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Inspection No.12696398
Inspection Date: June 3, 2019

Report of Workplace Inspection

Inspectee:	**THE GOVERNORS OF ST. FRANCIS XAVIER UNIVERSITY**
Operating As:	**GOVERNORS OF SAINT FRANCIS XAVIER UNIVERSITY**
Mailing Address:	PO BOX 5000 MACKINNON HALL ANTIGONISH, NS CANADA B2G 2W5
Worksite Location:	STFXU
Non-Management Rep:	Gerard Gillis
Occupation:	HSE Safety Coordinator
Management Rep:	Randy Peters / Brian Doiron
Occupation:	STFXU Safety Director / STFXU Construction Facilities Director

Inspection Overview:

This Officer attended the STFXU FM Office on June 3rd, 2019 and met with members of the construction management team, including HSE coordinator for STFXU. An orientation of the incident, drawings, history and status of renovations was provided. In short, STFXU had hired Bird Construction (herein referred to as Bird) to renovation Oland's Centre. Bird had hired Infector Environmental Services (herein referred to as Inflector) to do the abatement and remediation work; which included the removal of old conduit and copper electrical wiring.

Bird had hired a local Electrical contractor, KVS Electric (herein referred to as KVS) who were on site for most of the project and had done the assessment of live power line, terminations, markings, and consulted in the coordination of electrical related work for the project.

Earlier in the project (March 24th) the first incident of an electrical contact was recorded and investigated by all the workplace parties. As a result of those findings and recommendations a "Safe Work Procedure for the Safe Removal of Electrical/Conduit" was created and workers were trained in its content. (see attached)

In the Procedure it states: "Step 1) "KVS Electrical will isolate any related power panels and mark 'DEAD' when the conduit/wire are zero energy state". It further states that: "Step 4) KVS Electrical will… mark [live wire/conduit] in such a way that… it can be identified as 'LIVE' at all points along its length…."

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On May 31/19 an Inflector employee cut through a conduit and into live power wires. Power was lost within the building complex, but the worker was not injured. Appropriate precautions were a taken at the time and all work was stopped. It was close to the end of the workday/week and the site was not going to be active on the weekend. The scene was secured and a verbal/written SWO issued along with an order for information and documentation was issued as it relates to the contract.

On June 3rd, this Officer visited the workplace and met with all persons involved and visited the location of the incident. The SWO was lifted and controls were put in place by the university prior to any work continuing on/near live power lines.

This report is continued and attached as a Word Document.

Warnings:

1. Workplace Health and Safety Regulations
   1.7-1 Compliance with policies, procedures, plans and codes of practice

   An employer must ensure that any written policy, procedure, plan or code of practice is adequate and implemented.

   You have contravened the above provisions as follows:

   By not ensuring the "Safe Work Procedure for the Safe Removal of Electrical/Conduit" was adequate and implemented as required by the above regulation.

   In order to be in compliance with this section, you must:

   Ensure follow up checks are done to ensure implementation and effectiveness of a new procedure. In this case, STFXU should have done a follow up inspection to audit the implementation by the Employer (Bird) on site.

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This inspection report was provided to Randy Peters by:

Officer Name: Paula Dobson

Officer Signature: _____

This report was produced by Paula Dobson, Occupational Health and Safety Officer, who may be contacted at:

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Section 69 of the Occupational Health and Safety Act allows orders and some decisions to be appealed. You may appeal this order by filing notice with the Labour Board no later than 30 days after being served this notice. To get information and the required forms, please visit the Labour Board website at: http://www.novascotia.ca/lae/labourboard/.
Contraventions of the OHS Act and regulations can result in administrative penalties being issued. Compliance with orders issued by OHS officers is expected and required by law; it does not prevent a penalty from being issued.

Inspection Report Findings continued:

Electrical Contact (STFXU/BIRD Construction/KVS Electrical/Inflector Environmental Services)

Oland's Centre, STFXU

May 31/19

Inflector Environmental Services were in the process of removing copper powerlines housed in 4" steel conduit from the Oland's Centre. On this morning 3 employees of this employer met with the KVS Electrical Supervisor and Bird's Superintendent, at the location in question, to confirm where the live powerlines were; and, where dead conduits/wiring were before they began cutting/removing conduit. Everyone in attendance heard and observed which lines were which, as the stood in the hallway. Following that meeting, Inflector employees prepared to begin work and asked the supervisor from Bird for an extension ladder (which they were given access to). In the hallway where they met this ladder would have been too big to be used, and although it could not be confirmed, it is reasonable to believe that this small crew was going to be working in the area where the meeting was just held.

It was indicated by Inflector employees that they had asked repeatedly to have the live powerlines marked (as per procedures) but that KVS Electrical never got around to it. It was also indicated that they typically cut a 10' length of 4" conduit, pull the wires from inside, and then cut the conduit in half again to take it down (it, and the wires, are very heavy; even handled separately). This was done with a reciprocating saw and would take about 10 mins to cut through a 4" conduit. (The saw used was never located and therefore could not be confirmed it was removed from service or even remained on site following the incident.)

Both Inflector employees doing the cut and their supervisor were present at the pre job meeting in the hallway with KVS and Bird representatives. This was a Friday afternoon. Inflector was behind schedule. The Inflector supervisor admitted he was brought on the finish the job as soon as possible. The employee doing the work was about to leave this project, on this day, to go home (NL).

Inflector employees elected to do the first cut 10' on the other side of a wall. They could not see to confirm the conduit they were cutting was in fact the correct one. No attempt was made to visually check the conduit or mark it on the other side of the wall (neither by Inflect employees or the electrical supervisor).

Bird Construction superintendent participated in the pre-job review of the conduit with KVS and Inflector employees at the location. This would be a starting point on this day for this crew. The conduit could be seen traveling through the wall into the stairwell area. Shortly after the meeting, Birds superintendent was asked by the Inflector supervisor to borrow an extension ladder, which he provided access to ("no questions asked"). Bird superintendent confirmed, in his own handwritten statement, that he knew Inflector employees were working in the stairwell removing conduit.

Generally, it was understood and expressed by employees that the rule of thumb on site was: "*if you can't see the dead end, don't cut*". This quote appears to be the 'real control' implemented on site to prevent accidental contact with live electrical powerlines; even though it was contrary to the safe work procedure that was developed and implemented following the March 24th, 2019 incident on site.

It is reasonable to state that Bird's Superintendent would have observed Inflector employees during formal and informal site inspections. Records of inspections do not show any mention, follow up, or review of the new procedure to ensure it was implemented and/or working effectively.

On a walk through the construction area, this Officer noted that there were no markings on the conduit, to identify DEAD from LIVE conduit, as per the Safe Work Procedure developed following the March 24th incident. Some yellow tape had been tied to conduit, but this was following the incident. The stairwell did have red tape on two smaller electrical cables (hanging loosely from the ceiling) to indicate it was a live power supply. The conduit in question was in stairwell but not identified prior to the incident (as pictures taken show).

KVS Electrical was the electrical employer on site. They assessed and identified conduit prior to, during and after the abatement stage. Following the abatement stage, it appears that the red tape was never maintained or replaced. KVS was asked by Inflector employees to identify which of the conduit was live and which they could safely remove. KVS would have been aware that the conduit left the hallway and ran immediately through the wall along the top of the stairwell. It was indicated by all that no one considered or looked at the conduits path as it went past the wall and ran into the stairwell. KVS supervisor indicated that he physically placed his hand on the live conduit while in the hallway to demonstrate what was live and asked if everyone understood. He then left the location.

The KVS representative was aware of the safe work procedure that was developed following the March 24th incident. Therefore, he was aware they had not continued to mark/maintain tape on the conduit as per that procedure. He did show this Officer a "bank" of conduit in a nearby room that he had scoped to identify "what was what", and, in that space he had wrote the conduit (but for identification purposes, not to determine live from dead.)

The KVS representative also indicated that the rule of thumb was an important control on site and felt that it should have been enough to ensure a worker did not cut through a live conduit if followed.

STFXU is the owner of the property and oversees the project from that perspective. The university required that the Oland's Centre daily operations not be affected by the construction activities and therefore required power to be maintained as renovations occurred. STFXU hired a construction safety professional from HSE Services to assist in the task of overseeing the Universities OHS duties and responsibilities for the coordination and communication of activities during the project.

STFXU was aware of the electrical contact on March 24th and aware of the findings and the procedure developed as a result of the that incident investigation. They ensured that Bird Construction implemented the procedure by training all employees on site. No other follow-up was recorded to confirm that the procedure was implemented and/or effective. No documentation was provided that

indicates observations during formal/in-formal walk throughs as work progressed. This employer required that the primary employer (Bird Construction) of the project was to monitor and maintain the implementation as per the contractual agreement.

Findings:

The Inflector employee could have been seriously injured or killed as a result of this incident. All workplace parties can assume some degree of responsibility for the incident. The Inflector employee could have visually checked, followed, and marked the conduit himself as it ran through the wall. KVS could have marked (and maintained markings) of all live conduit lines as per the procedure. Bird could have done inspections to ensure the procedure was being implemented and followed. STFXU could have audited the implementation of the procedure to help determine if it was effective or if further changes had to be considered.

All Employers on site are required to complete pre job hazard assessments, inspections, daily field level harassments assessments, and PSA's (pre-job hazard assessments). Inflector employees did ask and were shown what was safe to remove. The Bird supervisor stated that because the conduit was not marked, they (Inflector) would always get the electrical contractor to confirm prior to cutting. And, there was an original drawing of electrical wiring from 1965 to help guide the project.

The implementation of the electrical procedures, and monitoring of that procedure for effectiveness, was not followed up. Therefore, as demolition occurred, live conduits that may have been marked became unidentified, and was never re identified. All parties would have been aware of this, and, to some degree, felt that the 'rule of thumb' was good enough to control this risk. Contrary to this belief, all parties would also have agreed, when they developed the new "safe work procedure for the safe removal of remainder of electrical/conduit", that it was necessary to remark all live conduit/wires "...along all its length." Interestingly, no where in this procedure does it mention the all important "rule of thumb".

The Safe Work Procedure had several checks and balances written into it that supported employees asking if they were not sure. It clearly states in Step 4 what must be in place, but, then continues to suggest that if this is not done, check with the electrician on site. Those employees involved did ask and were shown; however, had the live conduit been marked 'along its length' the incident would not have occurred. If the employee cutting the conduit had looked through the opening in the wall to confirm where the conduit ran into the next room, this would not have happened (a short cut was taken). If Bird had monitored the procedure for implementation and effectiveness, this would not have happened because KVS would have been required to mark live conduit 'along its length'. If STFXU had decided to do an audit of the investigation results from March 24th findings, they too may have identified the procedure was not being enforced.

Documentation provided does not support ongoing monitoring in the field. What is documented well onsite is training with workers specific to the procedure in question. Lastly, documentation does not support that Inflector employees reported their ongoing safety concerns to Bird, or any of the site safety representatives (re live markings) as Bird's Site Safety Committee meeting minutes do not show any such concerns being brought forward in the past 3 months.

OHS Programs include the need for ongoing assessment of risks. This requires the establishment of controls to help keep the workplace safe. Projects run over budget, run behind on schedule, and, all persons (regardless of your position) can feel the pressures of getting the job done. Red tape along lengths of live conduit was an easy control that should have been implemented and monitored to ensure that, in the times of distraction and rush, employees are as safe as possible.