

**HEALTH AND SAFETY PLAN FOR
THE FOCUSED REMEDIAL INVESTIGATION
AND FEASIBILITY STUDY WORK PLAN
D.C. ROLLFORMS/INGERSOLL-RAND SITE
JAMESTOWN, NEW YORK**

August 1996

Prepared for

Ingersoll-Rand Company
200 Chestnut Ridge Road
Woodcliff Lake, New Jersey 07675

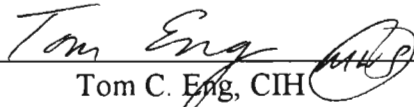
Prepared by

Geraghty & Miller, Inc.
24 Madison Avenue
Albany, New York 12203
(518) 452-7826

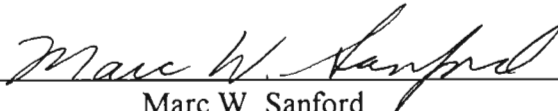
HEALTH AND SAFETY PLAN FOR
THE FOCUSED REMEDIAL INVESTIGATION
AND FEASIBILITY STUDY WORK PLAN
D.C. ROLLFORMS/INGERSOLL-RAND SITE
JAMESTOWN, NEW YORK

August 21, 1996

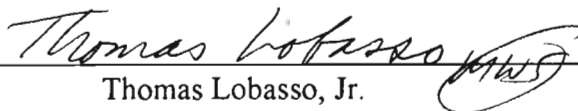
Prepared by GERAGHTY & MILLER, INC.



Tom C. Eng, CIH
Senior Engineer/Industrial Hygienist



Marc W. Sanford
Senior Scientist/Project Manager



Thomas Lobasso, Jr.
Vice President/Project Officer



CONTENTS

	<u>Page</u>
INTRODUCTION	1
RESPONSIBILITIES	1
SITE DESCRIPTION	2
PLANNED FIELD ACTIVITIES	2
HAZARD EVALUATION.....	3
AIR MONITORING	4
ACTION LEVELS	4
LEVELS OF PROTECTION	7
SAFE WORK PRACTICES	8
HEAT STRESS	9
SITE CONTROL	11
DECONTAMINATION.....	13
EMERGENCY PLAN	18
INJURY REPORTING	19
EMERGENCY TELEPHONE NUMBERS	19
DIRECTIONS TO THE HOSPITAL.....	19

TABLES

1. Potential Physical and Chemical Hazards Associated with the Planned Field Activities, D.C. Rollforms/Ingersoll-Rand Site, Jamestown, New York.
2. Current Occupational Airborne Contaminants Standards and Guidelines, D.C. Rollforms/Ingersoll-Rand Site, Jamestown, New York.



FIGURES

1. Site Map, D.C. Rollforms/Ingersoll-Rand Site, Jamestown, New York.
2. Designation of Work Zones, D.C. Rollforms/Ingersoll-Rand Site, Jamestown, New York.
3. Decontamination Procedure, D.C. Rollforms/Ingersoll-Rand Site, Jamestown, New York.
4. Hospital Route

APPENDICES

- A. Site Visitors Log.
- B. Tailgate Safety Meeting Form.
- C. Utilities and Structures Checklist.
- D. Accident Reporting Form, OSHA 101.



**HEALTH AND SAFETY PLAN FOR
THE FOCUSED REMEDIAL INVESTIGATION
AND FEASIBILITY STUDY WORK PLAN
D.C. ROLLFORMS/INGERSOLL-RAND SITE
JAMESTOWN, NEW YORK**

INTRODUCTION

Geraghty & Miller, Inc. has been authorized by Ingersoll-Rand Company to conduct a focused remedial investigation and feasibility study work plan at the D.C. Rollforms/Ingersoll-Rand Site, located in Jamestown, New York. This Health and Safety Plan (HASP) has been developed to address the potential physical and chemical hazards that our workers may face while performing the planned field activities. This HASP establishes procedures to minimize worker's exposures through personal protective equipment and safe work practices. This HASP has been developed to meet the requirements of the Occupational Safety and Health Administration (OSHA) regulation, Title 29, Code of Federal Regulations, Part 1910.120 (29 CFR 1910.120), "Hazardous Waste Operations and Emergency Response." It is intended for the protection of our workers. Anyone else, such as subcontractors, client, and visitors may review our HASP and follow its procedures if they wish.

RESPONSIBILITIES

The on-site geologist/engineer will be designated as the Site Safety Officer (SSO). The SSO will be responsible for implementing the procedures and safe work practices established in this HASP. In the event that the SSO must leave the site while the work is in progress, an alternate SSO will be designated to ensure that the HASP will continue to be followed. The SSO will report all health and safety matters to the Project Manager, Marc Sanford, who has responsibility for overseeing the planned activities. Tom Eng, Health and Safety Manager, will be available on an as needed basis. Tom Lobasso is the Project Officer for the focused remedial investigation and feasibility study activities and has overall responsibility.



SITE DESCRIPTION

The site is located at 583 Allen Street in Jamestown, Chautauqua County, New York. Based on Chautauqua County tax maps, the site consists of two parcels encompassing approximately 3.2 acres (Empire Soils Investigations 1991). Figure 1 is a site map developed from existing mapped information and shows the current physical layout of the site. One existing building located on the northern portion of the site is currently occupied by the D.C. Rollforms Corporation. The site is bordered along the north and northwestern perimeter by the Chadakoin River, which flows in a generally easterly direction. Allen Street is directly east of the site, with property owned by the Jamestown Urban Renewal Agency and the Weber Knapp Corporation abutting the site to the south.

The site is also the former location of the Proto Tool Company, formerly a unit of Ingersoll-Rand Company. The Proto Tool plant was a permitted hazardous waste treatment storage and disposal facility (TSDF), which was closed in 1985 and subsequently demolished in 1986 as part of a closure plan for the facility.

PLANNED FIELD ACTIVITIES

The following is a brief description of the planned field activities for the focused remedial investigation and feasibility study :

- Task 1. Electromagnetometer (EM) survey.
- Task 2. Groundwater sampling using the Geoprobe method.
- Task 3. Surface soil sampling.
- Task 4. Monitoring wells installation.
- Task 5. Water-level measurements.
- Task 6. Groundwater sampling from monitoring wells.
- Task 7. Surface water and sediment sampling.
- Task 8. Hydraulic conductivity testing.



Task 9. Surveying monitoring wells.

For additional details of each planned field activity, refer to the work plan developed for the focused remedial investigation and feasibility study.

HAZARD EVALUATION

The potential hazards, physical and chemical, associated with the planned field activities for this site have been evaluated. Information such as the task which will be performed, site history, and past sampling results, were all used in this evaluation process.

The physical hazards associated with the planned field activities included:

- The potential for being struck by/against equipment and debris.
- Slips and falls due to wet or uneven surfaces.
- Noise due to equipment operation.
- Being splashed with potentially contaminated liquids.
- Heat stress as portions of this work will occur during the summer months.

The chemical hazards associated with this site are based on the past sampling results obtained from previous studies conducted on the site. The sampling results indicated that compounds such as vinyl chloride, 1,2-dichloroethylene, trichloroethylene, toluene, and benzene were detected. Metals such as beryllium, cadmium, chromium, and lead were also detected in soil. Based upon this information, the following exposure pathways have been identified in order to minimize potential worker's exposure:

- Inhalation of vapors, gasses, and particulates.
- Skin absorption and contact with chemicals and particulates.



- Accidental ingestion of chemicals and particulates.

See Table 1 for the physical and chemical hazards associated with each planned field activity.

AIR MONITORING

Air monitoring will be conducted at this site during all planned field activities in order to ensure that the workers are appropriately protected from the potential chemical hazards. An intrinsically safe photoionization detector (PID) instrument (i.e., HNU, OVM) will be used. This instrument is designed to measure trace quantities of VOCs in air and has a parts per million (ppm) sensitivity range. This instrument will be calibrated each morning, before field use, and calibration records will be kept. In order to identify specific compounds, Draeger tubes for vinyl chloride/1,2-dichloroethylene and benzene will be used. Draeger tubes are also designed to measure specific compounds in the ppm range.

ACTION LEVELS

Based upon our knowledge of the site and its contaminants, the following action level procedure has been established for all planned field activities in order to evaluate whether actual field conditions will require an upgrade in the level of protection. For each task, air monitoring using the PID instrument will be conducted. An action level of 1 ppm needle deflection for a sustained period of 5 minutes in the worker's breathing zone has been established based on the potential presences of vinyl chloride/1,2-dichloroethylene and benzene. Table 2, Current Occupational Airborne Contaminant Standards and Guidelines, provides a listing of the compounds found at this site and their current occupational exposure limits. If the action level is exceeded, a second step using Draeger tubes for vinyl chloride/1,2-dichloroethylene and benzene will be drawn to confirm whether vinyl chloride/1,2-dichloroethylene and/or benzene concentrations meet or exceed 1 ppm in the worker's breathing zone. If the action level is exceeded, work will be discontinued, the work area will be permitted to vent, and



the workers moved to an area up wind. Work will not resume until the vinyl chloride/1,2-dichloroethylene and/or benzene concentrations fall below the action level. If after 10 minutes, the concentration of vinyl chloride/1,2-dichloroethylene and/or benzene does not fall below the action level, then the work will resume with the level of protection upgraded to level C using a full face air purifying respirator equipped with an organic vapor cartridge and dust prefilters. Once in level C, vinyl chloride/1,2-dichloroethylene and benzene Draeger tubes will be drawn every hour to monitor their presence. When this monitoring indicates that the concentration is below the action level, then downgrading to Level D is possible. If vinyl chloride/1,2-dichloroethylene concentrations meet or exceed 10 ppm, work will be discontinued, the work area will be permitted to vent, and the workers will be moved to an area upwind until vinyl chloride/1,2-dichloroethylene concentrations fall below 10 ppm. If benzene concentrations meet or exceed 50 ppm, work will be discontinued, the work area will be permitted to vent, and the workers will be moved to an area upwind until benzene concentrations fall below 50 ppm. If it has been determined that vinyl chloride/1,2-dichloroethylene and/or benzene are not present in concentrations equal to or greater than 1 ppm, work can continue until PID readings reach 50 ppm for a sustained period of 5 minutes in the worker's breathing zone. Should PID readings meet or exceed 50 ppm, work will be discontinued and the work area will be permitted to vent. If after 10 minutes of venting, the PID readings are still 50 ppm or greater, work can resume with workers upgraded to Level C protection.

Real-time air monitoring, for volatile compounds and particulate levels at the perimeter of the work area will also be performed.

- Volatile organic compounds will be monitored at the downwind perimeter of the work area daily at 2 hour intervals. If total organic vapor levels exceed 5 ppm above background, work activities must be halted and monitoring continued.
- Particulates will be continuously monitored upwind, downwind and within the work area at temporary particulate monitoring stations. If the downwind particulate level is

150 $\mu\text{g}/\text{m}^3$ greater than the upwind particulate level, then dust suppression techniques must be employed.

If the ambient air concentration of organic vapors exceeds 5 ppm above background at the perimeter of the work area, activities will be halted and monitoring continued. If the organic vapor level decreases below 5 ppm above background, work activities can resume but more frequent intervals of monitoring, as directed by the SSO, must be conducted. If the organic vapor levels are greater than 5 ppm over background but less than 25 ppm over background at the perimeter of the work area, activities can resume provided:

- the organic vapor level 200 ft. downwind of the work area or half the distance to the nearest residential or commercial structure, whichever is less, is below 5 ppm over background, and
- more frequent intervals of monitoring, as directed by the SSO, are conducted.

If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown. When work shutdown occurs, downwind air monitoring as directed by the SSO will be implemented to ensure that vapor emission does not impact the nearest residential or commercial structure at levels exceeding those specified below.

If any organic levels greater than 5 ppm over background are identified 200 feet downwind from the work area or half the distance to the nearest residential or commercial property, whichever is less, all work activities must be halted.

If, following the cessation of the work activities, or as the result of an emergency, organic levels persist above 5 ppm above background 200 feet downwind or half the distance to the nearest residential or commercial property from the work area, then the air quality must be monitored within 20 feet of the perimeter of the nearest residential or commercial structure (20 Foot Zone).



If efforts to abate the emission source are unsuccessful and if organic vapor levels approaching 5 ppm above background persist for more than 30 minutes in the 20 Foot Zone, then the following response plan shall automatically be placed into effect;

However, the response plan shall be immediately placed into effect if organic vapor levels are greater than 10 ppm above background.

Upon activation, the following response plan will be undertaken:

1. All emergency response contacts as listed in the HASP of the Work Plan will go into effect.
2. The local police authorities will immediately be contacted by the SSO and advised of the situation.
3. Frequent air monitoring will be conducted at 30 minute intervals within the 20 Foot Zone. If two successive readings below action levels are measured, air monitoring may be halted or modified by the SSO.

LEVELS OF PROTECTION

Based upon the hazard evaluation results, all tasks will be performed in level D protection. In the event that the established action levels are exceeded, the level of protection will be upgrade to level C. The following is a description of the personal protective equipment required for each level:

Level D

- Hard hat
- Disposable coveralls
- Safety glasses, goggles, or faceshield
- Steel-toe and shank, chemical-resistant boots
- Chemical-resistant gloves



- Hearing protection, NRR of 35 decibels

Level C

- Full face air purifying respirator equipped with organic vapor cartridges and dust prefilters
- Hard hat
- Disposable coveralls
- Safety glasses, goggles, or faceshield
- Steel-toe and shank, chemical-resistant boots
- Chemical-resistant gloves
- Hearing protection, NRR of 35 decibels

SAFE WORK PRACTICES

- All Geraghty & Miller site personnel will be participants of the company's health and safety program. This includes 40 hours of initial training, annual 8 hour refresher training and 8 hour manager and supervisor training.
- All Geraghty & Miller site personnel are participants of the company's medical surveillance program.
- A copy of the HASP will be available for reference at the site during the planned field activities. Site visitors will be required to sign the Site Visitors Log (Appendix A).
- Dust suppression, using a water spray, will be used when needed to reduce airborne particulates during the field activities.
- A pre-entry, tailgate safety meeting will be conducted and recorded in Appendix B prior to the start of each task to discuss the associated hazards.



- The SSO will inform all subcontractors of the potential hazards associated with the site and the planned field activities. A copy of the HASP will be made available for their review.
- All underground utilities and structures will be marked out and recorded in Appendix C prior to any ground intrusion work.
- Life jackets will be required during the surface water and sediment sampling task.
- No eating, drinking, and smoking will be permitted in the work and support zones.
- No sources of ignition, such as matches or lighters will be permitted in the work and support zones.
- The buddy system will be used in all work areas.
- During hazardous weather conditions, such as lightning and thunder storms, work will cease immediately.

HEAT STRESS

Heat stress is caused by a number of interacting factors, including environmental conditions, personal protective equipment, work load, and the individual characteristics of the worker. Each individual has different susceptibilities to heat stress due to many factors. These factors include age, physical fitness, degree of acclimatization, and the specific task being performed. Symptoms of heat stress are divided into five general categories as follows:

- **Behavioral Disorders:** A worker suffering from heat fatigue demonstrates symptoms such as the inability to concentrate, impaired performance, and loss of coordination.



- Skin Eruptions: Skin eruptions include profuse, tiny, raised red vesicles (blister-like) on affected areas, prickling sensation during heat exposure, and prickly heat. During heat stress, extensive areas of the skin that do not sweat upon heat exposure, will present a goose-flesh appearance that subsides with cool environments.
- Heat Exhaustion: Heat exhaustion is a condition that results from extensive water and/or salt depletion. Symptoms include fatigue, nausea, headaches, giddiness, clammy skin, pale complexion, and fainting. Heat cramps, which are painful muscle spasms (arms, legs, or abdominal), are also a symptom of heat exhaustion and can occur during or after work hours.
- Heat Syncope: Symptoms associated with this stage of heat stress include fainting when standing erect and becoming immobile.
- Heat Stroke: Symptoms usually associated with heat stroke are hot, dry skin, which is usually red, mottled, or blue. Additional symptoms include confusion, loss of consciousness, and convulsions.

To minimize worker's exposures to heat stress, it is important for field personnel to recognize the early signs and symptoms of heat stress so that preventive measures can be taken. Preventive measures include work schedule adjustment, rotating personnel, and selection of personal protective equipment.

- Adjustment of Work Schedules: In environments of extreme heat and humidity, work schedules should be modified. Heavy work should be conducted during the cooler hours of the early morning or early evening when the ambient temperature is usually lower. During the hotter hours, usually associated with mid-day, light work tasks should be performed whenever possible. Subcontractors should be informed of the potential for adjusted work schedules.



- Rotation of Personnel: By alternating job functions, a single worker may not be overstressed or overexerted as a result of performing heavy tasks throughout the day.
- Increase in Rest Periods: In extreme environmental conditions, the number of rest periods should be increased. Shaded areas or air conditioned facilities (trailer, cars, and buildings) should also be provided for these rest periods so that workers can adequately recover.

Bodily fluids should also be maintained at normal levels. A good guideline to follow is that fluid intake should equal every ounce of bodily fluid lost in sweat. Water is recommended as the fluid of choice. (No salt should be administered.) Field showers or hose-down areas should be provided to reduce body temperature.

SITE CONTROL

Entrance to the site is limited to authorized personnel only. The SSO will determine and identify the following areas of the work site. These areas will be divided into three zones, designated as the exclusion zone, the contamination reduction zone (CRZ), and the support zone. The SSO will also specify the equipment, operations, and personnel to occupy these controlled areas (see Figure 2).

1. Exclusion Zone (Zone 1)

The exclusion zone is the zone where contamination exists or could occur. All personnel working in an exclusion zone will wear the prescribed level of protection. An entry and exit check point will be visually defined at the periphery of the exclusion zone to regulate the flow of personnel and equipment into and out of the zone. Personnel who have not met the medical monitoring and training criteria set forth in this HASP are not permitted to enter the exclusion, contamination reduction, and support zones.



A visually defined exclusion zone will be established around work areas in which encountering hazardous substances is probable. When established, this zone will be of sufficient size to contain all work activities and resultant waste production. The exclusion zone perimeter will be defined with cones, barricades, or barricade tape.

2. Contamination Reduction Zone (Zone 2)

The area between the exclusion zone and the support zone is the CRZ. This zone provides a transition between a contaminated area (exclusion zone) and a support zone. The CRZ serves as a buffer to further reduce the possibility of the clean support zone from becoming contaminated. It provides additional assurance that the physical transfer of contaminating substances on personnel, on equipment, or in the air is limited through a combination of decontamination, distance between exclusion and support zones, air dilution, zone restrictions, and work functions. Decontamination of personnel and sampling equipment will be performed in the contamination reduction corridor (CRC), which will be situated within the CRZ. The CRC will be established as the entry and exit points to the defined work areas, as depicted on Figure 2.

3. Support Zone (Zone 3)

This space is outside the zone of contamination. The support zone must be marked and protected against contamination from the work area. This zone serves the following functions:

- An entry for personnel, material, and equipment.
- An exit for decontaminated personnel, materials, and equipment.
- An area for rest breaks.



The relationship between each of the three zones is depicted on Figure 2. Waste materials resulting from work activities (such as contaminated protective clothing) will be containerized within the exclusion zone and properly disposed of. Only authorized visitors and workers will be allowed within work areas during the field work. Site security will be performed by the SSO or his designee.

DECONTAMINATION

All personnel performing work tasks in the work areas must pass through the CRZ decontamination procedure, regardless of the work task or protection used. All equipment and tools used within the work area will also undergo decontamination. Final inspection of the equipment prior to leaving the work area is the responsibility of the SSO.

1. Personnel

The decontamination procedure depicted in Figure 3 will be employed for those tasks requiring Level C protection. A similar procedure, with two less stations (stations 4 and 6), will be used by personnel requiring Level D protection.

Station 1: Segregated Equipment Drop

Equipment used in the work area (tools, monitoring equipment, radios, clipboards, etc.) will be deposited on plastic drop cloths or in different containers with plastic liners. Tools and devices will be washed/wiped in a detergent solution and rinsed with clean water, then stored or serviced for reuse. Tools and similar field equipment may require a high-temperature water/steam wash. This station may be located adjacent to the CRZ decontamination line.



Station 2: Wash and Rinse Outer Garment, Boots, and Gloves

Outer boots and gloves will be scrubbed with a decontamination solution, consisting of detergent and water. Gloves, boots, and garment will be rinsed with a hand-pump spray bottle or in a plastic bucket or tub.

Station 3: Removal of Outer Gloves

Outer gloves and any accompanying tape will be removed. Tape should be placed in a container with a plastic liner. Reusable gloves will be cleaned and stored for future use.

Station 4: Cartridge Change

If a worker leaves the exclusion zone to change respirator cartridges, Station 4 must be the last step in the decontamination procedure. After the worker's cartridges have been exchanged, the outer glove and boot covers are donned and joints taped, if required. The worker may then return to the exclusion zone.

Station 5: Removal of Boots and Outer Garment

Boots and outer garment will be removed. The outer, disposable, chemical-resistant garment should be deposited in a plastic-lined container. Reusable protective garments will be removed and stored for future use.



Station 6: Removal of Respiratory Protection

The respirator face piece will be removed, and the respirator will be placed in a plastic-lined container for decontamination.

Station 7: Removal of Inner Gloves

Inner gloves will be removed and deposited in a plastic-lined container.

Upon removal of inner protective gloves, boots, and protective clothing, personnel will pass into the clean portion of the CRZ to wash their hands and faces. Respirators will be stored within the clean area after being decontaminated. Outer boots and coveralls will be stored or discarded and not worn in the support area.

2. Equipment and Vehicles

Equipment will be washed with decontamination solution (i.e., detergent and water), rinsed with clean water, and if required, steam cleaned to the satisfaction of the SSO prior to reuse. Vehicles will be decontaminated in a designated area. Support vehicles will be decontaminated as deemed necessary by the SSO.

3. Decontamination Personnel

Personnel working in the CRZ will wear, at a minimum, the same level of protection as the workers. In addition, face shields will be worn rather than safety glasses or goggles in order to protect personnel against splashing.



4. Decontamination Waste Disposal

Solid wastes (discarded protective clothing, tape, etc.) will be containerized and disposed in an approved manner by Ingersoll-Rand.

5. Equipment Needs

The following equipment may be used during the decontamination procedure:

Station 1:

- Plastic drop cloths.
- Plastic 30- or 50-gallon containers.

Station 2:

- Hand-operated garden-type sprayers.
- Large tubs or wash containers (30- to 50-gallon capacity).
- Plastic buckets
- Brushes.
- Decontamination solution.
(1) Commercially available detergent.

Station 3:

- Plastic liners.
- Plastic containers (30- to 50-gallon capacity).



Station 4:

- Duct tape.
- Respirator cartridges.

Station 5:

- Plastic liners.
- Plastic containers (30- to 50-gallon capacity).
- Detergent and/or boric acid for decontamination of respirators.

Station 6:

- Plastic liners.
- Plastic containers (30- to 50-gallon capacity).
- Bench
- Rack for boots.

Other Equipment:

- Hand-operated garden-type hose sprayers or garden hose for vehicle and equipment washing and rinsing.
- Steam cleaner.
- Potable water supply.
- Wash basins.



6. Contaminant Containment

A housekeeping program will be implemented during the course of the work tasks to avoid the spread of any contaminants beyond the exclusion zone. The housekeeping program will include the following:

- Periodic policing of the work areas for debris, including paper products, cans, etc.
- Periodic changing of wash and rinse water for hands, face, and equipment.
- Periodic removal (weekly minimum) of all garbage bags and containers used to dispose of disposable clothing. Contaminated materials will be disposed in an approved manner.

EMERGENCY PLAN

Verbal communications may be difficult at times due to personal protective equipment and noise. A universal set of hand signals will then be used. They are as follows:

Hand gripping throat:	Can't breathe
Grip partner's wrist or place hands around waist:	Leave work area immediately
Hand on top of head:	Need assistance
Thumbs up:	Okay, I'm all right
Thumbs down:	No, Negative



INJURY REPORTING

All job-related injuries and illnesses will be reported to the SSO. If medical attention is needed, the injured worker will be decontaminated, if possible, prior to leaving the site. The SSO will investigate the cause of the accident and corrective measures will be taken before the work can resume.

It will be the responsibility of the SSO to complete the accident reporting form, OSHA 101, included as Appendix D for all injuries. The completed OSHA 101 should be forwarded to the office health and safety manager within six days for recording into the OSHA 200 log. In the event of a fatality or 3 or more workers hospitalized as a result of a single incident, the SSO will contact the office health and safety manager immediately for OSHA reporting purposes.

EMERGENCY TELEPHONE NUMBERS

Police	- 911
Fire	- 911
Ambulance	- 911
WCA Hospital	(716) 487-0141

DIRECTIONS TO THE HOSPITAL

From the site location on Allen Street, proceed west on Allen Street to Foote Street. WCA Hospital is on the corner of Allen Street and Foote Street. The route to the hospital is shown on Figure 4.

G:\PROJECT\INGERSOL\A\0219.000\REPORTS\JAMEHASP.DOC



Table 1. Potential Physical and Chemical Hazards Associated with the Planned Field Activities, D.C. Rollforms/Ingersoll-Rand Site, Jamestown, New York

	Physical Hazards						Chemical Hazards		
	Struck By/Against	Slips and Falls	Noise	Splash	Heat Stress	Inhalation	Skin and Eye Contact	Skin Absorption	Accidental Ingestion
Task 1: Electromagnet (EM) Survey	X	X	X	X	X	X	X	X	X
Task 2: Groundwater Sampling Using the Geoprobe Method	X	X	X	X	X	X	X	X	X
Task 3: Surface Soil Sampling	X	X		X	X	X	X	X	X
Task 4: Monitoring Well Installation	X	X	X	X	X	X	X	X	X
Task 5: Water-Level Measurements	X	X		X	X	X	X	X	X
Task 6: Groundwater Sampling from Monitoring Wells	X	X		X	X	X	X	X	X
Task 7: Surface Water and Sediment Sampling	X	X		X	X	X	X	X	X
Task 8: Hydraulic Conductivity Testing	X	X		X	X	X	X	X	X
Task 9: Surveying Monitoring Wells	X	X			X	X	X	X	X

G:\aproject\ingersollreports\tab1pot.xls



Table 2. Current Occupational Airborne Contaminant Standards and Guidelines, D.C. Rollforms/Ingersoll-Rand Site, Jamestown, New York.

Compound	ACGIH-TLV (ppm)		OSHA-PEL (ppm)	
	TWA	STEL	TWA	STEL
Benzene	10	--	1	--
1,2-Dichloroethene	200	--	200	--
Ethylbenzene	100	125	100	125
Toluene	50	--	100	150
Trichloroethene	50	100	50	200
Vinyl chloride	5	--	1	--
Xylene	100	150	100	150
Beryllium	0.002 mg/m ³	--	0.002 mg/m ³	0.005 mg/m ³
Cadmium	0.01 mg/m ³	--	0.01 mg/m ³	--
Chromium	0.5 mg/m ³	--	0.5 mg/m ³	--
Lead	0.15 mg/m ³	--	0.05 mg/m ³	--
Mercury	0.025 mg/m ³	--	0.01 mg/m ³ Ceiling	

ACGIH American Conference of Governmental Industrial Hygienists (1994-1995).

OSHA Occupational Safety and Health Administration (1989).

TLV Threshold limit value.

PEL Permissible exposure limit.

TWA 8-Hour time weighted average.

STEL 15-Minute short term exposure limit.

ppm Parts per million.

-- Not established.

mg/m³ Milligrams per cubic meter.

Ceiling Level that should not be exceeded.

G:\PROJECT\INGERSOLL\TAB2HASP.DOC



DRAFTER: G.S.

APPROVED: T. ENG

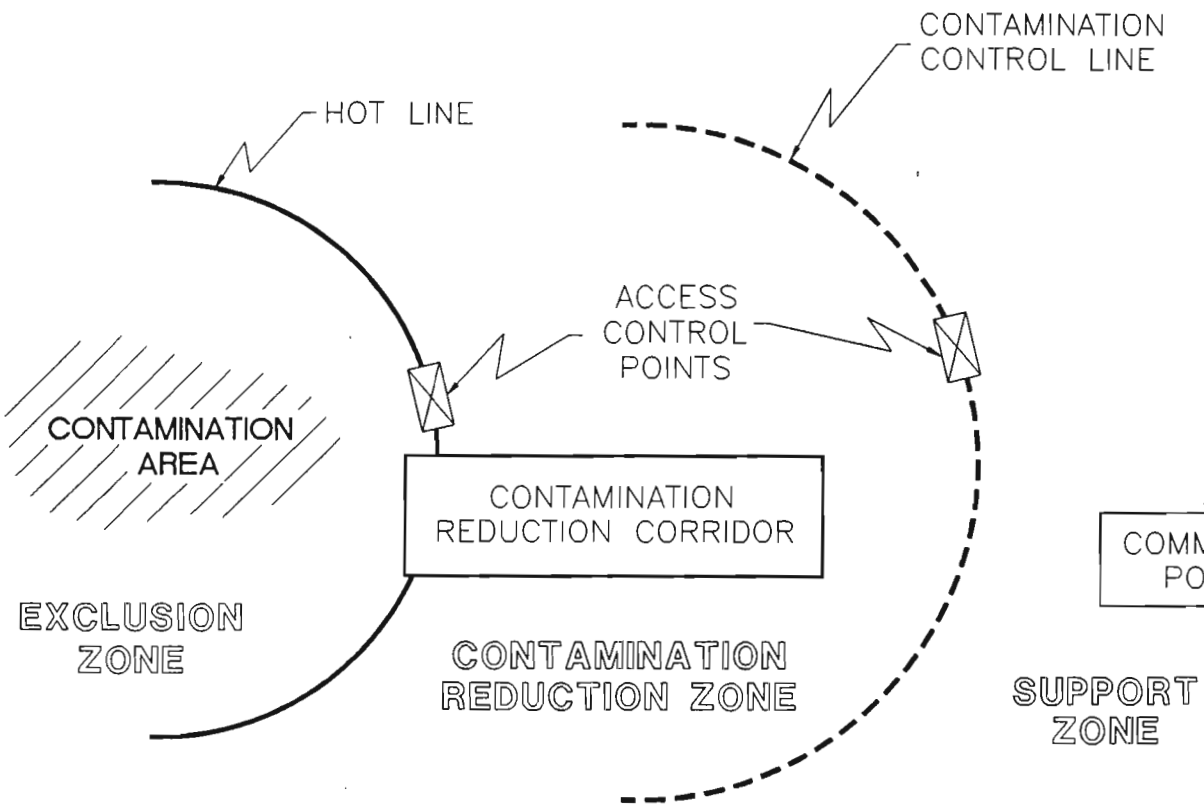
CHECKED: T. ENG

DRAWING: WORK-Z

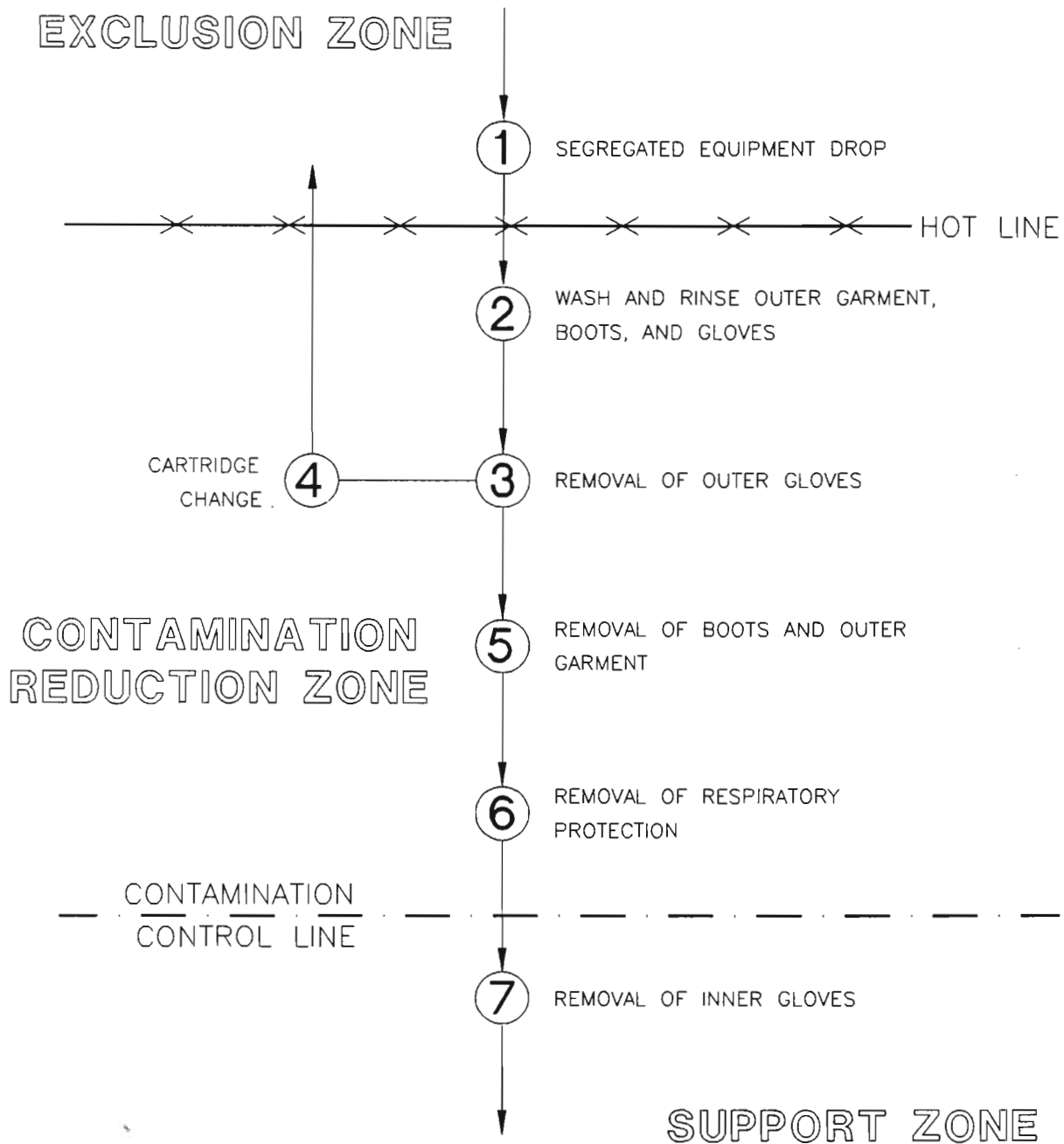
FILE NO.: 1771

PRJCT NO.: AY0219001

DWG DATE: 5-6-96

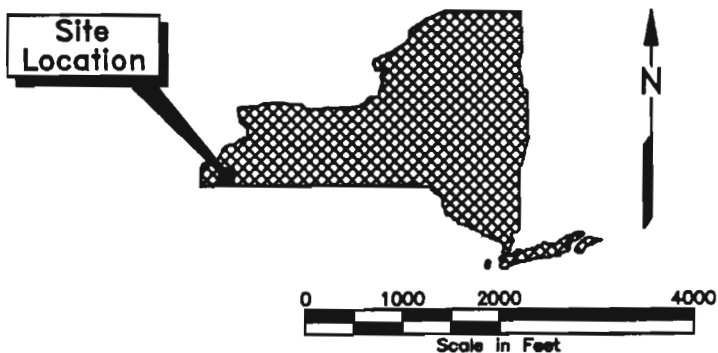


DWG DATE: 5-6-96 | PROJECT NO.: AY0219001 | FILE NO.: 1771 | DRAWING: DECPRD | CHECKED: T. ENG | APPROVED: T. ENG | DRAFTER: G.S.





Reference: U.S. Geological Survey, 7.5 Minute Quadrangle, Jamestown, New York, Edited 1954.



HOSPITAL ROUTE

D.C. ROLLFORMS/INGERSOLL-RAND SITE
Jamestown, New York

DRAWN: TAD/G248A

DATE:

APRIL 1996

FIGURE 4

APP'D:



**GERAGHTY
& MILLER, INC.**
Environmental Services

APPENDIX A

SITE VISITORS LOG

SITE VISITORS LOG									
-------------------	--	--	--	--	--	--	--	--	--

THE UNDERSIGNED VISITORS REQUIRE ENTRANCE TO THE EXCLUSION ZONE AND HAVE THOROUGHLY READ THE HEALTH AND SAFETY PLANS, UNDERSTAND THE POTENTIAL HAZARDS AT THE SITE, AND THE PROCEDURES TO MINIMIZE EXPOSURE TO THE HAZARDS.

[illegible]

APPENDIX B

TAILGATE SAFETY MEETING FORM

TAILGATE SAFETY MEETING

Client _____ Prepared by _____
Date _____ Project _____
Work Location _____ Project Number _____
Type of Work to be Done _____

SAFETY TOPICS PRESENTED

Chemical Hazards _____
Physical Hazards/Underground Utilities _____
Protective Clothing/Equipment _____
Special Equipment _____
Emergency Procedures _____
Hospital/Clinic _____ Phone () _____
Paramedic Phone () _____
Hospital Address _____
Other _____

ATTENDEES

NAME PRINTED

SIGNATURE

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Meeting Conducted by _____
Name Printed Signature



APPENDIX C

UTILITIES AND STRUCTURES CHECKLIST

UTILITIES AND STRUCTURES CHECKLIST

Project: _____ **Prepared by:** _____

Location: _____ **Date:** _____

Instructions. This checklist has to be completed by a G&M staff member as a safety measure to insure that all underground utility lines, other underground structures as well as above-ground power lines are clearly marked out in the area selected for boring or excavation. **DRILLING OR EXCAVATION WORK MAY NOT PROCEED UNTIL LINES ARE MARKED AND THIS CHECKLIST HAS BEEN COMPLETED.** Arrangements for underground utility markouts are best made at the time of the preliminary site visit to allow client and/or utility company sufficient time. Keep completed checklist and maps onsite; send copy to Project Manager.

Assignment of Responsibility. Client is responsible for having underground utilities and structures located and marked. Preferably, the utilities themselves should mark out the lines.

Drilling or Excavation Sites. Attach a map of the property showing the proposed drilling or excavation site (or if sites are widely separated, several maps) clearly indicating the area(s) checked for underground utilities or underground structures and the location of above-ground power lines.

Utilities and Structures

Type	Not Present	Present	How Marked? ¹⁾
Petroleum products line			
Natural gas line			
Steam line			
Water line			
Sewer line			
Storm drain			
Telephone cable			
Electric power line			
Product tank			
Septic tank/drain field			
Overhead power line			

1) Flags, paint on pavement, wooden stakes, etc.

Name and affiliation of person who marked out underground lines or structures.

NAME _____ ORGANIZATION _____ PHONE _____

Emergency Procedures

Persons at site or facility to contact in case of emergency

1. _____ Phone _____

2. _____ Phone _____

Fire Dept.: Phone _____ Ambulance: Phone _____

Utility: Phone _____ Utility: Phone _____

Utility: Phone _____ Utility: Phone _____

Directions to nearest hospital (describe or attach map).

APPENDIX D

ACCIDENT REPORTING FORM, OSHA 101

OSHA FORM 101

SUPPLEMENTARY RECORD OF OCCUPATIONAL INJURIES AND ILLNESSES

EMPLOYER

1. Name _____
2. Mail Address _____
(No. and street) (City or town) (State)
3. Location, if different from mail address _____

INJURED OR ILL EMPLOYEE

4. Name _____ Social Security No. _____
(First name) (Middle name) (Last name)
5. Home Address _____
(No. and street) (City or town) (State)
6. Age _____ 7. Sex: Male _____ Female _____ (Check one)
8. Occupation _____
(Enter regular job title, not the specific activity he was performing at time of injury.)
9. Department _____
(Enter name of department or division in which the injured person is regularly employed, even though he may have been temporarily working in another department at the time of injury.)

THE ACCIDENT OR EXPOSURE TO OCCUPATIONAL ILLNESS

10. Place of accident or exposure _____
(No. and street) (City or town) (State)
If accident or exposure occurred on employer's premises, give address of plant or establishment in which it occurred. Do not indicate department or division within the plant or establishment. If accident occurred outside employer's premises at an identifiable address, give that address. If it occurred on a public highway or at any other place which cannot be identified by number and street, please provide place references locating the place of injury as accurately as possible.
11. Was place of accident or exposure on employer's premises? _____ (Yes or No)
12. What was the employee doing when injured? _____
(Be specific. If he was using tools or equipment or handling material, name them and tell what he was doing with them.)
13. How did the accident occur? _____
(Describe fully the events which resulted in the injury or occupational illness. Tell what happened and how it happened. Name any objects or substances involved and tell how they were involved. Give full details on all factors which led or contributed to the accident. Use separate sheet for additional space.)

OCCUPATIONAL INJURY OR OCCUPATIONAL ILLNESS

14. Describe the injury or illness in detail and indicate the part of body affected _____
(e.g. amputation of right index finger at second joint; fracture of ribs; lead poisoning; dermatitis of left hand, etc.)
15. Name the object or substance which directly injured the employee. (For example, the machine or thing he struck against or which struck him; the vapor or poison he inhaled or swallowed; the chemical or radiation which irritated his skin; or in cases of strains, hernias, etc., the thing he was lifting, pulling, etc.) _____
16. Date of injury or initial diagnosis of occupational illness _____
(Date)
17. Did employee die? _____ (Yes or No)

OTHER

18. Name and address of physician _____
19. If hospitalized, name and address of hospital _____
- Date of report _____ Prepared by _____
- Official position _____