PUNA GEOTHERMAL VENTURE

A Hawaii Partnership

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DIV. OF WATER & LAND DEVELOPMENT

February 6, 1992

Mr. Manabu Tagamori
Deputy Director
State of Hawaii
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96801

Dear Mr. Tagamori:

Subject: Puna Geothermal Venture
Facility Emergency Response Plan
Request for Concurrence for Version 6.1

Attached please find a complete copy of the Puna Geothermal Venture (PGV) Facility Emergency Response Plan (ERP), Version 6.1. This version of the ERP contains all of the changes made to Version 6 of the ERP, which was delivered to the Hawaii Department of Health (HDOH), the Hawaii County Planning Department (HCPD), and the Hawaii County Civil Defense Agency (HCCDA) on December 9, 1991. Specifically, Version 6.1 contains all changes requested by the Department of Land and Natural Resources (HDLNR) in Mr. Paty's letter to Mr. Harry Kim dated January 7, 1992.

All of the changes to Version 6 requested by HDLNR which are contained in this Version 6.1 have previously been delivered to your staff in the form of a facsimile "redline/strikeout" version.

After your review of the proposed changes, we would appreciate it if your office would confirm to HCPD and HCCDA (with a copy to the Hawaii County Mayor's Office) that all changes requested by HDLNR are now incorporated into the ERP.

92018.011

101 Aupuni Street, Suite 1014-B, Hilo, Hawaii 96720 • (808) 961-2184 • Facsimile (808) 961-3531

Thank you for the effort which you and your staff have expended in assisting PGV with the ERP. Please do not hesitate to contact me if your have any questions.

Sincerely,

Maurice A. Richard
Vice President
Puna Geothermal Venture

Enclosure

FACILITY EMERGENCY RESPONSE PLAN

Puna Geothermal Venture 25 MW Power Project

Geothermal Resource Permit: GRP 87-2

Kapoho, Hawaii
TMK: 1-4-01: por. 2,3, por. 19 & 58

Puna Geothermal Venture
P.O. Box 30
Pahoa, Hawaii 96778

RECORD OF REVISIONS
PUNA GEOTHERMAL VENTURE
EMERGENCY RESPONSE PLAN

VERSION NUMBER	VERSION DATE	SIGNATURE
1	JAN, 1990	
2	APR, 1990	
3	JULY, 1990	
4	AUGUST, 1990	
5	AUGUST, 1990	
6	DECEMBER, 1991	

RECORD OF REVISIONS

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1 INTRODUCTION

Puna Geothermal Venture (PGV) will be developing a geothermal powered electric generating project within a designated area of about 500 acres located on State Highway 132 and Pahoa-Pohoiki Roads (Figure 1-1 and Figure 1-2). A detailed description of the project facilities and operations is presented in Appendix A.

1.1 Objective

This Facility Emergency Response Plan (ERP) has been developed to comply with Condition #26 of Geothermal Resource Permit GRP 87-2, approved by the County of Hawaii Planning Commission on October 3, 1989, and in conformance with discussions with the County of Hawaii Civil Defense Agency (CDA), Hawaii Department of Health (HDOH), and the staff of the Hawaii State Emergency Response Commission (ERC). This ERP is specifically required to provide a plan of action to deal with facility emergency situations which may threaten the health, safety, and welfare of the employees and other persons in the vicinity of the proposed project site. This plan will be the basis of all actions by PGV's personnel and management staff in responding to these situations, and will be updated as appropriate when necessary.

Any change to the plan is the responsibility of:

General Manager, Puna Geothermal Venture
P.O. Box 30
Pahoa, Hawaii 96778

1.2 Scope

The required Scope of the ERP, as in Condition #26 of the GRP, items a through k, requires that the following elements be included as a minimum:

a. A description of the project facilities and operations, with site plans identifying areas of potential hazards, such as high pressure piping and the presence, storage and transportation of flammable or hazardous materials, such as lubrication or fuel oil, pentane, hydrogen sulfide, and sodium hydroxide;

b. A description of emergency services available off-site to respond to any emergency;

c. A description of the current on-site chain-of-command and responsibilities of project personnel in the event of an emergency; and,

d. A description of potential project emergency situations, such as loss of well control, chemical spills, hydrogen sulfide exposure, pipeline rupture, fires, contaminated solids, etc. identifying;

   (i) technical data on the nature of the hazard (for example, the concentrations of hydrogen sulfide in the various areas and the hazard associated with these concentrations, the corrosive characteristics of the abatement chemicals), or any data regarding the possible aerial extent of each potential emergency situation;

   (ii) the warning systems (such as hydrogen sulfide detectors) used to alert personnel of the hazard;

   (iii) the location and use of equipment used to control the hazard (such as fire protection equipment or isolation valves) or repair hazardous equipment (such as welding equipment or casing sleeves), and safety equipment for personnel (such as respiratory packs), including identification of the personnel trained in the use of that equipment; and

   (iv) provisions for the monitoring, detection, and inspection of wells and plant facilities for the prevention of emergency situations.

e. Provisions to address natural hazards (such as lava flows, earthquakes, and storms) that identify warning systems, control options, steps for securing and shutting down the facility, personnel evacuation, and notification to appropriate agencies;

f. The location and capabilities of available medical services and facilities and plans for treating and transporting injured persons;

g. Evacuation plans, including meeting points, personnel rosters, and escape routes;

h. Training requirements for personnel, including procedures for emergency shutdown, handling of emergency equipment, spill prevention, first aid and rescue, fire fighting procedures, and evacuation training;

i. Provisions for periodic emergency preparedness drills for personnel;

j. Detailed procedures to be used to facilitate coordination with appropriate federal, state, and county officials during and after any emergency situation; and,

k. Procedures to be used to identify and inform all residents within applicable distances of the project of the possible emergency situations, warnings, and responses in advance of commencement of project operation and the methods by which all individuals affected by a given emergency will be notified and evacuated, as necessary.

Table 1-1 identifies where the components of each of these GRP requirements are located in this document.

Table 1-1. Index of GRP Condition #26 Requirements in the Emergency Response Plan

a.	A description of the project facilities and operations, with site plans identifying areas of potential hazards, such as high pressure piping and the presence, storage and transportation of flammable or hazardous materials, such as lubrication or fuel oil, isopentane, hydrogen sulfide, and sodium hydroxide;	Section 4, Appendix A
b.	A description of emergency services available off-site to respond to any emergency;	Section 4
c.	A description of the current on-site chain-of-command and responsibilities of project personnel in the event of an emergency; and	Section 3
d.	A description of potential project emergency situations, such as loss of well control, chemical spills, hydrogen sulfide exposure, pipeline rupture, fires, contaminated solids, etc. identifying;	Section 8
	(i) technical data on the nature of the hazard (for example, the concentrations of hydrogen sulfide in the various areas and the hazard associated with these concentrations, the corrosive characteristics of the abatement chemicals), or any data regarding the possible aerials extent of each potential emergency situation;	Section 8, Appendix C, Appendix G, Appendix H, Appendix I
	(ii) the warning systems (such as hydrogen sulfide detectors) used to alert personnel of the hazard;	Section 4, Section 8
	(iii) the location and use of equipment used to control the hazard (such as fire protection equipment or isolation valves) or repair hazardous equipment (such as welding equipment or casing sleeves), and safety equipment for personnel (such as respiratory packs), including identification of the personnel trained in the use of that equipment; and	Section 4, Section 8
	(iv) provisions for the monitoring, detection, and inspection of wells and plant facilities for the prevention of emergency situations.	Section 8, Appendix A
e.	Provisions to address natural hazards (such as lava flows, earthquakes, and storms) that identify warning systems, control options, steps for securing and shutting down the facility, personnel evacuation, and notification to appropriate agencies;	Section 5, Section 8
f.	The location and capabilities of available medical services and facilities and plans for treating and transporting injured persons;	Section 4
g.	Evacuation plans, including meeting points, personnel rosters, and escape routes;	Section 5
h.	Training requirements for personnel, including procedures for emergency shutdown, handling of emergency equipment, spill prevention, first aid and rescue, fire fighting procedures, and evacuation training;	Section 6
i.	Provisions for periodic emergency preparedness drills for personnel;	Section 6, Section 7
j.	Detailed procedures to be used to facilitate coordination with appropriate federal, state, and county officials during and after any emergency situation; and.	Section 3, Appendix B, Appendix E
k.	Procedures to be used to identify and inform all residents within applicable distances of the project of the possible emergency situations, warnings, and responses in advance of commencement of project operation and the methods by which all individuals affected by a given emergency will be notified and evacuated, as necessary.	Section 3

Figure 1-1. Site Location Map

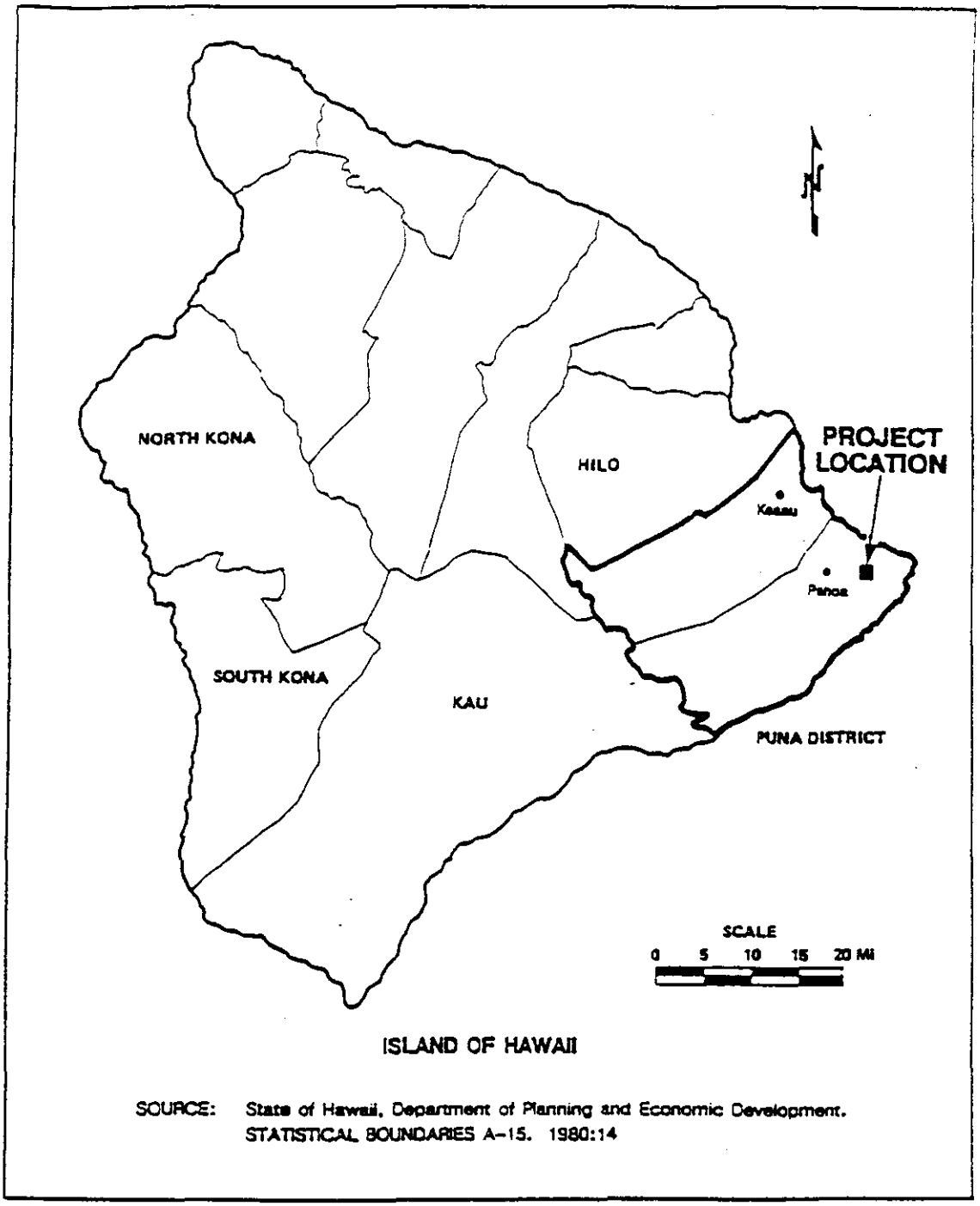
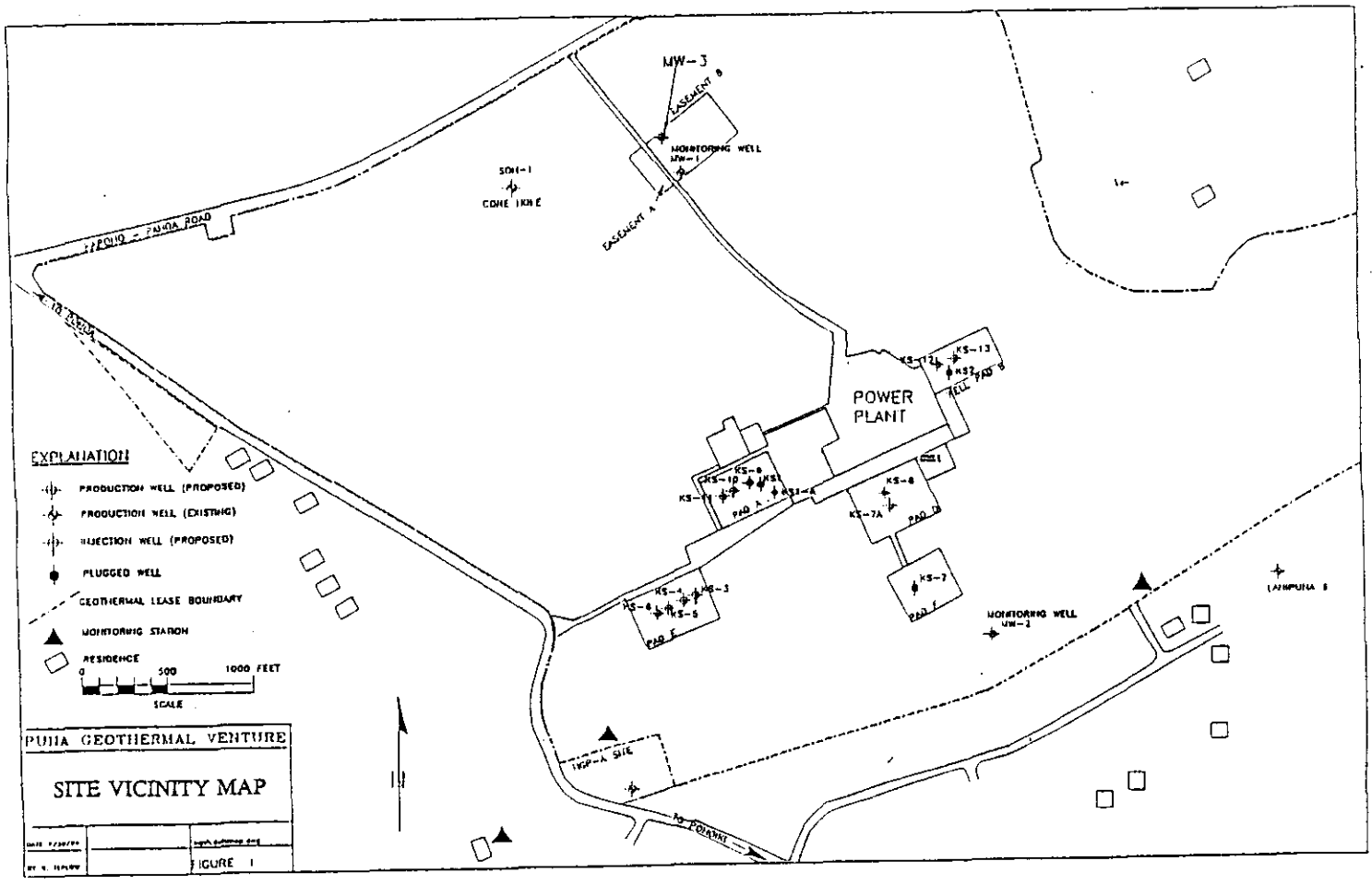


Figure 1-2. Site Vicinity Map



2 REGULATORY AUTHORITY AND DEFINITIONS

2.1 Regulatory Authority

As discussed above in Chapter 1, this ERP has been developed specifically to satisfy Condition No. 26 of GRP 87-2, which requires a plan of action to deal with emergency situations which may threaten the health, safety, or welfare of the employees and other persons in the vicinity of the proposed project site. GRP 87-2 presents fifty other conditions of approval which, among other things, set limits on the amount of several pollutants that PGV may emit into the environment, and also set limits on the ambient (environmental) concentrations of these pollutants which result from PGV's operations. So that the PGV Project will not become a nuisance to the community, these permitted emission limits and ambient concentrations are intentionally set at very low levels.

PGV has also been issued two permits by the Hawaii State Department of Health (HDOH), which similarly limit the emissions of several pollutants, principally hydrogen sulfide, and limit the concentrations that these pollutants can reach in the ambient environment as a result of PGV's operations. Authority to Construct ATC No. A-833-795 was issued by the HDOH to regulate the construction and operation of the PGV Project wellfield, and ATC No. A-834-796 was issued by the HDOH to regulate the construction and operation of the PGV Project power plant.

Exceeding either the emission limits or ambient concentrations set in these permits, either during otherwise permitted operations or during upset conditions, would be considered a violation of the permits and would subject the permit holder (PGV) to the penalties described in the permits and applicable laws and regulations. PGV is generally also

required to immediately respond to exceedances of the permitted emission limits or ambient concentrations by reducing or eliminating the source of the exceedance, so that the project permitted operations are reduced to within permitted limits.

Some upset conditions, although they do not result in the emission or ambient concentration of any pollutant above the permitted level and do not pose any threat to the health, safety, or welfare of the persons in the vicinity of the community, may nonetheless result in the need for one or more of the County normal emergency response organizations (police, fire department, etc.) to respond to the site. The County of Hawaii Plan for Emergency Preparedness, Vol. III, Disaster Preparedness and Response, recognizes these as "everyday" emergency situations, the type of emergency situations which frequently arise in a community and which are handled routinely by normal emergency services. However, should the exceedance of the permitted limits or concentrations during an upset or accident be so great as to endanger, or potentially endanger, the public health, safety, or welfare, an emergency response by the Hawaii County Civil Defense Agency (CDA) and/or other County emergency response organizations would likely occur.

2.2 Definitions

Normal Plant Operations	As defined in the Authority to Construct Permit's (ATC's), a condition when both the power plant and geothermal wellfield are operating normally, that is, when the power plant is operating without any upsets, equipment failure, malfunction or which is otherwise operating normally and when no well drilling, flow testing, or venting activities are occurring and where the completed wells are not experiencing any equipment failure or malfunction and are either shut-in, being used as an injection well, or connected to a sound geothermal resource distribution system.
Routine Operations	Those operations over and above normal operations, including, but not limited to, periods of well drilling, well flow testing, well or pipe cleanout, but not including periods of well or power plant upset, failure or malfunction.
Upset Conditions	Those situations which are not normal or routine operations.
Permitted Operations	Those normal, routine, and upset operations and/or conditions which are permissible under permits granted by the Hawaii County Planning Commission (Geothermal Resource Permit GRP 87-1) and the Hawaii Department of Health (Authority to Construct Permits ATC No. A-834-796 and ATC No. A-833-795), whether by explicit statement or through producing impacts which do not exceed stated limits.

Permitted Upset Conditions	Those situations which are not normal or routine operations, but which are otherwise anticipated and approved by the appropriate regulatory agencies, such as steam release through the emergency steam release facility; or those circumstances, such as turbine trips, minor leaks, component malfunctions, etc., which are not expressly approved in any permits, but the impacts of which fall within permitted limits and do not have the potential to produce emergency situations which could threaten the health, safety, or welfare of the employees and other persons in the vicinity of the proposed project site.
Ambient Level	That concentration of a pollutant, such as hydrogen sulfide, or level of an environmental factor, such as noise, which is measured or predicted at a specified point or points in the air or environment.
Emission Level	That quantity of a pollutant or environmental factor which is, or could be, discharged into the environment.
Facility Emergency Situation	An upset condition which results in the need for immediate action by facility operation personnel to restore normal or routine operations.
"Everyday Emergency Situations"	As defined by the County of Hawaii Plan for Emergency Preparedness, Vol. III, Disaster Preparedness and Response, those emergency situations which are handled routinely by project personnel and/or normal emergency services such as police, fire, emergency medical service, public works, or utilities.
Hazard	Any situation that has the potential for causing damage to life, property, or the environment.

3 NOTIFICATION AND CHAIN-OF-COMMAND

3.1 Notification Lists

Table 3-1 provides phone contacts for County, State, and Federal government agencies, PGV staff, and the project 24-hour information line.

3.2 PGV Emergency Response Organization

Figure 3-1 illustrates the chain-of-command that is in effect to deal with site emergencies.

Table 3-2 summarizes the responsibilities of the site staff during an emergency situation relative to routine operations.

3.3 Notification to Public

GRP Condition #25 (k) requires PGV to outline:

1. "Procedures to be used to identify and inform all residents within applicable distances of the project of the possible emergency situations, warnings, and responses, in advance of commencement of the project, and,"

2. "The methods by which all individuals affected by a given emergency will be notified and evacuated, as necessary."

AGE	UPSETS AND ACCIDENTS			
rush Fire	Geothermal Steam and Fluid	Fire Hazard	Noise Hazard	Spills and Leaks
1. COUNTY OF HAWAII				
CIVIL DEFENSE (LOCAL EMERGENCY PL fy[1]	Notify[1,3]	Notify	Notify[1,4]	Notify[1,5]
POLICE				
FIRE DEPARTMENT (AMB fy	Notify[6]	Notify	Notify[6]	Notify[6]
PLANNING DEPARTMENT	Notify[2]	Notify	Notify[4]	Notify[5]
2. STATE OF HAWAII				
DEPT. OF HEALTH, HAZA EMERGENCY RESPONSE (STATE EMERGENCY RE:	Notify[3]			Notify[5]
DEPT. OF HEALTH, NOISI			Notify[4]	
DEPT. OF HEALTH, CLEA	Notify[3]			
24-HOUR NOTIFICATION				
DEPT. OF HEALTH, DISTF	Notify[3]			
DEPT. OF LAND AND NA] y[8]	Notify[9]	Notify[8]	Notify[8]	Notify[8]
y[8]	Notify[9]	Notify[8]	Notify[8]	Notify[8]
3. UNITED STATES GOVERN				
NATIONAL RESPONSE CE	Notify[5]			Notify[5]
4. PUNA GEOTHERMAL VEN ment	Implement Chain of Command	Implement Chain of Command	Implement Chain of Command	Implement Chain of Command
24-HOUR INFORMATION L of				
STAGING AREA nand				
WELLPAD ment	Implement Evacuation Plan, as appropriate	Implement Evacuation Plan, as appropriate	Implement Evacuation Plan, as appropriate	Implement Evacuation Plan, as appropriate
POWER PLANT iation				
OPERATIONS OFFICE as priate				
DEVELOPMENT OFFICE				
WELLFIELD MANAGER				
GENERAL MANAGER				
DRILLING SUPERINTENDE				
ENVIRONMENTAL COORD				
VICE PRESIDENT				

1 Notify immediately

2 Notify if the power

3 Notify if any of PG hydrogen sulfide co

4 Notify if any accide

5 Notify if any materi

6 Notify if any person

7 Notify if fire is crea

8 Notify as courtesy as

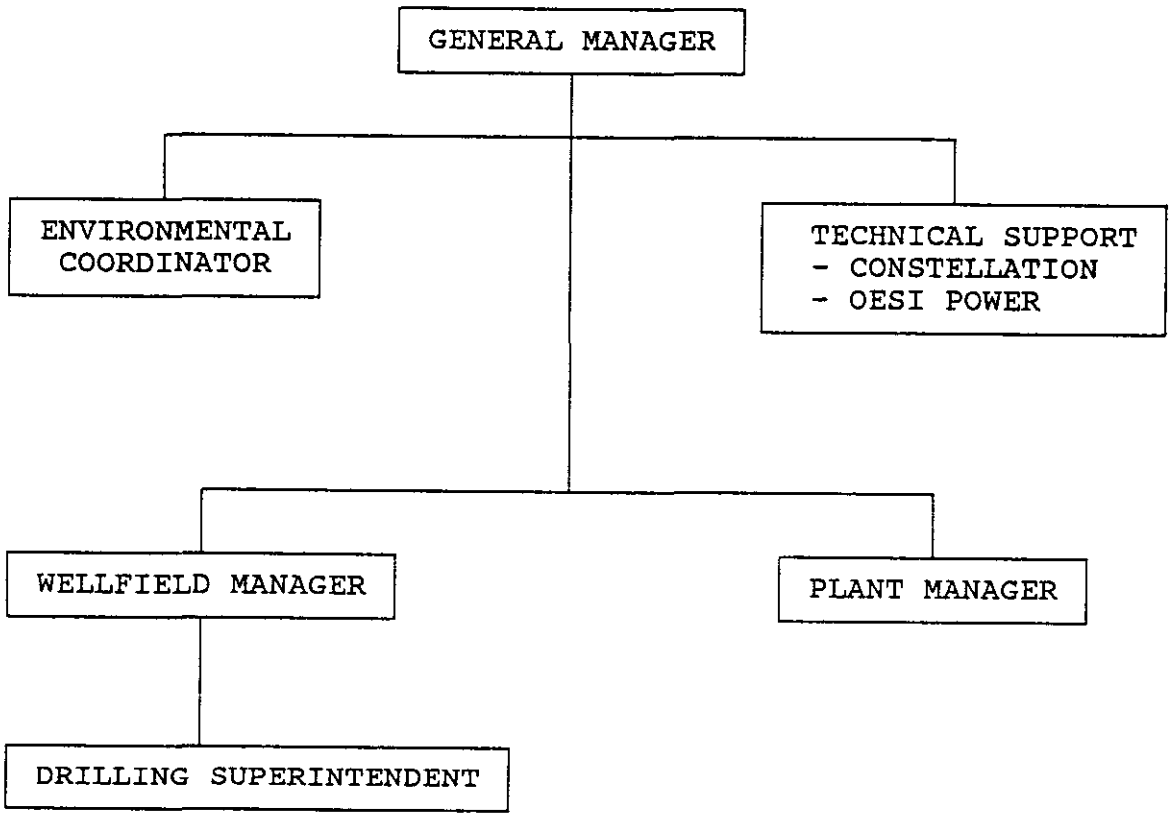
9 Notify if any well or

3-1. Emergency Notification Contact List

Table 3-2. Puna Geothermal Operational Staff Responsibilities

POSITION	ROUTINE OPERATIONS	EMERGENCY SITUATION
General Manager	• Oversee Emergency Response Plan • Oversee Monitoring Program	• Liaison with Governmental agencies • Implement ERP with Civil Defense • Oversee project personnel and response procedure • Direct communication, equipment, and vehicles onsite
Wellfield Manager	• Maintain adequacy of safety program	• Assess danger • Formulate wellfield response actions to control/eliminate situation • Advise Project Manager
Drilling Superintendent	• Assist Wellfield Manager • Know status of all wells and wellfield activities	• Supervise drilling response procedures • Coordinate drilling crew response • Inspect wells for damage
Plant Manager	• Plan/implement traffic control measures • Plan/implement fire control measures • Maintain adequacy of contractor safety programs • Direct all site emergency drills • Know status of onsite facilities • Check areas for hazards and post proper signs • Maintain project safety equipment and first aid supplies • Maintain emergency records and reports • Arrange PGV safety equipment and ERP training	• Assess danger • Establish Command Center • Perform head count of onsite personnel and visitors • Formulate power plant response actions • Advise Project Manager • Perform response actions • Coordinate construction crew response • Direct contractor's support • Shut off all unnecessary electricity and flammable fluid pipes • Arrange transport of personnel • Arrange removal of equipment • Provide safety equipment and first aid supplies as required
Environmental Coordinator	• Oversee permitting activities • Maintain regulatory compliance • Update ERP as directed	• Initiate field monitoring activities • Provide staff support as required

Figure 3-1. Puna Geothermal Venture Chain-of-Command



PGV considers that within the context of this condition that:

1. The applicable distances from the project to be the 3,500 feet from the project 500 acres leasehold boundary, as specified in the GRP,

2. Commencement of project operation is considered as the beginning of drilling of the first geothermal well on the site,

3. The CDA will have the responsibility for, and be in charge of, any notification and evacuation of the public arising from emergency conditions existing at the site,

4. This ERP identifies the possible emergency situations, warnings and responses and the methods by which all individuals affected by a given emergency will be notified and evacuated, as necessary, and,

5. Informing all residents within applicable distances of the project of the presence of the ERP constitutes compliance with Condition #26 (k), and,

6. The public will be informed of the presence of the ERP by (1) announcement in the local newspapers, and (2) receipt

of written letters to all residents within the applicable distance as noted above.

7. These notification events will occur within one week after the CDA has provided approval of this ERP in advance of commencement of project operation.

3.3.1 Public Notification During Nuisance/Disturbance Situations

PGV, in conformance with conditions of the GRP and the ATC, has committed to the establishment of a 24-hour information line for use by the public. PGV recognizes that from time to time residents nearby may experience disturbances or discomfort from the project activities. In some situations, these conditions could be perceived by the public as potentially related to an emergency condition. In these instances, individuals can call the **PGV 24-HOUR INFORMATION LINE.** The caller will be asked to provide the following information:

1) The general description of the situation, location and any other relevant information.
2) The caller's name and contact phone number and/or address.

All calls and their respective conversations will be logged. The General Manager or PGV person-in-charge at the site shall be immediately notified of an inquiry or complaint that could be related to a facility emergency situation. Corrective actions, if any, shall be taken to appropriately rectify any condition which is in violation of the GRP or ATC conditions or could potentially magnify into an emergency situation.

Table 3-3 identifies the response PGV will take to deal with requests for information and complaints when they come from the public either in writing or over the 24-hour information line.

PGV will not contact CDA when a complaint is received unless there is a potential emergency condition at the site.

Table 3-3. Response to Public Requests for Information or Complaints

3-3.1 RECEIPT OF CALL:

Calls will be accepted 24-hours per day, 365 days per year.

Information will be requested from the caller (name, address, telephone number) for all calls. If this basic information is not provided by the caller, PGV will advise the caller that the call will not be responded to and will be dismissed as if it were 'nuisance'.

Details of the request for information or complaint will be taken down in writing, repeated back to the caller for confirmation/verification, and the time and date of the call noted during the conversation.

3-3.2 CALL LOGGING:

Calls will be logged into the project response line log book by PGV and will be given a number for future reference.

3-3.3 CALL 'TYPE' IDENTIFICATION:

Each call will be identified according to its purpose:

1. Information,
2. Project Status, or
3. Complaint

Calls related to (1) Information and (2) Project Status will be handled in the normal manner PGV has already established for these types of requests.

3-3.4 COMPLAINT RESPONSE PROCEDURE:

PGV will investigate complaints related to noise or air conditions according to the documented site activities ongoing at the time of the complaint, and the nature of the complaint. The complaint response path will generally be according to the following steps:

1. Acknowledge receipt of complaint.
2. Go to location and provide on-site monitoring noise level monitoring or SLM if requested.
3. Notify county in writing of receipt of complaint.
4. Determine what activities were ongoing at the time of the complaint.
5. Collect, in conjunction with the environmental monitoring contractor, the pertinent site data (including air quality and meteorological and noise conditions).
6. Relate the monitoring data to the site activity and the complaint.
7. Advise the caller of what was found.
8. Take appropriate steps to remediate situation when needed.

3-3.5 COMPLAINT RESPONSE TIMING:

PGV will provide a verbal response to the caller within 24 hours of receipt of call, or sooner if requested and deemed appropriate by PGV.

A copy of the telephone conversation record documenting the nature and content of the response call will be entered into the file for reference.

A written follow-up response to caller will be made within 1 week after receipt of complaint.

A copy of the written response will be forwarded to the County Planning Department for their information.

3-3.6 ADVICE TO COUNTY PLANNING DEPARTMENT OF COMPLAINT RECEIVED:

County Planning Department will be advised verbally and in writing as soon as convenient, of a complaint.

The 'Advice of complaint notice' shall be no later than 24 hours after the incident, or the next working day, if the complaint occurs over the weekend or a holiday.

The notice shall consist of providing a copy of the PGV file copy containing the complaint information.

The advice notice will also indicate what initial response was taken by PGV.

4 RESPONSE FACILITIES

4.1 Emergency Facilities Available Off-Site

Figure 4-1 shows the location of facilities available in Pahoa, Keaau, and Hilo that are capable of responding during on-site or off-site emergencies. Table 4-1 lists the emergency response and medical facilities that could reasonably be expected to provide support if a facility emergency situation arose.

4.2 On-Site Safety Facilities

Figures 4-2 and 4-3 show the power plant and wellpad potential hazard areas, respectively. Locations of on-site safety equipment relative to the hazard areas are clearly marked. All response and safety facilities have been located so as to be close to the potential hazard area yet isolated from the immediate impact of the hazard during a facility emergency situation (such as placing air packs in elevated areas where H_2S would not collect). Table 4-2 lists the types and numbers of safety and first aid equipment to be located in the wellpad, power plant and staging areas of the project. Table 4-3 lists the on-site hydrogen sulfide detection equipment. More detailed descriptions of the on-site safety equipment are presented in Appendix A.

4.3 On-Site Meeting Points

On-site meeting points are described in Section 5.1 and shown in Figure 5.1. The primary on-site meeting place (MP1) will be the control building. This site is located upwind from wellfield and power plant operations under prevailing wind conditions. The

control building will contain primary communications equipment (telephones, radio base station, etc.) and other emergency equipment along with the plant process controls. These factors make it the logical meeting area. If the control building cannot be used for any reason, site personnel will proceed along the emergency route (ER1) through the topographical divide to the staging area (MP2). If this area is inaccessible or unsafe, site personnel will proceed by way of alternate emergency route (ER2) to the clearing at the intersection of Kapoho and Pohoiki Roads (MP3).

Figure 4-1. Off-Site Emergency Facilities

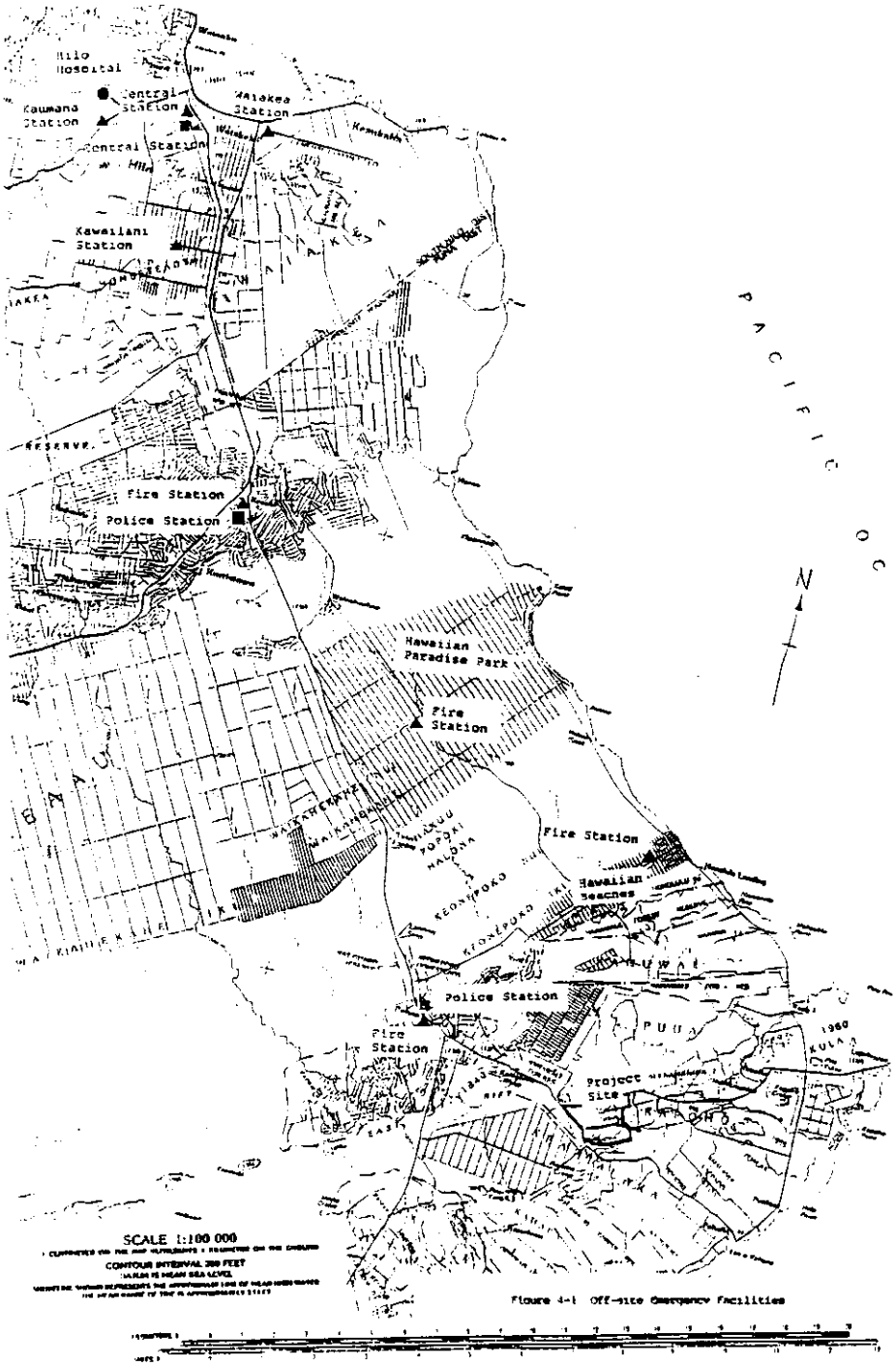


Figure 4-2. Power Plant Potential Hazard Areas and Safety Equipment Locations

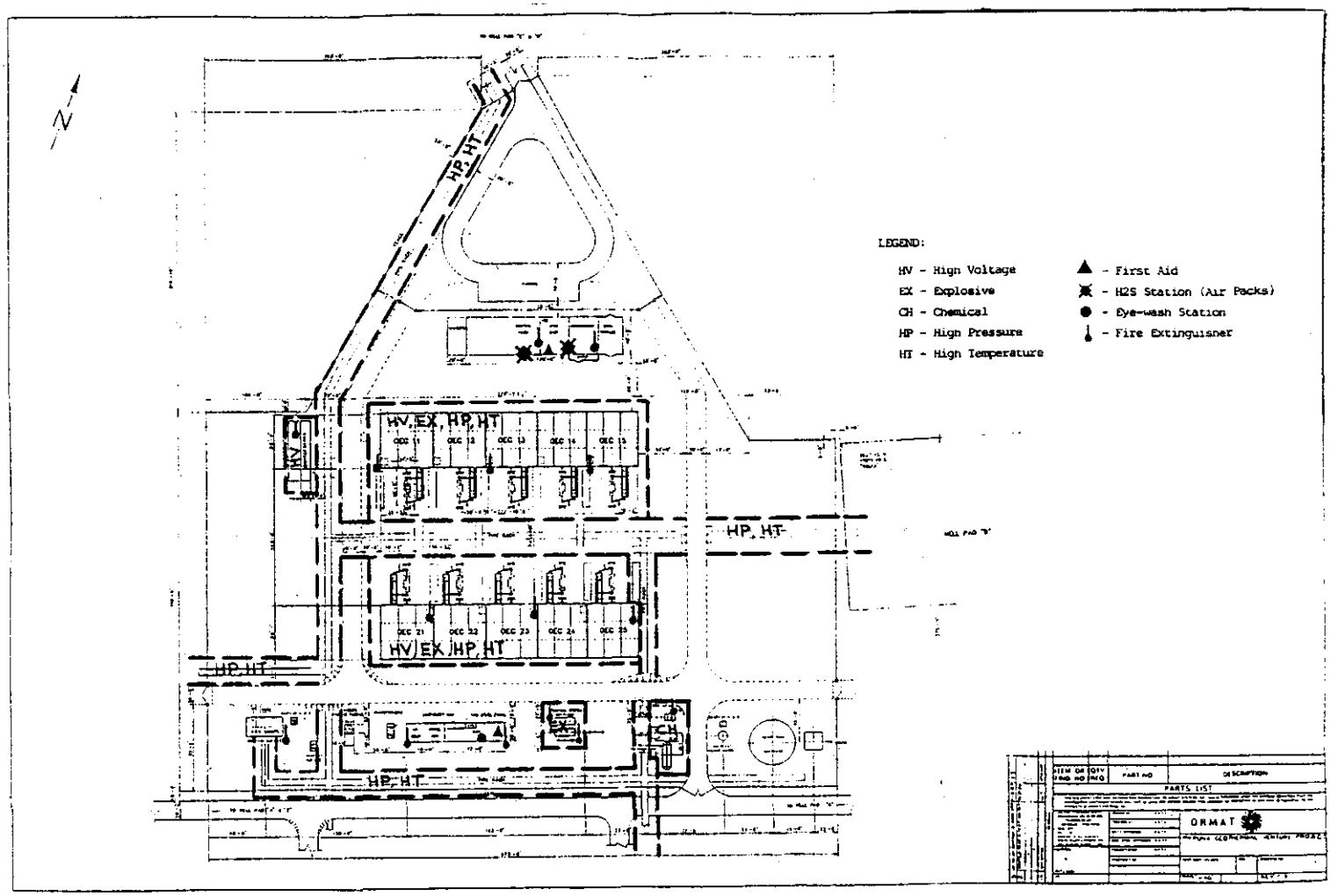


Figure 4-3. Wellpad Potential Hazard Areas and Safety Equipment Locations

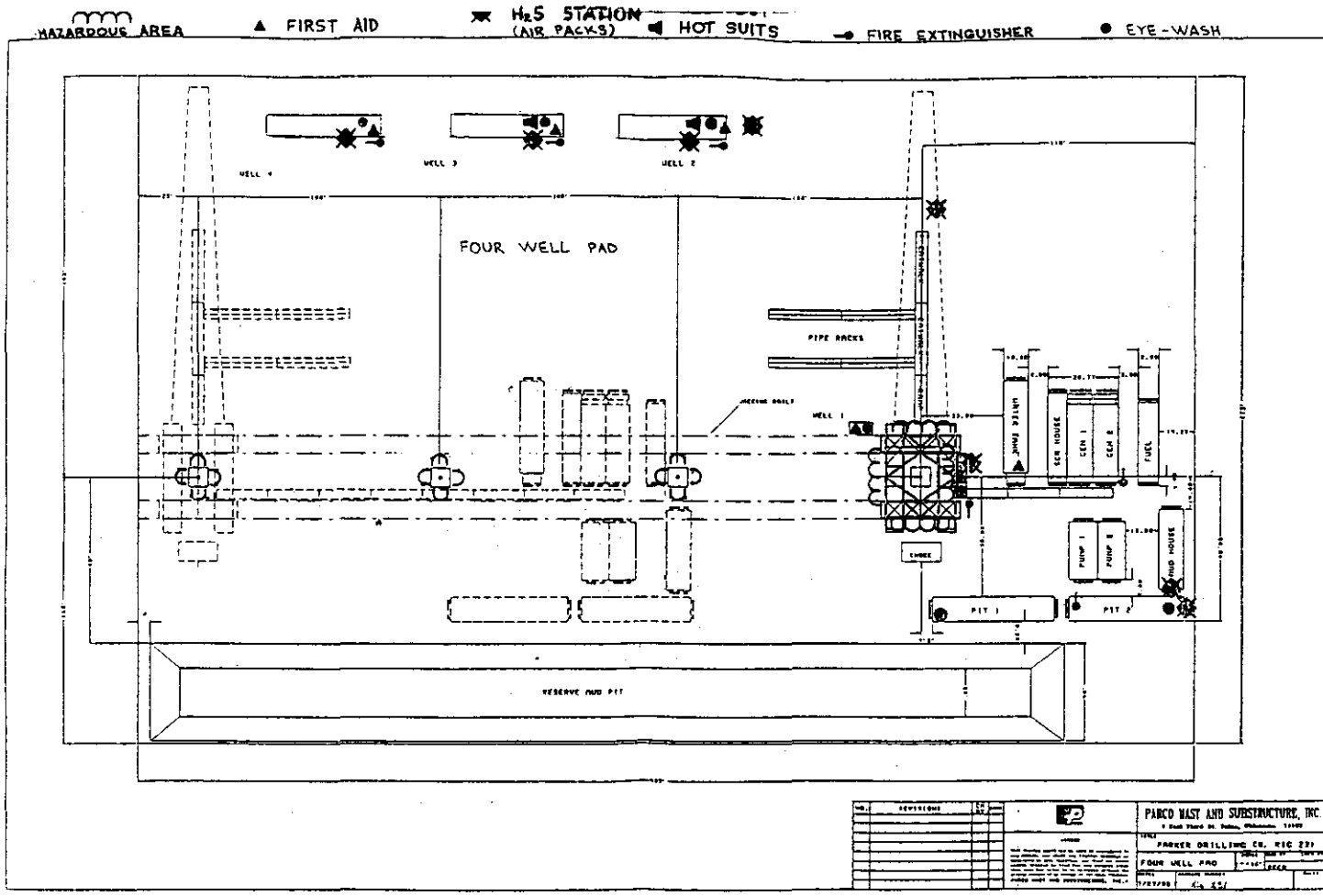


Table 4-1. Off-Site Emergency Facility Capabilities

LOCATION	DISTANCE FROM SITE	FIRE	POLICE	MEDICAL
PAHOA	3 Miles	1 Engine 1 Tanker 6 Men	2 Policemen	1 Ambulance
KEAAU	14 Miles	1 Engine 1 Tanker 6 Men	1 Ranking Officer 6 Policemen	1 Ambulance
HILO	20 Miles	KAWAILANI STATION 1 Engine 6 Men CENTRAL STATION 1 Engine 1 Tanker 4 Men WAIAKEA STATION 1 Engine 1 Heavy Rescue Rig 1 Helicopter 5 Men PUNA DISTRICT Hawaiian Paradise Park 2 Engines Men On-Call Hawaiian Beaches 1 Engine Men On-Call	10 Policemen	HILO HOSPITAL 12 Emergency Rooms 8 Operating Rooms 166 Beds 1 Doctor (24 hrs) 1 Ambulance Does not handle serious burns

Table 4-2. On-Site Emergency and Safety Equipment

LOCATIONS	FIRST AID	AIR PACKS	FIRE EXTINGUISHERS	EYEWASH
Wellpad	3	12	10	7
Power Plant	2	2	32	1
Staging Area	1		10	

Table 4-3. On-Site Hydrogen Sulfide Detection Equipment

LOCATION	DRILL RIG H2S MONITORS[1]	PORTABLE H_2S DETECTORS		AIR QUALITY MONITORING STATIONS[2]
		DRAEGER[3]	JEROME[4]	
Well Pad	3	3	1	
Power Plant		3		
Staging Area			1	
Project Boundary				2

TYPE OF MONITORING EQUIPMENT

[1] Plant RAT 4-20 mA H_2S detector, B&W Technologies, Ltd.

[2] Monitor Labs Model 8780 H_2S detector

[3] Draeger Model #31, V 100 cm

[4] Jerome 631-X H_2S Analyzer

5 PGV EVACUATION PLAN

This section outlines what will be done to prepare for and implement the evacuation of people from the site and the surrounding area, as necessary, and equipment from the site, in the event that an evacuation is necessary.

5.1 Evacuation of Persons On-site

The following are the on-site features which will be in place in preparation for evacuating persons that are on site at the time that an evacuation is required from the site:

- PGV Chain-of-Command:
  The PGV chain-of-command (Chapter 3) will be implemented when an emergency response condition exists at the site.

- On-site Warning:
  A loud horn will be located on the active wellpad (while drilling) and in the power plant area after production is initiated. This horn alarm will sound continuously in the event that a facility emergency situation exists at the site. The alarm will be turned off after the facility emergency condition is over or after all personnel are accounted for and control measures have been implemented.

- On-site meeting points (see Figure 5-1):
  In the event of a facility emergency at the site requiring evacuation, all on-site PGV and contractor staff, except those designated to deal with an emergency response at the site, are to proceed to one of three possible

meeting points. The first response meeting point will be at the control building. If that site is not suitable, the second will be at the staging area for the site on the Pahoa-Kapoho Road.

If neither of those sites are suitable, the third will be on the project property near the intersection of the Pahoa-Kapoho Road and the Pahoa-Pohoiki Road.

- On-site Personnel Roster:

  A roster of all PGV and contractor staff who are at the site will be maintained in a central location at the wellpad until the staging area is operational, at the staging area until the power plant building is completed, and at the power plant after the staging area is closed.

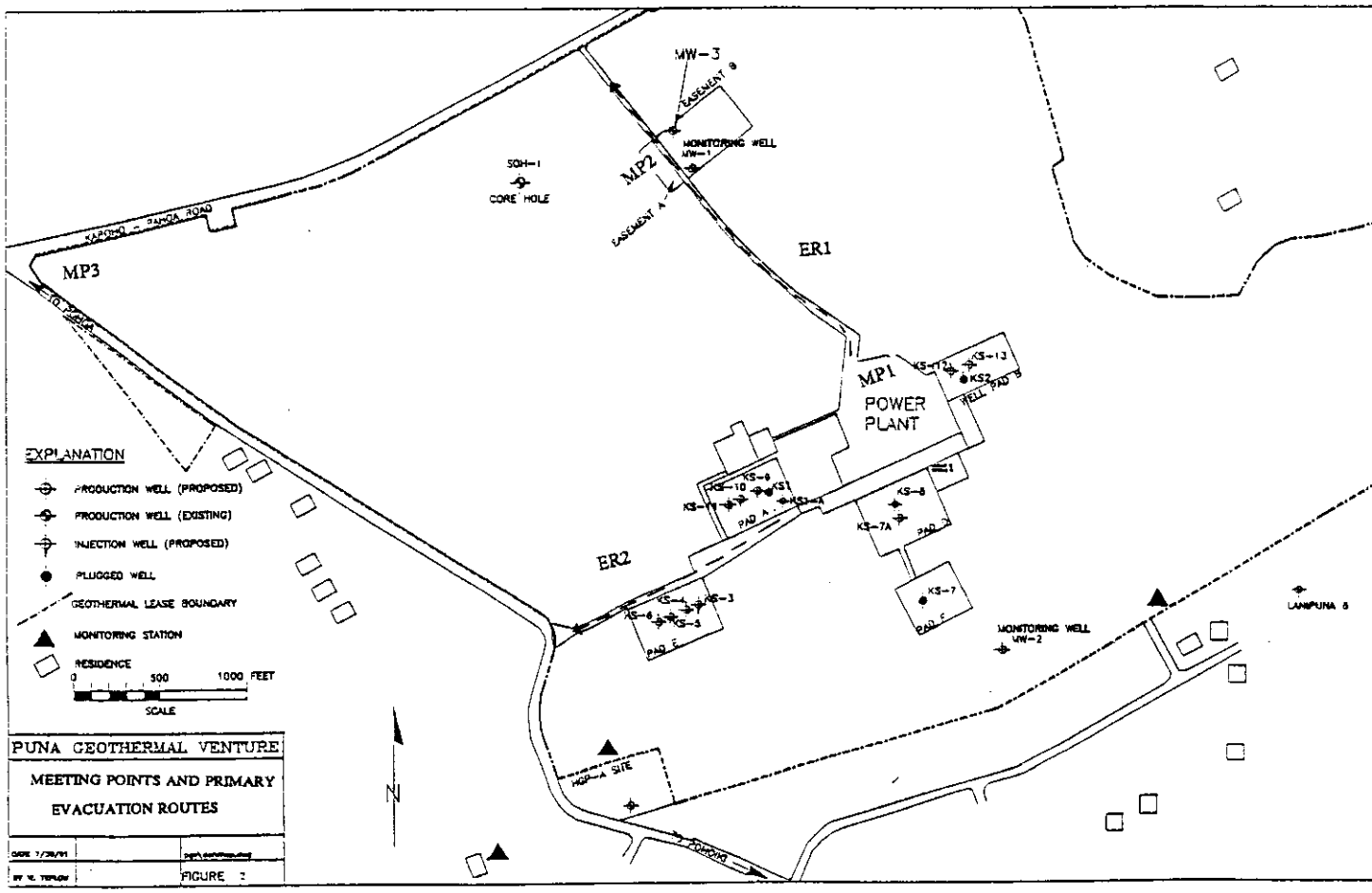
- Evacuation Routes:

  Primary and secondary evacuation routes from the active wellpad and the power plant will be posted and clearly marked. There are two main entries into the site (Figure 5-1). These routes will be clearly marked as the primary evacuation routes away from the power plant and wellpad areas. The two secondary alternative evacuation routes will be marked from both the wellpad and the power plant according to the road access on the site.

- Orientation of PGV, Contractor Staff, and Other On-site Persons:

  All persons entering beyond the staging area onto the site will be given an orientation regarding safety at the site, the necessity for maintaining an accurate and updated roster, and the location of facility emergency response evacuation routes and meeting points.

Figure 5-1. Meeting Points and Primary Evacuation Routes



- Site Command Post:

  A command post will be established at one of the designated meeting areas to deal with a facility emergency situation. Additional details related to the command post are in Section 8.

5.2 Evacuation of Nearby Residents

The CDA has the responsibility of providing the warning to, and to effect the implementation of, the evacuation of any residents or other members of the public from the appropriate hazard area surrounding the site, as necessary. Warning to these residences will be provided by the CDA. PGV will provide assistance in this regard, as directed by the CDA. PGV anticipates no project-created situation which would not provide sufficient time for the CDA to warn or evacuate the public, as appropriate.

PGV has prepared for, and submitted to, the Hawaii County Planning Department, a map showing residences located within 3,500 feet of the project boundary as specified by the Geothermal Resource Permit. PGV will update this map, as appropriate, and submit a copy to CDA prior to the commencement of project operations.

5.3 Removal of Equipment

Should any of the natural hazards discussed in Section 8.1 threaten project facilities, PGV may elect to remove portable construction and drilling rig equipment from the project site, providing adequate time exists for this to be done without endangering the

health or safety of staff undertaking the actions. In general, the equipment to be removed and the procedures to be used will be similar to those presented in Table 5-1.

Table 5-1. Equipment Removal Activities and Procedures

5.1 During Well Drilling

* Place 100 foot cement plug at bottom of well casing, remove drill pipe and laydown.
* Shut-in Blow-Out Preventor (BOP), including master valve.
* Evacuate all mobile and portable equipment (drill pipe, trailers, air compressor, mud logging trailer, etc.).
* Remove BOP and install blind flange on wellhead valve.
* Fill well cellar with cinders.
* Laydown rig, remove engine-generators, Silicon Control Rectifier (SCR) unit, tool shed and mud house.
* Disassemble and remove mast and sub-structure, mud tanks, fuel tanks, tracking system and other rig equipment from site.

5.2 During Plant Construction or Operation

WELLPADS

* Shut off well flow by closing the electro-pneumatic control valve that supplies geothermal fluid to the wellpad separator.
* Close the manual master valve on the wellhead assembly
* Remove pipes around the wellhead.
* Disassemble wellhead down to the top of the bottom master valve.
* Place a blind flange on top of the master valve.
* Fill the well cellar with cinders to the surface.

POWER PLANT

* Remove all other portable and construction equipment as time permits.
* Drain tanks holding chemicals into chemical tanker trucks (one tanker per caustic tank) and remove from site.
* If access to the site is cut off or if there is insufficient time to complete removal of caustic, drain tanks into sump and fill tanks with water to prevent vaporization of residue caustic solution.
* In case of threat of fire, drain pentane from Ormat Energy Converter (OEC) units to the storage tanks and, if necessary, from storage tanks into tanker trucks and remove from site.

6 PGV PERSONNEL TRAINING

PGV personnel and subcontractors will be acquainted with this facility emergency response plan and will undergo training to become familiar with all emergency facilities. During any shift, there will be on site at least one PGV employee on the drilling rig familiar with this facility emergency plan and the use of the emergency rescue equipment (i.e., Scott Air Pack, fire extinguisher, etc.) and trained to administer first aid in case of injuries.

All contractors at the site have the responsibility to ensure that their staff have had adequate training and orientation related to the safety and potential hazards associated with conditions and potential conditions at the site. PGV will provide all site contractors with a copy of the ERP for their own use in orientation and training of their staff.

6.1 Drilling

There will be at least three (3) persons fully trained in the handling of hydrogen sulfide (H_2S) emergencies during each shift of drilling work.

6.1.1 H_2S Safety Training

H_2S safety training will be provided to PGV drilling staff and drilling contractor personnel prior to the start of drilling operations. The training will be administered by a certified H_2S safety instructor. The course content is described in Appendix B. The course will cover the following topics:

* description of H_2S sources during drilling operations

* physiology of H_2S toxicity

* use of detection equipment

* use of breathing apparatus

* emergency procedures

* first aid for H_2S poisoning

In addition, all drilling staff and drilling contractor personnel will be trained in the importance of vertically directing and abating (for H_2S and brine particulates and aerosols) any releases of geothermal steam or brine, and in use of breathing apparatus as personal protection against any ambient brine particulates or aerosols.

6.1.2 H_2S Emergency Response Drills

Unannounced H_2S emergency response drills will be executed monthly during drilling operations. The PGV drilling superintendent, certified in H_2S safety, will administer the drills. The drills will include:

* simulate drilling operation shut down procedures

* evacuation procedures

* use of Scott Air Packs

* use of detection equipment to identify source

* simulate remedial actions to eliminate source

* Use of H_2S and geothermal brine particulate and aerosol abatement procedures and equipment

6.1.3 Blowout Prevention Training

PGV drilling personnel and the drilling contractor's tool pushers and drillers will complete well control training. The course content is shown in Appendix C. The training will include the following main topics:

* description of types of well control loss

* early detection of incipient loss of well control

* well control equipment

* well control procedures

* training using well control simulator

In addition, all drilling staff and drilling contractor personnel will be trained in the importance of vertically directing and abating (for H_2S and brine particulates and aerosols) any releases of geothermal steam or brine.

6.2 Blowout Emergency Response Drill

A function test of hydril and pipe ram blow out prevention (BOP) equipment in use on the rig will be performed on a daily basis during drilling operations. A function test for blind rams will be executed during trips with drill pipe out of hole.

The PGV drilling superintendent, certified in well control, will administer monthly blow out prevention and well control drills. These drills will consist of:

* identification of incipient blow out indicators

* emergency drilling operations in preparation for operation of blow out prevention equipment

* operation of blow out prevention equipment

* simulation of procedures to kill well

* Use of H_2S and geothermal brine particulate and aerosol abatement procedures and equipment

At least one person on each shift will be trained to administer first aid in case of injuries.

6.3 Power Plant Construction

During each shift of power plant construction, there will be at least three (3) persons having full training in the handling of hydrogen sulfide emergencies.

During a facility emergency requiring on-site evacuation, an audible alarm (one located at drill rig and one at the power plant staging area) will sound. Employees will be evacuated to the meeting point. Once at the meeting point, the situation will be assessed by trained supervising personnel. If the situation worsens, all non-essential personnel will be sent out of the area and only authorized, trained personnel will remain.

6.4 Power Plant Operation

All personnel working in the power plant will receive full emergency response training. Each employee will be trained in the use of Scott Air Pack equipment.

7 PGV EMERGENCY DRILL

In addition to the H_2S emergency response and blowout emergency response drills described in Chapter 6, every three months PGV will conduct a general drill exercise to assure that its contractors and personnel are alert to facility emergency situations and able to respond with appropriate action.

8 HAZARD ANALYSIS AND PGV RESPONSE PROCEDURES TO POTENTIAL EMERGENCY SITUATIONS

The purpose of this section is to evaluate the hazards which could occur, or develop at the project site that could cause an emergency response to be taken at the site and describe PGV's planned responses. These are presented in two parts. The first part discusses the six natural hazards that could effect the PGV project site. The second part describes potential hazards which could arise from upset conditions at the site.

8.1 Natural Hazards

Notification:

The Hawaii Volcano Observatory (HVO) or the CDA will commonly notify the public, including PGV, that these types of hazards threatens the general area where the PGV facility is located.

PGV General Response:

Once notified that a natural hazard situation may affect or has affected the site, PGV will:

1. Turn on a battery-powered radio to listen for Emergency Broadcast Systems (EBS) announcements.
2. Notify the CDA (Table 3-1, page 3-2) immediately should the situation cause a facility emergency situation that could threaten public health and safety.
3. Establish a Command Post at the site.

4. Implement the Chain-of-Command (Figure 3-1, Page 3-4 and Table 3-2, Page 3-3) including verification of the status of all on-site persons.
5. Implement the Evacuation Plan (Chapter 5), as appropriate.
6. Take the appropriate follow-up actions that are listed in detail in the following sections.

Reporting:

All reporting related to emergencies created by these types of hazards will be done as soon as possible during the emergency and afterwards according to the Post Emergency Response Procedure presented in Appendix D.

8.1.1 Volcanic Activity

Nature of Hazard

Volcanic activity on the Big Island of Hawaii has been severe enough to have caused the loss of life and property damage due to lava flows. The majority of Hawaiian volcanic eruptions are gentle with the lava moving no more than several miles per day. There is generally adequate time for warnings of impending or actual eruptions to allow time to evacuate both people and equipment.

Potential dangers at the PGV site in the event of lava flow are explosion and fire, principally at the OEC units, pentane and diesel storage tanks, power rooms and substation areas. Refer to Section 8.2.2 for the discussion on the hazard from fire and explosion. As discussed in Section 5.3, PGV believes that essentially all of the drilling equipment could be removed from the site if this type of threat developed, and that any producing or drilling wells could be suspended to eliminate the possibility of any release

of H_2S from a well during lava flow. However, Section 8.2.1 discusses the hazard from uncontrolled releases of steam should this occur.

Response Actions

Upon notification or determination, PGV will take the following actions, as appropriate, supplemental to those listed at the beginning of Section 8.1:

1. Prepare to cease all activities at the project site.
2. Notify the CDA (Table 3-1, Page 3-2) immediately should the volcanic activity cause a facility emergency situation that could threaten public health and safety.
3. Alert service suppliers (Appendix E) to assist with removal of supplies and equipment.
4. Shut down all facilities and secure all wells as per Chapter 5.
5. Remove equipment and materials as time permits and the situation allows, as per Chapter 5.
6. Await instructions from CDA.

If a determination is made that there is an imminent threat to the facility, PGV will independently take the actions needed to complete the evacuation of personnel and, if time permits, removal of equipment according to the list in Chapter 5, Table 5-1.

8.1.2 Magma Intrusion

Nature of Hazard

Magma intrusion in the immediate vicinity of the site (within 1/2 mile) could result in a well on the property acting as a conduit for lava to flow to the surface at the project

site. Were this to actually occur, and lava flowed through the well to the surface, the hazard would be similar to the discussion under Section 8.1.1 regarding lava flows.

Response Actions

Upon notification or determination, PGV will take the following actions, as appropriate, supplemental to those listed at the beginning of Section 8.1 to prevent any magma from entering the wellbore:

1. Determine the availability of service personnel and equipment and request stand-by of same (Appendix E).
2. Notify the CDA (Table 3-1, Page 3-2) immediately should the magma intrusion cause a facility emergency situation that could threaten public health and safety.
3. Notify the State Department of Land and Natural Resources (DLNR) and Hawaii County Planning Department (Table 3-1, Page 3-2) regarding the status of the geothermal wells.
4. Monitor the geothermal fluid pH at intervals recommended by Wellfield Manager on the basis of proximity of the intrusion to the PGV wells.
5. If the fluid is being impacted by volcanic gases, drilling or power generation will be terminated.
6. Shut-in all wells immediately.
7. Inject water into the well within 48 hours of the shut-in pressure in the well declining to less than atmospheric pressure.
8. Await instructions from CDA and DLNR.

If no evidence of fluid acidification is evident, sampling will be terminated and the facility would resume normal operations once the emergency condition had been withdrawn by the responsible agencies.

If a determination is made that there is an imminent threat to the facility, PGV will independently take the actions needed to complete evacuation of personnel and, as time permits, removal equipment according to the list in Section 5, Table 5-1.

8.1.3 Earthquake

Nature of Hazard

Earthquakes occur suddenly, without warning, and can cause numerous casualties, severe damage, and loss of public and private property. The actual movement of the ground is less hazardous than partial or total building collapse, falling objects, debris and shattering glass. Aftershocks are usually smaller than the main quake but may be large enough to cause additional damage to structures weakened during the main shock.

Although by PGV choice, all PGV project facilities are being constructed to the Seismic Zone 4 criteria of the Uniform Building Code, which is more conservative than the required Seismic Zone 3, major earthquakes near the project site could cause buildings and tall structures to collapse (e.g., drilling rig), utility poles to collapse (creating loss of power and/or setting fires), pipeline cracks, breaks above and below ground, and loss of well integrity. Resulting hazards, with a potential to produce situations which could threaten the health, safety, or welfare of the public, are H_2S releases and fire, which are discussed in Sections 8.2.1 and 8.2.2, respectively.

Response Procedures

Upon notification, or if an earthquake could be felt strongly at the project site, PGV will take the following actions supplemental to those listed at the beginning of Section 8.1:

1. Check for injuries and render first aid as appropriate.
2. Notify the CDA immediately should the earthquake cause a facility emergency situation that could threaten public health and safety, notify the CDA immediately.
3. Depending on the size of the earthquake, the power plant may be tripped. If so, emergency steam is released through the rock muffler and abatement of hydrogen sulfide should start simultaneously. Respondents to an emergency will approach the site from an upwind direction and have air rescue packs and resuscitators as a precaution for failure of the H_2S abatement system. Notify both CDA and HDOH, Clean Air Branch (Table 3-1, Page 3-2) if steam is released to emergency steam release facility.
4. Check water and electrical lines.
5. Switch off electrical power if there is damage to power sources or wiring.
6. Check buildings, pipelines and tanks for cracks and damage.
7. Inspect the rig and all wells.
8. Move diesel water pump to any damaged wellpad and notify DLNR (Table 3-1, Page 3-2).
9. Request stand-by of well drilling contractors and suppliers (Appendix E).
10. Await instructions from CDA.

8.1.4 Hurricane

Nature of Hazard

Hurricanes with devastating winds (74 miles per hour or more) can cause death, extensive damage to lightly-built buildings and tall structures, uproot trees, snap utility poles, and make destructive missiles of flying debris. However, because of the design and construction of the PGV project, there is little potential for hurricane winds to produce facility emergency situations which could threaten the health, safety, or welfare of the public. Flooding produced by hurricane rainfall and storm surf generated by high wind should not pose a threat to the project facilities since the project site is on high ground.

Response Actions

Upon notification or determination, PGV will take the following actions supplemental to those listed at the beginning of Section 8.1:

1. Secure loose objects around project site and, if appropriate, cease drilling operations.
2. Notify the CDA immediately should the hurricane cause a facility emergency situation that could threaten public health and safety.
3. Depending on the size of the hurricane, the power plant may be tripped. If so, steam is released through the rock muffler and abatement of hydrogen sulfide should start simultaneously. Respondents to an emergency should approach the site from an upwind direction and have air rescue packs and resuscitators. Notify both CDA and HDOH, Clean Air Branch (Table 3-1, Page 3-2), if steam is released to emergency steam release facility.

4. Check water and electrical lines.
5. Switch off electrical power if there is damage to power sources or wiring.
6. Await instructions from CDA.

8.1.5 Lightning

Nature of Hazard

The power plant is designed to operate in all types of weather conditions, even in severe thunderstorms. Grounding is provided in the power plant, wellpads, substation, and switchyard. There is also a grounded lightning rod on top of the drilling rig. However, lightning could trip the whole plant and activate the emergency steam release system with power coming from the emergency diesel generator. There is little potential for lightning to produce any facility emergency situations which could threaten the health, safety, or welfare of the public, although ignition of a fire within the plant is a remote possibility (see Section 8.2.2).

Response Action

In this instance, there may not be advance notification to PGV regarding this hazard. In the event that a lightning storm should threaten the project facilities, PGV will take the following supplemental actions in addition to those listed at the beginning of Section 8.1:

1. Assess the conditions.
2. Notify the CDA immediately should lightning cause an facility emergency situation that could threaten public health and safety.
3. Prepare to extinguish small fires and cut (or reduce) all power sources.

4. If there is a fire, implement Brush Fire Response actions as outlined in Section 8.1.6 or the actions in Section 8.2.2 if it is in the plant site.
5. Depending on the nature of the lightning strike, the power plant may be tripped. If so, steam is released through the rock muffler and abatement of hydrogen sulfide should start simultaneously. Respondents to an emergency should approach the site from an upwind direction and have air rescue packs and resuscitators. Notify both CDA and HDOH, Clean Air Branch (Table 3-1, Page 3-2), if steam is released to the emergency steam release facility.
6. Await instructions from CDA.

8.1.6 Brush Fire

Nature of Hazard

A runaway brush fire reaching the power plant could cause an explosion or fire at the OEC Units, pentane and diesel storage tanks, power rooms, and substation areas. Similar dangers could also exist in the vicinity of the wellpad and could threaten the rig and support facilities. PGV's responses to fires involving actual project components are presented in Section 8.2.2.

Response Actions

In this instance, the CDA may not provide advance notification to PGV regarding this hazard. In the event that a brush fire should threaten the project facilities, PGV will take the general actions outlined at the beginning of Section 8.1 and the following supplemental actions:

1. Call Fire Department and the CDA (Table 3-1, Page 3-2).

2. Notify the CDA immediately should the fire hazard cause a facility emergency situation that could threaten public health and safety.
3. Instruct on-site personnel to proceed immediately with fire fighting using the existing on-site fire protection systems (see Section 4 and Appendix A, Section A-8-3).
4. Prepare to cease all activities at the project site.
5. Prepare to shut down facilities and secure wells as outlined in Table 5-1.
6. If time permits, remove drilling equipment as per Evacuation Plan (Chapter 5).
7. Establish temporary blockades for all access roads leading into the fire.
8. Await instructions from the Fire Department and CDA.

8.2 Upsets

Notification:

Upsets can occur during the life of the project, whether caused by natural or man-made events. Table 8-1 presents a summary of the specific routine and upset conditions that could occur at the project site. PGV will immediately notify the CDA when any facility emergency situation occurs or is indicated which could threaten the health, safety, or welfare of persons in the vicinity of the project site. In addition, PGV will notify the CDA (and appropriate other governmental agencies) when the routine and upset conditions indicated in Table 8-1 occur at the site so that these governmental agencies are kept informed of the site status. Finally, PGV has the responsibility under its permits and other regulatory authorities to notify various regulatory agencies related to the operation of the project and when certain upset conditions occur at the site. These notification requirements are discussed in Chapter 2 and Chapter 3, above.

Table 8-1. Site Releases Under Routine and Upset Conditions

TABLE 8-1. SITE RELEASES UNDER ROUTINE AND UPSET CONDITIONS

		CHEMICAL/ MATERIAL	SOURCE	QUANTITY (lb/hr)	ESTIMATED DURATION	NOTICE TO CDA	MITIGATION AND OTHER ACTIONS
1.	*WELLPAD ACTIVITIES*						
1.1	*ROUTINE ACTIVITIES*						
1.1.1	DRILLING						
A	DRILLING	H2S	MUD PIT	NONE	N/A		MAINTAIN pH 11 IN TANK
B	TRIPPING	H2S	WELL	NONE	N/A		KEEP HOLE FILLED WITH MUD
C	RUNNING CASING	H2S	WELL	NONE	N/A		KEEP HOLE FILLED WITH MUD
D	CIRCULATING	H2S	MUD PIT	NONE	N/A		MAINTAIN pH 11 IN TANK
1.2.1	WELL TESTING						
A	PIPED DISCHARGE	H2S	RESERVOIR	13	10 DAYS-1x/WELL	YES	ABATE TO 95% THRU FLOW LINE
		BRINE	RESERVOIR	100,000	10 DAYS-1x/WELL		
B	WELL SHUTIN	H2S	RESERVOIR	<1	1 TO 2 DAYS	YES	BLEED H2S THRU CAUSTIC BUILDUP OVER MONTHS
1.2	*UPSET CONDITIONS*						
1.2.1	DRILLING						
A	WELL BLOWOUT	H2S	RESERVOIR	448	HOURS OR WEEKS	YES	KILL THRU SIDE VALVES OR DRILL OFFSET WELL
		BRINE	RESERVOIR	100,000	HOURS OR WEEKS	YES	
B	CASING BLOWOUT	H2S	RESERVOIR	448	SECONDS TO DAYS	YES	SHUTIN PIPE OR BLIND RAMS AND
		BRINE	RESERVOIR	100,000	SECONDS TO DAYS	YES	KILL WELL THRU SIDE VALVES
C	STRING BLOWOUT	H2S	RESERVOIR	448	SECONDS TO MINUTES	YES	USE FAST-COUPLING SHUTOFF
		BRINE	RESERVOIR	100,000	SECONDS TO MINUTES	YES	VALVE ON STANDBY
D	TANK RUPTURE	DIESEL	TANK	11,000 GAL	<2 HR TO CONTAIN		PUMP REMAINING TO FRAC TANK
		CAUSTIC	TANK	3,000 GAL	<2 HR TO CONTAIN		PUMP REMAINING TO FRAC TANK
E	SITE SPILL	DIESEL	TANK/LINE	11,000 GAL	<2 HR TO CONTAIN		SHUT VALVE AND CLEANUP
		CAUSTIC	TANK/LINE	3,000 GAL	<2 HR TO CONTAIN		SHUT VALVE AND CLEANUP
F	TRANSPORTATION SPILL	DIESEL	TRUCK	8,000 GAL	@ DAY<6 HR-SURFACE		TRANSFER AND CLEANUP SPILL
		CAUSTIC	TRUCK	5,000 LB	@ MON<6 HR-SURFACE		TRANSFER AND CLEANUP SPILL
G	FIRE	FUEL	VARIOUS	N/A	<12 HR	YES	SITE FIRE PROTECTION SYSTEM
		PARTS		N/A	<12 HR	YES	SITE FIRE PROTECTION SYSTEM
1.2.2	WELL TESTING						
A	CAUSTIC SYSTEM FAILURE						
	POWER FAILURE	H2S	RESERVOIR	448	<5 MIN	YES	BACKUP GENERATORS/STOP TESTING
	TANK/LINE FAILURE	H2S	RESERVOIR	448	<15 MIN	YES	BYPASS TO BACKUP CIRCUIT/STOP
B	PIPE FAILURE	H2S	RESERVOIR	448	<5 MIN	YES	BYPASS TO BACKUP CIRCUIT/STOP
C	VALVE FAILURE	H2S	RESERVOIR	448	<15 MIN	YES	BACKUP/THROTTLE VALVE>SHUTIN WELL
D	CASING FAILURE	H2S	RESERVOIR	448	HOURS TO DAYS	YES	KILL AND CEMENT THRU SIDE VALVES

TABLE 8-1. SITE RELEASES UNDER ROUTINE AND UPSET CONDITIONS (continued)

		CHEMICAL/ MATERIAL	SOURCE	QUANTITY (lb/hr)	ESTIMATED DURATION	NOTICE TO CDA	MITIGATION AND OTHER ACTIONS
2	*POWER PLANT*						
2.1	ROUTINE ACTIVITIES						
A	OPERATIONS	H2S	FUGITIVES	<1	CONTINUAL		SITE SURVEYS/ROUTINE MAINTENANCE
2.2	UPSET CONDITIONS						
A	PLANT SHUTDOWN						
	ABATED-ALL WELLS	H2S	RESERVOIR	22	MINUTES TO HR	YES	ABATEMENT TO 96% THRU ESRF
		BRINE	RESERVOIR	114,000	MINUTES TO HR	YES	DISPOSAL THRU HOLDING POND
B	MAIN PIPE FAILURE	H2S	RESERVOIR	560	MINUTES TO HR	YES	CLOSE VALVES/SHUTIN WELLS
		BRINE	RESERVOIR	114,000	MINUTES TO HR	YES	
C	WELL PIPELINE	H2S	RESERVOIR	448	MINUTES TO HR	YES	CLOSE VALVES/SHUTIN WELLS
		BRINE	RESERVOIR	100,000	MINUTES TO HR	YES	
D	TANK RUPTURE	PENTANE	TANKS	35,600 GAL	<2 HR TO CONTAIN	YES	TRANSFER AND CLEANUP SPILL
		PENTANE	TURBINES	17,500 GAL	<2 HR TO CONTAIN	YES	TRANSFER AND CLEANUP SPILL
		CAUSTIC 50%	TANK	14,700 GAL	<2 HR TO CONTAIN		TRANSFER AND CLEANUP SPILL
		CAUSTIC 10%	TANK	13,200 GAL	<2 HR TO CONTAIN		TRANSFER AND CLEANUP SPILL
		DIESEL	TANK	1,500 GAL	<2 HR TO CONTAIN		TRANSFER AND CLEANUP SPILL
E	SITE SPILL	PENTANE	TANKS	35,600 GAL	<2 HR TO CONTAIN	YES	SHUT VALVE/TRANSFER AND CLEANUP
		PENTANE	TURBINES	17,500 GAL	<2 HR TO CONTAIN	YES	SHUT VALVE/TRANSFER AND CLEANUP
		CAUSTIC 50%	TANK	14,700 GAL	<2 HR TO CONTAIN	YES	SHUT VALVE/TRANSFER AND CLEANUP
		CAUSTIC 10%	TANK	13,200 GAL	<2 HR TO CONTAIN	YES	SHUT VALVE/TRANSFER AND CLEANUP
		DIESEL	TANK	1,500 GAL	<2 HR TO CONTAIN	YES	SHUT VALVE/TRANSFER AND CLEANUP
F	TRANSPORTATION SPILL	PENTANE	TRUCK	10,000 GAL	1x/YR-<6 HR		TRANSFER AND CLEANUP SPILL
		CAUSTIC	TRUCK	5,000 LB	1x/YR-<6 HR		TRANSFER AND CLEANUP SPILL
		DIESEL	TRUCK	8,000 GAL	1x/YR-<6 HR		TRANSFER AND CLEANUP SPILL
G	FIRE	PENTANE	TANK/LINES	44,600 GAL	<12 HR	YES	SITE FIRE PROTECTION SYSTEM
		LUB. OILS	CANS	<50 GAL	<12 HR		SITE FIRE PROTECTION SYSTEM
		DIESEL	TANK	1,500 GAL	<12 HR	YES	SITE FIRE PROTECTION SYSTEM
		PLANT	EQUIPMENT	N/A	<12 HR	YES	SITE FIRE PROTECTION SYSTEM
		PLANT	BUILDING	N/A	<12 HR	YES	SITE FIRE PROTECTION SYSTEM

FOOTNOTES:

1. H2S RELEASE IS ABATED OR UNABATED
   ABATED RELEASE IS BASED ON 95% ABATEMENT OF 448 LB/HR WITH A RELEASE CONCENTRATION OF 31 PPM.
   UNABATED RELEASE IS 448 LB/HR/WELL WITH A 1,120 PPM CONCENTRATION IN THE STEAM.
2. BRINE RELEASE IS NOT CONSIDERED AN EMERGENCY CONDITION.
3. QUANTITIES ARE ESTIMATED AS MAXIMUMS IN LB/HR OR AS DESIGNATED IN COLUMN.
4. DURATIONS ARE ESTIMATED AT RANGES BASED ON SITUATION AT SITE.
5. TRANSPORTATION SPILLS ARE ALSO PROVIDED WITH FREQUENCY OF DELIVERY: @DY-DAILY, @MO-MONTHLY.
6. THE TWO PENTANE TANKS HOLD 18,000 GAL BUT ARE AT MOST 50% FULL.
7. THE TURBINE PENTANE VOLUME IS BASED ON 10 x 1,750 GAL.
8. MAXIMUM DESIGN FLOW THROUGH PLANT IS 570,000 LB/HR.
9. DESIGN MAXIMUM WELL FLOW IS 400,000 LB/HR STEAM AT 650 PPM H2S CONCENTRATION.

PGV General Response:

Once a facility emergency situation occurs or is indicated which could threaten the health, safety, or welfare of the persons in the vicinity of the project site, PGV will:

1. Immediately notify CDA and other appropriate agencies of the nature and anticipated impacts and duration of the emergency situation in accordance with Table 3-1.
2. Turn on a battery-powered radio for Emergency Broadcast Systems (EBS) announcements, if appropriate.
3. Establish a Command Post at the site.
4. Implement the Chain-of-Command (Figure 3-1, Page 3-4, and Table 3-2, Page 3-3), including verification of the status of all on-site persons.
5. Implement the Evacuation Plan (Chapter 5), as appropriate.
6. Provide environmental monitoring data to the Department of Health and to the County Civil Defense.
7. Take whatever follow-up appropriate actions are necessary to deal with the facility emergency situation.

Reporting:

All post-notification reporting related to these type of emergencies will be done as soon as possible during the emergency, and afterwards according to the Post Emergency Response Procedure identified in Appendix D.

The following sections describe the specific actions that will be followed if the following upset conditions requiring emergency response arise:

1. Geothermal steam and fluid releases from the reservoir or power plant.
2. Fire that threatens the site facilities and has the potential for moving off-site.
3. Any event creating very high continuous noise levels.
4. Chemical spills which could move off-site.

8.2.1 Geothermal Steam and Fluid Releases

Nature of Hazard

The geothermal resource produced from the reservoir through the wells drilled by PGV consists principally of high-temperature steam. When produced to the surface, the wells also bring geothermal "brine", consisting of numerous chemical and metallic salts, and "noncondensible" gases, such as carbon dioxide, hydrogen sulfide (H_2S), nitrogen and hydrogen. Appendix H contains a discussion of the chemistry of the geothermal fluids contained in the geothermal reservoir. During an uncontrolled release of steam from the reservoir, the geothermal brine and noncondensible gases would most likely also be released from the reservoir and into the environment.

Because of its toxicity and concentration, of all the components of the geothermal resource the H_2S gas is the component of most significant concern. H_2S gas is a colorless gas with a "rotten egg" odor which is slightly heavier than air. H_2S is acutely toxic in high concentrations (in the range of 400,000 to 700,000 ppb). H_2S at 10,000 ppb is considered the acceptable limit for worker exposure for 8 hours per day, 40 hours per week. At 10,000 ppb, H_2S is documented to be an eye irritant. It is readily detectible down to levels of about 5 ppb.

GENERAL CHARACTERISTICS OF HYDROGEN SULFIDE	
Concentration (ppb)	Characteristics
400,000 to 700,000	Acutely toxic
10,000	Acceptable worker exposure for 40 hours per week - documented eye irritant
1,000	Hawaii Department of Health concentration limit for required evacuation to protect public health and defined "Warning" level (one-hour average)[1]
25	Hawaii Department of Health concentration limit for routine PGV project operations and defined "Watch" level (one-hour average)
5	Generally recognized level of odor detectability

[1] The decision to actually order an evacuation is typically made in the field by the appropriate responsible agency(ies) based not on waiting on field measurements to document that the established one-hour average "Warning" level has been exceeded, but on the professional judgement of the agency(ies), based on all the data available at that time, as to whether or not the incident has the potential to exceed the established one-hour average "Warning" level.

HDOH has set a one-hour average ambient air concentration of 25 ppb H_2S as the lower limit for requiring notification to the CDA, and set a one-hour average ambient air concentration of 1,000 ppb H_2S as the lower limit for requiring evacuation. For the purposes of this PGV ERP, these levels have been designated as follows: 25 ppb = "Watch" and 1,000 ppb = "Warning". The decision to actually order an evacuation is typically made in the field by the appropriate responsible agency(ies) based not on waiting for field measurements to document that the established one-hour average "Warning" level has been exceeded, but on the professional judgement of the agency(ies), based on all the data available at that time, as to whether or not the incident has the potential to exceed the established one-hour average "Warning" level.

As stated above, because of its toxicity and concentration in the geothermal fluid, H_2S is the component of the geothermal fluid of greatest significance. However, some of the other components known to be in the geothermal brine and noncondensible gas in small amounts, such as lead and ammonia, have been recognized as potential health hazards when found in sufficiently high concentrations. Other components, such as acidic aerosols and total particulates which may be formed in the atmosphere once the geothermal fluid is discharged during a well uncontrolled flow event, may also be potential health hazards if produced in sufficiently high concentrations, as may other components which are typically associated with geothermal fluids but which have not yet been quantified from samples of the PGV geothermal fluid. The HDOH-established "Watch" and "Warning" levels for H_2S have been set at levels to protect public health from H_2S and all other non-H_2S components of the geothermal fluid. Appendix H contains a more complete discussion of the current understanding of the chemistry of the PGV geothermal resource, including these other components.

The release of high temperature steam containing H_2S gas into the atmosphere may occur under different scenarios. To determine the "worst case" conditions under which such emissions could occur during an uncontrolled flow event at any wellpad, or during specified power plant upset conditions, PGV conducted a simplified hazard analysis of the possible well-related uncontrolled flow event and power plant upset scenarios to determine the range of credible situations under which hydrogen sulfide and other contaminants could be released from any well or the power plant (see Appendix H). On the basis of the available existing information, the "worst case" credible parameters of the geothermal resource (geochemistry [hydrogen sulfide and other chemical constituents], likely maximum credible productivity [flow rate], temperature [enthalpy], etc.) which would be used as the emitted (released) constituents in conducting a hazard analysis for these emissions (see Appendix H).

In order to determine the maximum ("worst case") impacts which could result from each of these 12 different emission scenarios, PGV conducted an impact analysis utilizing a standard air dispersion model (ISCST) accepted by the U.S. Environmental Protection Agency using a standard screening set of 33 different meteorological conditions to ensure that the "worst case" meteorological conditions for each emission scenario and receptor point was evaluated (see Appendix H). The results of this air dispersion modelling are presented in Appendix H. Table 8-2 summarizes the results of the modelling for each of the 12 release scenarios, organized on the basis of the maximum distance at which each of the HDOH-specified threshold levels are predicted to be exceeded under the "worst case" meteorological conditions, and the point and concentration of maximum impact. Table 8-2 has further categorized each release scenario by which, if any, of the HDOH-specified threshold levels is exceeded by the maximum predicted concentration,

Table 8-2. Summary of Modelled H_2S Emissions

TABLE 6: SUMMARY OF MODELLED HYDROGEN SULFIDE IMPACTS				
RELEASE SCENARIO	MAXIMUM OFF-SITE (>0.3 km) DISTANCE FROM SOURCE (km) TO IDENTIFIED ACTION LEVEL		POINT OF MAXIMUM PREDICTED OFF-SITE IMPACT (>0.3 km)	
	"WATCH" LEVEL (25 ppb)	"WARNING" LEVEL (1,000 ppb)	CONCENTRATION (ppb)	DISTANCE FROM SOURCE (km)
TYPE "1" EVENTS (EXCEED ONLY THE "WATCH" ACTION LEVEL)				
1. Abated vertical flow through diverter/muffler	0.9 km	N/A	40.3	0.4
9. Abated vertical flow from the mud sump	2.8 km	N/A	57.1	0.4
8. Abated vertical flow from the mud tanks	4.5 km	N/A	253.1	0.4
11. Unabated noncondensible gas flow	5.5 km	N/A	935.7	0.4
4. Unabated vertical flow through 13-3/8" casing	25.+ km	N/A	146.0	0.6
5. Unabated vertical flow through 9-5/8" casing	25.+ km	N/A	146.0	0.6
12. Unabated vertical flow through power plant steam release facility	25.+ km	N/A	150.6	0.8
6. Unabated vertical flow through drill ng subbase	25.+ km	N/A	246.8	0.5
2. Unabated vertical flow through diverter/muffler	25.+ km	N/A	403.4	0.4
7. Unabated vertical flow through area of fractured rock	25.+ km	N/A	789.4	0.4
TYPE "2" EVENTS (EXCEED THE "WATCH" AND "WARNING" ACTION LEVELS)				
10. Unabated horizontal flow through a 4" choke line	25.+ km	3.7 km	6,395[1]	0.4
3. Unabated horizontal flow through diverter	25.+ km	6.7 km	12,786[1]	0.4

[1]Note that these scenarios can and will be quickly controlled through closing valves to shut in the well, resulting in a significantly reduced emission rate over any one hour period. The decision to actually order an evacuation is typically made in the field by the appropriate responsible agency(ies) based not on waiting for field measurements to document that the established one-hour average "Warning" level has been exceeded, but on the professional judgement of the agency(ies), based on all the data available at that time, as to whether or not the incident has the potential to exceed the established one-hour average "Warning" level.

thus ensuring that each release scenario is categorized by the highest estimated modelling impact.

As shown in Table 8-2, ten (10) of the modelled release scenarios result in predicted ambient air concentrations in excess of the HDOH-established one-hour 25 ppb H_2S notification "Watch" action limit, but do not produce predicted results in excess of the HDOH-established one-hour 1,000 ppb H_2S "Warning" action limit. These include all of the uncontrolled well-related releases (scenarios 1-2 and 4-9) and the continuous power plant-related release (scenario 12). The short-term, or "puff", release of hydrogen sulfide and other noncondensible gases from the power plant also falls in this category. Figure 8-1 has been drawn to show the predicted maximum off-site distance to the specified ambient hydrogen sulfide concentrations from each PGV wellpad and the plant site from all of these "Type 1" scenarios; that is, Figure 8-1 shows the worst of the worst case impacts predicted from all of the scenarios which maximum impact did not exceed the HDOH 1,000 ppb one-hour average "Warning" level. Thus, Figure 8-1 serves as the single worst case emergency planning and response map for all of these ten (10) listed "Type 1" scenarios; all predicted impacts were not greater than those shown on Figure 8-1 from any of the ten (10) scenarios.

The two well-related releases (scenarios 3 and 10) which have been modelled to exceed the HDOH-established "Warning" levels for one-hour hydrogen sulfide averages ("Type 2" events) are unique from all the other well-related discharges in more than predicted maximum impacts. First, the high predicted impacts result from the horizontal nature of the discharge of the geothermal fluid; that is, the horizontal discharge of geothermal steam and noncondensible gases creates an impact significantly larger in a directly downwind direction than the same flow would if directed in a vertical direction. Second,

Figure 8-1. Worst Case "Type 1" Hydrogen Sulfide Scenario 10

FIGURE 8-1 IS LOCATED IN BACK POCKET OF DOCUMENT

each of these upset discharges can each be stopped or redirected vertically by either manually or remotely shutting in one of the upstream control valves even after the discharge occurs. Thus, although these two discharges have been modelled as if the discharge of geothermal steam and hydrogen sulfide would continue in a horizontal direction for more than an hour, through this modelling PGV has recognized that horizontal discharges of the geothermal fluid can produce unacceptably high impacts, and PGV can and will immediately terminate any such discharge if it occurs. Thus, any impact resulting from the short-term horizontal discharge of geothermal fluid will be short-term, and the actual hydrogen sulfide impact will be much less than that predicted in Table 8-2, and directly proportionate to the time the horizontal discharge continues.

The horizontal discharge of geothermal fluid modelled in scenarios 3 and 10 is directional (that is, the magnitude of the impact depends upon the direction of the discharge and the direction of the wind). Figure 8-2 has been prepared to graphically show the focused nature of the emissions and impacts (a "Type 2" event) for scenario 3 from a single source if the emission were to continue for an entire hour under the worst case conditions. However, as stated above, PGV will immediately terminate any created horizontal discharge and the actual impact will be proportionally less.

A preliminary analysis of the possible impacts and health hazards which could result from the uncontrolled emission of the geothermal brine and noncondensible gases was also conducted by PGV and HDOH (see Appendix H). Based on this preliminary analysis, none of the non-H_2S components of the geothermal fluid appear to be released to, or formed in, the environment in concentrations high enough to significantly increase the level of health hazard created by the simultaneous emission of the H_2S. As a result, the levels of H_2S described above are used exclusively herein as the emergency response

Figure 8-2. Worst Case "Type 2" Hydrogen Sulfide Scenario

FIGURE 8-2 IS LOCATED IN BACK POCKET OF DOCUMENT

planning criterion. However, PGV, under the review of HDOH, will be undertaking a more detailed sampling and analysis program for these non-H_2S components during the first well flow test following acceptance of this revision of the ERP. PGV has committed to specifically review the new geothermal chemistry information with HDOH and revise the ERP as appropriate.

Response Actions

PGV will immediately notify the CDA, HDOH - Clean Air Branch, and HDOH - Hazard Evaluation and Emergency Response Branch, in the event that any of PGV's operations result in an uncontrolled steam release which produces, or has the potential to produce, an exceedance of the appropriate ambient H_2S concentrations established by the HDOH - Clean Air Branch and HDOH - Hazard Evaluation and Emergency Response Branch.

In the event of an uncontrolled steam release, PGV will take the following actions to supplement the ones outlined at the beginning of Section 8.2:

1. Determine the nature (estimated duration and emissions, etc.) and "type" of release (Type "1" [Figure 8-1] or Type "2" [Figure 8-2]) and immediately communicate this information to CDA, HDOH - Clean Air Branch, and HDOH - Hazard Evaluation and Emergency Response Branch (Table 3-1, Page 3-2).
2. Immediately implement perimeter monitoring with portable H_2S meters.
3. Maintain constant coordination with CDA, providing all assistance as requested.
4. Act to control and/or abate and vertically direct the uncontrolled source of the H_2S, as below:

For most types of well blowouts, where control of the well is lost, the equipment and expertise will be immediately available to bring the well back under control. In parallel with any attempts to bring the well under control, PGV will work to ensure that any releases of geothermal fluid and/or steam are vertically directed and that emissions of H_2S and/or brine particulates or aerosols are abated to the extent consistent with equipment and worker health and safety. If initial attempts at well control are unsuccessful, PGV, in consultation with DLNR, will decide whether further attempts using available personnel are likely to be successful. If not, outside well control experts will be called in. This decision will be based on the severity and magnitude of the uncontrolled release, the hazard it represents to surrounding life and property, the experience and training of on-site personnel, and the availability of necessary well control equipment.

If local expertise is unable to control the steam release, well control specialists from the mainland will be immediately contracted for assistance (see Appendix E). If it is determined that additional equipment and services are needed for the control of the steam release, PGV will obtain the required assistance and begin repair work immediately.

As appropriate, the area around the uncontrolled well or point of discharge will be cleared of all loose materials and any unnecessary equipment and machinery. As feasible, giving first consideration to personal safety, PGV will attempt to control the release at the wellhead. Any on-site contractor personnel involved in

well operations will have expertise and training in well control and should be consulted by the Project Manager.

The well site will be immediately evacuated if there is any danger of the rig toppling. If not, water will be pumped into the well through the kill line or drilling pipe until the steam release is under control and stopped. Arrangements will then be made to pump cement into the well and plug the well as appropriate.

An earthen berm and dikes may be constructed to divert and contain released brine in on-site well sumps and brine pits.

5. Report releases of H_2S in excess of reportable quantities (100 pounds over 24 hours) to the National Response Center, State Emergency Response Commission, and the Local Emergency Planning Committee (Table 3-1, Page 3-2).

8.2.2 Fire Hazard

Nature of Hazard:

The most probable location for a fire at the PGV plant site is within the electrical power rooms or any of the pentane heat exchangers. Fires may also occur in the control room, diesel fuel storage tanks, or the pentane storage tanks (see Table 8-1). Figures 4-2 and 4-3 show the location of most of the potential fire locations. Most fires will be limited in size and extent, identical to fires involving the same materials at any other facility or location. However, as described in Chapter 4 and Appendix A, all portions of the project which are potentially subject to a fire are protected by specific fire protection systems designed to prevent the occurrence and spread of a fire.

Of special interest is the presence of pentane on the power plant site. As indicated on Table 8-1 and Figure 4-2, a maximum of 9,000 gallons (approximately 46,000 pounds) of pentane is stored in a reserve tank, and each of the ten (10) OEC Units holds approximately 3,5,600 gallons (approximately 18,700 pounds). Pentane is a flammable liquid (boiling point equals 97°F) with flammable limits between 1.5 and 7.8 percent (by volume) in air. By comparison, because of its lower volatility, pentane is less flammable than propane.

To evaluate the hazard limits of a catastrophic fire involving pentane at the site, the fireball hazard was modelled. This modelling predicted that the maximum injury zone radius for a fireball involving 56,000 pounds of pentane would be approximately 1,350 feet. As shown on Figure 8-3, this is substantially less than the 2,000-foot minimum distance from the storage tank to the project boundary/nearest residence. In addition, the catastrophic release of pentane was modelled to evaluate the possible movement offsite of a potentially flammable cloud of pentane under various meteorological conditions. As shown also on Figure 8-3, the cloud of pentane was no longer flammable (that is, the concentration of pentane in the cloud was diluted below the lower limit flammability of pentane (1.5 percent) within approximately 1,000 feet of the source, again well within the boundary of the project site.

Initial Action

PGV will immediately notify both the Fire Department and CDA (Table 3-1, Page 3-2) in the event of a fire at the site.

Figure 8-3. Hazard Limits of a Fire or Leak Involving Pentane Tanks at the PGV Powerplant

FIGURE 8-3 IS LOCATED IN BACK POCKET OF DOCUMENT

Response Actions

In the event that a fire threatens major components of the project facilities, PGV will immediately implement the evacuation plan (Chapter 5) and notify the CDA (Table 3-1, Page 3-2) that site evacuation is underway and request the presence of one of their staff at the site.

The on-site fire protection system (see Appendix A and Chapter 4) will be automatically triggered, both on the wellpads and in the power plant area, in the event of any fire at the site. Different kinds of fires in the site area may also require use of different manual systems for control. The following are the actions to be taken when handling different kinds of fires at the site:

(1) Electrically Caused Fire

Extinguish with a class C fire extinguisher (ABC or BC extinguisher are also sufficient).

(2) Solvent/Petroleum/Pentane Fire

Water from hydrants will be used to cool the surrounding areas. Extinguish with a Class B fire extinguisher (ABC and BC extinguisher are also sufficient).

PGV will implement the general response conditions identified in Section 8.2 above, and thereafter evaluate the situation on a case-by-case basis. PGV will also notify the Hawaii County Planning Department regarding the fire.

8.2.3 Noise Hazard

Nature of Hazard:

Noise is not commonly considered a hazardous condition in any situation other than the workplace, although it is a nuisance and can, following repeated exposures at high energy levels, result in a degradation of hearing acuity. The Occupational Safety and Health Administration (OSHA) has set the permissible noise exposure at 90 dBA for an eight-hour day. The HDOH has recently suggested that a noise level of 85 dBA (1-minute L_{eq}) be used for establishing when to recommend voluntary evacuation to protect public health. For the purpose of this PGV ERP, this level has been designated as the noise "Warning" level.

The most probable sources of high level noises during upset conditions would be a steam release through a pipe or pipe rupture and/or during a well blowout. In most cases, such a high noise level would result from a short-term steam release from a pipe that had ruptured or a valve or seal that had broken. Any of these conditions could produce noise levels similar to that produced from vertical well venting or steam pipeline cleanout, from 75 dBA to 125 dBA 50 feet from the source. Figure 8-4 has been prepared to show the possible noise levels which would result off of the project site from these 75 dBA to 125 dBA sources, based upon a noise level drop of 6 dBA for each doubling of the distance, as discussed in the Geothermal Noise Guidelines of the Hawaii County Planning Department. Although this assumption (6 dBA reduction for each doubling of the distance) is reasonable at the closer distances, this usually underestimates the reduction in noise levels as the distance from the source increases (that is, the predicted noise level would be too high).

Figure 8-4. Predicted Noise Level Contours For A Well Blowout Or Pipeline Rupture

FIGURE 8-4 IS LOCATED IN BACK POCKET OF DOCUMENT

Initial Action

PGV will immediately notify the CDA, Hawaii County Planning Department, and HDOH - Noise and Radiation Branch (Table 3-1, Page 3-2) in the event that any upset of PGV's operations leads to an exceedance of the appropriate ambient noise levels (Figure 8-4).

Response Actions

The site situation will be continuously monitored to establish the actual noise levels, and actions will be taken at the site to stop the source of the noise. PGV will continue to coordinate with the CDA and other agencies to advise them of the anticipated duration of the upset and high noise level situation.

8.2.4 Spills and Leaks

Nature of Hazard

Spills or leaks of chemicals, including hydrocarbons, at the site could occur related to transfer or storage of pentane, caustic soda, or diesel fuel. Of these, only the catastrophic spill of pentane could result in an emergency situation off-site, and this only as a result of the potential flammability of the cloud (see Section 8.1.2). Pentane is not toxic (see Appendix F), and is not hazardous outside of its flammability. Caustic soda is considered hazardous because of its corrosivity, but is otherwise not toxic, and the quantity stored on site will not be able to move off site under any upset condition (see Appendix G).

Spills of geothermal brine may also occur over the life of the project. However, the geothermal brine expected from the wells that will feed the PGV plant does not contain levels of constituents which necessitate its classification as hazardous waste. Brine

chemistry will be evaluated analytically each year to monitor any changes in brine characteristics.

Response Actions

The following are the general procedures that will be used to control and contain a spill:

1. Close all valves in pipelines leading to and from the source of the spill, giving first consideration to personnel safety in all attempts to control the release at its source.

2. The release should be contained within the smallest area possible. This may be accomplished by:

   - construction of an earthen berm around the spill and earthen dams across any drainage channels or swales in the spill area.
   - diversion of the spill to sump areas, if possible.
   - if needed, call an outside emergency cleanup contractor (Appendix E) according to the chemical nature and magnitude of the spill, the experience and training of available on-site personnel, and the availability of cleanup materials and equipment.

For small-scale spills or leaks of pentane, caustic soda or diesel fuel (less than reportable quantities), the following cleanup procedure will be followed:

1. Provide personnel with the proper protection according to the nature of chemicals involved. Appendices F & G have the Material Safety Data Sheets for pentane and 50% caustic soda, respectively.

2. After completion of activities that require the use of personal health and safety equipment, the equipment will be cleaned.

For spills larger than reportable quantities, actions taken will be similar to those provided above, and other reporting and on-site cleanup actions shall adhere to direction required by agencies involved with compliance at the site. This shall include reporting any release of more than 100 pounds of pentane or H_2S per 24 hours to the National Response Center, Hawaii State Emergency Response Commission, and the Local Emergency Response Commission (Table 3-1, Page 3-2).

For spills of geothermal brine:

1. Personnel assigned to spill containment, control, and cleanup will be provided with adequate protection equipment.

2. After completion of all activities that require the use of personal health and safety equipment as described above, the equipment will be properly cleaned.

APPENDICES

PUNA GEOTHERMAL VENTURE
EMERGENCY RESPONSE PLAN

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APPENDIX A
DESCRIPTION OF SITE FACILITIES AND OPERATIONS

The PGV Project is located approximately 21 miles southeast of the city in Hilo in the Puna district of the Island of Hawaii (see attached map Figure 1.1 and 1.2). The Project will occupy about 25 acres of surface area within a 500 acre project area in the Kapoho section of the Kilauea Lower East Rift Geothermal Resource Subzone.

The PGV Project is designed to generate 25 MW (net) of electrical energy from geothermal fluids produced from the Puna geothermal field. The project, which is planned for an operating life of 35 years, is currently designed to consist of:

* Ten (10) integrated back pressure steam turbine and air cooled binary cycle turbine power generating modules;
* Up to 20 geothermal wells drilled from up to five (5) wellpads;
* Brine, steam and other process pipelines;
* Pollution control equipment;
* Brine tanks and holding ponds;
* Switchyard;
* Office, warehouse, workshop, control building, visitors room, and related facilities;
* Access roads; and
* Auxiliary facilities such as air compressors, H_2S abatement and chemical systems, fire protection equipment, etc.

Figure 1.2 shows the locations of the major project facilities. The Project will deliver 25 MW of capacity to the HELCO energy grid system.

A.1 Geothermal Wellfield Facilities

The PGV Project is currently designed to use the geothermal wellpads as shown in Figure 1.2. All wells are planned to be drilled from one of the five wellpads and no more than a maximum of four (4) wells per wellpad are planned to be drilled, for a maximum total of not more than 20 wells. All wells will be drilled and cased down into the geothermal reservoir, and will have a concrete cellar 10 feet deep and a 30" diameter, 50 feet deep conductor pipe.

Each wellpad contains a wellpad piping subsystem. The subsystem begins downstream of the water shutoff valves at each wellhead and includes production, throttling, and isolation valves, and instrumentation required for local or remote monitoring and control of each well. A rock catcher is installed immediately downstream of each wellhead. The subsystem includes a flash separator that flashes the geothermal fluids into steam and brine fractions.

A.2 Well Control and Safety Equipment During Drilling

Blowout Prevention Equipment (BOP) will be installed on the wellhead during all phases of drilling below depths of 800 - 1000 feet (i.e., below depth of surface casing). The BOP equipment will permit the remote shut-in of the well whether the drilling assembly is inside the well or not. Also, a kill line will be hooked up to the well during drilling in order to permit kill mud or water to be pumped into the well at anytime during drilling.

During drilling operations which could result in a steam or H_2S release, the BOP will be connected to a cyclonic muffler (for noise and brine particulate and aerosol abatement) and H_2S abatement equipment. This equipment will also be used during abated well cleanout.

The BOP equipment will be operated and pressure tested after installation on each casing string per Hawaii State Department of Land and Natural Resources (DLNR) requirements. Subsequently, the BOP assembly will be tested daily during drilling.

H_2S emission sensors will be installed on the rig floor, well cellar, and mud outlets (shaker) during drilling. These sensors will activate an alarm in the drilling logging unit if ambient H_2S concentrations exceed 10 parts per million (ppm).

A wind sock will be erected at the rig in order to determine the wind drift direction in the event of an uncontrolled steam or H_2S release.

A total of 12 portable breathing air packs with a minimum 30-minute capacity will be maintained at the drilling rig for use by the drilling crew and supervisory personnel.

A.3 Turbine Generator System

The back pressure steam turbine and binary cycle power generating unit known as Ormat Energy Converter (OEC) is a closed system that, during normal operations, does not release any H_2S or other gases to the atmosphere. The steam, after expanding and passing through the steam turbine and OEC unit heat exchanger, respectively, will condense. The steam condensate will be recombined with geothermal brine from initial separation and noncondensible gases produced from the reservoir. All of the produced fluids and gases will be injected into the geothermal reservoir. To ensure high reliability of the injection system, each major component of the system will be backed by a spare pump, a spare compressor, and a spare injection well. A holding pond is provided to collect liquids in the event of an upset condition. However, in the unlikely event of an upset condition in the liquid injection system, the collected fluids will pass through the rock mufflers, where it will be flushed and then sent to the holding pond. Each steam turbine will be equipped with a bypass system so that its OEC unit can operate even during turbine upset conditions or plant start-up. When a steam turbine bypass system is actuated, the steam turbine bypass valves are opened and the OEC unit, which is capable of operating with high temperature steam, will continue to operate. The steam flow from the wells will be reduced as necessary to accommodate the reduced production capacity of the power plant.

A.4 Noncondensible Gas Control

Under normal operating conditions, there will be no emissions of H_2S other than negligible fugitive emissions from piping joints, which will be minimized through proper design, ongoing maintenance procedures, and monitoring by plant operators.

Almost all of the noncondensible gases produced from the geothermal reservoir with the geothermal fluids will be partitioned with the steam in the flash separators and will pass through the steam turbines. As the low pressure steam leaving the steam turbines is condensed in the OEC vaporizers, the noncondensible gases and residual water vapor will remain under low pressure.

These gases will be piped to gas compressors which will compress the gases prior to injection into the condensate/brine mixture and ultimately, be injected into the geothermal reservoir.

A.5 Steam Release Facility

Under certain relatively uncommon upset conditions of the power plant generating units, such as failure of the electrical transmission line(s) out of the power plant, complete upset of the geothermal fluid injection system, or if pressure in the steam line exceeds design set points, a steam release facility will be used to release steam treated with sodium hydroxide (NaOH) to remove 96 percent of the H_2S through two rock mufflers (which will reduce noise levels) while the wellfield production rate is being reduced to 50 percent of full flow. Each rock muffler is designed to handle the 100 percent of the maximum total plant flow. After this reduction, the power plant will emit less than 2 percent of full flow uncontrolled H_2S (90 percent flow control) until the power plant can recommence operations.

A.6 Electrical Systems

The power plant will contain several electrical systems. The major electrical equipment includes the main power, auxiliary, station service, and current and potential transformers; generator circuit breakers; high voltage switchgear; load centers; motor control centers; and station batteries.

The power from each of the ten (10) 13.8 KV generators will be fed to the 13.8 KV busbars, with a switchgear for each generator. Each 13.8 KV busbar will be connected to a 13.8/69 KV step up transformer and power will be fed into the HELCO switching and metering yard at a voltage of 69 KV. The 13.8 KV/480 V step down transformers will supply 480 V power for all the power plant internal requirements and for the auxiliary systems.

A 1000 KW diesel generator unit will be installed at the plant site to produce power for essential electrical services at the PGV site under emergency conditions, if needed, as well as to enable cold start up of one OEC unit without external power. The power that would be generated from the diesel generator would be sufficient for cold start up and, at the same time, support one air compressor; the battery chargers; the heating, ventilating, and air conditioning (HVAC) system; control room systems; steam release facility H_2S abatement system; and emergency lighting.

The 1,000 KW standby generator is not expected to operate over 50 hours a year, based on two 24-hour transmission line outages.

A.7 Control Systems

The control system consists of three control subsystems:

- Wellhead control subsystem;
- OEC control subsystem; and
- Power plant control subsystem.

A.7.1 Wellhead Control Subsystem

The wellhead control subsystem includes the individual wellheads, the wellpads, the gathering systems, and the emergency steam release facility.

All wellheads will be equipped with temperature and pressure gauges on the well casing below the master valves. Flow from each wellhead will be regulated manually. The steam flow leaving each wellpad will be measured. Control valves at the steam release facility will have air piston operators that respond automatically to signals from the plant control room or upon sensing over pressure in the steam pipeline. The H_2S abatement system at the steam release facility will operate automatically when steam is released through the rock mufflers.

A.7.2 OEC Control Subsystem

The OEC control, housed in an individual OEC control shelter located adjacent to each OEC module, will control both the steam turbines and the OEC units.

A programmable controller will be used to record, process, and signal steam and working fluid pressures, voltage levels, speed, kilowatt output, and current of each OEC unit as well as its steam turbine unit. The programmable controller provides diagnostic as well as control functions and will allow the operator to isolate an individual unit for testing or repairs and then automatically restart it after the failure condition has been rectified.

The individual OEC control shed will also house the high power, high voltage components of the OEC units including the circuit breakers, magnetic contacts, fuses, transformers, power capacitors, metering instruments, overload, short circuit asymmetry, and reverse power protective devices.

A.7.3 Power Plant Control

The entire power plant is designed with a computerized automatic control system that will require a minimum number of personnel to operate the plant. The plant operators will monitor the plant during operation from the main control room, with regular on site monitoring of all equipment. Individual and plant-wide control systems will operate automatically to prevent

injuries to plant personnel or equipment and to protect public health and safety. Standby equipment will start automatically to avoid tripping a turbine unit during normal operations. Monitoring data will be logged and stored in the programmable controller. Information and control signals from the individual OEC controllers will be recorded and controlled from the main power plant control room.

A.8 Auxiliary Systems

The primary auxiliary systems will be the compressed air system, HVAC system, service water system, and fire protection system.

A.8.1 Compressed Air System

Compressed air is required for instrumentation, control, and plant maintenance (service air) requirements. Compressed air at 100 psig is distributed throughout the plant from a central compression system that includes air compressors, desiccant type dryers, and dry air storage tanks.

A.8.2 HVAC Systems

Air conditioning will be provided for the electrical equipment and control room. The system will be designed to prevent heat buildup and maintain a positive pressure in the rooms. The air conditioning will include a sealed refrigeration system and coil, outside air supply duct, and an air distribution fan.

A.8.3 Fire Protection System

Facility safety considerations played a significant role in the plant design. The fire protection system will be designed in accordance with applicable National Fire Protection Association (NFPA) and Hawaii State and local fire standards and major components of the plant's safety features include the following:

Fire Fighting: The plant will be equipped with an underground fire main system, which completely encircles the OEC units. Strategically placed hydrant/monitors permit full coverage of the plant's components, including the OEC's, air coolers, control room, utility building, motor control center rooms, noncondensible gas, compressors, and pentane storage tanks. The fire main will be maintained under continuous pressure by an electric jockey pump. Whenever the fire main is utilized, the system pressure momentarily drops, activating a diesel driven 2000 gpm centrifugal fire pump. The fire pump will be supplied by a 500,000 gallon water storage tank located adjacent to the pump house.

Flame and Gas Detection: The entire installation of OEC's, air coolers, and pentane storage tanks will be continuously monitored by a series of flame and gas detectors tied into a centralized control/alarm panel located in the plant's control room.

Halon: The plant's control room and all the OEC control shelters will be protected by halon flooding systems.

Sprinkler Systems: The control building offices, workshop, warehouse, and visitor center will be protected by a water sprinkler system.

Portable Extinguisher: Many locations throughout the plant will have portable extinguisher in place.

A.8.4 Service and Supplemental Water

Service water will be used for general purpose cleaning and maintenance of the power plant. A 250,000 gallon supply from the upper half of a 500,000 gallon tanks will provide the service water for the facility.

Supplemental water may need to be added to the fluid injection system during periods of operation at low load or during start-up to ensure maintenance of the water column in the injection system, which is necessary for proper operation of the gas control system. Make-up will be obtained from two on-site wells with a capacity of 1,450 gallons per minute.

A.9 Process Flow Monitoring Systems

The power plant will be serviced by a fully automated control station which constantly monitors the facility process flows, rates, temperatures, and pressures. The status of these processes are displayed on a CRT display both graphically and in digital readout form, and on console gauges. Abnormal conditions are monitored via audible and visual alarms. Pressure switches and gauges are installed in the motive fluid and oil systems for monitoring and operation control. Thermistors and RDT's are installed in the motive fluid and in the electrical and lubrication oil systems to shut down the unit in case of excessive temperatures in the system. Level switches are installed in the motive fluid and lubrication oil systems to warn and to protect the unit against low or high liquid levels.

A.10 Power Plant Structures and Facilities

There will be buildings for the central control room, offices, warehouse, workshop, air compression system, emergency generator, storage for heavy equipment, and fire pumps. In addition, there will be ten shelters for the OEC units.

A.10.1 Chemical Storage Facilities

The chemicals and hydrocarbons used or stored in quantities over 100 gallons at the site caustic soda, pentane and diesel fuel.

Pentane is a colorless liquid that vaporizes at 97°F. It is non-toxic or corrosive, but is flammable at concentrations between 1.5 percent and 7.8 percent (volume) in air (see Appendix

F). Pentane is similar to propane (bottle gas), which is used for heating and cooking in many rural locations, but is much less hazardous than propane because of its higher boiling point and lower vapor pressure.

Each OEC unit will contain approximately 3,560 gallons of pentane. Additional pentane, as much as 9,000 gallons, will be stored on site in two tanks which also have sufficient capacity to receive the entire pentane contents of one OEC unit. The tanks will have a design temperature of 250°F and design pressure of 150 psig. Working fluid pumps will be used to transfer pentane to and from the tanks to recharge the systems or remove the pentane from OEC units requiring maintenance.

Caustic soda (NaOH) is a corrosive material that is toxic if ingested and can cause skin and eye irritation upon contact. It is soluble in water and used in households as a cleaning agent. NaOH will be delivered to the site as a 50 percent solution and stored in two tanks; one with a 50 percent solution as delivered and the other tank with a 10 percent solution, diluted for use in the abatement system.

Secondary containment structures such as dikes or berms will be constructed around the NaOH storage tanks. These tanks will be segregated by distance from any incompatible materials. Applicable federal regulations (e.g., OSHA and EPA) and Hawaii regulations (e.g., DOSH and HDOH) will be incorporated into procedures and standard policies of the facility. Applicable Department of Transportation (DOT) regulations (Title 49 CFR, Section 171-178) will be incorporated into the procedures for delivery of any hazardous materials used on site.

A.10.2 Fencing

A six-foot high chain link fence will be installed around the power plant site boundary and each of the wellpads. A gate at each entrance to the sites will restrict unauthorized access.

A.11 Construction Yard

A temporary construction yard of about 5 acres will be located next to the main entrance road to the plant, off State Highway 132. The construction yard will be used for the temporary storage of construction materials and fabrication of some project components. The construction yard will be fenced and will contain several temporary structures (trailers, buildings, and sheds).

Water will be used as necessary to control fugitive dust produced by construction activities. Dust is not expected to be a serious concern at Puna, which receives an average of 120 inches of rainfall a year.

Removal of all the temporary structures from the construction yard site, the fence surrounding the site, and surplus materials will take place after construction is completed and the full project has commenced commercial operation. Growth of natural plants will then be encouraged.

A.12 Operation and Maintenance

The operational life of the PGV Project facilities is estimated to be 35 years. The power plant and wellfield will be operated in a manner that protects human health and the environment. The facility staff will operate equipment, oversee production, and respond to emergencies. An important part of the operational phase of the project is regular maintenance and monitoring of both the power plant and the wellfield.

The power plant and wellfield will operate continuously 24 hours per day, seven days per week. Qualified operators will be on site at all times when the plant is operating. Routing maintenance will be conducted by workers during the normal daytime work shift. If repair work is required because of malfunction of part of the power plant modules, the maintenance work will continue 24 hours per day, seven days per week, until full power output can be resumed.

Scheduled power plant maintenance will be conducted for each generating module, as needed. Thorough maintenance procedures, such as turbine disassembly and inspection, will be conducted during this scheduled maintenance, they will be coordinated with HELCO to ensure the maintenance of a reliable power system. Appropriately sized maintenance crews will be engaged around the clock, seven days per week, during this time. Work crews will work 8 to 12 hour shifts.

A.13 Plant Start Up and Shutdown

The modular nature of the power plant allows a gradual start up process as relatively small increments of power are synchronized to the grid, one at a time. The total process is relatively rapid due to that small moment of inertia and small volume to be heated during each step of the start up process.

As start up begins after a complete shutdown, wellfield production will be 50 percent of the full steam flow, which will be released through the rock muffler. The power generation modules will enter production gradually, following the sequence outlined below, and the flow to the rock mufflers will be reduced gradually until the power generating units are able to receive the 50 percent steam production.

The start up of the generating modules typically begins with energizing the auxiliary systems needed for starting one OEC unit. These auxiliary systems include the air compressor, OEC lube and sealing oil pumps, condenser fans for one OEC unit, and working fluid circulation pump. The power for the auxiliary systems can be supplied either from the 1000 KW diesel generator or from the utility grid.

To start an OEC unit, the steam turbine bypass will be opened, and the steam gradually let into the OEC vaporizer until it reaches full flow. After the start up and synchronization of the first OEC unit, the power plant will supply its own power and also supply power to the grid. As more OEC units are started and synchronized, the wells will be opened up to allow more steam to flow from the wellfield.

The steam turbine paired with each OEC unit can be started as soon as its OEC unit is in operation. The steam will be gradually introduced into the steam turbines and increased until full load steam turbine operation is achieved.

Shutdown of each OEC/steam turbine module will be handled in reverse order, i.e, first the steam flow to the steam turbine is gradually reduced while the steam turbine bypass is gradually opened. After the steam turbine is shut down, the steam to the OEC unit is gradually closed. When a complete plant shutdown occurs the steam valve to the emergency steam release rock muffler will be opened gradually as the steam flow is reduced to about 50 percent of the design flow. Finally, either the diesel generator or the utility grid will supply the power to the auxiliaries after the last OEC unit has been shutdown.

A.14 Hydrologic Monitoring

The hydrologic monitoring program consists of the following activities:

* Review and update, with field measurements, the data for existing non-geothermal wells in the site area;
* Permit, drill, and sample two on-site monitoring wells;
* Obtain background samples and water levels from existing well locations; and,
* Continue the monitoring program with quarterly water level measurements and water quality sampling and analyses at selected locations.

PGV will immediately notify the County Planning Department, State Department of Health, and the Department of Land and Natural Resources in situations when a change in any geothermal well conditions indicates there is a leak or failure in the production or injection well casing. PGV will take the appropriate steps to test the production/injection system and evaluate the related well and casing downhole conditions. If leakage of geothermal waters to the shallow aquifer is demonstrated, any leaking well would be shut-in, and an assessment of the potential impact would be made by the monitoring contractor. In addition, steps would be identified to evaluate the impact as it relates to down gradient water users.

A.15 Air Quality and Meteorological Monitoring

A total of three fixed locations are in operation for the continuous monitoring of ambient H_2S in accordance with the Hawaii County Geothermal Resource Permit (GRP) and the Hawaii State Department of Health Authority to Construct (ATC) permit conditions (Figure A-1). Each station will contain support equipment to accumulate and average the data and a real-time alarm system in the event that ambient H_2S concentrations exceed the levels specified in the permit conditions.

The first location is in a "background" area at the "Woods" site, generally upwind from the plant and wellpads.

The second location (southwest) will be in an area where there could be an impact from well venting activities at Wellpad E and it is in the prevailing downwind direction from most of the project activities including the power plant.

The third location (southeast) will be topographically down gradient from the power plant in an area where ambient H_2S concentrations associated with night-time drainage flow of air to the southeast from the plant site area would likely occur. In addition, this location is downwind from the plant site when the winds are from the northeast as occurs frequently in the project area in the daytime.

A meteorological station (southwest) provides data on site meteorologic conditions (Figure A-1). Continuously-recording instrumentation on a 10-meter tower will provide data for:

- wind speed,
- wind direction,
- air temperature,
- relative humidity,
- sigma theta (calculated by the data logger), and
- precipitation.

A.16 Noise Monitoring

The noise program consists of three components. First, a fixed monitoring site ("Irvine") is located close to the residents nearest to the power plant and wellpad F (Figure A-2). Secondly, a moveable noise monitoring station is located at or adjacent to the active drill rig. Thirdly, a set of hand-held portable units has been provided for use in the community on a loan basis at no cost.

Continuous recording instrumentation will be used at both the fixed and moveable stations. Hand-held units will provide real-time measurements on the device display.

A fixed monitoring site (southeast) is co-located with one of the H_2S monitoring stations at a location that is directly adjacent to the residence closest to both the plant site and wellpad F.

PGV recognizes the need to establish close communication with the public. Nuisance and annoyance may develop from occasional noises that, although they may not exceed levels identified in the permit conditions, will occur from time to time at the site. Therefore, PGV will respond by visiting the complaint site and in addition, offer the public the opportunity to borrow the fully calibrated, hand-held noise monitoring units to observe the sound levels at their specific residences. This will include an instructional process and set of written steps to follow for taking and recording the readings in a noise monitor data book. In this manner reports of permit conditions being exceeded would be investigated by PGV or its monitoring contractor responding to a complaint from the public. The County would then become involved only if a specific incident, continuing or complaint-type situation could not be resolved at this level.

A.17 Monitoring Procedures While Drilling

A.17.1 H_2S Releases

H_2S sensors will be installed in the well cellar, rig floor and mud shaker. Measurements from these sensors will be logged continuously in the mud logging trailer.

A.17.2 Well Casing Problems

Mud circulating temperature in and out will be logged continuously during drilling. A rapid increase in the mud out temperature could indicate a casing problem. If this occurs, mud or water will be pumped continuously into the well to keep it cool. The well can then be surveyed with temperature, caliper or sonic measurement tools to investigate the casing integrity.

Figure A-1 Air Quality and Meteorological Monitoring Sites

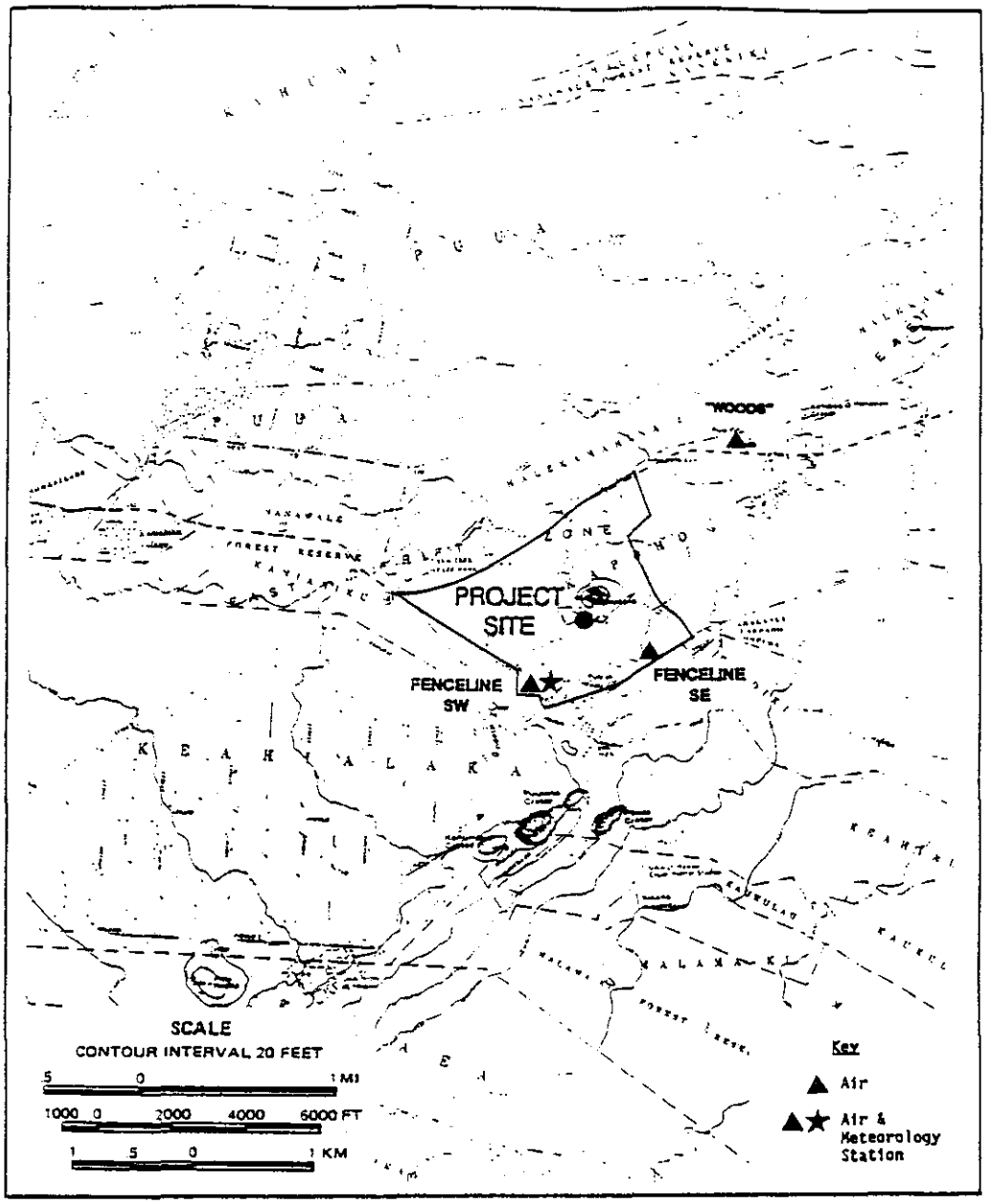
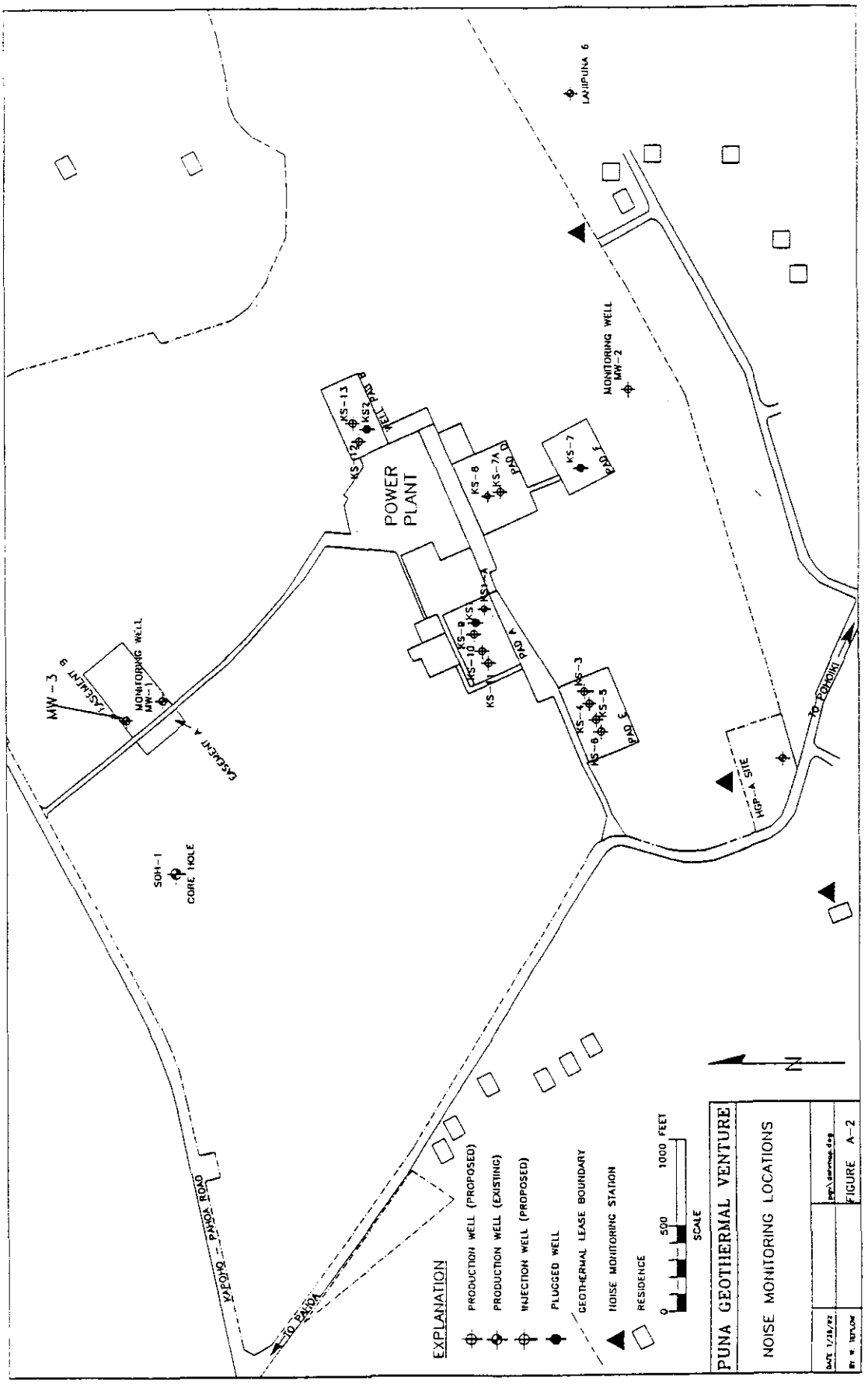


Figure A-2 Noise Monitoring Locations



APPENDIX B

COURSE CONTENT - HYDROGEN SULFIDE SAFETY TRAINING

INTRODUCTION

On any drilling location where hydrogen sulfide gas is expected to be encountered, the following procedures will be carried out by Parker Drilling Company personnel. The rig toolpushers will be in charge of carrying out procedures and crew training, and will make a written report to the area drilling superintendent and the company manager of safety in the Tulsa office when each phase of procedure is completed.

HYDROGEN SULFIDE PHYSICAL PROPERTIES AND TOXICITY

Hydrogen sulfide is extremely toxic. The acceptable concentration for eight-hour exposure is 20 ppm, which is .002% by volume. Hydrogen sulfide is heavier than air (specific gravity - 1.192) and colorless. It forms an explosive mixture with air between 4.3 and 46.0% by volume. Toxicity data for hydrogen sulfide and various other gases are compared in the table below.

Common Name	Chemical Formula	Specific Gravity (SG) SG Air = 1	Threshold[1] Limit	Hazardous[2] Limit	Lethal[3] Concentration
Hydrogen Cyanide	HCN	0.94	10 ppm	150 ppm/hr	300 ppm
Hydrogen Sulfide	H_2S	1.18	10 ppm[4] 20 ppm[5]	250 ppm/hr	600 ppm
Sulfur Dioxide	SO_2	2.21	5 ppm	---	1000 ppm
Chlorine	CI_2	2.45	1 ppm	4 ppm/hr	1000 ppm
Carbon Monoxide	CO	0.97	50 ppm	400 ppm/hr	1000 ppm
Carbon Dioxide	CO_2	1.52	5000 ppm	5%	10%
Methane	CH_4	0.55	90,000 ppm(9%)	Combustible above 5% in Air	---

(Footnotes on next page)

[1]Threshold Limit - concentration at which it is believed that all workers may be repeatedly exposed day after day without adverse effects.
[2]Hazardous Limit - concentration that may cause death.
[3]Lethal Concentration - concentration that will cause death with short-term exposure.
[4]Threshold Limit = 10 PPM - 1972 ACGIH (American Conference of Governmental Industrial Hygienists).
[5]Threshold Limit = 10 PPM - 1966 ANSI acceptable ceiling concentration for eight-hour exposure (based on 40-hour week) is 20 PPM. OSHA Rules and Regulations (Federal Register, Volume 37, No. 202, Part II, dated October 18, 1972).

PHYSICAL EFFECTS OF HYDROGEN SULFIDE

Concentration		Physical Effects
percent (%)	ppm	
0.001	10	Obvious and unpleasant odor.
0.001	10	Safe for 8 hours exposure.
0.01	100	Kills smell in 3 to 15 minutes; may sting eyes and throat.
0.02	200	Kills smell shortly; stings eyes and throat.
0.05	500	Dizziness; breathing ceases in a few minutes; needs prompt artificial respiration.
0.07	700	Unconscious quickly; death will result if not rescued promptly.
0.10	1000	Unconscious at once; followed by death within minutes.

Caution: Hydrogen sulfide is a colorless and transparent gas and is flammable. It is heavier than air and may accumulate in low places.

DRILLING LOCATION

The drilling rig layout will be planned to obtain maximum safety benefits in regard to terrain and prevailing winds. Rig components will be arranged on location so that the prevailing wind will blow across the rig toward the reserve pit, as shown in the attached rig layout plan.

The entrance to the location will have a gate or movable barricade to be closed in the event hydrogen sulfide emergency conditions arise. An auxiliary exit will be available to use in the event a shift in wind direction would prevent using the normal location exit. Warning signs reading "DANGER - Hydrogen Sulfide Poison Gas - Do Not Enter Without Permission" will be placed at all location entrances.

The trailer containing self-contained breathing apparatus and other protective equipment will be located 200 feet or more and up wind from the wellbore. If shifts in the wind direction require, the trailer unit with protective equipment will be moved so that it is always up wind from the wellbore.

A wind sock will be installed on top of the derrick and wind streamers will be displayed at the location entrance, at the safety equipment trailer, and on the rig floor. Personnel will be instructed to become conscious of wind direction and develop the habit of moving quickly up wind in the event gas is released.

Large fans will be set up and used when the area is calm or only light winds exist. These fans will be set up to blow across the rig floor, the sub-structure, the shale shaker, and at any other points where hydrogen sulfide might accumulate.

The mud logging trailer will be located a minimum of 125 feet from the shale shaker, and wellbore.

The electric light plant will be located a minimum of 150 feet from the wellbore as designated in the rig location plot plan. The drilling location will be adequately lighted at night.

As outlined in the rig plot plan, two burn pits will be installed and located at 90 degrees of each other to allow changing from one pit to the other in the event wind direction changes. No smoking will be permited in areas adjacent to the wellbore, on the rig floor, and around the mud pits. No smoking signs will be installed in these areas.

BLOWOUT PREVENTION EQUIPMENT

Blowout preventers will meet or exceed recommendations for hydrogen sulfide service and will have manufacturer's certification for use in hydrogen sulfide service. On wells where extremely high pressures are encountered, a auxiliary kill-line a minimum of $2\frac{1}{2}$" in diameter will be installed in the direction of the prevailing winds. This kill-line will terminate approximately 125 feet from the wellbore so that pump trucks and mud tanks can be connected to the kill-line.

The auxiliary closing unit will be located a safe distance from the wellbore in the direction of the prevailing wind as indicated on the rig plot plan.

All blowout equipment, including choke manifold and related equipment will be installed to meet API requirements in relation to expected well pressures.

SPECIAL EQUIPMENT

FLARE LINES - A degasser will be installed for separating gas from the drilling fluid between the first and second mud tanks. Flare lines will be installed from the degasser, choke manifold, and mud-gas separator to the burn pits. Flare lines will be a minimum of 150 feet, and installed perpendicular to each other as indicated in the plot plan.

Gas containing hydrogen sulfide at the burn pit or flare, will be ignited by use of an automatic ignition system consisting of an electric spark or gas pilot light, or ignition through use of a flare gun.

HYDROGEN SULFIDE DETECTION

The most dependable automatic hydrogen sulfide monitor that is available on the market today will be installed on the rig and will have a visual and audible alarm system that can be seen and/or heard by personnel on the location.

The automatic hydrogen sulfide monitor will have a probe at the bell nipple, at the shale shaker, and on the rig floor. The monitor will be set to activate the visual and audible alarms when the hydrogen sulfide concentration in the atmosphere reaches 20 ppm.

Hand operated hydrogen sulfide detectors will be stored in the safety equipment trailer with a supply of detector tubes. These will be used by individuals to check the atmosphere in specific work areas.

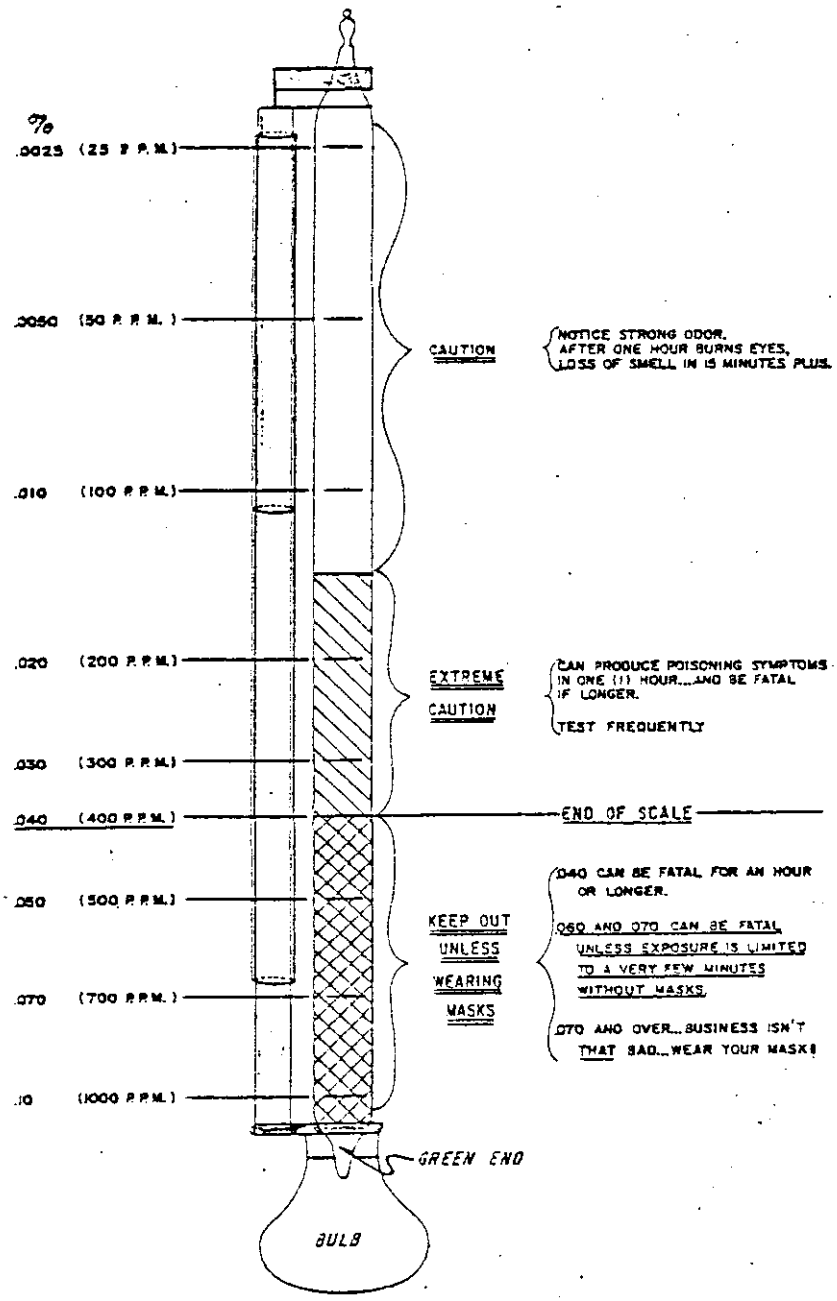
Each employee on the location will be provided with a "spot check" hydrogen sulfide dector. This is a lightweight unit that can be carried in the shirt pocket and has sensitized tape which will detect minute amounts of hydrogen sulfide in relation to time of exposure and will instantly show high concentrations.

One type of hydrogen sulfide gas detector tube which is used with the hand operated bellows is shown in the diagram on the following page.

SELF-CONTAINED BREATHING EQUIPMENT

A minimum of 9 units of self-contained breathing apparatus will be kept on location. The safety equipment trailer kept on the location will contain the following equipment. 7 masks with portable bottles containing 45 cu. ft. of breathing air, which will last 30 to 40 minutes per person. 7 extra 45 cu. ft. portable bottles. 5 compressed air bottles containing 330 cu. ft. each of breathing air, mounted in a cascade system which will be used to re-charge the small portable bottles. This cascade re-charge system will provide air for re-charging 20 of the 45 cu. ft. portable bottles.

MSA HYDROGEN SULFIDE (H_2S) GAS DETECTOR



Two air masks with hose line units connected to two 330 cu. ft. compressed air bottles, mounted on a portable cart will be available in the trailer unit. These large bottles on the portable cart can be moved to the desired location and connected to the air masks with 25 foot lengths of hose. This large two-bottle unit will provide two men over 8 hours of breathing air with these hose line units.

All self-contained breathing units will be equipped with demand type regulators and will have an audible alarm that signals the wearer when the breathing air supply is getting low. A visable pressure gauge also indicates the amount of breathing air supply available to the individual at all times he is wearing the equipment.

All persons working in the area will be required to wear the air breathing equipment during critical or emergency periods.

A resuscitator with a spare oxygen bottle will be provided in the equipment trailer for emergency first-aid treatment if necessary.

TRAINING

Every person at the location working in any capacity will be required to review the emergency procedures and will participate in the training program.

The toolpusher will direct the first training program to indoctrinate all persons on the location in the proper use of the self-contained breathing equipment. After instruction on the proper use, each person will put on and use the equipment for a few minutes to become familiar with its operation. The emergency procedures will be reviewed at the crew weekly safety meetings and at least once each month each person working on the location will put on the self-contained breathing equipment so that he becomes familiar with its use and will be able to put it in to use quickly.

In the training meetings, it will be stressed that encountering hydrogen sulfide in drilling operations is very serious and each person will have to learn and follow procedures carefully and quickly.

An explanation of the rig layout in relation to the prevailing wind, the use of fans, the utilization of the wind sock and wind streamers, and the importance of moving up wind in the event of evacuation will be stressed.

Care and cleaning of the self-contained breathing equipment will be carried out and records of the use of the equipment will be kept.

All persons will be instructed on the use of the portable hydrogen sulfide detection instruments, the emergency alarm system, the resuscitation equipment, and other first-aid procedures in the event a person is overcome by hydrogen sulfide.

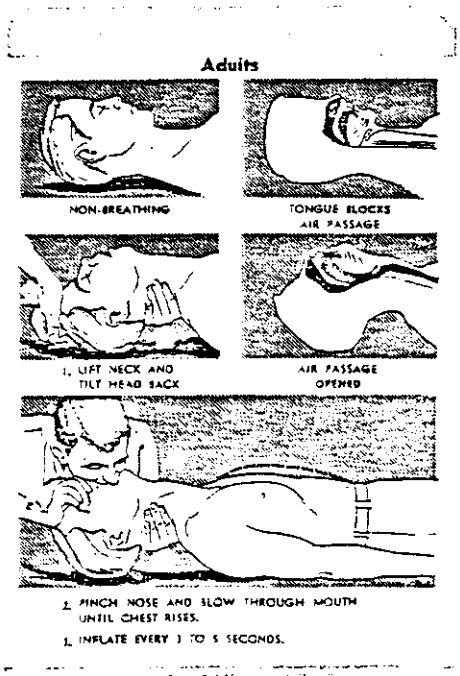
FIRST-AID

Wear breathing equipment when removing a person from an area that is suspected to be contaminated by hydrogen sulfide. Remove the victim to fresh air and if the person is not breathing, start mouth to mouth resuscitation as soon as possible.

At the first opportunity replace the mouth to mouth resuscitation with the resuscitation equipment.

Continue to administer oxygen when the person begins breathing.

Treat for shock and call an ambulance and doctor.



PRECAUTIONS TO BE TAKEN WHEN HYDROGEN SULFIDE IS SUSPECTED

If an area is suspected to be contaminated by hydrogen sulfide, put on the self-contained breathing equipment, enter the area, and make tests with the hand operated hydrogen sulfide detector tubes.

When a hydrogen sulfide emergency exists, work in pairs to prevent anyone from entering a contaminated area alone.

Do not enter an enclosed space where hydrogen sulfide may have accumulated without wearing protective breathing equipment. If the co-worker is over an arms length away, secure him with a life-line and station the co-worker in a clear area.

When hydrogen sulfide is detected, place warning signs in the immediate area and also warning signs at the entrance to the location.

In the event of sudden gas release with no advance warning, personnel are to hold breath, put on protective breathing equipment, aid any persons in distress, proceed to designated clear area and receive instructions from driller and toolpusher.

EFFECTS OF HYDROGEN SULFIDE ON METAL

Hydrogen sulfide disolves in water to form a weak acid that can cause pitting of metal, and in a mixture of oxygen and/or carbon dioxide, this action is increased. The most significant action of hydrogen sulfide is causing hydrogen embrittlement known as sulfide stress cracking. Sulfide stress cracking is a result of metals being subjected to high stress levels in a corrosive environment where hydrogen sulfide is present. The metal will often fail in a brittle manner. Sulfide stress cracking of steel is dependent upon and determined by: strength (hardness) of the steel - the higher the strength, the greater the susceptibility to sulfide stress cracking. Steel having yield strengths up to 95,000 psi and hardness up to ROCKWELL 22, are greatly resistant to sulfide cracking. These limitations can be extended slightly higher for properly quenched and tempered materials.

Total member stress (load) - the higher the stress level, the greater the susceptibility to sulfide stress cracking.

Corrosive environment - corrosive reactions, acids, bacterial action, thermal degradation, or low pH fluid environment.

DRILLING PLAN

All zones known to contain or suspected to contain hydrogen sulfide are to be noted on the well work plan.

Since hydrogen sulfide is highly corrosive to steel, and at high stress levels, extreme metal embrittlement may occur in a very short time, all tubular goods, well head equipment, and other drilling related drilling equipment which may be exposed to hydrogen sulfide during the course of operations, are to be selected, considering the metallurgical properties which will reduce the chance of failure.

To minimize intrusion of hydrogen sulfide gas into the wellbore, drilling mud weight should be controlled at a level to prevent gas intrusion, so that the only hydrogen sulfide entering the borehole will be from the drilled cuttings. Remember, however, that excessive mud weight can result in lost circulation.

Plan the drilling program to include use of a hydrogen sulfide scavenger in the drilling fluid system to reduce the reaction of hydrogen sulfide on the drill string, mud pumps, chokes, and piping. Scavengers also reduce the amount of hydrogen sulfide reaching the surface. Hydrogen sulfide's scavengers may be added as required to maintain a concentration in the drilling fluid, sufficient to react with all hydrogen sulfide entering the drilling fluid.

The pH of the drilling fluid should be maintained above 9.5 at all times. In some cases, a pH of approximately 11.5 is required to prevent a reduction in a pH below 9.5 while making a trip with the drill string.

If the over-all well plan will permit the use of an oilbase drilling fluid, the risk of metal embrittlement during drilling operations will be reduced.

CONTINUENCY

When moving the rig to location, obtain a map showing all buildings within a two-mile radius of the well location. All occupied buildings within the two-mile radius are to be marked on the maps with the number of people that usually occupy each building. Names are to be listed and contacts made after drilling begins, to explain the hazards in the event that evacuation might be necessary if an extreme emergency develops.

Make a listing of emergency telephone numbers for the area to include: ambulances, hospitals, doctors, helicopter services, state highway patrol, county sheriff, city police, state civil defense agency, state water and conservation agency.

At the weekly crew safety meetings held by the drillers and toolpushers, detailed operating procedures will be outlined. Emergency procedures and duties of each crew member will be defined.

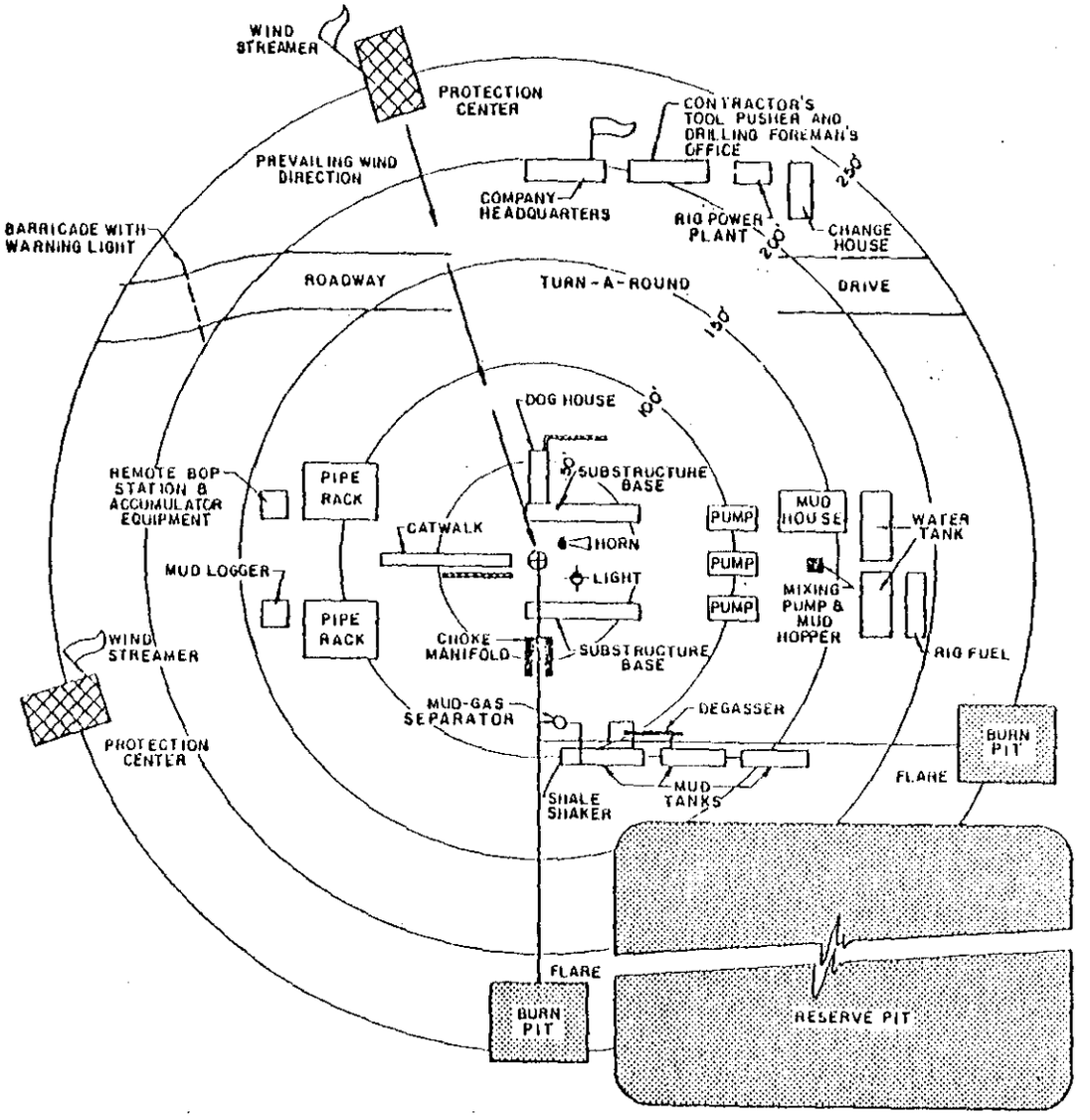
This will include the duties of each crew member when a well control problem occurs while making a trip, and when a well control problem occurs while drilling.

Regular testing and maintenance of blowout preventors will be followed and blowout control drills will be held by each crew.

Crew members will put on self-contained breathing equipment when the hydrogen sulfide concentration in the atmosphere reaches or exceeds 20 ppm.

All persons on the location will wear self-contained breathing equipment when this condition exists, there will be no exceptions.

When coming out of the hole with a core barrel and hydrogen sulfide conditions are expected, the drilling crew is to wear self-contained breathing equipment while pulling the last 20 stands of drill pipe, or at any time hydrogen sulfide reaches the surface. Masks are to be worn while opening the core barrel and examining the core.


WIND STREAMER
PROTECTION CENTER
PREVAILING WIND DIRECTION
CONTRACTOR'S TOOL PUSHER AND DRILLING FOREMAN'S OFFICE
COMPANY HEADQUARTERS
RIG POWER PLANT
CHANGE HOUSE
BARRICADE WITH WARNING LIGHT
ROADWAY
TURN-A-ROUND
DRIVE
250'
200'
150'
100'
50'
DOG HOUSE
SUBSTRUCTURE BASE
REMOTE BOP STATION & ACCUMULATOR EQUIPMENT
PIPE RACK
CATWALK
HORN
LIGHT
MUD LOGGER
PIPE RACK
PUMP
PUMP
PUMP
MUD HOUSE
WATER TANK
MIXING PUMP & MUD HOPPER
RIG FUEL
CHOKE MANIFOLD
SUBSTRUCTURE BASE
WIND STREAMER
MUD-GAS SEPARATOR
DEGASSER
PROTECTION CENTER
BURN PIT
FLARE
SHALE SHAKER
MUD TANKS
FLARE
BURN PIT
RESERVE PIT

APPENDIX C

COURSE CONTENT - BLOWOUT PREVENTION TRAINING

PARKER DRILLING COMPANY BASIC WELL CONTROL COURSE

SURFACE AND SUBSEA CURRICULUM OUTLINE

JOB CLASSIFICATIONS - DRILLERS, TOOLPUSHERS, AND OPERATOR'S REPRESENTATIVES

****** FIRST DAY - (8 HOURS; 10 MINUTES) ******

0800 - 0815 (15 MINUTES)

INTRODUCTION AND ADMINISTRATION

0815 - 0845 (30 MINUTES)

I. RELEVANT GOVERNMENT REGULATIONS AND COMPANY OPERATING PROCEDURES FOR BLOWOUT PREVENTION AND WELL CONTROL.
(30 CFR SUBPARTS C, D, G, AND O) <MANUAL SECTION XVII>

0845 - 1015 (1 HOUR; 30 MINUTES)

I. BASIC WELL CONRTOL CONCEPTS.
(30 CFR SUBPART O, 250.212 (c) (9) (ii))
<MANUAL PAGES 1, 3, 5, 6, 23, 96, 162-165, 366>

A. HYDROSTATIC PRESSURE.

1. FRICTION PRESSURE. <MANUAL PAGE 11>

B. PRESSURE TO MUD WEIGHT. <MANUAL PAGE 21>

1. EQUIVALENT MUD WEIGHT. <MANUAL PAGE 11>
2. EQUIVALENT CIRCULATING DENSITY.

C. CASING CEMENTING AND TESTING. (IN ACCORDANCE WITH SUBPART D, 250.54; 250.55 (a), (c), (d); SUBPART O, 250.212 (9) (c) (iii) and (v)) <MANUAL PAGES 164(A) AND 164(B)>

1015 - 1025 (10 MINUTES) BREAK

1025 - 1145 (1 HOUR; 20 MINUTES)

D. PRESSURE INTEGRITY TEST OR FORMATION PRESSURE TEST. (IN ACCORDANCE WITH SUBPART D, 250.54 (6); SUBPART O, 250.212 (c) (9) (ii)) <MANUAL PAGES 162-165, 198-200>

1. FORMATION LEAK-OFF TEST.
2. EQUIVALENT MUD WEIGHT TEST.

E. MAXIMUM ALLOWABLE CASING PRESSURE. (COMPLIANCE WITH SUBPART D, 250.60 (6)).

1145 - 1230 (45 MINUTES) LUNCH

1230 - 1345 (1 HOUR; 15 MINUTES)

I. PERFORM SIMULATED TEST IN ACCORDANCE WITH MMS REQUIREMENTS.

A. CASING PRESSURE TEST.
B. LEAK-OFF AND/OR EQUIVALENT MUD WEIGHT TEST.

1345 - 1430 (45 MINUTES)

I. DETECTING KICKS. (SUBPART D, 250.60 (b), SUBPART O, 250.212, (c) (5)) <MANUAL SECTIONS V AND VI>

A. DRILLING BREAK <MANUAL PAGES 107, 109>
B. FLOW INCREASE <MANUAL PAGES 116, 117>
C. PIT GAIN <MANUAL PAGES 116, 117>
D. PUMPS (STROKES/PSI) <MANUAL PAGE 109>
E. GAS CUT MUD <MANUAL PAGES 110-111>
F. BACKGROUND GAS <MANUAL PAGE 111>
G. MUD PROPERTIES <MANUAL PAGE 107>
H. SHALE PROPERTIES <MANUAL PAGES 105-107>
I. TRIP VOLUMES <MANUAL PAGES 83-89, 110>
J. FLOWING WELL <MANUAL PAGES 116, 117>

1430 - 1440 (10 MINUTES) BREAK

1440 - 1515 (35 MINUTES)

I. SHUT-IN PROCEDURES - SURFACE STACK. (SUBPART O, 250.212 (c) (6)) <MANUAL SECTION VII>

*II. SHUT-IN PROCEDURES - SUBSEA STACK. (SUBPART O, 250.212 (c) (6)) <MANUAL PAGES 322-326>

1515 - 1630 (1 HOUR; 15 MINUTES)

III. DIVERTER PROCEDURES AND SHALLOW GAS KICKS.
(SUBPART D, 250.58; SUBPART O, 250.212 (c) (2), (11) (i)-(iii))
<MANUAL PAGES 95, 188-191, 122, 329-330, 381-387>

A. STEELHEAD BLOWOUT/FIRE.
B. BOP DRILLS <MANUAL PAGES 95, 188-191>
C. MUD ANALYSIS <MANUAL PAGES 381-386>
1. BARITE NEEDED TO INCREASE DENSITY X ppg.

1630 - 1715 (45 MINUTES)

I. WELL INFORMATION FORM. (SUBPART O, 250.212 (9))
<MANUAL SECTION XIV>

A. DRILL STRING VOLUMES <MANUAL PAGES 336-338>
B. PUMP OUTPUT - bbl/stk. <MANUAL PAGES 335, 336>
C. PUMP DISPLACEMENT - STROKES/TIME. <MANUAL PAGE 338>

II. OUTSIDE ASSIGNMENT "A".

* DENOTES SUBSEA QUALIFICATION ONLY.

****** SECOND DAY - (8 HOURS; 10 MINUTES) ******

0800 - 0815 (15 MINUTES)

I. QUESTIONS

0815 - 0915 (1 HOUR)

I. WELL INFORMATION FORM (CONTINUED FROM FIRST DAY).

A. ANNULUS CAPACITIES AND VOLUMES. <MANUAL PAGES 338-342A>
B. PUMP DISPLACEMENTS <MANUAL PAGE 342A>

0915 - 1000 (45 MINUTES)

I. KICK CAUSES (SUBPART O, 250.212 (3), (4), SUBPART D, 250.60 (3))
<MANUAL SECTION IV>

A. TRIPPING - COMPANY TRIP FORMS WET AND DRY.
1. SWAB/SURGE <MANUAL PAGES 90-92>

1000 - 1010 (10 MINUTES) BREAK

1010 - 1200 (1 HOUR; 50 MINUTES)

I. KICK CAUSES - CONTINUED
B. LOST CIRCULATION <MANUAL PAGES 89, 165, 168>
1. RIG 66
2. TRIP SLUGS.
3. GUNK PILL - BARITE PLUG - CEMENT.
C. INSUFFICIENT DENSITY OF DRILLING FLUID.
1. SPOTTING PILLS/PLUGS <MANUAL PAGES 201-203, APPENDIX I>
2. SEDIRAN 13
D. OIL BASE MUD KICKS
1. RIG 75 - RIG 165
C. ABNORMALLY PRESSURED FORMATIONS. <MANUAL PAGES 8, 104, 107>
1. RIG 201 AND MANNING RIG

1200 - 1245 (45 MINUTES) LUNCH

1245 - 1400 (1 HOUR; 15 MINUTES)

I. SHUT-IN PRESSURES (SUBPART O, 250.212 (c) (9) (i)-(v))
<MANUAL SECTION VIII>

A. DRILL PIPE AND CASING PRESSURES, PIT GAIN.
1. GAS INFLUX (GAS LAW/GAS MIGRATION) <MANUAL PAGES 31, 17

B. SLOW PUMP PRESSURES
1. SURFACE STACK. <MANUAL PAGES 18, 19, 204>
*2. SUBSEA STACK - CHOKE LINE FRICTION. <MANUAL PAGE 325>

II. WELL CONTROL METHODS (SUBPART O; 250.212 (7))
<MANUAL SECTION VIII>

A. DRILLERS METHOD - ADVANTAGES/DISADVANTAGES
<MANUAL PAGES 128-130>

B. CIRCULATE AND WEIGHT METHOD - ADVANTAGES/DISADVANTAGES
<MANUAL PAGES 133-138>

A. WAIT AND WEIGHT METHOD - ADVANTAGES/DISADVANTAGES
<MANUAL PAGES 130-133>

1400 - 1410 (10 MINUTES) BREAK

1410 - 1530 (1 HOUR; 20 MINUTES)

I. WELL CONTROL PROBLEMS (SUBPART O, (c) (10), (16) (i)-(v), (viii), (19)) <MANUAL SECTIONS IX, XII>

A. DRILL STRING FLOAT.
<MANUAL PAGES 180-182>

B. DRILL STRING PLUG
1. GAS MIGRATION
<MANUAL PAGES 170-171>

C. OFF BOTTOM OR OUT OF HOLE
<MANUAL PAGES 168-170>
1. STRIP/SNUB

D. SUSPECTED H2S
<MANUAL PAGE 309>

1530 - 1715 (1 HOURS; 45 MINUTES)

I. ORGANIZATION AND SUPERVISION OF WELL CONTROL OPERATIONS (1)
(SUBPART O, 250.212, (c) (6), (7), (8), (9), (17); SUBPART D, 250.54 (6), 250.55 (a), 250.60 (6))
<MANUAL SECTIONS VI, VII, VIII, X, XIII>

A. ROUTINE WELL CONTROL OPERATION.
B. SIMULATED LEAK-OFF AND/OR EQUIVALENT MUD WEIGHT TEST.
C. MAXIMUM ALLOWABLE CASING PRESSURE BELOW SHOE.
D. ESTIMATED MAXIMUM SAFE CASING PRESSURE.
*E. SUBSEA SYSTEMS
*1. SLOW PUMP PRESSURE ADJUSTMENTS
*2. KILL LINE/CHOKE LINE PRESSURES W/ GAS AT CHOKE LINE.
*2. RISER CIRCULATION REQUIREMENTS <MANUAL PAGE 330N>
*3. TRAPPED GAS - RISER COLLAPSE

II. OUTSIDE ASSIGNMENT "B"

* DENOTES SUBSEA QUALIFICATION ONLY.

****** THIRD DAY - (3 HOURS; 05 MINUTES) ******

0800 - 0815 (15 MINUTES)

I. QUESTIONS

0815 - 1015 (2 HOURS)

I. BOP CLOSING UNITS (SUBPART D, 250.56, (d), (1)-(3); SUBPART O, 250.212, (c), (18))
<MANUAL PAGES 65, 231C, 330-330M>

A. ACCUMULATOR, MANIFOLD, AND ANNULAR PRESSURES.
1. MAXIMUMS AND RECOMMENDED. <MANUAL PAGES 65, 330G, 330H>
B. REGULATOR VALVES AND PRESSURE ADJUSTMENTS.
C. PRECHARGING <MANUAL PAGES 330B-330F>
D. FLUID VOLUMES <MANUAL 330F-330M>
1. STORED/USEABLE FLUID

II. BOP SYSTEM OPERATING FLUID REQUIREMENTS (IN ACCORDANCE WITH SUBPART D, 250.56, (d), (1)) <MANUAL PAGES 231(C)-(E), 247-250>

A. SURFACE STACK. <MANUAL 247-250>
*B. SUBSEA STACK. <MANUAL 247-250>

III. BOP CLOSING UNIT TESTING. <MANUAL PAGE 231(C)>

A. USEABLE FLUID TEST FORM. <MANUAL PAGE 231E>
B. PRECHARGE TEST - CHARGING/GAUGING ASSEMBLY. <MANUAL PAGE 330
C. ACCUMULATOR PUMPS TESTING. <MANUAL PAGE 330L>
D. MAINTENANCE RECORDS.

*IV. CLOSING UNIT FOR SUBSEA STACK.

A. SIMILARITIES/DIFFERENCES

1015 - 1025 (10 MINUTES) BREAK.

1025 - 1200 (1 HOUR; 35 MINUTES)

I. BOP SYSTEM REQUIREMENTS. (SUBPART D, 250.56, 250.57, 250.59; SUBPART O, 250.212, (c), (13), (14), (15))
<MANUAL PAGES 43-59, 247-308>

A. INSTALLATION <MANUAL PAGES 51-53, 263, 266, 270(B)>
B. OPERATION <MANUAL PAGES 43-50, 55, 262, 263, 270(A)>
C. MAINTENANCE <MANUAL PAGES 51, 53, 257, 258, 265, 270(C)>
D. TESTING <MANUAL PAGES 51, 251-256(C), 259-261, 264, 267-270, 270(D)-(E)>

II. DIVERTER SYSTEM.

A. DESIGN <MANUAL PAGES 57, 329-330, SECTION XVII, SUBPART D, 250.59, (a)-(e)>
B. PRESSURE AND ACTUATION TESTS <MANUAL SECTION XVII, SUBPART D, 250.59 (f) >

III. AUXILLIARY EQUIPMENT.

A. PIT LEVEL INDICATOR <MANUAL PAGES 103, 295-308>
B. TRIP TANK AND FLUID VOLIME MEASURING DEVICE. <MANUAL PAGES 101, 295-308>
C. FLUID RETURN INDICATOR <MANUAL PAGE 102>
D. GAS DETECTOR <MANUAL PAGE 315>
E. GAS SEPARATOR <MANUAL PAGES 113-114>
F. DEGASSER <MANUAL PAGES 114-115>
G. ADJUSTABLE CHOKES - MANUAL AND HYDRAULIC. <MANUAL PAGES 271-294(B)>

1200 - 1245 (45 MINUTES) LUNCH

1245 - 1500 (2 HOURS; 15 MINUTES)

I. ORGANIZATION AND SUPERVISION OF WELL CONROL OPERATIONS (2). (SUBPART O, 250.212, (c), (6)-(9), (17), (3) (iii), (16) (iii), (vii))

A. EXCESSIVE ANNULAR PRESSURE <MANUAL PAGES 162-165>
B. LOSSES DURING CIRCULATION. <MANUAL PAGES 89-91, 167, 168>

1500 - 1510 (10 MINUTES) BREAK.

1510 - 1710 (2 HOURS)

I. ORGANIZATION AND SUPERVISION OF WELL CONROL OPERATIONS (3). (SUBPART O, 250.212, (c), (16) (vi)) <MANUAL SECTION XVIII, APPENDIX V>

A. COMPLICATIONS SAME AS PROBLEM (2) WITH LOSSES MORE SEVERE.

II. OUTSIDE ASSIGNMENT "C".

* DENOTES SUBSEA QUALIFICATION ONLY.

****** FOURTH DAY - (8 HOURS; 05 MINUTES) ******

0800 - 0815 (15 MINUTES)

I. QUESTIONS

0815 - 0945 (1 HOUR; 30 MINUTES)

I. WELL CONTROL PROBLEMS AND POSSIBLE SOLUTIONS.
(SUBPART D, 250.55 (b), SUBPART O, (c) (16) (i)-(v), (21) (iv), (22)) <MANUAL PAGES 170-180, 201, SECTION XVIII, APPENDIX III

A. LUBRICATION TECHNIQUE <MANUAL PAGES 170-180>
1. PIPE STRING PLUGGED, STUCK OFF BOTTOM, OUT OF HOLE, HOLE IN STRING.
a. POSSIBLE SOLUTIONS - REAM PLUG, SHOOT STRING, BACKOFF.

B. LINER LAP TEST (IN ACCORDANCE WITH SUBPART D, 250.55 (b), PLUS NEGATIVE TEST) <MANUAL SECTION XVIII, APPENDIX III>

C. COMPLETION PROBLEMS
1. PACKER FLUIDS, PERFORATING, DST, MULTIPLE COMPLETIONS.

0945 - 0955 (10 MINUTES) BREAK

0955 - 1145 (1 HOUR; 50 MINUTES)

I. ORGANIZATION AND SUPERVISION OF WELL CONTROL OPERATIONS (4)

A. CIRCULATE AND WEIGHT METHOD.

1145 - 1230 (45 MINUTES) LUNCH

1230 - 1700

I. WRITTEN EXAMINATION
II. AWARDING CERTIFICATES

APPENDIX D

POST EMERGENCY RESPONSE PROCEDURES

DOCUMENTATION OF RELEASES/INCIDENTS

Following the occurrence of a spill of a reportable quantity or any emergency situations described in this plan and in compliance with the GRP, ATC and other County or State requirements, a report will be prepared by the PGV Environmental Coordinator of the incident and the report will be transmitted to the appropriate individuals and agencies after review by PGV. These include the following:

Federal National Response Center
Hawaii County Civil Defense Agency
Hawaii County Planning Commission
Hawaii State Department of Health, Clean Air Branch
Hawaii State Emergency Response Commission
Hawaii State Department of Land and Natural Resources

INVESTIGATE FOLLOW UP

The Environmental Coordinator shall compile all documentation and perform a post-incident investigation. Immediate performance of this activity will aid in determining the exact circumstances and cause of the incident. Issues to be determined include:

* Cause of the incident
* Effectiveness of the emergency response procedure
* Need for amendments to the response plan
* Need for additional respondent and training programs

APPENDIX F
PENTANE SAFETY DATA SHEET

May 1, 1989

USA and WORLDWIDE

Material Safety Data Sheet

n-PENTANE (Commercial, Pure, Research and Polymerization Grades) and PENTANE(S)

Phillips 66 Company
A Subsidiary of Phillips Petroleum Company
Bartlesville, Oklahoma 74004

PHONE NUMBERS
Emergency:
Business Hours (918) 661-3865
After Hours (918) 661-8118
General MSDS Information:
(918) 661-8327

A. Product Identification

Synonyms: Normal Pentane, Pentane
Chemical Name: n-Pentane
Chemical Family: Aliphatic Hydrocarbon
Chemical Formula: C5H12
CAS Reg. No.: 109-66-0
Product No.: P05500, P05400, P05392, P05830

Product and/or Components Entered on EPA's TSCA Inventory: Yes

This product has been commercially introduced into U.S. commerce, and is listed in the Toxic Substances Control Act (TSCA) Inventory of Chemicals in Commerce; hence, it is subject to all applicable provisions and restrictions under TSCA 40 CFR, section 721 and 723.250.

B. Hazardous Components

Ingredients	CAS Number	% By Wt.	OSHA PEL	ACGIH TLV
PURE GRADE				
n-Pentane	109-66-0	99.4	600 ppm	600 ppm
Isopentane	78-78-4	0.2	NE	NE
Related Hydrocarbons	Various	0.4	NE	NE
RESEARCH GRADE				
n-Pentane	109-66-0	99.99	600 ppm	600 ppm
Isopentane	78-78-4	0.01	NE	NE
COMMERCIAL AND POLYMERIZATION GRADES, PENTANE(S)				
n-Pentane	109-66-0	98.5	600 ppm	600 ppm
Isopentane	78-78-4	0.7	NE	NE
Related Hydrocarbons	Various	0.8	NE	NE

NA - Not Applicable NE - Not Established

C. Personal Protection Information

Ventilation:	Use adequate ventilation to control exposure below recommended levels.
Respiratory Protection:	Not generally required. For concentrations exceeding the recommended exposure level, use NIOSH/MSHA approved air purifying respirator.
Eye Protection:	Use safety glasses with side shields. For splash protection use face shield and chemical goggles.
Skin Protection:	Avoid unnecessary skin contamination with material. Use gloves of Neoprene or Viton construction if liquid contact could occur.

NOTE: Personal protection information shown in Section C is based upon general information as to normal uses and conditions. Where special or unusual uses or conditions exist, it is suggested that the expert assistance of an industrial hygienist or other qualified professional be sought.

D. Handling and Storage Precautions

Do not get in eyes, on skin, or on clothing. Avoid breathing vapors. Wear protective equipment and/or garments described in Section C if exposure conditions warrant. Wash thoroughly after handling. Launder contaminated clothing before reuse.

Store in a cool, well-ventilated area away from ignition sources. Provide means for controlling leaks and spills. Bond and ground during transfer. Keep containers closed. Protect containers from physical damage.

E. Reactivity Data

Stability:	Stable
Conditions to Avoid:	Not Applicable
Incompatibility (Materials to Avoid):	Oxygen and strong oxidizing agents
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid:	Not Applicable
Hazardous Decomposition Products:	Carbon oxides formed when burned.

F. Health Hazard Data

Recommended Exposure Limits:

See Section B.

Acute Effects of Overexposure:

Eye: Liquid and high vapor concentrations may be mildly irritating.

Skin: Prolonged or repeated contact with the liquid may cause defatting of the skin resulting in drying, redness, and possibly blistering.

Inhalation: Vapors may be mildly irritating to lungs and mucous membranes of the nose and throat. Overexposure may cause dizziness, headache, excitation, drowsiness, incoordination, anesthesia, unconsciousness, and respiratory arrest.

Ingestion: May cause effects described above as well as gastrointestinal irritation. May be aspirated into the lungs if swallowed resulting in pulmonary edema and chemical pneumonitis.

Subchronic and Chronic Effects of Overexposure:

If product is pressurized, contact with eyes and skin may result in freeze-burns.

Other Health Effects:

No known applicable information.

Health Hazard Categories:

	Animal	Human		Animal	Human
Known Carcinogen	___	___	Toxic	___	___
Suspect Carcinogen	___	___	Corrosive	___	___
Mutagen	___	___	Irritant	___	___
Teratogen	___	___	Target Organ Toxin	_X_	_X_
Allergic Sensitizer	___	___	Specify - Lung-Aspiration Hazard		
Highly Toxic	___	___	Skin & Eye Hazard-Freeze Burns		

First Aid and Emergency Procedures:

Eye: Flush eyes with running water for at least fifteen minutes. If irritation develops, seek medical attention.

Skin: Wash skin with soap and water. If irritation develops, seek medical attention.

Inhalation: Remove from exposure. If breathing ceases, administer artifical respiration followed by oxygen. Seek medical attention.

Ingestion: Do not induce vomiting. Seek immediate medical attention.

Note to Physician: Gastric lavage using a cuffed endotracheal tube may be performed at your discretion.

G. Physical Data

Appearance:	Colorless Liquid
Odor:	Mild, gasoline odor
Boiling Point:	97F (36C)
Vapor Pressure:	15 psia at 100F (37.8C)
Vapor Density (Air = 1):	2.48
Solubility in Water:	Negligible
Specific Gravity (H2O = 1):	0.63 at 60/60F (15.6/15.6C)
Percent Volatile by Volume:	100
Evaporation Rate (Butyl Acetate = 1):	> 1
Viscosity:	0.443 cs at 32F (0C)

H. Fire and Explosion Data

Flash Point (Method Used):	<-40F (-40C) (TCC, ASTM D56)
Flammable Limits (% by Volume in Air):	LEL - 1.5 UEL - 7.8
Fire Extinguishing Media:	Dry chemical, foam or carbon dioxide (CO2)
Special Fire Fighting Procedures:	Evacuate area of all unnecessary personnel. Wear appropriate safety equipment for fire conditions including NIOSH/MSHA self-contained breathing apparatus (SCBA). Shut off source if possible. Water fog or spray may be used to cool exposed containers and equipment. Do not spray water directly on fire - product will float and could be reignited on surface of water.
Fire and Explosion Hazards:	Carbon oxides formed when burned. Highly flammable vapors which are heavier than air may accumulate in low areas and/or spread along ground away from handling site. Flash back along vapor trail is possible.

I. Spill, Leak and Disposal Procedures

Precautions Required if Material is Released or Spilled:
Evacuate area of all unnecessary personnel. Wear protective equipment and/or garments described in Section C if exposure conditions warrant. Shut off source if possible and contain spill. Protect from ignition. Keep out of water sources and sewers. Absorb in dry, inert material. Transfer to disposal drums using non-sparking equipment.

Waste Disposal (Insure Conformity with all Applicable Disposal Regulations):
Incinerate or otherwise manage in a RCRA permitted waste management facility.

J. DOT Transportation

Shipping Name:	Pentane
Hazard Class:	Flammable Liquid
ID Number:	UN 1265
Marking:	Pentane/UN 1265
Label:	Flammable Liquid
Placard:	Flammable/1265
Hazardous Substance/RQ:	Not Applicable
Shipping Description:	Pentane, Flammable Liquid, UN 1265
Packaging References:	49 CFR 173.118 and 173.119(a)

K. RCRA Classification - Unadulterated Product as a Waste

Ignitable (D001)

L. Protection Required for Work on Contaminated Equipment

Use NIOSH/MSHA approved respiratory protection, such as air-supplied mask, in confined spaces or other poorly ventilated areas. Wear protective equipment and/or garments described in Section C if exposure conditions warrant. Contact immediate supervisor for specific instructions before work is initiated.

M. Hazard Classification

_X_ This product meets the following hazard definition(s) as defined by the Occupational Safety and Health Hazard Communication Standard (29 CFR Section 1910.1200):

___ Combustible Liquid	___ Flammable Aerosol	___ Oxidizer
___ Compressed Gas	___ Explosive	___ Pyrophoric
___ Flammable Gas	_X_ Health Hazard (Section F)	___ Unstable
_X_ Flammable Liquid	___ Organic Peroxide	___ Water Reactive
___ Flammable Solid		

___ Based on information presently available, this product does not meet any of the hazard definitions of 29 CFR Section 1910.1200.

N. Additional Comments

As of the preparation date, this product did not contain a chemical or chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

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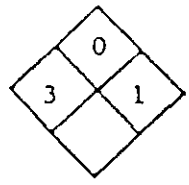
APPENDIX G
50% CAUSTIC SODA SAFETY DATA SHEET

Hooker Industrial chemicals DIVISION



ADAPTED FROM USDL
FORM NO. LSB - 005-4

MATERIAL SAFETY DATA SHEET

NFPA Designation

CHEMICAL NAME:	PLANT CODE	MATERIAL CODE NO
Sodium Hydroxide, 50% Aqueous		
MANUFACTURER'S NAME: Hooker Chemical Corporation	EMERGENCY TELEPHONE NO.	
ADDRESS: (NUMBER, STREET, CITY, STATE AND ZIP CODE)		

CHEMICAL NAME AND SYNONYMS	TRADE NAME
Sodium Hydroxide	[redacted] Caustic Soda, Lye

CHEMICAL FORMULA	MOL. WT.	USES
NaOH	40.01	Mfg of Chemicals, soap, textiles, paper, etc

Physical Properties

BOILING POINT (°F) @ 760 mm Hg	293	SPECIFIC GRAVITY (H_2O=1) 60°F/60°F	1.541
VAPOR PRESSURE (mmHg) @ 100°F	3	PERCENT VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (=1)	
SOLUBILITY IN WATER	Infinite		

APPEARANCE AND ODOR Clear, water-white to slightly gray and turbid, odorless solution,

Fire and Explosion Hazard Data

FLASH POINT	METHOD	FLAMMABLE LIMITS	AUTOIGNITION TEMP.
none °F		UEL -- LEL --	none °F

EXTINGUISHING MEDIA Not combustible.

SPECIAL FIRE FIGHTING PROCEDURES Suitable for surrounding fire.

UNUSUAL FIRE AND EXPLOSION HAZARDS Cool tank with water to avoid corrosive attack or possible rupture of tank.

Reactivity

INCOMPATIBILITY Reacts vigorously with: (1) strong acids; (2) aluminum, tin, zinc - liberating hydrogen; (3) trichlorethylene - forming spontaneously flammable dichloroacetylene; (4) phosphorus - forming spontaneously flammable phosphine.

HAZARDOUS DECOMPOSITION PRODUCTS --

CONDITIONS TO AVOID Overheating in storage accelerates corrosion. Store separately from materials which can react violently with caustic; especially acids, chlorocarbons, nitro paraffins, phosphorus. When diluting, use agitation and add concentrated causti at controlled rate to control heat of dilution and avoid spattering.

Health Related Data

THRESHOLD LIMIT VALUE 2 milligrams per cubic meter of air.

EFFECTS OF OVEREXPOSURE (SKIN, EYE, INHALATION, ETC.) Contact with concentrated solutions can cause severe burns and destruction of all tissues, especially skin and eyes. Ingestion damages mucous membranes and tissues of the gastro-intestinal tract. Inhalation of mist, depending upon severity of exposure, can produce symptoms ranging from mild irritation of the nasal mucous membranes to severe pneumonitis. Dilute solutions may cause burns which are not immediately evident.

EMERGENCY AND FIRST AID PROCEDURES Flush thoroughly with large quantities of water. Speed and thoroughness of treatment are critical for eye exposures. Get medical assistance for all eye exposures and any other severe exposures. In case of ingestion, dilute by drinking large quantities of milk or water; vomiting may occur but should not be induced.

SPECIAL MEDICAL PROCEDURES Do not apply oils or ointments unless ordered by the physician. In case of ingestion, after dilution, fruit juice or diluted vinegar may be administered to accomplish neutralization.

Special Protection Information

VENTILATION Not usually required for caustic solutions.

RESPIRATORY (TYPE) Mist protection where applicable.

GLOVES (TYPE) Rubber, neoprene or vinyl.

EYE (TYPE) Chemical goggles and face shield where appropriate.

OTHER Rubber or neoprene suits, rubber shoes or boots, hard hat with brim.

SPECIAL PRECAUTIONS FOR HANDLING AND STORAGE Wear protective equipment; tanks should be vented and diked; drum storage areas should have adequate drainage.

STEPS TO TAKE IN EVENT OF SPILL OR RELEASE If possible, contain spill; if not, dilute and flush with water. Following flushing, neutralize with dilute acid, preferably acetic. In some locations a liberal covering of sodium bicarbonate may be used instead.

WASTE DISPOSAL Dilute and neutralize in a retention facility before discharging to a sewer or stream.

REMARKS

REFERENCES MCA Chemical Safety Data Sheet SD-9: Caustic Soda (1968).
Sax, N I, - Dangerous Properties of Industrial Materials, 3rd Edition, (1968).

Information presented herein, while not guaranteed, was prepared by technically knowledgeable personnel and to the best of our knowledge is true and accurate. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other or additional considerations.

NAME G W Darling
LOC. Niagara - ICD
DATE January 1972

Cleaner, Hydro-Prep

P.S.D. Nos. 3-97091 & 3-97092

Essentially similar to OSHA-20

50% Caustic Soda

MATERIAL SAFETY DATA SHEET

F 1570

SECTION I

MANUFACTURER'S NAME: Dist. by Master-Fit	EMERGENCY TELEPHONE NO.: (312) 496-2500
ADDRESS (Number, Street, City, State, and ZIP Code): 7250 So. Cicero Ave., Chicago, IL 60629	HYDRO-PREP (Base Ingredient) ~~Caustic Soda~~
CHEMICAL NAME AND SYNONYMS: Sodium Hydroxide	TRADE NAME AND SYNONYMS: Caustic Soda - 50% Liquor
CHEMICAL FAMILY: Inorganic Alkali	FORMULA: NaOH , Seqlene 270, H_2O

SECTION II HAZARDOUS INGREDIENTS

PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
NaOH	50	2 mg/m

SECTION III PHYSICAL DATA

BOILING POINT (°F.)	288-298	SPECIFIC GRAVITY (H_2O = 1)	1.53
VAPOR PRESSURE (mm Hg.) at 100°F.	3	PERCENT VOLATILE BY VOLUME (%)	-
VAPOR DENSITY (AIR = 1)	-	VAPORATION RATE (_____ = 1)	-
SOLUBILITY IN WATER	infinite		

APPEARANCE AND ODOR: Dark Brown Liquid, Penetrating coffee like odor

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method Used): None	FLAMMABLE LIMITS: None	LEL	UEL

EXTINGUISHING MEDIA

SPECIAL FIRE FIGHTING PROCEDURES: None

UNUSUAL FIRE AND EXPLOSION HAZARDS

SECTION V - HEALTH HAZARD DATA

Threshold Limit Value

Effects of Overexposure: Irritation or acid burn to skin and/or eyes - may involve irreversible and reversible changes not severe enough to cause death or permanent injury.

Emergency and First Aid Procedures: In case of contact, flush skin or eyes with plenty of water for at least 15 minutes; for eyes, get medical attention.

SECTION VI - REACTIVITY DATA

Stability	Unstable		Conditions to Avoid: Reaction with non-acid resitant metals which liberate H_2
	Stable	X	

Incompatibility (Materials to avoid): Aluminum and zinc & Alkaline materials

Hazardous Decomposition Products: _____

Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	X	

SECTION VII - SPILL OR LEAK PROCEDURES

Steps to be Taken in Case Material is Released or Spilled: May be handled by flushing with plenty of water.

Waste Disposal Method: Flush down drains with plenty of water.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Respiratory Protection (Specify type)

Ventilation: No	Local Exhaust	Special
	Mechanical (General)	Other: GENERAL ROOM VENTILATION IS SATISFACTORY.

Protective Gloves: Neoprene or Rubber | Eye Protection: Chemical Safety Goggles

Other Protective Equipment

SECTION IX - SPECIAL PRECAUTIONS

Precautions to be Taken in Handling and Storing: Store material away from heat and out of direct sunlight. Use acid resistant equipment.

Other Precautions

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: 2 mg/m^3 (as mist)

EFFECTS OF OVEREXPOSURE: SEE ATTACHED SHEET.

EMERGENCY AND FIRST AID PROCEDURES: SEE ATTACHED SHEET.

SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	

INCOMPATABILITY (Materials to avoid): Any acids and many organic chemicals.

HAZARDOUS DECOMPOSITION PRODUCTS:

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR		

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

Neutralize with acid and flush area with water spray.

WAST DISPOSAL METHOD:

Depends on Federal, State and local regulations. See above.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type): Filter or dust type for protection against caustic soda mist.

VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General)	OTHER

PROTECTIVE GLOVES: Rubber gloves

EYE PROTECTION: Goggles or face shield

OTHER PROTECTIVE EQUIPMENT:

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:

Avoid contact with skin and eyes. Avoid breathing mists or sprays.

OTHER PRECAUTIONS:

Caustic soda, as a solid or solution, makes a floor slippery.

ATTACHMENT FOR CAUSTIC SODA MATERIAL SAFETY DATA SHEETS

DANGER: Caustic Soda causes severe burns. May be fatal if swallowed. Harmful if inhaled.

Do not get in eyes, on skin, on clothing. Avoid breathing dust or mist. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.

PRECAUTION: When handling, wear goggles or face shield. When making solutions, use cold water and add caustic soda slowly in small amounts to surface of solution with continuous agitation to avoid spattering.

Skull & CB POISON Skull & CB

CALL A PHYSICIAN

FIRST AID: In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes, while removing contaminated clothing and shoes. Wash clothing before re-use, discard contaminated shoes.

If swallowed, dilute by drinking large quantities of water or milk. Following this, vinegar, 5% Acetic Acid, cider or fruit juice may be given to accomplish neutralization. DO NOT induce vomiting.

Exception: Never give anything by mouth to a victim unconscious or having convulsions.

If inhaled, remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen.

APPENDIX E
EQUIPMENT AND SERVICE CONTRACTORS

CRANES AND TRUCKS

Yamada Trucking	Office
Andrew Chong	933-8400
	933-8422
Richard Chong	933-8420
Richard Chong	959-8537 (Home)

Industrial Crane	Office
Wesley Duarte	966-9725
Wesley Duarte	966-8868 (Home)

CAUSTIC REMOVAL

HT & T	
Kai Torngren	961-4560
Eddie Macomber	961-4555
Kai Torngren	935-3301 (Home)

PROPANE REMOVAL

Gasco	Office
Lyle Hirota	935-0021
Melvin Kuwimoto	
Curtis Deck	

WELDERS/CUTTERS

Arakaki Mechanical	Office
Derrick Arakaki	966-7461
Derrick Arakaki	935-0276 (Home)

WELL CONTROL SPECIALISTS	Office
Cudd Pressure Control	512-387-8521
Boots and Coots	713-931-8884
Hiller Pressure and Blowout Control	405-670-1428
Red Adair	713-464-0236
Wild Well Control	713-353-5481
Otis Engineering	713-993-0773
GSM	806-358-6894

APPENDIX H
HAZARD ANALYSIS OF THE POSSIBLE WELL-RELATED UNCONTROLLED FLOW EVENT SCENARIOS

HAZARD ANALYSIS OF THE POSSIBLE WELL-RELATED UNCONTROLLED FLOW EVENT AND POWER PLANT UPSET EMISSION SCENARIOS PUNA GEOTHERMAL VENTURE PROJECT

To determine the "worst case" conditions under which geothermal fluid emissions could occur during an uncontrolled flow event at any wellpad, or during specified power plant upset conditions, Puna Geothermal Venture (PGV) conducted a simplified hazard analysis of the possible well-related uncontrolled flow event and power plant upset scenarios to determine the range of credible situations under which hydrogen sulfide and other contaminants could be released from any well or the power plant. Table 1 provides a summary of the twelve (12) scenarios determined by PGV, in consultation with the Hawaii Department of Health and its consultants, to be credible events.

Table 2 lists the parameters of the geothermal resource (geochemistry [hydrogen sulfide and other chemical constituents], likely maximum credible productivity [flow rate], temperature [enthalpy], etc.) which were determined by PGV, in consultation with the Hawaii Department of Health and its consultants, to be the emitted (released) constituents for the hazard analysis.

In order to determine the maximum ("worst case") impacts which could result from each of these 12 different emission scenarios, PGV conducted an impact analysis utilizing the Industrial Source Complex Short Term (ISCST) model. The ISCST model is a steady-state Gaussian model used to assess pollutant concentrations from a wide variety of sources associated with an industrial source complex which can be used for a wide variety of applications, from initial screening to refined determinations of maximum concentrations. Its use is appropriate here because it is the most popular EPA guideline model, making it readily accessible to most modelers. The emissions to be modeled are assumed to be steady state, or the emissions are scaled to the one-hour modelling period, and one-hour concentrations are calculated. The emitted steam and gas plume is not heavier than air, eliminating the need for dense gas models. ISCST can be used in the screen mode to evaluate impacts over a wide range of atmospheric stability and wind speeds.

Because the ultimate product of the air modeling was to evaluate the "worst-case" results of many different release scenarios, each scenario was modeled as a single source with the ISCST model in the flat terrain mode. In order to ensure that the analysis would be very conservative, in consultation with the Hawaii Department of Health and its consultants, PGV modeled receptors placed both at the same height as the source and at "flagpole" heights of 10 meters. A narrow (100 meter wide) two-dimensional generated Cartesian receptor grid (1,000 meter spacing from 1,000 to 25,000 meters) with discrete receptors located at 50 and 100 through 900 meters (at 100 meter intervals) was used, which provided sufficient detail without overburdening the analysis. To err again on the conservative side, building downwash calculations were modeled for those source(s) which could be located within the zone of influence of the power plant turbine and air cooler pads.

Because the air modeling is conducted to select the "worst-case" results of each of the different release scenarios under a wide variety of meteorological conditions, the ISCST model was used in the "screen" mode. This mode calculates "worst-case" ambient air concentrations for each of the 33 different wind-speed/stability classes used by the SCREEN model (see Table 3 for a listing of each of the SCREEN combinations) for each of the

designated receptor points. The mixing height was changed from the default value to 300 meters (stability classes A, B, C, and D) or 100 meters (stability classes E and F), and ambient temperatures scaled, to conform to the requests of the Hawaii Department of Health and its consultants, to ensure "worst-case" values.

Appropriate emission rates and other necessary air modeling parameters (temperature, flow rate, stack diameter, etc.) for the hydrogen sulfide emissions for each of the potentially credible release scenarios were established by PGV in consultation with the Hawaii Department of Health and it consultants, and are presented in Table 4. Emission parameters for the non-hydrogen sulfide noncondensible gas constituents of the geothermal fluid are identical to those for the hydrogen sulfide. Emission characteristics for the brine portion of the geothermal fluid are also identical to those for hydrogen sulfide, except that many of the emission mechanisms substantially reduce the emission of geothermal brine into the atmosphere over the hydrogen sulfide (and other noncondensible gases), and only a portion of the brine emitted into the atmosphere is converted into atmospheric aerosols. As a result, an additional reduction in the emission rate of the brine components over the hydrogen sulfide is appropriate. These reduction values are presented in Table 5.

Once the emission parameters, receptor locations and meteorological conditions were selected, the ISCST model was then run for each of the credible release scenarios to determine the highest modeled atmospheric concentration of hydrogen sulfide at each receptor point under any of the modeled meteorological conditions and receptor elevations. The output of this air dispersion modeling is presented in Attachment 2, and the maximum modeled concentrations for each scenario are graphically displayed in Atachment 3, Maps H-1 through H-12. Table 6 summarizes the results of the modeling for each of the 12 release scenarios, organized on the basis of the maximum distance at which each of the HDOH-specified threshold levels are predicted to be exceeded under the "worst case" meteorological conditions/receptor elevations and the point and concentration of maximum impact. Table 6 has further categorized each release scenario by which, if any, of the HDOH-specified threshold levels is predicted to be exceeded by the maximum predicted concentration, thus ensuring that each release scenario is categorized by the highest impact it can create.

Based on the ratio of the "emission rates" for hydrogen sulfide and each of the other noncondensible gas species which was determined in Attachment 1 as likely to result from the emission (release) of the geothermal fluid into the atmosphere, and the modeled ambient hydrogen sulfide concentrations at each receptor point for each of the scenarios as presented in Attachment 2, the "worst case" ambient concentrations of each of these noncondensible gas species can be estimated. These values are presented in Table 7. By ratioing these values further as appropriate by the reduced brine emission rates presented in Table 5, the maximum predicted concentrations of each of the brine aerosol species can be calculated. These maximum predicted concentrations for each of the brine aerosol species are listed in Table 8.

HAZARD ANALYSIS OF THE POSSIBLE WELL-RELATED UNCONTROLLED FLOW EVENT AND POWER PLANT UPSET EMISSION SCENARIOS
PUNA GEOTHERMAL VENTURE PROJECT
(page 3)

TABLE 1 WELL-RELATED UNCONTROLLED FLOW EVENT AND POWER PLANT UPSET EMISSION SCENARIOS	
1.	Abated ***vertical*** flow through the well 13-3/8" flow line and muffler (assumes that the new well control and abatement system works as designed to divert and abate any uncontrolled flow).
2.	Unabated ***vertical*** flow through the well 13-3/8" flow line and muffler (assumes that the abatement system does not operate).
3.	Unabated ***horizontal*** flow through the well 13-3/8" flow line (assumes that the flow through the flow line knocks the muffler off the end of the flow line and the abatement equipment is not operated. This scenario can be quickly controlled through closing valves to shut in the well).
4.	Unabated ***vertical*** flow through the well 13-3/8" casing (assumes that the rupture disk on the flow line does not rupture and the flow continues up the 13-3/8" casing through the BOPE stack).
5.	Unabated ***vertical*** flow through the well 9-5/8" casing (assumes that the well is unable to be shut-in at the surface after the 9-5/8" casing is set, or the vertical line is ruptured after the rig is removed from the well).
6.	Unabated ***vertical*** well flow channeled by the rig subbase (assumes that the rupture disk on the flow line does not rupture and the flow blows off the annular preventer and the vertical flow is channeled by the drill rig structure [this is essentially what happened during the first few hours of the KS-8 uncontrolled flow event]).
7.	Unabated ***vertical*** well flow through an area of fractured rock surrounding the well (assumes that the uncontrolled flow is not coming through the casing of the well but through an area of fractured rock surrounding the well casing).
8.	Abated ***vertical*** flow from the well drilling rig mud tanks (assumes that the choke line is used to divert the geothermal fluid to the mud tanks. Abatement is through NaOH injected into the choke line and lime in the mud tanks).
9.	Abated ***vertical*** flow from the well drilling rig mud sump (assumes that the choke line is used to divert the geothermal fluid to the mud sump. Abatement is through NaOH injected into the choke line and lime in the mud sump).
10.	Unabated ***horizontal*** flow through the well drilling rig 4" choke line (assumes that the choke line is used to divert the geothermal fluid, but the fluid flow knocks the "tee" off of the end of the choke line, at which point the hydrogen sulfide is unabated. This scenario can be controlled through closing valves to divert the geothermal fluid to the flow diverter or shut in the well).
11.	Unabated ***horizontal*** "puff" flow through 3" noncondensible gas flow line from noncondensible gas compressor to fluid injection line (assumes that the line is ruptured and the contents of the pipeline (4.9 pounds of hydrogen sulfide) is emitted to the air).
12.	Unabated ***vertical*** flow through the power plant steam release facility (assumes that the emergency steam release facility abatement system does not operate when needed).

TABLE 2
EMITTED GEOTHERMAL RESOURCE CHARACTERISTICS
ASSUMED FOR THE PGV PROJECT EMERGENCY RESPONSE PLAN

PARAMETERS	VALUE	COMMENT
MAXIMUM SINGLE WELL MASS FLOW	500,000 lbs/hr	Estimated maximum credible flow of geothermal fluid from a single well.
STEAM FLASH	80 percent	Based on enthalpy of KS-8 and flashing steam at atmospheric pressures.
HYDROGEN SULFIDE IN GEOTHERMAL FLUID	896 ppm	Based on assumed hydrogen sulfide concentration in steam (from below) calculated back to reservoir conditions by adding back in the 20% brine not flashed to steam.
HYDROGEN SULFIDE IN FLASHED STEAM	1,120 ppm	Calculated based upon average hydrogen sulfide measurements from KS-1A, KS-3, and HGP-A (834 ppmv) plus one standard deviation (286 ppmv) of all measurements.
BRINE AEROSOL SPECIES CONCENTRATIONS	See Attachment 1	
VAPOR PHASE INITIAL SPECIES CONCENTRATIONS	See Attachment 1	

TABLE 3
33 WIND SPEED/STABILITY COMBINATIONS ANALYZED BY SCREEN AND USED FOR THE PGV PROJECT EMERGENCY RESPONSE PLAN

10 Meter Wind Speed (m/s)	Stability Class					
	A	B	C	D	E	F
1.0	1	4	9	16	25	30
2.0	2	5	10	17	26	31
3.0	3	6	11	18	27	32
4.0		7	12	19	28	33
5.0		8	13	20	29	
8.0			14	21		
10.0			15	22		
15.0				23		
20.0				24		

TABLE 4
EMISSION CHARACTERISTICS FOR WELL-RELATED UNCONTROLLED FLOW EVENT AND POWER PLANT UPSET SCENARIOS FOR THE PGV EMERGENCY RESPONSE PLAN

SCENARIO	Source Type	Stack or Effective Height	Inside Diameter or Sigma y (feet)	Emission Velocity (ft/min) *OR*	*OR* Volumetric Flow Rate (ACFM)	Temperature of Effluent (F) or Sigma z (feet)	Abatement Efficiency (%)	Abated Emission Rate (lb/hr)
1. Abated ***vertical*** flow through the well 13-3/8" flow line and muffler	Stack	20[1]	15[2]		182,000[3]	211[4]	90[5]	44.8[6]
2. Unabated ***vertical*** flow through the well 13-3/8" flow line and muffler	Stack	20	15		182,000	211	0	448
3. Unabated ***horizontal*** flow through the well 13-3/8" flow line only	Volume x5[7]	65[8]	58.1[9]			30.2[10]	0	448[11]

[1]Based upon current design of muffler.

[2]Based upon current design of muffler.

[3]500,000 lb/hr x 80% steam flash = 400,000 lb/hr x 27.3 cu.ft/lb / 60 min/hr = 182,000 ACFM.

[4]Temperature of geothermal fluid at point of release after flashing.

[5]Abatement efficiency conservatively estimated from the literature.

[6]Assumes 400,000 lb/hr geothermal steam x 1,120 ppm hydrogen sulfide x 90% abatement.

[7]Assumes that the source is a line source, which is modeled as five volume sources, each with initial height of 65 ft and initial width of 125 ft. The center of each volume source along the line is assumed to be 62.5 ft, 312.5 ft, 562.5 ft, 812.5 ft, and 1,062.5 ft. Initial strength of each volume source is proportional to its distance from the origin; the first source is 29.9 lb/hr; the second 59.7 lb/hr; the third 89.6 lb/hr; the fourth 119.5 lb/hr; and the fifth 149.3 lb/hr, for a total emission rate of 448 lb/hr.

[8]The effective emission height of each volume source is set to the height of the volume.

TABLE 4
EMISSION CHARACTERISTICS FOR WELL-RELATED UNCONTROLLED FLOW EVENT AND POWER PLANT UPSET SCENARIOS FOR THE PGV EMERGENCY RESPONSE PLAN

SCENARIO	Source Type	Stack or Effective Height	Inside Diameter or Sigma y (feet)	Emission Velocity (ft/min) *OR*	*OR* Volumetric Flow Rate (ACFM)	Temperature of Effluent (F) or Sigma z (feet)	Abatement Efficiency (%)	Abated Emission Rate (lb/hr)
4. Unabated ***vertical*** flow through the well 13-3/8" casing	Stack	71[12]	75[13]	41	182,000	211[14]	0	448
5. Unabated ***vertical*** flow through the well 9-5/8" casing	Stack	71	75	41	182,000	211	0	448
6. Unabated ***vertical*** flow channeled by the rig subbase	Stack	40[15]	80[16]		182,000[17]	211	0	448

[9]Initial Sigma y for each volume source is calculated as the initial width (125 ft) divided by 2.15.

[10]Initial Sigma z for each volume source is calculated by dividing the initial vertical dimension of the source (65 feet) by 2.15.

[11]The initial strength of each volume source is proportional to its distance from the origin; the first source is 29.9 lb/hr; the second 59.7 lb/hr; the third 89.6 lb/hr; the fourth 119.5 lb/hr; and the fifth 149.3 lb/hr, for a total emission rate of 448 lb/hr. Note, however, that this scenario can be quickly controlled through closing valves to shut in the well, resulting in a significantly reduced emission rate over any one-hour period.

[12]The effective stack height (71 ft) is calculated by adding the assumed actual height of the stack (6 ft) to the calculated height (65 ft) at which the sonic cone has reached its maximum spread.

[13]Calculated effective stack diameter of release based upon sonic flow at release point (6 ft), resulting in expansion of the sonic cone at a 60° angle up to a additional height of 65 ft, which results in an effective diameter of 75 ft.

[14]Temperature of geothermal fluid at effective point of release after flashing.

TABLE 4
EMISSION CHARACTERISTICS FOR WELL-RELATED UNCONTROLLED FLOW EVENT AND POWER PLANT UPSET SCENARIOS FOR THE PGV EMERGENCY RESPONSE PLAN

SCENARIO	Source Type	Stack or Effective Height	Inside Diameter or Sigma y (feet)	Emission Velocity (ft/min) *OR*	*OR* Volumetric Flow Rate (ACFM)	Temperature of Effluent (F) or Sigma z (feet)	Abatement Efficiency (%)	Abated Emission Rate (lb/hr)
7. Unabated ***vertical*** flow through an area of fractured rock surrounding the well	Stack	0	50[18]		182,000	211	0	448
8. Abated ***vertical*** flow from the well drilling rig mud tanks	Stack	6[18]	25.5[20]	3.28[21]	-[22]	160[23]	99[24]	4.5

[15]Assumes that the soundproofing around rig floor railing, which tops out at about 40' above ground level, channels most of the steam flow.

[16]Because the rig floor was blown out during the KS-8 uncontrolled flow event, this scenario assumes that the effective diameter is equal to the observed diameter of the plume during the KS-8 uncontrolled flow event (80 ft diameter).

[17]Assumes total steam flow of 400,000 lb/hr is exiting through area of effective diameter.

[18]Reasonable but arbitrary assumption for a steam release through fractured rock. Assumes total area of rock fractures releasing steam and hydrogen sulfide equals approximately 2,000 square feet.

[19]Height of mud tanks above ground surface.

[20]Assumes mud tank surface area is approximately 650 sq.ft.

[21]Assumes a very low (1 meter per minute) vertical velocity.

[22]Assumes that a 4-inch diameter choke line limits steam and brine flow to only 50% of the unlimited flow rate.

[23]Assumes that the temperature of the mud is limiting the temperature of the discharge.

TABLE 4
EMISSION CHARACTERISTICS FOR WELL-RELATED UNCONTROLLED FLOW EVENT AND POWER PLANT UPSET SCENARIOS FOR THE PGV EMERGENCY RESPONSE PLAN

SCENARIO	Source Type	Stack or Effective Height	Inside Diameter or Sigma y (feet)	Emission Velocity (ft/min) *OR*	*OR* Volumetric Flow Rate (ACFM)	Temperature of Effluent (F) or Sigma z (feet)	Abatement Efficiency (%)	Abated Emission Rate (lb/hr)
9. Abated ***vertical*** flow from the well drilling rig mud sump	Stack	0	70.7[25]	3.28[26]	-[27]	160	99	4.5
10. Unabated ***horizontal*** flow through the well drilling rig 4" choke line	Volume x5[28]	65[29]	58.1[30]			30.2[31]	50[32]	224[33]

[24]High abatement percentage assumes discharge is abated through limitations in flow through the small-diameter choke line (50%); abatement by chemical injection in the choke-line (96%), and discharge into the mud tanks under the level of the mud in the tanks (50%).

[25]Assumes a 50' x 100' mud sump.

[26]Assumes a very low (1 meter per minute) vertical velocity.

[27]Assumes that a 4-inch diameter choke line limits steam and brine flow to only 50% of the unlimited flow rate.

[28]Assumes that the source is a line source, which is modeled as five volume sources, each with initial height of 65 ft and initial width of 125 ft. The center of each volume source along the line is assumed to be 62.5 ft, 312.5 ft, 562.5 ft, 812.5 ft, and 1,062.5 ft. Initial strength of each volume source is proportional to its distance from the origin.

[29]The effective emission height of each volume source is set to the height of the volume.

[30]Initial Sigma y for each volume source is calculated as the initial width (125 ft) divided by 2.15.

[31]Initial Sigma z for each volume source is calculated by dividing the initial vertical dimension of the source (65 feet) by 2.15.

[32]Abatement is assumed to be 50% as total flow of geothermal fluid is restricted through choke line to only 50% (250,000 lb/hr).

TABLE 4
EMISSION CHARACTERISTICS FOR WELL-RELATED UNCONTROLLED FLOW EVENT AND POWER PLANT UPSET SCENARIOS FOR THE PGV EMERGENCY RESPONSE PLAN

SCENARIO	Source Type	Stack or Effective Height	Inside Diameter or Sigma y (feet)	Emission Velocity (ft/min) *OR*	*OR* Volumetric Flow Rate (ACFM)	Temperature of Effluent (F) or Sigma z (feet)	Abatement Efficiency (%)	Abated Emission Rate (lb/hr)
11. Unabated ***horizontal*** "puff" of noncondensible gases through 3" line[34]	Stack	0[35]	3.28[36]	0.00[37]		150[38]	0	4.9[39]

[32]Abatement is assumed to be 50% as total flow of geothermal fluid is restricted through choke line to only 50% (250,000 lb/hr).

[33]The initial strength of each volume source is proportional to its distance from the origin; the first source is 14.9 lb/hr; the second 29.9 lb/hr; the third 44.8 lb/hr; the fourth 59.7 lb/hr; and the fifth 74.7 lb/hr, for a total emission rate of 224 lb/hr. Note, however, that this scenario can be quickly controlled through closing valves to divert the flow to the flow diverter or to shut in the well, resulting in a significantly reduced emission rate over any one hour period.

[34]This scenario results in the emission of only that noncondensible gas contained in the line (4.9 pounds) at the time of the pipe rupture (which is an extremely remote possibility. If the pipeline ruptured, the system would bypass the compressor and attempt to inject the noncondensible gases into the fluid injection line through an independent line. If the noncondensible gas injection system became completely inoperable for whatever reason, the power plant would go off-line and the geothermal steam and noncondensible gases would be released (and abated) through the power plant steam release facility, or through the well pad rock mufflers, or the wells would be shut in.

[35]Assumes a ground-level release.

[36]Assumes a small diameter stack release.

[37]Uses the extremely conservative assumption that the emission occurs with no vertical velocity.

[38]Operating temperature for the line.

TABLE 4
EMISSION CHARACTERISTICS FOR WELL-RELATED UNCONTROLLED FLOW EVENT AND POWER PLANT UPSET SCENARIOS FOR THE PGV EMERGENCY RESPONSE PLAN

SCENARIO	Source Type	Stack or Effective Height	Inside Diameter or Sigma y (feet)	Emission Velocity (ft/min) *OR*	*OR* Volumetric Flow Rate (ACFM)	Temperature of Effluent (F) or Sigma z (feet)	Abatement Efficiency (%)	Abated Emission Rate (lb/hr)
12. Unabated ***vertical*** flow through power plant steam release facility	Stack	20[40]	15[41]		500,000[42]	211[43]	0	560[44]

[39]The quantity of hydrogen sulfide contained in the pipeline at any given time.

[40]Stack height as built is 20 feet.

[41]Diameter of the steam release facility as designed and constructed is 15 feet.

[42]Total flow of steam through the power plant.

[43]Temperature of the steam at release.

[44]Assumes 500,000 lb/hr geothermal steam x 1,120 ppm hydrogen sulfide.

TABLE 5
ABATEMENT ESTIMATES FOR EMITTED NON-HYDROGEN SULFIDE PRODUCTS FOR WELL UNCONTROLLED FLOW EVENT AND POWER PLANT UPSET EMISSION SCENARIOS FOR THE PGV EMERGENCY RESPONSE PLAN

SCENARIO	Total Mass Flow (lb/hr)	Brine Droplet Abatement Percentage	Aerosol Production Percentage	Noncondensible Gas Abatement Percentage
1. Abated ***vertical*** flow through the well 13-3/8" flow line and muffler	500,000[1]	80[2]	50[3]	0[4]
2. Unabated ***vertical*** flow through the well 13-3/8" flow line and muffler	500,000	80	50	0
3. Unabated ***horizontal*** flow through the well 13-3/8" flow line	500,000	0	50	0
4. Unabated ***vertical*** flow through the well 13-3/8" casing	500,000	0	50	0
5. Unabated ***vertical*** flow through the well 9-5/8" casing	500,000	0	50	0
6. Unabated ***vertical*** flow channeled by the rig subbase	500,000	20[5]	50	0
7. Unabated ***vertical*** flow through an area of fractured rock surrounding the well	500,000	50[6]	50	0

[1]Total flow of geothermal fluid; brine, steam, steam condensate and noncondensible gases.

[2]Estimated abatement percentage for brine droplets due to mechanics of the emission process. Assumption that cyclonic muffler abates 80 percent of the brine droplets.

[3]General assumption is that only 50 percent of the emitted brine droplets produce aerosols.

[4]Percentage of noncondensible gases in the geothermal fluid which are abated before emission to the atmosphere.

[5]Assumes the rig substructure and floor abates 20 percent of the brine droplets.

[6]Assumption that 50 percent of the brine is abated for small-diameter release.

TABLE 5
ABATEMENT ESTIMATES FOR EMITTED NON-HYDROGEN SULFIDE PRODUCTS FOR WELL UNCONTROLLED FLOW EVENT AND POWER PLANT UPSET EMISSION SCENARIOS FOR THE PGV EMERGENCY RESPONSE PLAN

SCENARIO	Total Mass Flow (lb/hr)	Brine Droplet Abatement Percentage	Aerosol Production Percentage	Noncondensible Gas Abatement Percentage
8. Abated ***vertical*** flow from the well drilling rig mud tanks	250,000[7]	90[8]	50	0
9. Abated ***vertical*** flow from the well drilling rig mud sump	250,000	90[9]	50	0
10. Unabated ***horizontal*** flow through the well drilling rig 4" choke line	250,000	0	50	0
11. Unabated ***horizontal*** "puff" of noncondensible gases through 3" line	8.77[10]	100[11]	N/A	0
12. Unabated ***vertical*** flow through power plant steam release facility	500,000	100[12]	N/A	0

[7]Total flow is limited by the small diameter (4") of the choke line.

[8]Assumes that flow through the mud tank abates 90 percent of the brine droplets.

[9]Assumes that flow through the mud sump abates 90 percent of the brine droplets.

[10]Noncondensible gas line from compressor to injection line contains approximately 8.77 pounds of noncondensible gasses, including approximately 4.9 pounds of hydrogen sulfide.

[11]Contents of pipeline is noncondensible gases only.

[12]Discharge will be of steam and noncondensible gases only.

TABLE 6: SUMMARY OF MODELLED HYDROGEN SULFIDE IMPACTS				
RELEASE SCENARIO	MAXIMUM OFF-SITE (>0.3 km) DISTANCE FROM SOURCE (km) TO IDENTIFIED ACTION LEVEL		POINT OF MAXIMUM PREDICTED OFF-SITE IMPACT (>0.3 km)	
	"WATCH" LEVEL (25 ppb)	"WARNING" LEVEL (1,000 ppb)	CONCENTRATION (ppb)	DISTANCE FROM SOURCE (km)
TYPE "1" EVENTS [EXCEED ONLY THE "WATCH" ACTION LEVEL]				
1. Abated vertical flow through diverter/muffler	0.9 km	N/A	40.3	0.4
9. Abated vertical flow from the mud sump	2.8 km	N/A	57.1	0.4
8. Abated vertical flow from the mud tanks	4.5 km	N/A	253.1	0.4
11. Unabated noncondensible gas flow	5.5 km	N/A	935.7	0.4
4. Unabated vertical flow through 13-3/8" casing	25.+ km	N/A	146.0	0.6
5. Unabated vertical flow through 9-5/8" casing	25.+ km	N/A	146.0	0.6
12. Unabated vertical flow through power plant steam release facility	25.+ km	N/A	150.6	0.8
6. Unabated vertical flow through drill rig subbase	25.+ km	N/A	246.8	0.5
2. Unabated vertical flow through diverter/muffler	25.+ km	N/A	403.4	0.4
7. Unabated vertical flow through area of fractured rock	25.+ km	N/A	789.4	0.4
TYPE "2" EVENTS [EXCEED THE "WATCH" AND "WARNING" ACTION LEVELS]				
10. Unabated horizontal flow through a 4" choke line	25.+ km	3.7 km	6,395[1]	0.4
3. Unabated horizontal flow through diverter	25.+ km	6.7 km	12,786[2]	0.4

[1]Note that this scenario can and will be quickly controlled through closing valves to shut in the well, resulting in a significantly reduced emission rate over any one hour period.

[2]Note that this scenario can and will be quickly controlled through closing valves to shut in the well, resulting in a significantly reduced emission rate over any one hour period.

TABLE 7: SUMMARY OF MODELED GEOTHERMAL VAPOR PHASE EMISSION IMPACTS

RELEASE SCENARIO	POINT OF MAXIMUM PREDICTED OFF-SITE IMPACT (>0.3 km)													DISTANCE FROM SOURCE (km)
	CONCENTRATION (μg/m3) (Rn-222 = aCi/m3 [pCi/m3/1,000,000)													
	HAsO2	NH3	CH4	C2H4	C2H6	C3H6	C3H8	C4H10	C4H10	C5H12	C5H12	HCl	Rn-222	
1. Abated vertical flow through diverter/muffler	0.0045	0.690	8.49	0.0023	0.045	0.041	0.036	0.0131	0.0198	0.0063	0.0068	8.07	0.0635	0.4
9. Abated vertical flow from the mud sump	0.0635	9.732	119.75	0.0318	0.635	0.583	0.507	0.1847	0.2794	0.0888	0.0953	113.89	0.8954	0.4
8. Abated vertical flow from the mud tanks	0.2814	43.127	530.68	0.1407	2.814	2.585	2.248	0.8183	1.2382	0.3937	0.4221	504.69	3.9677	0.4
11. Unabated noncondensible gas flow	0.9576	*00.00	1,805.91	0.4788	9.576	8.796	7.650	2.7847	4.2134	1.3397	1.4364	*000.00	13.5022	0.4
4. Unabated vertical flow through 13-3/8" casing	0.0016	0.245	3.02	0.0008	0.016	0.015	0.013	0.0047	0.0070	0.0022	0.0024	2.87	0.0226	0.6
5. Unabated vertical flow through 9-5/8" casing	0.0016	0.245	3.02	0.0008	0.016	0.015	0.013	0.0047	0.0070	0.0022	0.0024	2.87	0.0226	0.6
12. Unabated vertical flow through power plant steam release facility	0.0017	0.261	3.21	0.0009	0.017	0.016	0.014	0.0049	0.0075	0.0024	0.0026	3.05	0.0240	0.8
6. Unabated vertical flow through drill rig subbase	0.0028	0.429	5.28	0.0014	0.028	0.026	0.022	0.0081	0.0123	0.0039	0.0042	5.02	0.0395	0.5
2. Unabated vertical flow through diverter/muffler	0.0045	0.690	8.49	0.0023	0.045	0.041	0.036	0.0131	0.0198	0.0063	0.0068	8.07	0.0635	0.4
7. Unabated vertical flow through small area of fractured rock	0.0088	1.349	16.60	0.0044	0.088	0.081	0.070	0.0256	0.0387	0.0123	0.0132	15.78	0.1241	0.4
10. Unabated horizontal flow through a 4" choke line	0.0714	10.943	134.65	0.0357	0.714	0.656	0.570	0.2076	0.3142	0.0999	0.1071	128.05	1.0067	0.4
3. Unabated horizontal flow through diverter	0.1428	21.886	269.30	0.0714	1.428	1.312	1.141	0.4153	0.6283	0.1998	0.2142	256.11	2.0135	0.4

*NOTE: Both NH3 and HCl are partitioned to the brine and condensate during normal plant operations, and are thus absent from the NCG line.

TABLE 8: SUMMARY OF MODELED GEOTHERMAL BRINE AEROSOL IMPACTS

RELEASE SCENARIO	POINT OF MAXIMUM PREDICTED OFF-SITE IMPACT (>0.3 km)																			DISTANCE FROM SOURCE (km)
	CONCENTRATION (μg/m3) (Hg = nanograms/m3)																			
	Na	K	Ca	Mg	Fe	Li	Sr	Zn	Ba	Mn	Pb	Cl	F	Br	SO4	H4SiO4	H3BO3	HAsO2	Hg (1/1000)	SiO2	
1. Abated vertical flow through diverter/muffler	383	89	67	1.00	40	0.27	0.96	0.88	1.76	3.29	0.038	846	0.0000	3.41	0.077	0.23	0.38	0.0000	0.0766	24	0.4
9. Abated vertical flow from the mud sump	2,699	629	472	7.02	281	1.89	6.75	6.21	12.42	23.21	0.270	5,962	0.0000	24.02	0.540	1.62	2.70	0.0000	0.5398	166	0.4
8. Abated vertical flow from the mud tanks	11,962	2,787	2,093	31.10	1,244	8.37	29.91	27.51	55.03	102.87	1.196	26,424	0.0000	106.46	2.392	7.18	11.96	0.0000	2.3924	736	0.4
11. Unabated noncondensible gas flow	0	0	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.000	0	0.0000	0.00	0.000	0.00	0.00	0.0000	0.0000	0	0.4
4. Unabated vertical flow through 13-3/8" casing	693	161	121	1.80	72	0.49	1.73	1.59	3.19	5.96	0.069	1,531	0.0000	6.17	0.139	0.42	0.69	0.0000	0.1386	43	0.6
5. Unabated vertical flow through 9-5/8" casing	693	161	121	1.80	72	0.49	1.73	1.59	3.19	5.96	0.069	1,531	0.0000	6.17	0.139	0.42	0.69	0.0000	0.1386	43	0.6
12. Unabated vertical flow through power plant steam release facility	0	0	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.000	0	0.0000	0.00	0.000	0.00	0.00	0.0000	0.0000	0	0.8
6. Unabated vertical flow through drill rig subbase	938	219	164	2.44	98	0.66	2.35	2.16	4.31	8.07	0.094	2,072	0.0000	8.35	0.188	0.56	0.94	0.0000	0.1876	58	0.5
2. Unabated vertical flow through diverter/muffler	383	89	67	1.00	40	0.27	0.96	0.88	1.76	3.29	0.038	846	0.0000	3.41	0.077	0.23	0.38	0.0000	0.0766	24	0.4
7. Unabated vertical flow through small area of fractured rock	1,874	437	328	4.87	195	1.31	4.69	4.31	8.62	16.12	0.187	4,140	0.0000	16.68	0.375	1.12	1.87	0.0000	0.3748	115	0.4
10. Unabated horizontal flow through a 4" choke line	30,355	7,073	5,312	78.92	3,157	21.25	75.89	69.82	139.63	261.05	3.036	67,054	0.0000	270.16	6.071	18.21	30.36	0.0000	6.0710	1,867	0.4
3. Unabated horizontal flow through diverter	60,697	14,142	10,622	157.81	6,312	42.49	151.74	139.60	279.21	521.99	6.070	134,080	0.0000	540.20	12.139	36.42	60.70	0.0000	2.1394	3,733	0.4

ATTACHMENT 1

AIR TOXICS PROFILE FOR THE WORST CASE WELL-RELATED
UNCONTROLLED FLOW EVENT SCENARIO
PUNA GEOTHERMAL VENTURE PROJECT

PGV Emergency Response Plan
Worst Case Air Toxics Profile

Brine Aerosol Characterization

An estimation of the potential brine aerosol chemical speciation and mass emission rate was performed for the Puna Geothermal Venture (PGV) Uncontrolled Flow Event Scenario Hazards Analysis by Thermochem, Inc. (TCI). The worst case scenario assumes a 500 KPH vertical discharge comprised of 80% steam and 20% brine by mass at atmospheric pressure (14.4 psia).

For this initial evaluation it has been assumed that 50% of the total brine discharge is converted to droplets smaller than 100 um in the atmosphere. The actual fraction of brine converted to aerosol at a given total flow rate (steam + brine) would be strongly dependent on the discharge enthalpy (steam/brine ratio). At high enthalpies a greater proportion of brine would be converted to an aerosol, but the brine discharge rate would be lower, compensating this effect. Therefore, a 50% aerosol production rate appears to be a reasonable worst case assumption given the 500 KPH total flow and 20% brine specification that is several times above any observed discharge rate for Puna and only speculated for the KS-8 well.

The brine chemistry data used in this evaluation, summarized in Table 1, was derived primarily from the KS-3 flow test results and only supplemented with KS-1A data for certain analytes not measured or reported undetected for the KS-3 samples. The KS-3 brine chemistry clearly represents the worst case for the Puna resource known to date given the high salinity and low pH of this fluid. The KS-3 brine contains the highest concentrations of heavy metals, in addition to the other salts, due to the brine acidity that assists in mobilizing these metals in the reservoir. Data used from KS-1A brine analyses were factored up in concentration based on the KS-3/KS-1A chloride ratios. Unfortunately, numerous toxic metals were not measured or reported undetected, with relatively high detection limits, in both sets of data and could not be included in this evaluation.

The worst case discharge scenario considered here assumes that H_2S abatement chemicals (such as NACH) are not injected into the flow. This would be the case when the well vents directly to atmosphere, bypassing any muffler or vapor/liquid separator. The injection of H_2S abatement chemicals under these conditions would have a minimal effect on H_2S emission rates and would only render the brine aerosol considerably more hazardous.

The concentrations of brine aerosol constituents (Table 2) were calculated by assuming droplet evaporation until equilibrium with atmospheric conditions was achieved. Equilibrium is realized when the water vapor pressure exerted by the aerosol, which is depressed due to the high salt concentration, equals the atmospheric water vapor pressure, defined by the ambient temperature and relative humidity. Annual average temperature and

humidity data for Puna was used in the worst case exercise since actual near plume humidities would be much higher.

The primary computer model used in these computations was a heterogeneous chemical equilibrium code using Pitzer-derived specific interaction parameters to predict high ionic strength solution behavior (Weare, 1991). Under the conditions modeled, only amorphous silica precipitates to a solid phase in the aerosol. At 79% relative humidity NaCl is near saturation, which is consistent with a similar study performed by Clegg (1990) where NaCl was found to be supersaturated in seawater aerosols below 75% relative humidity. Certain iron, calcium and magnesium silicates may also precipitate in the Puna aerosol, although there is insufficient thermodynamic data available to predict their formation.

The brine aerosol speciation is based on the known form of certain elements as normally found in hydrothermal reservoirs, the initial speciation expected at the brine pH and redox condition, and consideration of oxidation reaction kinetics upon exposure to atmospheric oxygen. Only iron was assumed to oxidize substantially, although even this reaction would be relatively slow given the low aerosol pH and high chloride content. Many of the cations listed in Table 1 would be present as chloride complexes in addition to the free ion form.

All the weak acid compounds, silicic, boric and arsenious acids, would be unionized at the aerosol pH. For kinetic reasons, arsenic is assumed to remain in the trivalent oxidation state, which is also the most toxic form (Solomon, 1991). Concentrations of each constituent in the aerosol are given by weight as the actual species or compound considered present.

The mass emission rates for each constituent are based on the KS-3 or normalized KS-1A brine chemistry after flashing to 14.4 psia. A total of 50 KPH of the atmospheric flashed brine is assumed to form aerosols. After evaporation of this brine to ~7% of its initial weight, 23.5 KPH of concentrated aerosol would be produced. The mass rates of individual constituents were calculated by weight as the respective element or most common compound, as shown in Table 2. These mass emission rates can be used for preliminary modeling of maximum ambient air impacts.

Vapor Phase Characterization

A vapor phase composition of the initial steam plume and mass emission rate of each species was also estimated for the worst case hazards analysis, assuming a 500 KPH discharge comprised of 80% steam and 20% brine by mass at atmospheric pressure (Table 3). Hydrogen sulfide was not evaluated in this exercise, at the request of PGV, since H_2S emission rate estimates and dispersion modeling was previously performed by PGV and Environmental Management Associates (EMA).

For purposes in modeling vapor phase concentrations of hydrogen chloride (HCl), the wellhead pressure was assumed to be 575 psia and the temperature 250°C. No re-equilibration between phases was considered after discharge to atmosphere, which results in

maximum vapor phase concentrations of HCl and arsenic. All other gas species, including H_2S, would partition essentially 100% to the vapor phase after discharge.

The steam chemistry data used in this evaluation was derived from KS-1A and KS-3 flow test sample analysis results. The highest concentration found in the available data was used for each constituent, provided there was no reason to question the data quality. The data sources are also summarized in Table 3.

Arsenic measured in KS-1A steam samples was most likely present in the same form as arsenic in the brine phase ($HAsO_2$), and occurred through direct vapor phase partitioning at the separator temperature. This arsenic would actually condense to an aerosol or particulate phase after cooling in the atmosphere.

The concentration of HCl in the steam phase was calculated based on KS-3 brine chemistry at the wellhead conditions specified above, using the chemical model proposed by Anderson (1989). This model was designed to predict the partial pressure of HCl exerted by high temperature saline brines, such as those found in the Puna resource.

The radon data used in this evaluation was obtained from analysis results of a KS-1A steam sample collected near the end of the flow test (October 27, 1985). Radon data reported for samples collected earlier in the KS-1A flow test is invalid due to the excessive time span (2 months) between sample collection and analysis. This delay resulted in virtually complete decay of the radon. The data reported was essentially the instrument noise multiplied by a decay correction factor of over 50,000. This problem was noted in the original Anatec laboratory report to Thermal Power, dated January 29, 1986. A subsequent data quality study performed by Thermochem, Inc., for Thermal Power also discussed the radon data inaccuracy (1986).

The initial steam plume concentration of each species (other than HCl) in Table 3 is based on the original analysis results (KS-1A or KS-3) after correction to atmospheric flash for the given fluid. All constituent emission rates are based on the steam plume concentrations and a 400 KPH steam flow rate at atmospheric pressure. These emission rates can also be used for preliminary maximum ambient air impact modeling.

References

1. Moller, Nancy; John H. Weare, Zhenhao Duan, Jerry Greenberg, *Models for Optimizing Geothermal Power Plant Performance,* DOE Geothermal Modeling Workshop, 1991.

2. Clegg, Simon L., Peter Brimblecombe, *Solubility of Volatile Electrolytes in Multicomponent Solutions with Atmospheric Applications,* American Chemical Society, 1990.

3. Solomon, Paul A., Samuel L. Altshuler, Marilyn L. Keller, *Arsenic Speciation in Atmospheric Aerosols at The Geysers,* Geothermal Resources Council TRANSACTIONS, Vol. 15, 1991.

4. Andersen, Greg, *A Thermodynamic Model for Predicting HCl Partial Pressure above a High Temperature Hypersaline Geothermal Fluid,* Geothermal Resources Council, TRANSACTIONS, Vol. 13, October 1989.

TABLE 1

PGV EMERGENCY RESPONSE PLAN
WORST CASE UNCONTROLLED FLOW EVENT

INITIAL BRINE COMPOSITION : ATMOSPHERIC FLASH

DISSOLVED CONSTITUENTS , CATIONS

	INITIAL FORM	ug/g	DATA SOURCE
SODIUM	Na+	3.06E+04	(1)
POTASSIUM	K+	7.14E+03	(1)
CALCIUM	Ca ++	5.33E+03	(1)
MAGNESIUM	Mg++	7.87E+01	(1)
IRON	Fe++	3.17E+03	(1)
LITHIUM	Li+	2.20E+01	(1)
STRONTIUM	Sr++	7.80E+01	(1)
ZINC	Zn ++	6.95E+01	(1)
BARIUM	Ba++	1.42E+02	(1)
MANGANESE	Mn++	2.63E+02	(1)
LEAD	Pb++	3.73E+00	(1)

DISSOLVED CONSTITUENTS , ANIONS

CHLORIDE	Cl-	6.76E+04	(1)
FLUORIDE	F-	2.70E+00	(1)
BROMIDE	Br-	2.71E+02	(2)
SULFATE	SO4=	3.10E+00	(1)

DISSOLVED CONSTITUENTS , NEUTRAL SPECIES

SILICIC ACID	H4SiO4	3.02E+03	(1)
BORIC ACID	H3BO3	1.81E+02	(1)
ARSENIOUS ACID	HAsO2	2.32E+00	(2)
MERCURY	Hg	5.21E-03	(2)
BRINE pH		3.58 units	(1)

DATA SOURCES: (1) KS-3 BRINE ANALYSIS ,SAMPLE DATE 03/31/91,FIELD I.D. BC-013
(2) KS-1A BRINE ANALYSIS , SAMPLE DATE 10/24/85,FIELD I.D. 1006 CC

TABLE 2

PGV EMERGENCY RESPONSE PLAN
WORST CASE AIR TOXICS PROFILE

BRINE AEROSOL : SPECIES CONCENTRATIONS			MASS EMISSION RATES			
DISSOLVED CONSTITUENTS , CATIONS	PRIMARY FORM	ug/g	Calculated by WT. as	Lbs/Hr	g/sec	DATA SOURCE
SODIUM	Na+	6.51E+04	Na	1.53E+03	1.93E+02	(1)
POTASSIUM	K+	1.52E+04	K	3.57E+02	4.50E+01	(1)
CALCIUM	Ca ++	1.13E+04	Ca	2.67E+02	3.36E+01	(1)
MAGNESIUM	Mg++	1.67E+02	Mg	3.94E+00	4.96E-01	(1)
IRON	Fe+++	6.74E+03	Fe	1.59E+02	2.00E+01	(1)
LITHIUM	Li+	4.68E+01	Li	1.10E+00	1.39E-01	(1)
STRONTIUM	Sr++	1.66E+02	Sr	3.90E+00	4.92E-01	(1)
ZINC	Zn ++	1.48E+02	Zn	3.48E+00	4.38E-01	(1)
BARIUM	Ba++	3.01E+02	Ba	7.09E+00	8.93E-01	(1)
MANGANESE	Mn++	5.60E+02	Mn	1.32E+01	1.66E+00	(1)
LEAD	Pb++	7.92E+00	Pb	1.86E-01	2.35E-02	(1)
DISSOLVED CONSTITUENTS , ANIONS						
CHLORIDE	Cl-	1.44E+05	Cl	3.38E+03	4.26E+02	(1)
FLUORIDE	F-	5.74E+00	F	1.35E-01	1.70E-02	(1)
BROMIDE	Br-	5.77E+02	Br	1.36E+01	1.71E+00	(2)
SULFATE	SO4=	1.72E+01	SO4	4.05E-01	5.10E-02	(1)
DISSOLVED CONSTITUENTS , NEUTRAL SPECIES						
SILICIC ACID	H4SiO4	7.04E+01	SiO2	1.03E+00	1.30E-01	(1)
BORIC ACID	H3BO3	3.85E+02	B	1.58E+00	1.99E-01	(1)
ARSENIOUS ACID	HAsO2	4.94E+00	As	9.06E-02	1.02E-02	(2)
MERCURY	Hg	1.32E-02	Hg	3.11E-04	3.91E-05	(2)
SOLID PHASE , PRECIPITATES						
AMORPHOUS SILICA	SiO2	4.01E+03	SiO2	9.41E+01	1.19E+01	(1)
AEROSOL pH		3.0 units	TOTAL AEROSOL	2.35E+04	2.96E+03	

NOTES: A. BRINE AEROSOL CONCENTRATIONS BASED ON DROPLET EVAPORATION TO EQUILIBRIUM WITH ATMOSPHERIC CONDITIONS , 71 DEG. F 79% R.H.

B. EMISSION RATES BASED ON 500 KPH VERTICAL VENT ,20 % BRINE FRACTION AT 14.4 PSIA , AND 50 % CONVERSION OF BRINE TO AEROSOL FORM .

C. DATA SOURCES: (1) KS-3 BRINE ANALYSIS ,SAMPLE DATE 03/31/91,FIELD I.D. BC-013
(2) KS-1A BRINE ANALYSIS , SAMPLE DATE 10/24/85,FIELD I.D. 1006 CC

TABLE 3

PGV EMERGENCY RESPONSE PLAN
WORST CASE AIR TOXICS PROFILE

VAPOR PHASE : INITIAL SPECIES CONCENTRATIONS | **MASS EMISSION RATES**

	PRIMARY FORM	ug/g	ug/m3	Calculated By wt. as	Lbs/Hr	g/sec	DATA SOURCE
ARSENIC	HAsO2	1.32E-02	7.76E+00	As	3.68E-03	4.63E-04	(1)
AMMONIA	NH3	1.41E+00	8.26E+02	NH3	5.64E-01	7.10E-02	(2)
METHANE	CH4	1.73E+01	1.02E+04	CH4	6.94E+00	8.74E-01	(2)
ETHENE	C2H4	4.60E-03	2.69E+00	C2H4	1.84E-03	2.32E-04	(3)
ETHANE	C2H6	9.20E-02	5.39E+01	C2H6	3.68E-02	4.63E-03	(3)
PROPENE	C3H6	8.46E-02	4.96E+01	C3H6	3.38E-02	4.26E-03	(3)
PROPANE	C3H8	7.36E-02	4.31E+01	C3H8	2.94E-02	3.71E-03	(3)
2-METHYLPROPANE	C4H10	2.67E-02	1.56E+01	C4H10	1.07E-02	1.34E-03	(3)
n-BUTANE	C4H10	4.05E-02	2.37E+01	C4H10	1.62E-02	2.04E-03	(3)
2-METHYLBUTANE	C5H12	1.29E-02	7.54E+00	C5H12	5.15E-03	6.49E-04	(3)
n-PENTANE	C5H12	1.38E-02	8.08E+00	C5H12	5.52E-03	6.95E-04	(3)
HYDROGEN CHLORIDE	HCl	1.65E+01	9.67E+03	HCl	6.60E+00	8.32E-01	(4)
		pCi/kg	pCi/m3		pCi/Hr	pCi/sec	
RADON-222	Rn-222	2.87E+03	1.68E+03	Rn-222	5.19E+02	1.44E-01	(5)

NOTES : A. INITIAL CONCENTRATIONS OF VAPOR PHASE SPECIES EXPRESSED RELATIVE TO STEAM AT ATMOSPHERIC PRESSURE (PLUME CONDITIONS BEFORE DISPERSION)

B. MASS EMISSION RATES BASED ON 500 KPH VENT AND 80 % STEAM FRACTION AT 14.4 PSIA

C. DATA SOURCES :
(1) KS-1A STEAM ANALYSIS , SAMPLE DATE 10/24/85 , FIELD I.D. 1006 GC-A
(2) KS-3 STEAM ANALYSIS , SAMPLE DATE 03/25/91 , LAB I.D. TCI 3495-01,02
(3) KS-1A STEAM ANALYSIS , SAMPLE DATE 10/17/85 , LAB I.D. ANA 7439-69
(4) KS-3 BRINE ANALYSIS , SAMPLE DATE 03/31/91 , FIELD I.D. BC-013 (CALC.)
(5) KS-1A STEAM ANALYSIS , SAMPLE DATE 10/27/85 , LAB I.D. ANA 7328-01

ATTACHMENT 2

ISCST-MODELED HYDROGEN SULFIDE IMPACTS FOR THE WELL-RELATED UNCONTROLLED FLOW EVENT AND POWER PLANT UPSET SCENARIOS
PUNA GEOTHERMAL VENTURE PROJECT

1 ISCST - (DATED 90346)

IBM-PC VERSION (2.04)
(C) COPYRIGHT 1990, TRINITY CONSULTANTS, INC.
SERIAL NUMBER 6688 SOLD TO ENVIRONMENTAL MANAGMENT ASSOCIATES
RUN BEGAN ON 01-13-92 AT 08:11:55

1

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

CALCULATE (CONCENTRATION=1,DEPOSITION=2)	ISW(1) =	1
RECEPTOR GRID SYSTEM (RECTANGULAR=1 OR 3, POLAR=2 OR 4)	ISW(2) =	3
DISCRETE RECEPTOR SYSTEM (RECTANGULAR=1,POLAR=2)	ISW(3) =	1
TERRAIN ELEVATIONS ARE READ (YES=1,NO=0)	ISW(4) =	0
CALCULATIONS ARE WRITTEN TO TAPE (YES=1,NO=0)	ISW(5) =	0
LIST ALL INPUT DATA (NO=0,YES=1,MET DATA ALSO=2)	ISW(6) =	2
COMPUTE AVERAGE CONCENTRATION (OR TOTAL DEPOSITION)		
WITH THE FOLLOWING TIME PERIODS:		
HOURLY (YES=1,NO=0)	ISW(7) =	1
2-HOUR (YES=1,NO=0)	ISW(8) =	0
3-HOUR (YES=1,NO=0)	ISW(9) =	0
4-HOUR (YES=1,NO=0)	ISW(10) =	0
6-HOUR (YES=1,NO=0)	ISW(11) =	0
8-HOUR (YES=1,NO=0)	ISW(12) =	0
12-HOUR (YES=1,NO=0)	ISW(13) =	0
24-HOUR (YES=1,NO=0)	ISW(14) =	0
PRINT 'N'-DAY TABLE(S) (YES=1,NO=0)	ISW(15) =	0
PRINT THE FOLLOWING TYPES OF TABLES WHOSE TIME PERIODS ARE		
SPECIFIED BY ISW(7) THROUGH ISW(14):		
DAILY TABLES (YES=1,NO=0)	ISW(16) =	0
HIGHEST & SECOND HIGHEST TABLES (YES=1,NO=0)	ISW(17) =	1
MAXIMUM 50 TABLES (YES=1,NO=0)	ISW(18) =	0
METEOROLOGICAL DATA INPUT METHOD (PRE-PROCESSED=1,CARD=2)	ISW(19) =	2
RURAL-URBAN OPTION (RU.=0,UR. MODE 1=1,UR. MODE 2=2,UR. MODE 3=3)	ISW(20) =	0
WIND PROFILE EXPONENT VALUES (DEFAULTS=1,USER ENTERS=2,3)	ISW(21) =	1
VERTICAL POT. TEMP. GRADIENT VALUES (DEFAULTS=1,USER ENTERS=2,3)	ISW(22) =	1
SCALE EMISSION RATES FOR ALL SOURCES (NO=0,YES>0)	ISW(23) =	0
PROGRAM CALCULATES FINAL PLUME RISE ONLY (YES=1,NO=2)	ISW(24) =	1
PROGRAM ADJUSTS ALL STACK HEIGHTS FOR DOWNWASH (YES=2,NO=1)	ISW(25) =	1
PROGRAM USES BUOYANCY INDUCED DISPERSION (YES=1,NO=2)	ISW(26) =	1
CONCENTRATIONS DURING CALM PERIODS SET = 0 (YES=1,NO=2)	ISW(27) =	2
REG. DEFAULT OPTION CHOSEN (YES=1,NO=2)	ISW(28) =	2
TYPE OF POLLUTANT TO BE MODELLED (1=SO2,2=OTHER)	ISW(29) =	2
DEBUG OPTION CHOSEN (YES=1,NO=2)	ISW(30) =	2
ABOVE GROUND (FLAGPOLE) RECEPTORS USED (YES=1,NO=0)	ISW(31) =	0

NUMBER OF INPUT SOURCES	NSOURC =	20
NUMBER OF SOURCE GROUPS (=0,ALL SOURCES)	NGROUP =	12
TIME PERIOD INTERVAL TO BE PRINTED (=0,ALL INTERVALS)	IPERD =	0
NUMBER OF X (RANGE) GRID VALUES	NXPNTS =	5
NUMBER OF Y (THETA) GRID VALUES	NYPNTS =	25
NUMBER OF DISCRETE RECEPTORS	NXWYPT =	50
NUMBER OF HOURS PER DAY IN METEOROLOGICAL DATA	NHOURS =	1
NUMBER OF DAYS OF METEOROLOGICAL DATA	NDAYS =	33
SOURCE EMISSION RATE UNITS CONVERSION FACTOR	TK =	.10000E+07
HEIGHT ABOVE GROUND AT WHICH WIND SPEED WAS MEASURED	ZR =	10.00 METERS
LOGICAL UNIT NUMBER OF METEOROLOGICAL DATA	IMET =	7
ALLOCATED DATA STORAGE	LIMIT =	43500 WORDS
REQUIRED DATA STORAGE FOR THIS PROBLEM RUN	MIMIT =	16720 WORDS

1

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

0 *** NUMBER OF SOURCE NUMBERS REQUIRED TO DEFINE SOURCE GROUPS ***
(NSOGRP)

1, 1, 3, 1, 1, 1, 1, 1, 1, 3, 1, 1,

0 *** SOURCE NUMBERS DEFINING SOURCE GROUPS ***
(IDSOR)

1, 2, 3, 13, -16, 4, 5, 6, 7, 8, 9, 10, 17, -20,
11, 12,

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** X-COORDINATES OF RECTANGULAR GRID SYSTEM ***
(METERS)

-100.0, -50.0, 0.0, 50.0, 100.0,

*** Y-COORDINATES OF RECTANGULAR GRID SYSTEM ***
(METERS)

1000.0, 2000.0, 3000.0, 4000.0, 5000.0, 6000.0, 7000.0, 8000.0, 9000.0, 10000.0,
11000.0, 12000.0, 13000.0, 14000.0, 15000.0, 16000.0, 17000.0, 18000.0, 19000.0, 20000.0,
21000.0, 22000.0, 23000.0, 24000.0, 25000.0,

1

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

*** X,Y COORDINATES OF DISCRETE RECEPTORS ***
(METERS)

(-100.0, 50.0),	(-50.0, 50.0),	(0.0, 50.0),	(50.0, 50.0),	(100.0, 50.0),
(-100.0, 100.0),	(-50.0, 100.0),	(0.0, 100.0),	(50.0, 100.0),	(100.0, 100.0),
(-100.0, 200.0),	(-50.0, 200.0),	(0.0, 200.0),	(50.0, 200.0),	(100.0, 200.0),
(-100.0, 300.0),	(-50.0, 300.0),	(0.0, 300.0),	(50.0, 300.0),	(100.0, 300.0),
(-100.0, 400.0),	(-50.0, 400.0),	(0.0, 400.0),	(50.0, 400.0),	(100.0, 400.0),
(-100.0, 500.0),	(-50.0, 500.0),	(0.0, 500.0),	(50.0, 500.0),	(100.0, 500.0),
(-100.0, 600.0),	(-50.0, 600.0),	(0.0, 600.0),	(50.0, 600.0),	(100.0, 600.0),
(-100.0, 700.0),	(-50.0, 700.0),	(0.0, 700.0),	(50.0, 700.0),	(100.0, 700.0),
(-100.0, 800.0),	(-50.0, 800.0),	(0.0, 800.0),	(50.0, 800.0),	(100.0, 800.0),
(-100.0, 900.0),	(-50.0, 900.0),	(0.0, 900.0),	(50.0, 900.0),	(100.0, 900.0),

(

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

*** SOURCE DATA ***

SOURCE NUMBER	TYPE	WAKE	NUMBER PART. CATS.	EMISSION RATE TYPE=0,1 (GRAMS/SEC) TYPE=2 (GRAMS/SEC) *PER METER**2	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	HEIGHT (METERS)	TEMP. TYPE=0 (DEG.K); VERT.DIM TYPE=1 (METERS)	EXIT VEL. TYPE=0 (M/SEC); HORZ.DIM TYPE=1,2 (METERS)	DIAMETER TYPE=0 (METERS)	BLDG. HEIGHT TYPE=0 (METERS)	BLDG. LENGTH TYPE=0 (METERS)	BLDG. WIDTH TYPE=0 (METERS)
1	0	0	0	0.56447E+01	0.0	0.0	204.2	6.10	372.59	5.23	4.57	0.00	0.00	0.00
2	0	0	0	0.56447E+02	0.0	0.0	204.2	6.10	372.59	5.23	4.57	0.00	0.00	0.00
3	1	0	0	0.37673E+01	0.0	19.0	204.2	19.81	9.21	17.72	0.00	0.00	0.00	0.00
4	0	0	0	0.56447E+02	0.0	0.0	204.2	21.64	372.59	0.21	22.86	0.00	0.00	0.00
5	0	0	0	0.56447E+02	0.0	0.0	204.2	21.64	372.59	0.21	22.86	0.00	0.00	0.00
6	0	0	0	0.56447E+02	0.0	0.0	204.2	12.19	372.59	0.18	24.38	0.00	0.00	0.00
7	0	0	0	0.56447E+02	0.0	0.0	204.2	0.00	372.59	0.47	15.24	0.00	0.00	0.00
8	0	0	0	0.56447E+00	0.0	0.0	204.2	1.83	344.26	0.02	7.77	0.00	0.00	0.00
9	0	0	0	0.56447E+00	0.0	0.0	204.2	0.00	344.26	0.02	21.55	0.00	0.00	0.00
10	1	0	0	0.18774E+01	0.0	19.0	204.2	19.81	9.21	17.72	0.00	0.00	0.00	0.00
11	0	0	0	0.61739E+00	0.0	0.0	204.2	0.00	193.00	0.00	1.00	0.00	0.00	0.00
12	0	0	0	0.70559E+02	0.0	0.0	204.2	6.10	372.59	14.37	4.57	0.00	0.00	0.00
13	1	0	0	0.75221E+01	0.0	95.3	204.2	19.81	9.21	17.72	0.00	0.00	0.00	0.00
14	1	0	0	0.11277E+02	0.0	171.5	204.2	19.81	9.21	17.72	0.00	0.00	0.00	0.00
15	1	0	0	0.15057E+02	0.0	247.7	204.2	19.81	9.21	17.72	0.00	0.00	0.00	0.00
16	1	0	0	0.18811E+02	0.0	323.9	204.2	19.81	9.21	17.72	0.00	0.00	0.00	0.00
17	1	0	0	0.37673E+01	0.0	95.3	204.2	19.81	9.21	17.72	0.00	0.00	0.00	0.00
18	1	0	0	0.56447E+01	0.0	171.5	204.2	19.81	9.21	17.72	0.00	0.00	0.00	0.00
19	1	0	0	0.75221E+01	0.0	247.7	204.2	19.81	9.21	17.72	0.00	0.00	0.00	0.00
20	1	0	0	0.94120E+01	0.0	323.9	204.2	19.81	9.21	17.72	0.00	0.00	0.00	0.00

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* SOURCE-RECEPTOR COMBINATIONS LESS THAN 001 METERS OR THREE BUILDING HEIGHTS IN DISTANCE. NO AVERAGE CONCENTRATION IS CALCULATED *

SOURCE NUMBER	- - RECEPTOR LOCATION - - X OR RANGE (METERS)	Y (METERS) OR DIRECTION (DEGREES)	DISTANCE BETWEEN (METERS)
3	0.0	50.0	-7.16
10	0.0	50.0	-7.16
13	0.0	100.0	-33.36
14	0.0	200.0	-9.56
16	0.0	300.0	-14.25
17	0.0	100.0	-33.36
18	0.0	200.0	-9.56
20	0.0	300.0	-14.25

MET. DATA
DAY 1

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 1 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	1.00	300.0	300.0	0.0000	1	0.0700	0.000000E+00

1

MET. DATA
DAY 2

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 2 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	2.00	300.0	300.0	0.0000	1	0.0700	0.000000E+00

1

MET. DATA
DAY 3

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 3 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	3.00	300.0	300.0	0.0000	1	0.0700	0.000000E+00

1

MET. DATA
DAY 4

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 4 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	1.00	300.0	298.0	0.0000	2	0.0700	0.000000E+00

1

MET. DATA
DAY 5

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 5 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	2.00	300.0	298.0	0.0000	2	0.0700	0.000000E+00

MET. DATA
DAY 6

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 6 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	3.00	300.0	298.0	0.0000	2	0.0700	0.000000E+00

MET. DATA
DAY 7

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 7 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	4.00	300.0	298.0	0.0000	2	0.0700	0.000000E+00

MET. DATA
DAY 8

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 8 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	5.00	300.0	298.0	0.0000	2	0.0700	0.000000E+00

1

MET. DATA
DAY 9

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 9 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	1.00	300.0	296.0	0.0000	3	0.1000	0.000000E+00

1

MET. DATA
DAY 10

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 10 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	2.00	300.0	296.0	0.0000	3	0.1000	0.000000E+00

MET. DATA
DAY 11

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 11 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	3.00	300.0	296.0	0.0000	3	0.1000	0.000000E+00

1

MET. DATA
DAY 12

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 12 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	4.00	300.0	296.0	0.0000	3	0.1000	0.000000E+00

1

MET. DATA
DAY 13

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 13 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	5.00	300.0	296.0	0.0000	3	0.1000	0.000000E+00

1

MET. DATA
DAY 14

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 14 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	8.00	300.0	296.0	0.0000	3	0.1000	0.000000E+00

1

MET. DATA
DAY 15

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 15 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	10.00	300.0	296.0	0.0000	3	0.1000	0.000000E+00

MET. DATA
DAY 16

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 16 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	1.00	300.0	294.0	0.0000	4	0.1500	0.000000E+00

MET. DATA
DAY 17

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 17 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	2.00	300.0	294.0	0.0000	4	0.1500	0.000000E+00

MET. DATA
DAY 18

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 18 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	3.00	300.0	294.0	0.0000	4	0.1500	0.000000E+00

MET. DATA
DAY 19

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 19 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	4.00	300.0	294.0	0.0000	4	0.1500	0.000000E+00

1

MET. DATA
DAY 20

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 20 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	5.00	300.0	294.0	0.0000	4	0.1500	0.000000E+00

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 21 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	8.00	300.0	294.0	0.0000	4	0.1500	0.000000E+00

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 22 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	10.00	300.0	294.0	0.0000	4	0.1500	0.000000E+00

1

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 23 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	15.00	300.0	294.0	0.0000	4	0.1500	0.000000E+00

1

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 24 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	20.00	300.0	294.0	0.0000	4	0.1500	0.000000E+00

1

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 25 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	1.00	100.0	291.0	0.0200	5	0.3500	0.000000E+00

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 26 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	2.00	100.0	291.0	0.0200	5	0.3500	0.000000E+00

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 27 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	3.00	100.0	291.0	0.0200	5	0.3500	0.000000E+00

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 28 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	4.00	100.0	291.0	0.0200	5	0.3500	0.000000E+00

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 29 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	5.00	100.0	291.0	0.0200	5	0.3500	0.000000E+00

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 30 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	1.00	100.0	289.0	0.0350	6	0.5500	0.000000E+00

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 31 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	2.00	100.0	289.0	0.0350	6	0.5500	0.000000E+00

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 32 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	3.00	100.0	289.0	0.0350	6	0.5500	0.000000E+00

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 33 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	4.00	100.0	289.0	0.0350	6	0.5500	0.000000E+00

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 30.01099 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	14.36572 (30, 1)	14.51106 (30, 1)	14.55983 (30, 1)	14.51107 (30, 1)	14.36574 (30, 1)
24000.0 /	14.68593 (30, 1)	14.84560 (30, 1)	14.89922 (30, 1)	14.84561 (30, 1)	14.68595 (30, 1)
23000.0 /	15.01857 (30, 1)	15.19461 (30, 1)	15.25375 (30, 1)	15.19462 (30, 1)	15.01859 (30, 1)
22000.0 /	15.36406 (30, 1)	15.55886 (30, 1)	15.62435 (30, 1)	15.55887 (30, 1)	15.36407 (30, 1)
21000.0 /	15.72268 (30, 1)	15.93914 (30, 1)	16.01196 (30, 1)	15.93915 (30, 1)	15.72270 (30, 1)
20000.0 /	16.09465 (30, 1)	16.33624 (30, 1)	16.41757 (30, 1)	16.33625 (30, 1)	16.09467 (30, 1)
19000.0 /	16.47997 (30, 1)	16.75089 (30, 1)	16.84220 (30, 1)	16.75091 (30, 1)	16.47999 (30, 1)
18000.0 /	16.87836 (30, 1)	17.18380 (30, 1)	17.28684 (30, 1)	17.18382 (30, 1)	16.87839 (30, 1)
17000.0 /	17.28917 (30, 1)	17.63552 (30, 1)	17.75251 (30, 1)	17.63553 (30, 1)	17.28919 (30, 1)
16000.0 /	17.71114 (30, 1)	18.10639 (30, 1)	18.24010 (30, 1)	18.10641 (30, 1)	17.71116 (30, 1)
15000.0 /	18.14214 (30, 1)	18.59642 (30, 1)	18.75036 (30, 1)	18.59643 (30, 1)	18.14217 (30, 1)
14000.0 /	18.41094 (30, 1)	18.93245 (30, 1)	19.10955 (30, 1)	18.93246 (30, 1)	18.41098 (30, 1)
13000.0 /	18.64104 (30, 1)	19.24400 (30, 1)	19.44929 (30, 1)	19.24401 (30, 1)	18.64107 (30, 1)
12000.0 /	18.81736 (30, 1)	19.52007 (30, 1)	19.76010 (30, 1)	19.52009 (30, 1)	18.81740 (30, 1)
11000.0 /	18.91862 (30, 1)	19.74490 (30, 1)	20.02828 (30, 1)	19.74492 (30, 1)	18.91866 (30, 1)
10000.0 /	18.91577 (30, 1)	19.89711 (30, 1)	20.23541 (30, 1)	19.89713 (30, 1)	18.91582 (30, 1)
9000.0 /	18.97855 (25, 1)	19.94750 (30, 1)	20.35662 (30, 1)	19.94752 (30, 1)	18.97857 (25, 1)
8000.0 /	19.58064 (25, 1)	20.24563 (25, 1)	20.47227 (25, 1)	20.24564 (25, 1)	19.58067 (25, 1)
7000.0 /	19.99098 (25, 1)	20.85464 (25, 1)	21.15074 (25, 1)	20.85465 (25, 1)	19.99100 (25, 1)
6000.0 /	20.05586 (25, 1)	21.20109 (25, 1)	21.59719 (25, 1)	21.20110 (25, 1)	20.05589 (25, 1)
5000.0 /	19.52397 (25, 1)	21.07733 (25, 1)	21.62212 (25, 1)	21.07735 (25, 1)	19.52400 (25, 1)
4000.0 /	17.98990 (25, 1)	20.14481 (25, 1)	20.91903 (25, 1)	20.14483 (25, 1)	17.98994 (25, 1)
3000.0 /	14.49619 (26, 1)	17.52498 (26, 1)	18.66919 (26, 1)	17.52500 (26, 1)	14.49623 (26, 1)
2000.0 /	12.62749 (21, 1)	15.82546 (21, 1)	17.06225 (21, 1)	15.82548 (21, 1)	12.62752 (21, 1)
1000.0 /	15.55249 (2, 1)	23.01575 (23, 1)	30.01099 (23, 1)	23.01579 (23, 1)	15.55250 (2, 1)

1

HIGH
1-HR
SGROUP# 1

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.05437	(30, 1)
0.0	50.0	0.44360	(30, 1)	50.0	50.0	0.05437	(30, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.02283	(25, 1)
-50.0	100.0	0.64601	(25, 1)	0.0	100.0	2.41861	(30, 1)
50.0	100.0	0.64602	(25, 1)	100.0	100.0	0.02283	(25, 1)
-100.0	200.0	0.03621	(25, 1)	-50.0	200.0	0.78395	(25, 1)
0.0	200.0	5.24939	(24, 1)	50.0	200.0	0.78395	(25, 1)
100.0	200.0	0.03621	(25, 1)	-100.0	300.0	1.65995	(3, 1)
-50.0	300.0	6.78064	(15, 1)	0.0	300.0	27.80252	(24, 1)
50.0	300.0	6.78065	(15, 1)	100.0	300.0	1.65995	(3, 1)
-100.0	400.0	8.19260	(3, 1)	-50.0	400.0	16.77986	(15, 1)
0.0	400.0	41.18331	(24, 1)	50.0	400.0	16.77988	(15, 1)
100.0	400.0	8.19261	(3, 1)	-100.0	500.0	13.58333	(3, 1)
-50.0	500.0	22.59450	(15, 1)	0.0	500.0	44.34478	(24, 1)
50.0	500.0	22.59453	(15, 1)	100.0	500.0	13.58334	(3, 1)
-100.0	600.0	14.64026	(2, 1)	-50.0	600.0	24.20822	(15, 1)
0.0	600.0	42.48670	(24, 1)	50.0	600.0	24.20825	(15, 1)
100.0	600.0	14.64027	(2, 1)	-100.0	700.0	17.42719	(2, 1)
-50.0	700.0	23.54205	(15, 1)	0.0	700.0	38.84076	(24, 1)
50.0	700.0	23.54207	(15, 1)	100.0	700.0	17.42719	(2, 1)
-100.0	800.0	17.54636	(2, 1)	-50.0	800.0	23.42496	(24, 1)
0.0	800.0	34.93639	(24, 1)	50.0	800.0	23.42501	(24, 1)
100.0	800.0	17.54637	(2, 1)	-100.0	900.0	16.59435	(2, 1)
-50.0	900.0	23.52546	(23, 1)	0.0	900.0	32.41837	(23, 1)
50.0	900.0	23.52551	(23, 1)	100.0	900.0	16.59435	(2, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 27.91977 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	10.27385 (31, 1)	10.37787 (31, 1)	10.41278 (31, 1)	10.37788 (31, 1)	10.27387 (31, 1)
24000.0 /	10.57870 (31, 1)	10.69381 (31, 1)	10.73246 (31, 1)	10.69382 (31, 1)	10.57872 (31, 1)
23000.0 /	10.90079 (31, 1)	11.02867 (31, 1)	11.07163 (31, 1)	11.02868 (31, 1)	10.90080 (31, 1)
22000.0 /	11.24144 (31, 1)	11.38411 (31, 1)	11.43207 (31, 1)	11.38412 (31, 1)	11.24146 (31, 1)
21000.0 /	11.60213 (31, 1)	11.76203 (31, 1)	11.81582 (31, 1)	11.76204 (31, 1)	11.60215 (31, 1)
20000.0 /	11.98441 (31, 1)	12.16450 (31, 1)	12.22513 (31, 1)	12.16451 (31, 1)	11.98442 (31, 1)
19000.0 /	12.38991 (31, 1)	12.59385 (31, 1)	12.66258 (31, 1)	12.59386 (31, 1)	12.38993 (31, 1)
18000.0 /	12.82036 (31, 1)	13.05268 (31, 1)	13.13105 (31, 1)	13.05269 (31, 1)	12.82038 (31, 1)
17000.0 /	13.35157 (25, 1)	13.54385 (31, 1)	13.63383 (31, 1)	13.54386 (31, 1)	13.35158 (25, 1)
16000.0 /	13.94797 (25, 1)	14.08534 (25, 1)	14.17464 (31, 1)	14.08534 (25, 1)	13.94798 (25, 1)
15000.0 /	14.58266 (25, 1)	14.74371 (25, 1)	14.79779 (25, 1)	14.74372 (25, 1)	14.58267 (25, 1)
14000.0 /	15.25633 (25, 1)	15.44680 (25, 1)	15.51082 (25, 1)	15.44681 (25, 1)	15.25634 (25, 1)
13000.0 /	15.96822 (25, 1)	16.19568 (25, 1)	16.27222 (25, 1)	16.19569 (25, 1)	15.96824 (25, 1)
12000.0 /	16.71515 (25, 1)	16.98975 (25, 1)	17.08228 (25, 1)	16.98976 (25, 1)	16.71516 (25, 1)
11000.0 /	17.48979 (25, 1)	17.82539 (25, 1)	17.93869 (25, 1)	17.82540 (25, 1)	17.48980 (25, 1)
10000.0 /	18.27835 (25, 1)	18.69427 (25, 1)	18.83500 (25, 1)	18.69427 (25, 1)	18.27837 (25, 1)
9000.0 /	18.76883 (30, 1)	19.50015 (25, 1)	19.67719 (25, 1)	19.50016 (25, 1)	18.76888 (30, 1)
8000.0 /	18.42194 (30, 1)	19.85576 (30, 1)	20.35809 (30, 1)	19.85579 (30, 1)	18.42199 (30, 1)
7000.0 /	17.79623 (30, 1)	19.56566 (30, 1)	20.19375 (30, 1)	19.56569 (30, 1)	17.79628 (30, 1)
6000.0 /	16.47786 (26, 1)	18.63297 (30, 1)	19.42055 (30, 1)	18.63300 (30, 1)	16.47789 (26, 1)
5000.0 /	16.99904 (26, 1)	18.36312 (26, 1)	19.06910 (31, 1)	18.36314 (26, 1)	16.99907 (26, 1)
4000.0 /	16.80680 (26, 1)	18.84610 (26, 1)	19.57945 (26, 1)	18.84612 (26, 1)	16.80684 (26, 1)
3000.0 /	14.14039 (25, 1)	17.03041 (25, 1)	18.11951 (25, 1)	17.03043 (25, 1)	14.14043 (25, 1)
2000.0 /	12.59149 (22, 1)	15.79916 (22, 1)	17.04066 (22, 1)	15.79917 (22, 1)	12.59152 (22, 1)
1000.0 /	13.77049 (14, 1)	21.37539 (24, 1)	27.91977 (24, 1)	21.37543 (24, 1)	13.77051 (14, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.00127	(25, 1)
0.0	50.0	0.01052	(25, 1)	50.0	50.0	0.00127	(25, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.00372	(30, 1)
-50.0	100.0	0.47897	(30, 1)	0.0	100.0	1.96852	(25, 1)
50.0	100.0	0.47897	(30, 1)	100.0	100.0	0.00372	(30, 1)
-100.0	200.0	0.01166	(3, 1)	-50.0	200.0	0.55770	(30, 1)
0.0	200.0	2.74830	(15, 1)	50.0	200.0	0.55770	(30, 1)
100.0	200.0	0.01167	(3, 1)	-100.0	300.0	0.97256	(8, 1)
-50.0	300.0	3.44657	(8, 1)	0.0	300.0	18.63120	(15, 1)
50.0	300.0	3.44658	(8, 1)	100.0	300.0	0.97256	(8, 1)
-100.0	400.0	5.01718	(8, 1)	-50.0	400.0	12.13191	(3, 1)
0.0	400.0	30.58105	(15, 1)	50.0	400.0	12.13191	(3, 1)
100.0	400.0	5.01719	(8, 1)	-100.0	500.0	9.95417	(8, 1)
-50.0	500.0	18.10041	(14, 1)	0.0	500.0	33.72879	(15, 1)
50.0	500.0	18.10044	(14, 1)	100.0	500.0	9.95418	(8, 1)
-100.0	600.0	14.17963	(3, 1)	-50.0	600.0	21.72404	(24, 1)
0.0	600.0	36.74251	(23, 1)	50.0	600.0	21.72411	(24, 1)
100.0	600.0	14.17964	(3, 1)	-100.0	700.0	13.88450	(8, 1)
-50.0	700.0	23.35882	(24, 1)	0.0	700.0	36.32670	(23, 1)
50.0	700.0	23.35888	(24, 1)	100.0	700.0	13.88452	(8, 1)
-100.0	800.0	13.75135	(8, 1)	-50.0	800.0	23.32469	(23, 1)
0.0	800.0	34.65434	(23, 1)	50.0	800.0	23.32474	(23, 1)
100.0	800.0	13.75136	(8, 1)	-100.0	900.0	13.77472	(14, 1)
-50.0	900.0	22.61492	(24, 1)	0.0	900.0	31.24158	(24, 1)
50.0	900.0	22.61496	(24, 1)	100.0	900.0	13.77474	(14, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 2,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 300.10992 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	143.65723 (30, 1)	145.11058 (30, 1)	145.59833 (30, 1)	145.11067 (30, 1)	143.65739 (30, 1)
24000.0 /	146.85931 (30, 1)	148.45602 (30, 1)	148.99216 (30, 1)	148.45612 (30, 1)	146.85948 (30, 1)
23000.0 /	150.18575 (30, 1)	151.94611 (30, 1)	152.53749 (30, 1)	151.94620 (30, 1)	150.18593 (30, 1)
22000.0 /	153.64055 (30, 1)	155.58862 (30, 1)	156.24348 (30, 1)	155.58871 (30, 1)	153.64075 (30, 1)
21000.0 /	157.22679 (30, 1)	159.39139 (30, 1)	160.11955 (30, 1)	159.39149 (30, 1)	157.22701 (30, 1)
20000.0 /	160.94649 (30, 1)	163.36234 (30, 1)	164.17569 (30, 1)	163.36246 (30, 1)	160.94672 (30, 1)
19000.0 /	164.79965 (30, 1)	167.50894 (30, 1)	168.42194 (30, 1)	167.50906 (30, 1)	164.79990 (30, 1)
18000.0 /	168.78360 (30, 1)	171.83801 (30, 1)	172.86842 (30, 1)	171.83813 (30, 1)	168.78384 (30, 1)
17000.0 /	172.89166 (30, 1)	176.35516 (30, 1)	177.52505 (30, 1)	176.35530 (30, 1)	172.89194 (30, 1)
16000.0 /	177.11136 (30, 1)	181.06390 (30, 1)	182.40099 (30, 1)	181.06406 (30, 1)	177.11165 (30, 1)
15000.0 /	181.42139 (30, 1)	185.96416 (30, 1)	187.50360 (30, 1)	185.96431 (30, 1)	181.42171 (30, 1)
14000.0 /	184.10942 (30, 1)	189.32445 (30, 1)	191.09547 (30, 1)	189.32462 (30, 1)	184.10976 (30, 1)
13000.0 /	186.41034 (30, 1)	192.43994 (30, 1)	194.49290 (30, 1)	192.44012 (30, 1)	186.41071 (30, 1)
12000.0 /	188.17357 (30, 1)	195.20071 (30, 1)	197.60100 (30, 1)	195.20091 (30, 1)	188.17397 (30, 1)
11000.0 /	189.18614 (30, 1)	197.44899 (30, 1)	200.28278 (30, 1)	197.44920 (30, 1)	189.18655 (30, 1)
10000.0 /	189.15773 (30, 1)	198.97107 (30, 1)	202.35411 (30, 1)	198.97130 (30, 1)	189.15819 (30, 1)
9000.0 /	189.78546 (25, 1)	199.47498 (30, 1)	203.56621 (30, 1)	199.47523 (30, 1)	189.78568 (25, 1)
8000.0 /	195.80640 (25, 1)	202.45627 (25, 1)	204.72275 (25, 1)	202.45639 (25, 1)	195.80664 (25, 1)
7000.0 /	199.90974 (25, 1)	208.54634 (25, 1)	211.50740 (25, 1)	208.54649 (25, 1)	199.91002 (25, 1)
6000.0 /	200.55856 (25, 1)	212.01086 (25, 1)	215.97188 (25, 1)	212.01103 (25, 1)	200.55887 (25, 1)
5000.0 /	195.23965 (25, 1)	210.77328 (25, 1)	216.22116 (25, 1)	210.77347 (25, 1)	195.24001 (25, 1)
4000.0 /	179.89902 (25, 1)	201.44809 (25, 1)	209.19023 (25, 1)	201.44830 (25, 1)	179.89940 (25, 1)
3000.0 /	144.96194 (26, 1)	175.24977 (26, 1)	186.69191 (26, 1)	175.25000 (26, 1)	144.96233 (26, 1)
2000.0 /	126.27491 (21, 1)	158.25464 (21, 1)	170.62253 (21, 1)	158.25481 (21, 1)	126.27518 (21, 1)
1000.0 /	155.52490 (2, 1)	230.15749 (23, 1)	300.10992 (23, 1)	230.15790 (23, 1)	155.52496 (2, 1)

1

HIGH
1-HR
SGROUP# 2

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 2,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.54370	(30, 1)
0.0	50.0	4.43602	(30, 1)	50.0	50.0	0.54370	(30, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.22831	(25, 1)
-50.0	100.0	6.46006	(25, 1)	0.0	100.0	24.18613	(30, 1)
50.0	100.0	6.46023	(25, 1)	100.0	100.0	0.22832	(25, 1)
-100.0	200.0	0.36211	(25, 1)	-50.0	200.0	7.83946	(25, 1)
0.0	200.0	52.49389	(24, 1)	50.0	200.0	7.83948	(25, 1)
100.0	200.0	0.36211	(25, 1)	-100.0	300.0	16.59948	(3, 1)
-50.0	300.0	67.80637	(15, 1)	0.0	300.0	278.02518	(24, 1)
50.0	300.0	67.80652	(15, 1)	100.0	300.0	16.59949	(3, 1)
-100.0	400.0	81.92597	(3, 1)	-50.0	400.0	167.79857	(15, 1)
0.0	400.0	411.83310	(24, 1)	50.0	400.0	167.79884	(15, 1)
100.0	400.0	81.92604	(3, 1)	-100.0	500.0	135.83331	(3, 1)
-50.0	500.0	225.94499	(15, 1)	0.0	500.0	443.44781	(24, 1)
50.0	500.0	225.94530	(15, 1)	100.0	500.0	135.83339	(3, 1)
-100.0	600.0	146.40263	(2, 1)	-50.0	600.0	242.08218	(15, 1)
0.0	600.0	424.86697	(24, 1)	50.0	600.0	242.08247	(15, 1)
100.0	600.0	146.40269	(2, 1)	-100.0	700.0	174.27185	(2, 1)
-50.0	700.0	235.42047	(15, 1)	0.0	700.0	388.40756	(24, 1)
50.0	700.0	235.42073	(15, 1)	100.0	700.0	174.27193	(2, 1)
-100.0	800.0	175.46364	(2, 1)	-50.0	800.0	234.24959	(24, 1)
0.0	800.0	349.36386	(24, 1)	50.0	800.0	234.25011	(24, 1)
100.0	800.0	175.46371	(2, 1)	-100.0	900.0	165.94345	(2, 1)
-50.0	900.0	235.25462	(23, 1)	0.0	900.0	324.18365	(23, 1)
50.0	900.0	235.25510	(23, 1)	100.0	900.0	165.94351	(2, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 2,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 279.19766 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	102.73854 (31, 1)	103.77872 (31, 1)	104.12780 (31, 1)	103.77878 (31, 1)	102.73866 (31, 1)
24000.0 /	105.78704 (31, 1)	106.93814 (31, 1)	107.32464 (31, 1)	106.93820 (31, 1)	105.78717 (31, 1)
23000.0 /	109.00786 (31, 1)	110.28667 (31, 1)	110.71629 (31, 1)	110.28674 (31, 1)	109.00800 (31, 1)
22000.0 /	112.41444 (31, 1)	113.84113 (31, 1)	114.32074 (31, 1)	113.84121 (31, 1)	112.41458 (31, 1)
21000.0 /	116.02133 (31, 1)	117.62028 (31, 1)	118.15816 (31, 1)	117.62035 (31, 1)	116.02148 (31, 1)
20000.0 /	119.84408 (31, 1)	121.64498 (31, 1)	122.25130 (31, 1)	121.64507 (31, 1)	119.84425 (31, 1)
19000.0 /	123.89911 (31, 1)	125.93850 (31, 1)	126.62576 (31, 1)	125.93859 (31, 1)	123.89929 (31, 1)
18000.0 /	128.20357 (31, 1)	130.52676 (31, 1)	131.31050 (31, 1)	130.52686 (31, 1)	128.20377 (31, 1)
17000.0 /	133.51570 (25, 1)	135.43849 (31, 1)	136.33830 (31, 1)	135.43860 (31, 1)	133.51579 (25, 1)
16000.0 /	139.47968 (25, 1)	140.85339 (25, 1)	141.74640 (31, 1)	140.85344 (25, 1)	139.47977 (25, 1)
15000.0 /	145.82658 (25, 1)	147.43710 (25, 1)	147.97792 (25, 1)	147.43716 (25, 1)	145.82669 (25, 1)
14000.0 /	152.56329 (25, 1)	154.46799 (25, 1)	155.10818 (25, 1)	154.46806 (25, 1)	152.56342 (25, 1)
13000.0 /	159.68224 (25, 1)	161.95683 (25, 1)	162.72223 (25, 1)	161.95689 (25, 1)	159.68237 (25, 1)
12000.0 /	167.15146 (25, 1)	169.89748 (25, 1)	170.82283 (25, 1)	169.89755 (25, 1)	167.15161 (25, 1)
11000.0 /	174.89786 (25, 1)	178.25392 (25, 1)	179.38690 (25, 1)	178.25401 (25, 1)	174.89803 (25, 1)
10000.0 /	182.78346 (25, 1)	186.94264 (25, 1)	188.35001 (25, 1)	186.94275 (25, 1)	182.78366 (25, 1)
9000.0 /	187.68829 (30, 1)	195.00150 (25, 1)	196.77187 (25, 1)	195.00160 (25, 1)	187.68877 (30, 1)
8000.0 /	184.21939 (30, 1)	198.55759 (30, 1)	203.58092 (30, 1)	198.55786 (30, 1)	184.21991 (30, 1)
7000.0 /	177.96225 (30, 1)	195.65665 (30, 1)	201.93753 (30, 1)	195.65695 (30, 1)	177.96280 (30, 1)
6000.0 /	164.77864 (26, 1)	186.32968 (30, 1)	194.20546 (30, 1)	186.33000 (30, 1)	164.77890 (26, 1)
5000.0 /	169.99039 (26, 1)	183.63121 (26, 1)	190.69095 (31, 1)	183.63138 (26, 1)	169.99069 (26, 1)
4000.0 /	168.06802 (26, 1)	188.46100 (26, 1)	195.79449 (26, 1)	188.46121 (26, 1)	168.06837 (26, 1)
3000.0 /	141.40388 (25, 1)	170.30409 (25, 1)	181.19514 (25, 1)	170.30432 (25, 1)	141.40425 (25, 1)
2000.0 /	125.91491 (22, 1)	157.99156 (22, 1)	170.40656 (22, 1)	157.99173 (22, 1)	125.91518 (22, 1)
1000.0 /	137.70486 (14, 1)	213.75394 (24, 1)	279.19766 (24, 1)	213.75433 (24, 1)	137.70508 (14, 1)

1

2ND HIGH
1-HR
SGROUP# 2

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 2,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.01273	(25, 1)
0.0	50.0	0.10522	(25, 1)	50.0	50.0	0.01273	(25, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.03720	(30, 1)
-50.0	100.0	4.78970	(30, 1)	0.0	100.0	19.68518	(25, 1)
50.0	100.0	4.78971	(30, 1)	100.0	100.0	0.03720	(30, 1)
-100.0	200.0	0.11662	(3, 1)	-50.0	200.0	5.57699	(30, 1)
0.0	200.0	27.48297	(15, 1)	50.0	200.0	5.57700	(30, 1)
100.0	200.0	0.11672	(3, 1)	-100.0	300.0	9.72563	(8, 1)
-50.0	300.0	34.46574	(8, 1)	0.0	300.0	186.31201	(15, 1)
50.0	300.0	34.46577	(8, 1)	100.0	300.0	9.72565	(8, 1)
-100.0	400.0	50.17179	(8, 1)	-50.0	400.0	121.31908	(3, 1)
0.0	400.0	305.81042	(15, 1)	50.0	400.0	121.31912	(3, 1)
100.0	400.0	50.17187	(8, 1)	-100.0	500.0	99.54169	(8, 1)
-50.0	500.0	181.00414	(14, 1)	0.0	500.0	337.28784	(15, 1)
50.0	500.0	181.00436	(14, 1)	100.0	500.0	99.54181	(8, 1)
-100.0	600.0	141.79626	(3, 1)	-50.0	600.0	217.24045	(24, 1)
0.0	600.0	367.42511	(23, 1)	50.0	600.0	217.24106	(24, 1)
100.0	600.0	141.79634	(3, 1)	-100.0	700.0	138.84502	(8, 1)
-50.0	700.0	233.58821	(24, 1)	0.0	700.0	363.26697	(23, 1)
50.0	700.0	233.58879	(24, 1)	100.0	700.0	138.84515	(8, 1)
-100.0	800.0	137.51347	(8, 1)	-50.0	800.0	233.24690	(23, 1)
0.0	800.0	346.54337	(23, 1)	50.0	800.0	233.24742	(23, 1)
100.0	800.0	137.51358	(8, 1)	-100.0	900.0	137.74718	(14, 1)
-50.0	900.0	226.14915	(24, 1)	0.0	900.0	312.41583	(24, 1)
50.0	900.0	226.14963	(24, 1)	100.0	900.0	137.74741	(14, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 3, 13, -16,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 8605.34668 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	291.53802 (30, 1)	294.43787 (30, 1)	295.41095 (30, 1)	294.43805 (30, 1)	291.53839 (30, 1)
24000.0 /	305.47165 (30, 1)	308.73489 (30, 1)	309.83044 (30, 1)	308.73508 (30, 1)	305.47202 (30, 1)
23000.0 /	320.67520 (30, 1)	324.36566 (30, 1)	325.60529 (30, 1)	324.36588 (30, 1)	320.67560 (30, 1)
22000.0 /	337.32275 (30, 1)	341.51895 (30, 1)	342.92932 (30, 1)	341.51917 (30, 1)	337.32318 (30, 1)
21000.0 /	355.62085 (30, 1)	360.42029 (30, 1)	362.03452 (30, 1)	360.42053 (30, 1)	355.62128 (30, 1)
20000.0 /	375.81601 (30, 1)	381.34094 (30, 1)	383.20062 (30, 1)	381.34119 (30, 1)	375.81656 (30, 1)
19000.0 /	398.20477 (30, 1)	404.61005 (30, 1)	406.76804 (30, 1)	404.61029 (30, 1)	398.20538 (30, 1)
18000.0 /	423.14673 (30, 1)	430.63095 (30, 1)	433.15509 (30, 1)	430.63129 (30, 1)	423.14734 (30, 1)
17000.0 /	451.08136 (30, 1)	459.90265 (30, 1)	462.88138 (30, 1)	459.90298 (30, 1)	451.08206 (30, 1)
16000.0 /	482.55090 (30, 1)	493.04956 (30, 1)	496.59973 (30, 1)	493.04996 (30, 1)	482.55170 (30, 1)
15000.0 /	517.52643 (30, 1)	530.14099 (30, 1)	534.41394 (30, 1)	530.14136 (30, 1)	517.52728 (30, 1)
14000.0 /	560.37036 (30, 1)	575.79602 (30, 1)	581.03186 (30, 1)	575.79651 (30, 1)	560.37134 (30, 1)
13000.0 /	610.63354 (30, 1)	629.79224 (30, 1)	636.31134 (30, 1)	629.79285 (30, 1)	610.63464 (30, 1)
12000.0 /	669.25159 (30, 1)	693.44183 (30, 1)	701.69824 (30, 1)	693.44250 (30, 1)	669.25293 (30, 1)
11000.0 /	738.27649 (30, 1)	769.40894 (30, 1)	780.07581 (30, 1)	769.40973 (30, 1)	738.27808 (30, 1)
10000.0 /	820.41522 (30, 1)	861.39111 (30, 1)	875.50000 (30, 1)	861.39203 (30, 1)	820.41711 (30, 1)
9000.0 /	919.26318 (30, 1)	974.65234 (30, 1)	993.84802 (30, 1)	974.65356 (30, 1)	919.26526 (30, 1)
8000.0 /	1039.58826 (30, 1)	1116.90967 (30, 1)	1143.94214 (30, 1)	1116.91113 (30, 1)	1039.59082 (30, 1)
7000.0 /	1185.94580 (30, 1)	1298.07642 (30, 1)	1337.76355 (30, 1)	1298.07825 (30, 1)	1185.94922 (30, 1)
6000.0 /	1371.21875 (30, 1)	1542.63330 (30, 1)	1604.41211 (30, 1)	1542.63574 (30, 1)	1371.22302 (30, 1)
5000.0 /	1603.65979 (30, 1)	1883.67993 (30, 1)	1987.50488 (30, 1)	1883.68335 (30, 1)	1603.66553 (30, 1)
4000.0 /	1872.62866 (30, 1)	2368.91870 (30, 1)	2562.07275 (30, 1)	2368.92383 (30, 1)	1872.63647 (30, 1)
3000.0 /	2104.68994 (30, 1)	3079.73901 (30, 1)	3496.70654 (30, 1)	3079.74634 (30, 1)	2104.70044 (30, 1)
2000.0 /	2146.46460 (25, 1)	4063.64844 (30, 1)	5199.51172 (30, 1)	4063.66113 (30, 1)	2146.47144 (25, 1)
1000.0 /	2108.23242 (16, 1)	5103.53809 (25, 1)	8605.34668 (30, 1)	5103.54980 (25, 1)	2108.23853 (16, 1)

1

HIGH
1-HR
SGROUP# 3

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 3, 13, -16,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.00000	(0, 0)
0.0	50.0	0.00000	(0, 0)	50.0	50.0	0.00000	(0, 0)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.00000	(0, 0)
-50.0	100.0	378.89456	(1, 1)	0.0	100.0	1142.53784	(9, 1)
50.0	100.0	378.89481	(1, 1)	100.0	100.0	0.00000	(0, 0)
-100.0	200.0	202.36325	(1, 1)	-50.0	200.0	1117.72803	(4, 1)
0.0	200.0	3151.46558	(9, 1)	50.0	200.0	1117.72888	(4, 1)
100.0	200.0	202.36349	(1, 1)	-100.0	300.0	534.81128	(1, 1)
-50.0	300.0	3024.33594	(4, 1)	0.0	300.0	9988.27734	(9, 1)
50.0	300.0	3024.33838	(4, 1)	100.0	300.0	534.81183	(1, 1)
-100.0	400.0	921.31323	(1, 1)	-50.0	400.0	4912.34814	(4, 1)
0.0	400.0	14365.40039	(16, 1)	50.0	400.0	4912.35156	(4, 1)
100.0	400.0	921.31403	(1, 1)	-100.0	500.0	1521.49390	(4, 1)
-50.0	500.0	5429.22705	(9, 1)	0.0	500.0	13315.02539	(16, 1)
50.0	500.0	5429.23291	(9, 1)	100.0	500.0	1521.49609	(4, 1)
-100.0	600.0	1733.68152	(4, 1)	-50.0	600.0	5624.42676	(16, 1)
0.0	600.0	11542.34570	(16, 1)	50.0	600.0	5624.43652	(16, 1)
100.0	600.0	1733.68347	(4, 1)	-100.0	700.0	1783.24976	(9, 1)
-50.0	700.0	5729.05566	(16, 1)	0.0	700.0	10424.50781	(25, 1)
50.0	700.0	5729.06543	(16, 1)	100.0	700.0	1783.25317	(9, 1)
-100.0	800.0	1864.07397	(9, 1)	-50.0	800.0	5494.63428	(16, 1)
0.0	800.0	9456.61523	(25, 1)	50.0	800.0	5494.64307	(16, 1)
100.0	800.0	1864.07715	(9, 1)	-100.0	900.0	1919.57629	(16, 1)
-50.0	900.0	5182.89746	(25, 1)	0.0	900.0	9018.02539	(30, 1)
50.0	900.0	5182.90918	(25, 1)	100.0	900.0	1919.58203	(16, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 3, 13, -16,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 7763.14355 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS (METERS)	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0	145.76901 (31, 1)	147.21893 (31, 1)	147.70547 (31, 1)	147.21902 (31, 1)	145.76920 (31, 1)
24000.0	152.73582 (31, 1)	154.36745 (31, 1)	154.91522 (31, 1)	154.36754 (31, 1)	152.73601 (31, 1)
23000.0	160.33760 (31, 1)	162.18283 (31, 1)	162.80264 (31, 1)	162.18294 (31, 1)	160.33780 (31, 1)
22000.0	168.66138 (31, 1)	170.75948 (31, 1)	171.46466 (31, 1)	170.75958 (31, 1)	168.66159 (31, 1)
21000.0	177.81042 (31, 1)	180.21014 (31, 1)	181.01726 (31, 1)	180.21027 (31, 1)	177.81064 (31, 1)
20000.0	187.90800 (31, 1)	190.67047 (31, 1)	191.60031 (31, 1)	190.67059 (31, 1)	187.90828 (31, 1)
19000.0	199.10239 (31, 1)	202.30502 (31, 1)	203.38402 (31, 1)	202.30515 (31, 1)	199.10269 (31, 1)
18000.0	211.57336 (31, 1)	215.31548 (31, 1)	216.57755 (31, 1)	215.31564 (31, 1)	211.57367 (31, 1)
17000.0	225.54068 (31, 1)	229.95132 (31, 1)	231.44069 (31, 1)	229.95149 (31, 1)	225.54103 (31, 1)
16000.0	241.27545 (31, 1)	246.52478 (31, 1)	248.29987 (31, 1)	246.52498 (31, 1)	241.27585 (31, 1)
15000.0	258.76321 (31, 1)	265.07050 (31, 1)	267.20697 (31, 1)	265.07068 (31, 1)	258.76364 (31, 1)
14000.0	280.18518 (31, 1)	287.89801 (31, 1)	290.51593 (31, 1)	287.89825 (31, 1)	280.18567 (31, 1)
13000.0	305.31677 (31, 1)	314.89612 (31, 1)	318.15567 (31, 1)	314.89642 (31, 1)	305.31732 (31, 1)
12000.0	334.62579 (31, 1)	346.72092 (31, 1)	350.84912 (31, 1)	346.72125 (31, 1)	334.62646 (31, 1)
11000.0	369.13824 (31, 1)	384.70447 (31, 1)	390.03790 (31, 1)	384.70486 (31, 1)	369.13904 (31, 1)
10000.0	411.76709 (25, 1)	430.69556 (31, 1)	437.75000 (31, 1)	430.69601 (31, 1)	411.76752 (25, 1)
9000.0	472.05408 (25, 1)	487.32617 (31, 1)	496.92401 (31, 1)	487.32678 (31, 1)	472.05457 (25, 1)
8000.0	549.17639 (25, 1)	567.62598 (25, 1)	573.91272 (25, 1)	567.62628 (25, 1)	549.17706 (25, 1)
7000.0	650.04456 (25, 1)	677.81714 (25, 1)	687.33624 (25, 1)	677.81763 (25, 1)	650.04535 (25, 1)
6000.0	785.89063 (25, 1)	830.27332 (25, 1)	845.61829 (25, 1)	830.27386 (25, 1)	785.89178 (25, 1)
5000.0	975.04413 (25, 1)	1051.84119 (25, 1)	1078.76343 (25, 1)	1051.84204 (25, 1)	975.04578 (25, 1)
4000.0	1242.58557 (25, 1)	1390.39893 (25, 1)	1443.48621 (25, 1)	1390.40027 (25, 1)	1242.58801 (25, 1)
3000.0	1652.17297 (25, 1)	1991.04285 (25, 1)	2118.84302 (25, 1)	1991.04517 (25, 1)	1652.17700 (25, 1)
2000.0	1943.67261 (30, 1)	3136.62256 (25, 1)	3560.08984 (25, 1)	3136.62744 (25, 1)	1943.68433 (30, 1)
1000.0	1704.74976 (9, 1)	4757.47266 (16, 1)	7763.14355 (25, 1)	4757.47949 (16, 1)	1704.75244 (9, 1)

1

2ND HIGH
1-HR
SGROUP# 3

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 3, 13, -16,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.00000	(0, 0)
0.0	50.0	0.00000	(0, 0)	50.0	50.0	0.00000	(0, 0)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.00000	(0, 0)
-50.0	100.0	307.49426	(4, 1)	0.0	100.0	1085.21472	(4, 1)
50.0	100.0	307.49463	(4, 1)	100.0	100.0	0.00000	(0, 0)
-100.0	200.0	111.73393	(4, 1)	-50.0	200.0	1081.23230	(1, 1)
0.0	200.0	3020.23389	(16, 1)	50.0	200.0	1081.23279	(1, 1)
100.0	200.0	111.73412	(4, 1)	-100.0	300.0	406.35938	(4, 1)
-50.0	300.0	2988.96265	(1, 1)	0.0	300.0	9610.01953	(16, 1)
50.0	300.0	2988.96436	(1, 1)	100.0	300.0	406.35986	(4, 1)
-100.0	400.0	893.52429	(4, 1)	-50.0	400.0	4534.73389	(9, 1)
0.0	400.0	13815.90234	(9, 1)	50.0	400.0	4534.73877	(9, 1)
100.0	400.0	893.52557	(4, 1)	-100.0	500.0	1301.91553	(1, 1)
-50.0	500.0	4892.54199	(16, 1)	0.0	500.0	12029.47852	(25, 1)
50.0	500.0	4892.55078	(16, 1)	100.0	500.0	1301.91675	(1, 1)
-100.0	600.0	1489.57422	(9, 1)	-50.0	600.0	5061.23584	(9, 1)
0.0	600.0	11361.34668	(25, 1)	50.0	600.0	5061.24072	(9, 1)
100.0	600.0	1489.57727	(9, 1)	-100.0	700.0	1605.11353	(4, 1)
-50.0	700.0	4870.35938	(25, 1)	0.0	700.0	9820.06836	(16, 1)
50.0	700.0	4870.37061	(25, 1)	100.0	700.0	1605.11499	(4, 1)
-100.0	800.0	1625.48596	(16, 1)	-50.0	800.0	5133.68799	(25, 1)
0.0	800.0	9397.77246	(30, 1)	50.0	800.0	5133.70068	(25, 1)
100.0	800.0	1625.49084	(16, 1)	-100.0	900.0	1815.56873	(9, 1)
-50.0	900.0	5144.27441	(16, 1)	0.0	900.0	8557.44727	(25, 1)
50.0	900.0	5144.28223	(16, 1)	100.0	900.0	1815.57153	(9, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 4,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 166.93977 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS (METERS)	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0	86.40832 (30, 1)	87.28294 (30, 1)	87.57646 (30, 1)	87.28299 (30, 1)	86.40842 (30, 1)
24000.0	88.07448 (30, 1)	89.03259 (30, 1)	89.35428 (30, 1)	89.03264 (30, 1)	88.07458 (30, 1)
23000.0	89.78332 (30, 1)	90.83630 (30, 1)	91.19005 (30, 1)	90.83636 (30, 1)	89.78343 (30, 1)
22000.0	91.53252 (30, 1)	92.69383 (30, 1)	93.08422 (30, 1)	92.69389 (30, 1)	91.53264 (30, 1)
21000.0	93.31859 (30, 1)	94.60422 (30, 1)	95.03671 (30, 1)	94.60429 (30, 1)	93.31872 (30, 1)
20000.0	95.13628 (30, 1)	96.56537 (30, 1)	97.04651 (30, 1)	96.56544 (30, 1)	95.13641 (30, 1)
19000.0	96.97801 (30, 1)	98.57362 (30, 1)	99.11133 (30, 1)	98.57369 (30, 1)	96.97816 (30, 1)
18000.0	98.83317 (30, 1)	100.62332 (30, 1)	101.22724 (30, 1)	100.62340 (30, 1)	98.83332 (30, 1)
17000.0	100.68695 (30, 1)	102.70600 (30, 1)	103.38800 (30, 1)	102.70608 (30, 1)	100.68711 (30, 1)
16000.0	102.51892 (30, 1)	104.80935 (30, 1)	105.58418 (30, 1)	104.80944 (30, 1)	102.51909 (30, 1)
15000.0	104.30079 (30, 1)	106.91571 (30, 1)	107.80187 (30, 1)	106.91580 (30, 1)	104.30096 (30, 1)
14000.0	107.64511 (25, 1)	108.98982 (25, 1)	109.44180 (25, 1)	108.98987 (25, 1)	107.64520 (25, 1)
13000.0	111.99289 (25, 1)	113.58926 (25, 1)	114.12643 (25, 1)	113.58930 (25, 1)	111.99299 (25, 1)
12000.0	116.41211 (25, 1)	118.32607 (25, 1)	118.97104 (25, 1)	118.32613 (25, 1)	116.41222 (25, 1)
11000.0	120.80189 (25, 1)	123.12205 (25, 1)	123.90531 (25, 1)	123.12211 (25, 1)	120.80201 (25, 1)
10000.0	125.00088 (25, 1)	127.84832 (25, 1)	128.81183 (25, 1)	127.84839 (25, 1)	125.00101 (25, 1)
9000.0	128.09018 (25, 1)	131.61519 (25, 1)	132.81165 (25, 1)	131.61526 (25, 1)	128.09032 (25, 1)
8000.0	129.98233 (25, 1)	134.40387 (25, 1)	135.91092 (25, 1)	134.40396 (25, 1)	129.98250 (25, 1)
7000.0	129.89729 (25, 1)	135.52075 (25, 1)	137.44887 (25, 1)	135.52084 (25, 1)	129.89748 (25, 1)
6000.0	126.64941 (25, 1)	133.90108 (25, 1)	136.40945 (25, 1)	133.90118 (25, 1)	126.64961 (25, 1)
5000.0	118.47974 (25, 1)	127.94205 (25, 1)	131.26125 (25, 1)	127.94217 (25, 1)	118.47995 (25, 1)
4000.0	102.94048 (25, 1)	115.34181 (25, 1)	119.79916 (25, 1)	115.34193 (25, 1)	102.94070 (25, 1)
3000.0	86.73267 (10, 1)	90.83924 (10, 1)	95.82949 (26, 1)	90.83927 (10, 1)	86.73273 (10, 1)
2000.0	108.38101 (5, 1)	113.27032 (5, 1)	121.35062 (22, 1)	113.27035 (5, 1)	108.38106 (5, 1)
1000.0	147.79041 (2, 1)	160.13829 (2, 1)	166.93977 (14, 1)	160.13832 (2, 1)	147.79045 (2, 1)

1

HIGH
1-HR
SGROUP# 4

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 4,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.00000	(30, 1)
0.0	50.0	0.00002	(30, 1)	50.0	50.0	0.00000	(30, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.00518	(25, 1)
-50.0	100.0	0.34826	(25, 1)	0.0	100.0	1.41621	(25, 1)
50.0	100.0	0.34828	(25, 1)	100.0	100.0	0.00518	(25, 1)
-100.0	200.0	0.03005	(3, 1)	-50.0	200.0	0.81875	(25, 1)
0.0	200.0	2.72081	(25, 1)	50.0	200.0	0.81875	(25, 1)
100.0	200.0	0.03008	(3, 1)	-100.0	300.0	9.42641	(3, 1)
-50.0	300.0	18.12719	(3, 1)	0.0	300.0	38.45771	(15, 1)
50.0	300.0	18.12720	(3, 1)	100.0	300.0	9.42642	(3, 1)
-100.0	400.0	61.74636	(3, 1)	-50.0	400.0	91.80869	(3, 1)
0.0	400.0	115.89244	(15, 1)	50.0	400.0	91.80872	(3, 1)
100.0	400.0	61.74641	(3, 1)	-100.0	500.0	115.96919	(3, 1)
-50.0	500.0	151.78448	(3, 1)	0.0	500.0	172.07773	(15, 1)
50.0	500.0	151.78453	(3, 1)	100.0	500.0	115.96927	(3, 1)
-100.0	600.0	135.02815	(2, 1)	-50.0	600.0	161.66185	(2, 1)
0.0	600.0	194.87155	(15, 1)	50.0	600.0	161.66190	(2, 1)
100.0	600.0	135.02821	(2, 1)	-100.0	700.0	164.56766	(2, 1)
-50.0	700.0	189.71365	(2, 1)	0.0	700.0	198.92223	(2, 1)
50.0	700.0	189.71370	(2, 1)	100.0	700.0	164.56772	(2, 1)
-100.0	800.0	166.69812	(2, 1)	-50.0	800.0	187.05219	(2, 1)
0.0	800.0	194.37489	(2, 1)	50.0	800.0	187.05223	(2, 1)
100.0	800.0	166.69820	(2, 1)	-100.0	900.0	157.74208	(2, 1)
-50.0	900.0	173.51654	(2, 1)	0.0	900.0	179.11778	(2, 1)
50.0	900.0	173.51657	(2, 1)	100.0	900.0	157.74214	(2, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 4,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 166.92752 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	70.98795 (25, 1)	71.30583 (25, 1)	71.41212 (25, 1)	71.30585 (25, 1)	70.98799 (25, 1)
24000.0 /	73.45352 (25, 1)	73.80695 (25, 1)	73.92515 (25, 1)	73.80697 (25, 1)	73.45357 (25, 1)
23000.0 /	76.07738 (25, 1)	76.47194 (25, 1)	76.60392 (25, 1)	76.47196 (25, 1)	76.07743 (25, 1)
22000.0 /	78.87391 (25, 1)	79.31632 (25, 1)	79.46436 (25, 1)	79.31635 (25, 1)	78.87395 (25, 1)
21000.0 /	81.85903 (25, 1)	82.35748 (25, 1)	82.52430 (25, 1)	82.35750 (25, 1)	81.85908 (25, 1)
20000.0 /	85.05039 (25, 1)	85.61488 (25, 1)	85.80388 (25, 1)	85.61490 (25, 1)	85.05044 (25, 1)
19000.0 /	88.35042 (25, 1)	88.99247 (25, 1)	89.20753 (25, 1)	88.99250 (25, 1)	88.35047 (25, 1)
18000.0 /	91.83634 (25, 1)	92.57074 (25, 1)	92.81685 (25, 1)	92.57077 (25, 1)	91.83640 (25, 1)
17000.0 /	95.51250 (25, 1)	96.35770 (25, 1)	96.64109 (25, 1)	96.35773 (25, 1)	95.51257 (25, 1)
16000.0 /	99.37899 (25, 1)	100.35822 (25, 1)	100.68678 (25, 1)	100.35825 (25, 1)	99.37906 (25, 1)
15000.0 /	103.42903 (25, 1)	104.57191 (25, 1)	104.95570 (25, 1)	104.57196 (25, 1)	103.42912 (25, 1)
14000.0 /	104.80951 (30, 1)	107.78249 (30, 1)	108.79214 (30, 1)	107.78259 (30, 1)	104.80970 (30, 1)
13000.0 /	104.91891 (30, 1)	108.31806 (30, 1)	109.47545 (30, 1)	108.31817 (30, 1)	104.91912 (30, 1)
12000.0 /	104.51522 (30, 1)	108.42548 (30, 1)	109.76118 (30, 1)	108.42559 (30, 1)	104.51543 (30, 1)
11000.0 /	103.44550 (30, 1)	107.97337 (30, 1)	109.52632 (30, 1)	107.97349 (30, 1)	103.44572 (30, 1)
10000.0 /	101.51237 (30, 1)	106.79234 (30, 1)	108.61270 (30, 1)	106.79247 (30, 1)	101.51261 (30, 1)
9000.0 /	98.46101 (30, 1)	104.66361 (30, 1)	106.81684 (30, 1)	104.66375 (30, 1)	98.46126 (30, 1)
8000.0 /	97.14505 (26, 1)	101.30511 (30, 1)	103.87772 (30, 1)	101.30524 (30, 1)	97.14517 (26, 1)
7000.0 /	101.06947 (26, 1)	105.46191 (26, 1)	106.96810 (26, 1)	105.46198 (26, 1)	101.06960 (26, 1)
6000.0 /	103.43893 (26, 1)	109.39207 (26, 1)	111.45166 (26, 1)	109.39215 (26, 1)	103.43909 (26, 1)
5000.0 /	102.64743 (26, 1)	110.90421 (26, 1)	113.80154 (26, 1)	110.90431 (26, 1)	102.64761 (26, 1)
4000.0 /	95.83032 (26, 1)	107.50060 (26, 1)	111.69842 (26, 1)	107.50072 (26, 1)	95.83053 (26, 1)
3000.0 /	83.49776 (5, 1)	89.92365 (26, 1)	93.27660 (25, 1)	89.92376 (26, 1)	83.49778 (5, 1)
2000.0 /	93.58311 (12, 1)	112.49309 (22, 1)	120.34840 (21, 1)	112.49321 (22, 1)	93.58320 (12, 1)
1000.0 /	109.17087 (7, 1)	148.74783 (14, 1)	166.92752 (23, 1)	148.74796 (14, 1)	109.17094 (7, 1)

1

2ND HIGH
1-HR
SGROUP# 4

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 4,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.00000	(25, 1)
0.0	50.0	0.00000	(25, 1)	50.0	50.0	0.00000	(25, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.00026	(30, 1)
-50.0	100.0	0.15922	(30, 1)	0.0	100.0	1.34507	(30, 1)
50.0	100.0	0.15922	(30, 1)	100.0	100.0	0.00026	(30, 1)
-100.0	200.0	0.02231	(25, 1)	-50.0	200.0	0.21223	(30, 1)
0.0	200.0	1.54860	(30, 1)	50.0	200.0	0.21223	(30, 1)
100.0	200.0	0.02231	(25, 1)	-100.0	300.0	3.28493	(8, 1)
-50.0	300.0	13.89655	(15, 1)	0.0	300.0	22.54198	(3, 1)
50.0	300.0	13.89658	(15, 1)	100.0	300.0	3.28493	(8, 1)
-100.0	400.0	26.25138	(8, 1)	-50.0	400.0	63.35564	(15, 1)
0.0	400.0	104.78712	(3, 1)	50.0	400.0	63.35574	(15, 1)
100.0	400.0	26.25142	(8, 1)	-100.0	500.0	74.76759	(2, 1)
-50.0	500.0	115.01746	(15, 1)	0.0	500.0	166.03093	(3, 1)
50.0	500.0	115.01762	(15, 1)	100.0	500.0	74.76764	(2, 1)
-100.0	600.0	128.82957	(3, 1)	-50.0	600.0	156.83070	(3, 1)
0.0	600.0	171.65982	(2, 1)	50.0	600.0	156.83075	(3, 1)
100.0	600.0	128.82965	(3, 1)	-100.0	700.0	122.70412	(3, 1)
-50.0	700.0	156.92682	(15, 1)	0.0	700.0	195.57297	(15, 1)
50.0	700.0	156.92699	(15, 1)	100.0	700.0	122.70419	(3, 1)
-100.0	800.0	114.76163	(3, 1)	-50.0	800.0	156.76149	(15, 1)
0.0	800.0	186.44238	(15, 1)	50.0	800.0	156.76164	(15, 1)
100.0	800.0	114.76168	(3, 1)	-100.0	900.0	111.07755	(7, 1)
-50.0	900.0	153.63974	(14, 1)	0.0	900.0	176.59396	(14, 1)
50.0	900.0	153.63988	(14, 1)	100.0	900.0	111.07763	(7, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 5,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 166.93977 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	86.40832 (30, 1)	87.28294 (30, 1)	87.57646 (30, 1)	87.28299 (30, 1)	86.40842 (30, 1)
24000.0 /	88.07448 (30, 1)	89.03259 (30, 1)	89.35428 (30, 1)	89.03264 (30, 1)	88.07458 (30, 1)
23000.0 /	89.78332 (30, 1)	90.83630 (30, 1)	91.19005 (30, 1)	90.83636 (30, 1)	89.78343 (30, 1)
22000.0 /	91.53252 (30, 1)	92.69383 (30, 1)	93.08422 (30, 1)	92.69389 (30, 1)	91.53264 (30, 1)
21000.0 /	93.31859 (30, 1)	94.60422 (30, 1)	95.03671 (30, 1)	94.60429 (30, 1)	93.31872 (30, 1)
20000.0 /	95.13628 (30, 1)	96.56537 (30, 1)	97.04651 (30, 1)	96.56544 (30, 1)	95.13641 (30, 1)
19000.0 /	96.97801 (30, 1)	98.57362 (30, 1)	99.11133 (30, 1)	98.57369 (30, 1)	96.97816 (30, 1)
18000.0 /	98.83317 (30, 1)	100.62332 (30, 1)	101.22724 (30, 1)	100.62340 (30, 1)	98.83332 (30, 1)
17000.0 /	100.68695 (30, 1)	102.70600 (30, 1)	103.38800 (30, 1)	102.70608 (30, 1)	100.68711 (30, 1)
16000.0 /	102.51892 (30, 1)	104.80935 (30, 1)	105.58418 (30, 1)	104.80944 (30, 1)	102.51909 (30, 1)
15000.0 /	104.30079 (30, 1)	106.91571 (30, 1)	107.80187 (30, 1)	106.91580 (30, 1)	104.30096 (30, 1)
14000.0 /	107.64511 (25, 1)	108.98982 (25, 1)	109.44180 (25, 1)	108.98987 (25, 1)	107.64520 (25, 1)
13000.0 /	111.99289 (25, 1)	113.58926 (25, 1)	114.12643 (25, 1)	113.58930 (25, 1)	111.99299 (25, 1)
12000.0 /	116.41211 (25, 1)	118.32607 (25, 1)	118.97104 (25, 1)	118.32613 (25, 1)	116.41222 (25, 1)
11000.0 /	120.80189 (25, 1)	123.12205 (25, 1)	123.90531 (25, 1)	123.12211 (25, 1)	120.80201 (25, 1)
10000.0 /	125.00088 (25, 1)	127.84832 (25, 1)	128.81183 (25, 1)	127.84839 (25, 1)	125.00101 (25, 1)
9000.0 /	128.09018 (25, 1)	131.61519 (25, 1)	132.81165 (25, 1)	131.61526 (25, 1)	128.09032 (25, 1)
8000.0 /	129.98233 (25, 1)	134.40387 (25, 1)	135.91092 (25, 1)	134.40396 (25, 1)	129.98250 (25, 1)
7000.0 /	129.89729 (25, 1)	135.52075 (25, 1)	137.44887 (25, 1)	135.52084 (25, 1)	129.89748 (25, 1)
6000.0 /	126.64941 (25, 1)	133.90108 (25, 1)	136.40945 (25, 1)	133.90118 (25, 1)	126.64961 (25, 1)
5000.0 /	118.47974 (25, 1)	127.94205 (25, 1)	131.26125 (25, 1)	127.94217 (25, 1)	118.47995 (25, 1)
4000.0 /	102.94048 (25, 1)	115.34181 (25, 1)	119.79916 (25, 1)	115.34193 (25, 1)	102.94070 (25, 1)
3000.0 /	86.73267 (10, 1)	90.83924 (10, 1)	95.82949 (26, 1)	90.83927 (10, 1)	86.73273 (10, 1)
2000.0 /	108.38101 (5, 1)	113.27032 (5, 1)	121.35062 (22, 1)	113.27035 (5, 1)	108.38106 (5, 1)
1000.0 /	147.79041 (2, 1)	160.13829 (2, 1)	166.93977 (14, 1)	160.13832 (2, 1)	147.79045 (2, 1)

1

HIGH
1-HR
SGROUP# 5

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 5,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.00000	(30, 1)
0.0	50.0	0.00002	(30, 1)	50.0	50.0	0.00000	(30, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.00518	(25, 1)
-50.0	100.0	0.34826	(25, 1)	0.0	100.0	1.41621	(25, 1)
50.0	100.0	0.34828	(25, 1)	100.0	100.0	0.00518	(25, 1)
-100.0	200.0	0.03005	(3, 1)	-50.0	200.0	0.81875	(25, 1)
0.0	200.0	2.72081	(25, 1)	50.0	200.0	0.81875	(25, 1)
100.0	200.0	0.03008	(3, 1)	-100.0	300.0	9.42641	(3, 1)
-50.0	300.0	18.12719	(3, 1)	0.0	300.0	38.45771	(15, 1)
50.0	300.0	18.12720	(3, 1)	100.0	300.0	9.42642	(3, 1)
-100.0	400.0	61.74636	(3, 1)	-50.0	400.0	91.80869	(3, 1)
0.0	400.0	115.89244	(15, 1)	50.0	400.0	91.80872	(3, 1)
100.0	400.0	61.74641	(3, 1)	-100.0	500.0	115.96919	(3, 1)
-50.0	500.0	151.78448	(3, 1)	0.0	500.0	172.07773	(15, 1)
50.0	500.0	151.78453	(3, 1)	100.0	500.0	115.96927	(3, 1)
-100.0	600.0	135.02815	(2, 1)	-50.0	600.0	161.66185	(2, 1)
0.0	600.0	194.87155	(15, 1)	50.0	600.0	161.66190	(2, 1)
100.0	600.0	135.02821	(2, 1)	-100.0	700.0	164.56766	(2, 1)
-50.0	700.0	189.71365	(2, 1)	0.0	700.0	198.92223	(2, 1)
50.0	700.0	189.71370	(2, 1)	100.0	700.0	164.56772	(2, 1)
-100.0	800.0	166.69812	(2, 1)	-50.0	800.0	187.05219	(2, 1)
0.0	800.0	194.37489	(2, 1)	50.0	800.0	187.05223	(2, 1)
100.0	800.0	166.69820	(2, 1)	-100.0	900.0	157.74208	(2, 1)
-50.0	900.0	173.51654	(2, 1)	0.0	900.0	179.11778	(2, 1)
50.0	900.0	173.51657	(2, 1)	100.0	900.0	157.74214	(2, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 5,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 166.92752 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS (METERS)	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0	70.98795 (25, 1)	71.30583 (25, 1)	71.41212 (25, 1)	71.30585 (25, 1)	70.98799 (25, 1)
24000.0	73.45352 (25, 1)	73.80695 (25, 1)	73.92515 (25, 1)	73.80697 (25, 1)	73.45357 (25, 1)
23000.0	76.07738 (25, 1)	76.47194 (25, 1)	76.60392 (25, 1)	76.47196 (25, 1)	76.07743 (25, 1)
22000.0	78.87391 (25, 1)	79.31632 (25, 1)	79.46436 (25, 1)	79.31635 (25, 1)	78.87395 (25, 1)
21000.0	81.85903 (25, 1)	82.35748 (25, 1)	82.52430 (25, 1)	82.35750 (25, 1)	81.85908 (25, 1)
20000.0	85.05039 (25, 1)	85.61488 (25, 1)	85.80388 (25, 1)	85.61490 (25, 1)	85.05044 (25, 1)
19000.0	88.35042 (25, 1)	88.99247 (25, 1)	89.20753 (25, 1)	88.99250 (25, 1)	88.35047 (25, 1)
18000.0	91.83634 (25, 1)	92.57074 (25, 1)	92.81685 (25, 1)	92.57077 (25, 1)	91.83640 (25, 1)
17000.0	95.51250 (25, 1)	96.35770 (25, 1)	96.64109 (25, 1)	96.35773 (25, 1)	95.51257 (25, 1)
16000.0	99.37899 (25, 1)	100.35822 (25, 1)	100.68678 (25, 1)	100.35825 (25, 1)	99.37906 (25, 1)
15000.0	103.42903 (25, 1)	104.57191 (25, 1)	104.95570 (25, 1)	104.57196 (25, 1)	103.42912 (25, 1)
14000.0	104.80951 (30, 1)	107.78249 (30, 1)	108.79214 (30, 1)	107.78259 (30, 1)	104.80970 (30, 1)
13000.0	104.91891 (30, 1)	108.31806 (30, 1)	109.47545 (30, 1)	108.31817 (30, 1)	104.91912 (30, 1)
12000.0	104.51522 (30, 1)	108.42548 (30, 1)	109.76118 (30, 1)	108.42559 (30, 1)	104.51543 (30, 1)
11000.0	103.44550 (30, 1)	107.97337 (30, 1)	109.52632 (30, 1)	107.97349 (30, 1)	103.44572 (30, 1)
10000.0	101.51237 (30, 1)	106.79234 (30, 1)	108.61270 (30, 1)	106.79247 (30, 1)	101.51261 (30, 1)
9000.0	98.46101 (30, 1)	104.66361 (30, 1)	106.81684 (30, 1)	104.66375 (30, 1)	98.46126 (30, 1)
8000.0	97.14505 (26, 1)	101.30511 (30, 1)	103.87772 (30, 1)	101.30524 (30, 1)	97.14517 (26, 1)
7000.0	101.06947 (26, 1)	105.46191 (26, 1)	106.96810 (26, 1)	105.46198 (26, 1)	101.06960 (26, 1)
6000.0	103.43893 (26, 1)	109.39207 (26, 1)	111.45166 (26, 1)	109.39215 (26, 1)	103.43909 (26, 1)
5000.0	102.64743 (26, 1)	110.90421 (26, 1)	113.80154 (26, 1)	110.90431 (26, 1)	102.64761 (26, 1)
4000.0	95.83032 (26, 1)	107.50060 (26, 1)	111.69842 (26, 1)	107.50072 (26, 1)	95.83053 (26, 1)
3000.0	83.49776 (5, 1)	89.92365 (26, 1)	93.27660 (25, 1)	89.92376 (26, 1)	83.49778 (5, 1)
2000.0	93.58311 (12, 1)	112.49309 (22, 1)	120.34840 (21, 1)	112.49321 (22, 1)	93.58320 (12, 1)
1000.0	109.17087 (7, 1)	148.74783 (14, 1)	166.92752 (23, 1)	148.74796 (14, 1)	109.17094 (7, 1)

1

2ND HIGH
1-HR
SGROUP# 5

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 5,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.00000	(25, 1)
0.0	50.0	0.00000	(25, 1)	50.0	50.0	0.00000	(25, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.00026	(30, 1)
-50.0	100.0	0.15922	(30, 1)	0.0	100.0	1.34507	(30, 1)
50.0	100.0	0.15922	(30, 1)	100.0	100.0	0.00026	(30, 1)
-100.0	200.0	0.02231	(25, 1)	-50.0	200.0	0.21223	(30, 1)
0.0	200.0	1.54860	(30, 1)	50.0	200.0	0.21223	(30, 1)
100.0	200.0	0.02231	(25, 1)	-100.0	300.0	3.28493	(8, 1)
-50.0	300.0	13.89655	(15, 1)	0.0	300.0	22.54198	(3, 1)
50.0	300.0	13.89658	(15, 1)	100.0	300.0	3.28493	(8, 1)
-100.0	400.0	26.25138	(8, 1)	-50.0	400.0	63.35564	(15, 1)
0.0	400.0	104.78712	(3, 1)	50.0	400.0	63.35574	(15, 1)
100.0	400.0	26.25142	(8, 1)	-100.0	500.0	74.76759	(2, 1)
-50.0	500.0	115.01746	(15, 1)	0.0	500.0	166.03093	(3, 1)
50.0	500.0	115.01762	(15, 1)	100.0	500.0	74.76764	(2, 1)
-100.0	600.0	128.82957	(3, 1)	-50.0	600.0	156.83070	(3, 1)
0.0	600.0	171.65982	(2, 1)	50.0	600.0	156.83075	(3, 1)
100.0	600.0	128.82965	(3, 1)	-100.0	700.0	122.70412	(3, 1)
-50.0	700.0	156.92682	(15, 1)	0.0	700.0	195.57297	(15, 1)
50.0	700.0	156.92699	(15, 1)	100.0	700.0	122.70419	(3, 1)
-100.0	800.0	114.76163	(3, 1)	-50.0	800.0	156.76149	(15, 1)
0.0	800.0	186.44238	(15, 1)	50.0	800.0	156.76164	(15, 1)
100.0	800.0	114.76168	(3, 1)	-100.0	900.0	111.07755	(7, 1)
-50.0	900.0	153.63974	(14, 1)	0.0	900.0	176.59396	(14, 1)
50.0	900.0	153.63988	(14, 1)	100.0	900.0	111.07763	(7, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 6,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 243.16646 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	121.06509 (30, 1)	122.29007 (30, 1)	122.70117 (30, 1)	122.29015 (30, 1)	121.06524 (30, 1)
24000.0 /	123.55380 (30, 1)	124.89735 (30, 1)	125.34846 (30, 1)	124.89742 (30, 1)	123.55396 (30, 1)
23000.0 /	126.12313 (30, 1)	127.60168 (30, 1)	128.09840 (30, 1)	127.60177 (30, 1)	126.12329 (30, 1)
22000.0 /	128.77313 (30, 1)	130.40619 (30, 1)	130.95515 (30, 1)	130.40628 (30, 1)	128.77330 (30, 1)
21000.0 /	131.50266 (30, 1)	133.31346 (30, 1)	133.92261 (30, 1)	133.31354 (30, 1)	131.50284 (30, 1)
20000.0 /	134.30887 (30, 1)	136.32530 (30, 1)	137.00418 (30, 1)	136.32539 (30, 1)	134.30905 (30, 1)
19000.0 /	137.18657 (30, 1)	139.44243 (30, 1)	140.20262 (30, 1)	139.44254 (30, 1)	137.18677 (30, 1)
18000.0 /	140.12735 (30, 1)	142.66383 (30, 1)	143.51952 (30, 1)	142.66394 (30, 1)	140.12756 (30, 1)
17000.0 /	143.11829 (30, 1)	145.98616 (30, 1)	146.95486 (30, 1)	145.98627 (30, 1)	143.11852 (30, 1)
16000.0 /	146.14023 (30, 1)	149.40265 (30, 1)	150.50626 (30, 1)	149.40277 (30, 1)	146.14047 (30, 1)
15000.0 /	149.16501 (30, 1)	152.90140 (30, 1)	154.16759 (30, 1)	152.90152 (30, 1)	149.16527 (30, 1)
14000.0 /	150.61209 (30, 1)	154.87999 (30, 1)	156.32938 (30, 1)	154.88013 (30, 1)	150.61237 (30, 1)
13000.0 /	151.62280 (30, 1)	156.52942 (30, 1)	158.20004 (30, 1)	156.52957 (30, 1)	151.62309 (30, 1)
12000.0 /	152.05762 (30, 1)	157.73904 (30, 1)	159.67969 (30, 1)	157.73921 (30, 1)	152.05792 (30, 1)
11000.0 /	154.19086 (25, 1)	158.35493 (30, 1)	160.62903 (30, 1)	158.35510 (30, 1)	154.19101 (25, 1)
10000.0 /	160.33752 (25, 1)	163.98705 (25, 1)	165.22194 (25, 1)	163.98712 (25, 1)	160.33769 (25, 1)
9000.0 /	165.39537 (25, 1)	169.94269 (25, 1)	171.48611 (25, 1)	169.94279 (25, 1)	165.39555 (25, 1)
8000.0 /	169.27429 (25, 1)	175.02563 (25, 1)	176.98589 (25, 1)	175.02574 (25, 1)	169.27449 (25, 1)
7000.0 /	171.07545 (25, 1)	178.47052 (25, 1)	181.00595 (25, 1)	178.47064 (25, 1)	171.07570 (25, 1)
6000.0 /	169.38173 (25, 1)	179.06102 (25, 1)	182.40887 (25, 1)	179.06116 (25, 1)	169.38199 (25, 1)
5000.0 /	161.98253 (25, 1)	174.88359 (25, 1)	179.40842 (25, 1)	174.88376 (25, 1)	161.98282 (25, 1)
4000.0 /	145.53687 (25, 1)	162.99724 (25, 1)	169.27109 (25, 1)	162.99741 (25, 1)	145.53719 (25, 1)
3000.0 /	112.80209 (26, 1)	136.41112 (26, 1)	145.33185 (26, 1)	136.41130 (26, 1)	112.80239 (26, 1)
2000.0 /	112.85825 (5, 1)	139.61703 (22, 1)	150.59435 (22, 1)	139.61719 (22, 1)	112.85830 (5, 1)
1000.0 /	153.50703 (2, 1)	186.44502 (23, 1)	243.16646 (23, 1)	186.44536 (23, 1)	153.50710 (2, 1)

1

HIGH
1-HR
SGROUP# 6

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 6,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.02400	(30, 1)
0.0	50.0	0.32506	(30, 1)	50.0	50.0	0.02400	(30, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.08842	(25, 1)
-50.0	100.0	2.91530	(25, 1)	0.0	100.0	9.43190	(30, 1)
50.0	100.0	2.91540	(25, 1)	100.0	100.0	0.08842	(25, 1)
-100.0	200.0	0.14810	(25, 1)	-50.0	200.0	3.64760	(25, 1)
0.0	200.0	10.61269	(25, 1)	50.0	200.0	3.64760	(25, 1)
100.0	200.0	0.14810	(25, 1)	-100.0	300.0	12.96821	(3, 1)
-50.0	300.0	36.99505	(15, 1)	0.0	300.0	101.84873	(15, 1)
50.0	300.0	36.99513	(15, 1)	100.0	300.0	12.96822	(3, 1)
-100.0	400.0	72.54109	(3, 1)	-50.0	400.0	115.92285	(15, 1)
0.0	400.0	211.47961	(15, 1)	50.0	400.0	115.92304	(15, 1)
100.0	400.0	72.54115	(3, 1)	-100.0	500.0	127.32531	(3, 1)
-50.0	500.0	175.26016	(15, 1)	0.0	500.0	271.32639	(24, 1)
50.0	500.0	175.26041	(15, 1)	100.0	500.0	127.32539	(3, 1)
-100.0	600.0	141.96736	(2, 1)	-50.0	600.0	200.48972	(15, 1)
0.0	600.0	292.33371	(24, 1)	50.0	600.0	200.48996	(15, 1)
100.0	600.0	141.96744	(2, 1)	-100.0	700.0	171.31602	(2, 1)
-50.0	700.0	202.75325	(15, 1)	0.0	700.0	287.24609	(24, 1)
50.0	700.0	202.75346	(15, 1)	100.0	700.0	171.31610	(2, 1)
-100.0	800.0	173.11925	(2, 1)	-50.0	800.0	194.22334	(15, 1)
0.0	800.0	271.81274	(24, 1)	50.0	800.0	194.22353	(15, 1)
100.0	800.0	173.11931	(2, 1)	-100.0	900.0	163.80162	(2, 1)
-50.0	900.0	186.27202	(14, 1)	0.0	900.0	254.47247	(23, 1)
50.0	900.0	186.27219	(14, 1)	100.0	900.0	163.80168	(2, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 6,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 231.85069 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	88.37141 (25, 1)	88.76707 (25, 1)	88.89935 (25, 1)	88.76709 (25, 1)	88.37145 (25, 1)
24000.0 /	91.50127 (25, 1)	91.94147 (25, 1)	92.08868 (25, 1)	91.94150 (25, 1)	91.50133 (25, 1)
23000.0 /	94.83781 (25, 1)	95.32958 (25, 1)	95.49408 (25, 1)	95.32961 (25, 1)	94.83787 (25, 1)
22000.0 /	98.40068 (25, 1)	98.95251 (25, 1)	99.13716 (25, 1)	98.95255 (25, 1)	98.40074 (25, 1)
21000.0 /	102.21182 (25, 1)	102.83407 (25, 1)	103.04233 (25, 1)	102.83410 (25, 1)	102.21188 (25, 1)
20000.0 /	106.29586 (25, 1)	107.00119 (25, 1)	107.23735 (25, 1)	107.00122 (25, 1)	106.29592 (25, 1)
19000.0 /	110.56250 (25, 1)	111.36577 (25, 1)	111.63483 (25, 1)	111.36580 (25, 1)	110.56257 (25, 1)
18000.0 /	115.09079 (25, 1)	116.01089 (25, 1)	116.31924 (25, 1)	116.01093 (25, 1)	115.09087 (25, 1)
17000.0 /	119.89283 (25, 1)	120.95344 (25, 1)	121.30907 (25, 1)	120.95348 (25, 1)	119.89291 (25, 1)
16000.0 /	124.97722 (25, 1)	126.20826 (25, 1)	126.62131 (25, 1)	126.20831 (25, 1)	124.97731 (25, 1)
15000.0 /	130.34631 (25, 1)	131.78609 (25, 1)	132.26955 (25, 1)	131.78613 (25, 1)	130.34642 (25, 1)
14000.0 /	135.99213 (25, 1)	137.69022 (25, 1)	138.26097 (25, 1)	137.69028 (25, 1)	135.99223 (25, 1)
13000.0 /	141.88992 (25, 1)	143.91144 (25, 1)	144.59169 (25, 1)	143.91150 (25, 1)	141.89005 (25, 1)
12000.0 /	147.98788 (25, 1)	150.41960 (25, 1)	151.23904 (25, 1)	150.41968 (25, 1)	147.98802 (25, 1)
11000.0 /	151.72417 (30, 1)	157.15033 (25, 1)	158.14941 (25, 1)	157.15041 (25, 1)	151.72450 (30, 1)
10000.0 /	150.36769 (30, 1)	158.17435 (30, 1)	160.86568 (30, 1)	158.17453 (30, 1)	150.36804 (30, 1)
9000.0 /	147.64806 (30, 1)	156.92848 (30, 1)	160.14989 (30, 1)	156.92868 (30, 1)	147.64844 (30, 1)
8000.0 /	143.10822 (30, 1)	154.25891 (30, 1)	158.16571 (30, 1)	154.25912 (30, 1)	143.10863 (30, 1)
7000.0 /	136.13043 (30, 1)	149.68460 (30, 1)	154.49628 (30, 1)	149.68483 (30, 1)	136.13086 (30, 1)
6000.0 /	139.83154 (26, 1)	147.86909 (26, 1)	150.64970 (26, 1)	147.86922 (26, 1)	139.83176 (26, 1)
5000.0 /	141.78040 (26, 1)	153.16504 (26, 1)	157.15961 (26, 1)	153.16518 (26, 1)	141.78064 (26, 1)
4000.0 /	136.73061 (26, 1)	153.33778 (26, 1)	159.31029 (26, 1)	153.33795 (26, 1)	136.73090 (26, 1)
3000.0 /	109.48261 (25, 1)	131.91858 (25, 1)	140.37608 (25, 1)	131.91875 (25, 1)	109.48289 (25, 1)
2000.0 /	111.25722 (22, 1)	138.52063 (21, 1)	149.35577 (21, 1)	138.52078 (21, 1)	111.25745 (22, 1)
1000.0 /	124.74788 (14, 1)	177.48235 (24, 1)	231.85069 (24, 1)	177.48268 (24, 1)	124.74807 (14, 1)

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2ND HIGH
1-HR
SGROUP# 6

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 6,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.00068	(25, 1)
0.0	50.0	0.00762	(25, 1)	50.0	50.0	0.00068	(25, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.00900	(30, 1)
-50.0	100.0	1.65766	(30, 1)	0.0	100.0	9.34817	(25, 1)
50.0	100.0	1.65767	(30, 1)	100.0	100.0	0.00900	(30, 1)
-100.0	200.0	0.06494	(3, 1)	-50.0	200.0	1.99278	(30, 1)
0.0	200.0	10.27523	(30, 1)	50.0	200.0	1.99279	(30, 1)
100.0	200.0	0.06501	(3, 1)	-100.0	300.0	6.27927	(8, 1)
-50.0	300.0	24.80095	(3, 1)	0.0	300.0	94.58611	(24, 1)
50.0	300.0	24.80096	(3, 1)	100.0	300.0	6.27928	(8, 1)
-100.0	400.0	38.68829	(8, 1)	-50.0	400.0	107.53783	(3, 1)
0.0	400.0	206.45926	(24, 1)	50.0	400.0	107.53787	(3, 1)
100.0	400.0	38.68835	(8, 1)	-100.0	500.0	84.18063	(8, 1)
-50.0	500.0	166.33978	(3, 1)	0.0	500.0	261.78360	(15, 1)
50.0	500.0	166.33983	(3, 1)	100.0	500.0	84.18073	(8, 1)
-100.0	600.0	136.90382	(3, 1)	-50.0	600.0	175.85812	(14, 1)
0.0	600.0	267.55844	(15, 1)	50.0	600.0	175.85834	(14, 1)
100.0	600.0	136.90390	(3, 1)	-100.0	700.0	128.38989	(3, 1)
-50.0	700.0	197.21503	(2, 1)	0.0	700.0	258.57883	(23, 1)
50.0	700.0	197.21507	(2, 1)	100.0	700.0	128.38995	(3, 1)
-100.0	800.0	127.96165	(8, 1)	-50.0	800.0	194.07736	(2, 1)
0.0	800.0	260.93854	(23, 1)	50.0	800.0	194.07741	(2, 1)
100.0	800.0	127.96175	(8, 1)	-100.0	900.0	123.05807	(7, 1)
-50.0	900.0	184.60580	(23, 1)	0.0	900.0	252.25761	(24, 1)
50.0	900.0	184.60619	(23, 1)	100.0	900.0	123.05817	(7, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 7,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 358.62192 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	162.29411 (30, 1)	163.93602 (30, 1)	164.48703 (30, 1)	163.93611 (30, 1)	162.29430 (30, 1)
24000.0 /	166.37422 (30, 1)	168.18312 (30, 1)	168.79048 (30, 1)	168.18323 (30, 1)	166.37444 (30, 1)
23000.0 /	170.64676 (30, 1)	172.64694 (30, 1)	173.31891 (30, 1)	172.64705 (30, 1)	170.64697 (30, 1)
22000.0 /	175.12300 (30, 1)	177.34346 (30, 1)	178.08989 (30, 1)	177.34357 (30, 1)	175.12323 (30, 1)
21000.0 /	179.81450 (30, 1)	182.29007 (30, 1)	183.12285 (30, 1)	182.29019 (30, 1)	179.81474 (30, 1)
20000.0 /	184.73264 (30, 1)	187.50552 (30, 1)	188.43907 (30, 1)	187.50565 (30, 1)	184.73289 (30, 1)
19000.0 /	189.88832 (30, 1)	193.01007 (30, 1)	194.06206 (30, 1)	193.01021 (30, 1)	189.88860 (30, 1)
18000.0 /	195.29124 (30, 1)	198.82536 (30, 1)	200.01761 (30, 1)	198.82550 (30, 1)	195.29153 (30, 1)
17000.0 /	200.94881 (30, 1)	204.97437 (30, 1)	206.33412 (30, 1)	204.97453 (30, 1)	200.94913 (30, 1)
16000.0 /	206.86443 (30, 1)	211.48097 (30, 1)	213.04266 (30, 1)	211.48116 (30, 1)	206.86476 (30, 1)
15000.0 /	213.03496 (30, 1)	218.36932 (30, 1)	220.17703 (30, 1)	218.36952 (30, 1)	213.03534 (30, 1)
14000.0 /	217.81326 (30, 1)	223.98299 (30, 1)	226.07822 (30, 1)	223.98318 (30, 1)	217.81366 (30, 1)
13000.0 /	222.37727 (30, 1)	229.57025 (30, 1)	232.01933 (30, 1)	229.57048 (30, 1)	222.37770 (30, 1)
12000.0 /	226.58046 (30, 1)	235.04187 (30, 1)	237.93207 (30, 1)	235.04211 (30, 1)	226.58093 (30, 1)
11000.0 /	230.20509 (30, 1)	240.25949 (30, 1)	243.70769 (30, 1)	240.25975 (30, 1)	230.20560 (30, 1)
10000.0 /	232.93936 (30, 1)	245.02405 (30, 1)	249.19012 (30, 1)	245.02434 (30, 1)	232.93991 (30, 1)
9000.0 /	234.33112 (30, 1)	249.04694 (30, 1)	254.15489 (30, 1)	249.04726 (30, 1)	234.33171 (30, 1)
8000.0 /	233.71556 (30, 1)	251.90617 (30, 1)	258.27917 (30, 1)	251.90652 (30, 1)	233.71622 (30, 1)
7000.0 /	230.09605 (30, 1)	252.97401 (30, 1)	261.09488 (30, 1)	252.97440 (30, 1)	230.09676 (30, 1)
6000.0 /	232.97440 (25, 1)	247.17264 (30, 1)	257.62015 (30, 1)	247.17307 (30, 1)	232.97476 (25, 1)
5000.0 /	231.94708 (25, 1)	250.40125 (25, 1)	256.87341 (25, 1)	250.40147 (25, 1)	231.94749 (25, 1)
4000.0 /	220.29990 (25, 1)	246.68840 (25, 1)	256.16928 (25, 1)	246.68866 (25, 1)	220.30037 (25, 1)
3000.0 /	183.13791 (26, 1)	221.40218 (26, 1)	251.43683 (32, 1)	221.40247 (26, 1)	183.13840 (26, 1)
2000.0 /	143.40630 (21, 1)	189.01205 (27, 1)	224.65239 (33, 1)	189.01239 (27, 1)	143.40660 (21, 1)
1000.0 /	155.52563 (2, 1)	275.03082 (23, 1)	358.62192 (23, 1)	275.03134 (23, 1)	155.52570 (2, 1)

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HIGH
1-HR
SGROUP# 7

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 7,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	19.08760	(1, 1)
0.0	50.0	23803.62109	(24, 1)	50.0	50.0	19.08762	(1, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	4.25349	(1, 1)
-50.0	100.0	179.79277	(3, 1)	0.0	100.0	8924.80957	(24, 1)
50.0	100.0	179.97409	(3, 1)	100.0	100.0	4.25563	(1, 1)
-100.0	200.0	85.38639	(3, 1)	-50.0	200.0	359.67493	(8, 1)
0.0	200.0	3190.05396	(24, 1)	50.0	200.0	359.67542	(8, 1)
100.0	200.0	85.40015	(3, 1)	-100.0	300.0	155.86554	(3, 1)
-50.0	300.0	389.43430	(15, 1)	0.0	300.0	1714.13672	(24, 1)
50.0	300.0	389.43512	(15, 1)	100.0	300.0	155.86566	(3, 1)
-100.0	400.0	176.89168	(3, 1)	-50.0	400.0	384.80988	(15, 1)
0.0	400.0	1093.64294	(24, 1)	50.0	400.0	384.81052	(15, 1)
100.0	400.0	176.89183	(3, 1)	-100.0	500.0	167.99527	(3, 1)
-50.0	500.0	336.03433	(15, 1)	0.0	500.0	770.26819	(24, 1)
50.0	500.0	336.03476	(15, 1)	100.0	500.0	167.99539	(3, 1)
-100.0	600.0	150.96660	(2, 1)	-50.0	600.0	296.15723	(24, 1)
0.0	600.0	579.20898	(24, 1)	50.0	600.0	296.15808	(24, 1)
100.0	600.0	150.96666	(2, 1)	-100.0	700.0	175.59790	(2, 1)
-50.0	700.0	298.63620	(24, 1)	0.0	700.0	496.56900	(24, 1)
50.0	700.0	298.63696	(24, 1)	100.0	700.0	175.59798	(2, 1)
-100.0	800.0	175.65027	(2, 1)	-50.0	800.0	299.18204	(23, 1)
0.0	800.0	444.50595	(23, 1)	50.0	800.0	299.18268	(23, 1)
100.0	800.0	175.65034	(2, 1)	-100.0	900.0	165.95425	(2, 1)
-50.0	900.0	289.89764	(23, 1)	0.0	900.0	399.48260	(23, 1)
50.0	900.0	289.89825	(23, 1)	100.0	900.0	165.95432	(2, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 7,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 338.22894 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	113.93126 (31, 1)	115.08475 (31, 1)	115.47186 (31, 1)	115.08482 (31, 1)	113.93139 (31, 1)
24000.0 /	117.60611 (31, 1)	118.88582 (31, 1)	119.31550 (31, 1)	118.88589 (31, 1)	117.60625 (31, 1)
23000.0 /	121.51060 (31, 1)	122.93609 (31, 1)	123.41499 (31, 1)	122.93616 (31, 1)	121.51075 (31, 1)
22000.0 /	125.66561 (31, 1)	127.26048 (31, 1)	127.79662 (31, 1)	127.26057 (31, 1)	125.66577 (31, 1)
21000.0 /	130.09425 (31, 1)	131.88716 (31, 1)	132.49030 (31, 1)	131.88724 (31, 1)	130.09444 (31, 1)
20000.0 /	134.82224 (31, 1)	136.84822 (31, 1)	137.53032 (31, 1)	136.84831 (31, 1)	134.82242 (31, 1)
19000.0 /	139.87785 (31, 1)	142.18025 (31, 1)	142.95615 (31, 1)	142.18034 (31, 1)	139.87805 (31, 1)
18000.0 /	145.29233 (31, 1)	147.92517 (31, 1)	148.81339 (31, 1)	147.92529 (31, 1)	145.29254 (31, 1)
17000.0 /	151.09969 (31, 1)	154.13116 (31, 1)	155.15515 (31, 1)	154.13129 (31, 1)	151.09993 (31, 1)
16000.0 /	157.33649 (31, 1)	160.85358 (31, 1)	162.04338 (31, 1)	160.85371 (31, 1)	157.33675 (31, 1)
15000.0 /	164.04103 (31, 1)	168.15627 (31, 1)	169.55087 (31, 1)	168.15642 (31, 1)	164.04131 (31, 1)
14000.0 /	170.58876 (31, 1)	175.43103 (31, 1)	177.07553 (31, 1)	175.43120 (31, 1)	170.58907 (31, 1)
13000.0 /	177.41782 (31, 1)	183.17041 (31, 1)	185.12917 (31, 1)	183.17059 (31, 1)	177.41815 (31, 1)
12000.0 /	184.47374 (31, 1)	191.38194 (31, 1)	193.74176 (31, 1)	191.38214 (31, 1)	184.47412 (31, 1)
11000.0 /	191.65013 (31, 1)	200.04794 (31, 1)	202.92828 (31, 1)	200.04816 (31, 1)	191.65056 (31, 1)
10000.0 /	201.67258 (25, 1)	209.11127 (31, 1)	212.68030 (31, 1)	209.11153 (31, 1)	201.67279 (25, 1)
9000.0 /	211.34639 (25, 1)	218.44504 (31, 1)	222.94600 (31, 1)	218.44533 (31, 1)	211.34663 (25, 1)
8000.0 /	220.50110 (25, 1)	227.98962 (25, 1)	233.59651 (31, 1)	227.98978 (25, 1)	220.50137 (25, 1)
7000.0 /	228.23656 (25, 1)	238.09695 (25, 1)	244.36385 (31, 1)	238.09712 (25, 1)	228.23688 (25, 1)
6000.0 /	218.30457 (30, 1)	246.27774 (25, 1)	251.64487 (31, 1)	246.27792 (25, 1)	218.30533 (30, 1)
5000.0 /	203.22719 (31, 1)	241.57275 (31, 1)	255.89999 (31, 1)	241.57324 (31, 1)	203.22801 (31, 1)
4000.0 /	201.70209 (26, 1)	233.78517 (31, 1)	254.56859 (31, 1)	233.78574 (31, 1)	201.70251 (26, 1)
3000.0 /	181.86279 (25, 1)	219.03214 (25, 1)	250.90237 (33, 1)	219.03242 (25, 1)	181.86325 (25, 1)
2000.0 /	140.06279 (22, 1)	187.02499 (28, 1)	215.06708 (27, 1)	187.02534 (28, 1)	140.06310 (22, 1)
1000.0 /	150.22336 (14, 1)	260.63022 (22, 1)	338.22894 (22, 1)	260.63071 (22, 1)	150.22359 (14, 1)

1 2ND HIGH 1-HR SGROUP# 7

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 7,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	13.06056	(4, 1)
0.0	50.0	15635.97070	(23, 1)	50.0	50.0	13.06057	(4, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	2.43481	(3, 1)
-50.0	100.0	95.35463	(8, 1)	0.0	100.0	6573.44775	(23, 1)
50.0	100.0	95.35485	(8, 1)	100.0	100.0	2.43727	(3, 1)
-100.0	200.0	39.79006	(2, 1)	-50.0	200.0	314.45505	(3, 1)
0.0	200.0	2613.00464	(23, 1)	50.0	200.0	314.45526	(3, 1)
100.0	200.0	39.79859	(2, 1)	-100.0	300.0	100.78796	(8, 1)
-50.0	300.0	357.17493	(8, 1)	0.0	300.0	1486.01074	(23, 1)
50.0	300.0	357.17523	(8, 1)	100.0	300.0	100.78812	(8, 1)
-100.0	400.0	139.83237	(8, 1)	-50.0	400.0	337.76349	(14, 1)
0.0	400.0	974.27032	(23, 1)	50.0	400.0	337.76404	(14, 1)
100.0	400.0	139.83258	(8, 1)	-100.0	500.0	149.57866	(8, 1)
-50.0	500.0	302.43661	(24, 1)	0.0	500.0	700.22479	(23, 1)
50.0	500.0	302.43756	(24, 1)	100.0	500.0	149.57884	(8, 1)
-100.0	600.0	146.25346	(3, 1)	-50.0	600.0	287.84225	(15, 1)
0.0	600.0	535.80670	(23, 1)	50.0	600.0	287.84262	(15, 1)
100.0	600.0	146.25354	(3, 1)	-100.0	700.0	151.72874	(8, 1)
-50.0	700.0	297.53149	(23, 1)	0.0	700.0	491.69421	(23, 1)
50.0	700.0	297.53220	(23, 1)	100.0	700.0	151.72888	(8, 1)
-100.0	800.0	149.79724	(14, 1)	-50.0	800.0	286.19766	(24, 1)
0.0	800.0	426.84033	(24, 1)	50.0	800.0	286.19830	(24, 1)
100.0	800.0	149.79752	(14, 1)	-100.0	900.0	152.87427	(14, 1)
-50.0	900.0	267.24332	(24, 1)	0.0	900.0	369.18591	(24, 1)
50.0	900.0	267.24387	(24, 1)	100.0	900.0	152.87453	(14, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 8,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 144.36571 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	4.26488 (30, 1)	4.30811 (30, 1)	4.32262 (30, 1)	4.30811 (30, 1)	4.26488 (30, 1)
24000.0 /	4.46967 (30, 1)	4.51837 (30, 1)	4.53473 (30, 1)	4.51838 (30, 1)	4.46968 (30, 1)
23000.0 /	4.69323 (30, 1)	4.74837 (30, 1)	4.76689 (30, 1)	4.74837 (30, 1)	4.69324 (30, 1)
22000.0 /	4.93813 (30, 1)	5.00090 (30, 1)	5.02200 (30, 1)	5.00090 (30, 1)	4.93814 (30, 1)
21000.0 /	5.20744 (30, 1)	5.27933 (30, 1)	5.30351 (30, 1)	5.27933 (30, 1)	5.20745 (30, 1)
20000.0 /	5.50483 (30, 1)	5.58771 (30, 1)	5.61561 (30, 1)	5.58771 (30, 1)	5.50484 (30, 1)
19000.0 /	5.83472 (30, 1)	5.93095 (30, 1)	5.96338 (30, 1)	5.93095 (30, 1)	5.83473 (30, 1)
18000.0 /	6.20245 (30, 1)	6.31508 (30, 1)	6.35309 (30, 1)	6.31509 (30, 1)	6.20246 (30, 1)
17000.0 /	6.61457 (30, 1)	6.74760 (30, 1)	6.79253 (30, 1)	6.74760 (30, 1)	6.61458 (30, 1)
16000.0 /	7.07918 (30, 1)	7.23786 (30, 1)	7.29154 (30, 1)	7.23786 (30, 1)	7.07920 (30, 1)
15000.0 /	7.60637 (30, 1)	7.79776 (30, 1)	7.86263 (30, 1)	7.79777 (30, 1)	7.60638 (30, 1)
14000.0 /	8.25150 (30, 1)	8.48653 (30, 1)	8.56635 (30, 1)	8.48653 (30, 1)	8.25152 (30, 1)
13000.0 /	8.99831 (30, 1)	9.29121 (30, 1)	9.39095 (30, 1)	9.29122 (30, 1)	8.99833 (30, 1)
12000.0 /	9.87028 (30, 1)	10.24156 (30, 1)	10.36841 (30, 1)	10.24158 (30, 1)	9.87030 (30, 1)
11000.0 /	10.89828 (30, 1)	11.37835 (30, 1)	11.54303 (30, 1)	11.37836 (30, 1)	10.89830 (30, 1)
10000.0 /	12.12304 (30, 1)	12.75837 (30, 1)	12.97747 (30, 1)	12.75839 (30, 1)	12.12307 (30, 1)
9000.0 /	13.59842 (30, 1)	14.46294 (30, 1)	14.76317 (30, 1)	14.46296 (30, 1)	13.59846 (30, 1)
8000.0 /	15.39529 (30, 1)	16.61193 (30, 1)	17.03849 (30, 1)	16.61196 (30, 1)	15.39533 (30, 1)
7000.0 /	17.60355 (30, 1)	19.38829 (30, 1)	20.02256 (30, 1)	19.38832 (30, 1)	17.60361 (30, 1)
6000.0 /	20.43542 (30, 1)	23.20893 (30, 1)	24.21471 (30, 1)	23.20897 (30, 1)	20.43549 (30, 1)
5000.0 /	23.87716 (30, 1)	28.48631 (30, 1)	30.21256 (30, 1)	28.48636 (30, 1)	23.87726 (30, 1)
4000.0 /	27.70182 (30, 1)	36.05574 (30, 1)	39.36681 (30, 1)	36.05583 (30, 1)	27.70195 (30, 1)
3000.0 /	30.32046 (30, 1)	47.19209 (30, 1)	54.69078 (30, 1)	47.19224 (30, 1)	30.32064 (30, 1)
2000.0 /	25.25027 (25, 1)	62.45685 (30, 1)	84.83991 (30, 1)	62.45712 (30, 1)	25.25036 (25, 1)
1000.0 /	26.08921 (16, 1)	58.44471 (16, 1)	144.36571 (30, 1)	58.44482 (16, 1)	26.08930 (16, 1)

1

HIGH
1-HR
SGROUP# 8

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 8,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	1.69716	(1, 1)
0.0	50.0	1081.26746	(20, 1)	50.0	50.0	1.69716	(1, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.36300	(1, 1)
-50.0	100.0	62.73571	(1, 1)	0.0	100.0	847.36377	(18, 1)
50.0	100.0	62.72558	(1, 1)	100.0	100.0	0.36294	(1, 1)
-100.0	200.0	15.47067	(1, 1)	-50.0	200.0	80.70963	(4, 1)
0.0	200.0	531.99152	(16, 1)	50.0	200.0	80.70974	(4, 1)
100.0	200.0	15.46960	(1, 1)	-100.0	300.0	19.45254	(1, 1)
-50.0	300.0	75.64988	(9, 1)	0.0	300.0	403.93481	(16, 1)
50.0	300.0	75.65005	(9, 1)	100.0	300.0	19.45255	(1, 1)
-100.0	400.0	21.39896	(4, 1)	-50.0	400.0	73.64938	(9, 1)
0.0	400.0	292.79071	(16, 1)	50.0	400.0	73.64951	(9, 1)
100.0	400.0	21.39900	(4, 1)	-100.0	500.0	19.96834	(4, 1)
-50.0	500.0	84.38384	(16, 1)	0.0	500.0	218.36784	(16, 1)
50.0	500.0	84.38411	(16, 1)	100.0	500.0	19.96837	(4, 1)
-100.0	600.0	20.96262	(9, 1)	-50.0	600.0	85.14885	(16, 1)
0.0	600.0	168.40643	(16, 1)	50.0	600.0	85.14910	(16, 1)
100.0	600.0	20.96268	(9, 1)	-100.0	700.0	21.43267	(9, 1)
-50.0	700.0	79.93103	(16, 1)	0.0	700.0	153.87383	(30, 1)
50.0	700.0	79.93123	(16, 1)	100.0	700.0	21.43272	(9, 1)
-100.0	800.0	21.66472	(16, 1)	-50.0	800.0	72.72780	(16, 1)
0.0	800.0	153.42918	(30, 1)	50.0	800.0	72.72796	(16, 1)
100.0	800.0	21.66482	(16, 1)	-100.0	900.0	24.58857	(16, 1)
-50.0	900.0	65.32906	(16, 1)	0.0	900.0	149.81947	(30, 1)
50.0	900.0	65.32919	(16, 1)	100.0	900.0	24.58867	(16, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 8,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 97.68606 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	2.16888 (31, 1)	2.19087 (31, 1)	2.19825 (31, 1)	2.19087 (31, 1)	2.16888 (31, 1)
24000.0 /	2.27406 (31, 1)	2.29884 (31, 1)	2.30716 (31, 1)	2.29884 (31, 1)	2.27406 (31, 1)
23000.0 /	2.38896 (31, 1)	2.41703 (31, 1)	2.42646 (31, 1)	2.41703 (31, 1)	2.38897 (31, 1)
22000.0 /	2.51494 (31, 1)	2.54690 (31, 1)	2.55765 (31, 1)	2.54690 (31, 1)	2.51494 (31, 1)
21000.0 /	2.65359 (31, 1)	2.69022 (31, 1)	2.70254 (31, 1)	2.69022 (31, 1)	2.65359 (31, 1)
20000.0 /	2.80683 (31, 1)	2.84909 (31, 1)	2.86332 (31, 1)	2.84909 (31, 1)	2.80684 (31, 1)
19000.0 /	2.97700 (31, 1)	3.02610 (31, 1)	3.04265 (31, 1)	3.02611 (31, 1)	2.97701 (31, 1)
18000.0 /	3.16690 (31, 1)	3.22442 (31, 1)	3.24382 (31, 1)	3.22442 (31, 1)	3.16691 (31, 1)
17000.0 /	3.38000 (31, 1)	3.44797 (31, 1)	3.47094 (31, 1)	3.44798 (31, 1)	3.38000 (31, 1)
16000.0 /	3.62055 (31, 1)	3.70171 (31, 1)	3.72916 (31, 1)	3.70171 (31, 1)	3.62056 (31, 1)
15000.0 /	3.89392 (31, 1)	3.99190 (31, 1)	4.02511 (31, 1)	3.99191 (31, 1)	3.89392 (31, 1)
14000.0 /	4.22997 (31, 1)	4.35046 (31, 1)	4.39138 (31, 1)	4.35046 (31, 1)	4.22998 (31, 1)
13000.0 /	4.62000 (31, 1)	4.77040 (31, 1)	4.82161 (31, 1)	4.77040 (31, 1)	4.62001 (31, 1)
12000.0 /	5.07678 (31, 1)	5.26778 (31, 1)	5.33302 (31, 1)	5.26778 (31, 1)	5.07679 (31, 1)
11000.0 /	5.61723 (31, 1)	5.86469 (31, 1)	5.94958 (31, 1)	5.86470 (31, 1)	5.61724 (31, 1)
10000.0 /	6.26385 (31, 1)	6.59217 (31, 1)	6.70539 (31, 1)	6.59218 (31, 1)	6.26387 (31, 1)
9000.0 /	7.04685 (31, 1)	7.49493 (31, 1)	7.65054 (31, 1)	7.49494 (31, 1)	7.04687 (31, 1)
8000.0 /	8.00670 (31, 1)	8.63958 (31, 1)	8.86147 (31, 1)	8.63959 (31, 1)	8.00673 (31, 1)
7000.0 /	9.19641 (31, 1)	10.12903 (31, 1)	10.46048 (31, 1)	10.12905 (31, 1)	9.19643 (31, 1)
6000.0 /	10.74603 (31, 1)	12.20501 (31, 1)	12.73410 (31, 1)	12.20503 (31, 1)	10.74607 (31, 1)
5000.0 /	12.66892 (31, 1)	15.11570 (31, 1)	16.03214 (31, 1)	15.11574 (31, 1)	12.66897 (31, 1)
4000.0 /	15.35491 (25, 1)	19.38506 (31, 1)	21.16651 (31, 1)	19.38511 (31, 1)	15.35495 (25, 1)
3000.0 /	20.18430 (25, 1)	25.91082 (31, 1)	30.03313 (31, 1)	25.91090 (31, 1)	20.18435 (25, 1)
2000.0 /	24.91848 (30, 1)	37.96328 (25, 1)	48.87006 (31, 1)	37.96335 (25, 1)	24.91870 (30, 1)
1000.0 /	17.47750 (9, 1)	56.47611 (25, 1)	97.68606 (31, 1)	56.47630 (25, 1)	17.47753 (9, 1)

1 2ND HIGH 1-HR SGROUP# 8

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 8,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	1.46318	(2, 1)
0.0	50.0	1024.77454	(11, 1)	50.0	50.0	1.46319	(2, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.21305	(2, 1)
-50.0	100.0	38.16674	(2, 1)	0.0	100.0	830.70599	(17, 1)
50.0	100.0	38.15444	(2, 1)	100.0	100.0	0.21298	(2, 1)
-100.0	200.0	8.09154	(2, 1)	-50.0	200.0	69.17734	(1, 1)
0.0	200.0	487.74850	(17, 1)	50.0	200.0	69.17739	(1, 1)
100.0	200.0	8.09091	(2, 1)	-100.0	300.0	17.01332	(4, 1)
-50.0	300.0	67.11979	(4, 1)	0.0	300.0	278.39282	(17, 1)
50.0	300.0	67.11986	(4, 1)	100.0	300.0	17.01335	(4, 1)
-100.0	400.0	15.03552	(1, 1)	-50.0	400.0	70.24625	(16, 1)
0.0	400.0	179.95871	(17, 1)	50.0	400.0	70.24652	(16, 1)
100.0	400.0	15.03554	(1, 1)	-100.0	500.0	17.93317	(9, 1)
-50.0	500.0	62.39757	(9, 1)	0.0	500.0	127.57413	(30, 1)
50.0	500.0	62.39765	(9, 1)	100.0	500.0	17.93323	(9, 1)
-100.0	600.0	17.15730	(4, 1)	-50.0	600.0	51.24902	(9, 1)
0.0	600.0	145.31990	(30, 1)	50.0	600.0	51.24908	(9, 1)
100.0	600.0	17.15732	(4, 1)	-100.0	700.0	17.05485	(16, 1)
-50.0	700.0	46.22109	(25, 1)	0.0	700.0	133.76369	(16, 1)
50.0	700.0	46.22129	(25, 1)	100.0	700.0	17.05494	(16, 1)
-100.0	800.0	20.55738	(9, 1)	-50.0	800.0	52.43574	(25, 1)
0.0	800.0	112.55545	(31, 1)	50.0	800.0	52.43595	(25, 1)
100.0	800.0	20.55742	(9, 1)	-100.0	900.0	19.10337	(9, 1)
-50.0	900.0	55.56909	(25, 1)	0.0	900.0	105.15102	(31, 1)
50.0	900.0	55.56929	(25, 1)	100.0	900.0	19.10340	(9, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 9,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 38.41808 AND OCCURRED AT (0.0, 2000.0) *

Y-AXIS (METERS)	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0	3.82217 (30, 1)	3.86091 (30, 1)	3.87391 (30, 1)	3.86091 (30, 1)	3.82218 (30, 1)
24000.0	3.99422 (30, 1)	4.03772 (30, 1)	4.05233 (30, 1)	4.03773 (30, 1)	3.99422 (30, 1)
23000.0	4.18112 (30, 1)	4.23022 (30, 1)	4.24672 (30, 1)	4.23023 (30, 1)	4.18112 (30, 1)
22000.0	4.38481 (30, 1)	4.44053 (30, 1)	4.45926 (30, 1)	4.44053 (30, 1)	4.38482 (30, 1)
21000.0	4.60756 (30, 1)	4.67115 (30, 1)	4.69254 (30, 1)	4.67115 (30, 1)	4.60757 (30, 1)
20000.0	4.85207 (30, 1)	4.92509 (30, 1)	4.94967 (30, 1)	4.92509 (30, 1)	4.85207 (30, 1)
19000.0	5.12151 (30, 1)	5.20595 (30, 1)	5.23441 (30, 1)	5.20596 (30, 1)	5.12152 (30, 1)
18000.0	5.41973 (30, 1)	5.51812 (30, 1)	5.55132 (30, 1)	5.51813 (30, 1)	5.41974 (30, 1)
17000.0	5.75135 (30, 1)	5.86697 (30, 1)	5.90602 (30, 1)	5.86697 (30, 1)	5.75136 (30, 1)
16000.0	6.12197 (30, 1)	6.25913 (30, 1)	6.30553 (30, 1)	6.25913 (30, 1)	6.12198 (30, 1)
15000.0	6.53848 (30, 1)	6.70292 (30, 1)	6.75865 (30, 1)	6.70292 (30, 1)	6.53849 (30, 1)
14000.0	7.03286 (30, 1)	7.23305 (30, 1)	7.30105 (30, 1)	7.23306 (30, 1)	7.03287 (30, 1)
13000.0	7.59556 (30, 1)	7.84263 (30, 1)	7.92676 (30, 1)	7.84264 (30, 1)	7.59557 (30, 1)
12000.0	8.23987 (30, 1)	8.54959 (30, 1)	8.65540 (30, 1)	8.54960 (30, 1)	8.23989 (30, 1)
11000.0	8.98228 (30, 1)	9.37759 (30, 1)	9.51320 (30, 1)	9.37760 (30, 1)	8.98230 (30, 1)
10000.0	9.84288 (30, 1)	10.35816 (30, 1)	10.53585 (30, 1)	10.35817 (30, 1)	9.84290 (30, 1)
9000.0	10.84537 (30, 1)	11.53396 (30, 1)	11.77308 (30, 1)	11.53398 (30, 1)	10.84540 (30, 1)
8000.0	12.01563 (30, 1)	12.96365 (30, 1)	13.29600 (30, 1)	12.96367 (30, 1)	12.01566 (30, 1)
7000.0	13.37552 (30, 1)	14.72879 (30, 1)	15.20965 (30, 1)	14.72881 (30, 1)	13.37556 (30, 1)
6000.0	14.93963 (30, 1)	16.96163 (30, 1)	17.69472 (30, 1)	16.96166 (30, 1)	14.93969 (30, 1)
5000.0	16.57569 (30, 1)	19.76279 (30, 1)	20.95596 (30, 1)	19.76283 (30, 1)	16.57575 (30, 1)
4000.0	17.87533 (30, 1)	23.23296 (30, 1)	25.35450 (30, 1)	23.23302 (30, 1)	17.87542 (30, 1)
3000.0	17.51343 (30, 1)	27.15039 (30, 1)	31.42279 (30, 1)	27.15047 (30, 1)	17.51353 (30, 1)
2000.0	15.00032 (25, 1)	28.44312 (30, 1)	38.41808 (30, 1)	28.44324 (30, 1)	15.00038 (25, 1)
1000.0	13.48790 (9, 1)	23.96134 (17, 1)	35.07422 (30, 1)	23.96139 (17, 1)	13.48792 (9, 1)

1

HIGH
1-HR
SGROUP# 9

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 9,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.71318	(3, 1)
0.0	50.0	798.00861	(22, 1)	50.0	50.0	0.71318	(3, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.11232	(2, 1)
-50.0	100.0	17.55355	(3, 1)	0.0	100.0	284.13705	(22, 1)
50.0	100.0	17.55308	(3, 1)	100.0	100.0	0.11236	(2, 1)
-100.0	200.0	6.92761	(1, 1)	-50.0	200.0	28.66905	(1, 1)
0.0	200.0	149.66177	(20, 1)	50.0	200.0	28.66907	(1, 1)
100.0	200.0	6.92800	(1, 1)	-100.0	300.0	13.60541	(1, 1)
-50.0	300.0	27.63082	(1, 1)	0.0	300.0	102.82302	(19, 1)
50.0	300.0	27.63083	(1, 1)	100.0	300.0	13.60543	(1, 1)
-100.0	400.0	12.70827	(4, 1)	-50.0	400.0	28.26405	(10, 1)
0.0	400.0	79.33826	(18, 1)	50.0	400.0	28.26409	(10, 1)
100.0	400.0	12.70829	(4, 1)	-100.0	500.0	14.24689	(4, 1)
-50.0	500.0	27.13588	(9, 1)	0.0	500.0	62.65234	(18, 1)
50.0	500.0	27.13592	(9, 1)	100.0	500.0	14.24691	(4, 1)
-100.0	600.0	13.58462	(4, 1)	-50.0	600.0	27.98912	(17, 1)
0.0	600.0	54.64991	(17, 1)	50.0	600.0	27.98920	(17, 1)
100.0	600.0	13.58463	(4, 1)	-100.0	700.0	13.43509	(9, 1)
-50.0	700.0	28.52324	(17, 1)	0.0	700.0	47.38340	(17, 1)
50.0	700.0	28.52332	(17, 1)	100.0	700.0	13.43512	(9, 1)
-100.0	800.0	14.10810	(9, 1)	-50.0	800.0	27.55054	(17, 1)
0.0	800.0	41.06540	(17, 1)	50.0	800.0	27.55060	(17, 1)
100.0	800.0	14.10812	(9, 1)	-100.0	900.0	14.01627	(9, 1)
-50.0	900.0	25.87963	(17, 1)	0.0	900.0	35.73804	(17, 1)
50.0	900.0	25.87968	(17, 1)	100.0	900.0	14.01629	(9, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 9,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 34.39856 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	2.02547 (31, 1)	2.04600 (31, 1)	2.05289 (31, 1)	2.04600 (31, 1)	2.02547 (31, 1)
24000.0 /	2.11985 (31, 1)	2.14294 (31, 1)	2.15069 (31, 1)	2.14294 (31, 1)	2.11985 (31, 1)
23000.0 /	2.22263 (31, 1)	2.24874 (31, 1)	2.25751 (31, 1)	2.24874 (31, 1)	2.22264 (31, 1)
22000.0 /	2.33496 (31, 1)	2.36464 (31, 1)	2.37461 (31, 1)	2.36464 (31, 1)	2.33496 (31, 1)
21000.0 /	2.45816 (31, 1)	2.49209 (31, 1)	2.50351 (31, 1)	2.49209 (31, 1)	2.45817 (31, 1)
20000.0 /	2.59383 (31, 1)	2.63287 (31, 1)	2.64601 (31, 1)	2.63287 (31, 1)	2.59383 (31, 1)
19000.0 /	2.74385 (31, 1)	2.78909 (31, 1)	2.80434 (31, 1)	2.78910 (31, 1)	2.74385 (31, 1)
18000.0 /	2.91052 (31, 1)	2.96337 (31, 1)	2.98119 (31, 1)	2.96337 (31, 1)	2.91052 (31, 1)
17000.0 /	3.09662 (31, 1)	3.15889 (31, 1)	3.17992 (31, 1)	3.15889 (31, 1)	3.09663 (31, 1)
16000.0 /	3.30558 (31, 1)	3.37965 (31, 1)	3.40471 (31, 1)	3.37965 (31, 1)	3.30558 (31, 1)
15000.0 /	3.54160 (31, 1)	3.63069 (31, 1)	3.66088 (31, 1)	3.63069 (31, 1)	3.54160 (31, 1)
14000.0 /	3.82640 (31, 1)	3.93536 (31, 1)	3.97236 (31, 1)	3.93536 (31, 1)	3.82641 (31, 1)
13000.0 /	4.15350 (31, 1)	4.28865 (31, 1)	4.33467 (31, 1)	4.28866 (31, 1)	4.15351 (31, 1)
12000.0 /	4.53194 (31, 1)	4.70235 (31, 1)	4.76057 (31, 1)	4.70235 (31, 1)	4.53195 (31, 1)
11000.0 /	4.97335 (31, 1)	5.19232 (31, 1)	5.26744 (31, 1)	5.19233 (31, 1)	4.97336 (31, 1)
10000.0 /	5.49255 (31, 1)	5.78024 (31, 1)	5.87945 (31, 1)	5.78025 (31, 1)	5.49256 (31, 1)
9000.0 /	6.10829 (31, 1)	6.49637 (31, 1)	6.63114 (31, 1)	6.49638 (31, 1)	6.10831 (31, 1)
8000.0 /	6.84360 (31, 1)	7.38399 (31, 1)	7.57344 (31, 1)	7.38400 (31, 1)	6.84362 (31, 1)
7000.0 /	7.72423 (31, 1)	8.50653 (31, 1)	8.78453 (31, 1)	8.50655 (31, 1)	7.72425 (31, 1)
6000.0 /	8.80001 (31, 1)	9.99269 (31, 1)	10.42515 (31, 1)	9.99270 (31, 1)	8.80004 (31, 1)
5000.0 /	10.02465 (31, 1)	11.95593 (31, 1)	12.67910 (31, 1)	11.95596 (31, 1)	10.02469 (31, 1)
4000.0 /	11.86311 (25, 1)	14.58942 (31, 1)	15.92540 (31, 1)	14.58946 (31, 1)	11.86313 (25, 1)
3000.0 /	14.24586 (25, 1)	18.03831 (31, 1)	20.89056 (31, 1)	18.03836 (31, 1)	14.24590 (25, 1)
2000.0 /	13.41865 (16, 1)	22.44469 (25, 1)	28.65172 (31, 1)	22.44473 (25, 1)	13.41868 (16, 1)
1000.0 /	10.93728 (16, 1)	23.83290 (16, 1)	34.39856 (31, 1)	23.83295 (16, 1)	10.93731 (16, 1)

1

2ND HIGH
1-HR
SGROUP# 9

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 9,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.59569	(2, 1)
0.0	50.0	778.54333	(23, 1)	50.0	50.0	0.59569	(2, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.10831	(3, 1)
-50.0	100.0	15.92525	(2, 1)	0.0	100.0	275.35379	(21, 1)
50.0	100.0	15.93027	(2, 1)	100.0	100.0	0.10831	(3, 1)
-100.0	200.0	6.48775	(2, 1)	-50.0	200.0	28.51545	(2, 1)
0.0	200.0	139.40628	(19, 1)	50.0	200.0	28.51547	(2, 1)
100.0	200.0	6.48750	(2, 1)	-100.0	300.0	9.03829	(2, 1)
-50.0	300.0	27.58457	(5, 1)	0.0	300.0	99.11619	(18, 1)
50.0	300.0	27.58460	(5, 1)	100.0	300.0	9.03829	(2, 1)
-100.0	400.0	12.70024	(1, 1)	-50.0	400.0	28.06153	(4, 1)
0.0	400.0	73.93089	(19, 1)	50.0	400.0	28.06155	(4, 1)
100.0	400.0	12.70026	(1, 1)	-100.0	500.0	9.41642	(1, 1)
-50.0	500.0	25.99904	(10, 1)	0.0	500.0	62.33314	(17, 1)
50.0	500.0	25.99907	(10, 1)	100.0	500.0	9.41643	(1, 1)
-100.0	600.0	11.58592	(9, 1)	-50.0	600.0	27.43477	(9, 1)
0.0	600.0	50.07859	(18, 1)	50.0	600.0	27.43481	(9, 1)
100.0	600.0	11.58595	(9, 1)	-100.0	700.0	12.14713	(4, 1)
-50.0	700.0	25.90339	(9, 1)	0.0	700.0	40.74039	(18, 1)
50.0	700.0	25.90342	(9, 1)	100.0	700.0	12.14714	(4, 1)
-100.0	800.0	10.59358	(4, 1)	-50.0	800.0	23.67644	(9, 1)
0.0	800.0	33.72989	(18, 1)	50.0	800.0	23.67646	(9, 1)
100.0	800.0	10.59359	(4, 1)	-100.0	900.0	9.82746	(17, 1)
-50.0	900.0	23.24127	(16, 1)	0.0	900.0	33.43531	(31, 1)
50.0	900.0	23.24131	(16, 1)	100.0	900.0	9.82750	(17, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 10, 17, -20,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 4303.68066 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	145.80170 (30, 1)	147.25194 (30, 1)	147.73859 (30, 1)	147.25203 (30, 1)	145.80185 (30, 1)
24000.0 /	152.77008 (30, 1)	154.40207 (30, 1)	154.94995 (30, 1)	154.40216 (30, 1)	152.77025 (30, 1)
23000.0 /	160.37357 (30, 1)	162.21921 (30, 1)	162.83916 (30, 1)	162.21930 (30, 1)	160.37375 (30, 1)
22000.0 /	168.69922 (30, 1)	170.79779 (30, 1)	171.50313 (30, 1)	170.79788 (30, 1)	168.69942 (30, 1)
21000.0 /	177.85031 (30, 1)	180.25056 (30, 1)	181.05788 (30, 1)	180.25069 (30, 1)	177.85054 (30, 1)
20000.0 /	187.95018 (30, 1)	190.71326 (30, 1)	191.64331 (30, 1)	190.71338 (30, 1)	187.95044 (30, 1)
19000.0 /	199.14709 (30, 1)	202.35043 (30, 1)	203.42967 (30, 1)	202.35057 (30, 1)	199.14737 (30, 1)
18000.0 /	211.62088 (30, 1)	215.36383 (30, 1)	216.62619 (30, 1)	215.36398 (30, 1)	211.62119 (30, 1)
17000.0 /	225.59134 (30, 1)	230.00299 (30, 1)	231.49268 (30, 1)	230.00317 (30, 1)	225.59167 (30, 1)
16000.0 /	241.32968 (30, 1)	246.58017 (30, 1)	248.35568 (30, 1)	246.58038 (30, 1)	241.33005 (30, 1)
15000.0 /	258.82147 (30, 1)	265.13019 (30, 1)	267.26715 (30, 1)	265.13037 (30, 1)	258.82190 (30, 1)
14000.0 /	280.24823 (30, 1)	287.96280 (30, 1)	290.58133 (30, 1)	287.96307 (30, 1)	280.24872 (30, 1)
13000.0 /	305.38550 (30, 1)	314.96704 (30, 1)	318.22733 (30, 1)	314.96732 (30, 1)	305.38605 (30, 1)
12000.0 /	334.70117 (30, 1)	346.79907 (30, 1)	350.92822 (30, 1)	346.79938 (30, 1)	334.70181 (30, 1)
11000.0 /	369.22144 (30, 1)	384.79123 (30, 1)	390.12589 (30, 1)	384.79163 (30, 1)	369.22223 (30, 1)
10000.0 /	410.30011 (30, 1)	430.79272 (30, 1)	437.84882 (30, 1)	430.79327 (30, 1)	410.30103 (30, 1)
9000.0 /	459.73535 (30, 1)	487.43634 (30, 1)	497.03635 (30, 1)	487.43689 (30, 1)	459.73642 (30, 1)
8000.0 /	519.91156 (30, 1)	558.58124 (30, 1)	572.10059 (30, 1)	558.58197 (30, 1)	519.91290 (30, 1)
7000.0 /	593.10669 (30, 1)	649.18494 (30, 1)	669.03308 (30, 1)	649.18585 (30, 1)	593.10834 (30, 1)
6000.0 /	685.76465 (30, 1)	771.49194 (30, 1)	802.38855 (30, 1)	771.49316 (30, 1)	685.76678 (30, 1)
5000.0 /	802.01172 (30, 1)	942.05457 (30, 1)	993.97913 (30, 1)	942.05615 (30, 1)	802.01453 (30, 1)
4000.0 /	936.52637 (30, 1)	1184.72998 (30, 1)	1281.32996 (30, 1)	1184.73242 (30, 1)	936.53027 (30, 1)
3000.0 /	1052.58167 (30, 1)	1540.22241 (30, 1)	1748.75623 (30, 1)	1540.22607 (30, 1)	1052.58691 (30, 1)
2000.0 /	1073.47559 (25, 1)	2032.29004 (30, 1)	2600.36133 (30, 1)	2032.29614 (30, 1)	1073.47888 (25, 1)
1000.0 /	1054.34863 (16, 1)	2552.35620 (25, 1)	4303.68066 (30, 1)	2552.36182 (25, 1)	1054.35156 (16, 1)

1 HIGH 1-HR SGROUP# 10

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 10, 17, -20,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.00000	(0, 0)
0.0	50.0	0.00000	(0, 0)	50.0	50.0	0.00000	(0, 0)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.00000	(0, 0)
-50.0	100.0	188.81361	(1, 1)	0.0	100.0	569.35815	(9, 1)
50.0	100.0	188.81374	(1, 1)	100.0	100.0	0.00000	(0, 0)
-100.0	200.0	101.09175	(1, 1)	-50.0	200.0	558.82184	(4, 1)
0.0	200.0	1576.06042	(9, 1)	50.0	200.0	558.82227	(4, 1)
100.0	200.0	101.09189	(1, 1)	-100.0	300.0	267.54871	(1, 1)
-50.0	300.0	1512.60034	(4, 1)	0.0	300.0	4994.37939	(9, 1)
50.0	300.0	1512.60156	(4, 1)	100.0	300.0	267.54901	(1, 1)
-100.0	400.0	460.73624	(1, 1)	-50.0	400.0	2456.70020	(4, 1)
0.0	400.0	7184.41748	(16, 1)	50.0	400.0	2456.70215	(4, 1)
100.0	400.0	460.73663	(1, 1)	-100.0	500.0	760.89984	(4, 1)
-50.0	500.0	2715.25415	(9, 1)	0.0	500.0	6659.17383	(16, 1)
50.0	500.0	2715.25732	(9, 1)	100.0	500.0	760.90094	(4, 1)
-100.0	600.0	867.04974	(4, 1)	-50.0	600.0	2812.84326	(16, 1)
0.0	600.0	5772.63281	(16, 1)	50.0	600.0	2812.84814	(16, 1)
100.0	600.0	867.05066	(4, 1)	-100.0	700.0	891.82092	(9, 1)
-50.0	700.0	2865.19824	(16, 1)	0.0	700.0	5213.51563	(25, 1)
50.0	700.0	2865.20313	(16, 1)	100.0	700.0	891.82263	(9, 1)
-100.0	800.0	932.25287	(9, 1)	-50.0	800.0	2747.97339	(16, 1)
0.0	800.0	4729.45459	(25, 1)	50.0	800.0	2747.97803	(16, 1)
100.0	800.0	932.25439	(9, 1)	-100.0	900.0	959.98511	(16, 1)
-50.0	900.0	2592.04272	(25, 1)	0.0	900.0	4510.06543	(30, 1)
50.0	900.0	2592.04858	(25, 1)	100.0	900.0	959.98804	(16, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 10, 17, -20,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 3882.50830 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	72.90085 (31, 1)	73.62597 (31, 1)	73.86929 (31, 1)	73.62601 (31, 1)	72.90092 (31, 1)
24000.0 /	76.38504 (31, 1)	77.20103 (31, 1)	77.47498 (31, 1)	77.20108 (31, 1)	76.38512 (31, 1)
23000.0 /	80.18678 (31, 1)	81.10960 (31, 1)	81.41958 (31, 1)	81.10965 (31, 1)	80.18687 (31, 1)
22000.0 /	84.34961 (31, 1)	85.39890 (31, 1)	85.75156 (31, 1)	85.39894 (31, 1)	84.34971 (31, 1)
21000.0 /	88.92516 (31, 1)	90.12528 (31, 1)	90.52894 (31, 1)	90.12534 (31, 1)	88.92527 (31, 1)
20000.0 /	93.97509 (31, 1)	95.35663 (31, 1)	95.82166 (31, 1)	95.35669 (31, 1)	93.97522 (31, 1)
19000.0 /	99.57355 (31, 1)	101.17522 (31, 1)	101.71484 (31, 1)	101.17529 (31, 1)	99.57368 (31, 1)
18000.0 /	105.81044 (31, 1)	107.68192 (31, 1)	108.31310 (31, 1)	107.68199 (31, 1)	105.81059 (31, 1)
17000.0 /	112.79567 (31, 1)	115.00150 (31, 1)	115.74634 (31, 1)	115.00159 (31, 1)	112.79584 (31, 1)
16000.0 /	120.66484 (31, 1)	123.29008 (31, 1)	124.17784 (31, 1)	123.29019 (31, 1)	120.66502 (31, 1)
15000.0 /	129.41074 (31, 1)	132.56509 (31, 1)	133.63358 (31, 1)	132.56519 (31, 1)	129.41095 (31, 1)
14000.0 /	140.12411 (31, 1)	143.98140 (31, 1)	145.29066 (31, 1)	143.98154 (31, 1)	140.12436 (31, 1)
13000.0 /	152.69275 (31, 1)	157.48352 (31, 1)	159.11366 (31, 1)	157.48366 (31, 1)	152.69302 (31, 1)
12000.0 /	167.35059 (31, 1)	173.39954 (31, 1)	175.46411 (31, 1)	173.39969 (31, 1)	167.35091 (31, 1)
11000.0 /	184.61072 (31, 1)	192.39561 (31, 1)	195.06294 (31, 1)	192.39581 (31, 1)	184.61111 (31, 1)
10000.0 /	205.93005 (25, 1)	215.39636 (31, 1)	218.92441 (31, 1)	215.39664 (31, 1)	205.93027 (25, 1)
9000.0 /	236.08044 (25, 1)	243.71817 (31, 1)	248.51817 (31, 1)	243.71844 (31, 1)	236.08070 (25, 1)
8000.0 /	274.65045 (25, 1)	283.87732 (25, 1)	287.02142 (25, 1)	283.87750 (25, 1)	274.65076 (25, 1)
7000.0 /	325.09607 (25, 1)	338.98563 (25, 1)	343.74628 (25, 1)	338.98584 (25, 1)	325.09647 (25, 1)
6000.0 /	393.03473 (25, 1)	415.23123 (25, 1)	422.90552 (25, 1)	415.23154 (25, 1)	393.03528 (25, 1)
5000.0 /	487.63330 (25, 1)	526.04089 (25, 1)	539.50513 (25, 1)	526.04132 (25, 1)	487.63412 (25, 1)
4000.0 /	621.43561 (25, 1)	695.35999 (25, 1)	721.90997 (25, 1)	695.36066 (25, 1)	621.43683 (25, 1)
3000.0 /	826.27612 (25, 1)	995.75201 (25, 1)	1059.66772 (25, 1)	995.75323 (25, 1)	826.27820 (25, 1)
2000.0 /	972.04761 (30, 1)	1568.67603 (25, 1)	1780.46240 (25, 1)	1568.67847 (25, 1)	972.05359 (30, 1)
1000.0 /	852.57996 (9, 1)	2379.31885 (16, 1)	3882.50830 (25, 1)	2379.32227 (16, 1)	852.58118 (9, 1)

1

2ND HIGH
1-HR
SGROUP# 10

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 10, 17, -20,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.00000	(0, 0)
0.0	50.0	0.00000	(0, 0)	50.0	50.0	0.00000	(0, 0)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.00000	(0, 0)
-50.0	100.0	153.23288	(4, 1)	0.0	100.0	540.79242	(4, 1)
50.0	100.0	153.23306	(4, 1)	100.0	100.0	0.00000	(0, 0)
-100.0	200.0	55.77205	(4, 1)	-50.0	200.0	540.77515	(1, 1)
0.0	200.0	1510.12659	(16, 1)	50.0	200.0	540.77545	(1, 1)
100.0	200.0	55.77215	(4, 1)	-100.0	300.0	203.18681	(4, 1)
-50.0	300.0	1494.78638	(1, 1)	0.0	300.0	4805.32617	(16, 1)
50.0	300.0	1494.78735	(1, 1)	100.0	300.0	203.18707	(4, 1)
-100.0	400.0	446.85397	(4, 1)	-50.0	400.0	2267.81128	(9, 1)
0.0	400.0	6909.72168	(9, 1)	50.0	400.0	2267.81348	(9, 1)
100.0	400.0	446.85461	(4, 1)	-100.0	500.0	651.11304	(1, 1)
-50.0	500.0	2446.76953	(16, 1)	0.0	500.0	6016.16211	(25, 1)
50.0	500.0	2446.77393	(16, 1)	100.0	500.0	651.11365	(1, 1)
-100.0	600.0	744.93378	(9, 1)	-50.0	600.0	2531.25244	(9, 1)
0.0	600.0	5682.04395	(25, 1)	50.0	600.0	2531.25513	(9, 1)
100.0	600.0	744.93530	(9, 1)	-100.0	700.0	802.75714	(4, 1)
-50.0	700.0	2435.70313	(25, 1)	0.0	700.0	4911.27734	(16, 1)
50.0	700.0	2435.70898	(25, 1)	100.0	700.0	802.75793	(4, 1)
-100.0	800.0	812.90027	(16, 1)	-50.0	800.0	2567.41650	(25, 1)
0.0	800.0	4699.97900	(30, 1)	50.0	800.0	2567.42261	(25, 1)
100.0	800.0	812.90283	(16, 1)	-100.0	900.0	908.00000	(9, 1)
-50.0	900.0	2572.75146	(16, 1)	0.0	900.0	4279.76660	(25, 1)
50.0	900.0	2572.75513	(16, 1)	100.0	900.0	908.00134	(9, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 11,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 415.66602 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	4.90308 (30, 1)	4.95278 (30, 1)	4.96946 (30, 1)	4.95279 (30, 1)	4.90308 (30, 1)
24000.0 /	5.14542 (30, 1)	5.20148 (30, 1)	5.22031 (30, 1)	5.20149 (30, 1)	5.14542 (30, 1)
23000.0 /	5.41054 (30, 1)	5.47410 (30, 1)	5.49546 (30, 1)	5.47411 (30, 1)	5.41054 (30, 1)
22000.0 /	5.70166 (30, 1)	5.77414 (30, 1)	5.79850 (30, 1)	5.77414 (30, 1)	5.70166 (30, 1)
21000.0 /	6.02262 (30, 1)	6.10576 (30, 1)	6.13373 (30, 1)	6.10577 (30, 1)	6.02262 (30, 1)
20000.0 /	6.37802 (30, 1)	6.47405 (30, 1)	6.50638 (30, 1)	6.47405 (30, 1)	6.37803 (30, 1)
19000.0 /	6.77345 (30, 1)	6.88517 (30, 1)	6.92283 (30, 1)	6.88518 (30, 1)	6.77346 (30, 1)
18000.0 /	7.21569 (30, 1)	7.34675 (30, 1)	7.39096 (30, 1)	7.34676 (30, 1)	7.21570 (30, 1)
17000.0 /	7.71313 (30, 1)	7.86827 (30, 1)	7.92068 (30, 1)	7.86828 (30, 1)	7.71314 (30, 1)
16000.0 /	8.27616 (30, 1)	8.46169 (30, 1)	8.52446 (30, 1)	8.46170 (30, 1)	8.27618 (30, 1)
15000.0 /	8.91787 (30, 1)	9.14231 (30, 1)	9.21837 (30, 1)	9.14231 (30, 1)	8.91789 (30, 1)
14000.0 /	9.71359 (30, 1)	9.99031 (30, 1)	10.08429 (30, 1)	9.99032 (30, 1)	9.71360 (30, 1)
13000.0 /	10.64184 (30, 1)	10.98832 (30, 1)	11.10631 (30, 1)	10.98833 (30, 1)	10.64187 (30, 1)
12000.0 /	11.73535 (30, 1)	12.17692 (30, 1)	12.32777 (30, 1)	12.17693 (30, 1)	11.73538 (30, 1)
11000.0 /	13.03809 (30, 1)	13.61259 (30, 1)	13.80967 (30, 1)	13.61261 (30, 1)	13.03812 (30, 1)
10000.0 /	14.60965 (30, 1)	15.37559 (30, 1)	15.63973 (30, 1)	15.37561 (30, 1)	14.60969 (30, 1)
9000.0 /	16.53186 (30, 1)	17.58334 (30, 1)	17.94850 (30, 1)	17.58337 (30, 1)	16.53190 (30, 1)
8000.0 /	18.91805 (30, 1)	20.41393 (30, 1)	20.93840 (30, 1)	20.41395 (30, 1)	18.91810 (30, 1)
7000.0 /	21.92449 (30, 1)	24.14891 (30, 1)	24.93946 (30, 1)	24.14895 (30, 1)	21.92456 (30, 1)
6000.0 /	25.95710 (30, 1)	29.48340 (30, 1)	30.76227 (30, 1)	29.48346 (30, 1)	25.95719 (30, 1)
5000.0 /	31.15931 (30, 1)	37.18238 (30, 1)	39.43852 (30, 1)	37.18246 (30, 1)	31.15944 (30, 1)
4000.0 /	37.60746 (30, 1)	48.97274 (30, 1)	53.47879 (30, 1)	48.97286 (30, 1)	37.60764 (30, 1)
3000.0 /	43.85513 (30, 1)	68.35310 (30, 1)	79.25098 (30, 1)	68.35332 (30, 1)	43.85540 (30, 1)
2000.0 /	41.57881 (30, 1)	104.84473 (30, 1)	142.70488 (30, 1)	104.84519 (30, 1)	41.57917 (30, 1)
1000.0 /	30.60678 (16, 1)	139.93274 (30, 1)	415.66602 (30, 1)	139.93382 (30, 1)	30.60689 (16, 1)

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HIGH
1-HR
SGROUP# 11

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 11,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	4.51976	(1, 1)
0.0	50.0	69589.45313	(30, 1)	50.0	50.0	4.51977	(1, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.51125	(1, 1)
-50.0	100.0	92.70235	(1, 1)	0.0	100.0	20766.97656	(30, 1)
50.0	100.0	92.66438	(1, 1)	100.0	100.0	0.51104	(1, 1)
-100.0	200.0	18.12136	(1, 1)	-50.0	200.0	103.28004	(4, 1)
0.0	200.0	6212.86719	(30, 1)	50.0	200.0	103.28020	(4, 1)
100.0	200.0	18.11987	(1, 1)	-100.0	300.0	21.86284	(1, 1)
-50.0	300.0	97.38287	(9, 1)	0.0	300.0	3110.44336	(30, 1)
50.0	300.0	97.38309	(9, 1)	100.0	300.0	21.86286	(1, 1)
-100.0	400.0	24.36972	(4, 1)	-50.0	400.0	103.44281	(16, 1)
0.0	400.0	1905.03101	(30, 1)	50.0	400.0	103.44322	(16, 1)
100.0	400.0	24.36976	(4, 1)	-100.0	500.0	22.39601	(4, 1)
-50.0	500.0	114.14868	(16, 1)	0.0	500.0	1302.88879	(30, 1)
50.0	500.0	114.14904	(16, 1)	100.0	500.0	22.39604	(4, 1)
-100.0	600.0	24.01212	(9, 1)	-50.0	600.0	122.90998	(25, 1)
0.0	600.0	955.44098	(30, 1)	50.0	600.0	122.91063	(25, 1)
100.0	600.0	24.01219	(9, 1)	-100.0	700.0	24.28424	(9, 1)
-50.0	700.0	128.40630	(25, 1)	0.0	700.0	735.19324	(30, 1)
50.0	700.0	128.40688	(25, 1)	100.0	700.0	24.28429	(9, 1)
-100.0	800.0	26.15682	(16, 1)	-50.0	800.0	125.51039	(25, 1)
0.0	800.0	593.79565	(30, 1)	50.0	800.0	125.51089	(25, 1)
100.0	800.0	26.15694	(16, 1)	-100.0	900.0	29.20702	(16, 1)
-50.0	900.0	131.43202	(30, 1)	0.0	900.0	491.88025	(30, 1)
50.0	900.0	131.43314	(30, 1)	100.0	900.0	29.20713	(16, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 11,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 207.83301 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	2.45154 (31, 1)	2.47639 (31, 1)	2.48473 (31, 1)	2.47639 (31, 1)	2.45154 (31, 1)
24000.0 /	2.57271 (31, 1)	2.60074 (31, 1)	2.61015 (31, 1)	2.60074 (31, 1)	2.57271 (31, 1)
23000.0 /	2.70527 (31, 1)	2.73705 (31, 1)	2.74773 (31, 1)	2.73705 (31, 1)	2.70527 (31, 1)
22000.0 /	2.85083 (31, 1)	2.88707 (31, 1)	2.89925 (31, 1)	2.88707 (31, 1)	2.85083 (31, 1)
21000.0 /	3.01131 (31, 1)	3.05288 (31, 1)	3.06687 (31, 1)	3.05288 (31, 1)	3.01131 (31, 1)
20000.0 /	3.18901 (31, 1)	3.23702 (31, 1)	3.25319 (31, 1)	3.23703 (31, 1)	3.18902 (31, 1)
19000.0 /	3.38672 (31, 1)	3.44259 (31, 1)	3.46141 (31, 1)	3.44259 (31, 1)	3.38673 (31, 1)
18000.0 /	3.60785 (31, 1)	3.67338 (31, 1)	3.69548 (31, 1)	3.67338 (31, 1)	3.60785 (31, 1)
17000.0 /	3.85656 (31, 1)	3.93414 (31, 1)	3.96034 (31, 1)	3.93414 (31, 1)	3.85657 (31, 1)
16000.0 /	4.13808 (31, 1)	4.23085 (31, 1)	4.26223 (31, 1)	4.23085 (31, 1)	4.13809 (31, 1)
15000.0 /	4.45894 (31, 1)	4.57115 (31, 1)	4.60918 (31, 1)	4.57116 (31, 1)	4.45894 (31, 1)
14000.0 /	4.85679 (31, 1)	4.99515 (31, 1)	5.04215 (31, 1)	4.99516 (31, 1)	4.85680 (31, 1)
13000.0 /	5.32092 (31, 1)	5.49416 (31, 1)	5.55315 (31, 1)	5.49417 (31, 1)	5.32093 (31, 1)
12000.0 /	5.86768 (31, 1)	6.08846 (31, 1)	6.16389 (31, 1)	6.08847 (31, 1)	5.86769 (31, 1)
11000.0 /	6.51905 (31, 1)	6.80630 (31, 1)	6.90484 (31, 1)	6.80630 (31, 1)	6.51906 (31, 1)
10000.0 /	7.30483 (31, 1)	7.68780 (31, 1)	7.81987 (31, 1)	7.68780 (31, 1)	7.30484 (31, 1)
9000.0 /	8.26593 (31, 1)	8.79167 (31, 1)	8.97425 (31, 1)	8.79168 (31, 1)	8.26595 (31, 1)
8000.0 /	9.45903 (31, 1)	10.20696 (31, 1)	10.46920 (31, 1)	10.20698 (31, 1)	9.45905 (31, 1)
7000.0 /	10.96224 (31, 1)	12.07446 (31, 1)	12.46973 (31, 1)	12.07447 (31, 1)	10.96228 (31, 1)
6000.0 /	12.97855 (31, 1)	14.74170 (31, 1)	15.38113 (31, 1)	14.74173 (31, 1)	12.97860 (31, 1)
5000.0 /	15.57965 (31, 1)	18.59119 (31, 1)	19.71926 (31, 1)	18.59123 (31, 1)	15.57972 (31, 1)
4000.0 /	18.86897 (25, 1)	24.48637 (31, 1)	26.73940 (31, 1)	24.48643 (31, 1)	18.86901 (25, 1)
3000.0 /	25.92835 (25, 1)	34.17655 (31, 1)	39.62549 (31, 1)	34.17666 (31, 1)	25.92842 (25, 1)
2000.0 /	35.52221 (25, 1)	53.49699 (25, 1)	71.35244 (31, 1)	53.49709 (25, 1)	35.52235 (25, 1)
1000.0 /	25.96979 (25, 1)	110.18616 (25, 1)	207.83301 (31, 1)	110.18653 (25, 1)	25.96996 (25, 1)

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2ND HIGH
1-HR
SGROUP# 11

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 11,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	2.25988	(2, 1)
0.0	50.0	34794.72656	(31, 1)	50.0	50.0	2.25989	(2, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.25563	(2, 1)
-50.0	100.0	46.35118	(2, 1)	0.0	100.0	10383.48828	(31, 1)
50.0	100.0	46.33219	(2, 1)	100.0	100.0	0.25552	(2, 1)
-100.0	200.0	9.06068	(2, 1)	-50.0	200.0	81.35712	(1, 1)
0.0	200.0	3106.43359	(31, 1)	50.0	200.0	81.35719	(1, 1)
100.0	200.0	9.05993	(2, 1)	-100.0	300.0	19.93756	(4, 1)
-50.0	300.0	78.94122	(4, 1)	0.0	300.0	1555.22168	(31, 1)
50.0	300.0	78.94130	(4, 1)	100.0	300.0	19.93760	(4, 1)
-100.0	400.0	16.64890	(1, 1)	-50.0	400.0	88.90455	(9, 1)
0.0	400.0	952.51550	(31, 1)	50.0	400.0	88.90470	(9, 1)
100.0	400.0	16.64891	(1, 1)	-100.0	500.0	20.89331	(9, 1)
-50.0	500.0	102.50342	(25, 1)	0.0	500.0	651.44440	(31, 1)
50.0	500.0	102.50402	(25, 1)	100.0	500.0	20.89338	(9, 1)
-100.0	600.0	19.08747	(4, 1)	-50.0	600.0	109.33000	(16, 1)
0.0	600.0	477.72049	(31, 1)	50.0	600.0	109.33032	(16, 1)
100.0	600.0	19.08749	(4, 1)	-100.0	700.0	21.04820	(16, 1)
-50.0	700.0	99.16006	(16, 1)	0.0	700.0	367.59662	(31, 1)
50.0	700.0	99.16031	(16, 1)	100.0	700.0	21.04831	(16, 1)
-100.0	800.0	23.12037	(9, 1)	-50.0	800.0	115.55087	(30, 1)
0.0	800.0	296.89783	(31, 1)	50.0	800.0	115.55192	(30, 1)
100.0	800.0	23.12042	(9, 1)	-100.0	900.0	21.37210	(9, 1)
-50.0	900.0	118.61535	(25, 1)	0.0	900.0	245.94012	(31, 1)
50.0	900.0	118.61579	(25, 1)	100.0	900.0	21.37213	(9, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 12,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 191.35721 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS (METERS)	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0	84.14262 (30, 1)	84.99221 (30, 1)	85.27733 (30, 1)	84.99226 (30, 1)	84.14272 (30, 1)
24000.0	84.98642 (30, 1)	85.90849 (30, 1)	86.21808 (30, 1)	85.90854 (30, 1)	84.98652 (30, 1)
23000.0	85.82340 (30, 1)	86.82707 (30, 1)	87.16425 (30, 1)	86.82713 (30, 1)	85.82351 (30, 1)
22000.0	87.06335 (25, 1)	87.74513 (30, 1)	88.11354 (30, 1)	87.74519 (30, 1)	87.06340 (25, 1)
21000.0	89.41792 (25, 1)	89.96130 (25, 1)	90.14318 (25, 1)	89.96133 (25, 1)	89.41797 (25, 1)
20000.0	91.87420 (25, 1)	92.48266 (25, 1)	92.68639 (25, 1)	92.48269 (25, 1)	91.87425 (25, 1)
19000.0	94.03857 (25, 1)	94.72034 (25, 1)	94.94871 (25, 1)	94.72038 (25, 1)	94.03863 (25, 1)
18000.0	96.20953 (25, 1)	96.97691 (25, 1)	97.23406 (25, 1)	96.97694 (25, 1)	96.20959 (25, 1)
17000.0	98.36594 (25, 1)	99.23388 (25, 1)	99.52490 (25, 1)	99.23391 (25, 1)	98.36600 (25, 1)
16000.0	100.47938 (25, 1)	101.46629 (25, 1)	101.79741 (25, 1)	101.46632 (25, 1)	100.47945 (25, 1)
15000.0	102.51192 (25, 1)	103.64062 (25, 1)	104.01962 (25, 1)	103.64066 (25, 1)	102.51201 (25, 1)
14000.0	104.41319 (25, 1)	105.71224 (25, 1)	106.14886 (25, 1)	105.71229 (25, 1)	104.41328 (25, 1)
13000.0	106.11600 (25, 1)	107.62160 (25, 1)	108.12821 (25, 1)	107.62164 (25, 1)	106.11608 (25, 1)
12000.0	107.53094 (25, 1)	109.28946 (25, 1)	109.88202 (25, 1)	109.28951 (25, 1)	107.53103 (25, 1)
11000.0	108.53866 (25, 1)	110.61033 (25, 1)	111.30965 (25, 1)	110.61038 (25, 1)	108.53876 (25, 1)
10000.0	108.98335 (25, 1)	111.44764 (25, 1)	112.28141 (25, 1)	111.44769 (25, 1)	108.98346 (25, 1)
9000.0	107.81854 (25, 1)	110.75933 (25, 1)	111.75733 (25, 1)	110.75939 (25, 1)	107.81866 (25, 1)
8000.0	105.37736 (25, 1)	108.92265 (25, 1)	110.13074 (25, 1)	108.92271 (25, 1)	105.37749 (25, 1)
7000.0	101.26267 (25, 1)	105.58556 (25, 1)	107.06716 (25, 1)	105.58562 (25, 1)	101.26281 (25, 1)
6000.0	95.25127 (26, 1)	100.66924 (26, 1)	102.54289 (26, 1)	100.66932 (26, 1)	95.25143 (26, 1)
5000.0	90.34921 (26, 1)	97.49881 (26, 1)	100.00563 (26, 1)	97.49890 (26, 1)	90.34937 (26, 1)
4000.0	81.75802 (27, 1)	91.57069 (27, 1)	95.09667 (27, 1)	91.57079 (27, 1)	81.75819 (27, 1)
3000.0	73.00571 (6, 1)	79.99690 (29, 1)	85.20787 (29, 1)	79.99701 (29, 1)	73.00573 (6, 1)
2000.0	93.15690 (6, 1)	108.25881 (23, 1)	116.72501 (23, 1)	108.25893 (23, 1)	93.15694 (6, 1)
1000.0	127.76685 (3, 1)	147.25610 (24, 1)	191.35721 (24, 1)	147.25636 (24, 1)	127.76689 (3, 1)

1

HIGH
1-HR
SGROUP# 12

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 12,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	1.28868	(30, 1)
0.0	50.0	3.77265	(30, 1)	50.0	50.0	1.28869	(30, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	1.47000	(25, 1)
-50.0	100.0	8.31225	(25, 1)	0.0	100.0	19.13261	(30, 1)
50.0	100.0	8.31235	(25, 1)	100.0	100.0	1.47002	(25, 1)
-100.0	200.0	1.71053	(25, 1)	-50.0	200.0	8.97529	(25, 1)
0.0	200.0	19.76413	(30, 1)	50.0	200.0	8.97530	(25, 1)
100.0	200.0	1.71053	(25, 1)	-100.0	300.0	2.09997	(25, 1)
-50.0	300.0	9.93780	(25, 1)	0.0	300.0	20.55105	(30, 1)
50.0	300.0	9.93781	(25, 1)	100.0	300.0	2.09997	(25, 1)
-100.0	400.0	4.29899	(3, 1)	-50.0	400.0	15.02932	(15, 1)
0.0	400.0	48.96770	(24, 1)	50.0	400.0	15.02935	(15, 1)
100.0	400.0	4.29899	(3, 1)	-100.0	500.0	35.74715	(3, 1)
-50.0	500.0	45.86356	(15, 1)	0.0	500.0	104.14300	(24, 1)
50.0	500.0	45.86362	(15, 1)	100.0	500.0	35.74717	(3, 1)
-100.0	600.0	99.81518	(3, 1)	-50.0	600.0	119.45597	(3, 1)
0.0	600.0	149.70387	(24, 1)	50.0	600.0	119.45600	(3, 1)
100.0	600.0	99.81523	(3, 1)	-100.0	700.0	138.72891	(3, 1)
-50.0	700.0	159.27415	(3, 1)	0.0	700.0	178.19670	(24, 1)
50.0	700.0	159.27419	(3, 1)	100.0	700.0	138.72897	(3, 1)
-100.0	800.0	143.71338	(3, 1)	-50.0	800.0	160.41791	(3, 1)
0.0	800.0	191.92363	(24, 1)	50.0	800.0	160.41794	(3, 1)
100.0	800.0	143.71344	(3, 1)	-100.0	900.0	136.04881	(3, 1)
-50.0	900.0	148.93584	(3, 1)	0.0	900.0	195.27443	(24, 1)
50.0	900.0	148.93587	(3, 1)	100.0	900.0	136.04887	(3, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 12,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 149.36676 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	80.57471 (25, 1)	80.93499 (25, 1)	81.05545 (25, 1)	80.93501 (25, 1)	80.57475 (25, 1)
24000.0 /	82.64563 (25, 1)	83.04266 (25, 1)	83.17544 (25, 1)	83.04269 (25, 1)	82.64568 (25, 1)
23000.0 /	84.80716 (25, 1)	85.24625 (25, 1)	85.39313 (25, 1)	85.24628 (25, 1)	84.80721 (25, 1)
22000.0 /	86.64916 (30, 1)	87.55080 (25, 1)	87.71391 (25, 1)	87.55083 (25, 1)	86.64928 (30, 1)
21000.0 /	87.45819 (30, 1)	88.65906 (30, 1)	89.06302 (30, 1)	88.65912 (30, 1)	87.45831 (30, 1)
20000.0 /	88.24390 (30, 1)	89.56462 (30, 1)	90.00926 (30, 1)	89.56468 (30, 1)	88.24402 (30, 1)
19000.0 /	88.99794 (30, 1)	90.45641 (30, 1)	90.94788 (30, 1)	90.45648 (30, 1)	88.99807 (30, 1)
18000.0 /	89.71012 (30, 1)	91.32790 (30, 1)	91.87364 (30, 1)	91.32797 (30, 1)	89.71026 (30, 1)
17000.0 /	90.36758 (30, 1)	92.17090 (30, 1)	92.77999 (30, 1)	92.17097 (30, 1)	90.36772 (30, 1)
16000.0 /	90.95415 (30, 1)	92.97522 (30, 1)	93.65887 (30, 1)	92.97530 (30, 1)	90.95430 (30, 1)
15000.0 /	91.44936 (30, 1)	93.72818 (30, 1)	94.50037 (30, 1)	93.72826 (30, 1)	91.44952 (30, 1)
14000.0 /	90.52850 (30, 1)	93.07880 (30, 1)	93.94479 (30, 1)	93.07888 (30, 1)	90.52866 (30, 1)
13000.0 /	89.29563 (30, 1)	92.16599 (30, 1)	93.14317 (30, 1)	92.16608 (30, 1)	89.29580 (30, 1)
12000.0 /	88.83338 (31, 1)	92.14490 (31, 1)	93.27597 (31, 1)	92.14499 (31, 1)	88.83356 (31, 1)
11000.0 /	90.52789 (26, 1)	92.26273 (26, 1)	93.58344 (31, 1)	92.26278 (26, 1)	90.52798 (26, 1)
10000.0 /	93.47636 (26, 1)	95.60009 (26, 1)	96.31869 (26, 1)	95.60014 (26, 1)	93.47646 (26, 1)
9000.0 /	95.62875 (26, 1)	98.25208 (26, 1)	99.14243 (26, 1)	98.25213 (26, 1)	95.62886 (26, 1)
8000.0 /	97.00013 (26, 1)	100.28679 (26, 1)	101.40692 (26, 1)	100.28685 (26, 1)	97.00025 (26, 1)
7000.0 /	97.11316 (26, 1)	101.29638 (26, 1)	102.73047 (26, 1)	101.29645 (26, 1)	97.11330 (26, 1)
6000.0 /	94.97813 (25, 1)	100.31684 (25, 1)	102.16232 (25, 1)	100.31692 (25, 1)	94.97828 (25, 1)
5000.0 /	87.97032 (27, 1)	94.97858 (27, 1)	97.43665 (27, 1)	94.97867 (27, 1)	87.97047 (27, 1)
4000.0 /	80.86475 (26, 1)	90.47271 (26, 1)	93.92269 (26, 1)	90.47280 (26, 1)	80.86491 (26, 1)
3000.0 /	71.35699 (11, 1)	79.85566 (28, 1)	85.02600 (28, 1)	79.85577 (28, 1)	71.35704 (11, 1)
2000.0 /	86.36975 (23, 1)	105.53446 (24, 1)	113.84026 (24, 1)	105.53457 (24, 1)	86.36993 (23, 1)
1000.0 /	89.40362 (15, 1)	137.96681 (3, 1)	149.36676 (23, 1)	137.96684 (3, 1)	89.40376 (15, 1)

1

2ND HIGH
1-HR
SGROUP# 12

*** PGV SCENARIOS - W/O DOWNWASH & W/O FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 12,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.03131	(25, 1)
0.0	50.0	0.09276	(25, 1)	50.0	50.0	0.03131	(25, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.67993	(30, 1)
-50.0	100.0	8.30705	(30, 1)	0.0	100.0	14.80876	(25, 1)
50.0	100.0	8.30706	(30, 1)	100.0	100.0	0.67993	(30, 1)
-100.0	200.0	0.77118	(30, 1)	-50.0	200.0	8.78409	(30, 1)
0.0	200.0	15.59630	(25, 1)	50.0	200.0	8.78411	(30, 1)
100.0	200.0	0.77118	(30, 1)	-100.0	300.0	0.91691	(30, 1)
-50.0	300.0	9.44512	(30, 1)	0.0	300.0	16.68461	(25, 1)
50.0	300.0	9.44513	(30, 1)	100.0	300.0	0.91691	(30, 1)
-100.0	400.0	2.66611	(15, 1)	-50.0	400.0	12.43640	(24, 1)
0.0	400.0	26.74814	(15, 1)	50.0	400.0	12.43644	(24, 1)
100.0	400.0	2.66612	(15, 1)	-100.0	500.0	14.39150	(15, 1)
-50.0	500.0	45.67340	(3, 1)	0.0	500.0	67.49244	(15, 1)
50.0	500.0	45.67342	(3, 1)	100.0	500.0	14.39154	(15, 1)
-100.0	600.0	34.29452	(15, 1)	-50.0	600.0	79.09270	(15, 1)
0.0	600.0	126.82698	(3, 1)	50.0	600.0	79.09279	(15, 1)
100.0	600.0	34.29461	(15, 1)	-100.0	700.0	55.20840	(15, 1)
-50.0	700.0	108.36845	(24, 1)	0.0	700.0	166.77776	(3, 1)
50.0	700.0	108.36871	(24, 1)	100.0	700.0	55.20852	(15, 1)
-100.0	800.0	72.10754	(15, 1)	-50.0	800.0	129.87004	(24, 1)
0.0	800.0	166.40694	(3, 1)	50.0	800.0	129.87032	(24, 1)
100.0	800.0	72.10766	(15, 1)	-100.0	900.0	83.40747	(15, 1)
-50.0	900.0	142.41396	(24, 1)	0.0	900.0	153.49730	(3, 1)
50.0	900.0	142.41425	(24, 1)	100.0	900.0	83.40762	(15, 1)

RUN ENDED ON 01-13-92 AT 08:13:51

1 ISCST - (DATED 90346)

IBM-PC VERSION (2.04)
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SERIAL NUMBER 6688 SOLD TO ENVIRONMENTAL MANAGMENT ASSOCIATES
RUN BEGAN ON 01-13-92 AT 08:13:56

1 *** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

CALCULATE (CONCENTRATION=1,DEPOSITION=2)	ISW(1) =	1
RECEPTOR GRID SYSTEM (RECTANGULAR=1 OR 3, POLAR=2 OR 4)	ISW(2) =	3
DISCRETE RECEPTOR SYSTEM (RECTANGULAR=1,POLAR=2)	ISW(3) =	1
TERRAIN ELEVATIONS ARE READ (YES=1,NO=0)	ISW(4) =	0
CALCULATIONS ARE WRITTEN TO TAPE (YES=1,NO=0)	ISW(5) =	0
LIST ALL INPUT DATA (NO=0,YES=1,MET DATA ALSO=2)	ISW(6) =	2
COMPUTE AVERAGE CONCENTRATION (OR TOTAL DEPOSITION)		
WITH THE FOLLOWING TIME PERIODS:		
HOURLY (YES=1,NO=0)	ISW(7) =	1
2-HOUR (YES=1,NO=0)	ISW(8) =	0
3-HOUR (YES=1,NO=0)	ISW(9) =	0
4-HOUR (YES=1,NO=0)	ISW(10) =	0
6-HOUR (YES=1,NO=0)	ISW(11) =	0
8-HOUR (YES=1,NO=0)	ISW(12) =	0
12-HOUR (YES=1,NO=0)	ISW(13) =	0
24-HOUR (YES=1,NO=0)	ISW(14) =	0
PRINT 'N'-DAY TABLE(S) (YES=1,NO=0)	ISW(15) =	0
PRINT THE FOLLOWING TYPES OF TABLES WHOSE TIME PERIODS ARE		
SPECIFIED BY ISW(7) THROUGH ISW(14):		
DAILY TABLES (YES=1,NO=0)	ISW(16) =	0
HIGHEST & SECOND HIGHEST TABLES (YES=1,NO=0)	ISW(17) =	1
MAXIMUM 50 TABLES (YES=1,NO=0)	ISW(18) =	0
METEOROLOGICAL DATA INPUT METHOD (PRE-PROCESSED=1,CARD=2)	ISW(19) =	2
RURAL-URBAN OPTION (RU.=0,UR. MODE 1=1,UR. MODE 2=2,UR. MODE 3=3)	ISW(20) =	0
WIND PROFILE EXPONENT VALUES (DEFAULTS=1,USER ENTERS=2,3)	ISW(21) =	1
VERTICAL POT. TEMP. GRADIENT VALUES (DEFAULTS=1,USER ENTERS=2,3)	ISW(22) =	1
SCALE EMISSION RATES FOR ALL SOURCES (NO=0,YES>0)	ISW(23) =	0
PROGRAM CALCULATES FINAL PLUME RISE ONLY (YES=1,NO=2)	ISW(24) =	1
PROGRAM ADJUSTS ALL STACK HEIGHTS FOR DOWNWASH (YES=2,NO=1)	ISW(25) =	1
PROGRAM USES BUOYANCY INDUCED DISPERSION (YES=1,NO=2)	ISW(26) =	1
CONCENTRATIONS DURING CALM PERIODS SET = 0 (YES=1,NO=2)	ISW(27) =	2
REG. DEFAULT OPTION CHOSEN (YES=1,NO=2)	ISW(28) =	2
TYPE OF POLLUTANT TO BE MODELLED (1=SO2,2=OTHER)	ISW(29) =	2
DEBUG OPTION CHOSEN (YES=1,NO=2)	ISW(30) =	2
ABOVE GROUND (FLAGPOLE) RECEPTORS USED (YES=1,NO=0)	ISW(31) =	1
NUMBER OF INPUT SOURCES	NSOURC =	20
NUMBER OF SOURCE GROUPS (=0,ALL SOURCES)	NGROUP =	12
TIME PERIOD INTERVAL TO BE PRINTED (=0,ALL INTERVALS)	IPERD =	0
NUMBER OF X (RANGE) GRID VALUES	NXPNTS =	5
NUMBER OF Y (THETA) GRID VALUES	NYPNTS =	25
NUMBER OF DISCRETE RECEPTORS	NXWYPT =	50
NUMBER OF HOURS PER DAY IN METEOROLOGICAL DATA	NHOURS =	1
NUMBER OF DAYS OF METEOROLOGICAL DATA	NDAYS =	33
SOURCE EMISSION RATE UNITS CONVERSION FACTOR	TK =	.10000E+07
HEIGHT ABOVE GROUND AT WHICH WIND SPEED WAS MEASURED	ZR =	10.00 METERS
LOGICAL UNIT NUMBER OF METEOROLOGICAL DATA	IMET =	7
ALLOCATED DATA STORAGE	LIMIT =	43500 WORDS
REQUIRED DATA STORAGE FOR THIS PROBLEM RUN	MIMIT =	16895 WORDS

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*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

0 *** NUMBER OF SOURCE NUMBERS REQUIRED TO DEFINE SOURCE GROUPS ***
(NSOGRP)

1, 1, 3, 1, 1, 1, 1, 1, 1, 3, 1, 1,

0 *** SOURCE NUMBERS DEFINING SOURCE GROUPS ***
(IDSOR)

1, 2, 3, 13, -16, 4, 5, 6, 7, 8, 9, 10, 17, -20,
11, 12,

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** X-COORDINATES OF RECTANGULAR GRID SYSTEM ***
(METERS)

-100.0, -50.0, 0.0, 50.0, 100.0,

*** Y-COORDINATES OF RECTANGULAR GRID SYSTEM ***
(METERS)

1000.0, 2000.0, 3000.0, 4000.0, 5000.0, 6000.0, 7000.0, 8000.0, 9000.0, 10000.0,
11000.0, 12000.0, 13000.0, 14000.0, 15000.0, 16000.0, 17000.0, 18000.0, 19000.0, 20000.0,
21000.0, 22000.0, 23000.0, 24000.0, 25000.0,

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*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

*** X,Y COORDINATES OF DISCRETE RECEPTORS ***
(METERS)

(-100.0, 50.0),	(-50.0, 50.0),	(0.0, 50.0),	(50.0, 50.0),	(100.0, 50.0),
(-100.0, 100.0),	(-50.0, 100.0),	(0.0, 100.0),	(50.0, 100.0),	(100.0, 100.0),
(-100.0, 200.0),	(-50.0, 200.0),	(0.0, 200.0),	(50.0, 200.0),	(100.0, 200.0),
(-100.0, 300.0),	(-50.0, 300.0),	(0.0, 300.0),	(50.0, 300.0),	(100.0, 300.0),
(-100.0, 400.0),	(-50.0, 400.0),	(0.0, 400.0),	(50.0, 400.0),	(100.0, 400.0),
(-100.0, 500.0),	(-50.0, 500.0),	(0.0, 500.0),	(50.0, 500.0),	(100.0, 500.0),
(-100.0, 600.0),	(-50.0, 600.0),	(0.0, 600.0),	(50.0, 600.0),	(100.0, 600.0),
(-100.0, 700.0),	(-50.0, 700.0),	(0.0, 700.0),	(50.0, 700.0),	(100.0, 700.0),
(-100.0, 800.0),	(-50.0, 800.0),	(0.0, 800.0),	(50.0, 800.0),	(100.0, 800.0),
(-100.0, 900.0),	(-50.0, 900.0),	(0.0, 900.0),	(50.0, 900.0),	(100.0, 900.0),

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*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* ABOVE GROUND RECEPTOR HEIGHTS IN METERS *
* FOR THE RECEPTOR GRID *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
24000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
23000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
22000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
21000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
20000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
19000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
18000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
17000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
16000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
15000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
14000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
13000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
12000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
11000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
10000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
9000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
8000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
7000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
6000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
5000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
4000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
3000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
2000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
1000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000

1

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* ABOVE GROUND RECEPTOR HEIGHTS IN METERS *
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	HGT.	- X -	- Y -	HGT.	- X -	- Y -	HGT.
-100.0	50.0	10.00000	-50.0	50.0	10.00000	0.0	50.0	10.00000
50.0	50.0	10.00000	100.0	50.0	10.00000	-100.0	100.0	10.00000
-50.0	100.0	10.00000	0.0	100.0	10.00000	50.0	100.0	10.00000
100.0	100.0	10.00000	-100.0	200.0	10.00000	-50.0	200.0	10.00000
0.0	200.0	10.00000	50.0	200.0	10.00000	100.0	200.0	10.00000
-100.0	300.0	10.00000	-50.0	300.0	10.00000	0.0	300.0	10.00000
50.0	300.0	10.00000	100.0	300.0	10.00000	-100.0	400.0	10.00000
-50.0	400.0	10.00000	0.0	400.0	10.00000	50.0	400.0	10.00000
100.0	400.0	10.00000	-100.0	500.0	10.00000	-50.0	500.0	10.00000
0.0	500.0	10.00000	50.0	500.0	10.00000	100.0	500.0	10.00000
-100.0	600.0	10.00000	-50.0	600.0	10.00000	0.0	600.0	10.00000
50.0	600.0	10.00000	100.0	600.0	10.00000	-100.0	700.0	10.00000
-50.0	700.0	10.00000	0.0	700.0	10.00000	50.0	700.0	10.00000
100.0	700.0	10.00000	-100.0	800.0	10.00000	-50.0	800.0	10.00000
0.0	800.0	10.00000	50.0	800.0	10.00000	100.0	800.0	10.00000
-100.0	900.0	10.00000	-50.0	900.0	10.00000	0.0	900.0	10.00000
50.0	900.0	10.00000	100.0	900.0	10.00000			

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

*** SOURCE DATA ***

SOURCE NUMBER	TYPE	WAKE	NUMBER PART. CATS.	EMISSION RATE TYPE=0,1 (GRAMS/SEC) TYPE=2 (GRAMS/SEC) *PER METER**2	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	HEIGHT (METERS)	TEMP. TYPE=0 (DEG.K); VERT.DIM TYPE=1 (METERS)	EXIT VEL. TYPE=0 (M/SEC); HORZ.DIM TYPE=1,2 (METERS)	DIAMETER TYPE=0 (METERS)	BLDG. HEIGHT TYPE=0 (METERS)	BLDG. LENGTH TYPE=0 (METERS)	BLDG. WIDTH TYPE=0 (METERS)
1	0	0	0	0.56447E+01	0.0	0.0	204.2	6.10	372.59	5.23	4.57	0.00	0.00	0.00
2	0	0	0	0.56447E+02	0.0	0.0	204.2	6.10	372.59	5.23	4.57	0.00	0.00	0.00
3	1	0	0	0.37673E+01	0.0	19.0	204.2	19.81	9.21	17.72	0.00	0.00	0.00	0.00
4	0	0	0	0.56447E+02	0.0	0.0	204.2	21.64	372.59	0.21	22.86	0.00	0.00	0.00
5	0	0	0	0.56447E+02	0.0	0.0	204.2	21.64	372.59	0.21	22.86	0.00	0.00	0.00
6	0	0	0	0.56447E+02	0.0	0.0	204.2	12.19	372.59	0.18	24.38	0.00	0.00	0.00
7	0	0	0	0.56447E+02	0.0	0.0	204.2	0.00	372.59	0.47	15.24	0.00	0.00	0.00
8	0	0	0	0.56447E+00	0.0	0.0	204.2	1.83	344.26	0.02	7.77	0.00	0.00	0.00
9	0	0	0	0.56447E+00	0.0	0.0	204.2	0.00	344.26	0.02	21.55	0.00	0.00	0.00
10	1	0	0	0.18774E+01	0.0	19.0	204.2	19.81	9.21	17.72	0.00	0.00	0.00	0.00
11	0	0	0	0.61739E+00	0.0	0.0	204.2	0.00	193.00	0.00	1.00	0.00	0.00	0.00
12	0	0	0	0.70559E+02	0.0	0.0	204.2	6.10	372.59	14.37	4.57	0.00	0.00	0.00
13	1	0	0	0.75221E+01	0.0	95.3	204.2	19.81	9.21	17.72	0.00	0.00	0.00	0.00
14	1	0	0	0.11277E+02	0.0	171.5	204.2	19.81	9.21	17.72	0.00	0.00	0.00	0.00
15	1	0	0	0.15057E+02	0.0	247.7	204.2	19.81	9.21	17.72	0.00	0.00	0.00	0.00
16	1	0	0	0.18811E+02	0.0	323.9	204.2	19.81	9.21	17.72	0.00	0.00	0.00	0.00
17	1	0	0	0.37673E+01	0.0	95.3	204.2	19.81	9.21	17.72	0.00	0.00	0.00	0.00
18	1	0	0	0.56447E+01	0.0	171.5	204.2	19.81	9.21	17.72	0.00	0.00	0.00	0.00
19	1	0	0	0.75221E+01	0.0	247.7	204.2	19.81	9.21	17.72	0.00	0.00	0.00	0.00
20	1	0	0	0.94120E+01	0.0	323.9	204.2	19.81	9.21	17.72	0.00	0.00	0.00	0.00

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* SOURCE-RECEPTOR COMBINATIONS LESS THAN 001 METERS OR THREE BUILDING HEIGHTS IN DISTANCE. NO AVERAGE CONCENTRATION IS CALCULATED *

SOURCE NUMBER	- - RECEPTOR LOCATION - - X OR RANGE (METERS)	Y (METERS) OR DIRECTION (DEGREES)	DISTANCE BETWEEN (METERS)
3	0.0	50.0	-7.16
10	0.0	50.0	-7.16
13	0.0	100.0	-33.36
14	0.0	200.0	-9.56
16	0.0	300.0	-14.25
17	0.0	100.0	-33.36
18	0.0	200.0	-9.56
20	0.0	300.0	-14.25

1

MET. DATA
DAY 1

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 1 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	1.00	300.0	300.0	0.0000	1	0.0700	0.000000E+00

1

MET. DATA
DAY 2

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 2 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	2.00	300.0	300.0	0.0000	1	0.0700	0.000000E+00

1

MET. DATA
DAY 3

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 3 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	3.00	300.0	300.0	0.0000	1	0.0700	0.000000E+00

1

MET. DATA
DAY 4

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 4 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	1.00	300.0	298.0	0.0000	2	0.0700	0.000000E+00

1

MET. DATA
DAY 5

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 5 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	2.00	300.0	298.0	0.0000	2	0.0700	0.000000E+00

MET. DATA
DAY 6

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 6 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	3.00	300.0	298.0	0.0000	2	0.0700	0.000000E+00

MET. DATA
DAY 7

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 7 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	4.00	300.0	298.0	0.0000	2	0.0700	0.000000E+00

MET. DATA
DAY 8

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 8 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	5.00	300.0	298.0	0.0000	2	0.0700	0.000000E+00

MET. DATA
DAY 9

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 9 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	1.00	300.0	296.0	0.0000	3	0.1000	0.000000E+00

MET. DATA
DAY 10

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 10 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	2.00	300.0	296.0	0.0000	3	0.1000	0.000000E+00

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 11 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	3.00	300.0	296.0	0.0000	3	0.1000	0.000000E+00

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 12 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	4.00	300.0	296.0	0.0000	3	0.1000	0.000000E+00

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 13 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	5.00	300.0	296.0	0.0000	3	0.1000	0.000000E+00

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 14 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	8.00	300.0	296.0	0.0000	3	0.1000	0.000000E+00

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 15 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	10.00	300.0	296.0	0.0000	3	0.1000	0.000000E+00

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 16 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	1.00	300.0	294.0	0.0000	4	0.1500	0.000000E+00

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 17 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	2.00	300.0	294.0	0.0000	4	0.1500	0.000000E+00

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 18 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	3.00	300.0	294.0	0.0000	4	0.1500	0.000000E+00

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 19 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	4.00	300.0	294.0	0.0000	4	0.1500	0.000000E+00

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 20 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	5.00	300.0	294.0	0.0000	4	0.1500	0.000000E+00

1 MET. DATA DAY 21

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 21 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	8.00	300.0	294.0	0.0000	4	0.1500	0.000000E+00

1 MET. DATA DAY 22

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 22 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	10.00	300.0	294.0	0.0000	4	0.1500	0.000000E+00

1 MET. DATA DAY 23

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 23 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	15.00	300.0	294.0	0.0000	4	0.1500	0.000000E+00

1 MET. DATA DAY 24

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 24 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	20.00	300.0	294.0	0.0000	4	0.1500	0.000000E+00

1 MET. DATA DAY 25

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 25 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	1.00	100.0	291.0	0.0200	5	0.3500	0.000000E+00

MET. DATA
DAY 26

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 26 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	2.00	100.0	291.0	0.0200	5	0.3500	0.000000E+00

MET. DATA
DAY 27

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 27 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	3.00	100.0	291.0	0.0200	5	0.3500	0.000000E+00

MET. DATA
DAY 28

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 28 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	4.00	100.0	291.0	0.0200	5	0.3500	0.000000E+00

MET. DATA
DAY 29

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 29 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	5.00	100.0	291.0	0.0200	5	0.3500	0.000000E+00

MET. DATA
DAY 30

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 30 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	1.00	100.0	289.0	0.0350	6	0.5500	0.000000E+00

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 31 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	2.00	100.0	289.0	0.0350	6	0.5500	0.000000E+00

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 32 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	3.00	100.0	289.0	0.0350	6	0.5500	0.000000E+00

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 33 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	4.00	100.0	289.0	0.0350	6	0.5500	0.000000E+00

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 30.15554 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	14.52499 (30, 1)	14.67194 (30, 1)	14.72125 (30, 1)	14.67194 (30, 1)	14.52500 (30, 1)
24000.0 /	14.85970 (30, 1)	15.02126 (30, 1)	15.07550 (30, 1)	15.02127 (30, 1)	14.85971 (30, 1)
23000.0 /	15.20854 (30, 1)	15.38680 (30, 1)	15.44669 (30, 1)	15.38681 (30, 1)	15.20856 (30, 1)
22000.0 /	15.57216 (30, 1)	15.76961 (30, 1)	15.83598 (30, 1)	15.76962 (30, 1)	15.57218 (30, 1)
21000.0 /	15.95119 (30, 1)	16.17080 (30, 1)	16.24467 (30, 1)	16.17081 (30, 1)	15.95121 (30, 1)
20000.0 /	16.34618 (30, 1)	16.59154 (30, 1)	16.67414 (30, 1)	16.59155 (30, 1)	16.34620 (30, 1)
19000.0 /	16.75756 (30, 1)	17.03305 (30, 1)	17.12589 (30, 1)	17.03306 (30, 1)	16.75758 (30, 1)
18000.0 /	17.18559 (30, 1)	17.49660 (30, 1)	17.60151 (30, 1)	17.49661 (30, 1)	17.18562 (30, 1)
17000.0 /	17.63025 (30, 1)	17.98344 (30, 1)	18.10274 (30, 1)	17.98345 (30, 1)	17.63028 (30, 1)
16000.0 /	18.09106 (30, 1)	18.49480 (30, 1)	18.63137 (30, 1)	18.49481 (30, 1)	18.09109 (30, 1)
15000.0 /	18.56685 (30, 1)	19.03176 (30, 1)	19.18931 (30, 1)	19.03178 (30, 1)	18.56688 (30, 1)
14000.0 /	18.89487 (30, 1)	19.43008 (30, 1)	19.61184 (30, 1)	19.43010 (30, 1)	18.89490 (30, 1)
13000.0 /	19.19413 (30, 1)	19.81498 (30, 1)	20.02637 (30, 1)	19.81500 (30, 1)	19.19417 (30, 1)
12000.0 /	19.45144 (30, 1)	20.17784 (30, 1)	20.42595 (30, 1)	20.17786 (30, 1)	19.45148 (30, 1)
11000.0 /	19.64770 (30, 1)	20.50583 (30, 1)	20.80013 (30, 1)	20.50585 (30, 1)	19.64775 (30, 1)
10000.0 /	19.75632 (30, 1)	20.78126 (30, 1)	21.13460 (30, 1)	20.78128 (30, 1)	19.75637 (30, 1)
9000.0 /	19.73980 (30, 1)	20.97945 (30, 1)	21.40974 (30, 1)	20.97948 (30, 1)	19.73985 (30, 1)
8000.0 /	19.80893 (25, 1)	21.06553 (30, 1)	21.59847 (30, 1)	21.06556 (30, 1)	19.80896 (25, 1)
7000.0 /	20.30227 (25, 1)	21.17938 (25, 1)	21.66325 (30, 1)	21.17940 (25, 1)	20.30230 (25, 1)
6000.0 /	20.48223 (25, 1)	21.65181 (25, 1)	22.05634 (25, 1)	21.65183 (25, 1)	20.48227 (25, 1)
5000.0 /	20.10790 (25, 1)	21.70772 (25, 1)	22.26880 (25, 1)	21.70774 (25, 1)	20.10793 (25, 1)
4000.0 /	18.77903 (25, 1)	21.02846 (25, 1)	21.83663 (25, 1)	21.02848 (25, 1)	18.77907 (25, 1)
3000.0 /	15.33198 (26, 1)	18.53539 (26, 1)	20.02098 (32, 1)	18.53542 (26, 1)	15.33202 (26, 1)
2000.0 /	12.70095 (21, 1)	15.91753 (21, 1)	17.79742 (33, 1)	15.91755 (21, 1)	12.70098 (21, 1)
1000.0 /	15.55249 (2, 1)	23.12660 (23, 1)	30.15554 (23, 1)	23.12665 (23, 1)	15.55250 (2, 1)

1

HIGH
1-HR
SGROUP# 1

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.14481	(30, 1)
0.0	50.0	1.18151	(30, 1)	50.0	50.0	0.14481	(30, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.03658	(25, 1)
-50.0	100.0	1.03510	(25, 1)	0.0	100.0	4.63948	(30, 1)
50.0	100.0	1.03512	(25, 1)	100.0	100.0	0.03658	(25, 1)
-100.0	200.0	0.05689	(25, 1)	-50.0	200.0	1.23161	(25, 1)
0.0	200.0	43.94872	(24, 1)	50.0	200.0	1.23161	(25, 1)
100.0	200.0	0.05689	(25, 1)	-100.0	300.0	1.83906	(3, 1)
-50.0	300.0	9.66424	(15, 1)	0.0	300.0	59.06094	(24, 1)
50.0	300.0	9.66426	(15, 1)	100.0	300.0	1.83906	(3, 1)
-100.0	400.0	8.36113	(3, 1)	-50.0	400.0	18.88919	(15, 1)
0.0	400.0	56.06588	(24, 1)	50.0	400.0	18.88923	(15, 1)
100.0	400.0	8.36114	(3, 1)	-100.0	500.0	13.62322	(3, 1)
-50.0	500.0	23.57119	(15, 1)	0.0	500.0	50.49635	(24, 1)
50.0	500.0	23.57122	(15, 1)	100.0	500.0	13.62323	(3, 1)
-100.0	600.0	14.67199	(2, 1)	-50.0	600.0	24.55581	(15, 1)
0.0	600.0	44.77039	(24, 1)	50.0	600.0	24.55584	(15, 1)
100.0	600.0	14.67200	(2, 1)	-100.0	700.0	17.43602	(2, 1)
-50.0	700.0	23.78065	(24, 1)	0.0	700.0	39.54218	(24, 1)
50.0	700.0	23.78071	(24, 1)	100.0	700.0	17.43603	(2, 1)
-100.0	800.0	17.54760	(2, 1)	-50.0	800.0	24.11149	(23, 1)
0.0	800.0	35.82332	(23, 1)	50.0	800.0	24.11155	(23, 1)
100.0	800.0	17.54761	(2, 1)	-100.0	900.0	16.59441	(2, 1)
-50.0	900.0	23.89038	(23, 1)	0.0	900.0	32.92123	(23, 1)
50.0	900.0	23.89043	(23, 1)	100.0	900.0	16.59442	(2, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 27.78250 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	10.32272 (31, 1)	10.42723 (31, 1)	10.46230 (31, 1)	10.42724 (31, 1)	10.32273 (31, 1)
24000.0 /	10.63426 (31, 1)	10.74998 (31, 1)	10.78883 (31, 1)	10.74998 (31, 1)	10.63428 (31, 1)
23000.0 /	10.96401 (31, 1)	11.09264 (31, 1)	11.13585 (31, 1)	11.09264 (31, 1)	10.96403 (31, 1)
22000.0 /	11.31348 (31, 1)	11.45707 (31, 1)	11.50534 (31, 1)	11.45708 (31, 1)	11.31350 (31, 1)
21000.0 /	11.68434 (31, 1)	11.84537 (31, 1)	11.89954 (31, 1)	11.84538 (31, 1)	11.68436 (31, 1)
20000.0 /	12.07840 (31, 1)	12.25990 (31, 1)	12.32101 (31, 1)	12.25991 (31, 1)	12.07842 (31, 1)
19000.0 /	12.49763 (31, 1)	12.70334 (31, 1)	12.77266 (31, 1)	12.70335 (31, 1)	12.49764 (31, 1)
18000.0 /	12.94413 (31, 1)	13.17869 (31, 1)	13.25783 (31, 1)	13.17871 (31, 1)	12.94415 (31, 1)
17000.0 /	13.42016 (31, 1)	13.68940 (31, 1)	13.78035 (31, 1)	13.68941 (31, 1)	13.42018 (31, 1)
16000.0 /	13.97145 (25, 1)	14.23934 (31, 1)	14.34466 (31, 1)	14.23935 (31, 1)	13.97146 (25, 1)
15000.0 /	14.61396 (25, 1)	14.83290 (31, 1)	14.95592 (31, 1)	14.83291 (31, 1)	14.61397 (25, 1)
14000.0 /	15.29772 (25, 1)	15.48871 (25, 1)	15.55290 (25, 1)	15.48871 (25, 1)	15.29773 (25, 1)
13000.0 /	16.02272 (25, 1)	16.25095 (25, 1)	16.32775 (25, 1)	16.25096 (25, 1)	16.02273 (25, 1)
12000.0 /	16.78681 (25, 1)	17.06259 (25, 1)	17.15553 (25, 1)	17.06260 (25, 1)	16.78683 (25, 1)
11000.0 /	17.58418 (25, 1)	17.92159 (25, 1)	18.03550 (25, 1)	17.92160 (25, 1)	17.58419 (25, 1)
10000.0 /	18.40310 (25, 1)	18.82185 (25, 1)	18.96355 (25, 1)	18.82186 (25, 1)	18.40312 (25, 1)
9000.0 /	19.14689 (25, 1)	19.67312 (25, 1)	19.85173 (25, 1)	19.67313 (25, 1)	19.14691 (25, 1)
8000.0 /	19.54436 (30, 1)	20.48167 (25, 1)	20.71096 (25, 1)	20.48169 (25, 1)	19.54441 (30, 1)
7000.0 /	19.09126 (30, 1)	20.98946 (30, 1)	21.48010 (25, 1)	20.98949 (30, 1)	19.09132 (30, 1)
6000.0 /	17.94588 (30, 1)	20.31899 (30, 1)	21.17784 (30, 1)	20.31903 (30, 1)	17.94594 (30, 1)
5000.0 /	17.33612 (26, 1)	19.69966 (31, 1)	20.86801 (31, 1)	19.69970 (31, 1)	17.33615 (26, 1)
4000.0 /	17.33794 (26, 1)	19.44169 (26, 1)	20.51247 (31, 1)	19.44171 (26, 1)	17.33798 (26, 1)
3000.0 /	15.15936 (25, 1)	18.25763 (25, 1)	19.95488 (33, 1)	18.25766 (25, 1)	15.15939 (25, 1)
2000.0 /	12.57237 (22, 1)	15.77516 (22, 1)	17.48270 (27, 1)	15.77518 (22, 1)	12.57240 (22, 1)
1000.0 /	13.75225 (14, 1)	21.40847 (22, 1)	27.78250 (22, 1)	21.40851 (22, 1)	13.75227 (14, 1)

1 2ND HIGH 1-HR SGROUP# 1

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.00472	(25, 1)
0.0	50.0	0.03900	(25, 1)	50.0	50.0	0.00472	(25, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.00714	(30, 1)
-50.0	100.0	0.91878	(30, 1)	0.0	100.0	3.15416	(25, 1)
50.0	100.0	0.91878	(30, 1)	100.0	100.0	0.00714	(30, 1)
-100.0	200.0	0.01978	(3, 1)	-50.0	200.0	1.12835	(15, 1)
0.0	200.0	11.02443	(23, 1)	50.0	200.0	1.12835	(15, 1)
100.0	200.0	0.01980	(3, 1)	-100.0	300.0	1.23997	(8, 1)
-50.0	300.0	5.50326	(24, 1)	0.0	300.0	32.26616	(23, 1)
50.0	300.0	5.50328	(24, 1)	100.0	300.0	1.23997	(8, 1)
-100.0	400.0	5.43289	(8, 1)	-50.0	400.0	13.76891	(24, 1)
0.0	400.0	40.71299	(23, 1)	50.0	400.0	13.76896	(24, 1)
100.0	400.0	5.43289	(8, 1)	-100.0	500.0	10.22450	(8, 1)
-50.0	500.0	19.82682	(24, 1)	0.0	500.0	42.51081	(23, 1)
50.0	500.0	19.82688	(24, 1)	100.0	500.0	10.22451	(8, 1)
-100.0	600.0	14.17994	(3, 1)	-50.0	600.0	22.89173	(24, 1)
0.0	600.0	41.32130	(23, 1)	50.0	600.0	22.89179	(24, 1)
100.0	600.0	14.17995	(3, 1)	-100.0	700.0	13.92646	(8, 1)
-50.0	700.0	23.61792	(15, 1)	0.0	700.0	38.71512	(23, 1)
50.0	700.0	23.61795	(15, 1)	100.0	700.0	13.92647	(8, 1)
-100.0	800.0	13.75534	(8, 1)	-50.0	800.0	23.43423	(24, 1)
0.0	800.0	34.95021	(24, 1)	50.0	800.0	23.43428	(24, 1)
100.0	800.0	13.75535	(8, 1)	-100.0	900.0	13.78919	(14, 1)
-50.0	900.0	22.42146	(24, 1)	0.0	900.0	30.97434	(24, 1)
50.0	900.0	22.42151	(24, 1)	100.0	900.0	13.78921	(14, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 2,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 301.55539 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	145.24988 (30, 1)	146.71935 (30, 1)	147.21249 (30, 1)	146.71944 (30, 1)	145.25005 (30, 1)
24000.0 /	148.59695 (30, 1)	150.21257 (30, 1)	150.75504 (30, 1)	150.21266 (30, 1)	148.59714 (30, 1)
23000.0 /	152.08537 (30, 1)	153.86800 (30, 1)	154.46687 (30, 1)	153.86809 (30, 1)	152.08557 (30, 1)
22000.0 /	155.72163 (30, 1)	157.69609 (30, 1)	158.35982 (30, 1)	157.69620 (30, 1)	155.72183 (30, 1)
21000.0 /	159.51192 (30, 1)	161.70798 (30, 1)	162.44673 (30, 1)	161.70808 (30, 1)	159.51213 (30, 1)
20000.0 /	163.46176 (30, 1)	165.91537 (30, 1)	166.74144 (30, 1)	165.91548 (30, 1)	163.46199 (30, 1)
19000.0 /	167.57556 (30, 1)	170.33049 (30, 1)	171.25887 (30, 1)	170.33061 (30, 1)	167.57581 (30, 1)
18000.0 /	171.85594 (30, 1)	174.96596 (30, 1)	176.01512 (30, 1)	174.96608 (30, 1)	171.85620 (30, 1)
17000.0 /	176.30254 (30, 1)	179.83437 (30, 1)	181.02734 (30, 1)	179.83450 (30, 1)	176.30281 (30, 1)
16000.0 /	180.91061 (30, 1)	184.94797 (30, 1)	186.31372 (30, 1)	184.94812 (30, 1)	180.91092 (30, 1)
15000.0 /	185.66852 (30, 1)	190.31763 (30, 1)	191.89311 (30, 1)	190.31779 (30, 1)	185.66884 (30, 1)
14000.0 /	188.94867 (30, 1)	194.30077 (30, 1)	196.11835 (30, 1)	194.30095 (30, 1)	188.94901 (30, 1)
13000.0 /	191.94133 (30, 1)	198.14984 (30, 1)	200.26372 (30, 1)	198.15002 (30, 1)	191.94170 (30, 1)
12000.0 /	194.51443 (30, 1)	201.77838 (30, 1)	204.25955 (30, 1)	201.77858 (30, 1)	194.51485 (30, 1)
11000.0 /	196.47701 (30, 1)	205.05829 (30, 1)	208.00130 (30, 1)	205.05852 (30, 1)	196.47743 (30, 1)
10000.0 /	197.56319 (30, 1)	207.81258 (30, 1)	211.34596 (30, 1)	207.81282 (30, 1)	197.56364 (30, 1)
9000.0 /	197.39803 (30, 1)	209.79446 (30, 1)	214.09735 (30, 1)	209.79474 (30, 1)	197.39853 (30, 1)
8000.0 /	198.08934 (25, 1)	210.65533 (30, 1)	215.98473 (30, 1)	210.65562 (30, 1)	198.08958 (25, 1)
7000.0 /	203.02275 (25, 1)	211.79384 (25, 1)	216.63254 (30, 1)	211.79398 (25, 1)	203.02303 (25, 1)
6000.0 /	204.82236 (25, 1)	216.51813 (25, 1)	220.56335 (25, 1)	216.51831 (25, 1)	204.82266 (25, 1)
5000.0 /	201.07899 (25, 1)	217.07721 (25, 1)	222.68803 (25, 1)	217.07741 (25, 1)	201.07935 (25, 1)
4000.0 /	187.79025 (25, 1)	210.28456 (25, 1)	218.36632 (25, 1)	210.28479 (25, 1)	187.79065 (25, 1)
3000.0 /	153.31984 (26, 1)	185.35393 (26, 1)	200.20982 (32, 1)	185.35417 (26, 1)	153.32024 (26, 1)
2000.0 /	127.00954 (21, 1)	159.17531 (21, 1)	177.97420 (33, 1)	159.17548 (21, 1)	127.00981 (21, 1)
1000.0 /	155.52492 (2, 1)	231.26602 (23, 1)	301.55539 (23, 1)	231.26645 (23, 1)	155.52496 (2, 1)

1

HIGH
1-HR
SGROUP# 2

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 2,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	1.44811	(30, 1)
0.0	50.0	11.81506	(30, 1)	50.0	50.0	1.44811	(30, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.36582	(25, 1)
-50.0	100.0	10.35096	(25, 1)	0.0	100.0	46.39475	(30, 1)
50.0	100.0	10.35119	(25, 1)	100.0	100.0	0.36583	(25, 1)
-100.0	200.0	0.56888	(25, 1)	-50.0	200.0	12.31611	(25, 1)
0.0	200.0	439.48718	(24, 1)	50.0	200.0	12.31613	(25, 1)
100.0	200.0	0.56888	(25, 1)	-100.0	300.0	18.39063	(3, 1)
-50.0	300.0	96.64241	(15, 1)	0.0	300.0	590.60931	(24, 1)
50.0	300.0	96.64262	(15, 1)	100.0	300.0	18.39065	(3, 1)
-100.0	400.0	83.61131	(3, 1)	-50.0	400.0	188.89192	(15, 1)
0.0	400.0	560.65881	(24, 1)	50.0	400.0	188.89224	(15, 1)
100.0	400.0	83.61137	(3, 1)	-100.0	500.0	136.23221	(3, 1)
-50.0	500.0	235.71187	(15, 1)	0.0	500.0	504.96350	(24, 1)
50.0	500.0	235.71217	(15, 1)	100.0	500.0	136.23230	(3, 1)
-100.0	600.0	146.71991	(2, 1)	-50.0	600.0	245.55807	(15, 1)
0.0	600.0	447.70386	(24, 1)	50.0	600.0	245.55836	(15, 1)
100.0	600.0	146.71999	(2, 1)	-100.0	700.0	174.36017	(2, 1)
-50.0	700.0	237.80655	(24, 1)	0.0	700.0	395.42175	(24, 1)
50.0	700.0	237.80714	(24, 1)	100.0	700.0	174.36026	(2, 1)
-100.0	800.0	175.47600	(2, 1)	-50.0	800.0	241.11493	(23, 1)
0.0	800.0	358.23318	(23, 1)	50.0	800.0	241.11545	(23, 1)
100.0	800.0	175.47607	(2, 1)	-100.0	900.0	165.94411	(2, 1)
-50.0	900.0	238.90382	(23, 1)	0.0	900.0	329.21228	(23, 1)
50.0	900.0	238.90431	(23, 1)	100.0	900.0	165.94417	(2, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 2,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 277.82501 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS (METERS)	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0	103.22718 (31, 1)	104.27230 (31, 1)	104.62304 (31, 1)	104.27236 (31, 1)	103.22729 (31, 1)
24000.0	106.34264 (31, 1)	107.49978 (31, 1)	107.88831 (31, 1)	107.49985 (31, 1)	106.34277 (31, 1)
23000.0	109.64014 (31, 1)	110.92638 (31, 1)	111.35849 (31, 1)	110.92645 (31, 1)	109.64027 (31, 1)
22000.0	113.13484 (31, 1)	114.57068 (31, 1)	115.05336 (31, 1)	114.57076 (31, 1)	113.13499 (31, 1)
21000.0	116.84341 (31, 1)	118.45368 (31, 1)	118.99538 (31, 1)	118.45376 (31, 1)	116.84356 (31, 1)
20000.0	120.78399 (31, 1)	122.59902 (31, 1)	123.21011 (31, 1)	122.59911 (31, 1)	120.78416 (31, 1)
19000.0	124.97625 (31, 1)	127.03336 (31, 1)	127.72659 (31, 1)	127.03345 (31, 1)	124.97643 (31, 1)
18000.0	129.44133 (31, 1)	131.78694 (31, 1)	132.57826 (31, 1)	131.78705 (31, 1)	129.44153 (31, 1)
17000.0	134.20155 (31, 1)	136.89401 (31, 1)	137.80348 (31, 1)	136.89412 (31, 1)	134.20177 (31, 1)
16000.0	139.71446 (25, 1)	142.39337 (31, 1)	143.44662 (31, 1)	142.39349 (31, 1)	139.71457 (25, 1)
15000.0	146.13959 (25, 1)	148.32899 (31, 1)	149.55917 (31, 1)	148.32912 (31, 1)	146.13969 (25, 1)
14000.0	152.97719 (25, 1)	154.88705 (25, 1)	155.52899 (25, 1)	154.88712 (25, 1)	152.97731 (25, 1)
13000.0	160.22719 (25, 1)	162.50954 (25, 1)	163.27754 (25, 1)	162.50961 (25, 1)	160.22733 (25, 1)
12000.0	167.86813 (25, 1)	170.62593 (25, 1)	171.55525 (25, 1)	170.62601 (25, 1)	167.86829 (25, 1)
11000.0	175.84174 (25, 1)	179.21591 (25, 1)	180.35500 (25, 1)	179.21600 (25, 1)	175.84190 (25, 1)
10000.0	184.03096 (25, 1)	188.21854 (25, 1)	189.63548 (25, 1)	188.21863 (25, 1)	184.03116 (25, 1)
9000.0	191.46889 (25, 1)	196.73119 (25, 1)	198.51726 (25, 1)	196.73129 (25, 1)	191.46910 (25, 1)
8000.0	195.44354 (30, 1)	204.81673 (25, 1)	207.10963 (25, 1)	204.81686 (25, 1)	195.44409 (30, 1)
7000.0	190.91257 (30, 1)	209.89458 (30, 1)	214.80099 (25, 1)	209.89490 (30, 1)	190.91316 (30, 1)
6000.0	179.45879 (30, 1)	203.18994 (30, 1)	211.77837 (30, 1)	203.19029 (30, 1)	179.45941 (30, 1)
5000.0	173.36122 (26, 1)	196.99658 (31, 1)	208.68008 (31, 1)	196.99698 (31, 1)	173.36153 (26, 1)
4000.0	173.37939 (26, 1)	194.41685 (26, 1)	205.12469 (31, 1)	194.41705 (26, 1)	173.37976 (26, 1)
3000.0	151.59354 (25, 1)	182.57632 (25, 1)	199.54880 (33, 1)	182.57655 (25, 1)	151.59393 (25, 1)
2000.0	125.72368 (22, 1)	157.75162 (22, 1)	174.82700 (27, 1)	157.75179 (22, 1)	125.72395 (22, 1)
1000.0	137.52249 (14, 1)	214.08473 (22, 1)	277.82501 (22, 1)	214.08513 (22, 1)	137.52271 (14, 1)

1

2ND HIGH
1-HR
SGROUP# 2

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 2,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.04718	(25, 1)
0.0	50.0	0.39003	(25, 1)	50.0	50.0	0.04718	(25, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.07136	(30, 1)
-50.0	100.0	9.18779	(30, 1)	0.0	100.0	31.54157	(25, 1)
50.0	100.0	9.18780	(30, 1)	100.0	100.0	0.07136	(30, 1)
-100.0	200.0	0.19780	(3, 1)	-50.0	200.0	11.28348	(15, 1)
0.0	200.0	110.24426	(23, 1)	50.0	200.0	11.28351	(15, 1)
100.0	200.0	0.19797	(3, 1)	-100.0	300.0	12.39972	(8, 1)
-50.0	300.0	55.03257	(24, 1)	0.0	300.0	322.66162	(23, 1)
50.0	300.0	55.03285	(24, 1)	100.0	300.0	12.39974	(8, 1)
-100.0	400.0	54.32887	(8, 1)	-50.0	400.0	137.68906	(24, 1)
0.0	400.0	407.12994	(23, 1)	50.0	400.0	137.68959	(24, 1)
100.0	400.0	54.32895	(8, 1)	-100.0	500.0	102.24500	(8, 1)
-50.0	500.0	198.26816	(24, 1)	0.0	500.0	425.10806	(23, 1)
50.0	500.0	198.26877	(24, 1)	100.0	500.0	102.24512	(8, 1)
-100.0	600.0	141.79939	(3, 1)	-50.0	600.0	228.91725	(24, 1)
0.0	600.0	413.21301	(23, 1)	50.0	600.0	228.91791	(24, 1)
100.0	600.0	141.79948	(3, 1)	-100.0	700.0	139.26460	(8, 1)
-50.0	700.0	236.17921	(15, 1)	0.0	700.0	387.15115	(23, 1)
50.0	700.0	236.17947	(15, 1)	100.0	700.0	139.26472	(8, 1)
-100.0	800.0	137.55338	(8, 1)	-50.0	800.0	234.34229	(24, 1)
0.0	800.0	349.50211	(24, 1)	50.0	800.0	234.34280	(24, 1)
100.0	800.0	137.55350	(8, 1)	-100.0	900.0	137.89189	(14, 1)
-50.0	900.0	224.21463	(24, 1)	0.0	900.0	309.74335	(24, 1)
50.0	900.0	224.21509	(24, 1)	100.0	900.0	137.89212	(14, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 3, 13, -16,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 9203.99805 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	288.40100 (30, 1)	291.26962 (30, 1)	292.23224 (30, 1)	291.26981 (30, 1)	288.40131 (30, 1)
24000.0 /	302.10516 (30, 1)	305.33243 (30, 1)	306.41589 (30, 1)	305.33261 (30, 1)	302.10550 (30, 1)
23000.0 /	317.05225 (30, 1)	320.70102 (30, 1)	321.92664 (30, 1)	320.70120 (30, 1)	317.05264 (30, 1)
22000.0 /	333.41193 (30, 1)	337.55948 (30, 1)	338.95349 (30, 1)	337.55969 (30, 1)	333.41232 (30, 1)
21000.0 /	351.38525 (30, 1)	356.12753 (30, 1)	357.72253 (30, 1)	356.12778 (30, 1)	351.38571 (30, 1)
20000.0 /	371.21222 (30, 1)	376.66943 (30, 1)	378.50635 (30, 1)	376.66968 (30, 1)	371.21271 (30, 1)
19000.0 /	393.18103 (30, 1)	399.50543 (30, 1)	401.63620 (30, 1)	399.50574 (30, 1)	393.18158 (30, 1)
18000.0 /	417.64099 (30, 1)	425.02783 (30, 1)	427.51913 (30, 1)	425.02814 (30, 1)	417.64163 (30, 1)
17000.0 /	445.01874 (30, 1)	453.72144 (30, 1)	456.66010 (30, 1)	453.72180 (30, 1)	445.01941 (30, 1)
16000.0 /	475.83990 (30, 1)	486.19250 (30, 1)	489.69336 (30, 1)	486.19287 (30, 1)	475.84070 (30, 1)
15000.0 /	510.08417 (30, 1)	522.51727 (30, 1)	526.72876 (30, 1)	522.51770 (30, 1)	510.08502 (30, 1)
14000.0 /	551.93475 (30, 1)	567.12817 (30, 1)	572.28522 (30, 1)	567.12866 (30, 1)	551.93573 (30, 1)
13000.0 /	600.96027 (30, 1)	619.81543 (30, 1)	626.23126 (30, 1)	619.81598 (30, 1)	600.96136 (30, 1)
12000.0 /	658.05902 (30, 1)	681.84467 (30, 1)	689.96295 (30, 1)	681.84534 (30, 1)	658.06030 (30, 1)
11000.0 /	725.19446 (30, 1)	755.77515 (30, 1)	766.25299 (30, 1)	755.77594 (30, 1)	725.19592 (30, 1)
10000.0 /	804.94971 (30, 1)	845.15302 (30, 1)	858.99597 (30, 1)	845.15393 (30, 1)	804.95154 (30, 1)
9000.0 /	900.74438 (30, 1)	955.01764 (30, 1)	973.82654 (30, 1)	955.01880 (30, 1)	900.74658 (30, 1)
8000.0 /	1017.09497 (30, 1)	1092.74341 (30, 1)	1119.19080 (30, 1)	1092.74475 (30, 1)	1017.09766 (30, 1)
7000.0 /	1158.30518 (30, 1)	1267.82202 (30, 1)	1306.58411 (30, 1)	1267.82385 (30, 1)	1158.30847 (30, 1)
6000.0 /	1336.41248 (30, 1)	1503.47510 (30, 1)	1563.68518 (30, 1)	1503.47754 (30, 1)	1336.41675 (30, 1)
5000.0 /	1558.96204 (30, 1)	1831.17505 (30, 1)	1932.10498 (30, 1)	1831.17834 (30, 1)	1558.96765 (30, 1)
4000.0 /	1815.72815 (30, 1)	2296.93335 (30, 1)	2484.21631 (30, 1)	2296.93823 (30, 1)	1815.73560 (30, 1)
3000.0 /	2038.13354 (30, 1)	2982.35107 (30, 1)	3386.13428 (30, 1)	2982.35840 (30, 1)	2038.14355 (30, 1)
2000.0 /	2084.99121 (25, 1)	3964.06055 (30, 1)	5072.26172 (30, 1)	3964.07275 (30, 1)	2084.99756 (25, 1)
1000.0 /	2044.53784 (16, 1)	4988.44873 (25, 1)	9203.99805 (30, 1)	4988.45996 (25, 1)	2044.54370 (16, 1)

1

HIGH
1-HR
SGROUP# 3

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 3, 13, -16,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.00000	(0, 0)
0.0	50.0	0.00000	(0, 0)	50.0	50.0	0.00000	(0, 0)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.00000	(0, 0)
-50.0	100.0	372.58810	(1, 1)	0.0	100.0	1467.12903	(16, 1)
50.0	100.0	372.58832	(1, 1)	100.0	100.0	0.00000	(0, 0)
-100.0	200.0	196.96068	(1, 1)	-50.0	200.0	1105.57886	(4, 1)
0.0	200.0	3864.73779	(16, 1)	50.0	200.0	1105.57971	(4, 1)
100.0	200.0	196.96094	(1, 1)	-100.0	300.0	522.51056	(1, 1)
-50.0	300.0	3107.57178	(4, 1)	0.0	300.0	13287.92188	(16, 1)
50.0	300.0	3107.57422	(4, 1)	100.0	300.0	522.51111	(1, 1)
-100.0	400.0	903.96857	(1, 1)	-50.0	400.0	4900.97412	(4, 1)
0.0	400.0	17772.42969	(16, 1)	50.0	400.0	4900.97754	(4, 1)
100.0	400.0	903.96936	(1, 1)	-100.0	500.0	1485.00269	(4, 1)
-50.0	500.0	5301.56494	(9, 1)	0.0	500.0	14820.29883	(30, 1)
50.0	500.0	5301.57129	(9, 1)	100.0	500.0	1485.00488	(4, 1)
-100.0	600.0	1700.76123	(4, 1)	-50.0	600.0	5586.18994	(16, 1)
0.0	600.0	13212.89551	(30, 1)	50.0	600.0	5586.19922	(16, 1)
100.0	600.0	1700.76318	(4, 1)	-100.0	700.0	1739.58862	(9, 1)
-50.0	700.0	5590.37500	(16, 1)	0.0	700.0	11921.55371	(30, 1)
50.0	700.0	5590.38428	(16, 1)	100.0	700.0	1739.59180	(9, 1)
-100.0	800.0	1825.69824	(9, 1)	-50.0	800.0	5330.01465	(16, 1)
0.0	800.0	10859.65430	(30, 1)	50.0	800.0	5330.02344	(16, 1)
100.0	800.0	1825.70129	(9, 1)	-100.0	900.0	1860.08276	(16, 1)
-50.0	900.0	5102.91699	(25, 1)	0.0	900.0	9966.87598	(30, 1)
50.0	900.0	5102.92871	(25, 1)	100.0	900.0	1860.08838	(16, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 3, 13, -16,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 7589.65479 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	144.20050 (31, 1)	145.63481 (31, 1)	146.11612 (31, 1)	145.63490 (31, 1)	144.20065 (31, 1)
24000.0 /	151.05258 (31, 1)	152.66621 (31, 1)	153.20795 (31, 1)	152.66631 (31, 1)	151.05275 (31, 1)
23000.0 /	158.52612 (31, 1)	160.35051 (31, 1)	160.96332 (31, 1)	160.35060 (31, 1)	158.52632 (31, 1)
22000.0 /	166.70596 (31, 1)	168.77974 (31, 1)	169.47675 (31, 1)	168.77985 (31, 1)	166.70616 (31, 1)
21000.0 /	175.69263 (31, 1)	178.06377 (31, 1)	178.86127 (31, 1)	178.06389 (31, 1)	175.69286 (31, 1)
20000.0 /	185.60611 (31, 1)	188.33472 (31, 1)	189.25317 (31, 1)	188.33484 (31, 1)	185.60635 (31, 1)
19000.0 /	196.59052 (31, 1)	199.75272 (31, 1)	200.81810 (31, 1)	199.75287 (31, 1)	196.59079 (31, 1)
18000.0 /	208.82050 (31, 1)	212.51392 (31, 1)	213.75957 (31, 1)	212.51407 (31, 1)	208.82082 (31, 1)
17000.0 /	222.50937 (31, 1)	226.86072 (31, 1)	228.33005 (31, 1)	226.86090 (31, 1)	222.50970 (31, 1)
16000.0 /	237.91995 (31, 1)	243.09625 (31, 1)	244.84668 (31, 1)	243.09644 (31, 1)	237.92035 (31, 1)
15000.0 /	255.04208 (31, 1)	261.25864 (31, 1)	263.36438 (31, 1)	261.25885 (31, 1)	255.04251 (31, 1)
14000.0 /	275.96738 (31, 1)	283.56409 (31, 1)	286.14261 (31, 1)	283.56433 (31, 1)	275.96786 (31, 1)
13000.0 /	300.48013 (31, 1)	309.90771 (31, 1)	313.11563 (31, 1)	309.90799 (31, 1)	300.48068 (31, 1)
12000.0 /	329.02951 (31, 1)	340.92233 (31, 1)	344.98148 (31, 1)	340.92267 (31, 1)	329.03015 (31, 1)
11000.0 /	362.59723 (31, 1)	377.88757 (31, 1)	383.12650 (31, 1)	377.88797 (31, 1)	362.59796 (31, 1)
10000.0 /	408.66602 (25, 1)	422.57651 (31, 1)	429.49799 (31, 1)	422.57697 (31, 1)	408.66644 (25, 1)
9000.0 /	468.13074 (25, 1)	480.86328 (25, 1)	486.91327 (31, 1)	480.86356 (25, 1)	468.13129 (25, 1)
8000.0 /	544.08136 (25, 1)	562.35968 (25, 1)	568.58807 (25, 1)	562.35999 (25, 1)	544.08203 (25, 1)
7000.0 /	643.22308 (25, 1)	670.70422 (25, 1)	680.12335 (25, 1)	670.70465 (25, 1)	643.22388 (25, 1)
6000.0 /	776.40619 (25, 1)	820.25305 (25, 1)	835.41284 (25, 1)	820.25366 (25, 1)	776.40735 (25, 1)
5000.0 /	961.21765 (25, 1)	1036.92517 (25, 1)	1063.46533 (25, 1)	1036.92590 (25, 1)	961.21936 (25, 1)
4000.0 /	1221.44043 (25, 1)	1366.73682 (25, 1)	1418.92017 (25, 1)	1366.73816 (25, 1)	1221.44287 (25, 1)
3000.0 /	1616.23682 (25, 1)	1947.72485 (25, 1)	2072.74072 (25, 1)	1947.72729 (25, 1)	1616.24084 (25, 1)
2000.0 /	1895.83997 (30, 1)	3046.73608 (25, 1)	3458.04736 (25, 1)	3046.74072 (25, 1)	1895.85156 (30, 1)
1000.0 /	1680.24988 (9, 1)	4613.12354 (16, 1)	7589.65479 (25, 1)	4613.13037 (16, 1)	1680.25244 (9, 1)

1

2ND HIGH
1-HR
SGROUP# 3

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 3, 13, -16,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.00000	(0, 0)
0.0	50.0	0.00000	(0, 0)	50.0	50.0	0.00000	(0, 0)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.00000	(0, 0)
-50.0	100.0	320.97852	(4, 1)	0.0	100.0	1365.04919	(25, 1)
50.0	100.0	320.97888	(4, 1)	100.0	100.0	0.00000	(0, 0)
-100.0	200.0	109.36665	(4, 1)	-50.0	200.0	1050.54175	(1, 1)
0.0	200.0	3699.05762	(25, 1)	50.0	200.0	1050.54224	(1, 1)
100.0	200.0	109.36684	(4, 1)	-100.0	300.0	395.32202	(4, 1)
-50.0	300.0	2998.97827	(1, 1)	0.0	300.0	12574.69922	(25, 1)
50.0	300.0	2998.97974	(1, 1)	100.0	300.0	395.32248	(4, 1)
-100.0	400.0	870.07886	(4, 1)	-50.0	400.0	4647.23779	(9, 1)
0.0	400.0	17247.35742	(25, 1)	50.0	400.0	4647.24316	(9, 1)
100.0	400.0	870.08008	(4, 1)	-100.0	500.0	1281.43115	(1, 1)
-50.0	500.0	5079.49219	(16, 1)	0.0	500.0	14384.99414	(25, 1)
50.0	500.0	5079.50098	(16, 1)	100.0	500.0	1281.43225	(1, 1)
-100.0	600.0	1448.34033	(9, 1)	-50.0	600.0	4915.14502	(9, 1)
0.0	600.0	12306.60840	(25, 1)	50.0	600.0	4915.14990	(9, 1)
100.0	600.0	1448.34326	(9, 1)	-100.0	700.0	1583.69092	(4, 1)
-50.0	700.0	4986.01514	(25, 1)	0.0	700.0	10717.30859	(25, 1)
50.0	700.0	4986.02686	(25, 1)	100.0	700.0	1583.69238	(4, 1)
-100.0	800.0	1576.33154	(16, 1)	-50.0	800.0	5124.81445	(25, 1)
0.0	800.0	9454.73926	(25, 1)	50.0	800.0	5124.82715	(25, 1)
100.0	800.0	1576.33630	(16, 1)	-100.0	900.0	1784.42212	(9, 1)
-50.0	900.0	4984.35352	(16, 1)	0.0	900.0	8429.91895	(25, 1)
50.0	900.0	4984.36133	(16, 1)	100.0	900.0	1784.42480	(9, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 4,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 174.95212 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	87.58935 (30, 1)	88.47592 (30, 1)	88.77345 (30, 1)	88.47598 (30, 1)	87.58945 (30, 1)
24000.0 /	89.35842 (30, 1)	90.33049 (30, 1)	90.65688 (30, 1)	90.33054 (30, 1)	89.35853 (30, 1)
23000.0 /	91.18178 (30, 1)	92.25116 (30, 1)	92.61041 (30, 1)	92.25121 (30, 1)	91.18189 (30, 1)
22000.0 /	93.05883 (30, 1)	94.23950 (30, 1)	94.63640 (30, 1)	94.23956 (30, 1)	93.05895 (30, 1)
21000.0 /	94.98804 (30, 1)	96.29667 (30, 1)	96.73689 (30, 1)	96.29673 (30, 1)	94.98817 (30, 1)
20000.0 /	96.96651 (30, 1)	98.42309 (30, 1)	98.91348 (30, 1)	98.42316 (30, 1)	96.96664 (30, 1)
19000.0 /	98.98949 (30, 1)	100.61819 (30, 1)	101.16705 (30, 1)	100.61826 (30, 1)	98.98963 (30, 1)
18000.0 /	101.04966 (30, 1)	102.87996 (30, 1)	103.49742 (30, 1)	102.88004 (30, 1)	101.04981 (30, 1)
17000.0 /	103.13624 (30, 1)	105.20440 (30, 1)	105.90299 (30, 1)	105.20448 (30, 1)	103.13640 (30, 1)
16000.0 /	105.23359 (30, 1)	107.58467 (30, 1)	108.38001 (30, 1)	107.58476 (30, 1)	105.23376 (30, 1)
15000.0 /	107.31924 (30, 1)	110.00985 (30, 1)	110.92165 (30, 1)	110.00994 (30, 1)	107.31944 (30, 1)
14000.0 /	108.22315 (30, 1)	111.29296 (30, 1)	112.33549 (30, 1)	111.29307 (30, 1)	108.22335 (30, 1)
13000.0 /	112.50182 (25, 1)	114.10545 (25, 1)	114.64506 (25, 1)	114.10549 (25, 1)	112.50192 (25, 1)
12000.0 /	117.06507 (25, 1)	118.98976 (25, 1)	119.63835 (25, 1)	118.98981 (25, 1)	117.06518 (25, 1)
11000.0 /	121.64271 (25, 1)	123.97901 (25, 1)	124.76773 (25, 1)	123.97907 (25, 1)	121.64282 (25, 1)
10000.0 /	126.08886 (25, 1)	128.96109 (25, 1)	129.93298 (25, 1)	128.96115 (25, 1)	126.08899 (25, 1)
9000.0 /	129.52583 (25, 1)	133.09036 (25, 1)	134.30023 (25, 1)	133.09044 (25, 1)	129.52597 (25, 1)
8000.0 /	131.88516 (25, 1)	136.37143 (25, 1)	137.90054 (25, 1)	136.37152 (25, 1)	131.88533 (25, 1)
7000.0 /	132.42842 (25, 1)	138.16147 (25, 1)	140.12714 (25, 1)	138.16156 (25, 1)	132.42860 (25, 1)
6000.0 /	130.01790 (25, 1)	137.46245 (25, 1)	140.03754 (25, 1)	137.46255 (25, 1)	130.01811 (25, 1)
5000.0 /	122.92905 (25, 1)	132.74670 (25, 1)	136.19055 (25, 1)	132.74683 (25, 1)	122.92928 (25, 1)
4000.0 /	108.66100 (25, 1)	121.75149 (25, 1)	126.45654 (25, 1)	121.75162 (25, 1)	108.66123 (25, 1)
3000.0 /	86.88644 (10, 1)	96.98506 (26, 1)	103.35468 (26, 1)	96.98519 (26, 1)	86.88651 (10, 1)
2000.0 /	108.41728 (5, 1)	113.30823 (5, 1)	122.21285 (22, 1)	113.30825 (5, 1)	108.41733 (5, 1)
1000.0 /	147.79044 (2, 1)	160.13832 (2, 1)	174.95212 (23, 1)	160.13835 (2, 1)	147.79048 (2, 1)

1 HIGH 1-HR SGROUP# 4

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 4,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.00000	(30, 1)
0.0	50.0	0.00043	(30, 1)	50.0	50.0	0.00000	(30, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.01115	(25, 1)
-50.0	100.0	0.75000	(25, 1)	0.0	100.0	3.94124	(30, 1)
50.0	100.0	0.75003	(25, 1)	100.0	100.0	0.01115	(25, 1)
-100.0	200.0	0.05568	(3, 1)	-50.0	200.0	1.59024	(25, 1)
0.0	200.0	6.86251	(15, 1)	50.0	200.0	1.59024	(25, 1)
100.0	200.0	0.05574	(3, 1)	-100.0	300.0	10.64503	(3, 1)
-50.0	300.0	25.00329	(15, 1)	0.0	300.0	69.19481	(15, 1)
50.0	300.0	25.00334	(15, 1)	100.0	300.0	10.64503	(3, 1)
-100.0	400.0	63.28473	(3, 1)	-50.0	400.0	94.09603	(3, 1)
0.0	400.0	144.46127	(15, 1)	50.0	400.0	94.09606	(3, 1)
100.0	400.0	63.28477	(3, 1)	-100.0	500.0	116.42081	(3, 1)
-50.0	500.0	152.37558	(3, 1)	0.0	500.0	188.60384	(15, 1)
50.0	500.0	152.37563	(3, 1)	100.0	500.0	116.42089	(3, 1)
-100.0	600.0	135.35229	(2, 1)	-50.0	600.0	162.04993	(2, 1)
0.0	600.0	202.97829	(15, 1)	50.0	600.0	162.04997	(2, 1)
100.0	600.0	135.35236	(2, 1)	-100.0	700.0	164.65846	(2, 1)
-50.0	700.0	189.81834	(2, 1)	0.0	700.0	199.32382	(15, 1)
50.0	700.0	189.81839	(2, 1)	100.0	700.0	164.65854	(2, 1)
-100.0	800.0	166.71085	(2, 1)	-50.0	800.0	187.06645	(2, 1)
0.0	800.0	194.38972	(2, 1)	50.0	800.0	187.06650	(2, 1)
100.0	800.0	166.71091	(2, 1)	-100.0	900.0	157.74278	(2, 1)
-50.0	900.0	173.51732	(2, 1)	0.0	900.0	179.11859	(2, 1)
50.0	900.0	173.51736	(2, 1)	100.0	900.0	157.74284	(2, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 4,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 167.54131 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	71.00471 (25, 1)	71.32266 (25, 1)	71.42897 (25, 1)	71.32268 (25, 1)	71.00475 (25, 1)
24000.0 /	73.47922 (25, 1)	73.83277 (25, 1)	73.95100 (25, 1)	73.83279 (25, 1)	73.47926 (25, 1)
23000.0 /	76.11379 (25, 1)	76.50854 (25, 1)	76.64058 (25, 1)	76.50856 (25, 1)	76.11384 (25, 1)
22000.0 /	78.92319 (25, 1)	79.36588 (25, 1)	79.51400 (25, 1)	79.36591 (25, 1)	78.92323 (25, 1)
21000.0 /	81.92381 (25, 1)	82.42265 (25, 1)	82.58961 (25, 1)	82.42268 (25, 1)	81.92386 (25, 1)
20000.0 /	85.13392 (25, 1)	85.69896 (25, 1)	85.88815 (25, 1)	85.69898 (25, 1)	85.13397 (25, 1)
19000.0 /	88.46156 (25, 1)	89.10442 (25, 1)	89.31975 (25, 1)	89.10445 (25, 1)	88.46162 (25, 1)
18000.0 /	91.98183 (25, 1)	92.71738 (25, 1)	92.96389 (25, 1)	92.71741 (25, 1)	91.98189 (25, 1)
17000.0 /	95.70094 (25, 1)	96.54779 (25, 1)	96.83175 (25, 1)	96.54782 (25, 1)	95.70100 (25, 1)
16000.0 /	99.62140 (25, 1)	100.60302 (25, 1)	100.93238 (25, 1)	100.60306 (25, 1)	99.62148 (25, 1)
15000.0 /	103.73967 (25, 1)	104.88599 (25, 1)	105.27092 (25, 1)	104.88603 (25, 1)	103.73975 (25, 1)
14000.0 /	108.04262 (25, 1)	109.39230 (25, 1)	109.84594 (25, 1)	109.39234 (25, 1)	108.04271 (25, 1)
13000.0 /	108.78807 (30, 1)	112.31257 (30, 1)	113.51263 (30, 1)	112.31268 (30, 1)	108.78828 (30, 1)
12000.0 /	108.90911 (30, 1)	112.98376 (30, 1)	114.37561 (30, 1)	112.98388 (30, 1)	108.90934 (30, 1)
11000.0 /	108.44267 (30, 1)	113.18929 (30, 1)	114.81725 (30, 1)	113.18941 (30, 1)	108.44292 (30, 1)
10000.0 /	107.19963 (30, 1)	112.77541 (30, 1)	114.69776 (30, 1)	112.77554 (30, 1)	107.19989 (30, 1)
9000.0 /	104.92931 (30, 1)	111.53940 (30, 1)	113.83408 (30, 1)	111.53954 (30, 1)	104.92959 (30, 1)
8000.0 /	101.29798 (30, 1)	109.21279 (30, 1)	111.98623 (30, 1)	109.21294 (30, 1)	101.29827 (30, 1)
7000.0 /	102.33746 (26, 1)	106.78501 (26, 1)	108.83927 (30, 1)	106.78509 (26, 1)	102.33760 (26, 1)
6000.0 /	105.31876 (26, 1)	111.38010 (26, 1)	113.47712 (26, 1)	111.38018 (26, 1)	105.31893 (26, 1)
5000.0 /	105.44308 (26, 1)	113.92474 (26, 1)	116.90098 (26, 1)	113.92484 (26, 1)	105.44327 (26, 1)
4000.0 /	99.94915 (26, 1)	112.12103 (26, 1)	116.49927 (26, 1)	112.12114 (26, 1)	99.94936 (26, 1)
3000.0 /	83.49811 (5, 1)	95.77966 (25, 1)	101.96129 (25, 1)	95.77978 (25, 1)	83.49813 (5, 1)
2000.0 /	93.59794 (12, 1)	113.29238 (22, 1)	122.13592 (21, 1)	113.29250 (22, 1)	93.59802 (12, 1)
1000.0 /	109.24471 (7, 1)	149.28383 (14, 1)	167.54131 (14, 1)	149.28395 (14, 1)	109.24477 (7, 1)

1

2ND HIGH
1-HR
SGROUP# 4

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 4,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.00000	(25, 1)
0.0	50.0	0.00004	(25, 1)	50.0	50.0	0.00000	(25, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.00077	(30, 1)
-50.0	100.0	0.46654	(30, 1)	0.0	100.0	3.04985	(25, 1)
50.0	100.0	0.46654	(30, 1)	100.0	100.0	0.00077	(30, 1)
-100.0	200.0	0.04333	(25, 1)	-50.0	200.0	0.81967	(15, 1)
0.0	200.0	6.55479	(24, 1)	50.0	200.0	0.81967	(15, 1)
100.0	200.0	0.04333	(25, 1)	-100.0	300.0	4.53355	(8, 1)
-50.0	300.0	20.47062	(3, 1)	0.0	300.0	66.72855	(24, 1)
50.0	300.0	20.47063	(3, 1)	100.0	300.0	4.53356	(8, 1)
-100.0	400.0	29.30157	(8, 1)	-50.0	400.0	78.97354	(15, 1)
0.0	400.0	129.18350	(24, 1)	50.0	400.0	78.97366	(15, 1)
100.0	400.0	29.30161	(8, 1)	-100.0	500.0	75.51898	(2, 1)
-50.0	500.0	126.06358	(15, 1)	0.0	500.0	166.67752	(3, 1)
50.0	500.0	126.06376	(15, 1)	100.0	500.0	75.51903	(2, 1)
-100.0	600.0	128.86487	(3, 1)	-50.0	600.0	156.87366	(3, 1)
0.0	600.0	183.55965	(24, 1)	50.0	600.0	156.87370	(3, 1)
100.0	600.0	128.86493	(3, 1)	-100.0	700.0	122.70767	(3, 1)
-50.0	700.0	159.93648	(15, 1)	0.0	700.0	199.03200	(2, 1)
50.0	700.0	159.93665	(15, 1)	100.0	700.0	122.70773	(3, 1)
-100.0	800.0	114.76210	(3, 1)	-50.0	800.0	158.04861	(15, 1)
0.0	800.0	187.97322	(15, 1)	50.0	800.0	158.04877	(15, 1)
100.0	800.0	114.76215	(3, 1)	-100.0	900.0	111.31912	(7, 1)
-50.0	900.0	154.89825	(14, 1)	0.0	900.0	178.33609	(23, 1)
50.0	900.0	154.89839	(14, 1)	100.0	900.0	111.31921	(7, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 5,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 174.95212 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	87.58935 (30, 1)	88.47592 (30, 1)	88.77345 (30, 1)	88.47598 (30, 1)	87.58945 (30, 1)
24000.0 /	89.35842 (30, 1)	90.33049 (30, 1)	90.65688 (30, 1)	90.33054 (30, 1)	89.35853 (30, 1)
23000.0 /	91.18178 (30, 1)	92.25116 (30, 1)	92.61041 (30, 1)	92.25121 (30, 1)	91.18189 (30, 1)
22000.0 /	93.05883 (30, 1)	94.23950 (30, 1)	94.63640 (30, 1)	94.23956 (30, 1)	93.05895 (30, 1)
21000.0 /	94.98804 (30, 1)	96.29667 (30, 1)	96.73689 (30, 1)	96.29673 (30, 1)	94.98817 (30, 1)
20000.0 /	96.96651 (30, 1)	98.42309 (30, 1)	98.91348 (30, 1)	98.42316 (30, 1)	96.96664 (30, 1)
19000.0 /	98.98949 (30, 1)	100.61819 (30, 1)	101.16705 (30, 1)	100.61826 (30, 1)	98.98963 (30, 1)
18000.0 /	101.04966 (30, 1)	102.87996 (30, 1)	103.49742 (30, 1)	102.88004 (30, 1)	101.04981 (30, 1)
17000.0 /	103.13624 (30, 1)	105.20440 (30, 1)	105.90299 (30, 1)	105.20448 (30, 1)	103.13640 (30, 1)
16000.0 /	105.23359 (30, 1)	107.58467 (30, 1)	108.38001 (30, 1)	107.58476 (30, 1)	105.23376 (30, 1)
15000.0 /	107.31924 (30, 1)	110.00985 (30, 1)	110.92165 (30, 1)	110.00994 (30, 1)	107.31944 (30, 1)
14000.0 /	108.22315 (30, 1)	111.29296 (30, 1)	112.33549 (30, 1)	111.29307 (30, 1)	108.22335 (30, 1)
13000.0 /	112.50182 (25, 1)	114.10545 (25, 1)	114.64506 (25, 1)	114.10549 (25, 1)	112.50192 (25, 1)
12000.0 /	117.06507 (25, 1)	118.98976 (25, 1)	119.63835 (25, 1)	118.98981 (25, 1)	117.06518 (25, 1)
11000.0 /	121.64271 (25, 1)	123.97901 (25, 1)	124.76773 (25, 1)	123.97907 (25, 1)	121.64282 (25, 1)
10000.0 /	126.08886 (25, 1)	128.96109 (25, 1)	129.93298 (25, 1)	128.96115 (25, 1)	126.08899 (25, 1)
9000.0 /	129.52583 (25, 1)	133.09036 (25, 1)	134.30023 (25, 1)	133.09044 (25, 1)	129.52597 (25, 1)
8000.0 /	131.88516 (25, 1)	136.37143 (25, 1)	137.90054 (25, 1)	136.37152 (25, 1)	131.88533 (25, 1)
7000.0 /	132.42842 (25, 1)	138.16147 (25, 1)	140.12714 (25, 1)	138.16156 (25, 1)	132.42860 (25, 1)
6000.0 /	130.01790 (25, 1)	137.46245 (25, 1)	140.03754 (25, 1)	137.46255 (25, 1)	130.01811 (25, 1)
5000.0 /	122.92905 (25, 1)	132.74670 (25, 1)	136.19055 (25, 1)	132.74683 (25, 1)	122.92928 (25, 1)
4000.0 /	108.66100 (25, 1)	121.75149 (25, 1)	126.45654 (25, 1)	121.75162 (25, 1)	108.66123 (25, 1)
3000.0 /	86.88644 (10, 1)	96.98506 (26, 1)	103.35468 (26, 1)	96.98519 (26, 1)	86.88651 (10, 1)
2000.0 /	108.41728 (5, 1)	113.30823 (5, 1)	122.21285 (22, 1)	113.30825 (5, 1)	108.41733 (5, 1)
1000.0 /	147.79044 (2, 1)	160.13832 (2, 1)	174.95212 (23, 1)	160.13835 (2, 1)	147.79048 (2, 1)

1

HIGH
1-HR
SGROUP# 5

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 5,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.00000	(30, 1)
0.0	50.0	0.00043	(30, 1)	50.0	50.0	0.00000	(30, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.01115	(25, 1)
-50.0	100.0	0.75000	(25, 1)	0.0	100.0	3.94124	(30, 1)
50.0	100.0	0.75003	(25, 1)	100.0	100.0	0.01115	(25, 1)
-100.0	200.0	0.05568	(3, 1)	-50.0	200.0	1.59024	(25, 1)
0.0	200.0	6.86251	(15, 1)	50.0	200.0	1.59024	(25, 1)
100.0	200.0	0.05574	(3, 1)	-100.0	300.0	10.64503	(3, 1)
-50.0	300.0	25.00329	(15, 1)	0.0	300.0	69.19481	(15, 1)
50.0	300.0	25.00334	(15, 1)	100.0	300.0	10.64503	(3, 1)
-100.0	400.0	63.28473	(3, 1)	-50.0	400.0	94.09603	(3, 1)
0.0	400.0	144.46127	(15, 1)	50.0	400.0	94.09606	(3, 1)
100.0	400.0	63.28477	(3, 1)	-100.0	500.0	116.42081	(3, 1)
-50.0	500.0	152.37558	(3, 1)	0.0	500.0	188.60384	(15, 1)
50.0	500.0	152.37563	(3, 1)	100.0	500.0	116.42089	(3, 1)
-100.0	600.0	135.35229	(2, 1)	-50.0	600.0	162.04993	(2, 1)
0.0	600.0	202.97829	(15, 1)	50.0	600.0	162.04997	(2, 1)
100.0	600.0	135.35236	(2, 1)	-100.0	700.0	164.65846	(2, 1)
-50.0	700.0	189.81834	(2, 1)	0.0	700.0	199.32382	(15, 1)
50.0	700.0	189.81839	(2, 1)	100.0	700.0	164.65854	(2, 1)
-100.0	800.0	166.71085	(2, 1)	-50.0	800.0	187.06645	(2, 1)
0.0	800.0	194.38972	(2, 1)	50.0	800.0	187.06650	(2, 1)
100.0	800.0	166.71091	(2, 1)	-100.0	900.0	157.74278	(2, 1)
-50.0	900.0	173.51732	(2, 1)	0.0	900.0	179.11859	(2, 1)
50.0	900.0	173.51736	(2, 1)	100.0	900.0	157.74284	(2, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 5,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 167.54131 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	71.00471 (25, 1)	71.32266 (25, 1)	71.42897 (25, 1)	71.32268 (25, 1)	71.00475 (25, 1)
24000.0 /	73.47922 (25, 1)	73.83277 (25, 1)	73.95100 (25, 1)	73.83279 (25, 1)	73.47926 (25, 1)
23000.0 /	76.11379 (25, 1)	76.50854 (25, 1)	76.64058 (25, 1)	76.50856 (25, 1)	76.11384 (25, 1)
22000.0 /	78.92319 (25, 1)	79.36588 (25, 1)	79.51400 (25, 1)	79.36591 (25, 1)	78.92323 (25, 1)
21000.0 /	81.92381 (25, 1)	82.42265 (25, 1)	82.58961 (25, 1)	82.42268 (25, 1)	81.92386 (25, 1)
20000.0 /	85.13392 (25, 1)	85.69896 (25, 1)	85.88815 (25, 1)	85.69898 (25, 1)	85.13397 (25, 1)
19000.0 /	88.46156 (25, 1)	89.10442 (25, 1)	89.31975 (25, 1)	89.10445 (25, 1)	88.46162 (25, 1)
18000.0 /	91.98183 (25, 1)	92.71738 (25, 1)	92.96389 (25, 1)	92.71741 (25, 1)	91.98189 (25, 1)
17000.0 /	95.70094 (25, 1)	96.54779 (25, 1)	96.83175 (25, 1)	96.54782 (25, 1)	95.70100 (25, 1)
16000.0 /	99.62140 (25, 1)	100.60302 (25, 1)	100.93238 (25, 1)	100.60306 (25, 1)	99.62148 (25, 1)
15000.0 /	103.73967 (25, 1)	104.88599 (25, 1)	105.27092 (25, 1)	104.88603 (25, 1)	103.73975 (25, 1)
14000.0 /	108.04262 (25, 1)	109.39230 (25, 1)	109.84594 (25, 1)	109.39234 (25, 1)	108.04271 (25, 1)
13000.0 /	108.78807 (30, 1)	112.31257 (30, 1)	113.51263 (30, 1)	112.31268 (30, 1)	108.78828 (30, 1)
12000.0 /	108.90911 (30, 1)	112.98376 (30, 1)	114.37561 (30, 1)	112.98388 (30, 1)	108.90934 (30, 1)
11000.0 /	108.44267 (30, 1)	113.18929 (30, 1)	114.81725 (30, 1)	113.18941 (30, 1)	108.44292 (30, 1)
10000.0 /	107.19963 (30, 1)	112.77541 (30, 1)	114.69776 (30, 1)	112.77554 (30, 1)	107.19989 (30, 1)
9000.0 /	104.92931 (30, 1)	111.53940 (30, 1)	113.83408 (30, 1)	111.53954 (30, 1)	104.92959 (30, 1)
8000.0 /	101.29798 (30, 1)	109.21279 (30, 1)	111.98623 (30, 1)	109.21294 (30, 1)	101.29827 (30, 1)
7000.0 /	102.33746 (26, 1)	106.78501 (26, 1)	108.83927 (30, 1)	106.78509 (26, 1)	102.33760 (26, 1)
6000.0 /	105.31876 (26, 1)	111.38010 (26, 1)	113.47712 (26, 1)	111.38018 (26, 1)	105.31893 (26, 1)
5000.0 /	105.44308 (26, 1)	113.92474 (26, 1)	116.90098 (26, 1)	113.92484 (26, 1)	105.44327 (26, 1)
4000.0 /	99.94915 (26, 1)	112.12103 (26, 1)	116.49927 (26, 1)	112.12114 (26, 1)	99.94936 (26, 1)
3000.0 /	83.49811 (5, 1)	95.77966 (25, 1)	101.96129 (25, 1)	95.77978 (25, 1)	83.49813 (5, 1)
2000.0 /	93.59794 (12, 1)	113.29238 (22, 1)	122.13592 (21, 1)	113.29250 (22, 1)	93.59802 (12, 1)
1000.0 /	109.24471 (7, 1)	149.28383 (14, 1)	167.54131 (14, 1)	149.28395 (14, 1)	109.24477 (7, 1)

1

2ND HIGH
1-HR
SGROUP# 5

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 5,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.00000	(25, 1)
0.0	50.0	0.00004	(25, 1)	50.0	50.0	0.00000	(25, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.00077	(30, 1)
-50.0	100.0	0.46654	(30, 1)	0.0	100.0	3.04985	(25, 1)
50.0	100.0	0.46654	(30, 1)	100.0	100.0	0.00077	(30, 1)
-100.0	200.0	0.04333	(25, 1)	-50.0	200.0	0.81967	(15, 1)
0.0	200.0	6.55479	(24, 1)	50.0	200.0	0.81967	(15, 1)
100.0	200.0	0.04333	(25, 1)	-100.0	300.0	4.53355	(8, 1)
-50.0	300.0	20.47062	(3, 1)	0.0	300.0	66.72855	(24, 1)
50.0	300.0	20.47063	(3, 1)	100.0	300.0	4.53356	(8, 1)
-100.0	400.0	29.30157	(8, 1)	-50.0	400.0	78.97354	(15, 1)
0.0	400.0	129.18350	(24, 1)	50.0	400.0	78.97366	(15, 1)
100.0	400.0	29.30161	(8, 1)	-100.0	500.0	75.51898	(2, 1)
-50.0	500.0	126.06358	(15, 1)	0.0	500.0	166.67752	(3, 1)
50.0	500.0	126.06376	(15, 1)	100.0	500.0	75.51903	(2, 1)
-100.0	600.0	128.86487	(3, 1)	-50.0	600.0	156.87366	(3, 1)
0.0	600.0	183.55965	(24, 1)	50.0	600.0	156.87370	(3, 1)
100.0	600.0	128.86493	(3, 1)	-100.0	700.0	122.70767	(3, 1)
-50.0	700.0	159.93648	(15, 1)	0.0	700.0	199.03200	(2, 1)
50.0	700.0	159.93665	(15, 1)	100.0	700.0	122.70773	(3, 1)
-100.0	800.0	114.76210	(3, 1)	-50.0	800.0	158.04861	(15, 1)
0.0	800.0	187.97322	(15, 1)	50.0	800.0	158.04877	(15, 1)
100.0	800.0	114.76215	(3, 1)	-100.0	900.0	111.31912	(7, 1)
-50.0	900.0	154.89825	(14, 1)	0.0	900.0	178.33609	(23, 1)
50.0	900.0	154.89839	(14, 1)	100.0	900.0	111.31921	(7, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 6,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 248.30002 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	122.58774 (30, 1)	123.82812 (30, 1)	124.24438 (30, 1)	123.82819 (30, 1)	122.58788 (30, 1)
24000.0 /	125.20988 (30, 1)	126.57143 (30, 1)	127.02858 (30, 1)	126.57150 (30, 1)	125.21003 (30, 1)
23000.0 /	127.92776 (30, 1)	129.42747 (30, 1)	129.93130 (30, 1)	129.42755 (30, 1)	127.92793 (30, 1)
22000.0 /	130.74374 (30, 1)	132.40179 (30, 1)	132.95917 (30, 1)	132.40189 (30, 1)	130.74391 (30, 1)
21000.0 /	133.65926 (30, 1)	135.49974 (30, 1)	136.11890 (30, 1)	135.49983 (30, 1)	133.65944 (30, 1)
20000.0 /	136.67459 (30, 1)	138.72655 (30, 1)	139.41739 (30, 1)	138.72664 (30, 1)	136.67477 (30, 1)
19000.0 /	139.78828 (30, 1)	142.08691 (30, 1)	142.86153 (30, 1)	142.08702 (30, 1)	139.78848 (30, 1)
18000.0 /	142.99637 (30, 1)	145.58478 (30, 1)	146.45799 (30, 1)	145.58490 (30, 1)	142.99658 (30, 1)
17000.0 /	146.29135 (30, 1)	149.22281 (30, 1)	150.21298 (30, 1)	149.22292 (30, 1)	146.29158 (30, 1)
16000.0 /	149.66055 (30, 1)	153.00154 (30, 1)	154.13174 (30, 1)	153.00166 (30, 1)	149.66080 (30, 1)
15000.0 /	153.08372 (30, 1)	156.91827 (30, 1)	158.21773 (30, 1)	156.91841 (30, 1)	153.08398 (30, 1)
14000.0 /	155.05168 (30, 1)	159.44539 (30, 1)	160.93750 (30, 1)	159.44553 (30, 1)	155.05196 (30, 1)
13000.0 /	156.66583 (30, 1)	161.73564 (30, 1)	163.46182 (30, 1)	161.73579 (30, 1)	156.66614 (30, 1)
12000.0 /	157.80034 (30, 1)	163.69635 (30, 1)	165.71028 (30, 1)	163.69652 (30, 1)	157.80067 (30, 1)
11000.0 /	158.27823 (30, 1)	165.19542 (30, 1)	167.56775 (30, 1)	165.19560 (30, 1)	158.27858 (30, 1)
10000.0 /	161.58220 (25, 1)	166.05626 (30, 1)	168.88170 (30, 1)	166.05646 (30, 1)	161.58237 (25, 1)
9000.0 /	167.05188 (25, 1)	171.64474 (25, 1)	173.20363 (25, 1)	171.64484 (25, 1)	167.05206 (25, 1)
8000.0 /	171.48969 (25, 1)	177.31631 (25, 1)	179.30223 (25, 1)	177.31642 (25, 1)	171.48990 (25, 1)
7000.0 /	174.05243 (25, 1)	181.57619 (25, 1)	184.15573 (25, 1)	181.57631 (25, 1)	174.05267 (25, 1)
6000.0 /	173.39299 (25, 1)	183.30150 (25, 1)	186.72865 (25, 1)	183.30165 (25, 1)	173.39326 (25, 1)
5000.0 /	167.36963 (25, 1)	180.69974 (25, 1)	185.37505 (25, 1)	180.69991 (25, 1)	167.36992 (25, 1)
4000.0 /	152.63530 (25, 1)	170.94728 (25, 1)	177.52715 (25, 1)	170.94746 (25, 1)	152.63562 (25, 1)
3000.0 /	120.26575 (26, 1)	145.43687 (26, 1)	154.94786 (26, 1)	145.43707 (26, 1)	120.26607 (26, 1)
2000.0 /	112.89488 (5, 1)	139.90074 (22, 1)	150.90036 (22, 1)	139.90089 (22, 1)	112.89494 (5, 1)
1000.0 /	153.50705 (2, 1)	190.38112 (23, 1)	248.30002 (23, 1)	190.38147 (23, 1)	153.50710 (2, 1)

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HIGH
1-HR
SGROUP# 6

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 6,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.09881	(30, 1)
0.0	50.0	1.33807	(30, 1)	50.0	50.0	0.09881	(30, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.15152	(25, 1)
-50.0	100.0	4.99578	(25, 1)	0.0	100.0	20.35561	(30, 1)
50.0	100.0	4.99592	(25, 1)	100.0	100.0	0.15153	(25, 1)
-100.0	200.0	0.24801	(25, 1)	-50.0	200.0	6.10828	(25, 1)
0.0	200.0	104.92973	(24, 1)	50.0	200.0	6.10829	(25, 1)
100.0	200.0	0.24801	(25, 1)	-100.0	300.0	14.48462	(3, 1)
-50.0	300.0	57.83127	(15, 1)	0.0	300.0	279.92798	(24, 1)
50.0	300.0	57.83140	(15, 1)	100.0	300.0	14.48463	(3, 1)
-100.0	400.0	74.17310	(3, 1)	-50.0	400.0	135.79457	(15, 1)
0.0	400.0	337.22672	(24, 1)	50.0	400.0	135.79480	(15, 1)
100.0	400.0	74.17316	(3, 1)	-100.0	500.0	127.75591	(3, 1)
-50.0	500.0	186.37703	(15, 1)	0.0	500.0	343.07120	(24, 1)
50.0	500.0	186.37727	(15, 1)	100.0	500.0	127.75599	(3, 1)
-100.0	600.0	142.29382	(2, 1)	-50.0	600.0	205.47217	(15, 1)
0.0	600.0	328.20532	(24, 1)	50.0	600.0	205.47243	(15, 1)
100.0	600.0	142.29388	(2, 1)	-100.0	700.0	171.40735	(2, 1)
-50.0	700.0	204.66359	(15, 1)	0.0	700.0	304.77246	(24, 1)
50.0	700.0	204.66380	(15, 1)	100.0	700.0	171.40742	(2, 1)
-100.0	800.0	173.13205	(2, 1)	-50.0	800.0	194.63568	(15, 1)
0.0	800.0	279.65842	(24, 1)	50.0	800.0	194.63586	(15, 1)
100.0	800.0	173.13211	(2, 1)	-100.0	900.0	163.80232	(2, 1)
-50.0	900.0	191.62387	(23, 1)	0.0	900.0	264.14661	(23, 1)
50.0	900.0	191.62425	(23, 1)	100.0	900.0	163.80240	(2, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 6,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 232.13150 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	88.37896 (25, 1)	88.77465 (25, 1)	88.90695 (25, 1)	88.77467 (25, 1)	88.37901 (25, 1)
24000.0 /	91.51853 (25, 1)	91.95881 (25, 1)	92.10604 (25, 1)	91.95883 (25, 1)	91.51858 (25, 1)
23000.0 /	94.86678 (25, 1)	95.35870 (25, 1)	95.52324 (25, 1)	95.35872 (25, 1)	94.86683 (25, 1)
22000.0 /	98.44378 (25, 1)	98.99586 (25, 1)	99.18058 (25, 1)	98.99589 (25, 1)	98.44384 (25, 1)
21000.0 /	102.27207 (25, 1)	102.89468 (25, 1)	103.10307 (25, 1)	102.89471 (25, 1)	102.27213 (25, 1)
20000.0 /	106.37695 (25, 1)	107.08282 (25, 1)	107.31916 (25, 1)	107.08286 (25, 1)	106.37701 (25, 1)
19000.0 /	110.67458 (25, 1)	111.47866 (25, 1)	111.74799 (25, 1)	111.47870 (25, 1)	110.67465 (25, 1)
18000.0 /	115.24162 (25, 1)	116.16293 (25, 1)	116.47168 (25, 1)	116.16296 (25, 1)	115.24169 (25, 1)
17000.0 /	120.09234 (25, 1)	121.15471 (25, 1)	121.51093 (25, 1)	121.15475 (25, 1)	120.09242 (25, 1)
16000.0 /	125.23822 (25, 1)	126.47183 (25, 1)	126.88575 (25, 1)	126.47188 (25, 1)	125.23831 (25, 1)
15000.0 /	130.68541 (25, 1)	132.12894 (25, 1)	132.61365 (25, 1)	132.12898 (25, 1)	130.68552 (25, 1)
14000.0 /	136.43115 (25, 1)	138.13472 (25, 1)	138.70732 (25, 1)	138.13478 (25, 1)	136.43126 (25, 1)
13000.0 /	142.45766 (25, 1)	144.48727 (25, 1)	145.17024 (25, 1)	144.48734 (25, 1)	142.45778 (25, 1)
12000.0 /	148.72287 (25, 1)	151.16667 (25, 1)	151.99019 (25, 1)	151.16673 (25, 1)	148.72301 (25, 1)
11000.0 /	155.14519 (25, 1)	158.12297 (25, 1)	159.12825 (25, 1)	158.12306 (25, 1)	155.14534 (25, 1)
10000.0 /	157.86058 (30, 1)	165.26004 (25, 1)	166.50453 (25, 1)	165.26013 (25, 1)	157.86096 (30, 1)
9000.0 /	156.22092 (30, 1)	166.04018 (30, 1)	169.44862 (30, 1)	166.04039 (30, 1)	156.22131 (30, 1)
8000.0 /	152.90733 (30, 1)	164.82155 (30, 1)	168.99586 (30, 1)	164.82178 (30, 1)	152.90776 (30, 1)
7000.0 /	147.28542 (30, 1)	161.95027 (30, 1)	167.15622 (30, 1)	161.95052 (30, 1)	147.28587 (30, 1)
6000.0 /	141.97391 (26, 1)	153.73404 (30, 1)	160.24374 (30, 1)	153.73431 (30, 1)	141.97412 (26, 1)
5000.0 /	145.05363 (26, 1)	156.70113 (26, 1)	160.78792 (26, 1)	156.70126 (26, 1)	145.05389 (26, 1)
4000.0 /	141.71605 (26, 1)	158.92874 (26, 1)	165.11902 (26, 1)	158.92891 (26, 1)	141.71634 (26, 1)
3000.0 /	118.28017 (25, 1)	142.51900 (25, 1)	151.65611 (25, 1)	142.51920 (25, 1)	118.28048 (25, 1)
2000.0 /	111.57814 (21, 1)	139.86250 (21, 1)	150.80260 (21, 1)	139.86264 (21, 1)	111.57838 (21, 1)
1000.0 /	124.83249 (14, 1)	177.69730 (24, 1)	232.13150 (24, 1)	177.69763 (24, 1)	124.83268 (14, 1)

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2ND HIGH
1-HR
SGROUP# 6

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 6,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.00357	(25, 1)
0.0	50.0	0.04021	(25, 1)	50.0	50.0	0.00357	(25, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.01942	(30, 1)
-50.0	100.0	3.57751	(30, 1)	0.0	100.0	16.01943	(25, 1)
50.0	100.0	3.57752	(30, 1)	100.0	100.0	0.01942	(30, 1)
-100.0	200.0	0.11421	(3, 1)	-50.0	200.0	4.21588	(30, 1)
0.0	200.0	34.54665	(15, 1)	50.0	200.0	4.21589	(30, 1)
100.0	200.0	0.11431	(3, 1)	-100.0	300.0	8.26489	(8, 1)
-50.0	300.0	29.37141	(8, 1)	0.0	300.0	159.21161	(15, 1)
50.0	300.0	29.37144	(8, 1)	100.0	300.0	8.26491	(8, 1)
-100.0	400.0	42.40926	(8, 1)	-50.0	400.0	109.95719	(3, 1)
0.0	400.0	247.73186	(15, 1)	50.0	400.0	109.95724	(3, 1)
100.0	400.0	42.40932	(8, 1)	-100.0	500.0	86.90244	(8, 1)
-50.0	500.0	166.90231	(3, 1)	0.0	500.0	278.38870	(15, 1)
50.0	500.0	166.90237	(3, 1)	100.0	500.0	86.90254	(8, 1)
-100.0	600.0	136.92369	(3, 1)	-50.0	600.0	183.37703	(14, 1)
0.0	600.0	290.40704	(23, 1)	50.0	600.0	183.37726	(14, 1)
100.0	600.0	136.92377	(3, 1)	-100.0	700.0	128.38898	(3, 1)
-50.0	700.0	197.32014	(2, 1)	0.0	700.0	288.05817	(23, 1)
50.0	700.0	197.32019	(2, 1)	100.0	700.0	128.38904	(3, 1)
-100.0	800.0	128.09465	(8, 1)	-50.0	800.0	194.22511	(14, 1)
0.0	800.0	278.14706	(23, 1)	50.0	800.0	194.22530	(14, 1)
100.0	800.0	128.09476	(8, 1)	-100.0	900.0	123.29049	(14, 1)
-50.0	900.0	187.00548	(14, 1)	0.0	900.0	255.08749	(24, 1)
50.0	900.0	187.00565	(14, 1)	100.0	900.0	123.29070	(14, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 7,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 354.71475 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	163.69576 (30, 1)	165.35185 (30, 1)	165.90762 (30, 1)	165.35194 (30, 1)	163.69595 (30, 1)
24000.0 /	167.91635 (30, 1)	169.74200 (30, 1)	170.35500 (30, 1)	169.74211 (30, 1)	167.91655 (30, 1)
23000.0 /	172.34676 (30, 1)	174.36687 (30, 1)	175.04552 (30, 1)	174.36697 (30, 1)	172.34698 (30, 1)
22000.0 /	177.00108 (30, 1)	179.24535 (30, 1)	179.99979 (30, 1)	179.24547 (30, 1)	177.00131 (30, 1)
21000.0 /	181.89415 (30, 1)	184.39835 (30, 1)	185.24077 (30, 1)	184.39848 (30, 1)	181.89439 (30, 1)
20000.0 /	187.04143 (30, 1)	189.84897 (30, 1)	190.79419 (30, 1)	189.84911 (30, 1)	187.04169 (30, 1)
19000.0 /	192.45854 (30, 1)	195.62253 (30, 1)	196.68877 (30, 1)	195.62268 (30, 1)	192.45882 (30, 1)
18000.0 /	198.16121 (30, 1)	201.74725 (30, 1)	202.95702 (30, 1)	201.74741 (30, 1)	198.16150 (30, 1)
17000.0 /	204.16406 (30, 1)	208.25403 (30, 1)	209.63554 (30, 1)	208.25420 (30, 1)	204.16438 (30, 1)
16000.0 /	210.47948 (30, 1)	215.17670 (30, 1)	216.76569 (30, 1)	215.17688 (30, 1)	210.47983 (30, 1)
15000.0 /	217.11555 (30, 1)	222.55209 (30, 1)	224.39442 (30, 1)	222.55228 (30, 1)	217.11592 (30, 1)
14000.0 /	222.52271 (30, 1)	228.82582 (30, 1)	230.96635 (30, 1)	228.82602 (30, 1)	222.52310 (30, 1)
13000.0 /	227.83257 (30, 1)	235.20201 (30, 1)	237.71115 (30, 1)	235.20222 (30, 1)	227.83301 (30, 1)
12000.0 /	232.92400 (30, 1)	241.62228 (30, 1)	244.59340 (30, 1)	241.62254 (30, 1)	232.92447 (30, 1)
11000.0 /	237.61055 (30, 1)	247.98837 (30, 1)	251.54752 (30, 1)	247.98865 (30, 1)	237.61107 (30, 1)
10000.0 /	241.61842 (30, 1)	254.15338 (30, 1)	258.47467 (30, 1)	254.15367 (30, 1)	241.61899 (30, 1)
9000.0 /	244.53957 (30, 1)	259.89648 (30, 1)	265.22696 (30, 1)	259.89682 (30, 1)	244.54019 (30, 1)
8000.0 /	245.75620 (30, 1)	264.88394 (30, 1)	271.58530 (30, 1)	264.88434 (30, 1)	245.75688 (30, 1)
7000.0 /	244.31006 (30, 1)	268.60129 (30, 1)	277.22385 (30, 1)	268.60172 (30, 1)	244.31082 (30, 1)
6000.0 /	237.20285 (25, 1)	266.23758 (30, 1)	277.49091 (30, 1)	266.23804 (30, 1)	237.20323 (25, 1)
5000.0 /	237.92889 (25, 1)	260.01010 (31, 1)	275.43082 (31, 1)	260.01062 (31, 1)	237.92932 (25, 1)
4000.0 /	228.70476 (25, 1)	258.83328 (31, 1)	281.84348 (31, 1)	258.83389 (31, 1)	228.70523 (25, 1)
3000.0 /	193.35475 (25, 1)	248.59627 (32, 1)	286.47968 (32, 1)	248.59702 (32, 1)	193.35524 (25, 1)
2000.0 /	143.58614 (21, 1)	209.80453 (33, 1)	279.56949 (33, 1)	209.80539 (33, 1)	143.58644 (21, 1)
1000.0 /	155.52563 (2, 1)	272.03439 (23, 1)	354.71475 (23, 1)	272.03491 (23, 1)	155.52570 (2, 1)

1

HIGH
1-HR
SGROUP# 7

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 7,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	44.18484	(3, 1)
0.0	50.0	54421.23828	(21, 1)	50.0	50.0	44.18489	(3, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	5.62570	(1, 1)
-50.0	100.0	292.36313	(3, 1)	0.0	100.0	14363.54492	(22, 1)
50.0	100.0	292.53482	(3, 1)	100.0	100.0	5.62822	(1, 1)
-100.0	200.0	94.75876	(3, 1)	-50.0	200.0	425.80557	(8, 1)
0.0	200.0	3775.25146	(23, 1)	50.0	200.0	425.80615	(8, 1)
100.0	200.0	94.77141	(3, 1)	-100.0	300.0	160.51967	(3, 1)
-50.0	300.0	410.13419	(15, 1)	0.0	300.0	1795.80188	(23, 1)
50.0	300.0	410.13507	(15, 1)	100.0	300.0	160.51979	(3, 1)
-100.0	400.0	178.27086	(3, 1)	-50.0	400.0	393.36325	(15, 1)
0.0	400.0	1097.28503	(24, 1)	50.0	400.0	393.36389	(15, 1)
100.0	400.0	178.27101	(3, 1)	-100.0	500.0	168.19421	(3, 1)
-50.0	500.0	339.39725	(15, 1)	0.0	500.0	768.12488	(24, 1)
50.0	500.0	339.39771	(15, 1)	100.0	500.0	168.19432	(3, 1)
-100.0	600.0	151.26097	(2, 1)	-50.0	600.0	294.37131	(24, 1)
0.0	600.0	575.71613	(24, 1)	50.0	600.0	294.37216	(24, 1)
100.0	600.0	151.26105	(2, 1)	-100.0	700.0	175.67897	(2, 1)
-50.0	700.0	303.65915	(23, 1)	0.0	700.0	501.82068	(23, 1)
50.0	700.0	303.65988	(23, 1)	100.0	700.0	175.67905	(2, 1)
-100.0	800.0	175.66164	(2, 1)	-50.0	800.0	300.13300	(23, 1)
0.0	800.0	445.91882	(23, 1)	50.0	800.0	300.13364	(23, 1)
100.0	800.0	175.66171	(2, 1)	-100.0	900.0	165.95488	(2, 1)
-50.0	900.0	288.14767	(23, 1)	0.0	900.0	397.07111	(23, 1)
50.0	900.0	288.14825	(23, 1)	100.0	900.0	165.95494	(2, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 7,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 346.42749 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	114.22298 (31, 1)	115.37943 (31, 1)	115.76753 (31, 1)	115.37949 (31, 1)	114.22311 (31, 1)
24000.0 /	117.95293 (31, 1)	119.23640 (31, 1)	119.66735 (31, 1)	119.23648 (31, 1)	117.95307 (31, 1)
23000.0 /	121.92128 (31, 1)	123.35159 (31, 1)	123.83211 (31, 1)	123.35167 (31, 1)	121.92143 (31, 1)
22000.0 /	126.15058 (31, 1)	127.75161 (31, 1)	128.28981 (31, 1)	127.75169 (31, 1)	126.15074 (31, 1)
21000.0 /	130.66597 (31, 1)	132.46675 (31, 1)	133.07253 (31, 1)	132.46683 (31, 1)	130.66614 (31, 1)
20000.0 /	135.49571 (31, 1)	137.53183 (31, 1)	138.21733 (31, 1)	137.53192 (31, 1)	135.49591 (31, 1)
19000.0 /	140.67133 (31, 1)	142.98679 (31, 1)	143.76707 (31, 1)	142.98689 (31, 1)	140.67152 (31, 1)
18000.0 /	146.22801 (31, 1)	148.87782 (31, 1)	149.77176 (31, 1)	148.87793 (31, 1)	146.22823 (31, 1)
17000.0 /	152.20491 (31, 1)	155.25856 (31, 1)	156.29004 (31, 1)	155.25868 (31, 1)	152.20515 (31, 1)
16000.0 /	158.64510 (31, 1)	162.19144 (31, 1)	163.39113 (31, 1)	162.19157 (31, 1)	158.64536 (31, 1)
15000.0 /	165.59541 (31, 1)	169.74965 (31, 1)	171.15747 (31, 1)	169.74980 (31, 1)	165.59570 (31, 1)
14000.0 /	172.50061 (31, 1)	177.39716 (31, 1)	179.06007 (31, 1)	177.39731 (31, 1)	172.50093 (31, 1)
13000.0 /	179.77618 (31, 1)	185.60524 (31, 1)	187.59003 (31, 1)	185.60542 (31, 1)	179.77652 (31, 1)
12000.0 /	187.39392 (31, 1)	194.41148 (31, 1)	196.80865 (31, 1)	194.41168 (31, 1)	187.39430 (31, 1)
11000.0 /	195.28314 (31, 1)	203.84015 (31, 1)	206.77509 (31, 1)	203.84038 (31, 1)	195.28358 (31, 1)
10000.0 /	203.30490 (31, 1)	213.89311 (31, 1)	217.54376 (31, 1)	213.89337 (31, 1)	203.30539 (31, 1)
9000.0 /	212.88274 (25, 1)	224.52820 (31, 1)	229.15450 (31, 1)	224.52849 (31, 1)	212.88298 (25, 1)
8000.0 /	222.64166 (25, 1)	235.61972 (31, 1)	241.61461 (31, 1)	235.62006 (31, 1)	222.64195 (25, 1)
7000.0 /	231.23595 (25, 1)	246.88148 (31, 1)	254.86407 (31, 1)	246.88187 (31, 1)	231.23627 (25, 1)
6000.0 /	235.14285 (30, 1)	254.97807 (31, 1)	265.85831 (31, 1)	254.97852 (31, 1)	235.14366 (30, 1)
5000.0 /	218.73792 (31, 1)	259.32977 (30, 1)	274.50891 (30, 1)	259.33029 (30, 1)	218.73880 (31, 1)
4000.0 /	206.91312 (26, 1)	256.10004 (25, 1)	274.46530 (32, 1)	256.10031 (25, 1)	206.91356 (26, 1)
3000.0 /	191.95364 (26, 1)	245.16212 (31, 1)	282.01666 (31, 1)	245.16286 (31, 1)	191.95415 (26, 1)
2000.0 /	139.47398 (27, 1)	205.46875 (27, 1)	271.24466 (32, 1)	205.46913 (27, 1)	139.47449 (27, 1)
1000.0 /	149.69843 (14, 1)	266.94781 (22, 1)	346.42749 (22, 1)	266.94830 (22, 1)	149.69865 (14, 1)

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2ND HIGH
1-HR
SGROUP# 7

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 7,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	38.02244	(2, 1)
0.0	50.0	46690.57422	(22, 1)	50.0	50.0	38.02247	(2, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	3.95927	(3, 1)
-50.0	100.0	174.37657	(8, 1)	0.0	100.0	12895.83984	(23, 1)
50.0	100.0	174.37694	(8, 1)	100.0	100.0	3.96161	(3, 1)
-100.0	200.0	45.74429	(2, 1)	-50.0	200.0	348.97095	(3, 1)
0.0	200.0	3376.07886	(24, 1)	50.0	200.0	348.97119	(3, 1)
100.0	200.0	45.75299	(2, 1)	-100.0	300.0	107.41055	(8, 1)
-50.0	300.0	380.64420	(8, 1)	0.0	300.0	1741.96924	(24, 1)
50.0	300.0	380.64453	(8, 1)	100.0	300.0	107.41071	(8, 1)
-100.0	400.0	144.05716	(8, 1)	-50.0	400.0	357.61407	(14, 1)
0.0	400.0	1094.55786	(23, 1)	50.0	400.0	357.61462	(14, 1)
100.0	400.0	144.05739	(8, 1)	-100.0	500.0	151.67238	(8, 1)
-50.0	500.0	312.06171	(14, 1)	0.0	500.0	756.09753	(23, 1)
50.0	500.0	312.06213	(14, 1)	100.0	500.0	151.67256	(8, 1)
-100.0	600.0	146.51004	(8, 1)	-50.0	600.0	291.92856	(23, 1)
0.0	600.0	564.87543	(23, 1)	50.0	600.0	291.92938	(23, 1)
100.0	600.0	146.51018	(8, 1)	-100.0	700.0	151.96585	(8, 1)
-50.0	700.0	292.75085	(24, 1)	0.0	700.0	486.78290	(24, 1)
50.0	700.0	292.75159	(24, 1)	100.0	700.0	151.96599	(8, 1)
-100.0	800.0	149.93701	(14, 1)	-50.0	800.0	279.08386	(24, 1)
0.0	800.0	416.23068	(24, 1)	50.0	800.0	279.08450	(24, 1)
100.0	800.0	149.93730	(14, 1)	-100.0	900.0	152.55963	(14, 1)
-50.0	900.0	267.37347	(22, 1)	0.0	900.0	365.89954	(22, 1)
50.0	900.0	267.37402	(22, 1)	100.0	900.0	152.55991	(14, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 8,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 164.82719 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	4.21944 (30, 1)	4.26221 (30, 1)	4.27657 (30, 1)	4.26222 (30, 1)	4.21945 (30, 1)
24000.0 /	4.42092 (30, 1)	4.46909 (30, 1)	4.48526 (30, 1)	4.46909 (30, 1)	4.42092 (30, 1)
23000.0 /	4.64077 (30, 1)	4.69528 (30, 1)	4.71360 (30, 1)	4.69529 (30, 1)	4.64077 (30, 1)
22000.0 /	4.88150 (30, 1)	4.94355 (30, 1)	4.96441 (30, 1)	4.94355 (30, 1)	4.88151 (30, 1)
21000.0 /	5.14612 (30, 1)	5.21716 (30, 1)	5.24105 (30, 1)	5.21716 (30, 1)	5.14612 (30, 1)
20000.0 /	5.43818 (30, 1)	5.52005 (30, 1)	5.54761 (30, 1)	5.52005 (30, 1)	5.43819 (30, 1)
19000.0 /	5.76199 (30, 1)	5.85702 (30, 1)	5.88905 (30, 1)	5.85703 (30, 1)	5.76200 (30, 1)
18000.0 /	6.12275 (30, 1)	6.23394 (30, 1)	6.27146 (30, 1)	6.23395 (30, 1)	6.12276 (30, 1)
17000.0 /	6.52682 (30, 1)	6.65809 (30, 1)	6.70243 (30, 1)	6.65809 (30, 1)	6.52683 (30, 1)
16000.0 /	6.98206 (30, 1)	7.13856 (30, 1)	7.19150 (30, 1)	7.13856 (30, 1)	6.98207 (30, 1)
15000.0 /	7.49825 (30, 1)	7.68692 (30, 1)	7.75086 (30, 1)	7.68693 (30, 1)	7.49826 (30, 1)
14000.0 /	8.12849 (30, 1)	8.36001 (30, 1)	8.43864 (30, 1)	8.36002 (30, 1)	8.12850 (30, 1)
13000.0 /	8.85722 (30, 1)	9.14552 (30, 1)	9.24370 (30, 1)	9.14553 (30, 1)	8.85724 (30, 1)
12000.0 /	9.70698 (30, 1)	10.07212 (30, 1)	10.19687 (30, 1)	10.07213 (30, 1)	9.70700 (30, 1)
11000.0 /	10.70736 (30, 1)	11.17901 (30, 1)	11.34081 (30, 1)	11.17903 (30, 1)	10.70738 (30, 1)
10000.0 /	11.89726 (30, 1)	12.52077 (30, 1)	12.73578 (30, 1)	12.52078 (30, 1)	11.89729 (30, 1)
9000.0 /	13.32799 (30, 1)	14.17532 (30, 1)	14.46957 (30, 1)	14.17534 (30, 1)	13.32803 (30, 1)
8000.0 /	15.06674 (30, 1)	16.25742 (30, 1)	16.67488 (30, 1)	16.25744 (30, 1)	15.06678 (30, 1)
7000.0 /	17.19825 (30, 1)	18.94190 (30, 1)	19.56156 (30, 1)	18.94193 (30, 1)	17.19831 (30, 1)
6000.0 /	19.92034 (30, 1)	22.62394 (30, 1)	23.60437 (30, 1)	22.62398 (30, 1)	19.92041 (30, 1)
5000.0 /	23.21660 (30, 1)	27.69823 (30, 1)	29.37673 (30, 1)	27.69829 (30, 1)	23.21670 (30, 1)
4000.0 /	26.86631 (30, 1)	34.96828 (30, 1)	38.17949 (30, 1)	34.96837 (30, 1)	26.86645 (30, 1)
3000.0 /	29.36636 (30, 1)	45.70709 (30, 1)	52.96982 (30, 1)	45.70723 (30, 1)	29.36654 (30, 1)
2000.0 /	24.67694 (25, 1)	61.07219 (30, 1)	82.95901 (30, 1)	61.07245 (30, 1)	24.67703 (25, 1)
1000.0 /	25.02343 (16, 1)	56.87250 (30, 1)	164.82719 (30, 1)	56.87292 (30, 1)	25.02352 (16, 1)

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HIGH
1-HR
SGROUP# 8

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 8,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	2.35619	(1, 1)
0.0	50.0	4065.86865	(16, 1)	50.0	50.0	2.35619	(1, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.32571	(1, 1)
-50.0	100.0	56.29072	(1, 1)	0.0	100.0	1795.79224	(16, 1)
50.0	100.0	56.28078	(1, 1)	100.0	100.0	0.32565	(1, 1)
-100.0	200.0	14.71811	(1, 1)	-50.0	200.0	74.18680	(4, 1)
0.0	200.0	653.44812	(16, 1)	50.0	200.0	74.18690	(4, 1)
100.0	200.0	14.71719	(1, 1)	-100.0	300.0	19.04859	(1, 1)
-50.0	300.0	69.70330	(9, 1)	0.0	300.0	412.85532	(30, 1)
50.0	300.0	69.70346	(9, 1)	100.0	300.0	19.04860	(1, 1)
-100.0	400.0	20.79393	(4, 1)	-50.0	400.0	69.53212	(9, 1)
0.0	400.0	351.75714	(30, 1)	50.0	400.0	69.53224	(9, 1)
100.0	400.0	20.79396	(4, 1)	-100.0	500.0	19.60850	(4, 1)
-50.0	500.0	77.30230	(16, 1)	0.0	500.0	300.17923	(30, 1)
50.0	500.0	77.30254	(16, 1)	100.0	500.0	19.60853	(4, 1)
-100.0	600.0	20.32605	(9, 1)	-50.0	600.0	78.89457	(16, 1)
0.0	600.0	259.13739	(30, 1)	50.0	600.0	78.89480	(16, 1)
100.0	600.0	20.32610	(9, 1)	-100.0	700.0	20.92753	(9, 1)
-50.0	700.0	74.88788	(16, 1)	0.0	700.0	227.03883	(30, 1)
50.0	700.0	74.88807	(16, 1)	100.0	700.0	20.92758	(9, 1)
-100.0	800.0	20.49029	(16, 1)	-50.0	800.0	68.78529	(16, 1)
0.0	800.0	201.76492	(30, 1)	50.0	800.0	68.78544	(16, 1)
100.0	800.0	20.49039	(16, 1)	-100.0	900.0	23.43612	(16, 1)
-50.0	900.0	62.26714	(16, 1)	0.0	900.0	181.48329	(30, 1)
50.0	900.0	62.26727	(16, 1)	100.0	900.0	23.43621	(16, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 8,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 100.72730 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	2.14492 (31, 1)	2.16666 (31, 1)	2.17396 (31, 1)	2.16667 (31, 1)	2.14492 (31, 1)
24000.0 /	2.24831 (31, 1)	2.27281 (31, 1)	2.28103 (31, 1)	2.27281 (31, 1)	2.24831 (31, 1)
23000.0 /	2.36121 (31, 1)	2.38895 (31, 1)	2.39827 (31, 1)	2.38895 (31, 1)	2.36121 (31, 1)
22000.0 /	2.48493 (31, 1)	2.51651 (31, 1)	2.52713 (31, 1)	2.51651 (31, 1)	2.48493 (31, 1)
21000.0 /	2.62103 (31, 1)	2.65721 (31, 1)	2.66938 (31, 1)	2.65721 (31, 1)	2.62103 (31, 1)
20000.0 /	2.77138 (31, 1)	2.81310 (31, 1)	2.82715 (31, 1)	2.81310 (31, 1)	2.77138 (31, 1)
19000.0 /	2.93823 (31, 1)	2.98669 (31, 1)	3.00302 (31, 1)	2.98669 (31, 1)	2.93823 (31, 1)
18000.0 /	3.12431 (31, 1)	3.18105 (31, 1)	3.20020 (31, 1)	3.18106 (31, 1)	3.12432 (31, 1)
17000.0 /	3.33297 (31, 1)	3.40001 (31, 1)	3.42265 (31, 1)	3.40001 (31, 1)	3.33298 (31, 1)
16000.0 /	3.56835 (31, 1)	3.64834 (31, 1)	3.67540 (31, 1)	3.64834 (31, 1)	3.56836 (31, 1)
15000.0 /	3.83561 (31, 1)	3.93213 (31, 1)	3.96484 (31, 1)	3.93214 (31, 1)	3.83562 (31, 1)
14000.0 /	4.16332 (31, 1)	4.28191 (31, 1)	4.32219 (31, 1)	4.28191 (31, 1)	4.16333 (31, 1)
13000.0 /	4.54314 (31, 1)	4.69104 (31, 1)	4.74140 (31, 1)	4.69104 (31, 1)	4.54315 (31, 1)
12000.0 /	4.98727 (31, 1)	5.17489 (31, 1)	5.23899 (31, 1)	5.17489 (31, 1)	4.98728 (31, 1)
11000.0 /	5.51179 (31, 1)	5.75461 (31, 1)	5.83790 (31, 1)	5.75461 (31, 1)	5.51180 (31, 1)
10000.0 /	6.13805 (31, 1)	6.45977 (31, 1)	6.57072 (31, 1)	6.45978 (31, 1)	6.13806 (31, 1)
9000.0 /	6.89452 (31, 1)	7.33291 (31, 1)	7.48515 (31, 1)	7.33292 (31, 1)	6.89454 (31, 1)
8000.0 /	7.81910 (31, 1)	8.43715 (31, 1)	8.65384 (31, 1)	8.43716 (31, 1)	7.81912 (31, 1)
7000.0 /	8.96089 (31, 1)	9.86963 (31, 1)	10.19259 (31, 1)	9.86965 (31, 1)	8.96091 (31, 1)
6000.0 /	10.43860 (31, 1)	11.85584 (31, 1)	12.36980 (31, 1)	11.85586 (31, 1)	10.43864 (31, 1)
5000.0 /	12.25893 (31, 1)	14.62653 (31, 1)	15.51331 (31, 1)	14.62656 (31, 1)	12.25898 (31, 1)
4000.0 /	15.11759 (25, 1)	18.66585 (31, 1)	20.38120 (31, 1)	18.66589 (31, 1)	15.11763 (25, 1)
3000.0 /	19.79933 (25, 1)	24.80013 (31, 1)	28.74572 (31, 1)	24.80020 (31, 1)	19.79939 (25, 1)
2000.0 /	24.36604 (30, 1)	37.10128 (25, 1)	46.55004 (31, 1)	37.10135 (25, 1)	24.36625 (30, 1)
1000.0 /	17.25390 (9, 1)	56.71533 (25, 1)	100.72730 (31, 1)	56.71552 (25, 1)	17.25393 (9, 1)

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2ND HIGH
1-HR
SGROUP# 8

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 8,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	1.03100	(2, 1)
0.0	50.0	2492.84082	(9, 1)	50.0	50.0	1.03100	(2, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.17389	(2, 1)
-50.0	100.0	31.15135	(2, 1)	0.0	100.0	950.34259	(33, 1)
50.0	100.0	31.14520	(2, 1)	100.0	100.0	0.17385	(2, 1)
-100.0	200.0	7.65556	(2, 1)	-50.0	200.0	65.81223	(1, 1)
0.0	200.0	504.60419	(31, 1)	50.0	200.0	65.81229	(1, 1)
100.0	200.0	7.65504	(2, 1)	-100.0	300.0	16.23016	(4, 1)
-50.0	300.0	64.03009	(4, 1)	0.0	300.0	381.91287	(16, 1)
50.0	300.0	64.03015	(4, 1)	100.0	300.0	16.23018	(4, 1)
-100.0	400.0	14.89144	(1, 1)	-50.0	400.0	64.07466	(16, 1)
0.0	400.0	274.88632	(31, 1)	50.0	400.0	64.07491	(16, 1)
100.0	400.0	14.89146	(1, 1)	-100.0	500.0	17.20761	(9, 1)
-50.0	500.0	59.87302	(9, 1)	0.0	500.0	215.30670	(31, 1)
50.0	500.0	59.87310	(9, 1)	100.0	500.0	17.20766	(9, 1)
-100.0	600.0	16.94582	(4, 1)	-50.0	600.0	49.69273	(9, 1)
0.0	600.0	175.43416	(31, 1)	50.0	600.0	49.69279	(9, 1)
100.0	600.0	16.94584	(4, 1)	-100.0	700.0	15.97880	(16, 1)
-50.0	700.0	51.01429	(25, 1)	0.0	700.0	147.70050	(31, 1)
50.0	700.0	51.01451	(25, 1)	100.0	700.0	15.97888	(16, 1)
-100.0	800.0	20.17067	(9, 1)	-50.0	800.0	55.19242	(25, 1)
0.0	800.0	127.92307	(31, 1)	50.0	800.0	55.19264	(25, 1)
100.0	800.0	20.17071	(9, 1)	-100.0	900.0	18.80983	(9, 1)
-50.0	900.0	56.81746	(25, 1)	0.0	900.0	112.76451	(31, 1)
50.0	900.0	56.81767	(25, 1)	100.0	900.0	18.80987	(9, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 9,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 53.44487 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	3.79099 (30, 1)	3.82941 (30, 1)	3.84231 (30, 1)	3.82942 (30, 1)	3.79100 (30, 1)
24000.0 /	3.96114 (30, 1)	4.00429 (30, 1)	4.01878 (30, 1)	4.00429 (30, 1)	3.96114 (30, 1)
23000.0 /	4.14597 (30, 1)	4.19466 (30, 1)	4.21102 (30, 1)	4.19466 (30, 1)	4.14597 (30, 1)
22000.0 /	4.34738 (30, 1)	4.40262 (30, 1)	4.42119 (30, 1)	4.40262 (30, 1)	4.34738 (30, 1)
21000.0 /	4.56762 (30, 1)	4.63065 (30, 1)	4.65186 (30, 1)	4.63066 (30, 1)	4.56763 (30, 1)
20000.0 /	4.80935 (30, 1)	4.88172 (30, 1)	4.90609 (30, 1)	4.88173 (30, 1)	4.80935 (30, 1)
19000.0 /	5.07572 (30, 1)	5.15940 (30, 1)	5.18760 (30, 1)	5.15941 (30, 1)	5.07573 (30, 1)
18000.0 /	5.37052 (30, 1)	5.46802 (30, 1)	5.50091 (30, 1)	5.46802 (30, 1)	5.37053 (30, 1)
17000.0 /	5.69833 (30, 1)	5.81289 (30, 1)	5.85158 (30, 1)	5.81289 (30, 1)	5.69834 (30, 1)
16000.0 /	6.06471 (30, 1)	6.20058 (30, 1)	6.24655 (30, 1)	6.20059 (30, 1)	6.06472 (30, 1)
15000.0 /	6.47647 (30, 1)	6.63935 (30, 1)	6.69455 (30, 1)	6.63935 (30, 1)	6.47648 (30, 1)
14000.0 /	6.96510 (30, 1)	7.16336 (30, 1)	7.23070 (30, 1)	7.16337 (30, 1)	6.96511 (30, 1)
13000.0 /	7.52146 (30, 1)	7.76612 (30, 1)	7.84943 (30, 1)	7.76613 (30, 1)	7.52147 (30, 1)
12000.0 /	8.15888 (30, 1)	8.46556 (30, 1)	8.57032 (30, 1)	8.46556 (30, 1)	8.15890 (30, 1)
11000.0 /	8.89401 (30, 1)	9.28544 (30, 1)	9.41971 (30, 1)	9.28545 (30, 1)	8.89403 (30, 1)
10000.0 /	9.74734 (30, 1)	10.25762 (30, 1)	10.43359 (30, 1)	10.25764 (30, 1)	9.74736 (30, 1)
9000.0 /	10.74347 (30, 1)	11.42560 (30, 1)	11.66247 (30, 1)	11.42561 (30, 1)	10.74350 (30, 1)
8000.0 /	11.91021 (30, 1)	12.84991 (30, 1)	13.17935 (30, 1)	12.84993 (30, 1)	11.91024 (30, 1)
7000.0 /	13.27349 (30, 1)	14.61644 (30, 1)	15.09363 (30, 1)	14.61646 (30, 1)	13.27353 (30, 1)
6000.0 /	14.86127 (30, 1)	16.87266 (30, 1)	17.60191 (30, 1)	16.87269 (30, 1)	14.86132 (30, 1)
5000.0 /	16.56466 (30, 1)	19.74965 (30, 1)	20.94202 (30, 1)	19.74969 (30, 1)	16.56473 (30, 1)
4000.0 /	18.02909 (30, 1)	23.43281 (30, 1)	25.57259 (30, 1)	23.43286 (30, 1)	18.02918 (30, 1)
3000.0 /	18.02780 (30, 1)	27.94780 (30, 1)	32.34568 (30, 1)	27.94788 (30, 1)	18.02791 (30, 1)
2000.0 /	15.23683 (25, 1)	31.28934 (30, 1)	42.26247 (30, 1)	31.28948 (30, 1)	15.23689 (25, 1)
1000.0 /	13.40361 (9, 1)	24.55954 (16, 1)	53.44487 (30, 1)	24.55958 (16, 1)	13.40363 (9, 1)

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HIGH
1-HR
SGROUP# 9

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 9,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	1.19687	(2, 1)
0.0	50.0	2451.60815	(32, 1)	50.0	50.0	1.19687	(2, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.13041	(2, 1)
-50.0	100.0	18.49076	(2, 1)	0.0	100.0	819.46350	(33, 1)
50.0	100.0	18.49097	(2, 1)	100.0	100.0	0.13042	(2, 1)
-100.0	200.0	7.17476	(1, 1)	-50.0	200.0	29.69185	(1, 1)
0.0	200.0	171.26443	(18, 1)	50.0	200.0	29.69187	(1, 1)
100.0	200.0	7.17504	(1, 1)	-100.0	300.0	13.52866	(1, 1)
-50.0	300.0	28.48544	(4, 1)	0.0	300.0	107.15221	(18, 1)
50.0	300.0	28.48547	(4, 1)	100.0	300.0	13.52867	(1, 1)
-100.0	400.0	12.72954	(4, 1)	-50.0	400.0	28.10849	(4, 1)
0.0	400.0	78.25760	(17, 1)	50.0	400.0	28.10851	(4, 1)
100.0	400.0	12.72956	(4, 1)	-100.0	500.0	14.16351	(4, 1)
-50.0	500.0	27.82360	(9, 1)	0.0	500.0	65.06631	(17, 1)
50.0	500.0	27.82364	(9, 1)	100.0	500.0	14.16353	(4, 1)
-100.0	600.0	13.49467	(4, 1)	-50.0	600.0	28.09994	(17, 1)
0.0	600.0	56.48901	(31, 1)	50.0	600.0	28.10002	(17, 1)
100.0	600.0	13.49469	(4, 1)	-100.0	700.0	13.41592	(9, 1)
-50.0	700.0	28.14842	(17, 1)	0.0	700.0	54.44225	(31, 1)
50.0	700.0	28.14849	(17, 1)	100.0	700.0	13.41595	(9, 1)
-100.0	800.0	14.04183	(9, 1)	-50.0	800.0	26.99003	(17, 1)
0.0	800.0	54.31129	(30, 1)	50.0	800.0	26.99010	(17, 1)
100.0	800.0	14.04186	(9, 1)	-100.0	900.0	13.93305	(9, 1)
-50.0	900.0	25.28485	(17, 1)	0.0	900.0	53.99695	(30, 1)
50.0	900.0	25.28490	(17, 1)	100.0	900.0	13.93307	(9, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 9,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 46.88168 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	2.00629 (31, 1)	2.02662 (31, 1)	2.03345 (31, 1)	2.02662 (31, 1)	2.00629 (31, 1)
24000.0 /	2.09936 (31, 1)	2.12223 (31, 1)	2.12991 (31, 1)	2.12223 (31, 1)	2.09936 (31, 1)
23000.0 /	2.20070 (31, 1)	2.22656 (31, 1)	2.23524 (31, 1)	2.22656 (31, 1)	2.20071 (31, 1)
22000.0 /	2.31143 (31, 1)	2.34080 (31, 1)	2.35068 (31, 1)	2.34081 (31, 1)	2.31143 (31, 1)
21000.0 /	2.43284 (31, 1)	2.46641 (31, 1)	2.47771 (31, 1)	2.46642 (31, 1)	2.43284 (31, 1)
20000.0 /	2.56648 (31, 1)	2.60512 (31, 1)	2.61812 (31, 1)	2.60512 (31, 1)	2.56649 (31, 1)
19000.0 /	2.71423 (31, 1)	2.75899 (31, 1)	2.77408 (31, 1)	2.75899 (31, 1)	2.71424 (31, 1)
18000.0 /	2.87833 (31, 1)	2.93059 (31, 1)	2.94823 (31, 1)	2.93060 (31, 1)	2.87834 (31, 1)
17000.0 /	3.06150 (31, 1)	3.12306 (31, 1)	3.14385 (31, 1)	3.12306 (31, 1)	3.06151 (31, 1)
16000.0 /	3.26709 (31, 1)	3.34030 (31, 1)	3.36507 (31, 1)	3.34031 (31, 1)	3.26710 (31, 1)
15000.0 /	3.49923 (31, 1)	3.58726 (31, 1)	3.61709 (31, 1)	3.58726 (31, 1)	3.49924 (31, 1)
14000.0 /	3.77898 (31, 1)	3.88658 (31, 1)	3.92313 (31, 1)	3.88658 (31, 1)	3.77898 (31, 1)
13000.0 /	4.10011 (31, 1)	4.23353 (31, 1)	4.27896 (31, 1)	4.23353 (31, 1)	4.10012 (31, 1)
12000.0 /	4.47151 (31, 1)	4.63965 (31, 1)	4.69709 (31, 1)	4.63965 (31, 1)	4.47152 (31, 1)
11000.0 /	4.90454 (31, 1)	5.12048 (31, 1)	5.19456 (31, 1)	5.12049 (31, 1)	4.90455 (31, 1)
10000.0 /	5.41376 (31, 1)	5.69733 (31, 1)	5.79512 (31, 1)	5.69733 (31, 1)	5.41377 (31, 1)
9000.0 /	6.01765 (31, 1)	6.39997 (31, 1)	6.53274 (31, 1)	6.39998 (31, 1)	6.01767 (31, 1)
8000.0 /	6.73905 (31, 1)	7.27119 (31, 1)	7.45775 (31, 1)	7.27120 (31, 1)	6.73907 (31, 1)
7000.0 /	7.60399 (31, 1)	8.37412 (31, 1)	8.64779 (31, 1)	8.37414 (31, 1)	7.60402 (31, 1)
6000.0 /	8.66375 (31, 1)	9.83796 (31, 1)	10.26373 (31, 1)	9.83798 (31, 1)	8.66378 (31, 1)
5000.0 /	9.88012 (31, 1)	11.78355 (31, 1)	12.49630 (31, 1)	11.78358 (31, 1)	9.88016 (31, 1)
4000.0 /	11.79212 (25, 1)	14.42975 (31, 1)	15.75111 (31, 1)	14.42978 (31, 1)	11.79214 (25, 1)
3000.0 /	14.21930 (25, 1)	18.02348 (31, 1)	20.87339 (31, 1)	18.02354 (31, 1)	14.21933 (25, 1)
2000.0 /	13.36530 (16, 1)	22.79857 (25, 1)	29.84154 (31, 1)	22.79861 (25, 1)	13.36532 (16, 1)
1000.0 /	11.27074 (16, 1)	23.39955 (17, 1)	46.88168 (31, 1)	23.39959 (17, 1)	11.27078 (16, 1)

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2ND HIGH
1-HR
SGROUP# 9

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 9,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	1.18795	(1, 1)
0.0	50.0	1990.67847	(33, 1)	50.0	50.0	1.18795	(1, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.12297	(1, 1)
-50.0	100.0	17.00077	(3, 1)	0.0	100.0	589.02332	(29, 1)
50.0	100.0	16.99841	(3, 1)	100.0	100.0	0.12304	(1, 1)
-100.0	200.0	6.30396	(2, 1)	-50.0	200.0	27.70764	(2, 1)
0.0	200.0	162.31786	(19, 1)	50.0	200.0	27.70766	(2, 1)
100.0	200.0	6.30372	(2, 1)	-100.0	300.0	8.87990	(2, 1)
-50.0	300.0	27.47493	(1, 1)	0.0	300.0	96.27184	(17, 1)
50.0	300.0	27.47494	(1, 1)	100.0	300.0	8.87991	(2, 1)
-100.0	400.0	12.61960	(1, 1)	-50.0	400.0	27.63095	(10, 1)
0.0	400.0	77.50458	(18, 1)	50.0	400.0	27.63100	(10, 1)
100.0	400.0	12.61961	(1, 1)	-100.0	500.0	9.38076	(1, 1)
-50.0	500.0	25.77463	(17, 1)	0.0	500.0	59.59988	(18, 1)
50.0	500.0	25.77471	(17, 1)	100.0	500.0	9.38077	(1, 1)
-100.0	600.0	11.66048	(9, 1)	-50.0	600.0	27.61133	(9, 1)
0.0	600.0	54.86630	(17, 1)	50.0	600.0	27.61137	(9, 1)
100.0	600.0	11.66051	(9, 1)	-100.0	700.0	12.07525	(4, 1)
-50.0	700.0	25.86642	(9, 1)	0.0	700.0	54.31125	(30, 1)
50.0	700.0	25.86645	(9, 1)	100.0	700.0	12.07526	(4, 1)
-100.0	800.0	10.54061	(4, 1)	-50.0	800.0	23.56524	(9, 1)
0.0	800.0	51.78835	(31, 1)	50.0	800.0	23.56526	(9, 1)
100.0	800.0	10.54062	(4, 1)	-100.0	900.0	9.60159	(17, 1)
-50.0	900.0	24.35499	(16, 1)	0.0	900.0	49.25960	(31, 1)
50.0	900.0	24.35504	(16, 1)	100.0	900.0	9.60163	(17, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 10, 17, -20,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 4603.09619 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS (METERS)	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0	144.23282 (30, 1)	145.66747 (30, 1)	146.14886 (30, 1)	145.66754 (30, 1)	144.23299 (30, 1)
24000.0	151.08644 (30, 1)	152.70044 (30, 1)	153.24229 (30, 1)	152.70053 (30, 1)	151.08662 (30, 1)
23000.0	158.56168 (30, 1)	160.38647 (30, 1)	160.99942 (30, 1)	160.38657 (30, 1)	158.56186 (30, 1)
22000.0	166.74335 (30, 1)	168.81760 (30, 1)	169.51477 (30, 1)	168.81770 (30, 1)	166.74356 (30, 1)
21000.0	175.73206 (30, 1)	178.10371 (30, 1)	178.90140 (30, 1)	178.10382 (30, 1)	175.73227 (30, 1)
20000.0	185.64777 (30, 1)	188.37697 (30, 1)	189.29564 (30, 1)	188.37711 (30, 1)	185.64801 (30, 1)
19000.0	196.63464 (30, 1)	199.79758 (30, 1)	200.86319 (30, 1)	199.79770 (30, 1)	196.63492 (30, 1)
18000.0	208.86737 (30, 1)	212.56163 (30, 1)	213.80756 (30, 1)	212.56180 (30, 1)	208.86768 (30, 1)
17000.0	222.55933 (30, 1)	226.91168 (30, 1)	228.38135 (30, 1)	226.91187 (30, 1)	222.55966 (30, 1)
16000.0	237.97340 (30, 1)	243.15088 (30, 1)	244.90170 (30, 1)	243.15109 (30, 1)	237.97379 (30, 1)
15000.0	255.09952 (30, 1)	261.31747 (30, 1)	263.42371 (30, 1)	261.31769 (30, 1)	255.09991 (30, 1)
14000.0	276.02948 (30, 1)	283.62790 (30, 1)	286.20700 (30, 1)	283.62814 (30, 1)	276.02994 (30, 1)
13000.0	300.54776 (30, 1)	309.97751 (30, 1)	313.18616 (30, 1)	309.97778 (30, 1)	300.54831 (30, 1)
12000.0	329.10361 (30, 1)	340.99915 (30, 1)	345.05923 (30, 1)	340.99948 (30, 1)	329.10425 (30, 1)
11000.0	362.67892 (30, 1)	377.97278 (30, 1)	383.21289 (30, 1)	377.97321 (30, 1)	362.67969 (30, 1)
10000.0	402.56561 (30, 1)	422.67188 (30, 1)	429.59491 (30, 1)	422.67233 (30, 1)	402.56653 (30, 1)
9000.0	450.47385 (30, 1)	477.61670 (30, 1)	487.02332 (30, 1)	477.61731 (30, 1)	450.47495 (30, 1)
8000.0	508.66241 (30, 1)	546.49530 (30, 1)	559.72205 (30, 1)	546.49603 (30, 1)	508.66373 (30, 1)
7000.0	579.28320 (30, 1)	634.05432 (30, 1)	653.43982 (30, 1)	634.05518 (30, 1)	579.28491 (30, 1)
6000.0	668.35754 (30, 1)	751.90833 (30, 1)	782.02039 (30, 1)	751.90948 (30, 1)	668.35974 (30, 1)
5000.0	779.65765 (30, 1)	915.79602 (30, 1)	966.27289 (30, 1)	915.79761 (30, 1)	779.66046 (30, 1)
4000.0	908.06958 (30, 1)	1148.72913 (30, 1)	1242.39270 (30, 1)	1148.73145 (30, 1)	908.07336 (30, 1)
3000.0	1019.29602 (30, 1)	1491.51733 (30, 1)	1693.45752 (30, 1)	1491.52100 (30, 1)	1019.30103 (30, 1)
2000.0	1042.73169 (25, 1)	1982.48535 (30, 1)	2536.72217 (30, 1)	1982.49121 (30, 1)	1042.73499 (25, 1)
1000.0	1022.49371 (16, 1)	2494.79834 (25, 1)	4603.09619 (30, 1)	2494.80371 (25, 1)	1022.49670 (16, 1)

1

HIGH
1-HR
SGROUP# 10

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 10, 17, -20,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.00000	(0, 0)
0.0	50.0	0.00000	(0, 0)	50.0	50.0	0.00000	(0, 0)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.00000	(0, 0)
-50.0	100.0	185.67094	(1, 1)	0.0	100.0	731.11090	(16, 1)
50.0	100.0	185.67104	(1, 1)	100.0	100.0	0.00000	(0, 0)
-100.0	200.0	98.39196	(1, 1)	-50.0	200.0	552.76807	(4, 1)
0.0	200.0	1932.77295	(16, 1)	50.0	200.0	552.76849	(4, 1)
100.0	200.0	98.39209	(1, 1)	-100.0	300.0	261.39261	(1, 1)
-50.0	300.0	1554.13916	(4, 1)	0.0	300.0	6643.70020	(16, 1)
50.0	300.0	1554.14038	(4, 1)	100.0	300.0	261.39288	(1, 1)
-100.0	400.0	452.06458	(1, 1)	-50.0	400.0	2451.03809	(4, 1)
0.0	400.0	8888.57227	(16, 1)	50.0	400.0	2451.03979	(4, 1)
100.0	400.0	452.06500	(1, 1)	-100.0	500.0	742.65070	(4, 1)
-50.0	500.0	2651.41333	(9, 1)	0.0	500.0	7411.96582	(30, 1)
50.0	500.0	2651.41650	(9, 1)	100.0	500.0	742.65173	(4, 1)
-100.0	600.0	850.58484	(4, 1)	-50.0	600.0	2793.72900	(16, 1)
0.0	600.0	6608.05469	(30, 1)	50.0	600.0	2793.73364	(16, 1)
100.0	600.0	850.58582	(4, 1)	-100.0	700.0	869.98492	(9, 1)
-50.0	700.0	2795.84424	(16, 1)	0.0	700.0	5962.21680	(30, 1)
50.0	700.0	2795.84888	(16, 1)	100.0	700.0	869.98651	(9, 1)
-100.0	800.0	913.05994	(9, 1)	-50.0	800.0	2665.64429	(16, 1)
0.0	800.0	5431.13184	(30, 1)	50.0	800.0	2665.64868	(16, 1)
100.0	800.0	913.06152	(9, 1)	-100.0	900.0	930.23212	(16, 1)
-50.0	900.0	2552.04907	(25, 1)	0.0	900.0	4984.63037	(30, 1)
50.0	900.0	2552.05493	(25, 1)	100.0	900.0	930.23486	(16, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 10, 17, -20,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 3795.74268 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	72.11641 (31, 1)	72.83373 (31, 1)	73.07443 (31, 1)	72.83377 (31, 1)	72.11649 (31, 1)
24000.0 /	75.54322 (31, 1)	76.35022 (31, 1)	76.62115 (31, 1)	76.35027 (31, 1)	75.54331 (31, 1)
23000.0 /	79.28084 (31, 1)	80.19324 (31, 1)	80.49971 (31, 1)	80.19328 (31, 1)	79.28093 (31, 1)
22000.0 /	83.37167 (31, 1)	84.40880 (31, 1)	84.75739 (31, 1)	84.40885 (31, 1)	83.37178 (31, 1)
21000.0 /	87.86603 (31, 1)	89.05186 (31, 1)	89.45070 (31, 1)	89.05191 (31, 1)	87.86613 (31, 1)
20000.0 /	92.82388 (31, 1)	94.18848 (31, 1)	94.64782 (31, 1)	94.18855 (31, 1)	92.82401 (31, 1)
19000.0 /	98.31732 (31, 1)	99.89879 (31, 1)	100.43159 (31, 1)	99.89885 (31, 1)	98.31746 (31, 1)
18000.0 /	104.43369 (31, 1)	106.28082 (31, 1)	106.90378 (31, 1)	106.28090 (31, 1)	104.43384 (31, 1)
17000.0 /	111.27966 (31, 1)	113.45584 (31, 1)	114.19067 (31, 1)	113.45593 (31, 1)	111.27983 (31, 1)
16000.0 /	118.98670 (31, 1)	121.57544 (31, 1)	122.45085 (31, 1)	121.57555 (31, 1)	118.98689 (31, 1)
15000.0 /	127.54976 (31, 1)	130.65874 (31, 1)	131.71185 (31, 1)	130.65884 (31, 1)	127.54996 (31, 1)
14000.0 /	138.01474 (31, 1)	141.81395 (31, 1)	143.10350 (31, 1)	141.81407 (31, 1)	138.01497 (31, 1)
13000.0 /	150.27388 (31, 1)	154.98875 (31, 1)	156.59308 (31, 1)	154.98889 (31, 1)	150.27415 (31, 1)
12000.0 /	164.55180 (31, 1)	170.49957 (31, 1)	172.52962 (31, 1)	170.49974 (31, 1)	164.55212 (31, 1)
11000.0 /	181.33946 (31, 1)	188.98639 (31, 1)	191.60645 (31, 1)	188.98660 (31, 1)	181.33984 (31, 1)
10000.0 /	204.37915 (25, 1)	211.33594 (31, 1)	214.79745 (31, 1)	211.33617 (31, 1)	204.37936 (25, 1)
9000.0 /	234.11835 (25, 1)	240.48608 (25, 1)	243.51166 (31, 1)	240.48621 (25, 1)	234.11859 (25, 1)
8000.0 /	272.10233 (25, 1)	281.24359 (25, 1)	284.35852 (25, 1)	281.24377 (25, 1)	272.10263 (25, 1)
7000.0 /	321.68454 (25, 1)	335.42831 (25, 1)	340.13898 (25, 1)	335.42853 (25, 1)	321.68497 (25, 1)
6000.0 /	388.29144 (25, 1)	410.21997 (25, 1)	417.80164 (25, 1)	410.22028 (25, 1)	388.29202 (25, 1)
5000.0 /	480.71848 (25, 1)	518.58112 (25, 1)	531.85431 (25, 1)	518.58154 (25, 1)	480.71930 (25, 1)
4000.0 /	610.86047 (25, 1)	683.52606 (25, 1)	709.62402 (25, 1)	683.52679 (25, 1)	610.86176 (25, 1)
3000.0 /	808.30383 (25, 1)	974.08801 (25, 1)	1036.61108 (25, 1)	974.08917 (25, 1)	808.30579 (25, 1)
2000.0 /	948.12646 (30, 1)	1523.72217 (25, 1)	1729.42920 (25, 1)	1523.72461 (25, 1)	948.13220 (30, 1)
1000.0 /	840.32672 (9, 1)	2307.12549 (16, 1)	3795.74268 (25, 1)	2307.12891 (16, 1)	840.32794 (9, 1)

1

2ND HIGH
1-HR
SGROUP# 10

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 10, 17, -20,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.00000	(0, 0)
0.0	50.0	0.00000	(0, 0)	50.0	50.0	0.00000	(0, 0)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.00000	(0, 0)
-50.0	100.0	159.95245	(4, 1)	0.0	100.0	680.24164	(25, 1)
50.0	100.0	159.95264	(4, 1)	100.0	100.0	0.00000	(0, 0)
-100.0	200.0	54.59239	(4, 1)	-50.0	200.0	525.42151	(1, 1)
0.0	200.0	1849.83545	(25, 1)	50.0	200.0	525.42181	(1, 1)
100.0	200.0	54.59249	(4, 1)	-100.0	300.0	197.66733	(4, 1)
-50.0	300.0	1499.74426	(1, 1)	0.0	300.0	6287.18848	(25, 1)
50.0	300.0	1499.74512	(1, 1)	100.0	300.0	197.66759	(4, 1)
-100.0	400.0	435.12714	(4, 1)	-50.0	400.0	2324.09644	(9, 1)
0.0	400.0	8625.88770	(25, 1)	50.0	400.0	2324.09888	(9, 1)
100.0	400.0	435.12778	(4, 1)	-100.0	500.0	640.86761	(1, 1)
-50.0	500.0	2540.28198	(16, 1)	0.0	500.0	7194.31299	(25, 1)
50.0	500.0	2540.28662	(16, 1)	100.0	500.0	640.86816	(1, 1)
-100.0	600.0	724.31226	(9, 1)	-50.0	600.0	2458.18799	(9, 1)
0.0	600.0	6154.84082	(25, 1)	50.0	600.0	2458.19043	(9, 1)
100.0	600.0	724.31372	(9, 1)	-100.0	700.0	792.04272	(4, 1)
-50.0	700.0	2493.55176	(25, 1)	0.0	700.0	5359.97021	(25, 1)
50.0	700.0	2493.55762	(25, 1)	100.0	700.0	792.04346	(4, 1)
-100.0	800.0	788.31824	(16, 1)	-50.0	800.0	2562.98560	(25, 1)
0.0	800.0	4728.52881	(25, 1)	50.0	800.0	2562.99170	(25, 1)
100.0	800.0	788.32074	(16, 1)	-100.0	900.0	892.42261	(9, 1)
-50.0	900.0	2492.77173	(16, 1)	0.0	900.0	4215.99609	(25, 1)
50.0	900.0	2492.77539	(16, 1)	100.0	900.0	892.42395	(9, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 11,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 321.51962 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	4.84514 (30, 1)	4.89426 (30, 1)	4.91074 (30, 1)	4.89426 (30, 1)	4.84515 (30, 1)
24000.0 /	5.08298 (30, 1)	5.13837 (30, 1)	5.15696 (30, 1)	5.13837 (30, 1)	5.08299 (30, 1)
23000.0 /	5.34304 (30, 1)	5.40582 (30, 1)	5.42691 (30, 1)	5.40582 (30, 1)	5.34305 (30, 1)
22000.0 /	5.62845 (30, 1)	5.70000 (30, 1)	5.72405 (30, 1)	5.70000 (30, 1)	5.62846 (30, 1)
21000.0 /	5.94292 (30, 1)	6.02496 (30, 1)	6.05256 (30, 1)	6.02497 (30, 1)	5.94292 (30, 1)
20000.0 /	6.29090 (30, 1)	6.38562 (30, 1)	6.41751 (30, 1)	6.38562 (30, 1)	6.29091 (30, 1)
19000.0 /	6.67780 (30, 1)	6.78794 (30, 1)	6.82506 (30, 1)	6.78795 (30, 1)	6.67781 (30, 1)
18000.0 /	7.11016 (30, 1)	7.23930 (30, 1)	7.28286 (30, 1)	7.23930 (30, 1)	7.11017 (30, 1)
17000.0 /	7.59605 (30, 1)	7.74884 (30, 1)	7.80045 (30, 1)	7.74885 (30, 1)	7.59607 (30, 1)
16000.0 /	8.14550 (30, 1)	8.32811 (30, 1)	8.38988 (30, 1)	8.32811 (30, 1)	8.14552 (30, 1)
15000.0 /	8.77107 (30, 1)	8.99181 (30, 1)	9.06662 (30, 1)	8.99181 (30, 1)	8.77108 (30, 1)
14000.0 /	9.54435 (30, 1)	9.81625 (30, 1)	9.90860 (30, 1)	9.81626 (30, 1)	9.54437 (30, 1)
13000.0 /	10.44478 (30, 1)	10.78484 (30, 1)	10.90064 (30, 1)	10.78485 (30, 1)	10.44480 (30, 1)
12000.0 /	11.50325 (30, 1)	11.93609 (30, 1)	12.08396 (30, 1)	11.93610 (30, 1)	11.50328 (30, 1)
11000.0 /	12.76112 (30, 1)	13.32342 (30, 1)	13.51631 (30, 1)	13.32343 (30, 1)	12.76115 (30, 1)
10000.0 /	14.27404 (30, 1)	15.02238 (30, 1)	15.28046 (30, 1)	15.02240 (30, 1)	14.27407 (30, 1)
9000.0 /	16.11782 (30, 1)	17.14297 (30, 1)	17.49898 (30, 1)	17.14299 (30, 1)	16.11786 (30, 1)
8000.0 /	18.39625 (30, 1)	19.85087 (30, 1)	20.36087 (30, 1)	19.85090 (30, 1)	18.39631 (30, 1)
7000.0 /	21.24998 (30, 1)	23.40597 (30, 1)	24.17220 (30, 1)	23.40600 (30, 1)	21.25005 (30, 1)
6000.0 /	25.03758 (30, 1)	28.43897 (30, 1)	29.67253 (30, 1)	28.43902 (30, 1)	25.03767 (30, 1)
5000.0 /	29.85591 (30, 1)	35.62704 (30, 1)	37.78881 (30, 1)	35.62711 (30, 1)	29.85604 (30, 1)
4000.0 /	35.68105 (30, 1)	46.46416 (30, 1)	50.73939 (30, 1)	46.46427 (30, 1)	35.68122 (30, 1)
3000.0 /	40.94310 (30, 1)	63.81438 (30, 1)	73.98862 (30, 1)	63.81458 (30, 1)	40.94336 (30, 1)
2000.0 /	37.36343 (30, 1)	94.21528 (30, 1)	128.23705 (30, 1)	94.21569 (30, 1)	37.36376 (30, 1)
1000.0 /	29.15644 (16, 1)	108.23864 (30, 1)	321.51962 (30, 1)	108.23948 (30, 1)	29.15655 (16, 1)

1

HIGH
1-HR
SGROUP# 11

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 11,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	1.74409	(1, 1)
0.0	50.0	727.02679	(1, 1)	50.0	50.0	1.74410	(1, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.39538	(1, 1)
-50.0	100.0	71.69135	(1, 1)	0.0	100.0	859.05817	(9, 1)
50.0	100.0	71.67713	(1, 1)	100.0	100.0	0.39530	(1, 1)
-100.0	200.0	17.09622	(1, 1)	-50.0	200.0	91.40515	(4, 1)
0.0	200.0	749.83929	(25, 1)	50.0	200.0	91.40529	(4, 1)
100.0	200.0	17.09498	(1, 1)	-100.0	300.0	21.38249	(1, 1)
-50.0	300.0	86.28401	(9, 1)	0.0	300.0	690.58661	(25, 1)
50.0	300.0	86.28421	(9, 1)	100.0	300.0	21.38251	(1, 1)
-100.0	400.0	23.61994	(4, 1)	-50.0	400.0	83.47633	(16, 1)
0.0	400.0	696.23999	(30, 1)	50.0	400.0	83.47666	(16, 1)
100.0	400.0	23.61998	(4, 1)	-100.0	500.0	21.97112	(4, 1)
-50.0	500.0	98.31222	(16, 1)	0.0	500.0	640.96350	(30, 1)
50.0	500.0	98.31252	(16, 1)	100.0	500.0	21.97115	(4, 1)
-100.0	600.0	23.20824	(9, 1)	-50.0	600.0	97.83079	(16, 1)
0.0	600.0	560.70905	(30, 1)	50.0	600.0	97.83108	(16, 1)
100.0	600.0	23.20831	(9, 1)	-100.0	700.0	23.66846	(9, 1)
-50.0	700.0	106.89282	(25, 1)	0.0	700.0	483.75983	(30, 1)
50.0	700.0	106.89330	(25, 1)	100.0	700.0	23.66851	(9, 1)
-100.0	800.0	24.39562	(16, 1)	-50.0	800.0	108.04681	(25, 1)
0.0	800.0	419.02484	(30, 1)	50.0	800.0	108.04723	(25, 1)
100.0	800.0	24.39573	(16, 1)	-100.0	900.0	27.57254	(16, 1)
-50.0	900.0	104.63944	(25, 1)	0.0	900.0	365.60510	(30, 1)
50.0	900.0	104.63983	(25, 1)	100.0	900.0	27.57265	(16, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 11,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 160.75981 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	2.42257 (31, 1)	2.44713 (31, 1)	2.45537 (31, 1)	2.44713 (31, 1)	2.42257 (31, 1)
24000.0 /	2.54149 (31, 1)	2.56918 (31, 1)	2.57848 (31, 1)	2.56919 (31, 1)	2.54149 (31, 1)
23000.0 /	2.67152 (31, 1)	2.70291 (31, 1)	2.71345 (31, 1)	2.70291 (31, 1)	2.67152 (31, 1)
22000.0 /	2.81422 (31, 1)	2.85000 (31, 1)	2.86202 (31, 1)	2.85000 (31, 1)	2.81423 (31, 1)
21000.0 /	2.97146 (31, 1)	3.01248 (31, 1)	3.02628 (31, 1)	3.01248 (31, 1)	2.97146 (31, 1)
20000.0 /	3.14545 (31, 1)	3.19281 (31, 1)	3.20875 (31, 1)	3.19281 (31, 1)	3.14546 (31, 1)
19000.0 /	3.33890 (31, 1)	3.39397 (31, 1)	3.41253 (31, 1)	3.39397 (31, 1)	3.33890 (31, 1)
18000.0 /	3.55508 (31, 1)	3.61965 (31, 1)	3.64143 (31, 1)	3.61965 (31, 1)	3.55508 (31, 1)
17000.0 /	3.79803 (31, 1)	3.87442 (31, 1)	3.90023 (31, 1)	3.87442 (31, 1)	3.79803 (31, 1)
16000.0 /	4.07275 (31, 1)	4.16405 (31, 1)	4.19494 (31, 1)	4.16406 (31, 1)	4.07276 (31, 1)
15000.0 /	4.38553 (31, 1)	4.49590 (31, 1)	4.53331 (31, 1)	4.49591 (31, 1)	4.38554 (31, 1)
14000.0 /	4.77217 (31, 1)	4.90812 (31, 1)	4.95430 (31, 1)	4.90813 (31, 1)	4.77218 (31, 1)
13000.0 /	5.22239 (31, 1)	5.39242 (31, 1)	5.45032 (31, 1)	5.39243 (31, 1)	5.22240 (31, 1)
12000.0 /	5.75163 (31, 1)	5.96804 (31, 1)	6.04198 (31, 1)	5.96805 (31, 1)	5.75164 (31, 1)
11000.0 /	6.38056 (31, 1)	6.66171 (31, 1)	6.75815 (31, 1)	6.66172 (31, 1)	6.38057 (31, 1)
10000.0 /	7.13702 (31, 1)	7.51119 (31, 1)	7.64023 (31, 1)	7.51120 (31, 1)	7.13704 (31, 1)
9000.0 /	8.05891 (31, 1)	8.57148 (31, 1)	8.74949 (31, 1)	8.57149 (31, 1)	8.05893 (31, 1)
8000.0 /	9.19813 (31, 1)	9.92544 (31, 1)	10.18044 (31, 1)	9.92545 (31, 1)	9.19815 (31, 1)
7000.0 /	10.62499 (31, 1)	11.70298 (31, 1)	12.08610 (31, 1)	11.70300 (31, 1)	10.62502 (31, 1)
6000.0 /	12.51879 (31, 1)	14.21948 (31, 1)	14.83626 (31, 1)	14.21951 (31, 1)	12.51884 (31, 1)
5000.0 /	14.92796 (31, 1)	17.81352 (31, 1)	18.89440 (31, 1)	17.81356 (31, 1)	14.92802 (31, 1)
4000.0 /	18.49187 (25, 1)	23.23208 (31, 1)	25.36970 (31, 1)	23.23214 (31, 1)	18.49191 (25, 1)
3000.0 /	25.21121 (25, 1)	31.90719 (31, 1)	36.99431 (31, 1)	31.90729 (31, 1)	25.21128 (25, 1)
2000.0 /	33.97329 (25, 1)	51.16428 (25, 1)	64.11852 (31, 1)	51.16438 (25, 1)	33.97342 (25, 1)
1000.0 /	23.33709 (25, 1)	99.01598 (25, 1)	160.75981 (31, 1)	99.01631 (25, 1)	23.33724 (25, 1)

1 2ND HIGH 1-HR SGROUP# 11

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 11,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.87205	(2, 1)
0.0	50.0	684.74896	(4, 1)	50.0	50.0	0.87205	(2, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.19769	(2, 1)
-50.0	100.0	35.84568	(2, 1)	0.0	100.0	616.65424	(4, 1)
50.0	100.0	35.83857	(2, 1)	100.0	100.0	0.19765	(2, 1)
-100.0	200.0	8.54811	(2, 1)	-50.0	200.0	76.75468	(1, 1)
0.0	200.0	743.57355	(16, 1)	50.0	200.0	76.75473	(1, 1)
100.0	200.0	8.54749	(2, 1)	-100.0	300.0	18.87013	(4, 1)
-50.0	300.0	74.71481	(4, 1)	0.0	300.0	640.43237	(30, 1)
50.0	300.0	74.71488	(4, 1)	100.0	300.0	18.87016	(4, 1)
-100.0	400.0	16.48533	(1, 1)	-50.0	400.0	82.77048	(9, 1)
0.0	400.0	538.38446	(25, 1)	50.0	400.0	82.77062	(9, 1)
100.0	400.0	16.48534	(1, 1)	-100.0	500.0	19.92346	(9, 1)
-50.0	500.0	75.54939	(25, 1)	0.0	500.0	418.81644	(25, 1)
50.0	500.0	75.54983	(25, 1)	100.0	500.0	19.92352	(9, 1)
-100.0	600.0	18.84398	(4, 1)	-50.0	600.0	97.50517	(25, 1)
0.0	600.0	332.25809	(25, 1)	50.0	600.0	97.50568	(25, 1)
100.0	600.0	18.84400	(4, 1)	-100.0	700.0	19.30298	(16, 1)
-50.0	700.0	90.93816	(16, 1)	0.0	700.0	269.43289	(25, 1)
50.0	700.0	90.93839	(16, 1)	100.0	700.0	19.30308	(16, 1)
-100.0	800.0	22.65989	(9, 1)	-50.0	800.0	82.15688	(16, 1)
0.0	800.0	222.89825	(25, 1)	50.0	800.0	82.15706	(16, 1)
100.0	800.0	22.65993	(9, 1)	-100.0	900.0	21.02827	(9, 1)
-50.0	900.0	97.69089	(30, 1)	0.0	900.0	187.62512	(25, 1)
50.0	900.0	97.69171	(30, 1)	100.0	900.0	21.02831	(9, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 12,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 197.91368 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	85.97548 (30, 1)	86.84358 (30, 1)	87.13491 (30, 1)	86.84363 (30, 1)	85.97558 (30, 1)
24000.0 /	86.92712 (30, 1)	87.87025 (30, 1)	88.18690 (30, 1)	87.87030 (30, 1)	86.92722 (30, 1)
23000.0 /	87.88090 (30, 1)	88.90863 (30, 1)	89.25389 (30, 1)	88.90868 (30, 1)	87.88100 (30, 1)
22000.0 /	88.83333 (30, 1)	89.95692 (30, 1)	90.33463 (30, 1)	89.95698 (30, 1)	88.83344 (30, 1)
21000.0 /	89.78010 (30, 1)	91.01285 (30, 1)	91.42754 (30, 1)	91.01291 (30, 1)	89.78022 (30, 1)
20000.0 /	92.19762 (25, 1)	92.80822 (25, 1)	93.01266 (25, 1)	92.80825 (25, 1)	92.19768 (25, 1)
19000.0 /	94.41190 (25, 1)	95.09638 (25, 1)	95.32565 (25, 1)	95.09641 (25, 1)	94.41196 (25, 1)
18000.0 /	96.64135 (25, 1)	97.41216 (25, 1)	97.67048 (25, 1)	97.41220 (25, 1)	96.64142 (25, 1)
17000.0 /	98.86644 (25, 1)	99.73880 (25, 1)	100.03130 (25, 1)	99.73883 (25, 1)	98.86651 (25, 1)
16000.0 /	101.06093 (25, 1)	102.05354 (25, 1)	102.38659 (25, 1)	102.05358 (25, 1)	101.06100 (25, 1)
15000.0 /	103.18948 (25, 1)	104.32564 (25, 1)	104.70714 (25, 1)	104.32568 (25, 1)	103.18957 (25, 1)
14000.0 /	105.20489 (25, 1)	106.51379 (25, 1)	106.95371 (25, 1)	106.51383 (25, 1)	105.20497 (25, 1)
13000.0 /	107.04393 (25, 1)	108.56270 (25, 1)	109.07375 (25, 1)	108.56275 (25, 1)	107.04402 (25, 1)
12000.0 /	108.62212 (25, 1)	110.39849 (25, 1)	110.99706 (25, 1)	110.39854 (25, 1)	108.62222 (25, 1)
11000.0 /	109.82607 (25, 1)	111.92230 (25, 1)	112.62992 (25, 1)	111.92236 (25, 1)	109.82617 (25, 1)
10000.0 /	110.50703 (25, 1)	113.00578 (25, 1)	113.85121 (25, 1)	113.00584 (25, 1)	110.50716 (25, 1)
9000.0 /	109.63860 (25, 1)	112.62904 (25, 1)	113.64389 (25, 1)	112.62910 (25, 1)	109.63873 (25, 1)
8000.0 /	107.55151 (25, 1)	111.16995 (25, 1)	112.40298 (25, 1)	111.17002 (25, 1)	107.55165 (25, 1)
7000.0 /	103.85400 (25, 1)	108.28750 (25, 1)	109.80702 (25, 1)	108.28757 (25, 1)	103.85413 (25, 1)
6000.0 /	98.04724 (25, 1)	103.55846 (25, 1)	105.46356 (25, 1)	103.55854 (25, 1)	98.04739 (25, 1)
5000.0 /	93.44489 (26, 1)	100.83946 (26, 1)	103.43217 (26, 1)	100.83955 (26, 1)	93.44506 (26, 1)
4000.0 /	85.22557 (27, 1)	95.45441 (27, 1)	99.12994 (27, 1)	95.45451 (27, 1)	85.22575 (27, 1)
3000.0 /	73.00607 (6, 1)	85.03900 (28, 1)	90.54494 (28, 1)	85.03911 (28, 1)	73.00610 (6, 1)
2000.0 /	93.19466 (6, 1)	108.79891 (23, 1)	117.30735 (23, 1)	108.79903 (23, 1)	93.19470 (6, 1)
1000.0 /	127.76686 (3, 1)	152.30154 (24, 1)	197.91368 (24, 1)	152.30182 (24, 1)	127.76691 (3, 1)

1

HIGH
1-HR
SGROUP# 12

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 12,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	2.25952	(30, 1)
0.0	50.0	6.61481	(30, 1)	50.0	50.0	2.25953	(30, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	1.89915	(25, 1)
-50.0	100.0	11.91097	(30, 1)	0.0	100.0	27.43307	(30, 1)
50.0	100.0	11.91098	(30, 1)	100.0	100.0	1.89918	(25, 1)
-100.0	200.0	2.19681	(25, 1)	-50.0	200.0	12.53181	(30, 1)
0.0	200.0	28.19645	(30, 1)	50.0	200.0	12.53182	(30, 1)
100.0	200.0	2.19682	(25, 1)	-100.0	300.0	2.67565	(25, 1)
-50.0	300.0	13.38825	(30, 1)	0.0	300.0	46.01089	(24, 1)
50.0	300.0	13.38828	(30, 1)	100.0	300.0	2.67566	(25, 1)
-100.0	400.0	4.57809	(3, 1)	-50.0	400.0	28.26655	(24, 1)
0.0	400.0	111.29813	(24, 1)	50.0	400.0	28.26665	(24, 1)
100.0	400.0	4.57809	(3, 1)	-100.0	500.0	36.34842	(3, 1)
-50.0	500.0	64.74715	(24, 1)	0.0	500.0	161.62210	(24, 1)
50.0	500.0	64.74734	(24, 1)	100.0	500.0	36.34845	(3, 1)
-100.0	600.0	100.19145	(3, 1)	-50.0	600.0	119.90628	(3, 1)
0.0	600.0	191.66087	(24, 1)	50.0	600.0	119.90631	(3, 1)
100.0	600.0	100.19151	(3, 1)	-100.0	700.0	138.83377	(3, 1)
-50.0	700.0	159.39455	(3, 1)	0.0	700.0	205.85823	(24, 1)
50.0	700.0	159.39458	(3, 1)	100.0	700.0	138.83383	(3, 1)
-100.0	800.0	143.72737	(3, 1)	-50.0	800.0	160.43352	(3, 1)
0.0	800.0	209.27173	(24, 1)	50.0	800.0	160.43356	(3, 1)
100.0	800.0	143.72743	(3, 1)	-100.0	900.0	136.04955	(3, 1)
-50.0	900.0	150.12157	(24, 1)	0.0	900.0	205.84291	(24, 1)
50.0	900.0	150.12187	(24, 1)	100.0	900.0	136.04961	(3, 1)

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 12,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 159.75444 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	80.75407 (25, 1)	81.11515 (25, 1)	81.23588 (25, 1)	81.11517 (25, 1)	80.75410 (25, 1)
24000.0 /	82.84669 (25, 1)	83.24469 (25, 1)	83.37778 (25, 1)	83.24471 (25, 1)	82.84673 (25, 1)
23000.0 /	85.03292 (25, 1)	85.47318 (25, 1)	85.62045 (25, 1)	85.47321 (25, 1)	85.03297 (25, 1)
22000.0 /	87.31731 (25, 1)	87.80618 (25, 1)	87.96976 (25, 1)	87.80621 (25, 1)	87.31735 (25, 1)
21000.0 /	89.70416 (25, 1)	90.24930 (25, 1)	90.43176 (25, 1)	90.24932 (25, 1)	89.70422 (25, 1)
20000.0 /	90.71580 (30, 1)	92.07352 (30, 1)	92.53061 (30, 1)	92.07358 (30, 1)	90.71592 (30, 1)
19000.0 /	91.63362 (30, 1)	93.13528 (30, 1)	93.64131 (30, 1)	93.13535 (30, 1)	91.63376 (30, 1)
18000.0 /	92.52495 (30, 1)	94.19349 (30, 1)	94.75636 (30, 1)	94.19357 (30, 1)	92.52509 (30, 1)
17000.0 /	93.37881 (30, 1)	95.24221 (30, 1)	95.87160 (30, 1)	95.24229 (30, 1)	93.37895 (30, 1)
16000.0 /	94.18125 (30, 1)	96.27403 (30, 1)	96.98193 (30, 1)	96.27411 (30, 1)	94.18140 (30, 1)
15000.0 /	94.91418 (30, 1)	97.27934 (30, 1)	98.08079 (30, 1)	97.27943 (30, 1)	94.91434 (30, 1)
14000.0 /	94.27067 (30, 1)	96.92638 (30, 1)	97.82818 (30, 1)	96.92648 (30, 1)	94.27084 (30, 1)
13000.0 /	93.33968 (30, 1)	96.34003 (30, 1)	97.36146 (30, 1)	96.34013 (30, 1)	93.33985 (30, 1)
12000.0 /	92.32870 (31, 1)	95.77052 (31, 1)	96.94611 (31, 1)	95.77061 (31, 1)	92.32890 (31, 1)
11000.0 /	92.34281 (31, 1)	96.36761 (31, 1)	97.74786 (31, 1)	96.36771 (31, 1)	92.34301 (31, 1)
10000.0 /	94.31758 (26, 1)	96.62858 (31, 1)	98.26756 (31, 1)	96.62869 (31, 1)	94.31768 (26, 1)
9000.0 /	96.71469 (26, 1)	99.36781 (26, 1)	100.26828 (26, 1)	99.36787 (26, 1)	96.71481 (26, 1)
8000.0 /	98.40830 (26, 1)	101.74267 (26, 1)	102.87907 (26, 1)	101.74273 (26, 1)	98.40842 (26, 1)
7000.0 /	98.94592 (26, 1)	103.20808 (26, 1)	104.66924 (26, 1)	103.20815 (26, 1)	98.94605 (26, 1)
6000.0 /	97.63933 (26, 1)	103.19312 (26, 1)	105.11375 (26, 1)	103.19321 (26, 1)	97.63948 (26, 1)
5000.0 /	90.49040 (27, 1)	97.69943 (27, 1)	100.22791 (27, 1)	97.69952 (27, 1)	90.49056 (27, 1)
4000.0 /	84.79818 (26, 1)	94.87349 (26, 1)	98.49129 (26, 1)	94.87360 (26, 1)	84.79836 (26, 1)
3000.0 /	71.52300 (11, 1)	84.78855 (29, 1)	90.31164 (29, 1)	84.78866 (29, 1)	71.52304 (11, 1)
2000.0 /	86.80065 (23, 1)	105.13165 (24, 1)	113.40574 (24, 1)	105.13176 (24, 1)	86.80083 (23, 1)
1000.0 /	90.12564 (15, 1)	137.96683 (3, 1)	159.75444 (23, 1)	137.96686 (3, 1)	90.12578 (15, 1)

1

2ND HIGH
1-HR
SGROUP# 12

*** PGV SCENARIOS - W/O DOWNWASH & W/ 10M FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 12,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	0.06823	(25, 1)
0.0	50.0	0.20215	(25, 1)	50.0	50.0	0.06823	(25, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	0.97491	(30, 1)
-50.0	100.0	10.73893	(25, 1)	0.0	100.0	19.13204	(25, 1)
50.0	100.0	10.73906	(25, 1)	100.0	100.0	0.97491	(30, 1)
-100.0	200.0	1.10020	(30, 1)	-50.0	200.0	11.52687	(25, 1)
0.0	200.0	23.69027	(31, 1)	50.0	200.0	11.52688	(25, 1)
100.0	200.0	1.10020	(30, 1)	-100.0	300.0	1.29970	(30, 1)
-50.0	300.0	12.66213	(25, 1)	0.0	300.0	29.13069	(30, 1)
50.0	300.0	12.66215	(25, 1)	100.0	300.0	1.29971	(30, 1)
-100.0	400.0	3.79739	(15, 1)	-50.0	400.0	21.40659	(15, 1)
0.0	400.0	38.09795	(15, 1)	50.0	400.0	21.40662	(15, 1)
100.0	400.0	3.79741	(15, 1)	-100.0	500.0	16.95467	(15, 1)
-50.0	500.0	54.03200	(15, 1)	0.0	500.0	79.51305	(15, 1)
50.0	500.0	54.03207	(15, 1)	100.0	500.0	16.95472	(15, 1)
-100.0	600.0	37.24237	(15, 1)	-50.0	600.0	99.30930	(24, 1)
0.0	600.0	127.30508	(3, 1)	50.0	600.0	99.30958	(24, 1)
100.0	600.0	37.24245	(15, 1)	-100.0	700.0	57.69095	(15, 1)
-50.0	700.0	125.19052	(24, 1)	0.0	700.0	166.90381	(3, 1)
50.0	700.0	125.19083	(24, 1)	100.0	700.0	57.69107	(15, 1)
-100.0	800.0	73.88206	(15, 1)	-50.0	800.0	141.60909	(24, 1)
0.0	800.0	166.42314	(3, 1)	50.0	800.0	141.60939	(24, 1)
100.0	800.0	73.88219	(15, 1)	-100.0	900.0	84.55991	(15, 1)
-50.0	900.0	148.93665	(3, 1)	0.0	900.0	156.70203	(23, 1)
50.0	900.0	148.93668	(3, 1)	100.0	900.0	84.56005	(15, 1)

RUN ENDED ON 01-13-92 AT 08:16:10

1 ISCST - (DATED 90346)

IBM-PC VERSION (2.04)
(C) COPYRIGHT 1990, TRINITY CONSULTANTS, INC.
SERIAL NUMBER 6688 SOLD TO ENVIRONMENTAL MANAGMENT ASSOCIATES
RUN BEGAN ON 12-09-91 AT 02:47:39

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*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

CALCULATE (CONCENTRATION=1,DEPOSITION=2)	ISW(1) =	1
RECEPTOR GRID SYSTEM (RECTANGULAR=1 OR 3, POLAR=2 OR 4)	ISW(2) =	3
DISCRETE RECEPTOR SYSTEM (RECTANGULAR=1,POLAR=2)	ISW(3) =	1
TERRAIN ELEVATIONS ARE READ (YES=1,NO=0)	ISW(4) =	0
CALCULATIONS ARE WRITTEN TO TAPE (YES=1,NO=0)	ISW(5) =	0
LIST ALL INPUT DATA (NO=0,YES=1,MET DATA ALSO=2)	ISW(6) =	2
COMPUTE AVERAGE CONCENTRATION (OR TOTAL DEPOSITION)		
WITH THE FOLLOWING TIME PERIODS:		
HOURLY (YES=1,NO=0)	ISW(7) =	1
2-HOUR (YES=1,NO=0)	ISW(8) =	0
3-HOUR (YES=1,NO=0)	ISW(9) =	0
4-HOUR (YES=1,NO=0)	ISW(10) =	0
6-HOUR (YES=1,NO=0)	ISW(11) =	0
8-HOUR (YES=1,NO=0)	ISW(12) =	0
12-HOUR (YES=1,NO=0)	ISW(13) =	0
24-HOUR (YES=1,NO=0)	ISW(14) =	0
PRINT 'N'-DAY TABLE(S) (YES=1,NO=0)	ISW(15) =	0
PRINT THE FOLLOWING TYPES OF TABLES WHOSE TIME PERIODS ARE		
SPECIFIED BY ISW(7) THROUGH ISW(14):		
DAILY TABLES (YES=1,NO=0)	ISW(16) =	0
HIGHEST & SECOND HIGHEST TABLES (YES=1,NO=0)	ISW(17) =	1
MAXIMUM 50 TABLES (YES=1,NO=0)	ISW(18) =	0
METEOROLOGICAL DATA INPUT METHOD (PRE-PROCESSED=1,CARD=2)	ISW(19) =	2
RURAL-URBAN OPTION (RU.=0,UR. MODE 1=1,UR. MODE 2=2,UR. MODE 3=3)	ISW(20) =	0
WIND PROFILE EXPONENT VALUES (DEFAULTS=1,USER ENTERS=2,3)	ISW(21) =	1
VERTICAL POT. TEMP. GRADIENT VALUES (DEFAULTS=1,USER ENTERS=2,3)	ISW(22) =	1
SCALE EMISSION RATES FOR ALL SOURCES (NO=0,YES>0)	ISW(23) =	0
PROGRAM CALCULATES FINAL PLUME RISE ONLY (YES=1,NO=2)	ISW(24) =	1
PROGRAM ADJUSTS ALL STACK HEIGHTS FOR DOWNWASH (YES=2,NO=1)	ISW(25) =	1
PROGRAM USES BUOYANCY INDUCED DISPERSION (YES=1,NO=2)	ISW(26) =	1
CONCENTRATIONS DURING CALM PERIODS SET = 0 (YES=1,NO=2)	ISW(27) =	2
REG. DEFAULT OPTION CHOSEN (YES=1,NO=2)	ISW(28) =	2
TYPE OF POLLUTANT TO BE MODELLED (1=SO2,2=OTHER)	ISW(29) =	2
DEBUG OPTION CHOSEN (YES=1,NO=2)	ISW(30) =	2
ABOVE GROUND (FLAGPOLE) RECEPTORS USED (YES=1,NO=0)	ISW(31) =	1
NUMBER OF INPUT SOURCES	NSOURC =	1
NUMBER OF SOURCE GROUPS (=0,ALL SOURCES)	NGROUP =	1
TIME PERIOD INTERVAL TO BE PRINTED (=0,ALL INTERVALS)	IPERD =	0
NUMBER OF X (RANGE) GRID VALUES	NXPNTS =	5
NUMBER OF Y (THETA) GRID VALUES	NYPNTS =	25
NUMBER OF DISCRETE RECEPTORS	NXWYPT =	50
NUMBER OF HOURS PER DAY IN METEOROLOGICAL DATA	NHOURS =	1
NUMBER OF DAYS OF METEOROLOGICAL DATA	NDAYS =	33
SOURCE EMISSION RATE UNITS CONVERSION FACTOR	TK =	.10000E+07
HEIGHT ABOVE GROUND AT WHICH WIND SPEED WAS MEASURED	ZR =	10.00 METERS
LOGICAL UNIT NUMBER OF METEOROLOGICAL DATA	IMET =	7
ALLOCATED DATA STORAGE	LIMIT =	43500 WORDS
REQUIRED DATA STORAGE FOR THIS PROBLEM RUN	MIMIT =	1817 WORDS

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*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

0 *** NUMBER OF SOURCE NUMBERS REQUIRED TO DEFINE SOURCE GROUPS ***
(NSOGRP)

1,

0 *** SOURCE NUMBERS DEFINING SOURCE GROUPS ***
(IDSOR)

1,

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** X-COORDINATES OF RECTANGULAR GRID SYSTEM ***
(METERS)

-100.0, -50.0, 0.0, 50.0, 100.0,

*** Y-COORDINATES OF RECTANGULAR GRID SYSTEM ***
(METERS)

1000.0, 2000.0, 3000.0, 4000.0, 5000.0, 6000.0, 7000.0, 8000.0, 9000.0, 10000.0,
11000.0, 12000.0, 13000.0, 14000.0, 15000.0, 16000.0, 17000.0, 18000.0, 19000.0, 20000.0,
21000.0, 22000.0, 23000.0, 24000.0, 25000.0,

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*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

*** X,Y COORDINATES OF DISCRETE RECEPTORS ***
(METERS)

(-100.0, 50.0),	(-50.0, 50.0),	(0.0, 50.0),	(50.0, 50.0),	(100.0, 50.0),
(-100.0, 100.0),	(-50.0, 100.0),	(0.0, 100.0),	(50.0, 100.0),	(100.0, 100.0),
(-100.0, 200.0),	(-50.0, 200.0),	(0.0, 200.0),	(50.0, 200.0),	(100.0, 200.0),
(-100.0, 300.0),	(-50.0, 300.0),	(0.0, 300.0),	(50.0, 300.0),	(100.0, 300.0),
(-100.0, 400.0),	(-50.0, 400.0),	(0.0, 400.0),	(50.0, 400.0),	(100.0, 400.0),
(-100.0, 500.0),	(-50.0, 500.0),	(0.0, 500.0),	(50.0, 500.0),	(100.0, 500.0),
(-100.0, 600.0),	(-50.0, 600.0),	(0.0, 600.0),	(50.0, 600.0),	(100.0, 600.0),
(-100.0, 700.0),	(-50.0, 700.0),	(0.0, 700.0),	(50.0, 700.0),	(100.0, 700.0),
(-100.0, 800.0),	(-50.0, 800.0),	(0.0, 800.0),	(50.0, 800.0),	(100.0, 800.0),
(-100.0, 900.0),	(-50.0, 900.0),	(0.0, 900.0),	(50.0, 900.0),	(100.0, 900.0),

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*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* ABOVE GROUND RECEPTOR HEIGHTS IN METERS *
* FOR THE RECEPTOR GRID *

Y-AXIS (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
24000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
23000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
22000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
21000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
20000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
19000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
18000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
17000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
16000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
15000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
14000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
13000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
12000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
11000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
10000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
9000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
8000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
7000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
6000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
5000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
4000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
3000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
2000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000
1000.0 /	10.00000	10.00000	10.00000	10.00000	10.00000

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*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* ABOVE GROUND RECEPTOR HEIGHTS IN METERS *
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	HGT.	- X -	- Y -	HGT.	- X -	- Y -	HGT.
-100.0	50.0	10.00000	-50.0	50.0	10.00000	0.0	50.0	10.00000
50.0	50.0	10.00000	100.0	50.0	10.00000	-100.0	100.0	10.00000
-50.0	100.0	10.00000	0.0	100.0	10.00000	50.0	100.0	10.00000
100.0	100.0	10.00000	-100.0	200.0	10.00000	-50.0	200.0	10.00000
0.0	200.0	10.00000	50.0	200.0	10.00000	100.0	200.0	10.00000
-100.0	300.0	10.00000	-50.0	300.0	10.00000	0.0	300.0	10.00000
50.0	300.0	10.00000	100.0	300.0	10.00000	-100.0	400.0	10.00000
-50.0	400.0	10.00000	0.0	400.0	10.00000	50.0	400.0	10.00000
100.0	400.0	10.00000	-100.0	500.0	10.00000	-50.0	500.0	10.00000
0.0	500.0	10.00000	50.0	500.0	10.00000	100.0	500.0	10.00000
-100.0	600.0	10.00000	-50.0	600.0	10.00000	0.0	600.0	10.00000
50.0	600.0	10.00000	100.0	600.0	10.00000	-100.0	700.0	10.00000
-50.0	700.0	10.00000	0.0	700.0	10.00000	50.0	700.0	10.00000
100.0	700.0	10.00000	-100.0	800.0	10.00000	-50.0	800.0	10.00000
0.0	800.0	10.00000	50.0	800.0	10.00000	100.0	800.0	10.00000
-100.0	900.0	10.00000	-50.0	900.0	10.00000	0.0	900.0	10.00000
50.0	900.0	10.00000	100.0	900.0	10.00000			

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

*** SOURCE DATA ***

SOURCE NUMBER	TYPE	WAK	NUMBER PART. CATS.	EMISSION RATE TYPE=0,1 (GRAMS/SEC) TYPE=2 (GRAMS/SEC) *PER METER**2	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	HEIGHT (METERS)	TEMP. TYPE=0 (DEG.K); VERT.DIM TYPE=1 (METERS)	EXIT VEL. TYPE=0 (M/SEC); HORZ.DIM TYPE=1,2 (METERS)	DIAMETER TYPE=0 (METERS)	BLDG. HEIGHT TYPE=0 (METERS)	BLDG. LENGTH TYPE=0 (METERS)	BLDG. WIDTH TYPE=0 (METERS)
1	0	0	0	0.56447E+02	0.0	0.0	204.2	0.00	372.59	0.47	15.24	8.53	107.75	107.75

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 1 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	1.00	300.0	300.0	0.0000	1	0.0700	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 2 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	2.00	300.0	300.0	0.0000	1	0.0700	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 3 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	3.00	300.0	300.0	0.0000	1	0.0700	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 4 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	1.00	300.0	298.0	0.0000	2	0.0700	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 5 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	2.00	300.0	298.0	0.0000	2	0.0700	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 6 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	3.00	300.0	298.0	0.0000	2	0.0700	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 7 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	4.00	300.0	298.0	0.0000	2	0.0700	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 8 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	5.00	300.0	298.0	0.0000	2	0.0700	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 9 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	1.00	300.0	296.0	0.0000	3	0.1000	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 10 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	2.00	300.0	296.0	0.0000	3	0.1000	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 11 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	3.00	300.0	296.0	0.0000	3	0.1000	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 12 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	4.00	300.0	296.0	0.0000	3	0.1000	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 13 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	5.00	300.0	296.0	0.0000	3	0.1000	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 14 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	8.00	300.0	296.0	0.0000	3	0.1000	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 15 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	10.00	300.0	296.0	0.0000	3	0.1000	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 16 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	1.00	300.0	294.0	0.0000	4	0.1500	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 17 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	2.00	300.0	294.0	0.0000	4	0.1500	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 18 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	3.00	300.0	294.0	0.0000	4	0.1500	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 19 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	4.00	300.0	294.0	0.0000	4	0.1500	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 20 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	5.00	300.0	294.0	0.0000	4	0.1500	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 21 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	8.00	300.0	294.0	0.0000	4	0.1500	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 22 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	10.00	300.0	294.0	0.0000	4	0.1500	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 23 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	15.00	300.0	294.0	0.0000	4	0.1500	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 24 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	20.00	300.0	294.0	0.0000	4	0.1500	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 25 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	1.00	100.0	291.0	0.0200	5	0.3500	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 26 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	2.00	100.0	291.0	0.0200	5	0.3500	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 27 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	3.00	100.0	291.0	0.0200	5	0.3500	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 28 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	4.00	100.0	291.0	0.0200	5	0.3500	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 29 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	5.00	100.0	291.0	0.0200	5	0.3500	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 30 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	1.00	100.0	289.0	0.0350	6	0.5500	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 31 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	2.00	100.0	289.0	0.0350	6	0.5500	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 32 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	3.00	100.0	289.0	0.0350	6	0.5500	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* METEOROLOGICAL DATA FOR DAY 33 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	0.0	4.00	100.0	289.0	0.0350	6	0.5500	0.000000E+00

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 351.82184 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	163.13535 (30, 1)	164.77403 (30, 1)	165.32394 (30, 1)	164.77414 (30, 1)	163.13554 (30, 1)
24000.0 /	167.31874 (30, 1)	169.12444 (30, 1)	169.73068 (30, 1)	169.12453 (30, 1)	167.31894 (30, 1)
23000.0 /	171.70819 (30, 1)	173.70523 (30, 1)	174.37610 (30, 1)	173.70534 (30, 1)	171.70840 (30, 1)
22000.0 /	176.31728 (30, 1)	178.53477 (30, 1)	179.28015 (30, 1)	178.53488 (30, 1)	176.31750 (30, 1)
21000.0 /	181.16019 (30, 1)	183.63312 (30, 1)	184.46495 (30, 1)	183.63324 (30, 1)	181.16043 (30, 1)
20000.0 /	186.25171 (30, 1)	189.02246 (30, 1)	189.95522 (30, 1)	189.02260 (30, 1)	186.25195 (30, 1)
19000.0 /	191.60670 (30, 1)	194.72710 (30, 1)	195.77853 (30, 1)	194.72723 (30, 1)	191.60698 (30, 1)
18000.0 /	197.23981 (30, 1)	200.77376 (30, 1)	201.96581 (30, 1)	200.77391 (30, 1)	197.24010 (30, 1)
17000.0 /	203.16454 (30, 1)	207.19168 (30, 1)	208.55177 (30, 1)	207.19183 (30, 1)	203.16486 (30, 1)
16000.0 /	209.39200 (30, 1)	214.01266 (30, 1)	215.57550 (30, 1)	214.01285 (30, 1)	209.39233 (30, 1)
15000.0 /	215.92868 (30, 1)	221.27090 (30, 1)	223.08092 (30, 1)	221.27109 (30, 1)	215.92905 (30, 1)
14000.0 /	222.54478 (30, 1)	228.76772 (30, 1)	230.88054 (30, 1)	228.76793 (30, 1)	222.54518 (30, 1)
13000.0 /	227.96710 (30, 1)	235.23897 (30, 1)	237.71419 (30, 1)	235.23920 (30, 1)	227.96753 (30, 1)
12000.0 /	233.20695 (30, 1)	241.78520 (30, 1)	244.71425 (30, 1)	241.78545 (30, 1)	233.20743 (30, 1)
11000.0 /	238.09055 (30, 1)	248.31888 (30, 1)	251.82513 (30, 1)	248.31914 (30, 1)	238.09106 (30, 1)
10000.0 /	242.36154 (30, 1)	254.70779 (30, 1)	258.96155 (30, 1)	254.70810 (30, 1)	242.36211 (30, 1)
9000.0 /	245.63710 (30, 1)	260.75232 (30, 1)	265.99478 (30, 1)	260.75266 (30, 1)	245.63771 (30, 1)
8000.0 /	247.33638 (30, 1)	266.14954 (30, 1)	272.73349 (30, 1)	266.14990 (30, 1)	247.33707 (30, 1)
7000.0 /	246.55670 (30, 1)	270.43149 (30, 1)	278.89301 (30, 1)	270.43188 (30, 1)	246.55745 (30, 1)
6000.0 /	242.76991 (30, 1)	273.88931 (30, 1)	285.12506 (30, 1)	273.88977 (30, 1)	242.77074 (30, 1)
5000.0 /	240.00279 (25, 1)	269.32825 (30, 1)	284.53781 (30, 1)	269.32877 (30, 1)	240.00322 (25, 1)
4000.0 /	232.05525 (25, 1)	268.76773 (31, 1)	291.59854 (31, 1)	268.76834 (31, 1)	232.05574 (25, 1)
3000.0 /	205.03297 (25, 1)	261.05402 (32, 1)	298.45581 (32, 1)	261.05478 (32, 1)	205.03349 (25, 1)
2000.0 /	151.95013 (26, 1)	245.72246 (33, 1)	319.96616 (33, 1)	245.72337 (33, 1)	151.95067 (26, 1)
1000.0 /	155.52745 (2, 1)	271.33798 (22, 1)	351.82184 (22, 1)	271.33847 (22, 1)	155.52751 (2, 1)

1

HIGH
1-HR
SGROUP# 1

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	45.88901	(3, 1)
0.0	50.0	26070.85742	(21, 1)	50.0	50.0	45.88908	(3, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	5.62570	(1, 1)
-50.0	100.0	292.36313	(3, 1)	0.0	100.0	9339.83398	(22, 1)
50.0	100.0	292.53482	(3, 1)	100.0	100.0	5.62822	(1, 1)
-100.0	200.0	94.75876	(3, 1)	-50.0	200.0	454.87006	(8, 1)
0.0	200.0	3145.88477	(22, 1)	50.0	200.0	454.87067	(8, 1)
100.0	200.0	94.77141	(3, 1)	-100.0	300.0	174.47876	(3, 1)
-50.0	300.0	415.12042	(15, 1)	0.0	300.0	1696.05713	(23, 1)
50.0	300.0	415.12131	(15, 1)	100.0	300.0	174.47890	(3, 1)
-100.0	400.0	197.15724	(3, 1)	-50.0	400.0	397.11081	(15, 1)
0.0	400.0	1086.02136	(23, 1)	50.0	400.0	397.11145	(15, 1)
100.0	400.0	197.15741	(3, 1)	-100.0	500.0	169.86418	(2, 1)
-50.0	500.0	341.00674	(15, 1)	0.0	500.0	764.71930	(23, 1)
50.0	500.0	341.00720	(15, 1)	100.0	500.0	169.86427	(2, 1)
-100.0	600.0	183.04256	(2, 1)	-50.0	600.0	298.20981	(23, 1)
0.0	600.0	574.94092	(23, 1)	50.0	600.0	298.21066	(23, 1)
100.0	600.0	183.04265	(2, 1)	-100.0	700.0	187.04300	(2, 1)
-50.0	700.0	302.38586	(23, 1)	0.0	700.0	498.52585	(23, 1)
50.0	700.0	302.38660	(23, 1)	100.0	700.0	187.04308	(2, 1)
-100.0	800.0	177.50082	(2, 1)	-50.0	800.0	293.87811	(23, 1)
0.0	800.0	435.90417	(23, 1)	50.0	800.0	293.87872	(23, 1)
100.0	800.0	177.50090	(2, 1)	-100.0	900.0	166.06297	(2, 1)
-50.0	900.0	283.48312	(23, 1)	0.0	900.0	390.17676	(23, 1)
50.0	900.0	283.48367	(23, 1)	100.0	900.0	166.06305	(2, 1)

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 348.84018 AND OCCURRED AT (0.0, 1000.0) *

Y-AXIS / (METERS) /	X-AXIS (METERS) -100.0	-50.0	0.0	50.0	100.0
25000.0 /	113.82961 (31, 1)	114.97387 (31, 1)	115.35787 (31, 1)	114.97394 (31, 1)	113.82973 (31, 1)
24000.0 /	117.53057 (31, 1)	118.79997 (31, 1)	119.22617 (31, 1)	118.80004 (31, 1)	117.53071 (31, 1)
23000.0 /	121.46673 (31, 1)	122.88067 (31, 1)	123.35566 (31, 1)	122.88074 (31, 1)	121.46687 (31, 1)
22000.0 /	125.66007 (31, 1)	127.24195 (31, 1)	127.77368 (31, 1)	127.24203 (31, 1)	125.66023 (31, 1)
21000.0 /	130.13525 (31, 1)	131.91348 (31, 1)	132.51163 (31, 1)	131.91356 (31, 1)	130.13542 (31, 1)
20000.0 /	134.91980 (31, 1)	136.92915 (31, 1)	137.60559 (31, 1)	136.92924 (31, 1)	134.91998 (31, 1)
19000.0 /	140.04437 (31, 1)	142.32782 (31, 1)	143.09726 (31, 1)	142.32793 (31, 1)	140.04457 (31, 1)
18000.0 /	145.54323 (31, 1)	148.15442 (31, 1)	149.03522 (31, 1)	148.15453 (31, 1)	145.54346 (31, 1)
17000.0 /	151.45427 (31, 1)	154.46085 (31, 1)	155.47627 (31, 1)	154.46097 (31, 1)	151.45450 (31, 1)
16000.0 /	157.81917 (31, 1)	161.30753 (31, 1)	162.48740 (31, 1)	161.30765 (31, 1)	157.81943 (31, 1)
15000.0 /	164.68298 (31, 1)	168.76488 (31, 1)	170.14792 (31, 1)	168.76503 (31, 1)	164.68327 (31, 1)
14000.0 /	172.00458 (31, 1)	176.82431 (31, 1)	178.46078 (31, 1)	176.82448 (31, 1)	172.00488 (31, 1)
13000.0 /	179.29852 (31, 1)	185.03156 (31, 1)	186.98306 (31, 1)	185.03172 (31, 1)	179.29886 (31, 1)
12000.0 /	186.95456 (31, 1)	193.85036 (31, 1)	196.20509 (31, 1)	193.85056 (31, 1)	186.95493 (31, 1)
11000.0 /	194.91226 (31, 1)	203.31255 (31, 1)	206.19241 (31, 1)	203.31277 (31, 1)	194.91269 (31, 1)
10000.0 /	203.04863 (31, 1)	213.43164 (31, 1)	217.00941 (31, 1)	213.43190 (31, 1)	203.04910 (31, 1)
9000.0 /	213.03947 (25, 1)	224.18404 (31, 1)	228.71162 (31, 1)	224.18431 (31, 1)	213.03972 (25, 1)
8000.0 /	223.02008 (25, 1)	235.47429 (31, 1)	241.33180 (31, 1)	235.47461 (31, 1)	223.02036 (25, 1)
7000.0 /	231.95671 (25, 1)	247.06757 (31, 1)	254.85251 (31, 1)	247.06793 (31, 1)	231.95703 (25, 1)
6000.0 /	238.45390 (25, 1)	259.14520 (31, 1)	269.87451 (31, 1)	259.14563 (31, 1)	238.45427 (25, 1)
5000.0 /	228.40649 (30, 1)	266.44049 (31, 1)	281.67935 (31, 1)	266.44101 (31, 1)	228.40736 (30, 1)
4000.0 /	210.45224 (31, 1)	259.41135 (25, 1)	280.98947 (32, 1)	259.41162 (25, 1)	210.45320 (31, 1)
3000.0 /	200.25038 (26, 1)	260.60391 (31, 1)	297.46573 (31, 1)	260.60464 (31, 1)	200.25090 (26, 1)
2000.0 /	150.55727 (27, 1)	243.93317 (32, 1)	316.53058 (32, 1)	243.93407 (32, 1)	150.55780 (27, 1)
1000.0 /	147.45822 (14, 1)	267.76794 (23, 1)	348.84018 (23, 1)	267.76846 (23, 1)	147.45845 (14, 1)

1

2ND HIGH
1-HR
SGROUP# 1

*** PGV SCENARIOS - W/ DOWNWASH & W/ 10M FLAGPOLE ***

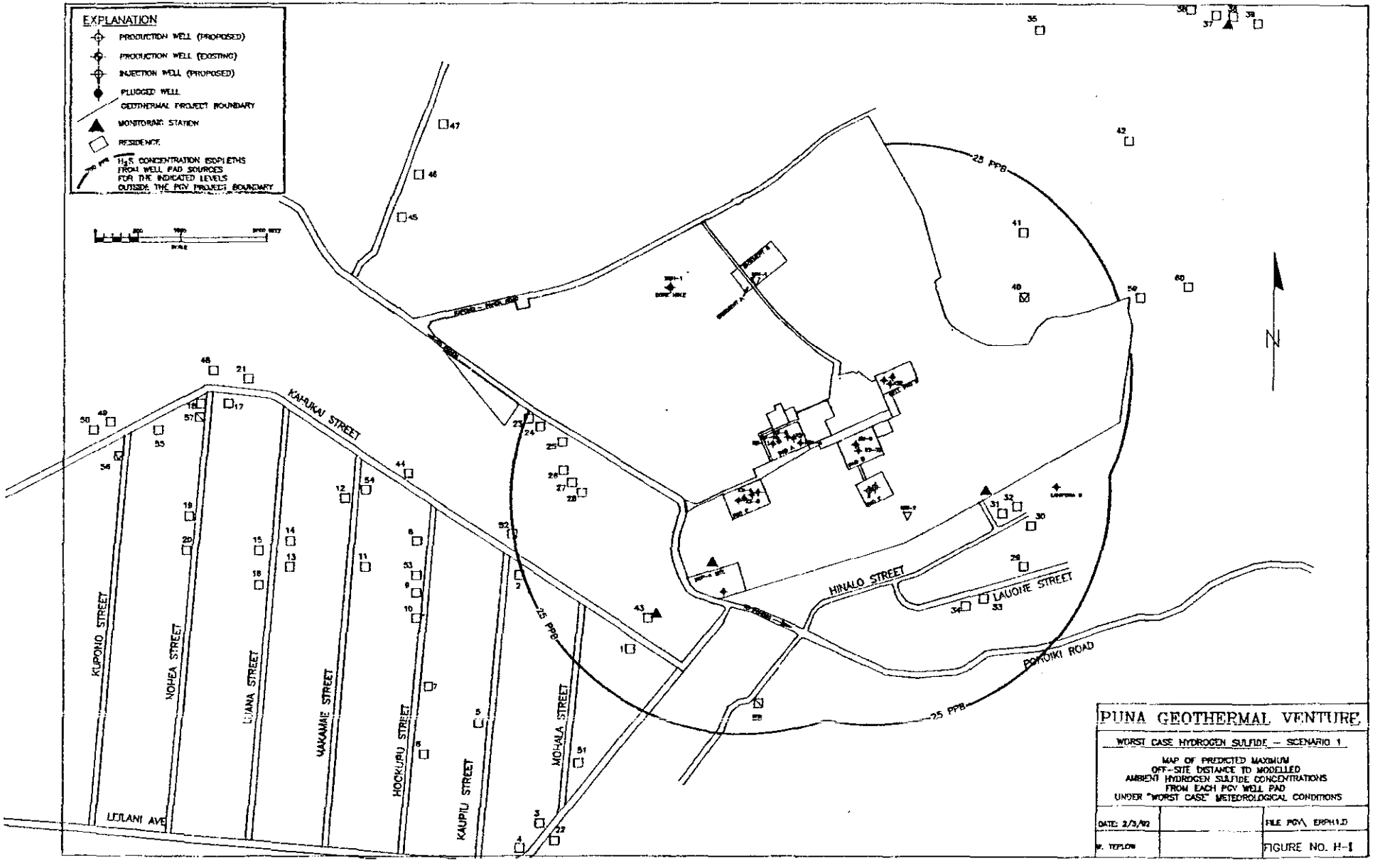
* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
-100.0	50.0	0.00000	(0, 0)	-50.0	50.0	40.27215	(2, 1)
0.0	50.0	23251.51172	(20, 1)	50.0	50.0	40.27218	(2, 1)
100.0	50.0	0.00000	(0, 0)	-100.0	100.0	3.95927	(3, 1)
-50.0	100.0	183.16537	(8, 1)	0.0	100.0	9313.95410	(21, 1)
50.0	100.0	183.16576	(8, 1)	100.0	100.0	3.96161	(3, 1)
-100.0	200.0	45.74429	(2, 1)	-50.0	200.0	348.97095	(3, 1)
0.0	200.0	3098.49390	(23, 1)	50.0	200.0	348.97119	(3, 1)
100.0	200.0	45.75299	(2, 1)	-100.0	300.0	112.18290	(8, 1)
-50.0	300.0	400.45386	(14, 1)	0.0	300.0	1557.30090	(22, 1)
50.0	300.0	400.45471	(14, 1)	100.0	300.0	112.18307	(8, 1)
-100.0	400.0	153.10361	(8, 1)	-50.0	400.0	379.32474	(14, 1)
0.0	400.0	1005.63629	(24, 1)	50.0	400.0	379.32532	(14, 1)
100.0	400.0	153.10384	(8, 1)	-100.0	500.0	168.07005	(3, 1)
-50.0	500.0	326.49860	(14, 1)	0.0	500.0	719.78845	(24, 1)
50.0	500.0	326.49902	(14, 1)	100.0	500.0	168.07016	(3, 1)
-100.0	600.0	149.95229	(8, 1)	-50.0	600.0	288.82932	(15, 1)
0.0	600.0	546.05670	(24, 1)	50.0	600.0	288.82968	(15, 1)
100.0	600.0	149.95244	(8, 1)	-100.0	700.0	152.75896	(8, 1)
-50.0	700.0	275.81732	(24, 1)	0.0	700.0	457.50641	(24, 1)
50.0	700.0	275.81799	(24, 1)	100.0	700.0	152.75909	(8, 1)
-100.0	800.0	149.63899	(14, 1)	-50.0	800.0	282.54050	(22, 1)
0.0	800.0	414.74075	(22, 1)	50.0	800.0	282.54111	(22, 1)
100.0	800.0	149.63928	(14, 1)	-100.0	900.0	151.02678	(14, 1)
-50.0	900.0	276.47705	(22, 1)	0.0	900.0	377.92514	(22, 1)
50.0	900.0	276.47760	(22, 1)	100.0	900.0	151.02704	(14, 1)

RUN ENDED ON 12-09-91 AT 02:47:54

ATTACHMENT 3

MAPS OF ISCST-MODELED HYDROGEN SULFIDE IMPACTS FOR THE WELL-RELATED UNCONTROLLED FLOW EVENT AND POWER PLANT UPSET SCENARIOS
PUNA GEOTHERMAL VENTURE PROJECT

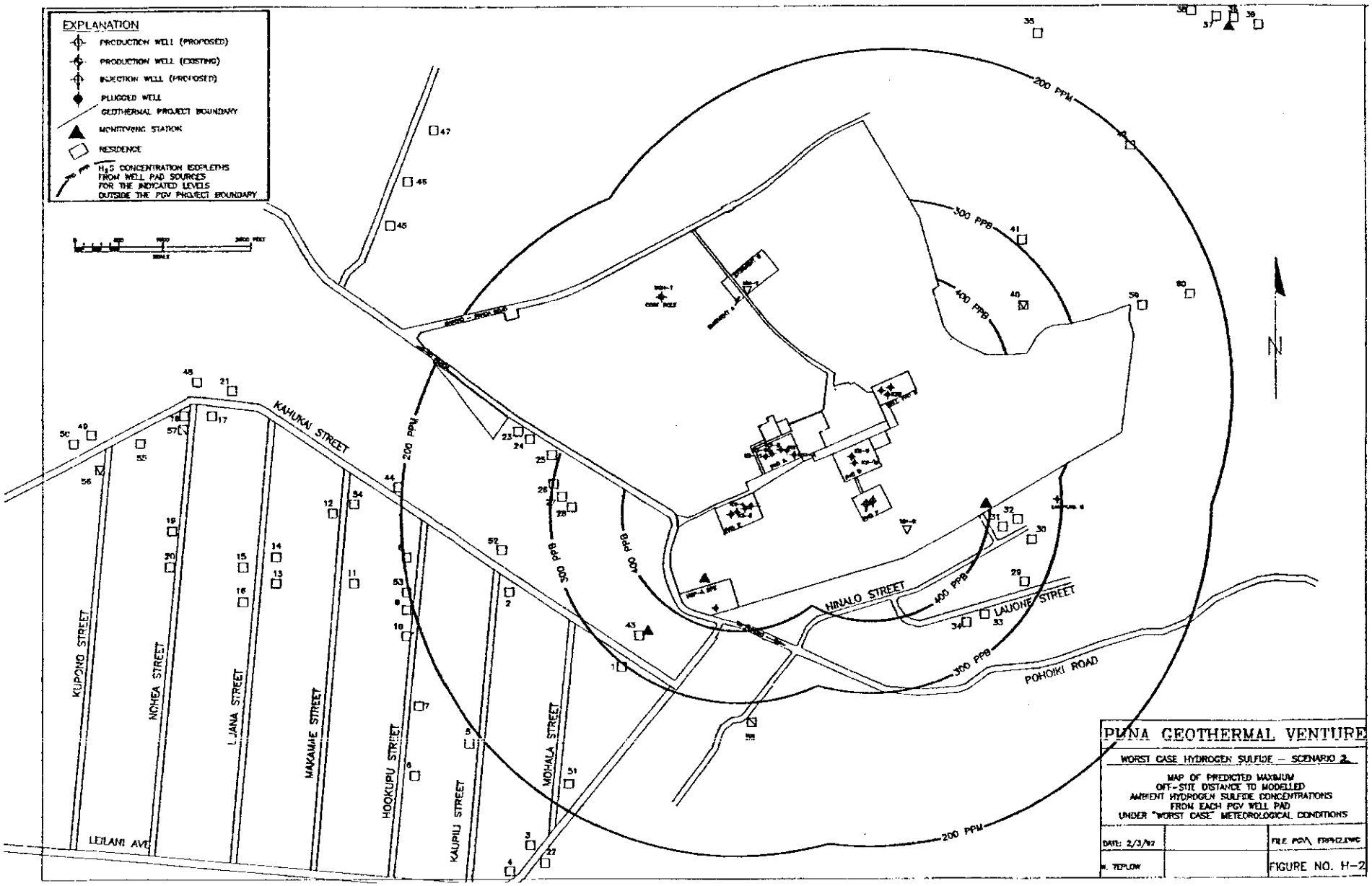


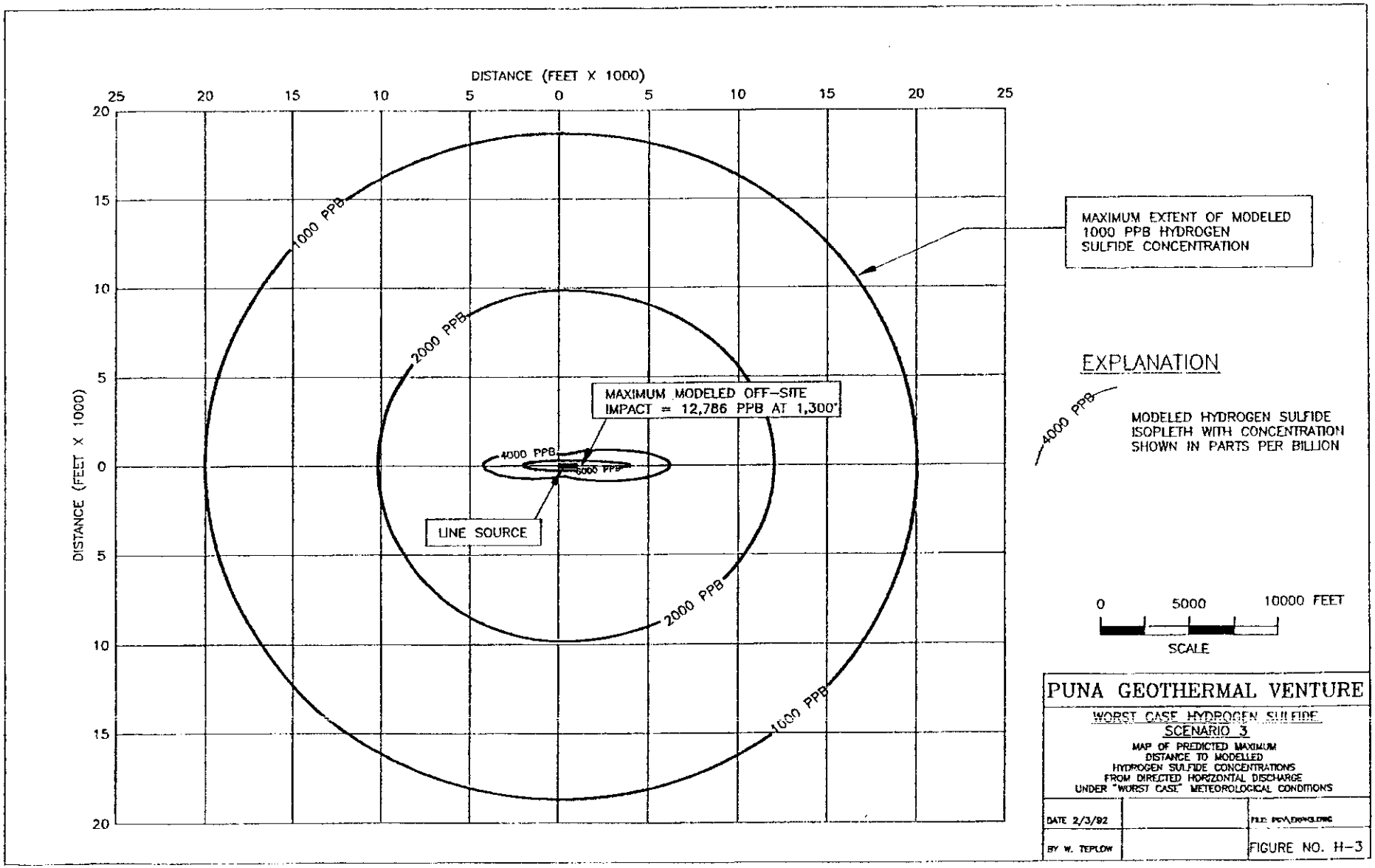
PUNA GEOTHERMAL VENTURE

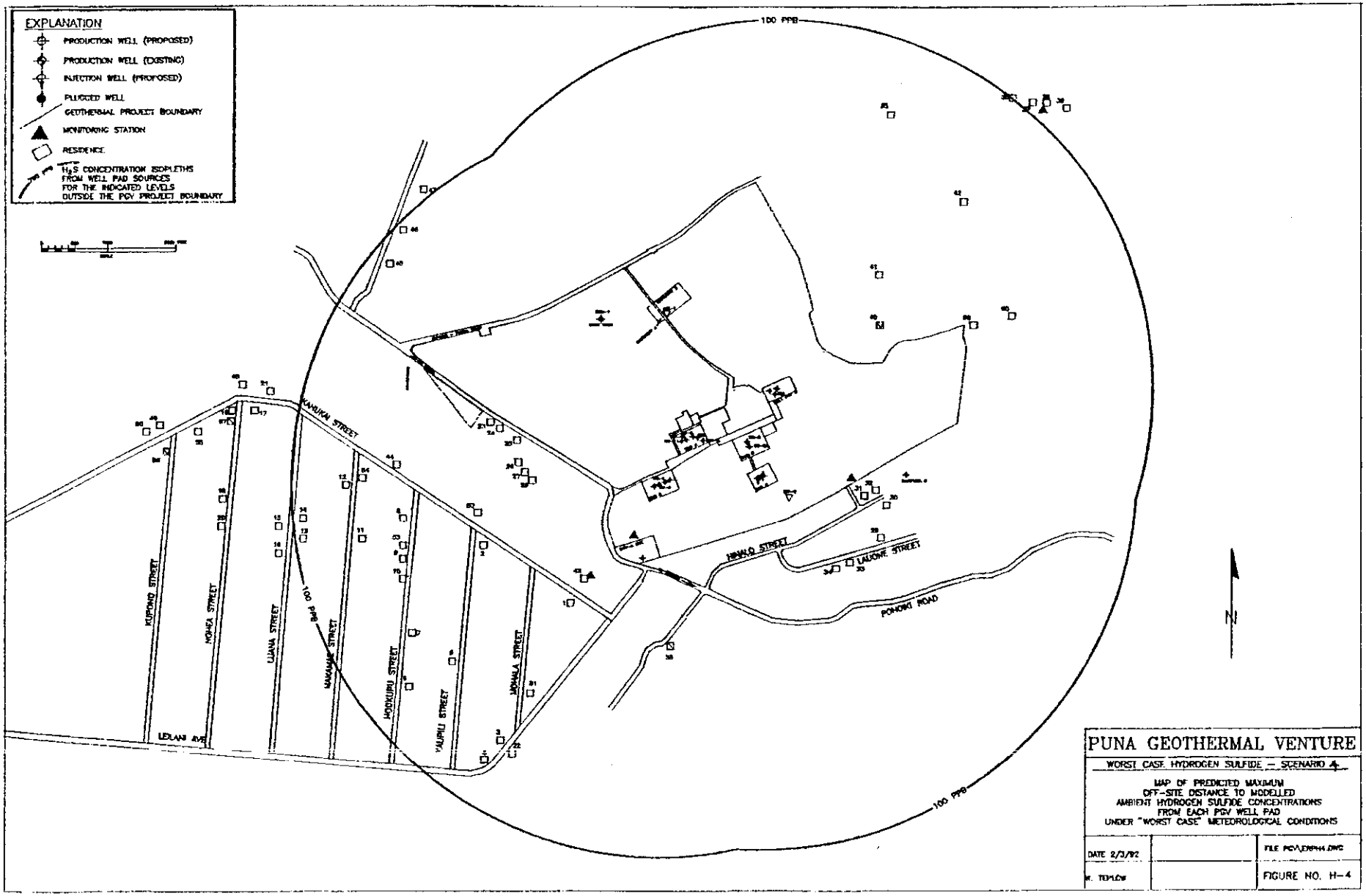
WORST CASE HYDROGEN SULFIDE – SCENARIO 1

MAP OF PREDICTED MAXIMUM OFF-SITE DISTANCE TO MODELLED AMBIENT HYDROGEN SULFIDE CONCENTRATIONS FROM EACH PGV WELL PAD UNDER "WORST CASE" METEOROLOGICAL CONDITIONS

DATE: 2/3/92		FILE PGV\ ERPH1.D
W. TEFLON		FIGURE NO. H-1


EXPLANATION
PRODUCTION WELL (PROPOSED)
PRODUCTION WELL (EXISTING)
INJECTION WELL (PROPOSED)
PLUGGED WELL
GEOTHERMAL PROJECT BOUNDARY
MONITORING STATION
RESIDENCE
H2S CONCENTRATION ISOPLETHS FROM WELL PAD SOURCES FOR THE INDICATED LEVELS OUTSIDE THE PGV PROJECT BOUNDARY
200 PPM
300 PPB
400 PPB
KAHUKAI STREET
HINALO STREET
LAUONE STREET
POHOIKI ROAD
KUPONO STREET
NOHEA STREET
LIJANA STREET
MAKAMAE STREET
HOOKUPU STREET
KAUPILI STREET
MOHALA STREET
LEILANI AVE
N
PUNA GEOTHERMAL VENTURE
WORST CASE HYDROGEN SULFIDE – SCENARIO 2
MAP OF PREDICTED MAXIMUM OFF-SITE DISTANCE TO MODELLED AMBIENT HYDROGEN SULFIDE CONCENTRATIONS FROM EACH PGV WELL PAD UNDER "WORST CASE" METEOROLOGICAL CONDITIONS
DATE: 2/3/92
FILE PGV\ FRPHZ.DWG
W. TEPLOW
FIGURE NO. H-2


DISTANCE (FEET X 1000)
25
20
15
10
5
0
5
10
15
20
25
DISTANCE (FEET X 1000)
1000 PPB
2000 PPB
4000 PPB
5000 PPB
MAXIMUM MODELED OFF-SITE IMPACT = 12,786 PPB AT 1,300'
LINE SOURCE
MAXIMUM EXTENT OF MODELED 1000 PPB HYDROGEN SULFIDE CONCENTRATION
EXPLANATION
4000 PPB
MODELED HYDROGEN SULFIDE ISOPLETH WITH CONCENTRATION SHOWN IN PARTS PER BILLION
0
5000
10000 FEET
SCALE
PUNA GEOTHERMAL VENTURE
WORST CASE HYDROGEN SULFIDE SCENARIO 3
MAP OF PREDICTED MAXIMUM DISTANCE TO MODELLED HYDROGEN SULFIDE CONCENTRATIONS FROM DIRECTED HORIZONTAL DISCHARGE UNDER "WORST CASE" METEOROLOGICAL CONDITIONS
DATE 2/3/92
BY W. TEPLOW
FIGURE NO. H-3

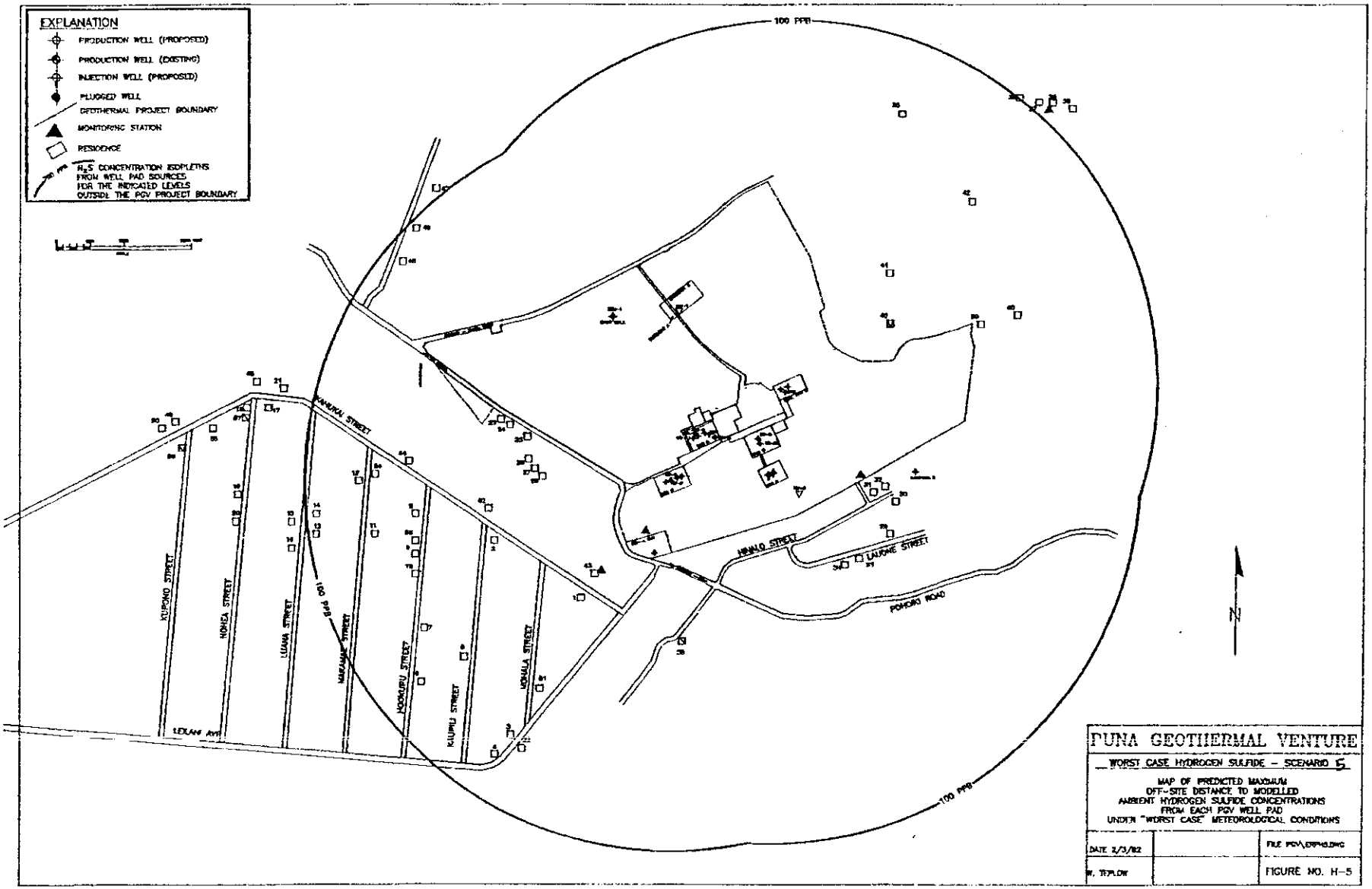


PUNA GEOTHERMAL VENTURE

WORST CASE HYDROGEN SULFIDE – SCENARIO 4

MAP OF PREDICTED MAXIMUM OFF-SITE DISTANCE TO MODELLED AMBIENT HYDROGEN SULFIDE CONCENTRATIONS FROM EACH PGV WELL PAD UNDER "WORST CASE" METEOROLOGICAL CONDITIONS

DATE 2/3/92		FILE PGV\ERPH4.DWG
M. TAYLOR		FIGURE NO. H-4

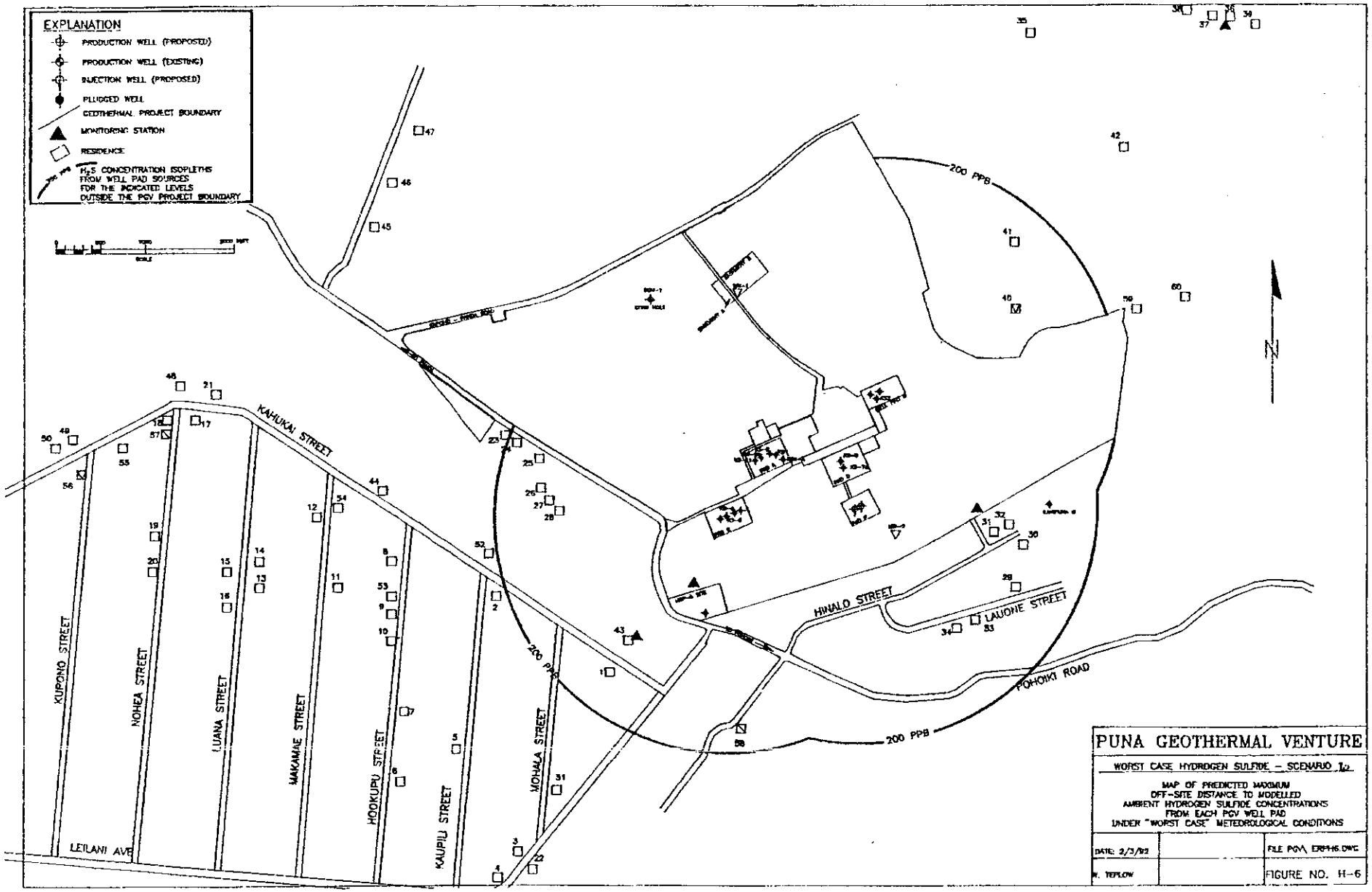


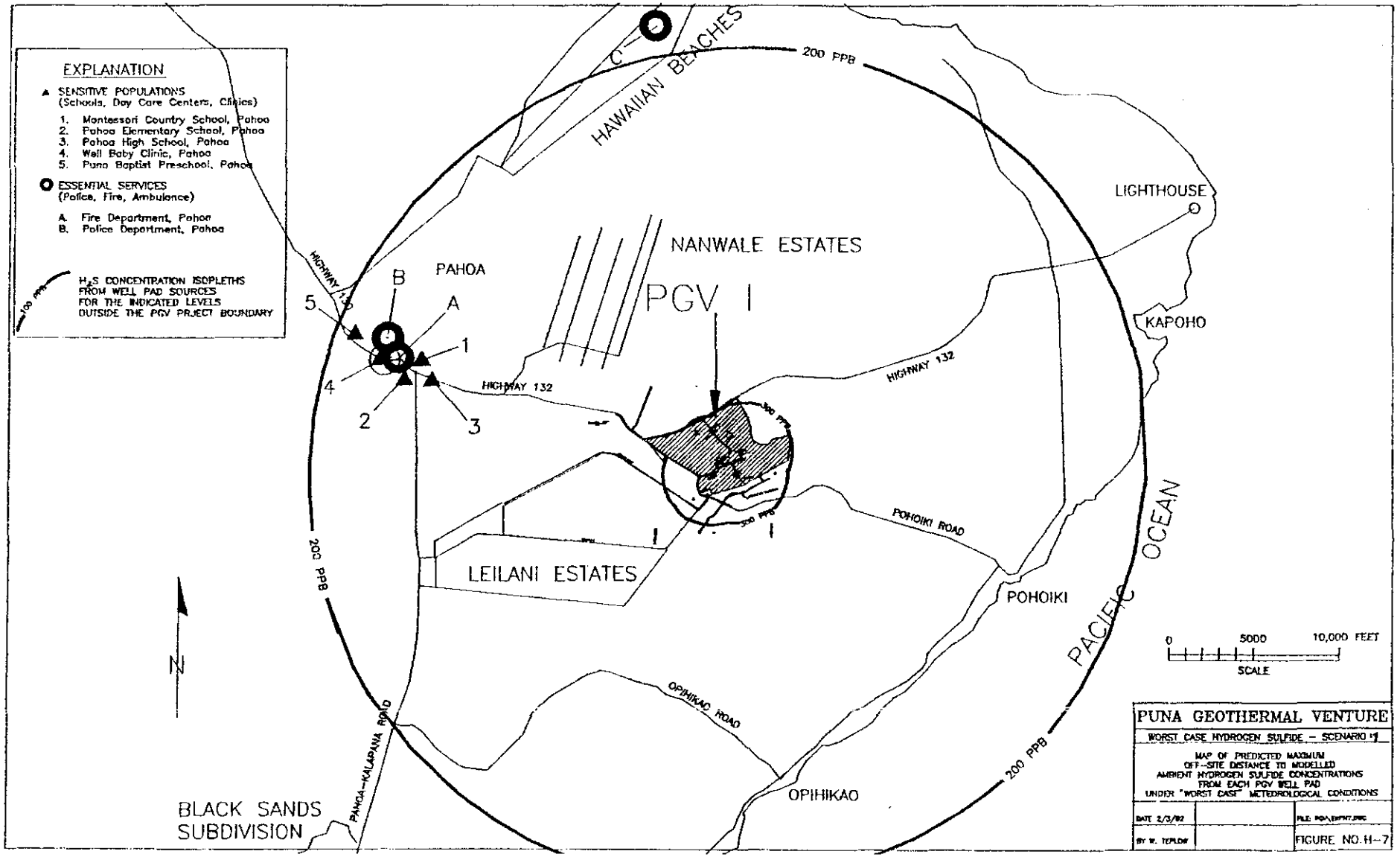
PUNA GEOTHERMAL VENTURE

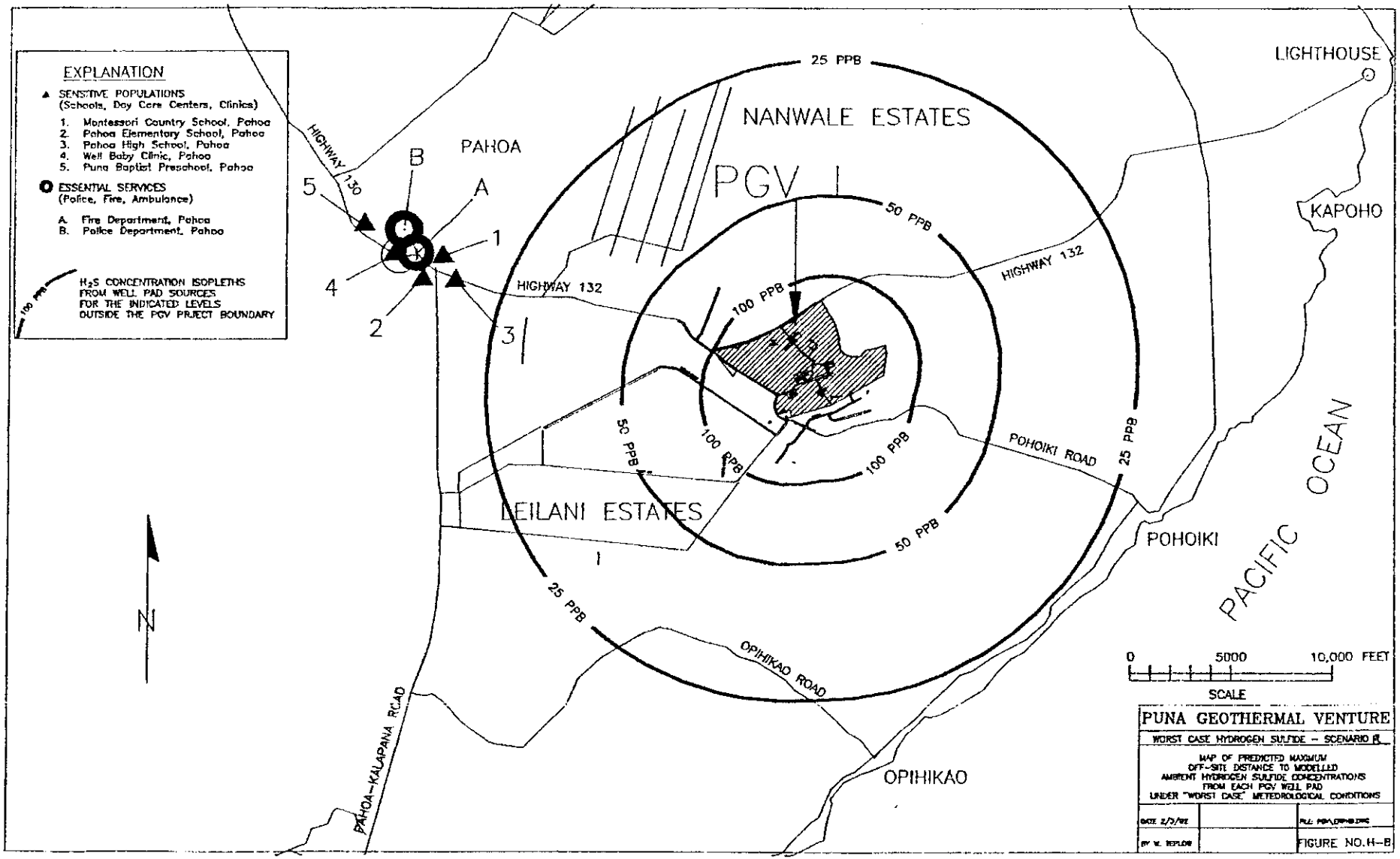
WORST CASE HYDROGEN SULFIDE – SCENARIO 5

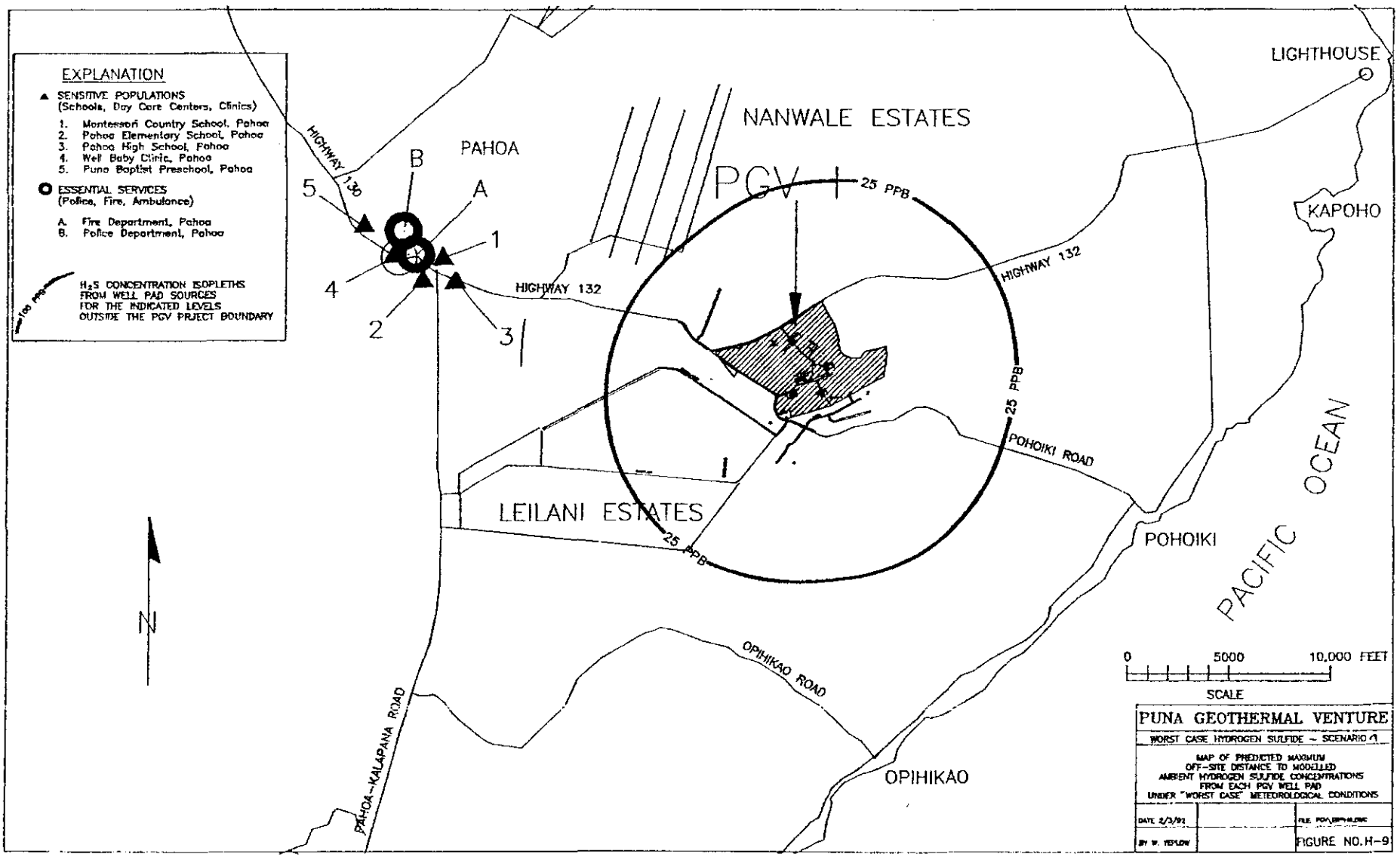
MAP OF PREDICTED MAXIMUM OFF-SITE DISTANCE TO MODELLED AMBIENT HYDROGEN SULFIDE CONCENTRATIONS FROM EACH PGV WELL PAD UNDER "WORST CASE" METEOROLOGICAL CONDITIONS

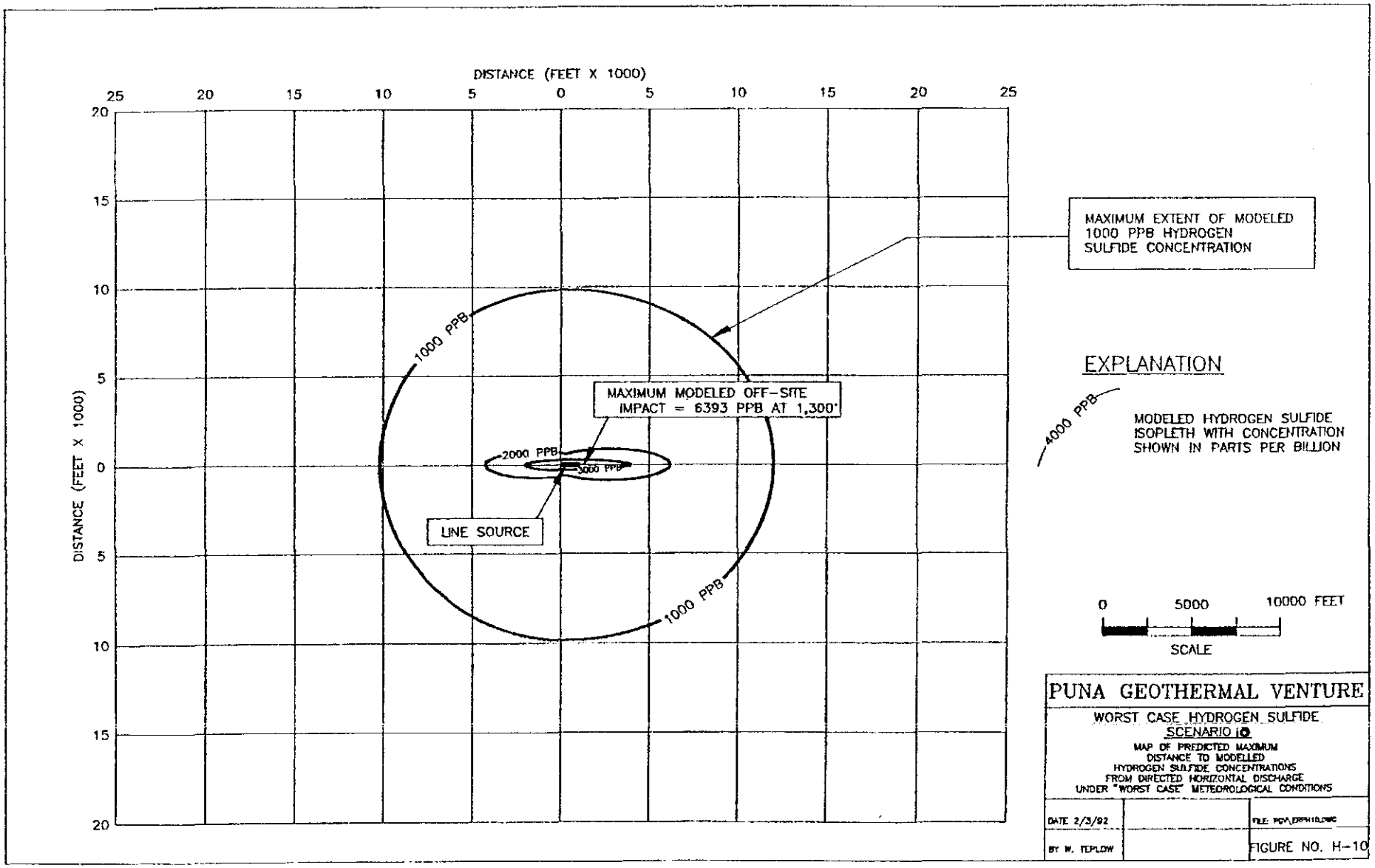
DATE 2/3/82		FILE PGV\EPHOLDWG
W. TEPLOW		FIGURE NO. H-5

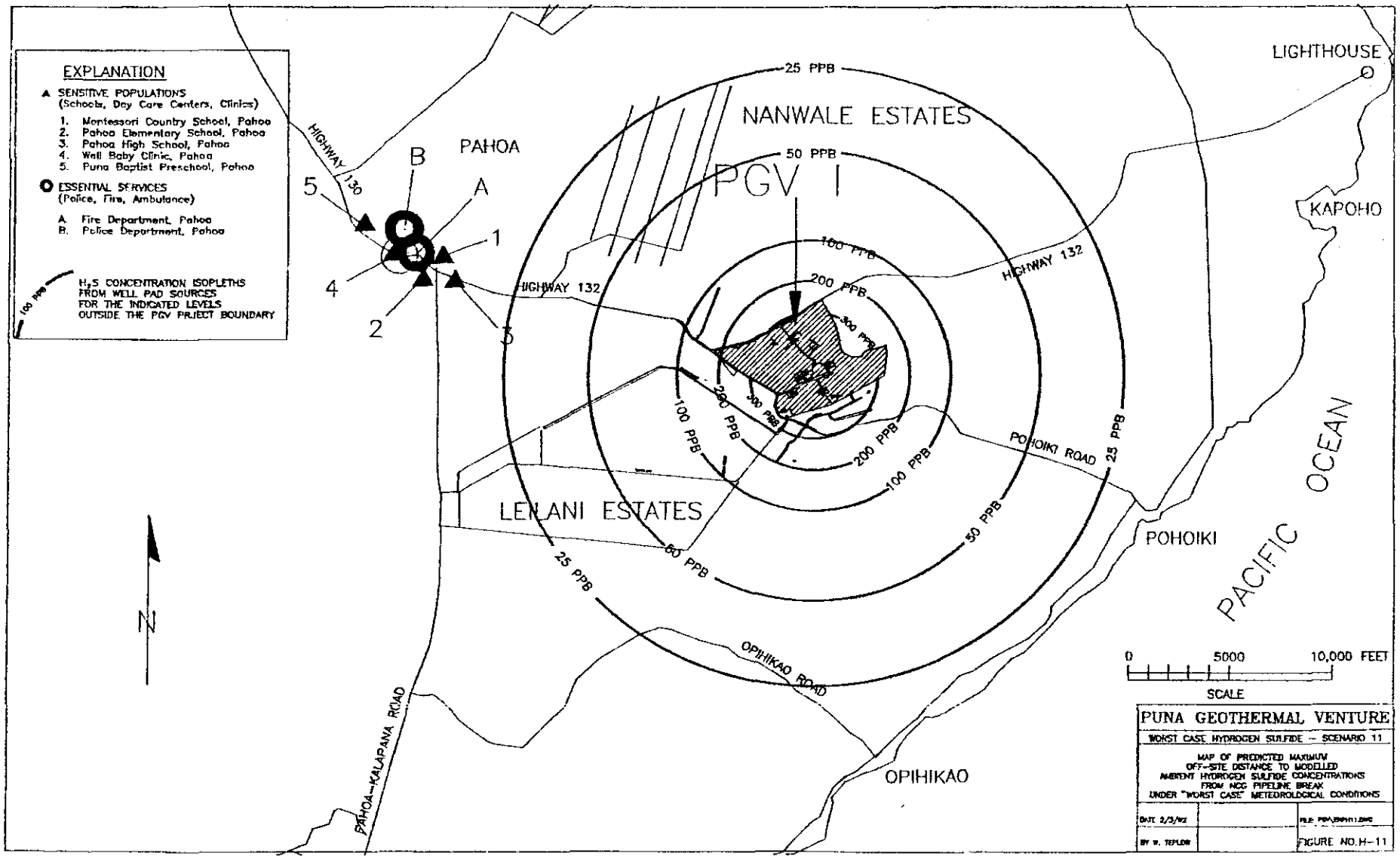

EXPLANATION
PRODUCTION WELL (PROPOSED)
PRODUCTION WELL (EXISTING)
INJECTION WELL (PROPOSED)
PLUGGED WELL
GEOTHERMAL PROJECT BOUNDARY
MONITORING STATION
RESIDENCE
H_2S CONCENTRATION ISOPLETHS FROM WELL PAD SOURCES FOR THE INDICATED LEVELS OUTSIDE THE PGV PROJECT BOUNDARY
200 PPB
KAHUKAI STREET
KUPONO STREET
NOHEA STREET
LUANA STREET
MAKAMAE STREET
HOOKUPU STREET
KAUPILI STREET
MOHALA STREET
LEILANI AVE
HINALO STREET
LAUONE STREET
POHOIKI ROAD
N
PUNA GEOTHERMAL VENTURE
WORST CASE HYDROGEN SULFIDE - SCENARIO 1a
MAP OF PREDICTED MAXIMUM OFF-SITE DISTANCE TO MODELLED AMBIENT HYDROGEN SULFIDE CONCENTRATIONS FROM EACH PGV WELL PAD UNDER "WORST CASE" METEOROLOGICAL CONDITIONS
DATE: 2/3/93
FILE PGV_ERP16.DWG
W. YEPLOW
FIGURE NO. H-6

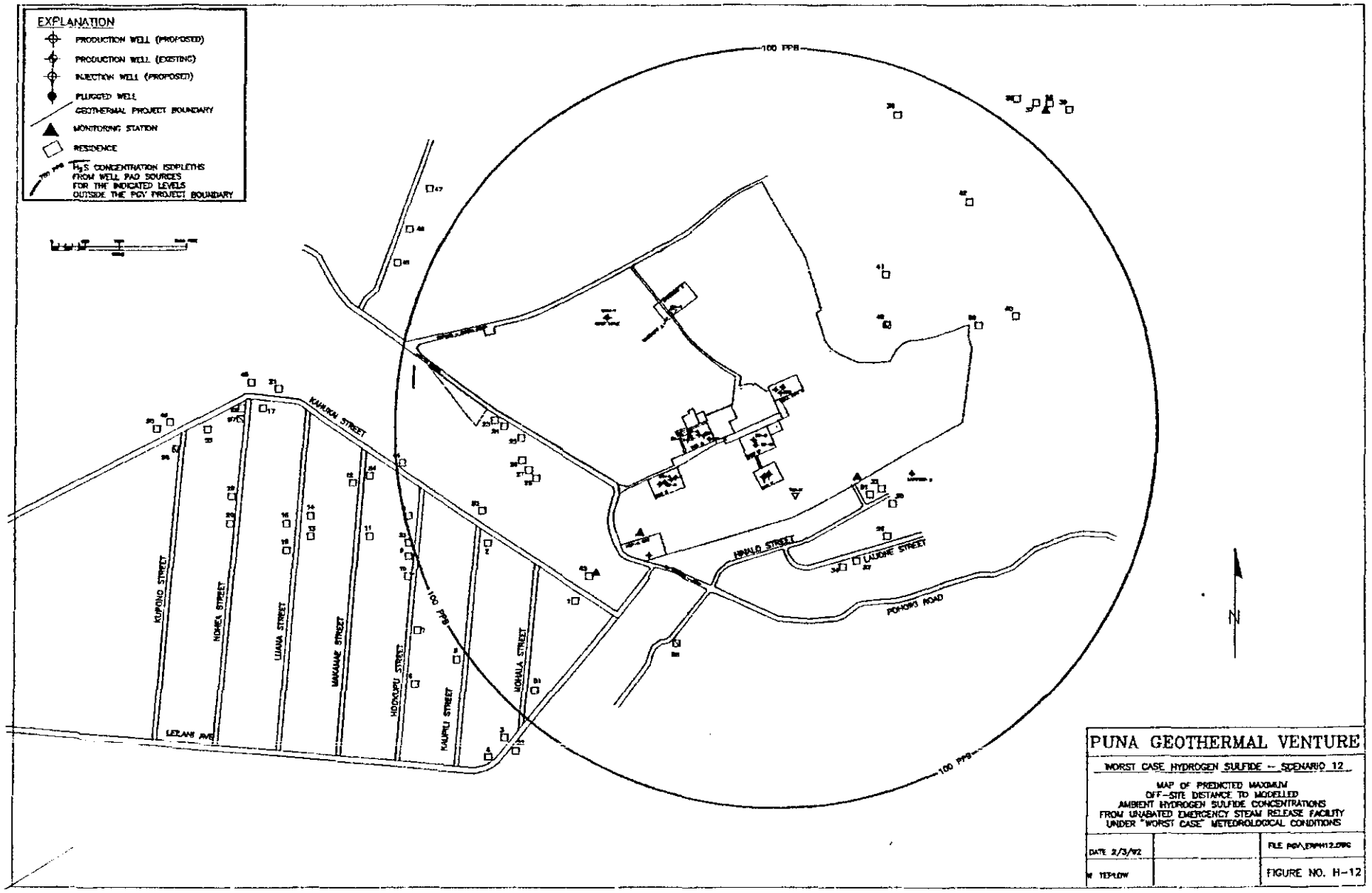

EXPLANATION
SENSITIVE POPULATIONS
(Schools, Day Care Centers, Clinics)
1. Montessori Country School, Pahoa
2. Pahoa Elementary School, Pahoa
3. Pahoa High School, Pahoa
4. Well Baby Clinic, Pahoa
5. Puna Baptist Preschool, Pahoa
ESSENTIAL SERVICES
(Police, Fire, Ambulance)
A. Fire Department, Pahoa
B. Police Department, Pahoa
H_2S CONCENTRATION ISOPLETHS FROM WELL PAD SOURCES FOR THE INDICATED LEVELS OUTSIDE THE PGV PROJECT BOUNDARY
100 PPB
200 PPB
HAWAIIAN BEACHES
LIGHTHOUSE
NANWALE ESTATES
PGV I
PAHOA
KAPOHO
HIGHWAY 132
LEILANI ESTATES
POHOIKI ROAD
POHOIKI
PACIFIC OCEAN
OPIHIKAO ROAD
OPIHIKAO
PAHOA-KALAPANA ROAD
BLACK SANDS SUBDIVISION
N
0 5000 10,000 FEET
SCALE
PUNA GEOTHERMAL VENTURE
WORST CASE HYDROGEN SULFIDE - SCENARIO 1
MAP OF PREDICTED MAXIMUM OFF-SITE DISTANCE TO MODELLED AMBIENT HYDROGEN SULFIDE CONCENTRATIONS FROM EACH PGV WELL PAD UNDER "WORST CASE" METEOROLOGICAL CONDITIONS
DATE 2/3/92
BY W. TEPLOW
FIGURE NO. H-7


EXPLANATION
SENSITIVE POPULATIONS (Schools, Day Care Centers, Clinics)
1. Montessori Country School, Pahoa
2. Pahoa Elementary School, Pahoa
3. Pahoa High School, Pahoa
4. Well Baby Clinic, Pahoa
5. Puna Baptist Preschool, Pahoa
ESSENTIAL SERVICES (Police, Fire, Ambulance)
A. Fire Department, Pahoa
B. Police Department, Pahoa
H2S CONCENTRATION ISOPLETHS FROM WELL PAD SOURCES FOR THE INDICATED LEVELS OUTSIDE THE PGV PROJECT BOUNDARY
100 PPB
PAHOA
NANWALE ESTATES
PGV
LEILANI ESTATES
LIGHTHOUSE
KAPOHO
POHOIKI
OPIHIKAO
PACIFIC OCEAN
HIGHWAY 130
HIGHWAY 132
POHOIKI ROAD
OPIHIKAO ROAD
PAHOA-KALAPANA ROAD
25 PPB
50 PPB
100 PPB
N
0 5000 10,000 FEET
SCALE
PUNA GEOTHERMAL VENTURE
WORST CASE HYDROGEN SULFIDE – SCENARIO B
MAP OF PREDICTED MAXIMUM OFF-SITE DISTANCE TO MODELLED AMBIENT HYDROGEN SULFIDE CONCENTRATIONS FROM EACH PGV WELL PAD UNDER "WORST CASE" METEOROLOGICAL CONDITIONS
DATE 2/3/92
BY W. TEPLOW
FIGURE NO. H-B


EXPLANATION
SENSITIVE POPULATIONS
(Schools, Day Care Centers, Clinics)
1. Montessori Country School, Pahoa
2. Pahoa Elementary School, Pahoa
3. Pahoa High School, Pahoa
4. Well Baby Clinic, Pahoa
5. Puna Baptist Preschool, Pahoa
ESSENTIAL SERVICES
(Police, Fire, Ambulance)
A. Fire Department, Pahoa
B. Police Department, Pahoa
H2S CONCENTRATION ISOPLETHS FROM WELL PAD SOURCES FOR THE INDICATED LEVELS OUTSIDE THE PGV PROJECT BOUNDARY
100 PPB
PAHOA
NANWALE ESTATES
PGV
25 PPB
LIGHTHOUSE
KAPOHO
HIGHWAY 130
HIGHWAY 132
LEILANI ESTATES
POHOIKI ROAD
POHOIKI
PACIFIC OCEAN
OPIHIKAO ROAD
OPIHIKAO
PAHOA-KALAPANA ROAD
N
0 5000 10,000 FEET
SCALE
PUNA GEOTHERMAL VENTURE
WORST CASE HYDROGEN SULFIDE - SCENARIO 1
MAP OF PREDICTED MAXIMUM OFF-SITE DISTANCE TO MODELLED AMBIENT HYDROGEN SULFIDE CONCENTRATIONS FROM EACH PGV WELL PAD UNDER "WORST CASE" METEOROLOGICAL CONDITIONS
DATE 2/3/92
BY W. YERLOW
FIGURE NO. H-9


DISTANCE (FEET X 1000)
25
20
15
10
5
0
5
10
15
20
25
DISTANCE (FEET X 1000)
20
15
10
5
0
5
10
15
20
1000 PPB
2000 PPB
3000 PPB
4000 PPB
1000 PPB
MAXIMUM MODELED OFF-SITE IMPACT = 6393 PPB AT 1,300'
LINE SOURCE
MAXIMUM EXTENT OF MODELED 1000 PPB HYDROGEN SULFIDE CONCENTRATION
EXPLANATION
MODELED HYDROGEN SULFIDE ISOPLETH WITH CONCENTRATION SHOWN IN PARTS PER BILLION
0
5000
10000 FEET
SCALE
PUNA GEOTHERMAL VENTURE
WORST CASE HYDROGEN SULFIDE SCENARIO (6)
MAP OF PREDICTED MAXIMUM DISTANCE TO MODELLED HYDROGEN SULFIDE CONCENTRATIONS FROM DIRECTED HORIZONTAL DISCHARGE UNDER "WORST CASE" METEOROLOGICAL CONDITIONS
DATE 2/3/92
BY W. TEPLOW
FIGURE NO. H-10


EXPLANATION
SENSITIVE POPULATIONS (Schools, Day Care Centers, Clinics)
1. Montessori Country School, Pahoa
2. Pahoa Elementary School, Pahoa
3. Pahoa High School, Pahoa
4. Well Baby Clinic, Pahoa
5. Puna Baptist Preschool, Pahoa
ESSENTIAL SERVICES (Police, Fire, Ambulance)
A. Fire Department, Pahoa
B. Police Department, Pahoa
100 PPB
H2S CONCENTRATION ISOPLETHS FROM WELL PAD SOURCES FOR THE INDICATED LEVELS OUTSIDE THE PGV PROJECT BOUNDARY
PAHOA
NANWALE ESTATES
PGV I
LEILANI ESTATES
LIGHTHOUSE
KAPOHO
POHOIKI
OPIHIKAO
PACIFIC OCEAN
HIGHWAY 130
HIGHWAY 132
POHOIKI ROAD
OPIHIKAO ROAD
PAHOA-KALAPANA ROAD
25 PPB
50 PPB
100 PPB
200 PPB
300 PPB
60 PPB
N
0
5000
10,000 FEET
SCALE
PUNA GEOTHERMAL VENTURE
WORST CASE HYDROGEN SULFIDE – SCENARIO 11
MAP OF PREDICTED MAXIMUM OFF-SITE DISTANCE TO MODELLED AMBIENT HYDROGEN SULFIDE CONCENTRATIONS FROM NGC PIPELINE BREAK UNDER "WORST CASE" METEOROLOGICAL CONDITIONS
DATE 2/3/92
BY W. TAYLOR
FIGURE NO. H-11



PUNA GEOTHERMAL VENTURE

WORST CASE HYDROGEN SULFIDE -- SCENARIO 12

MAP OF PREDICTED MAXIMUM OFF-SITE DISTANCE TO MODELLED AMBIENT HYDROGEN SULFIDE CONCENTRATIONS FROM UNABATED EMERGENCY STEAM RELEASE FACILITY UNDER "WORST CASE" METEOROLOGICAL CONDITIONS

DATE 2/3/92		FILE PGV\EPAH12.DWG
W TEPLOW		FIGURE NO. H-12

EXPLANATION

- PRODUCTION WELL (PROPOSED)
- PRODUCTION WELL (EXISTING)
- INJECTION WELL (PROPOSED)
- PLUGGED WELL
- GEOTHERMAL PROJECT BOUNDARY
- MONITORING STATION
- RESIDENCE
- 750 PPB — H_2S CONCENTRATION ISOPLETHS FROM WELL PAD SOURCES FOR THE INDICATED LEVELS OUTSIDE THE PGV PROJECT BOUNDARY

0 400 1000 2000 FEET
SCALE

250 PPB
500 PPB
750 PPB

SCH-1 CORE HOLE

EASEMENT B
APN-2
EASEMENT A

KAHUKAI STREET
KUPONO STREET
NOHEA STREET
LUANA STREET
MAKAMAE STREET
HOOKUPU STREET
KAUPILI STREET
MOHALA STREET
LEILANI AVE
HINALO STREET
LAUONE STREET
POHOIKI ROAD

PAD A
PAD B
PAD C
PAD D
PAD E
PAD F
MW-2
MW-4 SITE
LANIPUNA 6

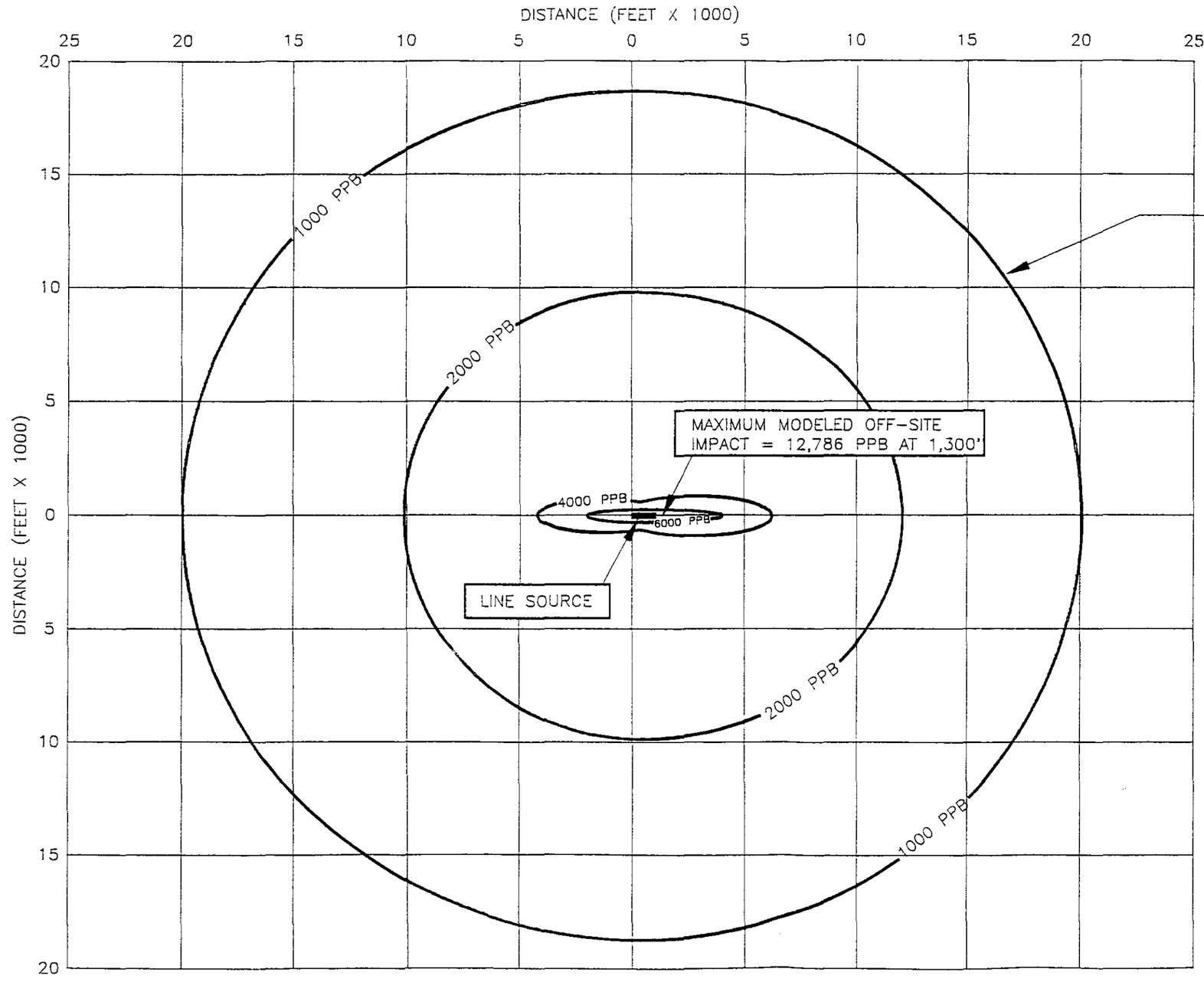
N

PUNA GEOTHERMAL VENTURE

WORST CASE "TYPE 1" HYDROGEN SULFIDE SCENARIO

MAP OF PREDICTED MAXIMUM OFF-SITE DISTANCE TO MODELLED AMBIENT HYDROGEN SULFIDE CONCENTRATION FROM EACH PGV WELL PAD UNDER "WORST CASE" METEOROLOGICAL CONDITIONS

DATE 1/9/92		FILE PGV\H2SMAP1.DWG
W. TEPLOW		FIGURE NO. 8-1



MAXIMUM EXTENT OF MODELED 1000 PPB HYDROGEN SULFIDE CONCENTRATION

EXPLANATION

4000 PPB

MODELED HYDROGEN SULFIDE ISOPLETH WITH CONCENTRATION SHOWN IN PARTS PER BILLION

0 5000 10000 FEET

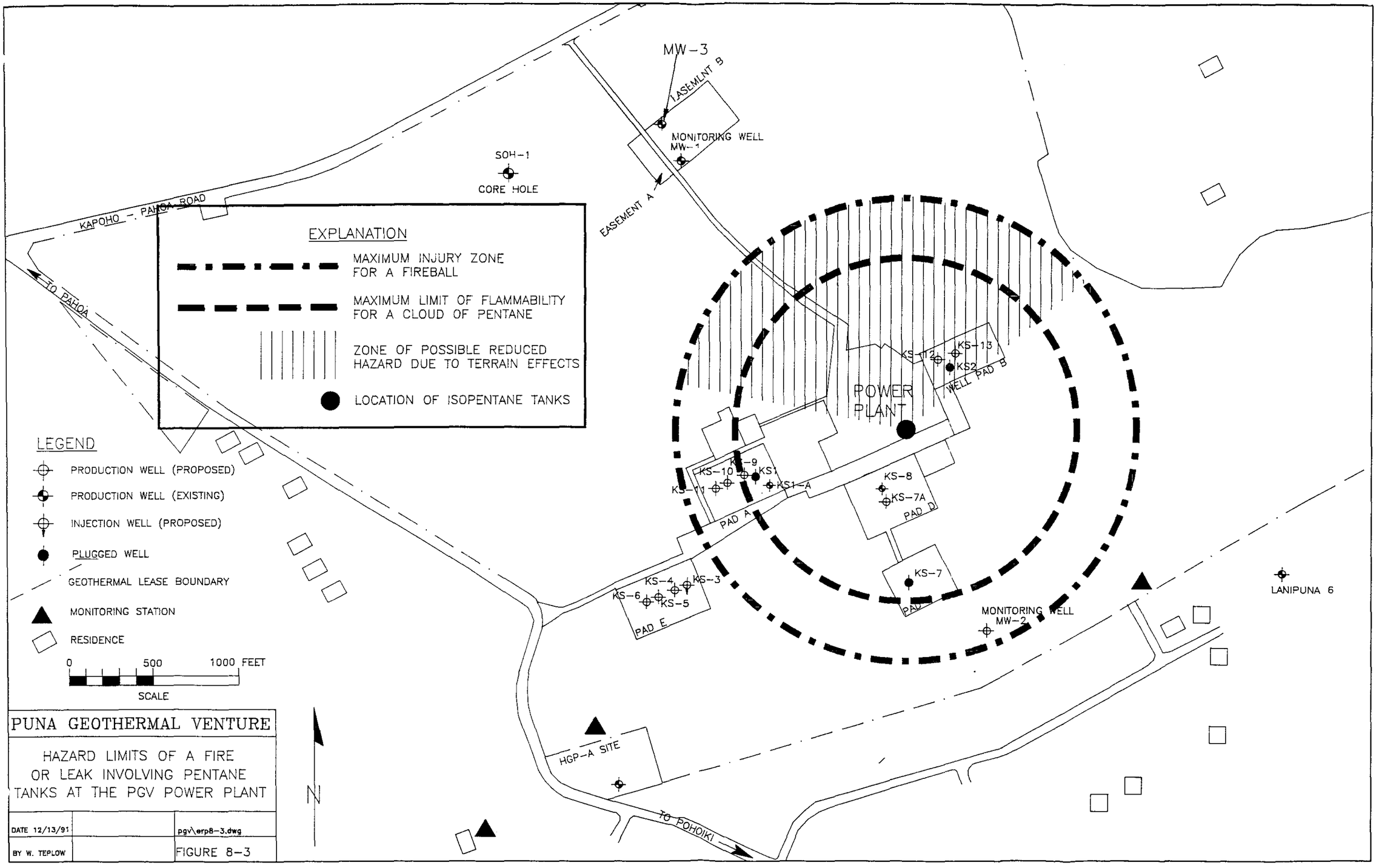
SCALE

PUNA GEOTHERMAL VENTURE

WORST CASE "TYPE 2"
HYDROGEN SULFIDE SCENARIO

MODELED HYDROGEN SULFIDE ISOPLETHS FOR SCENARIO 3, HORIZONTAL DISCHARGE UNDER "WORST CASE" METEOROLOGICAL CONDITIONS

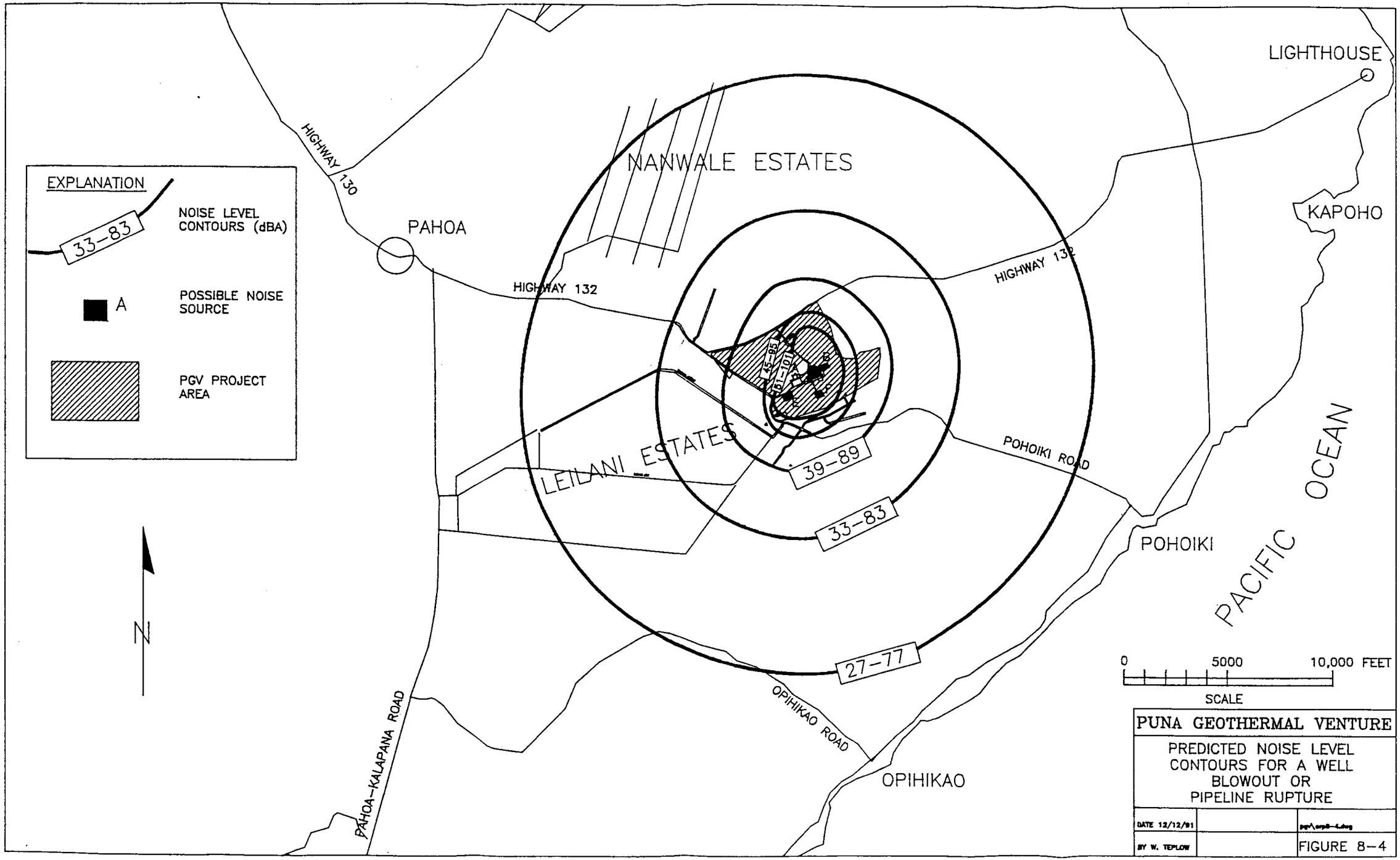
DATE 1/9/92		FILE: PGV\ERP8-2.DWG
BY W. TEPLOW		FIGURE NO. 8-2



PUNA GEOTHERMAL VENTURE

HAZARD LIMITS OF A FIRE OR LEAK INVOLVING PENTANE TANKS AT THE PGV POWER PLANT

DATE 12/13/91		pgv\erp8-3.dwg
BY W. TEPLOW		FIGURE 8-3


EXPLANATION
33-83
NOISE LEVEL CONTOURS (dBA)
A
POSSIBLE NOISE SOURCE
PGV PROJECT AREA
HIGHWAY 130
PAHOA
NANWALE ESTATES
HIGHWAY 132
LEILANI ESTATES
45-95
61-101
39-89
33-83
27-77
POHOIKI ROAD
LIGHTHOUSE
KAPOHO
POHOIKI
PACIFIC OCEAN
OPIHIKAO ROAD
OPIHIKAO
PAHOA-KALAPANA ROAD
N
0
5000
10,000 FEET
SCALE
PUNA GEOTHERMAL VENTURE
PREDICTED NOISE LEVEL CONTOURS FOR A WELL BLOWOUT OR PIPELINE RUPTURE
DATE 12/12/91
BY W. TEPLOW
FIGURE 8-4