

ADDENDUM No. 2

RFP No. 19-29

Fiber & Conduit Design and Planning for the DDA District

Due Date: October 9, 2019 by 2:00 P.M. (local time)

The information contained herein shall take precedence over the original documents and all previous addenda (if any), and is appended thereto. **This Addendum includes thirty-nine (39) pages.**

The Proposer is to acknowledge receipt of this Addendum No. 2, including all attachments in its Proposal by so indicating in the proposal that the addendum has been received. Proposals submitted without acknowledgement of receipt of this addendum may be considered non-conforming.

The following forms provided within the RFP Document must be included in submitted proposal:

- Attachment C - Non-Discrimination Declaration of Compliance
- Attachment D - Living Wage Declaration of Compliance
- Attachment E - Vendor Conflict of Interest Disclosure Form

Proposals that fail to provide these completed forms listed above upon proposal opening will be rejected as non-responsive and will not be considered for award.

I. CORRECTIONS/ADDITIONS/DELETIONS

Changes to the RFP documents which are outlined below are referenced to a page or Section in which they appear conspicuously. Offerors are to take note in its review of the documents and include these changes as they may affect work or details in other areas not specifically referenced here.

Section/Page(s)	Change
Pages 43-45	As provided in RFP No. 19-29 Document: Appendix B, Compensation and Fee Proposal Form
	As updated herein: Appendix B, Compensation and Fee Proposal Form

Comment: The intent with this change is to remove the Estimated Hours column provided in the RFP Document.

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II. QUESTIONS AND ANSWERS

The following Questions have been received by the City. Responses are being provided in accordance with the terms of the RFP. Respondents are directed to take note in its review of the documents of the following questions and City responses as they affect work or details in other areas not specifically referenced here.

Question 1: How many buildings total are there within the DDA?

Answer 1: We do not have a count of the buildings in the DDA District. You can reference the map provided in the RFP to determine the number. There are 1,728 parcels in the DDA District.

Question 2: How many buildings do you want to serve in the DDA?

Answer 2: We are not servicing any specific buildings as part of this RFP. Our goal is to outfit the DDA District with main conduit path that will accommodate fiber and be in proximity in order to easily connect to a structure, or from Point A to Point B.

Question 3: Does the DDA want a star or ring topology?

Answer 3: This is not for the DDA, but the DDA District within the City. This is a City of Ann Arbor project not a DDA project. We require a main conduit path in order to accommodate connections from Point A to Point B. We are looking for recommendations on how best to achieve this physically.

Question 4: Has a head end location been selected for the design?

Answer 4: No, a head end has not been selected. The City of Ann Arbor data center located at 301 E. Huron St. is a head end/termination point for other City fiber.

Question 5: Are we to include building entrances and Inside Plant design (ISP) in our proposal?

Answer 5: No.

Question 6: What is the anticipated fiber count for the DDA?

Answer 6: There is no fiber for the DDA. This is primarily a main conduit build that can accommodate fiber.

Question 7: Are there any restrictions on what entities will be allowed to access the DDA network?

Answer 7: This is not a DDA network.

Question 8: Will a copy of the pre-bid meeting sign in sheet be made available?

Answer 8: Yes, the pre-proposal sign-in sheets are attached hereto.

Question 9: Do you have a sign-in sheet or a list of contractors that attended the prebid meeting for the RFP 19-29 FIBER AND CONDUIT DESIGN AND PLANNING FOR THE DDA DISTRICT - CITY OF ANN ARBOR project?

Answer 9: Yes, the pre-proposal sign-in sheets are attached hereto.

Question 10: Will the City require survey, TOPO, and Profiles to be included in the permit submission?

Answer 10: You'll need a survey to determine the location of the right-of-way, to provide proper dimensioning of the existing and proposed utilities, and to identify features such as street trees and (especially in the DDA) other streetscape work that may be impacted by the construction, such as brick, stamped concrete, etc. Where ever utilities are being crossed, profiles should be provided.

- Question 11: Please confirm that you are requiring the route design including all optional routes to be in both ESRI and CAD formats.
- Answer 11: Yes.
- Question 12: Is the City expecting the vendor to physically proof / rod existing conduit? If so, how do we estimate the amount of proofing, traffic control, and potential traffic restrictions?
- Answer 12: The vendor is responsible for proofing and rodding existing conduit. The design and construction will primarily be new build. We do not anticipate having to proof and rod unless we discovery unknown conduit in the route.
- Question 13: Is the City expecting the route to be surveyed and staked during the design / engineering phase? If so, how do we estimate the amount of staking?
- Answer 13: Yes, the contractor is responsible for the route to be surveyed and staked. The amount will be determined during the design process.
- Question 14: Will the vendors be expected to enter City owned vaults / manholes that require confined space certification?
- Answer 14: We do list manholes/vaults generally in the city as Permit Confined Spaces. We have an obligation to notify the successful bidder of this and share a copy of our Confined Space Program (attached). Contractors should follow the MIOSHA rules when entering permit spaces and the city should have advanced notice. The contractor shall utilize trained personnel only and complete all permit requirements. They should also conduct their own evaluation of the space prior to entry, including atmospheric testing and provide adequate ventilation.
- Question 15: Will any significant electrical voltage be present in any of the existing City owned vaults / manholes?
- Answer 15: Handholes/pullboxes have voltages with 120VAC, 208VAC, 240VAC, and 277VAC.
- Question 16: Will the City provide a dedicated person from the Engineering Dept to manage the permitting process and address any conflicts with the design?
- Answer 16: Yes, the City can provide a dedicated person.
- Question 17: How many status meetings does the City expect to have for the duration of the project?
- Answer 17: I would plan for weekly status meeting to begin. This can be done via a conference call with periodic face-to-face meetings. This can be relaxed depending on how the project progresses and how effective the communications are between the chosen contractor and the City.
- Question 18: Is the vendor responsible for managing the change order process for the construction portion of the project?
- Answer 18: No, the City will be responsible for this. The vendor will be required to work with the City to review and consult on issues related to change orders.
- Question 19: The FEE Proposal format does not match the RFP format. What item would we put staking cost?
- Answer 19: Place staking cost in Item #3 - Site Work.
- Question 20: Can the City provide guidance on how to estimate cost for permitting, staking, survey, and traffic control without any estimated lengths of trench or Aerial placement?
- Answer 20: No. This needs to be determined by the vendor based on our scope.

- Question 21: What is the anticipated timeline to complete the design work?
Answer 21: The design should be completed within 6 months or 180 days of the initial project kickoff meeting. The kickoff meeting will begin once approval and agreements are completed. This timeline is flexible. The most important aspect of this project is to do it in a quality manner.
- Question 22: Will the new network design include connections to key facilities or is this first phase for backbone design only?
Answer 22: Any connections to city or other facilities will be determined as part of the project but would only be part of the backbone design. The City's data center located in the Justice Center located at 301 E. Huron St. is the City's main head end/termination point for the City's fiber networks.
- Question 23: If connecting key facilities, are we designing all the way to the fiber panel in each building?
Answer 23: The only location we may plan to connect to a fiber patch panel will be the City's data center located at 301 E. Huron St., unless otherwise determined through the design process.
- Question 24: Is there an estimated number of network connections that will need to be designed to?
Answer 24: No.
- Question 25: Will the successful bidder be responsible for equipment design?
Answer 25: No.
- Question 26: Who is responsible to pay all permit fees?
Answer 26: The City will pay all permit fees.
- Question 27: Who is responsible for make ready costs?
Answer 27: The City will pay all make ready fees. The City has an existing Pole Attachment Agreement with AT&T and DTE.
- Question 28: Is the legacy fiber all aerial, underground or a combination of both?
Answer 28: It is a combination.
- Question 29: If leveraging existing conduit, is this conduit running through an underground electric network, or is it a stand along fiber network?
Answer 29: Any existing fiber is running in conduit separate from any electrical conduit.
- Question 30: Will an Electrical contractor's license be required to complete any portion of the design, including conduit proofing?
Answer 30: We do not require an Electrical contractor's license for the ROW permit.
- Question 31: If the design contractor is responsible for conduit proofing, is there an estimated quantity?
Answer 31: The estimated quantity will need to be determined in the design.
- Question 32: Is there a requirement to have PE stamps on any of the documentation?
Answer 32: Yes, PE stamps are required.
- Question 33: Who is responsible for pole attachment agreements or are they already in place?
Answer 33: The City already has Pole Attachment Agreements in place with AT&T and DTE.
- Question 34: If there are any permit fees, will those be paid by the City?
Answer 34: The City will pay all permit fees.

- Question 35: What would constitute “consolidated field notes”?
Answer 35: Engineering field notes or the daily field construction notes from the inspectors.
- Question 36: The proofing of the existing conduit could have an impact on the cost of our proposal, can you provide an idea of the quantity of conduits that this might entail?
Answer 36: The vendor is responsible for proofing and rodding existing conduit. The design and construction will primarily be new build. We do not anticipate having to proof and rod unless we discover unknown conduit in the route.
- Question 37: Are there any areas within the DDA district where snow melt systems are in place? Do you have maps that reflect those areas?
Answer 37: There should not be any snow melt systems in place.
- Question 38: As discussed at the pre-bid, there is not a requirement to do specific building entries for buildings passed, correct?
Answer 38: That is correct, but we may want to connect the City data center located at 301 E. Huron St.
- Question 39: Do the construction drawings need to include full profile drawings or will plan view be sufficient?
Answer 39: Plan view is sufficient.
- Question 40: Will utility locates need to be called in and recorded as part of the design process?
Answer 40: Yes, the contractor is responsible for calling in Misssdigs / locates.
- Question 41: How does the city’s power network need to be integrated? What are the requirements for surveying the power infrastructure?
Answer 41: The power services we have are designed to feed what it was installed for (Streetlights/GFI’s and Traffic signals).
- Question 42: Does prevailing wage apply to this project, or does only the living wage apply?
Answer 42: Since this RFP is not for construction but only design only Living Wage would apply.
- Question 43: Is there an anticipated schedule or duration for the engineering phase and also the construction phase?
Answer 43: The design should be completed within 6 months or 180 days of the initial project kickoff meeting. The kickoff meeting will begin once approval and agreements are completed. This timeline is flexible. The most important aspect of this project is to do it in a quality manner.
- Question 44: Will an addendum for the Prebid meeting notes be released?
Answer 44: See Section I - Corrections/Additions/Deletions in draft addendum for response.

Offerors are responsible for any conclusions that they may draw from the information contained in the Addendum.

**APPENDIX B
COMPENSATION AND FEE PROPOSAL FORM**

General

Contractor shall be paid for those Services performed pursuant to this Agreement inclusive of all reimbursable expenses (if applicable), in accordance with the terms and conditions herein. The Compensation Schedule below/attached states nature and amount of compensation the Contractor may charge the City:

FEE PROPOSAL FORM

Project: Fiber Optic Network Design and Engineering Services. RFP# 19-29.

Consultant's Name: _____

Notes:

1. All Consultants shall provide a pricing for all RFP items specified below based upon a time and materials basis.
2. The City, at its sole discretion, may elect to delete any portion of the work delineated below. Work shall be determined based upon the availability of funds.
3. Any item not provided in the following list shall be considered incidental.
4. Contract shall be awarded based on the base bid or any combination of a base bid and alternate bid in any manner the City believes to be in its best interest.
5. The Consultant agrees to complete the Project and all related work, as specified in the Scope of Work with RFP# 19-29.

Item	Description	Staff Name, Staff Title	Hourly Rate	Amount (\$)
1	Project Management			
2	Network Route Design			

3	Site Work			
4	Engineering Design			
5	Documentation and Deliverables			
6	Construction Oversight for Phase II			

7	Permitting for "Make Ready" Construction			
8	Other – Please Describe any other work requiring cost estimate.			

Signature of Authorized Representative of Offeror



**City of Ann Arbor Purchasing
Pre-Proposal Sign-In Sheet**



RFP# 19-29 – Fiber & Conduit Design and Planning for DDA District

	First /Last Name	Department/Entity	Phone #	E-Mail Address
1.	STEPHEN KLUSOVSKY	Geotech, Inc	616 949 3340	STEVE.KLU@GEOTECH-INC.COM
2.	MARLE NEUNMEYER	CES/MES	810-358-8387	mneunmeyer@us-byenergy.com
3.	Rob Siewert	CES/MES	313-530-4180	rsiewert@metros.net
4.	JANSON DEMER	ACTAVO	810-206-0513	JANSON.DEMER@ACTAVO.COM
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**City of Ann Arbor Purchasing
Pre-Proposal Sign-In Sheet**



RFP# 19-29 – Fiber & Conduit Design and Planning for DDA District

	First /Last Name	Department/Entity	Phone #	E-Mail Address
1.	Tom Glass	Turnkey	616-988-3344	TK@TKUS.net
2.	Parviz Nur	Time	584.634.0926	parvaznur@tymanengineering.com
3.	Chris Kirkland	Fore site Group	805-337-9345	CKirkland@FG-INE.net
4.	Colin Spencer	AP-purchasing	734-794-6500	CSpencer@adgov.org
5.	Tom Shewchuk	A2-IT	734-794-6550	TShewchuk@AZGov.org
6.	David Humes	A2-IT	734-794-6550	DHumes@AZGov.org
7.	Mary Shindell	Merit	734 587 5783	shindell@merit.edu
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CONFINED SPACE ENTRY PROGRAM PERMIT REQUIRED CONFINED SPACES

City of Ann Arbor

**Completed Date: 01/22/2015
Date of Last Review: 6/27/2018**

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CONFINED SPACE ENTRY PROGRAM – PERMIT-REQUIRED CONFINED SPACES

PURPOSE

The purpose of this program is to inform interested persons, including employees, of the procedures that the City of Ann Arbor is utilizing to comply with the requirements of the Michigan Occupational Safety and Health Administration (MIOSHA) Confined Space Standard, Part 90 (General Industry). This document details the City of Ann Arbor's written procedures for the evaluation of confined spaces, and where permit required spaces are identified, the city has developed and implemented a permit-required confined space entry program. This program applies to all work operations at the City of Ann Arbor where employees must enter a permit-required confined space as part of their job duties.

In order to provide a safe work environment, employees must be familiar with and utilize safe work practices and be able to recognize and evaluate confined spaces. In addition, employees must have the appropriate equipment and training to complete work safely.

The City of Ann Arbor has identified all permit-required confined spaces at city facilities and has determined entry and rescue procedures. Through this document, individual units are empowered to:

- Designate entry supervisors trained to issue permits;
- Designate all employees (authorized entrants) trained to enter permit-required confined spaces or serve as attendants;
- Designate the trained rescue and emergency service members or an outside rescue service;
- Identify all personal protective equipment (PPE), air monitoring equipment, communications equipment, ventilation equipment, lighting equipment and rescue equipment which employees may utilize for confined spaces;
- Document training and recordkeeping procedures as required;

If you have any questions regarding this program please contact the Safety Unit at extension 43110. A full electronic copy of this program can be located 24-hours a day at <https://a2central.a2gov.org/departments/safety/Pages/default.aspx>

REFERENCE DOCUMENTS

- [MIOSHA Part 90 and 490. Permit-Required Confined Spaces](#)
- [MIOSHA Permit-Required Confined Space Decision Flow Chart](#)
- [City of Ann Arbor Lock Out/Tag Out Plan](#)
- [City of Ann Arbor Hot Work Permit](#)
- [Capital Safety Equipment Care and Maintenance](#)
- [Miller Equipment Inspection Guide](#)

DEFINITIONS

Acceptable Entry Conditions – the conditions that exist in a permit-required space to allow safe entry and work within the space.

Attendant (Spotter) – person stationed outside one or more permit spaces who monitors the authorized employees and performs attendant's duties assigned in this policy.

Authorized Entrant/Employee – person who has received confined space entry training as an entrant/supervisor.

Blanking or Blinding – the absolute closure of a pipe, line, or duct by fastening a solid plate (such as a spectacle blind or a skillet blind) completely covering the bore and that is capable of withstanding the maximum pressure of the pipe, line or duct with no leakage beyond the plate. This involves installing a blank between flanges with a leak-proof gasket at a point in the conducting line as close to the confined space area as possible. The blank or blind should be marked identifying its purpose.

Combustible Gas – airborne concentration of gas or vapor which may present the risk of fire or explosion if an ignition source of sufficient energy is introduced. This term is synonymous with "flammable vapor" and "explosive gas."

Confined Space – a space that meets **all** of the following criteria:

- It is large enough and has a configuration that allows an employee to bodily enter it and perform assigned work;
- Has limited or restricted means for entry and exit, e.g., tanks, tunnels, vessels, silos, storage bins, hoppers, vaults, and pits; and
- Is not designed for continuous employee occupancy.

Double Block and Bleed – the closure of a line, duct, or pipe by closing and locking or tagging two in-line valves and by opening and locking or tagging a drain or vent valve in the line between the two closed valves.

Emergency – means any occurrence (including any failure of hazard control or monitoring equipment) or event internal or external to the permit space that could endanger entrants.

Engulfment – the surrounding or capture of a person by a liquid or finely divided (flowable) solid substance that can cause asphyxiation, drowning, or can exert enough force on the body to cause death by strangulation, constriction or crushing.

Entry – means the action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.

Entry Permit – written or printed document that is provided by the City of Ann Arbor to allow and control entry into a permit space.

Entry Supervisor – means the person (such as a supervisor, foreman or crew chief) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this section.

Hazardous Atmosphere – an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self rescue, injury, or acute illness from one or more of the following causes:

- Flammable gas, vapor, or mist in excess of 10% of its lower flammable limit (LFL).

- Airborne combustible dust that is at or approaching its lower flammable limit. This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet or less.
- Atmospheric oxygen concentration below 19.5% or above 23.5%.
- Any chemical or substance present which may be at concentrations capable of causing death, incapacitation, impairment of ability to self-rescue, injury, or acute illness due to its health effects and is above the regulatory limit.
- Any other atmospheric condition that is immediately dangerous to life or health (IDLH).

Hot Work - operations involving an open flame or that produces heat, sparks, or hot slag. Examples include cutting, welding, brazing, torch soldering, high speed metal grinding, or use of an open flame.

Hot Work Permit – the type of permit used to enter a confined space when hot work operations will be performed in the space.

Immediately Dangerous to Life or Health (IDLH) – means any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a permit space.

Inerting – means the displacement of the atmosphere in a permit space by a noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible.

Isolation – means the process by which a permit space is removed from service and completely protected against the release of energy and material into the space by such means as: blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; a double block and bleed system; lockout or tagout of all sources of energy; or blocking or disconnecting all mechanical linkages.

Intrinsically Safe (Equipment) – is defined as equipment and wiring which is incapable of releasing sufficient electrical or thermal energy under normal or abnormal conditions to cause ignition of a specific hazardous atmospheric mixture in its most easily ignited concentration. (ANSI/ISA RP12.06.01-1995 (R2002))

Line Breaking or Misalignment – the intentional and physical disconnection of a pipe, line or duct. Added protection is obtained by misaligning or removing a section of the pipe, line, or duct. When potentially hazardous residues might remain downstream from the disconnecting point, the line should be purged and atmospheric testing conducted.

Lower Explosive Limit (LEL) – lowest concentration at which a gas or vapor can ignite and can be used interchangeably with LFL (Lower Flammable Limit). Concentrations below this level are too lean to burn.

Non-Permit Required Confined Space – confined spaces that do not contain or, have the potential to contain, any hazard capable of causing death or serious physical harm.

Oxygen Deficient Atmosphere – means an atmosphere containing less than 19.5 percent oxygen, by volume.

Oxygen Enriched Atmosphere – means an atmosphere containing more than 23.5 percent oxygen by volume.

Permit-Required Confined Space – a confined space that has one or more of the following characteristics:

- Contains or has the potential to contain a hazardous atmosphere. When assessing the potential for a hazardous atmosphere, consideration must be given to portals of entry from other areas, such as pipes, ducts and vents.
- Contains a material that has the potential for engulfing an entrant.
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section.
- Contains any other recognized serious safety or health hazard that may have an immediate effect or inhibit the employee leaving the space unaided. Examples include: exposed electrical parts, extreme temperature.

Prohibited Condition – means any condition in a permit space this is not allowed by the permit during the period when entry is authorized.

Rescue Service – means the personnel designated to rescue employees from permit spaces.

Retrieval System – means the equipment (including a retrieval line, chest or full-body harness, wristlets, if appropriate, and a lifting device or anchor) used for non-entry rescue of persons from permit spaces.

Testing – means the process by which the hazards that may confront entrants of a permit space are identified and evaluated.

Upper Explosive Limit (UEL) – the highest concentration at which a gas or vapor can ignite and can be used interchangeably with UFL (Upper Flammable Limit). Concentrations above this level are too rich to burn.

Work Induced Hazard – hazard created due to nature of work, e.g., welding (generates fumes) and painting (generates solvents in the atmosphere).

RESPONSIBILITIES

Overall Program Responsibility

The Safety Unit is responsible for the review and revision of this document and the City of Ann Arbor's permit process.

The Safety Unit will share responsibility with Unit Managers and Supervisors to maintain training records and recommend refresher training depending on changes to city or regulatory policy, confined space conditions or employee job duties.

The Safety Unit will also consult with other units in developing unit specific procedures and plans and occasionally audit programs. The Safety Unit will also advise individual units of problems that arise and changes in regulatory and/or city wide policy.

Unit Managers

Designate and empower individuals who will be responsible for the preparation and implementation of unit-specific confined space entry programs. Designated individuals should use Appendix A to develop a program specific to their unit. Ensure an environment where supervisors and employees are encouraged to follow this program. Ensure that access to confined spaces within your department is controlled by: training potential users in how to recognize and evaluate confined spaces; locking all entrances to confined spaces, when feasible; posting warning signs at confined spaces, when feasible. Report locations and changes in the status of permit-required confined spaces to the Safety Unit.

Supervisors

Be familiar with the confined spaces program and procedures specific to your unit. Ensure that employees who have access to these spaces are properly trained and equipped. Provide refresher training, in coordination with the Safety Unit, as needed due to changes in employee job duties, confined space conditions, or if refresher training is warranted due to other issues that may arise.

Designate individuals to serve as entry supervisors, attendants, authorized entrants, and make plans for rescue operations. Refer to the *personnel roles and duties* section for specific training requirements and responsibilities of these roles.

Consult the Safety Unit when questions arise and additional information or expertise is needed. Report accidents, illnesses, injuries and near misses in accordance with the City of Ann Arbor SOP for Employee Accident/Incident Reporting & Investigation.

PERSONNEL ROLES AND DUTIES

Entry Supervisors

Only the entry supervisor may issue an entry permit for a permit-required confined space. The entry supervisor must have training in permit-required confined space entry procedures. All City of Ann Arbor employees who may enter permit required confined spaces will be trained to the entry supervisor level. The training includes:

- Hazard recognition,
- Recognition of the physical signs and symptoms of exposure to a hazard,
- Understanding the consequences of exposure to a hazard,
- Communication requirements,
- Personal protective equipment requirements,
- Written permit-required confined space information,
- Rescue procedures,
- Use of appropriate air testing equipment,
- Details of the written plan,
- Hazards of temperature extremes, and
- Lockout/tagout and isolation.

The entry supervisor:

1. Knows the hazards (or potential hazards) that workers may face during entry, including information on the signs and symptoms, and consequences of the exposure(s) to the entrants;
2. Verifies, by checking that the appropriate entries have been made on the permit, that all tests specified by the permit are in place before endorsing the permit and allowing entry to begin;

3. Terminates the entry and cancels the permit as required;
4. Verifies that rescue services are available (during entry operations) and that the attendant has a means of communications available for calling rescue services;
5. Removes unauthorized individuals who enter or attempt to enter the permit space during entry operations; and
6. Determines, whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space that entry operations remain consistent with the terms of the entry permit and that acceptable entry conditions are maintained.

Authorized Entrants

Duties of the Authorized Entrant Include:

1. Knowing the hazards (or potential hazards) they may be faced with during entry, including the signs or symptoms, and consequences of the exposure(s);
2. Properly using all equipment;
3. Communicating with the attendant as necessary to enable the attendant to monitor entrant status and enable the attendant to alert entrants of the need to evacuate the space as required;
4. Alerting the attendant whenever:
 - The entrant recognizes any warning sign or symptom of exposure to a dangerous situation; or
 - The entrant detects a prohibited condition; and
5. Exiting from the space as quickly as possible whenever:
 - The attendant, the entry supervisor, or another entrant gives an order to evacuate;
 - The entrant recognizes any physical warning sign or symptom of exposure to a dangerous condition (that is, the entrant feels better or worse than before he or she did before entering the confined space),
 - The entrant detects a prohibited condition,
 - An evacuation alarm goes off; or
 - The atmospheric monitoring equipment alarms.

Attendants

The attendant is aware of the hazards of the permit-required confined space, of the actions necessary to make the space safe for entry, and of the fact that any condition can change.

Duties of the Attendants include:

1. Knowing the hazards (or potential hazards) that workers may face during entry,
2. Knowing what the physical signs or symptoms and consequences of the exposure(s) are.
3. Being aware of possible behavioral effects of hazard exposure to authorized entrants.
4. Maintaining an accurate count of authorized entrants in the permit space and assuring the means used to identify authorized entrants accurately identifies who is in the permit space.
5. Remaining outside the permit space during entry operations unless another trained attendant relieves him or her.

6. Communicating with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the space.
7. Monitoring activities inside and outside the permit space to determine if it is safe for entrants to remain in the space, and
8. Ordering the entrants to evacuate the permit space immediately if the attendant under any of the following conditions:
 - The attendant detects a prohibited condition such as an alarm on the air monitor,
 - The attendant detects the behavioral effects of hazard exposure in an entrant,
 - The attendant detects a situation outside the space that could endanger the entrants,
 - The entry supervisor orders an evacuation, or
 - The attendant cannot effectively and safely perform all the duties required.
9. Summoning rescue and other emergency services as soon as the attendant determines the entrants may need help to exit from the permit space.
10. Taking the following actions when unauthorized person(s) approach or enter a permit space while entry operations are underway:
 - Warn the unauthorized person(s) they should stay away from the permit space,
 - Advise the unauthorized person(s) they must exit immediately if they have entered the permit space, and

Inform the authorized entrants and the entry supervisor if unauthorized person(s) have entered the permit space.

Rescue Team

For situations during confined space operations within city facilities that require rescue services or stand-by rescue services, the City of Ann Arbor shall rely on local or county rescue teams (fire departments or county technical rescue teams) to provide rescue assistance.

The Entry Supervisor will establish a procedure by which the attendant will notify rescue and emergency services before issuing a permit-required confined space permit. The means to call for rescue services will be detailed the entry permit.

PROCEDURES

The City of Ann Arbor defines a *confined space* as a space which:

- Is large enough and so configured that an employee can bodily enter and perform assigned work; **and**
- Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry); **and**
- Is not designed for continuous employee occupancy.

If a space does not meet all three criteria, as stated above, then the space is not a confined space and the MIOSHA Confined Space standard does not apply. Bodily enter means that it is possible for an employee's entire body to enter the space. Continuous employee occupancy means that the space could be occupied during normal operations, not that it is always occupied.

The City of Ann Arbor defines a *permit-required* confined space as a space that has all four (4) of the following characteristics:

1. It is large enough and has a configuration that allows an employee to bodily enter it and perform assigned work; **and**
2. It also has limited or restricted means for entry or exit; **and**
3. It is not designed for continuous employee occupancy, **and**
4. It has one or more of the following characteristics:
 - It contains, or has a potential to contain a hazardous atmosphere,
 - Contains a material with the potential for engulfing an entrant,
 - Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls, or a floor which slopes downward and tapers to a smaller cross-section, or
 - Contains any other recognized serious safety or health hazard.

A space cannot be a *permit space*, unless it is a *confined space*. For example, a tank of a very toxic material has a 10” diameter hatch that an employee could put their head through. This hatch is the largest opening in the tank. Since the opening is too small to bodily enter, this space cannot be a *confined space* and therefore cannot be a *permit space*. Of course, this does not mean that this tank poses no potential or actual serious hazard to employees. It only means that this particular standard does not apply to this space.

Prior to work in any confined space, all City of Ann Arbor staff must complete the below steps to comply with City Policy:

- Evaluate the space & identify the hazards
- Complete the Permit, using it as an instructional guide
- Monitor hazardous atmospheres
- Implement measures to control the atmospheric and safety hazards
- Select the appropriate personal protective equipment
- Establish appropriate means of communication
- Implement other safety & health controls
- Plan for evacuation and rescue
- Closeout and cancel the Permit

Informing Exposed Employees

Unit Managers and/or Supervisors shall inform employees of the existence and location of permit spaces through training and/or by posting signage. Appendix B lists the permit spaces that have a sign posted. Employees not trained in confined space evaluation and entry shall not access confined spaces.

Prevention of Unauthorized Entry

Unauthorized entry into permit-required confined spaces will not be permitted. Methods used to restrict access to confined spaces will include:

1. Posting of a sign reading **Danger – Permit-Required Confined Space, Do Not Enter**. Refer to Appendix F for a copy of the MIOSHA “Danger Confined Space” sign.
2. Instruct affected employees that they are not to enter permit spaces and provide them with the location and types of permit spaces and actual or potential hazards.
3. Prevent employee access to permit spaces by locking, bolting, guarding or fencing the means of

entry or exit (such as a door, hatch, lid, cover, etc).

Evaluation of Confined Spaces

Refer to Appendix B for a general listing of known confined spaces and permit confined spaces at City of Ann Arbor facilities. Employees may utilize Appendix C as a tool to assist in evaluating confined spaces. The evaluation will include analysis to determine the hazards, entry procedures, protective equipment required, rescue and emergency services necessary. Entry supervisors will review the analysis for the location for which they are to issue a permit. When evaluating a space, consider all hazards that may be present, including hazards that you may introduce to the space as part of the work you plan to complete. Refer to Appendix E for a copy of the MIOSHA Permit-Required Confined Space Decision Flow Chart.

It is the responsibility of trained City of Ann Arbor staff to issue permits and to enforce compliance with PERMIT-REQUIRED confined space entry procedures. Only trained entry supervisors shall issue permits.

The entry supervisor is responsible for testing the atmosphere and evaluating the hazards of the PERMIT-REQUIRED confined space. The entry supervisor will place the written permit at the entry point into the PERMIT-REQUIRED confined space prior to entry. The entry supervisor will make certain that employees comply with the following means, procedures, and practices for a safe permit space entry operation.

Atmospheric Hazards

Permit required confined spaces are dynamic due to variables such as temperature, pressure, physical characteristics of the material posing the atmospheric hazard, variable efficiency of ventilation equipment and air delivery systems, etc. The frequency of testing should be determined by the Entry Supervisor and depends on: 1) The results of pre-entry testing or monitoring 2) The regularity of entry 3) the uniformity of the permit space 4) the documented history of previous monitoring activities and 4) knowledge of the hazards which affect the permit space. Ideally, atmospheric testing would be conducted continuously in a permit space by maintaining testing equipment on the entrant(s) or having an area monitor when entrants are working together in close proximity. However, at a minimum testing or monitoring should occur every half hour if deemed appropriate by the entry supervisor.

Acceptable atmospheric entry conditions are:

- More than 19.5%, but less than 23.5% oxygen, and
- Less than 10% of the Lower Flammable Limit (LFL) of a flammable liquid or gas, and
- Not to exceed the Permissible Exposure Level (PEL) of a toxic chemical.

Although the atmospheric entry conditions stated above are regulatory standards, City of Ann Arbor employees should not enter a confined space until conditions are returned to normal (i.e. 20.9% oxygen and 0% LEL). Consider, for instance, a case where oxygen is present at only 19.6%. This suggests that there could be another atmospheric hazard present which is displacing oxygen in the space. Entry should not be made in this case, especially when personnel cannot identify the atmospheric hazard, its concentration, chemical and physical properties, and review the applicable permissible exposure limit(s). Efforts should be made to eliminate the source of the atmospheric hazard and return conditions to normal.

Designated entry supervisors will evaluate permit-required confined space conditions as follows when entry operations take place. The entry supervisor will:

- Test conditions in the permit space to determine if acceptable entry conditions exist before entry is authorized.

If it is not feasible to isolate the space because the space is large or is part of a continuous system, pre-entry testing shall be performed to the extent feasible before entry is authorized. Entry conditions shall be monitored in the areas where authorized entrants are working.

- Test or monitor the permit space as necessary to determine if acceptable entry conditions are being maintained during the course of entry operations.
- When testing for atmospheric hazards, test for oxygen first, then flammables (LFL), and then for toxic substances (PEL).

The entry supervisor will assure adequate purging, inerting, flushing, or ventilation of the space before authorized entrants enter a permit-required confined space. This is accomplished by ventilating the atmosphere, after purging, if the space is a flammable liquid container or if purging is otherwise necessary, before an authorized entrant enters the space.

Inerting is the displacement of the atmosphere in a permit space by a noncombustible gas to such an extent that resulting atmosphere is noncombustible. This procedure produces an IDLH oxygen-deficient atmosphere. The entry supervisor must ensure proper respiratory protection is provided to the authorized entrant before entering the permit space in accordance with the MIOSHA Respiratory Protection Standard (Part 451).

The entry supervisory shall test the PERMIT-REQUIRED confined space for acceptable entry conditions.

Isolation and Lockout

The designated entry supervisor shall assure the isolation of the permit-required confined space from serious hazards. Mechanical equipment that poses a hazard in the space must be “locked out” in accordance with the MIOSHA General Industry Standards. Chemical or gas lines that are open within the permit space must be isolated by appropriate means. These include blanking, misaligning or removing sections of lines, pipes, or ducts, or a double block and bleed system.

Barriers:

The designated entry supervisor will provide (if applicable) for barriers around the permit space opening to:

- Prevent unauthorized entry into the space, and
- Protect authorized entrants inside the space from objects and persons outside the space.

Verification:

The designated entry supervisor will assure that conditions in the permit space are acceptable for entry throughout the duration of entry operations. To accomplish this, the supervisor will use calibrated test instruments to monitor the atmosphere within the space and make inspections to assure that isolation is

being maintained for the space.

Attendant:

The entry supervisor will provide at least one designated attendant outside the permit space into which entry is authorized for the duration of entry operations.

NOTE: An entry supervisor who receives adequate training may serve as the attendant.

Personal Protective Equipment (PPE)

The City of Ann Arbor will provide any personal protective equipment (PPE) necessary for safe entry into and rescue from permit-required confined spaces at no cost to employees. Employees must maintain equipment and use it properly and should report any problems to a supervisor or manager immediately. Consideration should be given to the need for each of the following types of PPE:

- Respiratory protection
- Face and eye protection
- Hearing protection
- Protective clothing, gloves, boots, etc.
- Emergency portable lighting, i.e. flashlights (use explosion proof or intrinsically safe equipment if there is a potential for flammable/explosive atmosphere)
- Full body safety harness or lifeline associated with retrieval equipment and/or fall protection

Permit-Required Confined Space equipment program includes:

- Testing and monitoring equipment
- Ventilation equipment
- Communications equipment
- Lighting equipment
- Barriers and shields
- Ingress and egress equipment
- Rescue and emergency equipment
- PPE
- Any other equipment necessary for safe entry into and rescue from permit spaces.

Preparation, Issuance, Use, and Cancellation of Entry Permit

Before entry begins, the **entry supervisor** identified on the permit shall sign the entry permit to authorize entry.

The permit shall be made available to all authorized entrants, by posting it at the confined space opening or by any other equally effective means. This enables entrants to confirm the pre-entry preparations are complete.

The duration of the permit may not exceed the time required to complete the task or job identified on the permit in accordance with the purpose of the entry. The duration of the permit cannot exceed one shift. If the job requires two shifts for completion, then two permits, at least, are necessary.

The entry supervisor should terminate entry and cancel the permit when:

- The entry operations that the entry permit covers are complete; or
- A condition that the entry permit does not allow arises in or near the permit space.

Any individual designated as the entry supervisor has the authority to terminate entry and cancel a permit.

The City of Ann Arbor shall retain each canceled entry permit for at least one year to facilitate the review of the permit-required confined space entry program. The entry supervisor should note any problems encountered during an entry operation on the appropriate permit so that revisions to the permit space program can be made.

The entry permit that documents compliance and authorizes entry to a permit space should identify:

1. The permit space to be entered;
2. The purpose/reason of the entry;
3. The date and the authorized duration of the entry permit;
4. The authorized entrants within the space, by name, as this will enable the attendant to determine quickly and accurately, for the duration of the permit, which entrants are inside the space;
5. The personnel, by name, currently serving as the attendant(s);
6. The individual, by name, currently serving as the entry supervisor, with a space for the signature or initials of the entry supervisor who originally authorized entry;
7. The potential or real hazards of the space to be entered;
8. The measures used to isolate (lockout) the permit space and to eliminate or control permit space hazards during entry;
9. The acceptable entry atmospheric conditions;
10. The results of initial and periodic air monitoring tests performed, accompanied by the names or by an indication of when the tests were performed;
11. The rescue and emergency services that can be summoned and the means for calling those services;
12. The communication procedures used by authorized entrants and attendants to maintain contact during the entry operations;
13. The equipment, such as PPE, air testing equipment, communications equipment, alarm systems, and rescue equipment to be provided.
14. Any other information whose inclusion is necessary, given the circumstances of the particular confined space, in order to ensure employee safety; and
15. Any additional permits, such as for hot work, that have been issued to authorized work in the permit space.

Refer to Appendix D for the City of Ann Arbor entry permit.

Concluding Permit-Required Confined Space Operations

The entry supervisor must perform four major tasks to conclude a permit-required confined space entry. They are:

1. Making sure that all employees are out of the confined space.

2. Securing the permit-required confined space. The entry supervisor will assure that the appropriate employees remove all lockout devices, replace any safety guards that they may have removed, and will assure that the opening to the space is securely closed.
3. Assuring that the appropriate personnel perform the proper maintenance on equipment.
4. Notifying rescue and emergency services that the entry is complete.

Review of Permit-Required Confined Space Operations

The Unit Manager or Supervisor and Safety Unit will review entry operations whenever measures taken under the permit space program fail to properly protect employees, and correct any deficiencies in the program before authorizing subsequent entries. The Safety Unit should also be informed of any issues that may arise before, during, or after permit-required confined space operations.

The following are some examples of circumstances requiring the review of the permit-required confined space program:

- Any unauthorized entry of a permit-space;
- The detection of a hazard that the permit did not cover;
- The occurrence of an injury or near-miss injury during entry;
- A change in the use or configuration of a permit space;
- Employee concerns about the effectiveness of the program;

The Unit Manager and Supervisor will review the permit-required confined space program, annually, using the canceled permits from the previous year entry operations. Revisions to the program will be done, if necessary, to ensure that employees participating in entry operations are protected from the known permit space hazards.

Contractors

When the City of Ann Arbor arranges to have employees of another employer perform work that involves permit space entry, the responsibilities of the City of Ann Arbor include:

1. Informing the contractor that the workplace contains permit-required confined spaces and that permit space entry is allowed only through compliance with a permit space program meeting the requirements of MIOSHA.
2. Informing the contractor of the elements, including the hazards identified and City of Ann Arbor's experience with the space (copies of canceled permits), that make the space in question a permit space.
3. Apprising the contractor of any precautions or procedures that have been implemented for the protection of employees in or near permit spaces where contractor personnel will be working.
4. Coordinate entry operations with the contractor if City of Ann Arbor employees and contractor employees will be working in or near permit spaces. This includes developing and implementing procedures to coordinate entry operations when employees of more than one contractor are working simultaneously as authorized entrants in a permit space, so that employees of one employer do not endanger the employees of any other employer.

5. Debriefing the contractor at the conclusion of the entry operations regarding the permit space program followed and regarding any hazards confronted or created in the permit spaces during entry operations.

Contractor's Responsibilities

In addition to complying with the permit-required confined space requirements that apply to all employers, each contractor who is retained to perform permit space entry operations should:

1. Obtain any available information regarding permit space hazards and entry operations from the City of Ann Arbor.
2. Coordinate entry operations with City of Ann Arbor staff (after staff have coordinated with the City Safety Unit), when both city employees and contractor employees will be working in or near permit-required confined spaces. This includes developing and implementing procedures to coordinate entry operations when employees of more than one employer are working simultaneously as authorized entrants in a permit space, so that employees of one employer do not endanger the employees of any other employer.
3. Inform the City of Ann Arbor of the permit space program that the contractor will follow and any hazards confronted or created in a permit space, either through a debriefing or during entry operations. MIOSHA requires this exchange of information from both the City of Ann Arbor and the contractor.

A full electronic copy of this program can be located 24-hour a day at <https://a2central.a2gov.org/departments/safety/Pages/default.aspx>

APPENDIX A

***USE THIS FORM TO DEVELOP UNIT SPECIFIC ELEMENTS
OF YOUR CONFINED SPACE ENTRY PROGRAM.***

Instructions are Italicized.

UNIT NAME CONFINED SPACE PROGRAM

This will serve as an appendix to the City of Ann Arbor Confined Space Entry program for entry into confined spaces, outlining implementation issues specific to unit name.

PROCEDURE:

All employees who enter permit-required confined spaces (PRCSs) will follow the procedures described in the City of Ann Arbor Confined Space Entry Program. As required by this document, employees who enter PRCSs must first attend a confined space entry training course approved by the City of Ann Arbor Safety Unit

Name of responsible person shall have overall responsibility for this unit's confined space entry program.

IDENTIFICATION OF PERMIT-REQUIRED CONFINED SPACES:

List or refer to all identified confined spaces and their potential safety and health hazards here.

CONFINED SPACE SAFETY EQUIPMENT:

1. Air Monitoring

List or refer to all air monitoring equipment by brand, model number, and indicate where the equipment is located.

Calibration and maintenance of the air monitoring equipment is the responsibility of name of person or department responsible for maintaining and calibrating the equipment. All meters will be calibrated at least monthly and checked for good working order. Equipment in need of repair will be serviced by: name of service vendor.

2. Ventilation equipment

List or refer to all ventilation equipment by brand, model number and indicate where equipment is located.

name of person or unit responsible is responsible for assuring that the ventilation equipment is maintained and in good working order. Other equipment necessary for making the PRCS safe for entry will be made available to

employees, as needed.

3. Other safety equipment

List or refer to all other equipment intended for possible use in confined space entry by brand, model number and indicate where equipment is located.

RECORDKEEPING:

1. Calibration Records

Records of calibration of air monitoring equipment will be kept by name of responsible person .

The records will be stored location of records .

2. Permits

All canceled permits will be returned to supervisor name , and kept on file at location of permits . A copy of the canceled permits will be sent to the City Safety Unit located at 301 E. Huron, 6th Floor Public Services.

3. Training

Training is scheduled by name of responsible person at a training provider approved by the City of Ann Arbor Safety Unit. Records of training will be kept at name of location.

APPENDIX B

APPENDIX C

WORKPLACE EVALUATION FOR THE EXISTENCE OF PERMIT REQUIRED CONFINED SPACES

1. Date of Survey and Signature of Surveyor																																									
2. Space Name / Location and Description																																									
3. Confined Space? YES / NO If answer YES to all 3, then this is a confined space.	1. Is the space large enough and so configured that an employee can bodily enter and perform assigned work? YES / NO 2. Does the space have limited or restricted means for entry or exit? YES / NO 3. Is the space not designed for continuous employee occupancy? YES / NO																																								
4. Permit Required Confined Space? If #3 is Yes, and one of these conditions is Yes, then this is a Permit Required Confined Space (PRCS), so continue to #5.	Does it contain or have the potential to contain a hazardous atmosphere? YES / NO Does it contain a material that has the potential for engulfing an entrant? YES / NO Does it have an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross-section? YES / NO Does it contain any other recognized serious safety or health hazard? YES / NO																																								
5A. Indicate Actual or Potential Atmospheric Hazards .	<table style="width: 100%; border: none;"> <tr> <td style="width: 10%;"><input type="checkbox"/></td> <td style="width: 60%;">Oxygen deficiency</td> <td style="width: 10%; text-align: center;">_____</td> <td style="width: 20%; text-align: right;">(19.5% to 23.5%)</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Flammable Substances</td> <td style="text-align: center;">_____</td> <td style="text-align: right;">(less than 10% of LFL)</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Toxic Materials</td> <td style="text-align: center;">_____</td> <td style="text-align: right;">(not to exceed PELs)</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Carbon Monoxide</td> <td style="text-align: center;">_____</td> <td style="text-align: right;">(CO 35 PPM)</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Hydrogen Sulfide</td> <td style="text-align: center;">_____</td> <td style="text-align: right;">(H₂S 10 PPM)</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Other</td> <td style="text-align: center;">_____</td> <td></td> </tr> </table>	<input type="checkbox"/>	Oxygen deficiency	_____	(19.5% to 23.5%)	<input type="checkbox"/>	Flammable Substances	_____	(less than 10% of LFL)	<input type="checkbox"/>	Toxic Materials	_____	(not to exceed PELs)	<input type="checkbox"/>	Carbon Monoxide	_____	(CO 35 PPM)	<input type="checkbox"/>	Hydrogen Sulfide	_____	(H ₂ S 10 PPM)	<input type="checkbox"/>	Other	_____																	
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<input type="checkbox"/>	Carbon Monoxide	_____	(CO 35 PPM)																																						
<input type="checkbox"/>	Hydrogen Sulfide	_____	(H ₂ S 10 PPM)																																						
<input type="checkbox"/>	Other	_____																																							
5B. Indicate Physical Hazards and Identify Source	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Flowable</td> <td style="width: 10%; text-align: center;">_____</td> <td style="width: 20%;">Noise</td> <td style="width: 10%; text-align: center;">_____</td> <td style="width: 5%;"> </td> </tr> <tr> <td>Substances</td> <td style="text-align: center;">_____</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Inwardly Converging Walls</td> <td style="text-align: center;">_____</td> <td>Heat/Cold</td> <td style="text-align: center;">_____</td> <td></td> </tr> <tr> <td>Floor Slopes Downward</td> <td style="text-align: center;">_____</td> <td>Radiation</td> <td style="text-align: center;">_____</td> <td></td> </tr> <tr> <td>Mechanical Hazards</td> <td style="text-align: center;">_____</td> <td>Asbestos</td> <td style="text-align: center;">_____</td> <td></td> </tr> <tr> <td>Electrical Hazards</td> <td style="text-align: center;">_____</td> <td>Wet/Slippery Conditions</td> <td style="text-align: center;">_____</td> <td></td> </tr> <tr> <td>Hot Work</td> <td style="text-align: center;">_____</td> <td>Traffic</td> <td style="text-align: center;">_____</td> <td></td> </tr> <tr> <td>Reduced Visibility</td> <td style="text-align: center;">_____</td> <td>Other</td> <td style="text-align: center;">_____</td> <td></td> </tr> </table>	Flowable	_____	Noise	_____		Substances	_____				Inwardly Converging Walls	_____	Heat/Cold	_____		Floor Slopes Downward	_____	Radiation	_____		Mechanical Hazards	_____	Asbestos	_____		Electrical Hazards	_____	Wet/Slippery Conditions	_____		Hot Work	_____	Traffic	_____		Reduced Visibility	_____	Other	_____	
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Electrical Hazards	_____	Wet/Slippery Conditions	_____																																						
Hot Work	_____	Traffic	_____																																						
Reduced Visibility	_____	Other	_____																																						
6A. Can you <i>Control Atmospheric Hazards</i> Listed in 5A with Continuous Forced-Air Ventilation? YES / NO	If YES and there are no physical hazards in the space, then you may use the alternate procedures for entering the space by completing the steps defined in paragraph (c5) of the standard before each and every entry. Written certification of each entry must be documented and maintained. The steps required to control the atmosphere must be part of your written Confined Space Program. Once the space is closed back up, this is a Permit Required Confined Space requiring that all of these steps be followed the next time employee enters.																																								
6B. Can you <i>Eliminate Physical Hazards</i> Listed in 5B without Entering the Space? YES / NO	If YES and there are no atmospheric hazards in space, then you may re-classify to a non-permit space and enter according to paragraph (c7) of the standard. The steps required to eliminate the hazard (usually Lockout/Tagout procedures) must be part of, or referenced by, your written Confined Space Program. Once the hazard has been reintroduced, this is a Permit Required Confined Space requiring that all steps be followed the next time employee enters.																																								

REMEMBER! IF CONDITIONS CHANGES, RE-EVALUATE!

APPENDIX D

CONFINED SPACE ENTRY PERMIT		1A. CITY UNIT	1B. PERMIT EXPIRATION DATE/TIME
2. SPECIFIC LOCATION OF SPACE		3. DESCRIPTION OF SPACE	
4. PURPOSE OF ENTRY		5A. ENTRY DATE	5B. ENTRY TIME
		6A. EXIT DATE	6B. EXIT TIME
7A. NAME OF ENTRY SUPERVISOR	7B. TELEPHONE NUMBER	8. NAME OF ENTRANT(S)	
9. NAME OF ATTENDANT	10. NAME OF CONFINED SPACE TESTER	11. WELDING OR "HOT WORK" REQUIRED <input type="checkbox"/> YES <input type="checkbox"/> NO	
12. HAZARDS IN CONFINED SPACE			

13. CONFINED SPACE TEST DATA					
List specific tests made. Entry is prohibited if readings are outside of permissible entry levels					
SAMPLE LOCATION (TOP, MIDDLE, BOTTOM)	TIME OF SAMPLE	%O ₂ (>19.5 - <23.5)	% LEL (<10%)	H ₂ S (<10 PPM)	CO (<35 PPM)

14. INSTRUMENT TYPE AND DATE LAST CALIBRATED	15. INSTRUMENT SERIAL NUMBER
--	------------------------------

16. SPECIAL REQUIREMENTS					
YES	NO	ITEM	YES	NO	ITEM
		A. AREA SECURED			I. FIRST AID KIT
		B. HARNESS			J. FIRE EXTINGUISHER
		C. LIFELINE			K. PROTECTIVE CLOTHING
		D. TRIPOD			L. RESPIRATORY PROTECTION
		E. LOCKOUT – TAGOUT			M. HEARING PROTECTION
		F. LINE CAPPED OR BLANKED			N. LIGHTING
		G. SPACE PURGED			O.
		H. VENTILATION			P.

17. SPECIFIC PROTECTIVE CLOTHING AND EQUIPMENT REQUIRED	17B. RESPIRATOR <input type="checkbox"/> NEG. PRESS. <input type="checkbox"/> SUPPLIED AIR <input type="checkbox"/> PAPR <input type="checkbox"/> SCBA
---	--

18. COMMUNICATION PROCEDURES DURING ENTRY

19. RESCUE AND EMERGENCY SERVICES

20. ADDITIONAL COMMENTS

21. I CERTIFY THAT I HAVE READ AND UNDERSTOOD ALL OF THE REQUIREMENTS OF THE CONFINED SPACE ENTRY PROGRAM IMPLEMENTED BY THE CITY OF ANN ARBOR.

ENTRANT SIGN AND DATE HERE ►	ATTENDANT SIGN AND DATE HERE ►
---------------------------------	-----------------------------------

22. I CERTIFY THAT ALL OF THE ABOVE INFORMATION IS CORRECT AND THE SPACE ENTRANT AND ATTENDANT ARE FULLY COMPETENT TO PERFORM WORK DESCRIBED IN THE ABOVE CONFINED SPACE.

ENTRY SUPERVISOR SIGN HERE ►	DATE
---------------------------------	------

APPENDIX E

DANGER

PERMIT REQUIRED CONFINED SPACE

SPECIAL PRECAUTIONS REQUIRED!
SEE AUTHORIZED PERSONNEL
BEFORE ENTRY.



MICHIGAN DEPARTMENT OF LABOR & ECONOMIC GROWTH
MIOSHA • CONSULTATION EDUCATION AND TRAINING (CET) DIVISION
(517) 322-1809 • www.michigan.gov/miosha

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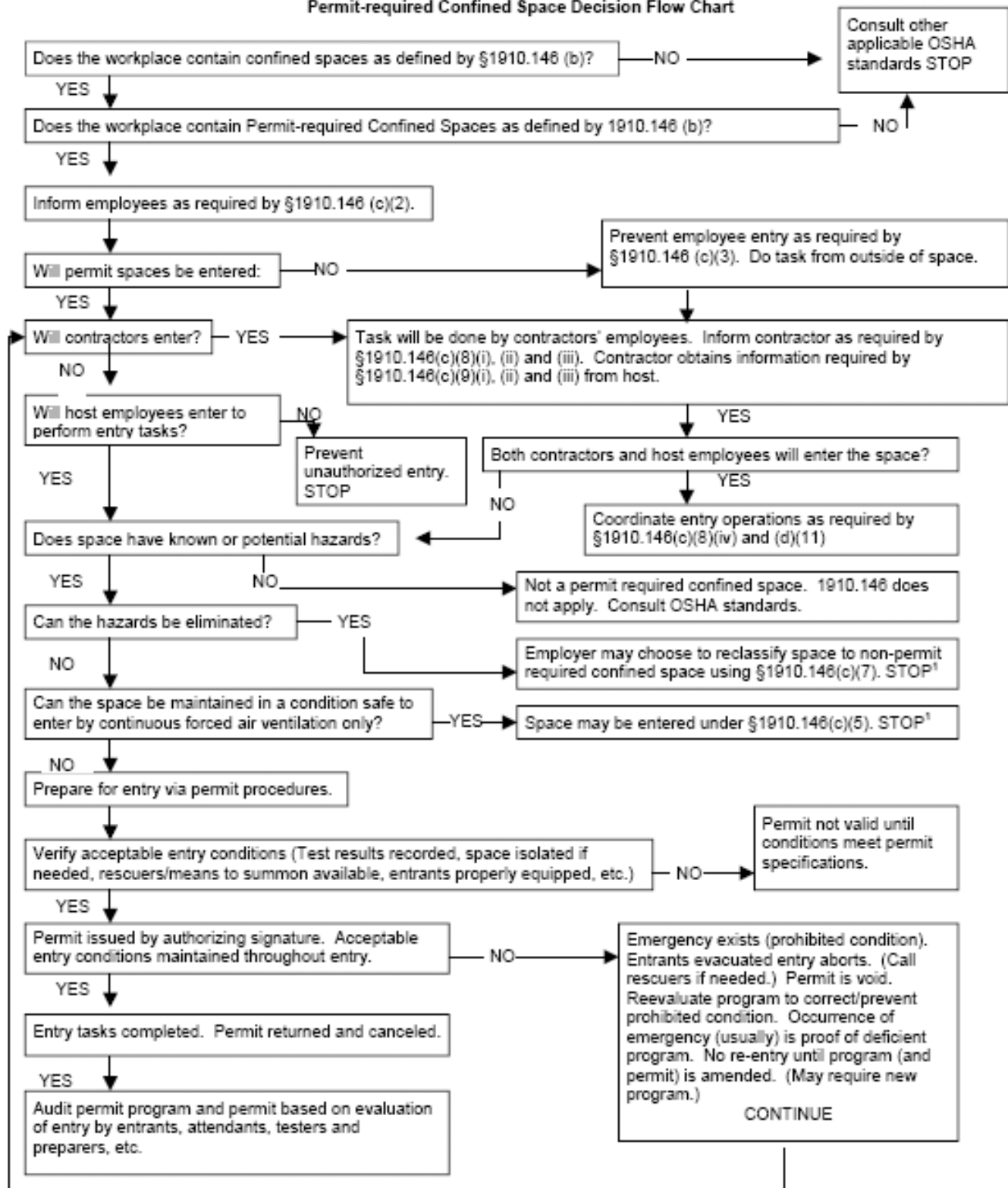
MIOSHA/CET #0402
(Rev. 2/08)

APPENDIX F

APPENDICES TO SECTION 1910.146 – PERMIT-REQUIRED CONFINED SPACES

NOTE: Appendices A through F serve to provide information and non-mandatory guidelines to assist employers and employees in complying with the appropriate requirements of this section.

Appendix A Permit-required Confined Space Decision Flow Chart



¹Spaces may have to be evacuated and re-evaluated if hazards arise during entry