Hazard Analysis Form

This form can be used by Fermilab Employees, Fermilab Supervisors, Fermilab Task Managers, Construction Coordinators, Service Coordinators, and Fermilab Subcontractors. This is a dynamic document which may require modification as the project moves from start to finish and should be readily available at the site where the work is being performed.

Note: Not all sections of the first page are applicable to every job or task, complete what is necessary for your specific job or task.

Job Title Manhole C-24 remove & install fiber optic cable

Job Location Manhole C-24

Contract/Work Order # PRJ0015178

TO BE COMPLETED FOR WORK INVOLVING SUBCONTRACTORS

Subcontractor (if applicable)	**Fermilab**
Company GEM INTEGRATION	Project Manager Scott W. Wilson 10292C
Project Manager Rick Gemelli 07122C	Phone 630-840-2307
Phone 847-791-1107 Page	TM/CC/SC Tim Niemiec 15667N
ESH Rep. Rick Gemelli 07122C	Phone 630-840-3760 Page
Phone 847-791-1107 Page	ES&H Rep. Amy Pavnica 10683N
ESH Rep.	Phone 630-840-8493 Page
Phone Page	

AT LEAST TWO SIGNATURES ARE REQUIRED

☐ Prepared _____ Date _____

Print Name Scott W. Wilson (#10292C)

☐ Accepted _____ Date _____

Print Name Rick Gemelli (#07122C)

☐ Accepted as noted _____ Date _____

Print Name _____

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Description of Work: **Enter a series of 6 manholes between FCC and WH for purposes of recording existing fiber optic cable, and both occupied and open ducts in both directions.**

Personal Protective Equipment: (Check protective equipment required for the job.)

x Safety glasses x Side shields
□ Hearing Protection
□ 3.0 Brazing goggles
□ Face shield
x Leather gloves
□ Chemical resistant gloves (specify type): _____
x Other required PPE (specify): extraction tripod and harness, 4-gas detector, Safety Shoes
□ Chemical splash goggles
x Hard Hats
□ Impact goggles
□ Rubber apron
□ Hot/Cold thermal protective gloves
□ Respirators
□ Fall protection equipment (specify): _____

Environmental Aspects (check one):

x Yes, I have thought about the environmental aspects of this job and will document such aspects and mitigation steps within this document.

□ Yes, I have thought about the environmental aspects of this job and no such credible aspects exist and therefore do not need to be written in this document.

Equipment required for the job: (List the tools needed to perform the job.)

Water pump, flashlight, hand tools, manhole hook, ladder

Work Plan History Information: (List any lessons learned incidents from this job, tips from previous jobs)

1. Manhole Floor and ladder rungs can be wet and slippery. Watch for uneven floor or debris on floor. Allow enough work time so you can take the time to think safety. Manhole walls and frame may have rough surface or sharp edges – wear a long sleeve shirt or jacket.

2. When temperature is near or below freezing, manhole lids can become frozen to the ground or frame. A manhole lid lever-style or magnetic lift shall be used to move manhole covers in any conditions.

Improvement/Feedback: At the conclusion of the job, the Task Manager, Supervisor and/or Project Leader shall work with those involved to consider lessons learned and receive feedback in order to improve future work plans.

Check One:

x **Yes** we have considered lessons learned and accepted feedback on this job and will communicate such information so that future work plans may be improved.

□ **Yes** we have considered lessons learned feedback and determined that future work plans do not need to be improved.

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Utilizing the format below, identify hazards and environmental aspects, and their corresponding safety precautions/procedures to mitigate hazards. Use as many sheets as necessary.

HAZARD ANALYSIS

Step	Phase / Description	Hazards/ Environmental Aspects	Precautions / Safety Procedures
1	**Identification of Confined Space**	Toxic Atmosphere, low oxygen, volatile gas hazards	Determine if Manhole / Handhole meets criteria for Confined Space per OSHA and Fermi guidelines. "A confined space also has limited or restricted means for entry or exit and is not designed for continuous occupancy." Manholes that need to be entered are considered to be confined spaces. Handholes are typically not, as there is no need to "enter" the space due to limited depth.
2	**Opening manhole or handhole**	Pedestrian or vehicle traffic hazard. Finger or toe crush hazard	Cordon off area surrounding manhole/handhole using hard barricades. Caution tape is not acceptable due to trip hazard for personnel in Wilson Hall. Wear safety shoes, use proper tool (manhole hook or lever style manhole lid lift) to remove manhole lid. If a lane closure is required, contact x3414 to advise location, start time and stop time for work. When temperatures approach near-freezing, use a lever style lift whenever moving a manhole lid. Alternately two persons with manhole hooks. Manhole may become frozen to the frame or the ground when temperatures drop.
3	**Entering confined space**	Abrasion & cut hazards, falling hazard	PPE – hard hat, gloves, safety glasses all required at all times. Be aware of all protrusions, sharp edges or other obstructions.
4	**Preparing to enter the manhole (confined space)**	Toxic atmosphere/low oxygen concentration. Fall hazard	Follow standard confined space entry permit forms and procedures. Fill out confined space entry permit form FOR EACH MANHOLE (ES&H/Admin Form #2, Rev. 2/2005 FESHM 5063). Notify fire department x3413 of proposed entry location. *Manholes have already been determined to be permit required CS).*-**This includes testing the air in the manhole at top, middle and bottom of the confined space.** Log

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			results on permit form, and if appropriate, prepare confined space reclassification form (ES&H / Admin Form #3, 1/2003 FESHM 5063) Ventilate manhole with blower before entry. **Ladder safety inspection:** DO NOT USE Ladders in poor condition! Inspect ladder at the beginning and end of the day. Perform ladder inspections; Look for burrs or sharp edges. Are the feet in good repair? Look for any structural damage. **Ladder use:** Metal ladders shall NOT be used! Select the proper ladder for the job. Use ladder properly. Keep your belt buckle inside the side rails. Setup on level base. Never extend your body outside the vertical plane of the side rails. When climbing or descending, maintain 3 points of contact with the ladder.
5	**Entering confined space**	Toxic atmosphere/low oxygen concentration Eye hazard, concussion hazard from falling debris or tools	One worker shall be designated as the confined space attendant, and shall not enter the confined space, and shall remain in contact with the worker in the confined space and monitor the work area. Attendant will also warn any other personnel in the area of the work in progress. Test and record air every subsequent 30 minutes. Continuously monitor, and ventilate while occupied. Wear appropriate PPE. Hard hat, safety glasses, safety shoes. Never throw or toss any items down into a worker in a manhole. Advise fire department x3413 of location and expected duration of confined space entry work. Also advise fire department when work is complete. If an emergency occurs and the worker(s) in the confined space require extraction, the attendant will attempt extraction using extraction tripod and harness. Under no circumstances will the attendant enter the confined space.

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			The attendant will immediately contact 630-820-3131 if an extraction is necessary.
9	**Pulling Fiber**	Crush hazard	Be aware, fiber spools can be very heavy, measured in thousands of lbs. Use properly weight rated jack stands or a spool trailer to hold fiber spool. Ensure jack stands are on solid ground. Use plywood to prevent jack stands from sinking into the ground. Take care not to inadvertently shift the spool and cause it to fall from the jack stands.
10	**Pulling Fiber**	Slip hazard	Wear gloves if needed to ensure you have a good grip on the fiber sheathing. Wear shoes with skid resistant soles.
11	**Pulling Fiber**	chemical hazard	Fiber optic cable is usually installed into ducts using a non-toxic lubricant to ease friction through the duct. Read and understand the MSDS associated with the lubricant, if used. Wear safety glasses to prevent lubricant from getting in your eyes. Wear gloves if needed to prevent your hands from contacting the lubricant.
12	**Pulling Fiber**	Back injury hazard	As with lifting, use your leg muscles rather than your back to pull the fiber.
13	**Performing work in manhole or handhole**	Slip/trip/fall hazard	Wear safety shoes or boots, leather gloves, long sleeves, hard hat and safety glasses. Note position of any obstructions or hazards that may be present in the manhole.

GUIDELINES FOR COMPLETING THE HAZARD ANALYSIS

Phase of Work	Safety Hazard	Precautions/Safety Procedures
Examining a specific job by breaking it down into a series of steps or tasks, will enable you to discover potential hazards employees may encounter. Each job or operation will consist of a set of steps or tasks. For example, the job might be to move a box from a conveyor in the receiving area to a shelf in the storage area. To determine where a step begins or ends, look for a change of activity, change in direction or movement.	A hazard is a potential danger to a person or equipment. The purpose of the Job Safety Analysis is to identify ALL hazards- both those produced by the environment and those connected with the job procedure. To identify hazards, ask yourself these questions about each step: Is there a danger of the employee striking against, being struck by, or otherwise making injurious contact with an object?	Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the hazards that could lead to an accident, injury, or occupational illness. Begin by trying to: 1) engineer the hazard out; 2) provide guards, safety devices, etc.; 3) provide personal protective equipment; 4) provide job instruction training; 5) maintain good housekeeping; 6) insure good ergonomics (positioning the person in relation to the machine or other elements in such a way as to improve safety).

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Picking up the box from the conveyor and placing it on a hand truck is one step. The next step might be to push the loaded hand truck to the storage area (a change in activity. Moving the boxes from the truck and placing them on the shelf is another step. The final step might be returning the hand truck to the receiving area. Be sure to list *all* steps needed to perform the job. Some steps may not be performed each time; an example could be checking the casters on the hand truck. However, if that step is generally part of the job it should be listed.	Can the employee be caught in, by, or between objects? Is there potential for slipping, tripping, or falling? Could the employee suffer strains from pushing, pulling, lifting, bending, or twisting? Is the environment hazardous to safety and/or health (toxic gas, vapor, mist, fumes, dust, heat, or radiation)? Are there electrocution hazards? Close observation and knowledge of the job is important. Examine each step carefully to find and identify hazards- the actions, conditions, and possibilities that could lead to an accident. Compiling an accurate and complete list of potential hazards will allow you to develop the recommended safe job procedures needed to prevent accidents.	List the recommended safe operating procedures. Begin with an action word. Say exactly what needs to be done to correct the hazard, such as, "lift using your leg muscles." Avoid general statements such as, "be careful", "use caution", and "be alert". List the required or recommended personal protective equipment necessary to perform each step of the job. Give a recommended action or procedure for each hazard. Serious hazards should be corrected immediately. The JSA should then be changed to reflect the new conditions. Finally, review your input on all three columns for accuracy and completeness. Determine if the recommended actions or procedures have been put in place. Re-evaluate the job safety analysis as necessary.

I have reviewed this hazard analysis and I understand the hazards and required precautionary actions. I will follow the requirements of this hazard analysis or notify my supervisor or Fermilab contact if I am unable to do so.

Name and ID (please print)	Signature	Date
Scott W. Wilson 10292C		
Rick Gemelli 07122C		
Joe Gemelli 08691C		
Tim Niemiec 15667N		

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