ HS (M/S) =   12.32
 DILUTION WS (M/S) =     2.63      DILUTION WS (M/S) =    6.16
 CAVITY HT (M)     =   114.88      CAVITY HT (M)     =  105.20
 CAVITY LENGTH (M) =   142.41      CAVITY LENGTH (M) =  101.30
 ALONGWIND DIM (M) =    80.00      ALONGWIND DIM (M) =  100.00

   ************************************
   *** SUMMARY OF SCREEN MODEL RESULTS ***
   ************************************

 CALCULATION      MAX CONC   DIST TO   TERRAIN
  PROCEDURE      (UG/M**3)   MAX (M)   HT (M)
-------------   ----------  -------  -------
SIMPLE TERRAIN    715.3        800.      0.

BUILDING CAVITY-1  3168.       142.     -- (DIST = CAVITY LENGTH)
BUILDING CAVITY-2  1691.       101.     -- (DIST = CAVITY LENGTH)


**************************************************
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
**************************************************
```

Figure 3. SCREEN Point Source Example with Building Downwash (Page 2 of 2)

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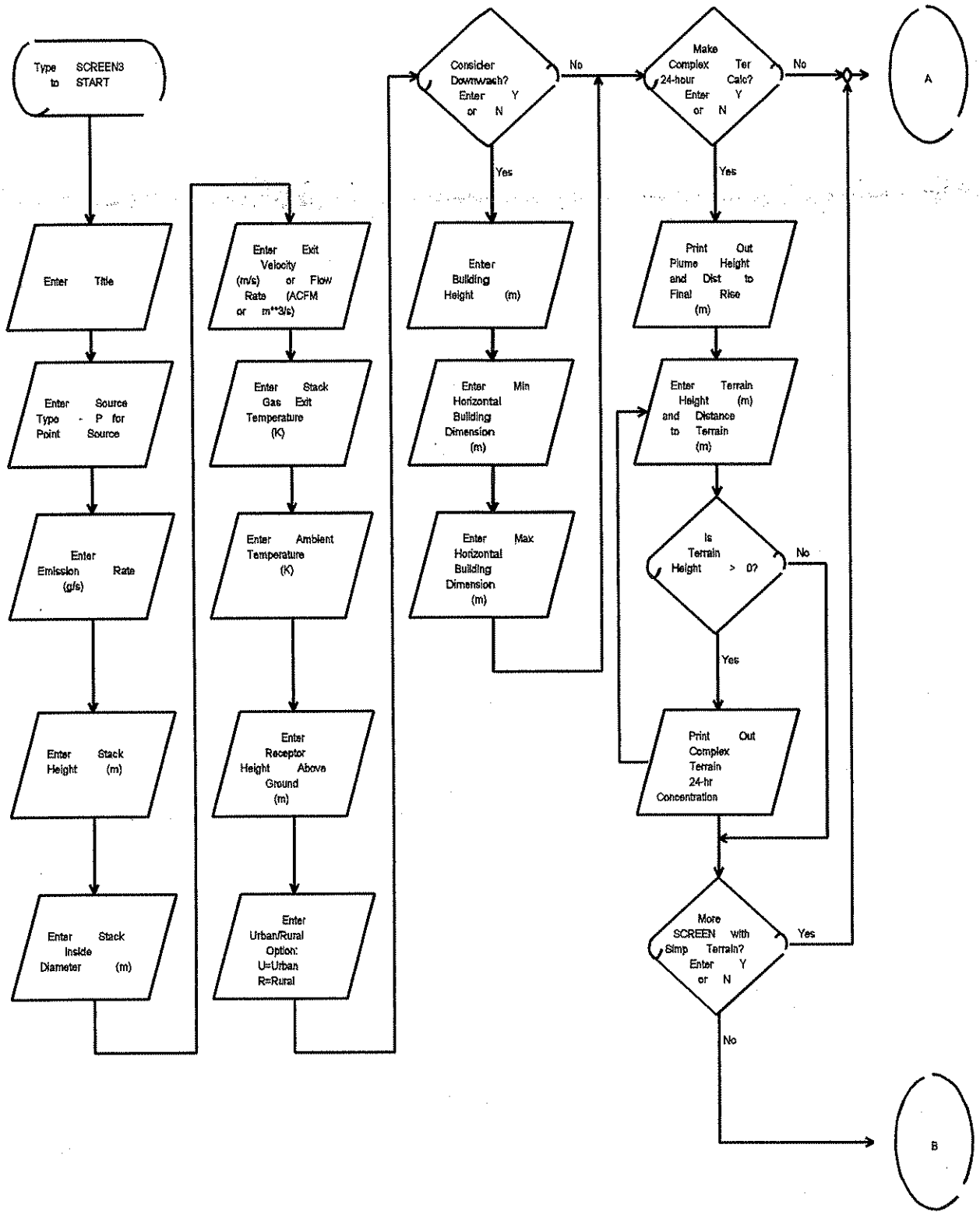


Figure 4. Flow Chart of Inputs and Outputs for SCREEN Point Source (Page 1 of 2)

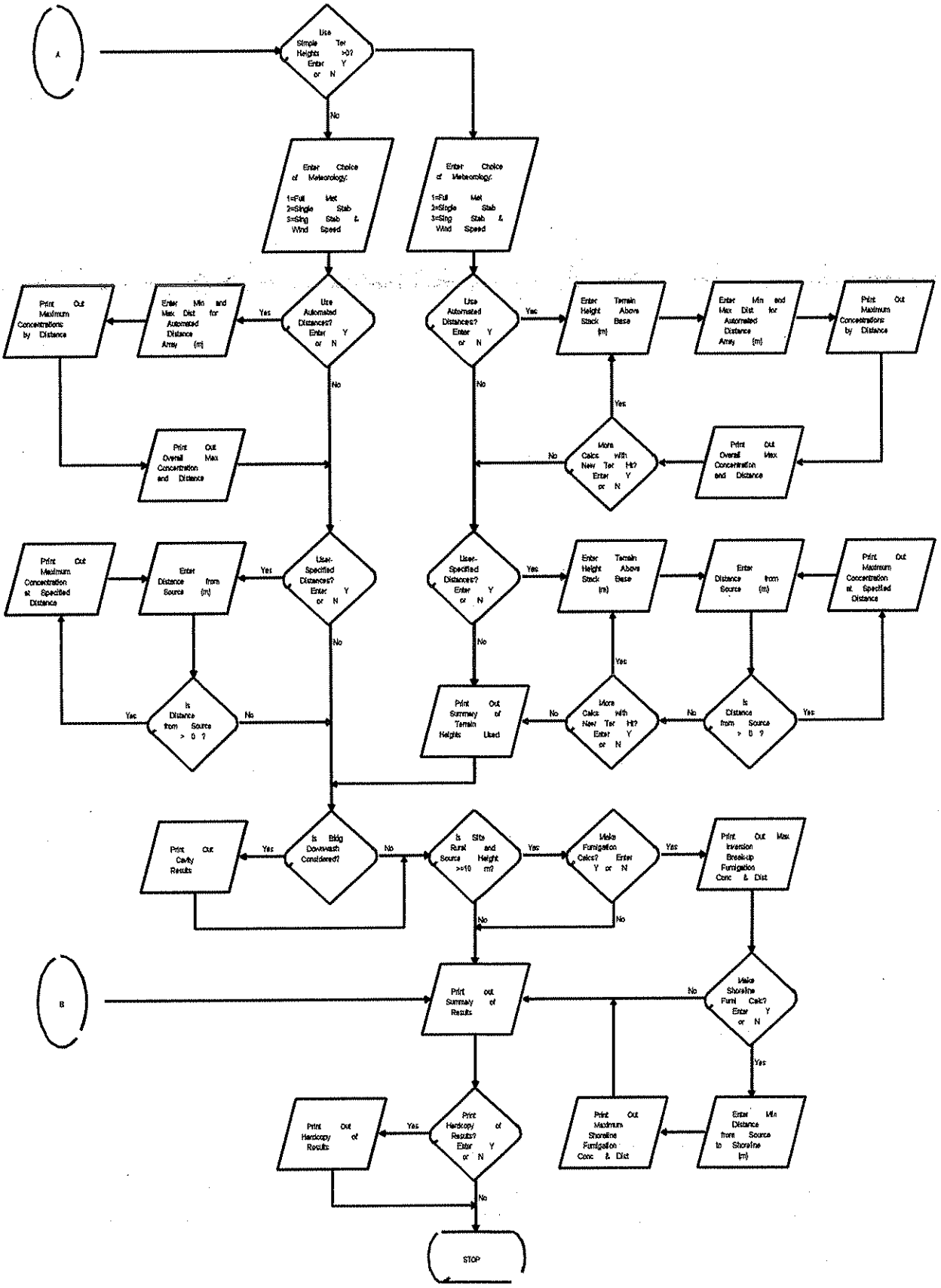


Figure 4. Flow Chart of Inputs and Outputs for SCREEN Point Source (Page 2 of 2)

09/07/95
12:00:00

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 95250 ***

FLARE RELEASE EXAMPLE

SIMPLE TERRAIN INPUTS:
SOURCE TYPE = FLARE
EMISSION RATE (G/S) = 1000.00
FLARE STACK HEIGHT (M) = 100.0000
TOT HEAT RLS (CAL/S) = .100000E+08
RECEPTOR HEIGHT (M) = .0000
URBAN/RURAL OPTION = RURAL
EFF RELEASE HEIGHT (M) = 110.1150
BUILDING HEIGHT (M) = .0000
MIN HORIZ BLDG DIM (M) = .0000
MAX HORIZ BLDG DIM (M) = .0000

BUOY. FLUX = 165.803 M**4/S**3; MOM. FLUX = 101.103 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
250.	.7733E-04	5	1.0	2.3	10000.0	233.54	38.05	36.05	NO
300.	.2501E-03	1	3.0	3.5	960.0	344.28	78.46	57.07	NO
400.	1.283	1	3.0	3.5	960.0	344.28	100.36	80.87	NO
500.	66.54	1	3.0	3.5	960.0	344.28	121.51	113.75	NO
600.	407.0	1	3.0	3.5	960.0	344.28	142.09	161.96	NO
700.	741.2	1	3.0	3.5	960.0	344.28	162.21	220.50	NO
800.	944.9	1	1.5	1.8	579.5	578.45	210.37	308.17	NO
900.	1303.	1	1.5	1.8	579.5	578.45	231.47	386.36	NO
1000.	1449.	1	1.5	1.8	579.5	578.45	247.92	473.16	NO
1100.	1448.	1	1.5	1.8	579.5	578.45	263.50	571.19	NO
1200.	1387.	1	1.5	1.8	579.5	578.45	279.21	680.86	NO
1300.	1315.	1	1.5	1.8	579.5	578.45	295.03	802.07	NO

1400.	1248.	1	1.5	1.8	579.5	578.45	310.90	934.77	NO
1500.	1187.	1	1.5	1.8	579.5	578.45	326.80	1078.93	NO
1600.	1132.	1	1.5	1.8	579.5	578.45	342.72	1234.58	NO
1700.	1082.	1	1.5	1.8	579.5	578.45	358.64	1401.74	NO
1800.	1036.	1	1.5	1.8	579.5	578.45	374.55	1580.46	NO
1900.	993.9	1	1.5	1.8	579.5	578.45	390.43	1770.78	NO
2000.	957.5	1	1.0	1.2	813.6	812.62	432.95	1978.42	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 250. M:

1046.	1461.	1	1.5	1.8	579.5	578.45	254.91	515.82	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

Figure 5. SCREEN Flare Release Example (Page 1 of 2)

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	1461.	1046.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

Figure 5. SCREEN Flare Release Example (Page 2 of 2)

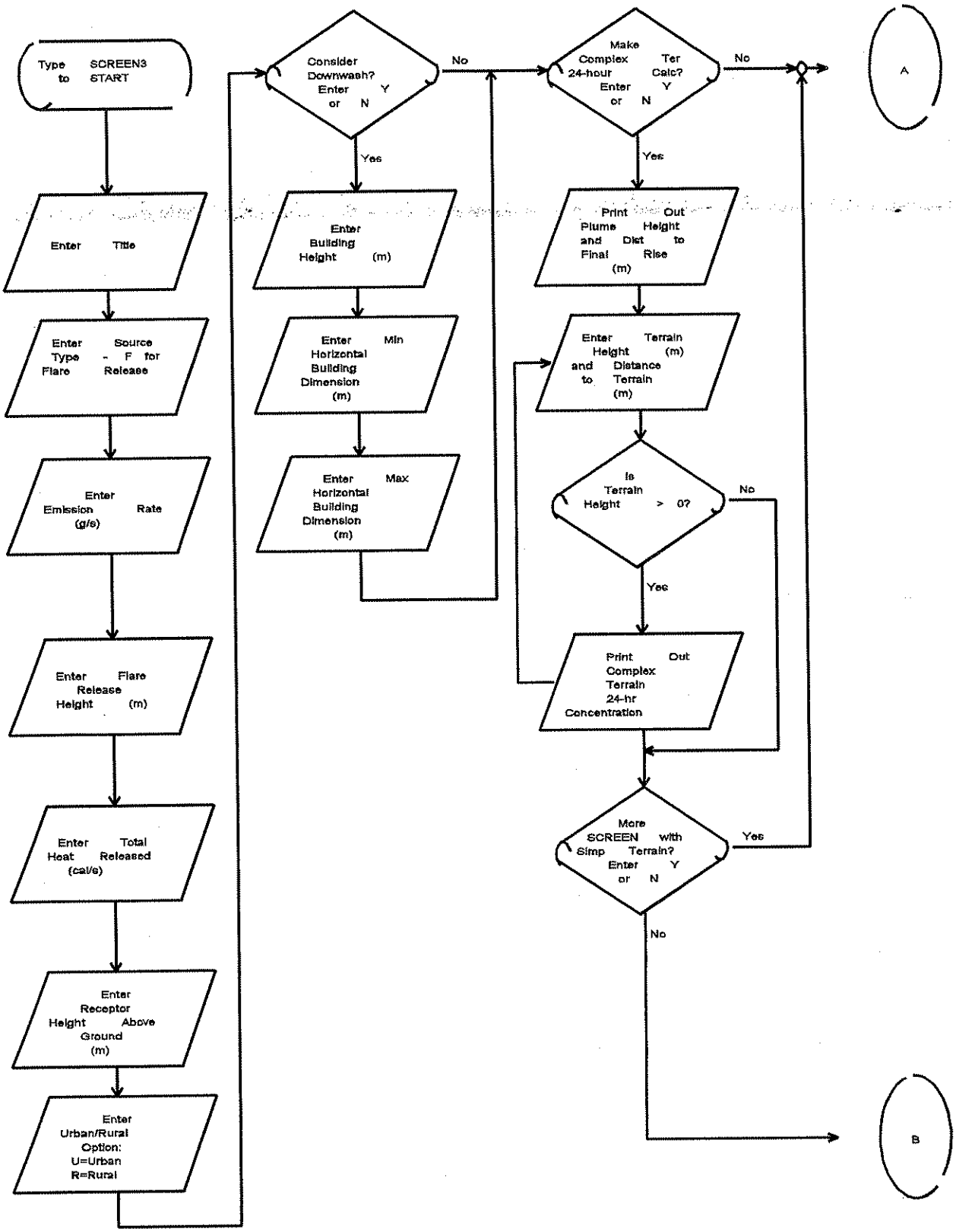


Figure 6. Flow Chart of Inputs and Outputs for SCREEN Flare Release (Page 1 of 2)

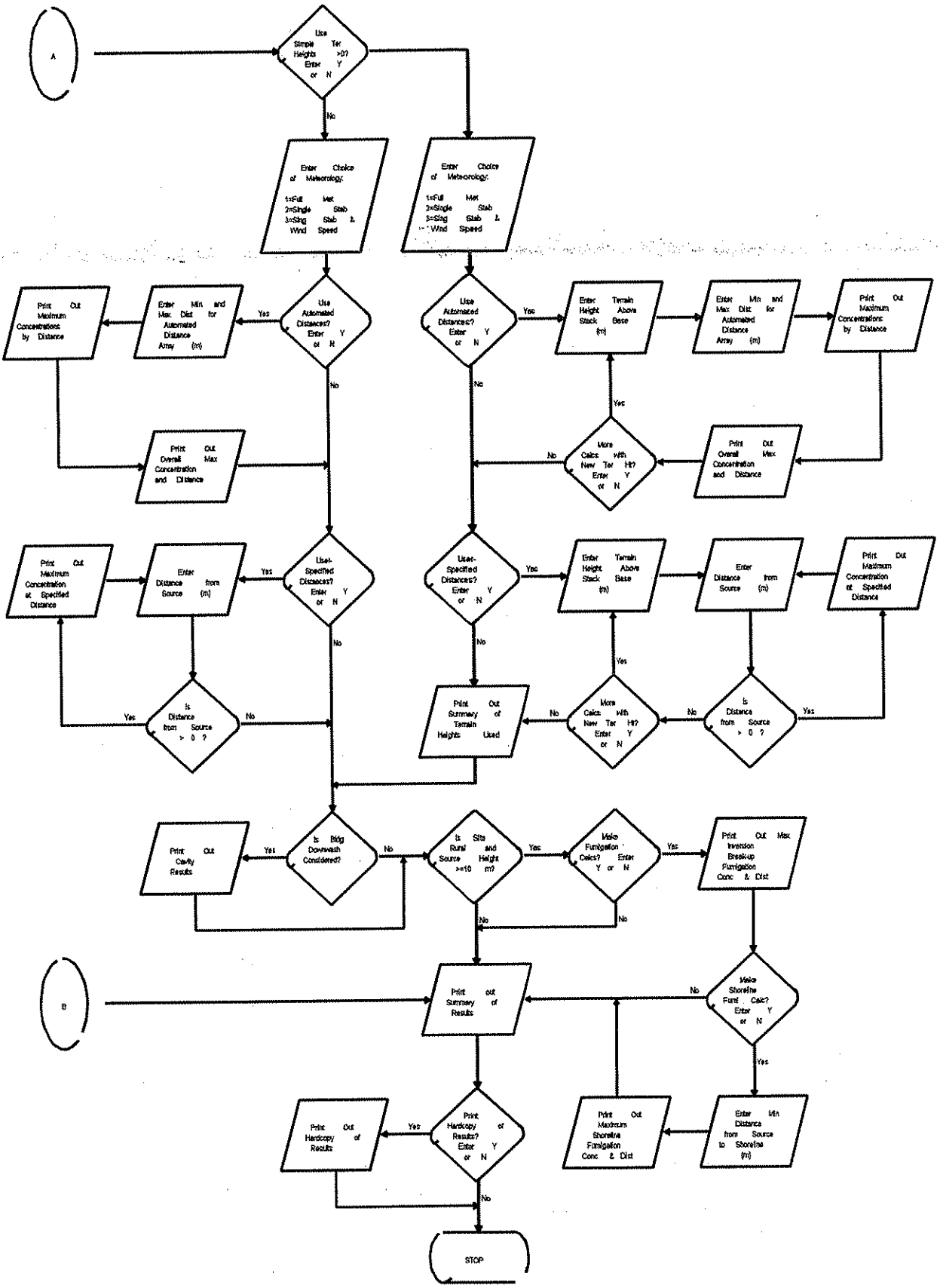


Figure 6. Flow Chart of Inputs and Outputs for SCREEN Flare Release (Page 2 of 2)

09/07/95
12:00:00

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 95250 ***

AREA SOURCE EXAMPLE

SIMPLE TERRAIN INPUTS:
SOURCE TYPE = AREA
EMISSION RATE (G/(S-M**2)) = .250000E-02
SOURCE HEIGHT (M) = 5.0000
LENGTH OF LARGER SIDE (M) = 200.0000
LENGTH OF SMALLER SIDE (M) = 200.0000
RECEPTOR HEIGHT (M) = .0000
URBAN/RURAL OPTION = URBAN
MODEL ESTIMATES DIRECTION TO MAX CONCENTRATION

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .000 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	MAX DIR (DEG)
150.	.4067E+05	5	1.0	1.0	10000.0	5.00	43.
200.	.3784E+05	5	1.0	1.0	10000.0	5.00	45.
300.	.2430E+05	5	1.0	1.0	10000.0	5.00	45.
400.	.1755E+05	5	1.0	1.0	10000.0	5.00	45.
500.	.1356E+05	5	1.0	1.0	10000.0	5.00	45.
600.	.1091E+05	5	1.0	1.0	10000.0	5.00	45.
700.	9028.	5	1.0	1.0	10000.0	5.00	45.
800.	7629.	5	1.0	1.0	10000.0	5.00	45.
900.	6559.	5	1.0	1.0	10000.0	5.00	44.
1000.	5718.	5	1.0	1.0	10000.0	5.00	45.

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 150. M:

168.	.4178E+05	5	1.0	1.0	10000.0	5.00	45.

Figure 7. SCREEN Area Source Example (Page 1 of 2)

****
*** SCREEN DISCRETE DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	MAX DIR (DEG)
5000.	718.1	5	1.0	1.0	10000.0	5.00	38.
10000.	321.3	5	1.0	1.0	10000.0	5.00	1.
20000.	150.4	5	1.0	1.0	10000.0	5.00	31.
50000.	71.25	4	1.0	1.0	320.0	5.00	11.

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M^3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	.4178E+05	168.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

Figure 7. SCREEN Area Source Example (Page 2 of 2)

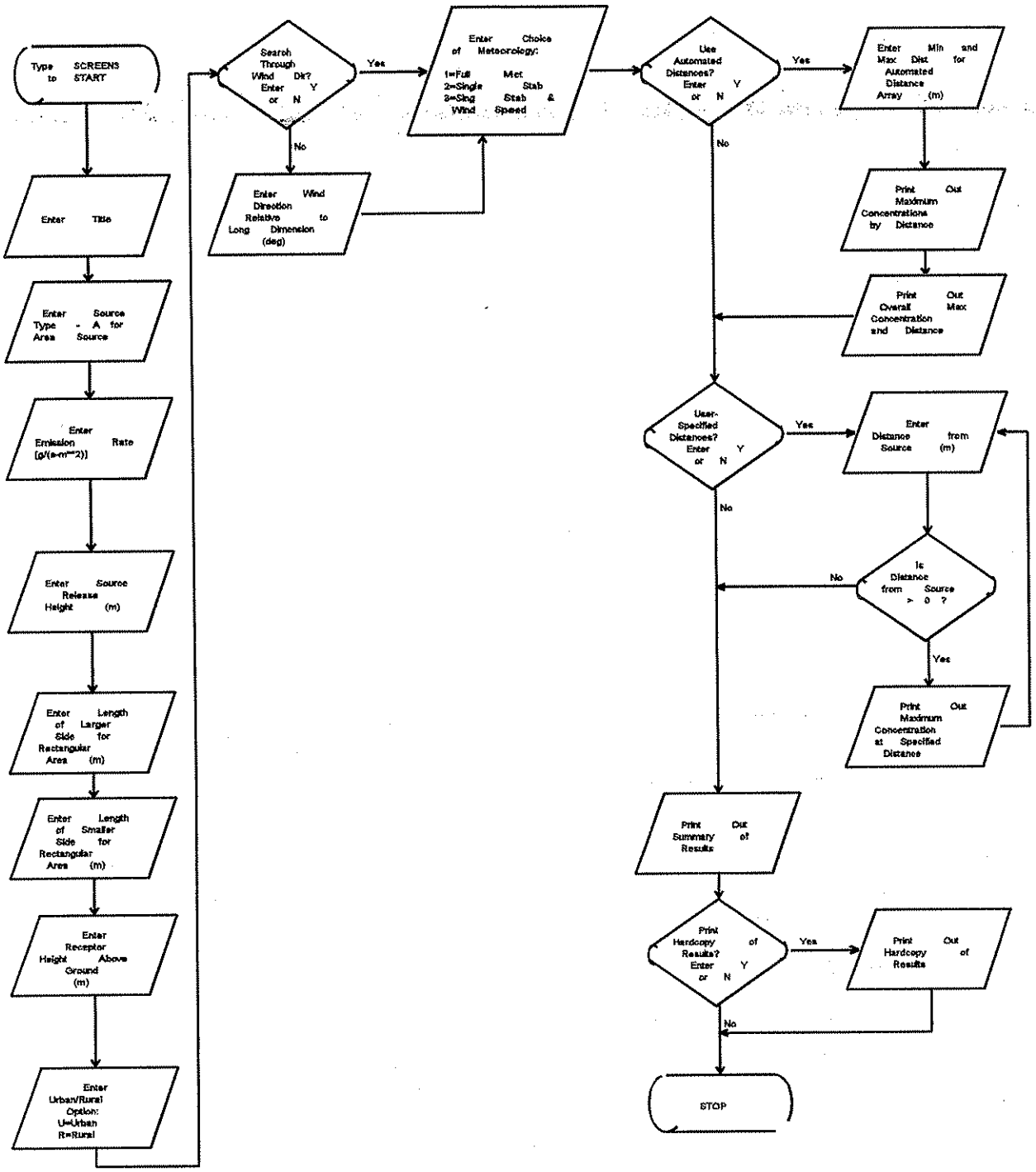


Figure 8. Flow Chart of Inputs and Outputs for SCREEN Area Source

09/07/95
12:00:00

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 95250 ***

VOLUME SOURCE EXAMPLE

SIMPLE TERRAIN INPUTS:
SOURCE TYPE = VOLUME
EMISSION RATE (G/S) = 1.00000
SOURCE HEIGHT (M) = 10.0000
INIT. LATERAL DIMEN (M) = 50.0000
INIT. VERTICAL DIMEN (M) = 20.0000
RECEPTOR HEIGHT (M) = .0000
URBAN/RURAL OPTION = RURAL

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .000 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
100.	.0000	0	.0	.0	.0	.00	.00	.00	
200.	239.5	6	1.0	1.0	10000.0	10.00	55.68	21.40	NO
300.	224.1	6	1.0	1.0	10000.0	10.00	58.61	21.82	NO
400.	209.1	6	1.0	1.0	10000.0	10.00	61.51	22.40	NO
500.	195.7	6	1.0	1.0	10000.0	10.00	64.41	22.96	NO
600.	183.8	6	1.0	1.0	10000.0	10.00	67.28	23.52	NO
700.	173.0	6	1.0	1.0	10000.0	10.00	70.15	24.06	NO
800.	163.2	6	1.0	1.0	10000.0	10.00	73.00	24.60	NO
900.	154.4	6	1.0	1.0	10000.0	10.00	75.84	25.12	NO
1000.	146.3	6	1.0	1.0	10000.0	10.00	78.66	25.64	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 100. M:

109.	257.5	6	1.0	1.0	10000.0	10.00	53.04	20.78	NO

```
DWASH=   MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

   ************************************
   *** SUMMARY OF SCREEN MODEL RESULTS ***
   ************************************

 CALCULATION      MAX CONC   DIST TO   TERRAIN
  PROCEDURE      (UG/M**3)   MAX (M)   HT (M)
-------------   ----------   -------   -------
SIMPLE TERRAIN     257.5        109.      0.


**************************************************
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
**************************************************
```

Figure 9. SCREEN Volume Source Example

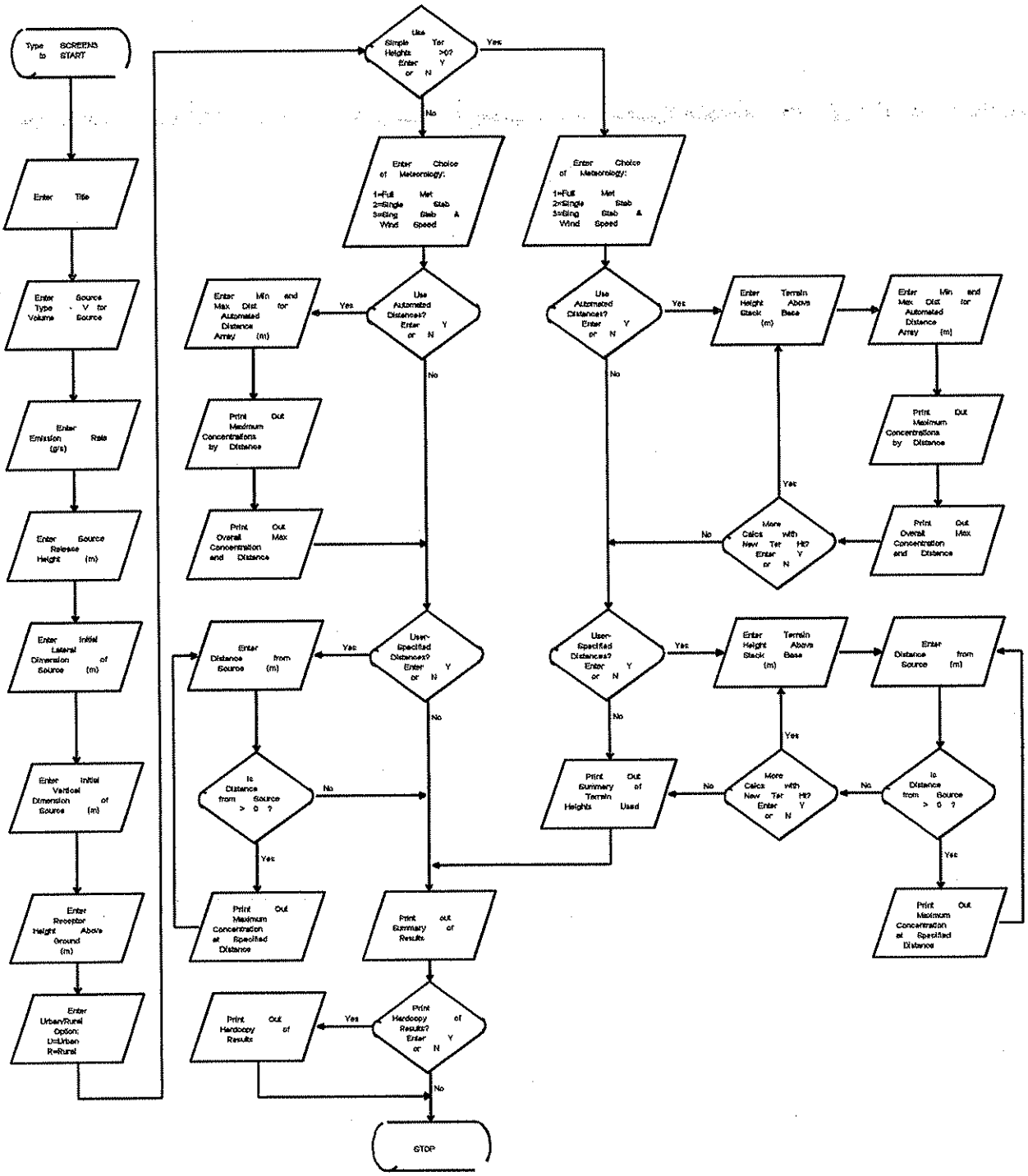


Figure 10. Flow Chart of Inputs and Outputs for SCREEN Volume Source

3. TECHNICAL DESCRIPTION

Most of the techniques used in the SCREEN model are based on assumptions and methods common to other EPA dispersion models. For the sake of brevity, lengthy technical descriptions that are available elsewhere are not duplicated here. This discussion will concentrate on how those methods are incorporated into SCREEN and on describing those techniques that are unique to SCREEN.

3.1 Basic Concepts of Dispersion Modeling

SCREEN uses a Gaussian plume model that incorporates source-related factors and meteorological factors to estimate pollutant concentration from continuous sources. It is assumed that the pollutant does not undergo any chemical reactions, and that no other removal processes, such as wet or dry deposition, act on the plume during its transport from the source. The Gaussian model equations and the interactions of the source-related and meteorological factors are described in Volume II of the ISC user's guide (EPA, 1995b), and in the Workbook of Atmospheric Dispersion Estimates (Turner, 1970).

The basic equation for determining ground-level concentrations under the plume centerline is:

$$
\begin{aligned}
X = Q/(2\pi u_s \sigma_y \sigma_z)\{ & \exp[-\tfrac{1}{2}((z_r-h_e)/\sigma_z)^2] \\
& + \exp[-\tfrac{1}{2}((z_r+h_e)/\sigma_z)^2] \\
& + \sum_{N=1}^{k} [\, \exp[-\tfrac{1}{2}((z_r-h_e-2Nz_i)/\sigma_z)^2] \\
& + \exp[-\tfrac{1}{2}((z_r+h_e-2Nz_i)/\sigma_z)^2] \\
& + \exp[-\tfrac{1}{2}((z_r-h_e+2Nz_i)/\sigma_z)^2] \\
& + \exp[-\tfrac{1}{2}((z_r+h_e+2Nz_i)/\sigma_z)^2] \,] \,\} \qquad (1)
\end{aligned}
$$

where:

X	=	concentration (g/m^3)
Q	=	emission rate (g/s)
π	=	3.141593
u_s	=	stack height wind speed (m/s)
σ_y	=	lateral dispersion parameter (m)
σ_z	=	vertical dispersion parameter (m)
z_r	=	receptor height above ground (m)
h_e	=	plume centerline height (m)
z_i	=	mixing height (m)
k	=	summation limit for multiple reflections of plume off of the ground and elevated inversion, usually ≤ 4.

Note that for stable conditions and/or mixing heights greater than or equal to 10,000m, unlimited mixing is assumed and the summation term is assumed to be zero.

Equation 1 is used to model the plume impacts from point sources, flare releases, and volume releases in SCREEN. The SCREEN volume source option uses a virtual point source approach, as described in Volume II (Section 1.2.2) of the ISC model user's guide (EPA, 1995b). The user inputs the initial lateral and vertical dimensions of the volume source, as described in Section 2.7 above.

The SCREEN model uses a numerical integration algorithm for modeling impacts from area sources, as described in Volume II (Section 1.2.3) of the ISC model user's guide (EPA, 1995b). The area source is assumed to be a rectangular shape, and the model can be used to estimate concentrations within the area.

3.2 Worst Case Meteorological Conditions

SCREEN examines a range of stability classes and wind speeds to identify the "worst case" meteorological conditions, i.e., the combination of wind speed and stability that results in the maximum ground level concentrations. The wind speed and stability class combinations used by SCREEN are given in Table 2. The 10-meter wind speeds given in Table 2 are adjusted to stack height by SCREEN using the wind profile power law exponents given in Table 3-1 of the screening procedures document. For release heights of less than 10 meters, the wind speeds listed in Table 2 are used without adjustment. For distances greater than 50 km (available with the discrete distance option), SCREEN sets 2 m/s as the lower limit for the 10-meter wind speed to avoid unrealistic transport times. Table 2 includes some cases that may not be considered standard stability class/wind speed combinations, namely E with winds less than 2 m/s, and F with winds greater than 3 m/s. The combinations of E and winds of 1 - 1.5 m/s are often excluded because the algorithm developed by Turner (1964) to determine stability class from routine National Weather Service (NWS) observations excludes cases of E stability for wind speeds less than 4 knots (2 m/s). These combinations are included in SCREEN because they are valid combinations that could appear in a data set using on-site meteorological data with another stability class method. A wind speed of 6 knots (the highest speed for F stability in Turner's scheme) measured at a typical NWS anemometer height of 20 feet (6.1 meters) corresponds to a 10 meter wind speed of 4 m/s under F stability. Therefore the combination of F and 4 m/s has been included.

Table 2. Wind Speed and Stability Class Combinations Used by the SCREEN Model

Stability Class	10-m Wind Speed (m/s)												
	1	1.5	2	2.5	3	3.5	4	4.5	5	8	10	15	20
A	*	*	*	*	*								
B	*	*	*	*	*	*	*	*	*				
C	*	*	*	*	*	*	*	*	*	*	*		
D	*	*	*	*	*	*	*	*	*	*	*	*	*
E	*	*	*	*	*	*	*	*	*				
F	*	*	*	*	*	*	*						

The user has three choices of meteorological data to examine. The first choice, which should be used in most applications, is to use "Full Meteorology" which examines all six stability classes (five for urban sources) and their associated wind speeds. Using full meteorology with the automated distance array (described in Section 2), SCREEN prints out the maximum concentration for each distance, and the overall maximum and associated distance. The overall maximum concentration from SCREEN represents the controlling 1-hour value corresponding to the result from Procedures (a) - (c) in Step 4 of Section 4.2. Full meteorology is used instead of the A, C, and E or F subset used by the hand calculations because SCREEN provides maximum

concentrations as a function of distance, and stability classes A, C and E or F may not be controlling for all distances. The use of A, C, and E or F may also not give the maximum concentration when building downwash is considered. The second choice is to input a single stability class (1 = A, 2 = B, ..., 6 = F). SCREEN will examine a range of wind speeds for that stability class only. Using this option the user is able to determine the maximum concentrations associated with each of the individual procedures, (a) - (c), in Step 4 of Section 4.2. The third choice is to specify a single stability class and wind speed. The last two choices were originally put into SCREEN to facilitate testing only, but they may be useful if particular meteorological conditions are of concern. However, they are not recommended for routine uses of SCREEN.

The mixing height used in SCREEN for neutral and unstable conditions (classes A-D) is based on an estimate of the mechanically driven mixing height. The mechanical mixing height, z_m (m), is calculated (Randerson, 1984) as

$$z_m = 0.3\ u^*/f \qquad (2)$$

where: u^* = friction velocity (m/s)
f = Coriolis parameter ($9.374 \times 10^{-5}\ s^{-1}$ at 40° latitude)

Using a log-linear profile of the wind speed, and assuming a surface roughness length of about 0.3m, u^* is estimated from the 10-meter wind speed, u_{10}, as

$$u^* = 0.1\ u_{10} \qquad (3)$$

Substituting for u^* in Equation 2 we have

$$z_m = 320\ u_{10}. \qquad (4)$$

The mechanical mixing height is taken to be the minimum daytime mixing height. To be conservative for limited mixing calculations, if the value of z_m from Equation 3 is less than the plume height, h_e, then the mixing height used in calculating the concentration is set equal to $h_e + 1$. For stable conditions, the mixing height is set equal to 10,000m to represent unlimited mixing.

3.3 Plume Rise for Point Sources

The use of the methods of Briggs to estimate plume rise are discussed in detail in Section 1.1.4 of Volume II of the ISC user's guide (EPA, 1995b). These methods are also incorporated in the SCREEN model.

Stack tip downwash is estimated following Briggs (1973, p.4)

for all sources except those employing the Schulman-Scire downwash algorithm. Buoyancy flux for non-flare point sources is calculated from

$$F_b = g v_s d_s^2 (T_s - T_a) / (4T_s), \quad (5)$$

which is described in Section 4 of the screening procedures document and is equivalent to Briggs' (1975, p. 63) Equation 12.

Buoyancy flux for flare releases is estimated from

$$F_b = 1.66 \times 10^{-5} \times H, \quad (6)$$

where H is the total heat release rate of the flare (cal/s). This formula was derived from Equation 4.20 of Briggs (1969), assuming T_a = 293K, p = 1205 g/m, c_p = 0.24 cal/gK, and that the sensible heat release rate, Q_H = (0.45) H. The sensible heat rate is based on the assumption that 55 percent of the total heat released is lost due to radiation (Leahey and Davies, 1984). The buoyancy flux for flares is calculated in SCREEN by assuming effective stack parameters of v_s = 20 m/s, T_s = 1,273K, and solving for an effective stack diameter, $d_s = 9.88 \times 10^{-4} (Q_H)^{0.5}$.

The momentum flux, which is used in estimating plume rise for building downwash effects, is calculated from,

$$F_m = v_s^2 d_s^2 T_a / (4T_s). \quad (7)$$

The ISC user's guide (EPA, 1995b) describes the equations used to estimate buoyant plume rise and momentum plume rise for both unstable/neutral and stable conditions. Also described are transitional plume rise and how to estimate the distance to final rise. Final plume rise is used in SCREEN for all cases with the exception of the complex terrain screening procedure and for building downwash effects.

The buoyant line source plume rise formulas that are used for the Schulman-Scire downwash scheme are described in Section 1.1.4.11 of Volume II of the ISC user's guide (EPA, 1995b). These formulas apply to sources where $h_s \leq H_b + 0.5L_b$. For sources subject to downwash but not meeting this criterion, the downwash algorithms of Huber and Snyder (EPA, 1995b) are used, which employ the Briggs plume rise formulas referenced above.

3.4 Dispersion Parameters

The formulas used for calculating vertical (σ_z) and lateral (σ_y) dispersion parameters for rural and urban sites are described in Section 1.1.5 of Volume II of the ISC user's guide (EPA, 1995b).

3.5 Buoyancy Induced Dispersion

Throughout the SCREEN model, with the exception of the Schulman-Scire downwash algorithm, the dispersion parameters, σ_y and σ_z, are adjusted to account for the effects of buoyancy induced dispersion as follows:

$$\sigma_{ye} = (\sigma_y^2 + (\Delta h/3.5)^2)^{0.5} \quad (8)$$

$$\sigma_{ze} = (\sigma_z^2 + (\Delta h/3.5)^2)^{0.5}$$

where Δh is the distance-dependent plume rise. (Note that for inversion break-up and shoreline fumigation, distances are always beyond the distance to final rise, and therefore Δh = final plume rise).

3.6 Building Downwash

3.6.1 Cavity Recirculation Region

The cavity calculations are a revision of the procedure described in the Regional Workshops on Air Quality Modeling Summary Report, Appendix C (EPA, 1983), and are based largely on results published by Hosker (1984).

If non-zero building dimensions are input to SCREEN for either point or flare releases, then cavity calculations will be made as follows. The cavity height, h_c (m), is estimated based on the following equation from Hosker (1984):

$$h_c = h_b\ (1.0 + 1.6\ \exp\ (-1.3L/h_b)), \quad (9)$$

where: h_b = building height (m)
L = alongwind dimension of the building (m).

Using the plume height based on momentum rise at two building heights downwind, including stack tip downwash, a critical (i.e., minimum) stack height wind speed is calculated that will just put the plume into the cavity (defined by plume centerline height = cavity height). The critical wind speed is then adjusted from stack height to 10-meter using a power law with an exponent of 0.2 to represent neutral conditions (no attempt is made to differentiate between urban or rural sites or different stability classes). If the critical wind speed (adjusted to 10-meters) is less than or equal to 20 m/s, then a cavity concentration is calculated, otherwise the cavity concentration is assumed to be zero. Concentrations within the cavity, X_c, are estimated by the following approximation (Hosker, 1984):

$$X_c = Q/(1.5\ A_p\ u) \quad (10)$$

where: Q = emission rate (g/s)
A_p = $H_b \cdot W$ = cross-sectional area of the building normal to the wind (m^2)

W = crosswind dimension of the building (m)
u = wind speed (m/s).

For u, a value of one-half the stack height critical wind speed is used, but not greater than 10 m/s and not less than 1 m/s. Thus, the calculation of X_c is linked to the determination of a critical wind speed. The concentration, X_c, is assumed to be uniform within the cavity.

The cavity length, x_r, measured from the lee side of the building, is estimated by the following (Hosker, 1984):

(1) for short buildings ($L/h_b \leq 2$),

$$x_r = \frac{(A)(W)}{1.0 + B(W/h_b)} \qquad (11)$$

(2) for long buildings ($L/h_b \geq 2$),

$$x_r = \frac{1.75\ (W)}{1.0 + 0.25(W/h_b)} \qquad (12)$$

where: h_b = building height (m)
L = alongwind building dimension (m)
W = crosswind building dimension (m)
$A = -2.0 + 3.7\ (L/h_b)^{-1/3}$, and
$B = -0.15 + 0.305\ (L/h_b)^{-1/3}$.

The equations above for cavity height, concentration and cavity length are all sensitive to building orientation through the terms L, W and A_p. Therefore, the entire cavity procedure is performed for two orientations, first with the minimum horizontal dimension alongwind and second with the maximum horizontal dimension alongwind. For screening purposes, this is thought to give reasonable bounds on the cavity estimates. The first case will maximize the cavity height, and therefore minimize the critical wind speed. However, the A_p term will also be larger and will tend to reduce concentrations. The highest concentration that potentially effects ambient air should be used as the controlling value for the cavity procedure.

3.6.2 Wake Region

The calculations for the building wake region are based on the ISC model (EPA, 1995b). The wake effects are divided into two regions, one referred to as the "near wake" extending from $3L_b$ to $10L_b$ (L_b is the lesser of the building height, h_b, and maximum projected width), and the other as the "far wake" for distances greater than $10L_b$. For the SCREEN model, the maximum projected width is calculated from the input minimum and maximum

horizontal dimensions as $(L^2 + W^2)^{0.5}$. The remainder of the building wake calculations in SCREEN are based on the ISC user's guide (EPA, 1995b).

It should be noted that, unlike the cavity calculation, the comparison of plume height (due to momentum rise at two building heights) to wake height to determine if wake effects apply does not include stack tip downwash. This is done for consistency with the ISC model.

3.7 Fumigation

3.7.1 Inversion Break-up Fumigation

The inversion break-up screening calculations are based on procedures described in the Workbook of Atmospheric Dispersion Estimates (Turner, 1970). The distance to maximum fumigation is based on an estimate of the time required for the mixing layer to develop from the top of the stack to the top of the plume, using Equation 5.5 of Turner (1970):

$$x_{max} = u\, t_m = (u\, p_a\, c_p/R)\ (\Delta\Theta/\Delta z)\ (h_i - h_s)\ [(h_i + h_s)/2] \qquad (13)$$

where:

x_{max} = downwind distance to maximum concentration (m)
t_m = time required for mixing layer to develop from top of stack to top of plume(s)
u = wind speed (2.5 m/s assumed)
p_a = ambient air density (1205 g/m^3 at 20°C)
c_p = specific heat of the air at constant pressure (0.24 cal/gK)
R = net rate of sensible heating of an air column by solar radiation (about 67 cal/m^2/s)
$\Delta\Theta/\Delta z$ = vertical potential temperature gradient (assume 0.035 K/m for F stability)
h_i = height of the top of the plume (m) = $h_e + 2\sigma_{ze}$ (h_e is the plume centerline height)
h_s = physical stack height (m).
σ_{ze} = vertical dispersion parameter incorporating buoyancy induced dispersion (m)

The values of u and $\Delta\Theta/\Delta z$ are based on assumed conditions of stability class F and stack height wind speed of 2.5 m/s for the stable layer above the inversion. The value of h_i incorporates the effect of buoyancy induced dispersion on σ_z, however, elevated terrain effects are ignored. The equation above is solved by iteration, starting from an initial guess of x_{max} = 5,000m.

The maximum ground-level concentration due to inversion break-up fumigation, X_f, is calculated from Equation 5.2 of Turner (1970).

$$X_f = Q/[(2\pi)^{0.5} u (\sigma_{ye}+h_e/8)(h_e+2\sigma_{ze})] \quad (14)$$

where Q is the emission rate (g/s), and other terms are defined above. The dispersion parameters, σ_{ye} and σ_{ze}, incorporate the effects of buoyancy induced dispersion. If the distance to the maximum fumigation is less than 2000m, then SCREEN sets $X_f = 0$ since for such short distances the fumigation concentration is not likely to exceed the unstable/limited mixing concentration estimated by the simple terrain screening procedure.

3.7.2 Shoreline Fumigation

For rural sources within 3000m of a large body of water, maximum shoreline fumigation concentrations can be estimated by SCREEN. A stable onshore flow is assumed with stability class F ($\Delta\Theta/\Delta z$ = 0.035 K/m) and stack height wind speed of 2.5 m/s. Similar to the inversion break-up fumigation case, the maximum ground-level shoreline fumigation concentration is assumed to occur where the top of the stable plume intersects the top of the well-mixed thermal internal boundary layer (TIBL).

An evaluation of coastal fumigation models (EPA, 1987b) has shown that the TIBL height as a function of distance inland is well-represented in rural areas with relatively flat terrain by an equation of the form:

$$h_T = A\,[x]^{0.5} \quad (15)$$

where: h_T = height of the TIBL (m)
A = TIBL factor containing physics needed for TIBL parameterization (including heat flux) ($m^{½}$)
x = inland distance from shoreline (m).

Studies (e.g. Misra and Onlock, 1982) have shown that the TIBL factor, A, ranges from about 2 to 6. For screening purposes, A is conservatively set equal to 6, since this will minimize the distance to plume/TIBL intersection, and therefore tend to maximize the concentration estimate.

As with the inversion break-up case, the distance to maximum ground-level concentration is determined by iteration. The equation used for the shoreline fumigation case is:

$$x_{max} = [(h_e + 2\sigma_{ze})/6]^2 - x_s \quad (16)$$

where:
x_{max} = downwind distance to maximum concentration (m)
x_s = shortest distance from source to shoreline (m)
h_e = plume centerline height (m)
σ_{ze} = vertical dispersion parameter incorporating buoyancy induced dispersion (m)

Plume height is based on the assumed F stability and 2.5 m/s wind

speed, and the dispersion parameter (σ_{ze}) incorporates the effects of buoyancy induced dispersion. If x_{max} is less than 200m, then no shoreline fumigation calculation is made, since the plume may still be influenced by transitional rise and its interaction with the TIBL is more difficult to model.

The maximum ground-level concentration due to shoreline fumigation, X_f, is also calculated from Turner's (1970) Equation 5.2:

$$X_f = Q/[(2\pi)^{0.5}u(\sigma_{ye}+h_e/8)(h_e+2\sigma_{ze})] \quad (14)$$

with σ_{ye} and σ_{ze} incorporating the effects of buoyancy induced dispersion.

Even though the calculation of x_{max} above accounts for the distance from the source to the shoreline in x_s, extra caution should be used in interpreting results as the value of x_s increases. The use of A=6 in Equations 15 and 16 may not be conservative in these cases since there will be an increased chance that the plume will be calculated as being below the TIBL height, and therefore no fumigation concentration estimated. Whereas a smaller value of A could put the plume above the TIBL with a potentially high fumigation concentration. Also, this screening procedure considers only TIBLs that begin formation at the shoreline, and neglects TIBLs that begin to form offshore.

3.8 Complex Terrain 24-hour Screen

The SCREEN model also contains the option to calculate maximum 24-hour concentrations for terrain elevations above stack height. A final plume height and distance to final rise are calculated based on the VALLEY model screening technique (Burt, 1977) assuming conditions of F stability (E for urban) and a stack height wind speed of 2.5 m/s. Stack tip downwash is incorporated in the plume rise calculation.

The user then inputs a terrain height and a distance (m) for the nearest terrain feature likely to experience plume impaction, taking into account complex terrain closer than the distance to final rise. If the plume height is at or below the terrain height for the distance entered, then SCREEN will make a 24-hour average concentration estimate using the VALLEY screening technique. If the terrain is above stack height but below plume centerline height, then SCREEN will make a VALLEY 24-hour estimate (assuming F or E and 2.5 m/s), and also estimate the maximum concentration across a full range of meteorological conditions using simple terrain procedures with terrain "chopped off" at physical stack height, and select the higher estimate. Calculations continue until a terrain height of zero is entered. For the VALLEY model concentration SCREEN will calculate a sector-averaged ground-level concentration with the plume centerline height (h_e) as the larger of 10.0m or the difference between plume height and terrain

height. The equation used is

$$X = \frac{2.032\ Q}{\sigma_{ze}\ u\ x} \exp\ [-0.5(h_e/\sigma_{ze})^2]. \qquad (17)$$

Note that for screening purposes, concentrations are not attenuated for terrain heights above plume height. The dispersion parameter, σ_{ze}, incorporates the effects of buoyancy induced dispersion (BID). For the simple terrain calculation SCREEN examines concentrations for the full range of meteorological conditions and selects the highest ground level concentration. Plume heights are reduced by the chopped off terrain height for the simple terrain calculation. To adjust the concentrations to 24-hour averages, the VALLEY screening value is multiplied by 0.25, as done in the VALLEY model, and the simple terrain value is multiplied by the 0.4 factor used in Step 5 of Section 4.2.

3.9 Non-regulatory Options

3.9.1 Brode 2 Mixing Height Option

The Brode 2 Mixing Height (Brode, 1991) option calculates a mixing height that is calculated based on the calculated plume height, the anemometer height wind speed and a stability-dependent factor which is compared to a stability-dependent minimum mixing height. The algorithm is expressed as:

$$ZI = MAX\ (ZI_{min},\ HE*(1.0 + ZI_{fact} * U_{10})$$

where ZI_{min} is 300m for A, 100m for B, and 30m for both C and D stabilities, and ZI_{fact} is 0.01 for A, 0.02 for B, 0.03 for C, and 0.04 for D stability. Brode found that the results of using this algorithm appear to provide a fairly consistent level of conservatism relative to the ISCST model.

3.9.2 Variable Anemometer Height Option

The anemometer height is used in adjusting the wind speed to stack height wind speed for cavity calculations based on the following power law function:

```
U0 = U0TEN*(AMAX1(10,HS)/ZREF)**0.20
U1 = U1TEN*(AMAX1(10,HS)/ZREF)**0.20

where:  U0TEN - initial wind speed value set to 20 m/s.
        U1TEN - initial wind speed value set to 1 m/s.
        HS    - stack height
        ZREF  - anemometer height
```

U0TEN is adjusted downward in speed and U1TEN is adjusted upward in speed in an iterative process until the minimum wind speed, UC, that will entrain the plume into a building's cavity is found. The critical wind speed is then adjusted to the anemometer height, using the reverse of the power law above, as follows:

$$UC10M = UC * (ZREF/AMAX1(10,HS))**0.20$$

where: UC10M - represents the critical wind speed at anemometer height, ZREF.

The variables HANE and ZREF are used interchangeably.

3.9.3 Schulman-Scire Building Downwash/Cavity Option

A non-regulatory building downwash/cavity algorithm (Schulman and Scire,1993) has been added as a non-regulatory option. This option is based on the diffusing plume approach with fractional capture of the plume by the near-wake recirculation cavity.

Extensive parameterization is used to define a building length scale, roof recirculation cavity, maximum height of the roof cavity, and the length of the downwind recirculation cavity (as measured from the lee face of the building).

A building length scale for flow and diffusion is defined as:

$$R = BS \exp(2/3) * BL \exp(1/3)$$

where: BS is the smaller of the building height and projected width for the minimum side orientation
BL is the larger of the building height and projected width for the maximum side orientation.

The length of the roof recirculation cavity is estimated as:

$$LC = 0.9 * R$$

The roof cavity will reattach to the roof if LC < L where L is the downwind length of the roof.

The maximum height of the roof cavity is defined as:

$$HC = 0.22 * R \quad \text{at } x = 0.5 * R$$

where x is the downwind distance.

The program uses two algorithms to determine the height and width of the downwind recirculation cavity or near-wake. If the roof cavity reattaches to the roof, the height and width are:

HR = H where H is the building height

WR = W where W is the projected width normal to the wind.

If the roof cavity does not reattach, the height and width are:

HR = H + HC
WR = 0.6 * H + 1.1*W

and measured from the lee face of the building.

The length of the recirculation region is calculated using the formula:

$$LR = 1.8W/[(L/H)^{0.3} * (1.0 + 0.24W/H)]$$

with the restriction that L/H is set equal to 0.3 if L/H < 0.3, and L/H is set equal to 3.0 if L/H > 3.0.

The ground level concentration in the recirculation region is calculated assuming the mass fraction of the plume, below HR at the downwind end of the region, is captured into the region. The

calculation assumes a Gaussian distribution of the vertical mass of the plume at that point using the following formula:

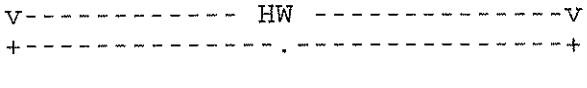
$$\sigma_z = 0.21R^{0.25} x^{0.75}$$

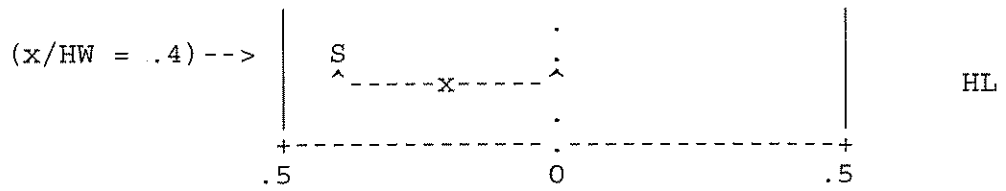
The cavity concentration, C, is then calculated as a fraction of the plume content using the following empirical formula:

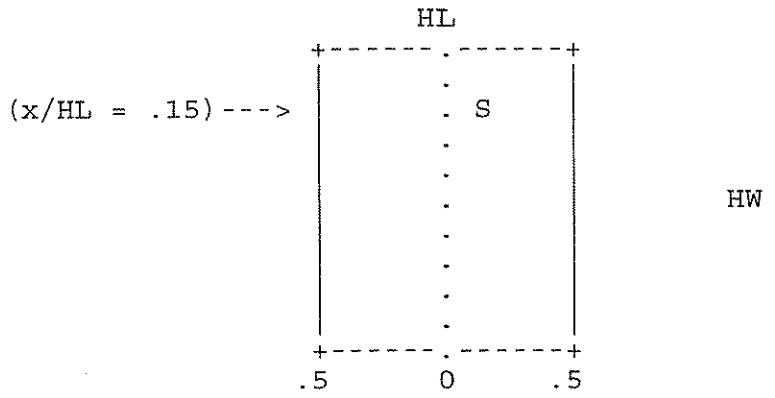
$$C = f_c * B_0 Q/(B_0 w_0 A_0 + u_H s^2)$$

where: f_c is the mass fraction of the plume captured in the recirculation region
B_0 is an empirical constant approximately equal to 16
w_0 is the stack exit speed
A_0 is the stack exit face area
u_H is the upwind wind speed at roof level
s^2 is the "stretched string" distance between the stack base and the receptor.

The position of the stack on the roof is taken into consideration. A ratio is calculated based on the distance of the stack from a centerline of the building perpendicular to the wind flow for each of two orientations divided by the along wind flow length of the building. Below is an example where the along wind flow length is HW and the distance of the stack from the centerline is "x"; producing a ratio of .4. Note that the ratio is always a positive number. Ratios greater than .5 indicate that the stack is not on the roof.




(x/HW = .4)-->
S
x
HL
.5
0
.5


HL
(x/HL = .15)--->
S
HW
.5
0
.5

4. NOTE TO PROGRAMMERS

The SCREEN model executable provided on SCRAM was compiled using the Microsoft FORTRAN Compiler, Version 5.1. It was compiled with the emulator library, meaning that the executable file (SCREEN3.EXE) will run with or without a math coprocessor chip. A minimum of 256 KB of RAM is required to execute the model. Provided in a compressed file on SCRAM are the executable file, SCREEN3.EXE; the FORTRAN source code files, SCREEN3A.FOR, SCREEN3B.FOR, SCREEN3C.FOR, MAIN.INC, and DEPVAR.INC; a sample input file, EXAMPLE.DAT; an associated output file, EXAMPLE.OUT; and this document, the SCREEN3 Model User's Guide (in WordPerfect 5.1 format), SCREEN3R.WPF. Also included is a READ.ME file with instructions on extracting SCREEN.

The SCREEN model provided was compiled with the following Microsoft FORTRAN compile command:

```
FL /FPi /Gt /FeSCREEN3.EXE SCREEN3A.FOR SCREEN3B.FOR SCREEN3C.FOR
```

where the /FPi compile option specifies the emulator library and causes floating point operations to be processed using in-line instructions rather than library CALLs (used for faster execution), the /Gt option specifies the data threshold for storing data in a new segment, and the /FeSCREEN3.EXE option specifies the name of the executable file. SCREEN3 uses the FORTRAN default unit number of 5 (five) for reading input from the keyboard and 6 (six) for writing to the screen. The unit number for the disk output file, SCREEN.OUT, is set internally to 9, and the unit number for writing inputs to the data file, SCREEN.DAT, is set to 7. These unit numbers are assigned to the variables IRD, IPRT, IOUT, and IDAT, respectively, and are initialized in BLOCK DATA at the end of the SCREEN3.FOR source file. The Microsoft version of SCREEN also uses the GETDAT and GETTIM system routines for retrieving the date and time. These routines require the variables to be INTEGER*2, and they may differ on other compilers.

The following simple change can be made to the SCREEN source file, SCREEN3A.FOR, in order to create a version that will accept a user-specified output filename, instead of automatically writing to the file SCREEN.OUT. An ASCII text editor or a wordprocessor that has an ASCII or nondocument mode may be used to edit the source file. Delete the letter C from Column 1 on lines 262 to 265. They should read as follows:

```
      WRITE(IPRT,*) ' '
94    WRITE(IPRT,*) 'ENTER NAME FOR OUTPUT FILE'
      READ(IRD,95) OUTFIL
95    FORMAT(A12)
```

With this change, if the user-specified filename already exists, it will be overwritten. If desired, the OPEN statement on line 267 may also be changed to read as follows:

```
OPEN(IOUT,FILE=OUTFIL,STATUS='NEW',ERR=94)
```

With this additional change, the program will continue to prompt for the input filename until a filename that doesn't already exist is entered by the user. Before recompiling, make any other changes that may be necessary for the particular compiler being used. It should be noted that without optimization, the source file may be too large to compile as a single unit. In this case, the SCREEN3A.FOR and SCREEN3B.FOR files may need to be split up into separate modules that can be compiled separately and then linked together.

The SCREEN model code has also been successfully compiled with the Lahey F77/EM-32 Fortran compiler, with the following compile commands:

```
F77L3 SCREEN3A.FOR /NO /NW /D1LAHEY
F77L3 SCREEN3B.FOR /NO /NW
```

where the /NO option suppresses the printing of compile options, /NW suppresses certain warning messages, and /D1LAHEY defines LAHEY for implementing the conditional compile block of Lahey-specific statements for retrieving the system date and time for the output file. Follow the instructions with the Lahey compiler for linking the model to create an executable file.

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Appendix D – SCREEN3 Air Dispersion Modeling Results

Appendix D-Air Dispersion Model-Volume of Largest Containers for Chemicals of Concern

Ammonia: 1,350 cubic feet
Chlorine: 1,458 cubic feet
Boron trichloride: 330 cubic feet
Hydrogen chloride: 636 cubic feet
Phosphine, 15%: 11.023 pounds (126 cubic feet)

01/24/05
09:10:02

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Milpitas Chlorine2

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	11.2000
STACK HEIGHT (M)	=	6.1000
STK INSIDE DIAM (M)	=	.0762
STK EXIT VELOCITY (M/S)	=	.8333
STK GAS EXIT TEMP (K)	=	293.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	URBAN
BUILDING HEIGHT (M)	=	.0000
MIN HORIZ BLDG DIM (M)	=	.0000
MAX HORIZ BLDG DIM (M)	=	.0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
VOLUME FLOW RATE = .38000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .001 M**4/S**2.

*** STABILITY CLASS 6 ONLY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	.0000	6	1.0	1.0	10000.0	6.19	.11	.09	NO
100.	.3140E+05	6	1.0	1.0	10000.0	6.19	10.79	7.46	NO
200.	.1089E+05	6	1.0	1.0	10000.0	6.19	21.17	14.03	NO
300.	5466.	6	1.0	1.0	10000.0	6.19	31.18	19.93	NO
400.	3348.	6	1.0	1.0	10000.0	6.19	40.85	25.30	NO
500.	2300.	6	1.0	1.0	10000.0	6.19	50.21	30.24	NO
600.	1700.	6	1.0	1.0	10000.0	6.19	59.27	34.82	NO
700.	1323.	6	1.0	1.0	10000.0	6.19	68.06	39.11	NO
800.	1068.	6	1.0	1.0	10000.0	6.19	76.59	43.15	NO
900.	886.4	6	1.0	1.0	10000.0	6.19	84.89	46.97	NO
1000.	752.3	6	1.0	1.0	10000.0	6.19	92.97	50.60	NO
MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:									
57.	.4835E+05	6	1.0	1.0	10000.0	6.19	6.31	4.45	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED

DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	.4835E+05	57.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

01/24/05
09:32:20

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Milpitas Chlorine2

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	11.2000
STACK HEIGHT (M)	=	6.1000
STK INSIDE DIAM (M)	=	.0762
STK EXIT VELOCITY (M/S)	=	.8333
STK GAS EXIT TEMP (K)	=	293.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	URBAN
BUILDING HEIGHT (M)	=	.0000
MIN HORIZ BLDG DIM (M)	=	.0000
MAX HORIZ BLDG DIM (M)	=	.0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
VOLUME FLOW RATE = .38000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .001 M**4/S**2.

*** STABILITY CLASS 6 ONLY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
400.	3348.	6	1.0	1.0	10000.0	6.19	40.85	25.30	NO
500.	2300.	6	1.0	1.0	10000.0	6.19	50.21	30.24	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 400. M:

400.	3348.	6	1.0	1.0	10000.0	6.19	40.85	25.30	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SCREEN DISCRETE DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
450.	2744.	6	1.0	1.0	10000.0	6.19	45.57	27.82	NO
460.	2644.	6	1.0	1.0	10000.0	6.19	46.50	28.31	NO
440.	2850.	6	1.0	1.0	10000.0	6.19	44.63	27.32	NO
430.	2962.	6	1.0	1.0	10000.0	6.19	43.69	26.82	NO
435.	2905.	6	1.0	1.0	10000.0	6.19	44.16	27.07	NO
150.	.1743E+05	6	1.0	1.0	10000.0	6.19	16.03	10.84	NO
120.	.2448E+05	6	1.0	1.0	10000.0	6.19	12.89	8.84	NO
130.	.2175E+05	6	1.0	1.0	10000.0	6.19	13.94	9.51	NO
110.	.2768E+05	6	1.0	1.0	10000.0	6.19	11.84	8.15	NO
105.	.2947E+05	6	1.0	1.0	10000.0	6.19	11.31	7.81	NO
106.	.2911E+05	6	1.0	1.0	10000.0	6.19	11.42	7.88	NO
107.	.2874E+05	6	1.0	1.0	10000.0	6.19	11.53	7.95	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	.2947E+05	105.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

01/24/05
09:18:23

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Milpitas HCl2

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	8.00000
STACK HEIGHT (M)	=	6.1000
STK INSIDE DIAM (M)	=	.0762
STK EXIT VELOCITY (M/S)	=	1.0964
STK GAS EXIT TEMP (K)	=	293.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	URBAN
BUILDING HEIGHT (M)	=	.0000
MIN HORIZ BLDG DIM (M)	=	.0000
MAX HORIZ BLDG DIM (M)	=	.0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
VOLUME FLOW RATE = .50000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

*** STABILITY CLASS 6 ONLY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	.0000	6	1.0	1.0	10000.0	6.29	.12	.09	NO
100.	.2218E+05	6	1.0	1.0	10000.0	6.29	10.79	7.46	NO
200.	7753.	6	1.0	1.0	10000.0	6.29	21.17	14.03	NO
300.	3898.	6	1.0	1.0	10000.0	6.29	31.18	19.93	NO
400.	2389.	6	1.0	1.0	10000.0	6.29	40.85	25.30	NO
500.	1641.	6	1.0	1.0	10000.0	6.29	50.21	30.24	NO
600.	1214.	6	1.0	1.0	10000.0	6.29	59.27	34.82	NO
700.	944.3	6	1.0	1.0	10000.0	6.29	68.06	39.11	NO
800.	762.4	6	1.0	1.0	10000.0	6.29	76.59	43.15	NO
900.	633.0	6	1.0	1.0	10000.0	6.29	84.89	46.97	NO
1000.	537.2	6	1.0	1.0	10000.0	6.29	92.97	50.60	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:

58.	.3343E+05	6	1.0	1.0	10000.0	6.29	6.42	4.52	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED

DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	.3343E+05	58.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

01/24/05
10:41:08

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Milpitas HCl2

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	8.00000
STACK HEIGHT (M)	=	6.1000
STK INSIDE DIAM (M)	=	.0762
STK EXIT VELOCITY (M/S)	=	1.0964
STK GAS EXIT TEMP (K)	=	293.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	URBAN
BUILDING HEIGHT (M)	=	.0000
MIN HORIZ BLDG DIM (M)	=	.0000
MAX HORIZ BLDG DIM (M)	=	.0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
VOLUME FLOW RATE = .50000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

*** STABILITY CLASS 6 ONLY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	.0000	6	1.0	1.0	10000.0	6.29	.12	.09	NO
100.	.2218E+05	6	1.0	1.0	10000.0	6.29	10.79	7.46	NO
200.	7753.	6	1.0	1.0	10000.0	6.29	21.17	14.03	NO
300.	3898.	6	1.0	1.0	10000.0	6.29	31.18	19.93	NO
400.	2389.	6	1.0	1.0	10000.0	6.29	40.85	25.30	NO
500.	1641.	6	1.0	1.0	10000.0	6.29	50.21	30.24	NO
600.	1214.	6	1.0	1.0	10000.0	6.29	59.27	34.82	NO
700.	944.3	6	1.0	1.0	10000.0	6.29	68.06	39.11	NO
800.	762.4	6	1.0	1.0	10000.0	6.29	76.59	43.15	NO
900.	633.0	6	1.0	1.0	10000.0	6.29	84.89	46.97	NO
1000.	537.2	6	1.0	1.0	10000.0	6.29	92.97	50.60	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:

58.	.3343E+05	6	1.0	1.0	10000.0	6.29	6.42	4.52	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED

DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SCREEN DISCRETE DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
210.	7145.	6	1.0	1.0	10000.0	6.29	22.19	14.65	NO
205.	7439.	6	1.0	1.0	10000.0	6.29	21.68	14.34	NO
50.	.3210E+05	6	1.0	1.0	10000.0	6.29	5.45	3.86	NO
20.	262.0	6	1.0	1.0	10000.0	6.29	2.19	1.58	NO
30.	9168.	6	1.0	1.0	10000.0	6.29	3.28	2.35	NO
40.	.2425E+05	6	1.0	1.0	10000.0	6.29	4.37	3.11	NO
10.	.3722E-06	6	4.0	4.0	10000.0	5.98	1.10	.79	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	.3343E+05	58.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

01/24/05
10:47:19

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Milpitas Ammonia2

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	7.00000
STACK HEIGHT (M)	=	6.1000
STK INSIDE DIAM (M)	=	.0762
STK EXIT VELOCITY (M/S)	=	1.7542
STK GAS EXIT TEMP (K)	=	293.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	URBAN
BUILDING HEIGHT (M)	=	.0000
MIN HORIZ BLDG DIM (M)	=	.0000
MAX HORIZ BLDG DIM (M)	=	.0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
VOLUME FLOW RATE = .80000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .004 M**4/S**2.

*** STABILITY CLASS 6 ONLY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	.0000	6	1.0	1.0	10000.0	6.50	.13	.11	NO
100.	.1894E+05	6	1.0	1.0	10000.0	6.50	10.79	7.46	NO
200.	6737.	6	1.0	1.0	10000.0	6.50	21.17	14.03	NO
300.	3399.	6	1.0	1.0	10000.0	6.50	31.18	19.93	NO
400.	2086.	6	1.0	1.0	10000.0	6.50	40.85	25.30	NO
500.	1434.	6	1.0	1.0	10000.0	6.50	50.21	30.24	NO
600.	1061.	6	1.0	1.0	10000.0	6.50	59.27	34.82	NO
700.	825.6	6	1.0	1.0	10000.0	6.50	68.06	39.11	NO
800.	666.6	6	1.0	1.0	10000.0	6.50	76.59	43.15	NO
900.	553.5	6	1.0	1.0	10000.0	6.50	84.89	46.97	NO
1000.	469.8	6	1.0	1.0	10000.0	6.50	92.97	50.60	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:

59.	.2735E+05	6	1.0	1.0	10000.0	6.50	6.52	4.60	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED

DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SCREEN DISCRETE DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
70.	.2616E+05	6	1.0	1.0	10000.0	6.50	7.60	5.33	NO
80.	.2387E+05	6	1.0	1.0	10000.0	6.50	8.66	6.05	NO
90.	.2134E+05	6	1.0	1.0	10000.0	6.50	9.73	6.76	NO
100.	.1894E+05	6	1.0	1.0	10000.0	6.50	10.79	7.46	NO
95.	.2011E+05	6	1.0	1.0	10000.0	6.50	10.26	7.11	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	.2735E+05	59.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

01/24/05
09:20:54

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Milpitas Ammonia2

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	7.00000
STACK HEIGHT (M)	=	6.1000
STK INSIDE DIAM (M)	=	.0762
STK EXIT VELOCITY (M/S)	=	1.7542
STK GAS EXIT TEMP (K)	=	293.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	URBAN
BUILDING HEIGHT (M)	=	.0000
MIN HORIZ BLDG DIM (M)	=	.0000
MAX HORIZ BLDG DIM (M)	=	.0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
VOLUME FLOW RATE = .80000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .004 M**4/S**2.

*** STABILITY CLASS 6 ONLY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	.0000	6	1.0	1.0	10000.0	6.50	.13	.11	NO
100.	.1894E+05	6	1.0	1.0	10000.0	6.50	10.79	7.46	NO
200.	6737.	6	1.0	1.0	10000.0	6.50	21.17	14.03	NO
300.	3399.	6	1.0	1.0	10000.0	6.50	31.18	19.93	NO
400.	2086.	6	1.0	1.0	10000.0	6.50	40.85	25.30	NO
500.	1434.	6	1.0	1.0	10000.0	6.50	50.21	30.24	NO
600.	1061.	6	1.0	1.0	10000.0	6.50	59.27	34.82	NO
700.	825.6	6	1.0	1.0	10000.0	6.50	68.06	39.11	NO
800.	666.6	6	1.0	1.0	10000.0	6.50	76.59	43.15	NO
900.	553.5	6	1.0	1.0	10000.0	6.50	84.89	46.97	NO
1000.	469.8	6	1.0	1.0	10000.0	6.50	92.97	50.60	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:

59.	.2735E+05	6	1.0	1.0	10000.0	6.50	6.52	4.60	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED

DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	.2735E+05	59.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

01/24/05
09:22:54

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Milpitas Phosphine2

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	2.00000
STACK HEIGHT (M)	=	6.1000
STK INSIDE DIAM (M)	=	.0762
STK EXIT VELOCITY (M/S)	=	.2193
STK GAS EXIT TEMP (K)	=	293.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	URBAN
BUILDING HEIGHT (M)	=	.0000
MIN HORIZ BLDG DIM (M)	=	.0000
MAX HORIZ BLDG DIM (M)	=	.0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
VOLUME FLOW RATE = .10000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .000 M**4/S**2.

*** STABILITY CLASS 6 ONLY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	.0000	6	1.0	1.0	10000.0	5.95	.11	.08	NO
100.	5753.	6	1.0	1.0	10000.0	5.95	10.79	7.46	NO
200.	1958.	6	1.0	1.0	10000.0	5.95	21.17	14.03	NO
300.	979.6	6	1.0	1.0	10000.0	5.95	31.18	19.93	NO
400.	599.1	6	1.0	1.0	10000.0	5.95	40.85	25.30	NO
500.	411.3	6	1.0	1.0	10000.0	5.95	50.21	30.24	NO
600.	304.0	6	1.0	1.0	10000.0	5.95	59.27	34.82	NO
700.	236.4	6	1.0	1.0	10000.0	5.95	68.06	39.11	NO
800.	190.8	6	1.0	1.0	10000.0	5.95	76.59	43.15	NO
900.	158.4	6	1.0	1.0	10000.0	5.95	84.89	46.97	NO
1000.	134.4	6	1.0	1.0	10000.0	5.95	92.97	50.60	NO
MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:									
54.	9335.	6	1.0	1.0	10000.0	5.95	5.98	4.23	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED

DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	9335.	54.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

01/24/05
10:53:58

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Milpitas Phosphine2

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	2.00000
STACK HEIGHT (M)	=	6.1000
STK INSIDE DIAM (M)	=	.0762
STK EXIT VELOCITY (M/S)	=	.2193
STK GAS EXIT TEMP (K)	=	293.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	URBAN
BUILDING HEIGHT (M)	=	.0000
MIN HORIZ BLDG DIM (M)	=	.0000
MAX HORIZ BLDG DIM (M)	=	.0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
VOLUME FLOW RATE = .10000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .000 M**4/S**2.

*** STABILITY CLASS 6 ONLY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	.0000	6	1.0	1.0	10000.0	5.95	.11	.08	NO
100.	5753.	6	1.0	1.0	10000.0	5.95	10.79	7.46	NO
200.	1958.	6	1.0	1.0	10000.0	5.95	21.17	14.03	NO
300.	979.6	6	1.0	1.0	10000.0	5.95	31.18	19.93	NO
400.	599.1	6	1.0	1.0	10000.0	5.95	40.85	25.30	NO
500.	411.3	6	1.0	1.0	10000.0	5.95	50.21	30.24	NO
600.	304.0	6	1.0	1.0	10000.0	5.95	59.27	34.82	NO
700.	236.4	6	1.0	1.0	10000.0	5.95	68.06	39.11	NO
800.	190.8	6	1.0	1.0	10000.0	5.95	76.59	43.15	NO
900.	158.4	6	1.0	1.0	10000.0	5.95	84.89	46.97	NO
1000.	134.4	6	1.0	1.0	10000.0	5.95	92.97	50.60	NO
MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:									
54.	9335.	6	1.0	1.0	10000.0	5.95	5.98	4.23	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED

DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SCREEN DISCRETE DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
60.	9176.	6	1.0	1.0	10000.0	5.95	6.52	4.60	NO
70.	8425.	6	1.0	1.0	10000.0	5.95	7.59	5.33	NO
80.	7484.	6	1.0	1.0	10000.0	5.95	8.66	6.05	NO
90.	6569.	6	1.0	1.0	10000.0	5.95	9.73	6.76	NO
85.	7016.	6	1.0	1.0	10000.0	5.95	9.20	6.40	NO
83.	7201.	6	1.0	1.0	10000.0	5.95	8.98	6.26	NO
86.	6925.	6	1.0	1.0	10000.0	5.95	9.30	6.48	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	9335.	54.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

01/24/05
09:24:41

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Milpitas Boron Trichloride2

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	12.6000
STACK HEIGHT (M)	=	6.1000
STK INSIDE DIAM (M)	=	.0762
STK EXIT VELOCITY (M/S)	=	.6578
STK GAS EXIT TEMP (K)	=	293.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	URBAN
BUILDING HEIGHT (M)	=	.0000
MIN HORIZ BLDG DIM (M)	=	.0000
MAX HORIZ BLDG DIM (M)	=	.0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
VOLUME FLOW RATE = .30000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .001 M**4/S**2.

*** STABILITY CLASS 6 ONLY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	.0000	6	1.0	1.0	10000.0	6.12	.11	.08	NO
100.	.3559E+05	6	1.0	1.0	10000.0	6.12	10.79	7.46	NO
200.	.1228E+05	6	1.0	1.0	10000.0	6.12	21.17	14.03	NO
300.	6156.	6	1.0	1.0	10000.0	6.12	31.18	19.93	NO
400.	3769.	6	1.0	1.0	10000.0	6.12	40.85	25.30	NO
500.	2588.	6	1.0	1.0	10000.0	6.12	50.21	30.24	NO
600.	1913.	6	1.0	1.0	10000.0	6.12	59.27	34.82	NO
700.	1488.	6	1.0	1.0	10000.0	6.12	68.06	39.11	NO
800.	1201.	6	1.0	1.0	10000.0	6.12	76.59	43.15	NO
900.	997.4	6	1.0	1.0	10000.0	6.12	84.89	46.97	NO
1000.	846.4	6	1.0	1.0	10000.0	6.12	92.97	50.60	NO
MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:									
56.	.5561E+05	6	1.0	1.0	10000.0	6.12	6.20	4.38	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED

DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	.5561E+05	56.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

01/24/05
11:02:24

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Milpitas Boron Trichloride2

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	12.6000
STACK HEIGHT (M)	=	6.1000
STK INSIDE DIAM (M)	=	.0762
STK EXIT VELOCITY (M/S)	=	.5701
STK GAS EXIT TEMP (K)	=	293.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	URBAN
BUILDING HEIGHT (M)	=	.0000
MIN HORIZ BLDG DIM (M)	=	.0000
MAX HORIZ BLDG DIM (M)	=	.0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
VOLUME FLOW RATE = .26000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .000 M**4/S**2.

*** STABILITY CLASS 6 ONLY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	.0000	6	1.0	1.0	10000.0	6.09	.11	.08	NO
100.	.3572E+05	6	1.0	1.0	10000.0	6.09	10.79	7.46	NO
200.	.1229E+05	6	1.0	1.0	10000.0	6.09	21.17	14.03	NO
300.	6159.	6	1.0	1.0	10000.0	6.09	31.18	19.93	NO
400.	3770.	6	1.0	1.0	10000.0	6.09	40.85	25.30	NO
500.	2589.	6	1.0	1.0	10000.0	6.09	50.21	30.24	NO
600.	1914.	6	1.0	1.0	10000.0	6.09	59.27	34.82	NO
700.	1489.	6	1.0	1.0	10000.0	6.09	68.06	39.11	NO
800.	1202.	6	1.0	1.0	10000.0	6.09	76.59	43.15	NO
900.	997.5	6	1.0	1.0	10000.0	6.09	84.89	46.97	NO
1000.	846.5	6	1.0	1.0	10000.0	6.09	92.97	50.60	NO
MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:									
56.	.5622E+05	6	1.0	1.0	10000.0	6.09	6.20	4.38	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED

DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SCREEN DISCRETE DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
90.	.4066E+05	6	1.0	1.0	10000.0	6.09	9.73	6.76	NO
100.	.3572E+05	6	1.0	1.0	10000.0	6.09	10.79	7.46	NO
200.	.1229E+05	6	1.0	1.0	10000.0	6.09	21.17	14.03	NO
210.	.1132E+05	6	1.0	1.0	10000.0	6.09	22.19	14.65	NO
205.	.1179E+05	6	1.0	1.0	10000.0	6.09	21.68	14.34	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	.5622E+05	56.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

CEQA ADDENDUM

Mitigated Negative Declaration No. EA2004-7 for Ark Baptist Church Expansion

July 27, 2011

City of Milpitas
Planning Division
455 E. Calaveras Boulevard
Milpitas, CA 95008

Staff contact: Tiffany Brown, Assistant Planner, (408) 586-3283

SUMMARY OF THIS DOCUMENT

This addendum assesses the environmental impact(s) of changing the scope of the development in association with the project located at 380 Montague Expressway (APN: 086-36-044), as required by the California Environmental Quality Act (CEQA) (California Public Resources Code 21000 et seq.) and in compliance with the State CEQA Guidelines (14 California Code of Regulations 15000 et seq.).

The City of Milpitas, as the lead agency under CEQA, will consider the potential environmental impacts of changing the scope of the project listed above when it considers the project in its entirety. This Addendum is an informational document, intended to be used in the planning and decision making process as provided for under Section 15164 of the CEQA Guidelines. The Addendum does not recommend approval or denial of the proposed refinements to the Project. The fundamental conclusion of this addendum is that the proposed changes to the Project will not result in new significant impacts nor substantially increase the severity of previously disclosed impacts beyond those already identified in the Mitigated Negative Declaration EA2004-7. Thus, a subsequent or supplemental Negative Declaration need not be prepared.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

Under CEQA Guidelines Section 15164, an addendum to an adopted negative declaration shall be prepared if only minor technical changes or additions are necessary or none of the conditions described in Section 15162 calling for the preparation of a subsequent negative declaration or Environmental Impact Report (EIR) have occurred. Under Section 15162, the lead agency shall prepare an (EIR) if there are any new significant environmental effects associated with the refined project. With respect to the Project, the refinements are only minor technical changes and do not result in any new significant environmental effect(s); therefore, the refined Project does not require an EIR. Therefore, this addendum analyzes the Project refinements as required under the CEQA Guidelines, Sections 15162 and 15164.

BACKGROUND

Mitigated Negative Declaration No. EA2004-7 was drafted to analyze the potential environmental impacts of the 2,450 square foot Church with sensitive receptors at 380 Montague Expressway. At the time of the project submittal (2004), the project was locating within the Industrial Zoning District. When an applicant with sensitive receptors (children and older

people) proposes to locate in an industrial area of the city, there is always the concern of the appropriateness/compatibility of the two uses (religious facility and industrial) next to each other due to the risk from hazardous materials that may be in used within a close proximity to the sensitive receptors. A risk assessment was completed, identifying all the hazardous material impacts and mitigations and concludes that there is a low potential of a catastrophic event occurring in the area of the Ark Baptist Church and therefore is a less then significant impact.

UPDATED PROJECT DESCRIPTION

The project scope has changed from the approved conditional use permit in 2004. The zoning has changed from an Industrial Zone to a Mixed Use Very High Density Zone in 2008 with the adoption of the Transit Area Specific Plan and the church proposes and expansion to occupy the entire building. This represents a change from 2,450 square feet to approximately 15,000 square feet.

PROJECT IMPACTS

The project results in no additional impacts to "traffic", "air quality" or other areas identified in the CEQA initial study checklist because those impacts were identified in the certified Transit Area Specific Plan Final EIR. Due to the changes of zoning, the project results in a less than significant impact to "Hazardous Materials."

Risk assessment details

Because of the history of the site (the zoning) staff requested a new risk assessment be completed. The Risk Assessment identifies four facilities that store and uses toxic gases within a mile from the project site. The four facilities are: Micrel Semiconductor located at 2180 Fortune Drive in San Jose (approximately 1,500 lineal feet away from project site), Fortune Data Center located at 2001 Fortune Drive, San Jose (approximately 2,100 lineal feet from project site), Dynamic Details Inc. at 1831 and 1992 Tarob Court in Milpitas (approximately 700 away from project site), and Olympus America located at 2400 Ringwood Ave in San Jose (approximately 1,200 lineal feet away from project site).

The risk assessment concludes that based on the types of chemicals stored onsite, Dynamic Details Inc., Olympus America, and Fortune Data Center are unlikely that a release of any of the chemicals would impact the church or pose an environmental risk to individuals attending the church. The risk assessment also states that Micrel Semiconductor uses chemicals that are considered chemicals of concern and due to the potential for a release of these chemicals may impact the proposed church facility. The risk assessment provided air dispersion models for Micrel and the different chemicals. The air dispersion models show a radius around the Micrel building which indicates the IDLH sphere of influence. To assess the potential effects of these chemicals, the National Institute of Occupational Health and Safety (NIOSH) has established an evaluation criteria known as the "Immediately Dangerous to Life and Health" (IDLH) level. The IDLH is considered a maximum concentration above which only a highly reliable breathing apparatus providing maximum worker protection was permitted. In determining IDLH values, the ability of a worker to escape without loss of life or irreversible health effects was considered along with severe eye or respiratory irritation. As a safety margin, IDLH values were based on the effects that might occur as a consequence of a 30-minute exposure of a healthy adult. It can be assumed that the health risks are increased when applied to children and the elderly. The dispersion models show that the location of the new church is outside the IDLH radius and

therefore the risk assessment concludes that it is unlikely the Church or individuals attending church services would be impacted by a worst-case release of chemicals from neighboring facilities. In addition, the risk assessment informs us that the neighboring facilities appear to be in compliance with environmental agencies and past releases were not identified, therefore, there is a low potential of a catastrophic event occurring in the area of the Ark Baptist Church. Therefore there is a less then significant impact and no mitigations are required.

PLANNING AND DEVELOPMENT DEPARTMENT FINDINGS

It is the finding of the Planning Division that the previous environmental document as herein amended may be used to fulfill the environmental review requirements of the current project. Because the current project meets the conditions for the application of State CEQA Guidelines Section 15164, preparation of a new EIR or Negative Declaration is not required for the issue areas discussed above. Discretionary processing of the Ark Baptist Church Expansion Project may now proceed with the understanding that any substantial changes in the proposal may be subject to further environmental review.

ENVIRONMENTAL CHECKLIST FORM

1. Project title: Ark Baptist Church

2. Lead agency name and address: City of Milpitas
455 E. Calaveras, Blvd, Milpitas, CA 95035
3. Contact person and phone number: Tiffany Brown, 408-586-3283

4. Project location: 380 Montague Expressway

5. Project sponsor's name and address: John Wang, 1288 Kifer Road #207, Sunnyvale, CA 94608

6. General plan designation: Boulevard Very High Density Mixed Use

7. Zoning: Mixed Use Very High Density with Site and Architectural Review Overlay District (MXD3-S) and within the Transit Area Specific Plan

8. Description of project: CONDITIONAL USE PERMIT AMENDMENT NO. UA11-0002A request to expand an existing religious facility by approximately 12,550 square feet within an existing building.

9. Surrounding land uses and setting: The project site is located on a 1-acre parcel with a 15,000 square foot Industrial building that is surrounded by parking on the northern and eastern sides. Landscaping is located on all sides of the facility; however, the majority is located along the western and northern ends of the site. The site has one large garbage collection area that is physically separated from the parking lot by a fence with slats. The subject site and surrounding zoning is zoned Mixed Use Very High Density (MXD3) and is part of the Transit Area Specific Plan. A vicinity map of the subject site location is included on page 3.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:
The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐	Aesthetics	☐	Agriculture and Forestry Resources	☐	Air Quality
☐	Biological Resources	☐	Cultural Resources	☐	Geology /Soils
☐	Greenhouse Gas Emissions	☐	Hazards & Hazardous Materials	☐	Hydrology / Water Quality
☐	Land Use / Planning	☐	Mineral Resources	☐	Noise
☐	Population / Housing	☐	Public Services	☐	Recreation
☐	Transportation/Traffic	☐	Utilities / Service Systems	☐	Mandatory Findings of Significance

DETERMINATION: (To be completed by the Lead Agency)
On the basis of this initial evaluation:

☑ I find that the proposed project COULD NOT have a significant effect on the environment, an addendum to the adopted Mitigated NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

_____ _____
Signature Date

_____ _____
Printed Name For

Figure 2: Vicinity Map

EVALUATION OF ENVIRONMENTAL IMPACTS:

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

   a. Earlier Analysis Used. Identify and state where they are available for review.
   b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
   c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9. The explanation of each issue should identify:

   a. the significance criteria or threshold, if any, used to evaluate each question; and
   b. the mitigation measure identified, if any, to reduce the impact to less than significance

ISSUES

I. AESTHETICS	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	Information Source(s)
Would the project:					
1) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒	2,4, 8
2) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒	2,4, 8
3) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☒	2, 8
4) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒	1, 8

II. AGRICULTURAL AND FOREST RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	Information Source(s)
Would the project:					
1) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒	1,2,4
2) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒	1,2
3) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)) or timberland (as defined by Public Resources Code section 4526)?	☐	☐	☐	☒	
4) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒	
5) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒	1,2

III. AIR QUALITY

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	Information Source(s)
Would the project:					
1) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒	1,10
2) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☐	☒	1,10
3) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is classified as non-attainment under an applicable federal or state ambient air quality standard including releasing emissions which exceed quantitative thresholds for ozone precursors?	☐	☐	☐	☒	3,10
4) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒	1, 2, 7
5) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒	1

IV. BIOLOGICAL RESOURCES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	Information Source(s)
Would the project:					
1) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒	1,4
2) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒	1,4
3) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒	1,4
4) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, impede the use of native wildlife nursery sites?	☐	☐	☐	☒	1,4
5) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒	1, 4, 8
6) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒	1,4

V. CULTURAL RESOURCES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	Information Source(s)
Would the project:					
1) Cause a substantial adverse change in the significance of an historical resource as defined in §15064.5?	☐	☐	☐	☒	1,4
2) Cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5?	☐	☐	☐	☒	1,4
3) Directly or indirectly destroy a unique paleontological resource or site, or unique geologic feature?	☐	☐	☐	☒	1,4
4) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☒	1,4

VI. GEOLOGY AND SOILS	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	Information Source(s)
Would the project:					
1) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:					
a) Rupture of a known earthquake fault, as described on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)	☐	☐	☒	☐	1,11, 12, 13
b) Strong seismic ground shaking?	☐	☐	☒	☐	1, 11, 12, 13
c) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐	1, 11, 12, 13
d) Landslides?	☐	☐	☐	☒	1
2) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☒	1, 11, 12, 13
3) Be located on a geologic unit or soil that is unstable, or that will become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒	1, 11, 12, 13
4) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒	1, 11, 12, 13
5) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒	1, 11, 12, 13

VII. GREENHOUSE GAS EMISSIONS	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	Information Source(s)
Would the project:					
1) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☐	☒	2, 3
2) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒	2, 3

VIII. HAZARDS AND HAZARDOUS MATERIALS	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	Information Source(s)
Would the project:					
1) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒	1
2) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒	1
3) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒	1
4) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐	1
5) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒	1
6) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒	1
7) Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒	1

VIII. HAZARDS AND HAZARDOUS MATERIALS					
	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	Information Source(s)
Would the project: 8) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐	1, 16

Environmental Setting
Comment:

8) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

Because of the history of the site (the zoning) staff requested a new risk assessment be completed. The Risk Assessment identifies four facilities that store and uses toxic gases within a mile from the project site. The four facilities are: Micrel Semiconductor located at 2180 Fortune Drive in San Jose (approximately 1,500 lineal feet away from project site), Fortune Data Center located at 2001 Fortune Drive, San Jose (approximately 2,100 lineal feet from project site), Dynamic Details Inc. at 1831 and 1992 Tarob Court in Milpitas (approximately 700 away from project site), and Olympus America located at 2400 Ringwood Ave in San Jose (approximately 1,200 lineal feet away from project site).

The risk assessment concludes that based on the types of chemicals stored onsite, Dynamic Details Inc., Olympus America, and Fortune Data Center are unlikely that a release of any of the chemicals would impact the church or pose an environmental risk to individuals attending the church. The risk assessment also states that Micrel Semiconductor uses chemicals that are considered chemicals of concern and due to the potential for a release of these chemicals may impact the proposed church facility. The risk assessment provided air dispersion models for Micrel and the different chemicals. The air dispersion models show a radius around the Micrel building which indicates the IDLH sphere of influence. To assess the potential effects of these chemicals, the National Institute of Occupational Health and Safety (NIOSH) has established an evaluation criteria known as the "Immediately Dangerous to Life and Health" (IDLH) level. The IDLH is considered a maximum concentration above which only a highly reliable breathing apparatus providing maximum worker protection was permitted. In determining IDLH values, the ability of a worker to escape without loss of life or irreversible health effects was considered along with severe eye or respiratory irritation. As a safety margin, IDLH values were based on the effects that might occur as a consequence of a 30-minute exposure of a healthy adult. It can be assumed that the health risks are increased when applied to children and the elderly. The dispersion models show that the location of the new church is outside the IDLH radius and therefore the risk assessment concludes that it is unlikely the Church or individuals attending church services would be impacted by a worst-case release of chemicals from neighboring

facilities. In addition, the risk assessment informs us that the neighboring facilities appear to be in compliance with environmental agencies and past releases were not identified, therefore, there is a low potential of a catastrophic event occurring in the area of the Ark Baptist Church. Therefore there is a less then significant impact and no mitigations are required.

IX. HYDROLOGY AND WATER QUALITY					
	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	Information Source(s)
Would the project:					
1) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☒	1,2
2) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒	1,2
3) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on-or off-site?	☐	☐	☐	☒	1,2
4) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on-or off-site?	☐	☐	☐	☒	1,2
5) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒	1,2
6) Otherwise substantially degrade water quality?	☐	☐	☐	☒	1,2

IX. HYDROLOGY AND WATER QUALITY	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	Information Source(s)
Would the project:					
7) Place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒	1,2, 14
8) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒	1, 2, 14
9) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒	1,2
10) Be subject to inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒	1,2

X. LAND USE	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	Information Source(s)
Would the project:					
1) Physically divide an established community?	☐	☐	☐	☒	1, 2
2) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒	1, 2
3) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒	1, 2, 4

XI. MINERAL RESOURCES					
	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	Information Source(s)
Would the project:					
1) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒	1, 4
2) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒	1, 4

XII. NOISE	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	Information Source(s)
Would the project result in:					
1) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐	1, 6
2) Exposure of persons to, or generation of, excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐	1, 6
3) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒	1, 6
4) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒	1, 6
5) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒	1, 6
6) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒	1, 6

XIII. POPULATION AND HOUSING	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	Information Source(s)
Would the project:					
1) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐	1, 2, 8
2) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒	1
3) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒	1

XIV. PUBLIC SERVICES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	Information Source(s)
Would the project: 1) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:					
Fire Protection?	☐	☐	☐	☒	1
Police Protection?	☐	☐	☐	☒	1
Schools?	☐	☐	☐	☒	1
Parks?	☐	☐	☐	☒	1
Other Public Facilities?	☐	☐	☐	☒	1

?

XV. RECREATION					
	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	Information Source(s)
Would the project:					
1) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒	1, 4, 8
2) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒	1, 4, 8

XVI. TRANSPORTATION/TRAFFIC	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	Information Source(s)
Would the project:					
1) Exceed the capacity of the existing circulation system, based on an applicable measure of effectiveness (as designated in a general plan policy, ordinance, etc.), taking into account all relevant components of the circulation system, including but limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐	1, 3
2) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐	1, 3
3) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒	1
4) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible land uses (e.g., farm equipment)?	☐	☐	☐	☒	1
5) Result in inadequate emergency access?	☐	☐	☐	☒	1
6) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☒	1

XVII. UTILITIES AND SERVICE SYSTEMS	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	Information Source(s)
Would the project:					
1) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒	1,2
2) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐	1,2
3) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐	1,2
4) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐	1,2
5) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐	1,2
6) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒	1,2
7) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒	1,2

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE					
	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	Information Source(s)
1) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☐	☒	1-15, A
2) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐	1-15, A
3) Does the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals?	☐	☐	☐	☒	1-15, A
4) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐	1-15, A

SOURCES
General Sources:

1. CEQA Guidelines - Environmental Thresholds (Professional judgment and expertise and review of project plans)
2. City of Milpitas General Plan (Land Use Chapter)
3. City of Milpitas General Plan (Circulation Chapter)
4. City of Milpitas General Plan (Open Space & Environmental Conservation Chapter)
5. City of Milpitas General Plan (Seismic and Safety Chapter)
6. City of Milpitas General Plan (Noise Chapter)
7. City of Milpitas General Plan (Housing Chapter)
8. City of Milpitas Zoning (Title XI)
9. California Department of Conservation, *Santa Clara County Important Farmland 2006,* Map. June 2005
10. Bay Area Air Quality Management District, CEQA Guidelines, June 2010
11. County of Santa Clara Department of Public Works, *Soil Map Sheet 19,* 1964
12. United States Department of Agriculture, Soil Conservation Service, *Soils of Santa Clara County,* 1968
13. California Department of Conservation, *Geologic Map of the San Francisco-San José Quadrangle,* 1990
14. Federal Emergency Management Agency, *Flood Insurance Rate Map, Community Panel Nos. 06085CIND0A, 06085C0058H, 06085C0059H, 06085C0066H, 06085C0067H, 06085C0068H, 06085C0069H.06085C0080H, 06085C0086H, and 06085C0087H*
15. Transit Area Specific Plan Final Environmental Impact Report, June 2008
16. Risk Assessment

Project Related Sources:

A. Project application, plans, Risk Assessment

Note: Authority cited: Sections 21083, 21083.05, Public Resources Code. Reference: Section 65088.4, Gov. Code; Sections 21080, 21083.05, 21095, Pub. Resources Code; *Eureka Citizens for Responsible Govt. v. City of Eureka* (2007) 147 Cal.App.4th 357; *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th at 1109; *San Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656.

MITIGATED NEGATIVE DECLARATION
ENVIRONMENTAL IMPACT ASSESSMENT (EIA) NO. P-EA2004-7

A NOTICE, PURSUANT TO THE CALIFORNIA ENVIRONMENTAL QUALITY ACT OF 1970, AS AMENDED (PUBLIC RESOURCES CODE 21,000 ET SEQ.), THAT THE NEXT GENERATION CHRISTIAN FELLOWSHIP FACILITY, WHEN IMPLEMENTED WITH THE REQUIRED MITIGATIONS, WILL NOT HAVE A SIGNIFICANT IMPACT ON THE ENVIRONMENT.

Project Title: Next Generation Christian Fellowship

Project Description: Locate a 2,450 square foot religious facility in an existing industrial building.

Project Location: 370 Montague Expressway, within the City of Milpitas, County of Santa Clara. Assessor's Parcel Numbers: 086-36-044.

Project Proponent: Tim Nguyen, 377 Paseo Refugio, Milpitas, CA 95035.

The City of Milpitas has reviewed the Environmental Impact Assessment (EIA) for the above project based on the information contained in the Environmental Information Form (EIF) and the Initial Study, the Committee finds that the project will have no significant impact upon the environment with the implementation of the following mitigation measures, as recommended in the EIA.

Required Mitigation Measures:

Mitigation Measure 1:

Prior to any building permit or occupancy permit for the project a risk assessment and all associated recommendations shall be required and approved by the City.

The risk assessment will identify and analyze any hazardous materials in the immediate area and will propose proper mitigation for monitoring of hazardous materials. By requiring and implementing a risk assessment, the impact will be reduced to a less than significant level.

Copies of the E.I.F. and E.I.A. may be obtained at the Milpitas Planning Department, 455 E. Calaveras Boulevard, Milpitas, CA 95035.

By:_____
Project Planner

Approved by the Planning Commission

_____ day of _____, 2004

Forward to the County Clerk on this _____ day of _____, 2004

By _____