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BP Safety Communication Incident Report

TYPE OF INCIDENT: **HIPO**
LOCATION OF INCIDENT: **Blend Plant Gent**
DATE / TIME OF INCIDENT: **15th November 2010 0930 hrs**
TRACTION # : **2010-IR-3690894**

BRIEF ACCOUNT OF INCIDENT:
Whilst cutting a concrete slab at the plant entrance, the cutting saw cut into a 12kV electric cable, buried under the slab. This caused an electrical short circuit which resulted in total power loss to the whole blend plant. Whilst this incident had the potential for severe personal injury consequences the contractor involved was not injured.

WHAT WENT WRONG (CRITICAL FACTORS)
1.The 12kV cable was laid at a depth of 17cm at the point where it diverted out from the cable trench which allowed it to be cut by the concrete cutting disc, set at 20cm. The cable had not been laid in compliance with the relevant depth standard in force at the time the cable was laid (min 60cm).

2.There were no accurate drawings of the area available within the BP drawing set for the site which might have indicated the risk from the concrete cutting work. The local authority drawing of the 12kV cable routing was marked "Location Unknown" The risk assessment conducted prior to work commencing was therefore based on inaccurate information.

3. There was no cable depth data on the drawings provided and it was wrongly assumed that the cable would be buried to current standards (min 70cm).

WHAT WENT WELL?
The contractor directly involved with the incident suffered no injury or other trauma.
The cause of the incident was very quickly established and the damaged cable isolated.
The relevant utility supplier was immediately informed of the incident.
Power was restored to the plant in a very short time minimising the disruption to production.
Prior to any further ground work continuing the area was scanned and the exact location of the rest of the cable was firmly established.
A safety alert was issued immediately to other sites which, in some cases, halted ground disturbance work elsewhere whilst similar situation could be checked out and be confirmed safe.

SUMMARY OF IMMEDIATE CAUSES:

1-6 Did not follow existing procedures This cable was laid in 1971 and the minimum depth standard for burial of high voltage cable in force at the time was 60cm. At the point where the cable was cut it was only at a depth of 17cm. The cable had not been laid in compliance with the relevant depth standard in force at the time the cable was laid.

8-6 Workplace Layout: Other The actual layout of the cable and cable trench was not clear because there were no existing BP drawings of the area available at the time of the job and the drawings supplied by the local authority and used prior to starting the work were subsequently found to be inaccurate although they did state that the location of cable was unknown.

4-6 Lack of focus or inattention The assumption that the cable would be buried at least 70cm below surface was based on knowledge and experience of current systems and standards for high voltage cable burial. None of the parties involved in the work had experienced an occurrence of cable being laid in such a way and so there was no consideration that the cable would be exposed at insufficient depth. The job was considered to be entirely routine.

SUMMARY OF SYSTEM CAUSES:

18-1 Engineering / design: Technical design not correct This cable was laid in 1971 and the minimum depth standard for burial of high voltage cable in force at the time was 60cm. At the point where the cable was cut it was only at a depth of 17cm. The cable had not been laid in compliance with the relevant depth standard in force at the time the cable was laid.

18-4 Engineering/design : Monitoring of construction not effective This issue was not highlighted during the original laying of the cable and it was allowed to be concreted over

15-3 Training / knowledge transfer: Knowledge transfer not effective BP drawing documentation of the plant pre 1990 was not kept up to standard and either does not exist or, where it does exist, is not accurate.

11-8 Mental capability: Other An unintentional incorrect assumption was made that the cable would be buried to current standards**.**

18-8 Engineering design: Other The Risk Assessment should ensure that best technology (e.g. ground scanning) for the accurate tracing of such utilities have been considered and, where appropriate and effective, have been implemented, prior to the job commencing.

22-2 Standards / Practices / Procedures (SPP) : Development of SPP not effective The local ground disturbance procedure does not include the use of best technology (e.g. ground scanning) for the accurate tracing of utilities. In the SPU Ground Disturbance procedure, on which the local procedure is based, scanning is only a recommendation rather than a mandatory requirement. Similarly the RAP statements on the PTW do not mandate such steps.

SUMMARY OF ACTIONS:

Identify if any other similar situations exist on site, i.e. where there is evidence or knowledge of buried cables, gas lines, etc but their exact location is not clear. Investigate potential for identifying exact locations using best available technology (e.g. ground scanning) and include relevant information on site drawings. Mark areas so that it is clear to observers that there are buried high risk utilities in those locations. The scanning will include ground and walls to determine presence of cables, pipes etc.

Continue the drawing update plan to completion to ensure all site drawings are updated to accurately reflect the site situation using best available technology (e.g. ground scanning). Ensure resulting information is stored so that it is easily identifiable and accessible when needed by the plant.

Review local ground disturbance procedure to ensure the mandated use of best technological possibilities (e.g. ground scanning) for the accurate tracing of utilities.

Review RAP statements for ground disturbance and work involving openings in walls to ensure they take into consideration risk from buried high risk utilities and need to positively locate them using best available technologies.

Update SPU procedure to include mandatory use of best technology (e.g. ground scanning) to identify buried high risk utilities and that this update is cascaded to all local procedures within the business.

For further information or a copy of the full RCA report please contact:-
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Point where cable was contacted by cutting disc showing cable sandwiched between concrete and soil at 17cm deep – not buried in soil at minimum of 60cm.