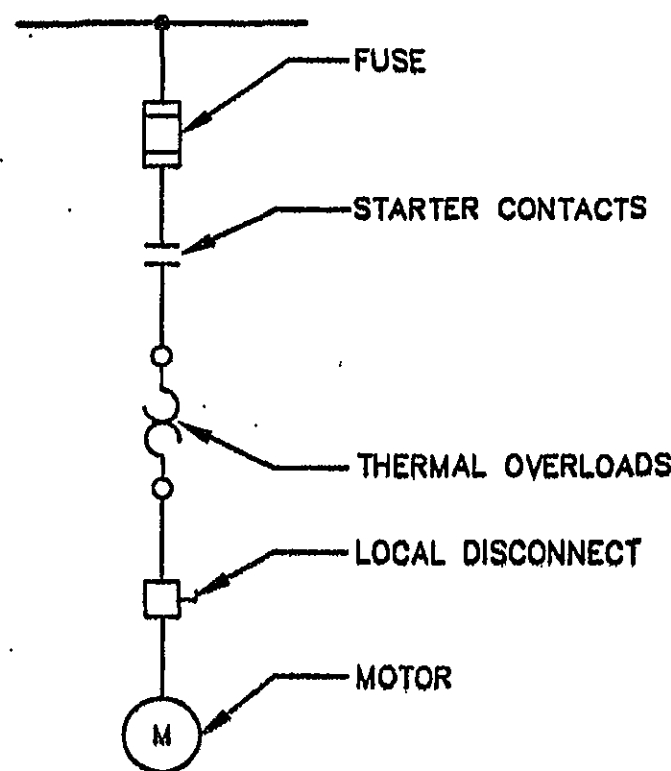




PLANT UPGRADES
AKZO NOBEL PLANT
ROANOKE, VIRGINIA

ELECTRICAL GENERAL NOTES & SPECIFICATIONS

SINGLE LINE LEGEND



GROUNDING LEGEND

- 4/0 BARE SOFT DRAWN COPPER GROUND CONDUCTOR
- - - 4/0 BARE SOFT DRAWN COPPER GROUND CONDUCTOR (UNDER CONCRETE)
- - - 4/0 BARE SOFT DRAWN COPPER GROUND CONDUCTOR (UNDERGROUND)
- ⊗ GROUND TEST WELL
- ⊗ GROUND ROD - 10 FT. MINIMUM LENGTH 3/4" DIAMETER COPPER CLAD STEEL
- ⊕ "T" CONNECTION
- 4/0 WIRE TO STEEL CONNECTION

NOTES

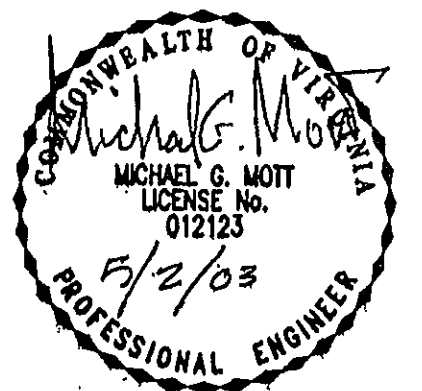
1. ALL ELECTRICAL WORK IN THIS AREA SHALL CONFORM TO NFPA 70 (NEC) CLASS 1, DIVISION 2, GROUP D EXPLOSIVE ATMOSPHERE. PROVIDE SEALS AND EQUIPMENT RATED FOR AREA.
2. GROUNDING INSTALLATION SHALL BE IN ACCORDANCE WITH REQUIREMENTS OF THE NATIONAL ELECTRIC CODE (NEC) ARTICLE 250, STATE AND LOCAL CODES.
3. LOCATIONS OF GROUND LOOP, TEST POINTS AND CONNECTION POINTS ARE SHOWN DIAGRAMMATICALLY. FINAL LOCATION SHALL BE DETERMINED BY FIELD CONDITIONS.
4. GROUND LOOP SHALL BE #4/0 AWG BARE COPPER CABLE.
5. GROUND WIRE, WHERE RUN UNDERGROUND, SHALL BE BURIED AT A MINIMUM DEPTH OF 30" BELOW GRADE.
6. TOP OF GROUND ROD SHALL BE AT 12" BELOW GRADE.
7. GROUND RODS SHALL BE 3/4" IN DIAMETER AND NOT LESS THAN 10 FEET IN LENGTH. COPPER CLAD STEEL WITH DRIVE POINTS AND CHAMFERED DRIVE HEADS.
8. GROUND RODS SHALL BE DRIVEN AT EACH LOCATION SHOWN ON THE DRAWING.
9. ALL SURFACES TO BE GROUNDED SHALL BE CLEANED TO BARE METAL PRIOR TO ATTACHING GROUND CONNECTION.
10. WHERE GROUNDING WIRE RISES TO EQUIPMENT, COLUMNS, VESSELS AND STRUCTURES THROUGH CONCRETE SLABS, THE WIRE SHALL BE PROTECTED BY NON-MAGNETIC CONDUITS WITH BUSHINGS AT BOTH ENDS.
11. THE CONTRACTOR SHALL PROVIDE GROUND BUSES FOR INSTRUMENT AND EQUIPMENT GROUNDING IN LOCATIONS SHOWN ON THE DRAWINGS.
12. GENERAL GROUND LOOP RESISTANCE SHALL BE 10 OHMS OR LESS TO GROUND FOR ALL NON-CURRENT CARRYING METAL PARTS, ENCLOSURES, MOTOR FRAMES, CONDUIT, STRUCTURAL STEEL AND PROCESS EQUIPMENT. IN AREAS WHERE THE INITIALLY MEASURED RESISTANCE TO GROUND DOES NOT MEET THE SPECIFIED VALUE EXTENSIONS SHALL BE MADE TO RODS OR ADDITIONAL RODS SHALL BE DRIVEN.
13. GROUND CONNECTIONS SHALL BE MADE TO ALL PROCESS VESSELS AND METAL PIPING.
14. GROUNDING CONDUCTORS SHALL BE SUPPORTED FROM STRUCTURAL STEEL OR MASONRY. EXPOSED CABLE SHALL BE SUPPORTED EVERY 3 FEET. GROUNDING CONDUCTORS SHALL NOT BE SUPPORTED FROM MECHANICAL EQUIPMENT OR PIPING.

POWER AND LIGHT LEGEND

- ⊗A EXPLOSION PROOF, WALL MOUNTING, 277 VAC, 175W METAL HALIDE LIGHT FIXTURE. CROUSE-HINDS CATALOG No. VMVM3TW175G245/277 OR EQUAL.
- ⊗B EXPLOSION PROOF, PENDANT MOUNTING, 277 VAC, 175W METAL HALIDE LIGHT FIXTURE. CROUSE-HINDS CATALOG No. VMVM2A175G245/277 OR EQUAL.
- ⊗C EXPLOSION PROOF, STANCHION MOUNTING, 277 VAC, 175W METAL HALIDE LIGHT FIXTURE. CROUSE-HINDS CATALOG No. VMVMJ175G245/277 OR EQUAL.
- 2 BULB, 48" FLUORESCENT FIXTURE 120 VAC, WITH POLYCARBONATE COVER LITHONIA OR EQUAL
- EMERGENCY LIGHT 120 VAC, (2) 12 VDC HEADS, BATTERY BACK-UP DUAL-LITE M/N EZ-2 OR EQUAL.
- EXIT SIGN NON-POWERED, ILLUMINESCENT TYPE
- EXPLOSION PROOF EMERGENCY LIGHT 2-12 VDC HEADS, BATTERY BACK-UP CROUSE HINDS CAT. #ELPS502 OR EQUAL.
- S SINGLE POLE SWITCH, MOUNTING HEIGHT 4'-0" EXCEPT AS NOTED
- DUPLEX RECEPTACLE, MH 1'-6" UNLESS OTHERWISE NOTED. WP DENOTES WEATHERPROOF GFI DENOTES GROUND FAULT CIRCUIT INTERRUPTER
- INDICATES A "HOME RUN" CONNECTION TO BE FIELD ROUTED BY CONTRACTOR J - INDICATES JUNCTION BOX S - INDICATES SIGNAL
- LOCAL DISCONNECT, NON-FUSED UNLESS NOTED OTHERWISE.
- HEAT TRACE THERMOSTAT
- MOTOR ON PIECE OF EQUIPMENT, NUMBER INDICATES HORSEPOWER
- AIR ACTIVATED MOTOR WITH 120 VAC EXPLOSION PROOF SOLENOID VALVE
- FUSE
- TRANSFORMER, SIZE AS INDICATED
- TRANSFORMER C - INDICATES CEILING MOUNTED W - INDICATES WALL MOUNTED

REFERENCE DRAWINGS

DRAWING NUMBER	DRAWING TITLE
83533-E-001-D	SINGLE LINE DIAGRAM
83533-E-002-D	TRUCK UNLOADING GROUNDING PLAN
83533-E-003-D	TRUCK UNLOADING POWER & LIGHTING PLAN
83533-E-004-D	BUILDING 10 GROUNDING PLAN
83533-E-005-D	BUILDING 10 HEAT TRACE, POWER & LIGHTING PLAN
83533-E-006-D	TANK FARM GROUNDING PLAN
83533-E-007-D	TANK FARM POWER & LIGHTING PLAN



0 ISSUED FOR CONSTRUCTION		DCD	5/01/03
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SCALE	N.T.S.	DATE	
DESIGNED BY	K.G. LEPPERT	4/04/03	
DRAWN BY	J.D. HELMS	4/04/03	
CHECKED BY	K.G. LEPPERT	4/11/03	
APPROVAL	M.G. MOTT		
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