

# DEVELOPER WORKS

## Electrical Safety for Work on Metallic Water Pipework

# Seminar Objective

To safeguard Contractors, SWC workers, Developers and customers from electrical hazards arising when work is carried out on the water supply system

## Why?

- Electrocution of maintenance employee in January 2005 and Yennora incident involving plumber March 2009
- Increasing incidence of electricity reported in water pipes, resulting in shocks and near misses
- Ignorance of associated electrical hazards in Plumbing Industry
- WorkCover Safety Alert: Electrical Hazards from metallic water services
- Repeated stop works by Developer Works Inspection Team -DWI

# SWC Incidents – Yennora

- Plumber received a fatal electric shock whilst working on a water service within the property
- Service had been cut and no evidence of bridging conductors being used
- Electrical test identified a high resistance neutral & the earth bond had been removed from the water service



# SWC Incidents – Padstow

- Plumber received an electric shock whilst repairing broken water service adjacent to water meter
- Service had been cut and bridging conductors were in place between the two pipes
- Bridging conductor not making good contact, pipe not cleaned properly and clamp was coated with mud
- Electrical test identified high resistance neutral

# SWC Incidents – Killara

- Maintenance employee received an electric shock when he was about to use an Aquaphone listening device on a water meter to listen for a leak
- Holding the Aquaphone in both hands, employee leant towards the meter
- Felt shock go up left arm, across chest and down right arm. Employee was thrown back approximately 2 metres
- Electrical fault was identified on the street pole adjacent to the property

# HSP0064 Electrical Safety

- Electricity can present a risk of injury or damage from electric shock, fire or explosion and may affect many activities performed by Sydney Water.
- Legislation and Codes of Practice define strict safety requirements for any work involving electrical hazards.
- Sydney Water has additional requirements aimed at reducing electrical safety risks to staff and contractors working on its assets. **HSP0064 lists these requirements.**
- HSP0064 aims to enable compliance and reduce the risks associated with electricity at Sydney Water.

# HSP0064 Electrical Safety

## Scope:

- This procedure applies to all Sydney Water staff working with electrical safety risks.
- This procedure applies to Contractors and Service Providers to Sydney Water are required to meet the requirements of this procedure through **their own systems of work.**

# HSP0064 Electrical Safety

## Mandatory requirements

Where work at Sydney Water involves electrical hazards, staff, contractors and service providers **must**:

- Identify electrical hazards & implement appropriate controls to eliminate the risk of injury or damage
- Ensure that the requirements of all relevant ***Acts, Regulations, Codes of Practice, Australian Standards & Sydney Water procedures*** are addressed in ***Safe Systems of Work***
- Be ***trained*** in the relevant Safe Systems of Work
- Ensure that ***only*** trained & ***competent persons*** carry out the work
- ***Comply*** with the requirements of relevant ***Safe Systems of Work***



# HSP0064 Electrical Safety

## **KEY ISSUES** that have arisen are:

- The requirements to identify electrical hazards and implement appropriate controls (to eliminate the risk of injury or damage) is subject to ambiguity and interpretation
- The DWI team are confronted by good applications of control BUT often very naïve and dangerous applications of control
- Recent electrical safety audits have found that the information for electrical safety risks of work with metallic water pipework was not adequately accessible to all staff and contractors
- Sydney Water has introduced a new procedure **HSP0077 Electrical Safety for Work on Metallic Water Pipework**, in order to minimise the risks to staff, contractors and customers from contact with electricity when working on metallic water pipework

# HSP0077 Electrical Safety for Work on Metallic Water Pipework

- Sydney Water has developed a list of appropriate controls that identifies the minimum requirements for Bridging Conductors and Insulated Electrical Gloves (ratings, Test & Tag requirements) when working on metallic water pipework

**This is what tonight is all about!**

- Following tonight's seminar, these are the minimum requirements that **MUST** be met. Or work **STOPS!**

**We will not compromise on Safety!**

**You should not compromise on Safety!**

# HSP0077 Electrical Safety for Work on Metallic Water Pipework

- Review your Safe Work Method Statements (SWMS) for work on metallic water pipework to make sure that your controls meet the requirements of this procedure
- A range of controls are outlined in the new procedure
- A key requirement is that a minimum of two levels of control will always be applied when doing this work
- WSC's must regularly monitor this work to make sure it is done in accordance with the requirements of the relevant SWMS

# HSP0077 Electrical Safety for Work on Metallic Water Pipework

## Key Requirements:

- Always consider that metallic water pipework may contain electricity when doing the risk assessment for any work on it
- Always use insulated electrical gloves and non-conductive hand tools while inspecting the pipework and/or stemming the flow of water
- Do not touch any metallic water pipework with bare hands (or any other unprotected part of the body) until the risk of electric shock is controlled
- Do not start (or continue) any work on metallic water pipework if there is evidence of electricity or voltage greater than 5 volts in the pipework
- Always use Bridging Conductor(s)
- Always apply two levels of control when working on metallic water pipework

# HSP0077 Electrical Safety for Work on Metallic Water Pipework

## The Sydney Water Experience

- All **Main to Meter** and **Water Main** work requires a minimum of **two levels** of control to be in place to manage the risk of electricity
- The application of Bridging Conductors around the work area is **mandatory**
- Employing a voltmeter is **not a control** – it is a testing device – an indicator of flow.

# HSP0077 Electrical Safety for Work on Metallic Water Pipework

## The Sydney Water Experience

- Sample SWMS highlighting how Sydney Water crews manage the risk of electricity on metallic water pipework are now available for your reference.
- Sydney Water Electrical Folder for Supervisors booklet is now available for your reference.
- Electrical Safety procedures 0077 and 0064 are available for your reference
- Sydney Water and Work Cover NSW safety alerts are issued via the EQC / WSC Forum

# Work Cover NSW Electrical Hazards Safety Alert



**Electrical hazards from metallic water services:**

**Safety alert**

**This safety alert replaces a previous safety alert issued in 2005 and has been revised following the recent death of a plumber who was electrocuted while installing a new section of copper water pipe at a private residence. This is the second fatality of its type that has occurred in NSW since 2005.**

**Catalogue Number: WC05910**

**ISBN: 978 1 74218 155 4**

**<http://www.workcover.nsw.gov.au/formspublications/publications/Pages/safetyaltelectricalhazardsfrommetallicwaterservices.aspx>**

# Work Cover NSW Electrical Hazards Safety Alert



**Electrical hazards for plumbers:**

**Safety alert**

**This Safety Alert has been prepared to highlight and reinforce recommended safe practices for plumbers and other related workers who carry out work on a customer's water service.**

**Catalogue Number: WC04584**

[http://www.workcover.nsw.gov.au/formspublications/publications/Documents/safety\\_alert\\_electrical\\_safety\\_for\\_plumbers\\_final\\_version\\_4584.pdf](http://www.workcover.nsw.gov.au/formspublications/publications/Documents/safety_alert_electrical_safety_for_plumbers_final_version_4584.pdf)



# Managing Risks – A Summary

- The correct application of Bridging Conductors around the work area is ***mandatory***
- ***This is an example of correct bridging conductors employed.***



# Managing Risks

**This is NOT ACCEPTABLE!**



# Managing Risks

Nor is this.....



# Managing Risks – The DWI Team

- The DWI Team WILL stop work(s) The DWI Team WILL Stop work(s).
- The DWI Team will issue Corrective Actions against your company
- The DWI and Urban Growth will issue Corrective Actions against the WSC/Developer
- This as you can well imagine, will have a financial impact on you

# Managing Risks

- Insulating gloves compliant to standard and insulated to the highest potential voltage expected for the work being undertaken.
- Records of inspection, testing and maintenance of bridging equipment and Plumbers Voltage Monitors **MUST** be maintained as part of your Inspection, Testing and Monitoring process.
- Be aware that new laws for Residual Current Devices (RCD's) took effect from 18<sup>th</sup> February 2011.
- Power circuits and specified electrical equipment are to be protected by an RCD.
- RCD's tested regularly by competent person.
- Owner of RCD must keep records of RCD testing

# Contractor Management

- Contractors are required to have in place systems of work which comply with specified Sydney Water H&S policies, procedures and systems i.e. HSP0064 and HSP0077
- Contractors must also meet the intent of the key requirements of a number of other Sydney Water procedures through their own safe systems of work i.e. Confined Space, Flow Management and Asset Isolation, Traffic Control Plan – to name a few.

# Contractor Management

- The contractor must apply a hazard identification and risk assessment process throughout the project - including when new sub-contractors are engaged or there is a significant change to the project scope
- For each contract, a specific Project Safety Plan\* (PSP) is to be developed and implemented by the contractor

Note: \* This PSP is based on the NSW Govt OHSMS Guidelines 4<sup>th</sup> Edition

# Contractor Management

- All work activities identified in the HIDRA shall be addressed in work method statements or equivalent documents

## **Safe Work Method Statements** must:

- Be on the relevant organisation's letterhead and show the name & registered office address
- Be signed and dated by a senior management representative, and authors of the work method statement



# Safe Work Method Statements

- 1 Is SWMS on (Contractor's) company letterhead?
- 2 Is it signed by management?
- 3 Is description of work adequately stated?
- 4 Does SWMS set out step by step all the activities?
- 5 Are potential hazards & risks clearly identified?
- 6 Are control measures appropriate for identified hazards?
- 7 Does SWMS state all plant & equipment to be used?
- 8 Does SWMS identify relevant OHS Legislation, Standards, Codes of Practice that must be complied with?
- 9 Are any Engineering/Certificate/WorkCover approvals listed?
- 10 Is training required to complete work listed in SWMS?
- 11 Are personal qualifications clearly identified?
- 12 Are maintenance checks on plant & equipment detailed?
- 13 Is SWMS signed by all workers involved in the work activity?
- 14 Are SWC procedures/permits referred to? – HSP0064 / HSP0077 for example

# Awareness Training

- Doug Hobart (Safety Consultant) will provide a presentation and demonstration of how Sydney Water applies these processes.

Remember:

- Sydney Water staff, contractors and service providers working on metallic water pipework **MUST** meet the requirements of this procedure via, **their own Safe Systems of Work**
- These controls must be incorporated into **Safe Work Method Statements** for that work
- Please review your Safe Work Method Statements (SWMS) for work on metallic water pipes to ensure that **your** controls meet the requirements of this procedure

# Awareness Training

- You will leave this Awareness presentation and demonstration with sufficient information on how Sydney Water applies these processes.

## It is important to remember:

- The Sydney Water documentation provided i.e. Supervisors booklet, safety alerts and Safe Work Method Statement are **Samples only**.
- They show how we at Sydney Water meet the requirements of these procedures.
- **Your Safe Systems of Work** (evidenced by **your Safe Work Method Statements**) must be developed separately and independently showing controls that meet the requirements of this procedure.
- Our documentation provided are **SAMPLES Only**.