



President: Mark Chrysler
1st Vice President: James (Rusty) Anderson
2nd Vice President: Martin Montessoro
Secretary: Tiffany Kirk
Treasurer: Steve Jones
Membership Chair: Dean Mastrovic
Education Chair: Bruce Barnes
Sergeant at Arms: Nancy Martinez
Ex-Officio: Bruce Barnes
Other Members: Billy Duggins and Pat Healy

IAEI Border County Division
San Diego, California
Minutes for September 13, 2011
12:00 p.m. No-Host Lunch
1:00 p.m. - 3:00 p.m. Meeting
Sizzler Restaurant (Meeting Room)
3755 Murphy Canyon Road
San Diego, CA 92123

1. Call to Order and Self Introductions

The meeting was called to order by Mark Chrysler, President of the Border County Division, at 1:02 P.M. 21 in attendance made self introductions.

2. Review and Approval of Minutes

Minutes from the June 14, 2011 meeting were reviewed and approved with additional comments from Rusty Anderson to be added regarding "Bonding Gas Piping Systems CEC 250.104(3)(B)".

3. Reports

Treasurer's Report: Steve Jones was not present. Nancy Martinez presented the treasurer's report which was reviewed and approved as presented.

Membership: Dean Mastrovic reported there is 1 new member for a total of 79 members for the Division.

Education: Bruce was not present. Mark Chrysler reported a free seminar on September 26, 2011. The subject is Title 24 Non-Residential Compliance available to plan reviewers and inspectors. The seminar is held at the new San Diego Gas & Electric Energy Innovation Center.

4. Old Business - None

5. New Business - The Chapter meeting is next Wednesday, September 21, 2011 in Oceanside. The education is by Joe Andre on Transformers, Secondary Conductors and Tap Rules. Mark mentioned the yearly election is coming up. Please have nominations in to the Board of Directors by November. The 2nd Vice Presidency is open to be filled by inspector members only. However, committee chairs are also needed. Mark reported that our very own

Steve Jones is the newly installed President of the Southwest Section and Bruce Barnes is the 1st Vice President.

Pat Healy reported on his attendance to the Southwest Section in Sparks, Nevada. The meeting was well attended. The education was very practical and covered many popular topics: Renewable Energy, Solar, PV Modules on rooftops affecting the rating of the roof, line/load disconnect, Ground rods/Grounding Electrodes, Multi-Wiring, Electric Vehicle, Smart Grid, LED Retrofit Lighting, etc. Article 690 will be rewritten for the 2014 edition. The vendor booths were sold out.

6. Education Program

Presenter: Joe Jones – Education Chair for the Southern California Chapter of the IAEI

Subject: Motor Fuel Dispensing Facilities (NEC Article 514)

The following were covered in the presentation:

Scope

- Article 514 Applies to:
 - Motor Fuel Dispensing Facilities
 - Marine
 - Fleet Dispensing

Definitions

- Motor Fuel Dispensing Facility
 - “That portion of a property where motor fuels are stored and dispensed from fixed equipment into the fuel tanks of motor vehicles or marine craft or into approved containers, including all equipment used in connection therewith.”

Classification of Locations 514.3

- Unclassified
 - “Where the AHJ can satisfactorily determine that flammable liquids having a flash point below 100 degree F, such as gasoline, will not be handled, such location shall not be required to be classified.”
 - This language is typically applied to installations where diesel fuel is stored or dispensed.
- Class I Locations
 - Where Class I liquids are stored, handled, or dispensed Table 514.3(B)(1) shall be used to delineate and classify motor fuel dispensing facilities.
 - The delineation and classification of aboveground tanks shall comply with Table 515.3.
 - Class I locations shall not extend beyond an unpierced wall, roof or other solid partition.

Table 514.3(B)(1)

- This Table is used to delineate Class I, Group D locations at Motor Fuel Dispensing Facilities and covers, in part:
 - Underground Tanks
 - Dispensing Devices Remote Pumps (Indoor & Outdoor)
 - Lubrication or Service Rooms without dispensing.

- Sales, Storage and Rest Rooms
- Vapor Processing Systems and Equipment
- Equipment Enclosures and Vacuum-assist Blowers
 - Underground Tanks
 - Fill Opening
 - Division 1, any pit or below grade box
 - Division 2, up to 18-inches above grade within 10-feet of a 'loose' fill connection and 5-feet from a tight fill connection
 - Vent (discharging upward)
 - Division 1, 3-feet from the open end of the vent in all directions
 - Division 2, between 3 and 5-feet extending in all directions
 - Dispensing Devices (Except Overhead)
 - Any pit or box below grade level within a dispenser is Division 1
 - Division 2, within 18-inches horizontally in all directions extending to grade from the dispenser enclosure or that portion of the enclosure containing liquid-handling components
 - This dimension requires examination of electrical equipment located adjacent to fuel dispensers.
 - Division 2, up to 18-inches above grade level within 20-feet horizontally of any edge of the enclosure. (This dimension encompasses a horizontal dimension where equipment unrelated to fuel dispensing may be present)
 - Dispensing Device (Overhead)
 - The space within the dispenser enclosure, and all electrical equipment integral with the dispensing hose or nozzle is Division 1
 - The space extending 18-inches horizontally in all directions beyond the enclosure and extending to grade
 - Up to 18-inches above grade level within 20-feet horizontally measured from a point vertically below the edge of any dispenser enclosure
 - Remote Pumps
 - Outdoor
 - Division 1, any pit or box below grade level if any part is within a horizontal distance of 10-feet from any edge of the pump
 - Division 2, within 3-feet of any edge of pump, extending in all directions. Up to 18-inches above grade level within 10-feet horizontally from any edge of the pump
 - Indoor
 - Entire space within any pit. (No maximum distance??)
 - Within 5-feet of any edge of pump, extending in all directions. Also, up to 3-feet above grade level within 25-feet horizontally
 - Vapor Processing Systems and Equipment
 - Within a Protective Enclosure
 - Division 2 within the enclosure
 - Not within a Protective Enclosure
 - The space within 18-inches in all directions of equipment containing flammable vapor or liquid extending to grade level and up to 18-inches above grade level within 10-feet horizontally of the equipment.

Table 514.3(B)(1) (Applies to CNG, LPG, and LNG)

- Compressed Natural Gas
 - The space within the dispenser enclosure is Class I, Division 1
 - Within 5-feet in all directions from the dispenser is Division 1
- Liquefied natural gas
 - The space within the dispenser and within 5-feet in all directions is Division 1
 - The space from 5 to 10-feet in all directions of the dispenser is Division 2
- Liquefied Petroleum Gas
 - The space within the dispenser enclosure and 18-inches from the exterior surface of the dispenser to an elevation of 4-feet above the base of the dispenser. Where not mechanically ventilated, any pit or open space within 20-feet of the dispenser
 - Up to 18-inches aboveground and within 20-feet of the dispenser, including pits or trenches, when provided with adequate ventilation

Wiring and Equipment

- Wiring and Equipment installed in Class I Locations shall comply with Article 501.
 - Must be listed and identified for use in a Class I, Division I or Division 2 environment as determined by the classification delineation.
- Wiring and Equipment installed above Class I Locations shall comply with Article 511.7
 - Wiring Methods (Most common)
 - Metal raceways, rigid nonmetallic conduit, electrical nonmetallic tubing, LFNC, flexible metal conduit, Types MC, AC, or MI.
 - Fixed Equipment shall be located above the level of any defined Class I Location or be identified for use within the location

Underground Wiring

- Wiring Methods
 - Threaded Rigid Metal Conduit
 - Threaded Steel Intermediate Metal Conduit
 - By Exception Type MI Cable shall be permitted
 - Rigid Nonmetallic Conduit shall be permitted where buried under not less than 2-feet of cover, and, where used, the final 2-feet to the point of emergence or connection shall be RMC or IMC

Sealing

- Any portion of underground electrical wiring that is below a Class I, Division I or Division 2 location shall be sealed within 10-feet of the point of emergence above grade.
 - Except for listed Explosion-proof reducers at the conduit seal, there shall be no union, coupling, box or fitting between the conduit seal and the point of emergence above grade.

Sealing Fitting Locations

- Dispensers
 - A seal shall be provided in each conduit run entering or leaving a dispenser
 - The sealing fitting shall be the first fitting after the conduit emerges from earth or concrete
- Boundaries
 - Sealing fittings shall be installed at all boundaries.
 - The seal may be installed on either side, but within 10-feet of a boundary

Boundary Seals

Circuit Disconnects [NEC 514.11]

- “Each circuit leading to or through dispensing equipment.....shall be provided with a clearly identified and readily accessible switch.....To disconnect simultaneously from the source of supply, all conductors of the circuits, including the grounded conductor, if any. Single-pole breakers utilizing handle-ties shall not be permitted.”
- Emergency Controls shall shut off all power to the dispensing equipment at the station and shall be manually ‘reset’ in a manner approved by the AHJ

Attended Self-Service Fuel Dispensing Facilities

- Emergency Disconnect Location
 - Must be acceptable to the AHJ
 - Must be located not more than 100-feet from the dispensers

Unattended Self-Service Motor Fuel Dispensing Facilities

- Emergency Disconnect Location
 - Must be acceptable to the AHJ
 - Shall be more than 20-feet but less than 100-feet from the dispensers

Grounding and Bonding [514.16]

- “All metal raceways, the metal armor or metallic sheath on cables, and all non-current carrying metal parts of fixed electrical equipment, regardless of voltage, shall be grounded and bonded. Grounding and Bonding in Class I locations shall comply with 501.30.

Grounding and Bonding - What does 501.30 say?

- Locknut-bushing and double-locknut shall not be depended on.
- Bonding jumpers with proper fittings or other approved means of bonding shall be used.
- Such means of bonding shall apply to all intervening raceways, fittings, boxes, enclosures between Class I locations and the point of grounding for Service Equipment or point of grounding for a Separately Derived System.

Common Fittings Used For Bonding

- WEDGE
- Myers – style hub
- Bonding Bushing
- Grounding Locknut

Significant Inspection Points

- ✓ Review the approved drawings
- ✓ View acceptability of Wiring Methods
- ✓ For underground installations verify installation depth and, if PVC is installed, the necessary GRC transitions.
- ✓ Establish the Division Boundaries and ‘Seal-Off’ installation
 - Underground raceways
 - Overhead canopy Lighting
- ✓ Inspect ‘Seal-Offs’ before compound installation for proper conductor separation and after compound installation for compliance with conductor fill, and sealing compound installation
- ✓ Verify Grounding and Bonding requirements for circuits within, or passing through, a Class I location. Branch-circuits or feeders which do not include an Equipment Grounding Conductor shall be bonded to the Service or source of a Separately Derived System.
- ✓ Verify placement and operation of Emergency Disconnects, including disconnection of Grounded Conductors, if present

Equipment Enclosures and Vacuum-assist Blowers

7. Code Question(s) of the Month – None

8. Organizational Time

Inspectors – Andy French asked: In a rural area, he would like to run medium density propane in the same trench as the electric power. Is there a section in the code that doesn't allow this? The Utility didn't have a comment since the trench is after the meter.

Consultants – None

Testing Agencies – Rich Berman reported the Communication Cable, CAT 5e, LAN Cable is not listed by UL and bears an unauthorized reference to UL. Rich provided a handout of a recall from the U.S. Consumer Product Safety Commission (CPSC) of LED Night Lights by Camsing Global Due to Burn Hazard.

There was a discussion of grounding incorporated within the racking system, grounding and bonding requirements in the panel versus grounding and bonding requirements in the rack mounted system.

Contractors – None

Manufacturers – None

Utilities – None

9. Final Business

10. Adjournment

There being no further business, meeting was adjourned at 3:21 P.M.

Next meeting: Tuesday, October 11, 2011 at 1:00 P.M.

Respectfully submitted,

Tiffany Kirk
BCIAEI Secretary