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Robert L. Flanagan
Secretary

Maryland Aviation Administration

Paul J. Wiedefeld
Executive Director

MEMORANDUM

JAN 12 2004

TO: Distribution

FROM: Benjamin Chin, Manager
Division of Facilities Design *Benjamin Chin*

DATE: January 8, 2004

SUBJECT: Design Standard (DST) 2004-1, Fuel Truck Parking
Baltimore/Washington International Airport (BWI) and Martin State Airport (MTN)

Effective immediately, the design of all facilities at BWI and MTN, involving fuel loading and/or parking areas for mobile or portable fuel/oil storage containers, must meet 40 Code of Federal Regulations, Part 112 requirements of the Environmental Protection Agency's Spill Prevention and Control Countermeasures (SPCC).

The MAA requires all owners of existing fueling operations at BWI and MTN to construct the required secondary containment as soon as possible, but no later than February 18, 2005. Facilities that become operational after the date of this Design Standard must construct the required secondary containment prior to beginning operation.

The requirement for secondary containment applies, but is not limited to, the following conditions:

1. Fuel truck parking areas where filled and parked fuel trucks are left unattended. The fuel truck parking areas must be provided with secondary containment capable of holding the volume of the largest tank.
2. Truck loading/unloading areas. Areas where fuel is loaded or unloaded from a tank truck to a storage tank, or vice-versa, must be provided with secondary containment capable of holding at least the maximum capacity of any single compartment of a truck using the facility.

If the above requirements conflict with any other codes or regulations, it should be brought immediately to the attention of the Manager, Division of Facilities Design.

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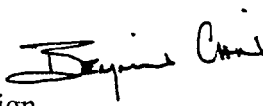
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Executive Director

MEMORANDUM

TO: Distribution

FROM: Benjamin Chin, Manager 
Division of Facilities Design

DATE: March 15, 2004

SUBJECT: Design Standard (DST) 2004-02, Substation Design Standards

Effective immediately, please incorporate the following design requirements into all projects and checklists for Baltimore/Washington International Airport (BWI).

This standard details requirements for 13,800-480 volt electrical substations. This standard supersedes BWI design standards DST 99-03 (Electrical System Ground Fault Protection), DST 2000-03 (Closed Transition of Substation Secondary Switches), and DST 2000-04 (Substation Emergency Power Quick Connect).

1. All equipment and installations shall be in accordance with the National Electrical Code (NEC) per edition approved and specified in the Maryland Model Performance Code.
2. All equipment locations shall be coordinated with the Maryland Aviation Administration (MAA) Office of Engineering and Construction Management.
3. Substations shall be 13,800-480 volt, secondary selective configuration consisting of two primary (13,800 volt) feeders, two primary fused load interrupter switches, two power transformers, two secondary (480 volt) main circuit breakers, one tie breaker, and feeder breakers. All current carrying parts of the substation and related components shall be copper. Each substation shall be supplied by one North feeder and one South feeder originating from switchgear supplied from the BWI North and South substation respectively. Refer to attached Sheet Numbers SK-1 and SK-2 for additional information. The current BWI medium voltage one-line diagram is available from MAA upon request.

The secondary main and tie circuit breakers shall be electrically operated draw-out type low voltage power circuit breakers or insulated case circuit breakers.

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The feeder circuit breakers shall be manually operated draw-out type low voltage power circuit breakers, insulated case circuit breakers or molded case circuit breakers mounted in continuous metal enclosed switchgear or switchboard enclosure(s).

4. All substation short-circuit ratings shall be adequate for the combined available fault current contribution due to secondary closed transition switching. The available fault current shall be calculated for the moment that both secondary main breakers and the tie breaker are simultaneously closed and both transformers are energized from their primary source.
5. Ground fault protection shall be provided for all substation 480 volt circuit breakers including secondary main circuit breakers, tie breaker and all feeder breakers. Ground fault protection for 3 phase, 4 wire, solidly grounded systems shall utilize current transformer (CT) sensing for all phase and neutral conductors. Three (3) phase ungrounded systems shall include a ground fault sensing and indication system.
6. Substations shall include a semi-automatic secondary closed transition switching scheme that allows for momentary simultaneous closing of both secondary main circuit breakers and tie circuit breaker for maintenance switching purposes. The closed transition scheme and associated components shall be designed and manufactured by the substation equipment manufacturer and designed specifically for this application. All components shall be integral to the substation. Refer to attached Sheet No. SK-1 and SK-2 for additional information.

The designer shall contact MAA maintenance personnel to see if any operating problems have occurred recently with closed transition operation at existing substations. If so, the designer shall request that BGE perform a circulating current study. The designer shall make recommendations based on the results of the study.

The designer shall contact BGE to see if any changes have been made that could affect the synchronization of incoming feeders and closed transition operation. If so, the designer shall request that BGE perform a circulating study. The designer shall make recommendations based on the results of the study.

7. Substations shall include a secondary automatic transfer scheme that will automatically open one secondary main breaker and close the tie breaker in order to transfer all load to one primary feeder if abnormal voltage is detected on one of the two incoming substation primary feeders. Refer to attached Sheet Numbers SK-1 and SK-2 for additional information.

8. Substations shall include an emergency power quick connect system which includes a permanent connection point for a temporary electric generator in order to supply temporary power to the entire substation in the event of a complete substation power outage. The quick connect system shall include a temporary generator circuit breaker (52-G1) (located within the substation), temporary generator connection point circuit breaker (52-G2) (located outdoors, remote from the substation at an area easily accessible to the temporary generator), feeder from 52-G1 to 52-G2, and control system. The location of the temporary generator connection point enclosure shall be approved by the BWI Office of Airfield Operations and Security, as well as the Office of Maintenance and Utilities. Refer to attached Sheet Numbers SK-1 and SK-2 for additional information.

Circuit breaker 52-G1 and 52-G2 shall be manually operated. Circuit breaker 52-G1 and 52-G2 and the feeder shall have a rated ampacity equal to the substation main circuit breakers.

The temporary generator connection point circuit breaker (52-G2) shall be installed in a pad-mounted enclosure of sufficient size and configuration to allow for temporary generator cable connections. The enclosure shall have the following options: NEMA 3R 12-gauge type 304 stainless steel construction, gasketed door, front accessible only, padlock provision, key interlock, internal heater (with thermostat and internal control power transformer), internal hinged dead front door (that allows breaker to be operated with no possible access to energized parts), temporary generator cable access area, and temporary generator cable bus bar connections capable of connecting the required number of cables. The entire enclosure shall be rated NEMA 3R while-in-use when temporary generator cables are connected and operational. All components of the temporary generator connection point circuit breaker shall be specifically designed for this purpose and manufactured by the circuit breaker manufacturer or by the circuit breaker manufacturer factory authorized field service organization. An 8-1/2" x 11" aluminum sign attached to the outside of the enclosure shall be installed with the following wording: "Substation _____ Generator Connection." The name of the substation shall be filled in the blank space.

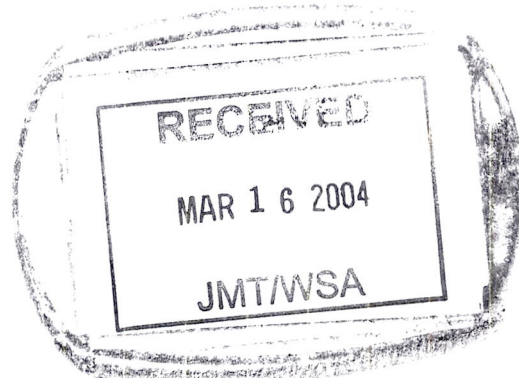
9. Contract documents shall require performance of a short-circuit and coordination study during construction to establish settings for all new adjustable system protection devices. All new devices shall be selectively coordinated with existing devices and operating schemes including, but not limited to, overload/short-circuit protection and automatic transfer schemes.

10. Contract documents shall require furnishing and installation of permanently attached engraved instruction placards including substation one-line diagram and all substation sequence of operations. Locate one placard at substation interior wall with an emergency lighting fixture with integral battery back-up in close proximity. Locate one placard on the inside of the temporary generator connection point circuit breaker enclosure.
11. Contract documents shall require furnishing and installation of a framed wall-mounted one-line diagram for the substation and the entire downstream distribution system. Locate within substation room.

If the above requirements conflict with any codes or regulations, it should be brought immediately to the attention of the Manager, Division of Facilities Design. If you should have any questions regarding this matter, please contact me at 410-859-7093.

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Paul J. Wiedefeld
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MEMORANDUM

TO: Distribution

FROM: Benjamin Chin, Manager *Benjamin Chin*
Division of Facilities Design

DATE: March 15, 2004

SUBJECT: Design Standard (DST) 2004-3, Temporary Electric Power Service
Baltimore/Washington International Airport (BWI) and Martin State Airport
(MTN)

Effective immediately, all projects at Baltimore/Washington International (BWI) and Martin State (MTN) Airports shall be designed and specified per the following:

For temporary electric power service during construction, designers shall include the following requirements in the specifications. These requirements are usually found in:

Technical Specifications
Temporary Facilities and Control
Section 01500

Part 2 - Products
2.2 Equipment

- H. Power Distribution System: Service entrance drop cable to the first disconnect may be aluminum, subject to conditions specified in Part 3 of this specification. Circuit wiring conductors, inward from the first disconnect, shall be copper.
- I. Power Distribution System Circuits: Circuits for temporary power distribution and lighting, not exceeding 125 volts AC, 20 ampere rating, may be permitted to use nonmetallic sheathed cable, provided that:
 - a. The installation meets requirements of the NEC, and
 - b. The cables are installed overhead and left exposed for surveillance.

Add the following new language to:

“Part 3 - Execution”, under Section “3.2 Temporary Utility Installation”

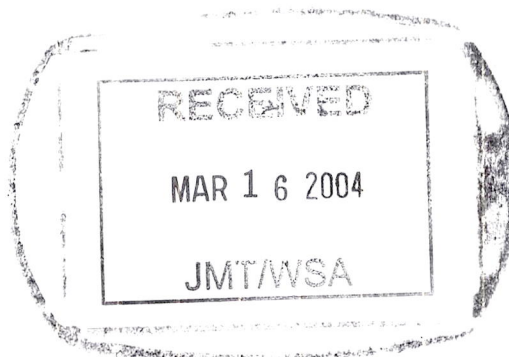
If, as allowed under Part 2 - Products above, aluminum conductors are used for service drops, they shall be inspected monthly for the duration of their use. A written report on the cable condition shall be submitted to the Maryland Aviation Administration's authorized inspection firm.

If the above requirements conflict with any codes or regulations, it should be brought immediately to the attention of the Manager, Division of Facilities Design. If you should have any questions regarding this matter, please contact me at 410-859-7093.

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MEMORANDUM

TO: Distribution

FROM: Benjamin Chin, Manager 
Division of Facilities Design

DATE: March 15, 2004

SUBJECT: Design Standard (DST) 2004-4, Underground Vaults for Glycol Collection Systems at Baltimore/Washington International Airport (BWI) and Martin State Airport (MTN)

Effective immediately, all projects at Baltimore/Washington International (BWI) and Martin State (MTN) Airports shall be designed and specified per the following:

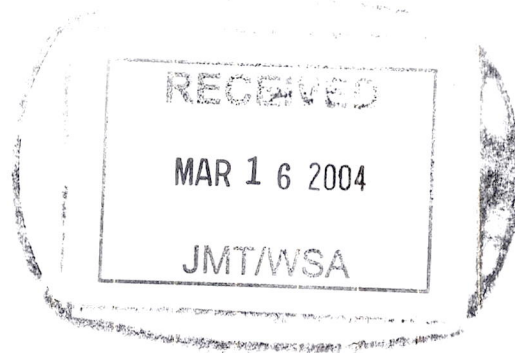
Underground Diversion Vaults, Lift Stations, and other similar structures related to a glycol collection system shall be designed with Schedule 80 CPVC pipe and fittings. Ductile iron pipe will be accepted as an alternate piping material only if there is a potential for hydrocarbons, e.g. fuel or oil to enter the piping system. Support brackets, clamps, and braces shall be non-metallic, and use non-corrosive materials. Hardware shall be corrosion resistant.

If you should have any questions regarding this matter, please contact me at 410-859-7093.

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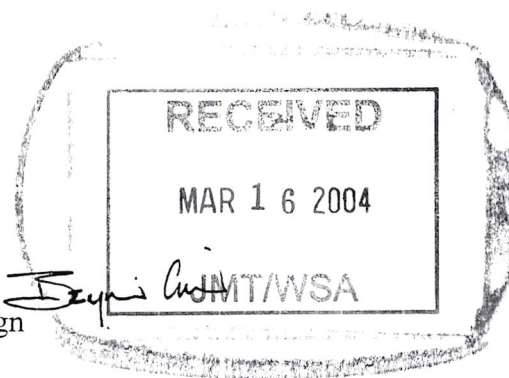
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TO: Distribution

FROM: Benjamin Chin, Manager
Division of Facilities Design

DATE: March 15, 2004

SUBJECT: Design Standard (DST) 2004-5, Bonding Method for Grounding
Baltimore/Washington International Airport (BWI) and Martin State Airport (MTN)



Effective immediately, all projects at Baltimore/Washington International (BWI) and Martin State (MTN) Airports shall be designed and specified per the following:

Whenever grounding electrode conductors are bonded to ground rods or other grounding electrodes, bonds shall be by exothermic welds.

If you should have any questions regarding this matter, please contact me at 410-859-7093.

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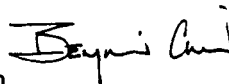
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MEMORANDUM

TO: Distribution

FROM: Benjamin Chin, Manager 
Division of Facilities Design

DATE: March 22, 2004

SUBJECT: Design Standard (DST) 2004-7, L852T, Style 3 Inpavement Lights
Baltimore/Washington International Airport (BWI) and Martin State Airport
(MTN)

Effective immediately, all projects at Baltimore/Washington International Airport (BWI) and Martin State Airport (MTN) shall be designed and specified per the following:

Reference is made to the advisory circular AC 150/5345-46B, Specification on Runway and Taxiway Light Fixtures. Effective immediately, in areas where L-852T lights are required, only Style 3 shall be specified. Any Style 3 fixture that is installed at the airport must also be Federal Aviation Administration (FAA) certified prior to installation. The style designation must be reflected on the drawings, as well as noted in the technical specifications. Style designation applies to the fixture's total height above finished grade where Style 3 is less than 1/4-inch to flush. This standard is intended to prevent damage to inpavement light fixtures during snowplow operations. In cases where this standard is in conflict with the requirements of the FAA the FAA requirements shall prevail. Any deviation from this standard shall be brought immediately to the attention of the Maryland Aviation Administrations' Project Manager in writing.

If you should have any questions regarding this matter, please contact me at 410-859-7093.

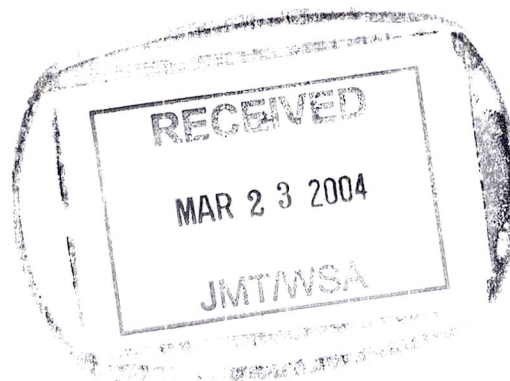
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cc: Mr. Tom Priscilla, FAA





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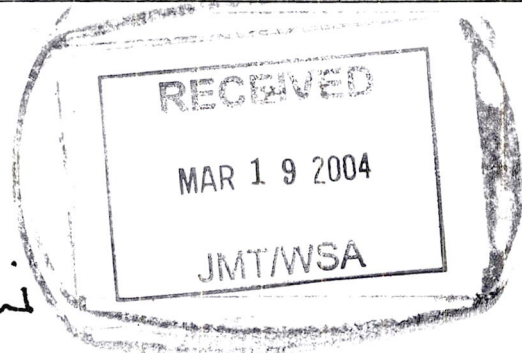
Paul J. Wiedefeld
Executive Director

MEMORANDUM

TO: Distribution

FROM: Benjamin Chin, Manager
Division of Facilities Design

Benjamin Chin



DATE: March 18, 2004

SUBJECT: Design Standard (DST) 2004-6, Construction Phase Services Directive
Baltimore/Washington International Airport (BWI) and Martin State Airport
(MTN)

The purpose of this DST is to address an issue which has occurred during the construction phase services of our projects. This design standard applies only to designers under contract with the Maryland Aviation Administration's Office of Engineering and Construction Management. It has come to our attention that designers are using the shop drawing/submittal review process to implement revisions to the original design and construction documents. This practice must stop immediately. Revisions to the design should be implemented by Design Clarification Letter (DCL) and/or field revisions.

If you should have any questions regarding this matter, please contact me at 410-859-7093.

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