

**Brookhaven National Laboratory**  
**Plant Engineering - E&CS Division**  
**Engineering Change Notice Form**

**PROJECT:** CCWF II

**JOB No.** 11705

**ECN Title:** Cooling Tower Site Plan

**ECN No.** 41A

Affected Documents: ES-401

Requested Change (Attach sketch if applicable):

Revise Cooling Tower Disconnect Switch Locations for the Cooling Tower Fan Motors and Cooling Tower Motor Heaters

Requested by: B. Kimble

Date: 3/17/11

Resolution: See attached sketches. *(as built)*

Approvals: A/E or Proj. Eng.: B. Kimble



Date: 03/17/11

Project Coordinator: A. Raphael



Date: 03/17/11

Manager:

Date:

Contractor shall take the following action:

- Await change order from P&PM
- Proceed with change as described
- Provide cost proposal for change as described

Distribution: E. W. Howell

Giffels

PPM

E&U

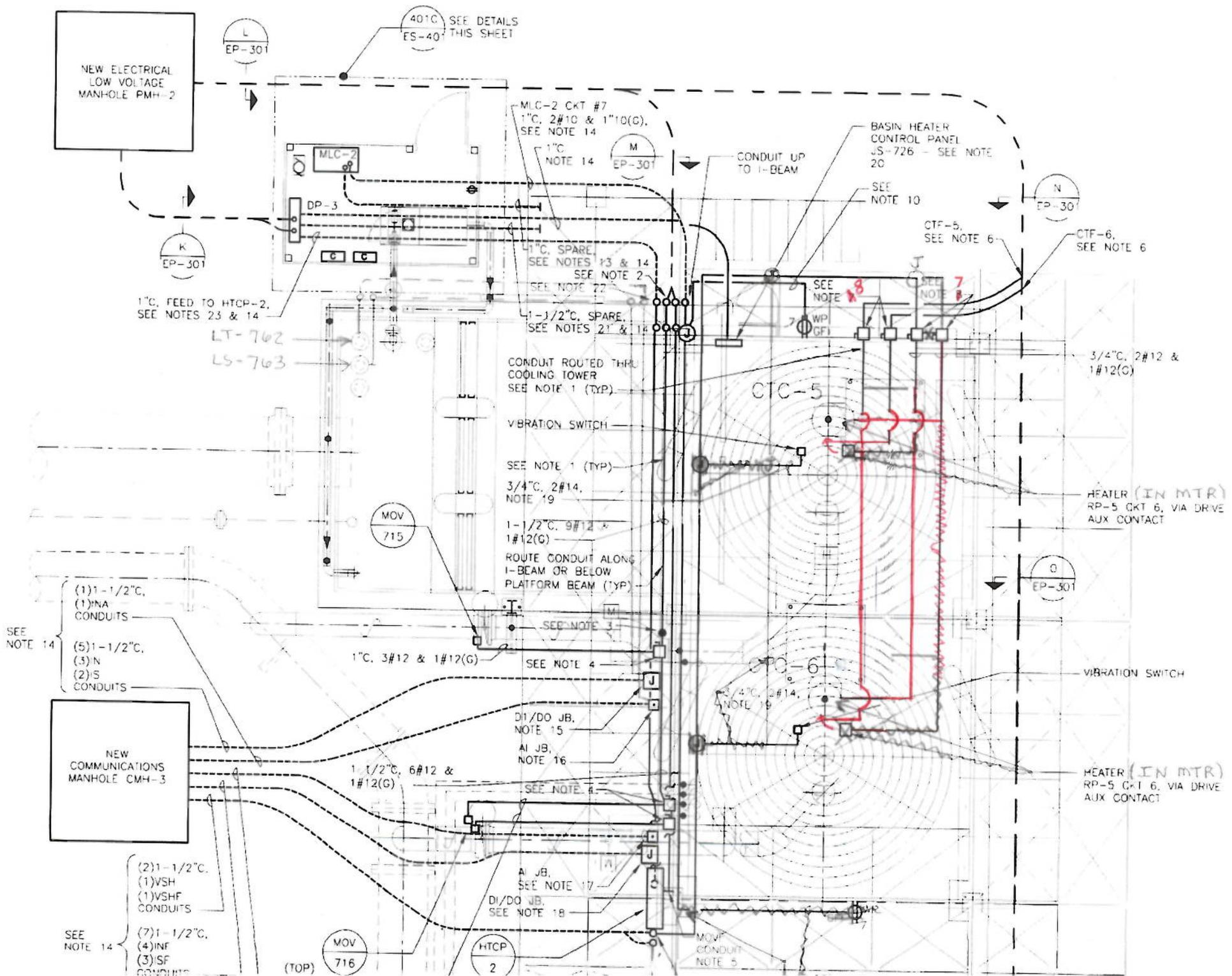
MPO

O&M

DOE

NSLS II

ECN File



NEW ELECTRICAL  
LOW VOLTAGE  
MANHOLE PMH-2

L  
EP-301

401C SEE DETAILS  
ES-40 THIS SHEET

MLC-2 CKT #7  
1" C, 2#10 & 1"10(G),  
SEE NOTE 14

M  
EP-301

BASIN HEATER  
CONTROL PANEL  
JS-726 - SEE NOTE  
20

N  
EP-301

K  
EP-301

1" C. FEED TO HTCP-2,  
SEE NOTES 23 & 14

LT-762

LS-763

1" C. SPARE,  
SEE NOTES 13 & 14  
SEE NOTE 2

1-1/2" C. SPARE,  
SEE NOTES 21 & 12

CONDUIT UP  
TO I-BEAM

SEE  
NOTE 10

CTF-5,  
SEE NOTE 6

CTF-6,  
SEE NOTE 6

SEE  
NOTE 8

SEE  
NOTE 7

3/4" C, 2#12 &  
1#12(G)

CONDUIT ROUTED THRU  
COOLING TOWER  
SEE NOTE 1 (TYP.)

CTC-5

VIBRATION SWITCH

SEE NOTE 1 (TYP.)

3/4" C, 2#14,  
NOTE 19

1-1/2" C, 9#12 &  
1#12(G)

ROUTE CONDUIT ALONG  
I-BEAM OR BELOW  
PLATFORM BEAM (TYP.)

HEATER (IN MTR)  
RP-5 CKT 6, VIA DRIVE  
AUX CONTACT

MOV  
715

O  
EP-301

SEE  
NOTE 14

(1)1-1/2" C,  
(1)NA  
CONDUITS

(5)1-1/2" C,  
(3)N  
(2)S  
CONDUITS

1" C, 3#12 & 1#12(G)

SEE NOTE 4

VIBRATION SWITCH

NEW  
COMMUNICATIONS  
MANHOLE CMH-3

DI/DO JB,  
NOTE 15

AI JB,  
NOTE 16

SEE NOTE 4

1-1/2" C, 6#12 &  
1#12(G)

HEATER (IN MTR)  
RP-5 CKT 6, VIA DRIVE  
AUX CONTACT

(2)1-1/2" C,  
(1)VSH  
(1)VSHF  
CONDUITS

SEE  
NOTE 14

(7)1-1/2" C,  
(4)INF  
(3)SF  
CONDUITS

MOV  
716

HTCP  
2

MOV  
CONDUIT  
NOTE 5

(TOP)

LIGHTING PLAN & DETAILS 401C & D NOTES

- A. LIGHT SWITCH MOUNTED 46 INCHES ABOVE LOWER LEVEL PLATFORM ADJACENT TO LADDER.
- B. CONDUIT DIRECT BURIED FROM MLC-2 (CKTS 4 & 6) VIA CONTACTOR THEN UP TO JUNCTION BOX BELOW PLATFORM ONE CONDUIT FROM JUNCTION BOX UP THRU PLATFORM TO LIGHT SWITCH. OTHER TWO CONDUITS UNDER PLATFORM TO LIGHT FIXTURE LOCATION THEN UP THRU PLATFORM TO FIXTURE.
- C. CONDUIT DIRECT BURIED FROM MLC-2 (CKTS 8 & 10) VIA CONTACTOR THEN UP TO JUNCTION BOX BELOW PLATFORM ONE CONDUIT FROM JUNCTION BOX TO STAIR RAIL THEN TO LIGHT SWITCH, OTHER TWO CONDUITS FROM JUNCTION BOX UNDER PLATFORM TO LIGHT FIXTURE LOCATION THEN UP TO FIXTURE.
- D. REFER TO TYPICAL COOLING TOWER LIGHTS CONTROL DIAGRAM "504C" ON DRAWING E-504.
- E. REFER TO MLC-2 PANEL SCHEDULE AND DP-3 RISER DIAGRAM ON DRAWING E-607.
- F. DIGITAL TIME SWITCH FOR BUILDING LIGHT CONTROL SEE GENERAL NOTE 15 ON DRAWING E-001 FOR DIGITAL TIME SWITCH.
- G. LIGHTING FIXTURE TYPE - REFER TO LIGHTING FIXTURE SCHEDULE ON DRAWING E-501.

NOTES

1. AT COOLING TOWER, ALL CONDUIT SHALL BE PVC JACKETED RIGID STEEL CONDUIT, AND ALL CONDUIT FITTINGS, ENCLOSURES, ETC SHALL BE PVC COATED OR NEMA 4X.
2. ROUTE 1-1/2" DUCT BANK CONDUITS MOV AND MOVE UP TO COOLING TOWER I-BEAM AND ROUTE ALONG I-BEAM.
3. DROP CONDUIT DOWN AND ROUTE TO WP JUNCTION BOX UNDER DISCONNECT SWITCH FROM JUNCTION BOX TAKE FEED TO MOV DISCONNECT SWITCH AND TO NEXT DISCONNECT. PROVIDE CONDUIT FREE STANDING SUPPORT ON CONTAINMENT WALL BETWEEN DISCONNECT SWITCHES AS REQUIRED.
4. PROVIDE FREE STANDING DISCONNECT SWITCH ON CONTAINMENT WILL FOR MOV'S POWER DISCONNECT.
5. TAKE 1-1/2" CONDUIT FOR FUTURE MOTOR OPERATED VALVES ALONG I-BEAM TO END OF I-BEAM AND CAP FOR FUTURE EXTENSION.
6. PEEL CONDUIT OFF DUCT BANK AND STUB-UP AT COOLING TOWERS INDICATED AND EXTEND CONDUIT/ WIRING TO DISCONNECT SWITCH FOR COOLING TOWER FAN MOTOR MOUNTED ON OUTSIDE OF COOLING TOWER ADJACENT TO ACCESS DOOR.
7. 200A NEMA 4X DISCONNECT SWITCH MOUNTED TO COOLING TOWER ADJACENT TO ACCESS DOOR FOR DISCONNECTING POWER TO COOLING TOWER FAN MOTOR.
8. 30A NEMA 4X DISCONNECT SWITCH MOUNTED TO COOLING TOWER ADJACENT TO ACCESS DOOR FOR DISCONNECTING POWER TO COOLING TOWER 120 VOLT HEATER.
9. STUB-UP CONDUIT APPROXIMATELY 12" ABOVE GRADE AND CAP FOR FUTURE EXTENSION TO FUTURE COOLING TOWER FAN MOTORS DISCONNECT SWITCH.
10. ROUTE UNDER PLATFORM THEN UP THRU PLATFORM TO RECEPTACLE MOUNTED ADJACENT TO DOOR 24" ABOVE PLATFORM.
11. 1-1/2" C, 4#14 & 4#12 & 1#12(G) WITH CELL 5 & 6 VIBRATION SWITCH CONTACT WIRING AND HEATER POWER WIRING FROM CTF-5 AND CTF-6 DRIVES ON ELECTRICAL MEZZANINE.
  - A. VIBRATION SWITCH CONTACT (2#14) WIRED BACK TO DRIVE TO SHUT DOWN FAN ON HIGH VIBRATION.
  - B. HEATER CIRCUIT (2#12, 1#12(G)) WIRED THRU AUXILIARY CONTACT ON DRIVE SO WHEN FAN SHUTS DOWN CONTACT CLOSES AND ENERGIZES FAN MOTOR HEATER.
12. STUB-UP 1-1/2" CONDUIT AT ~~CONTAINMENT WALL~~ *APPROXIMATELY 12" ABOVE GRADE* AND CAP FOR FUTURE EXTENSION TO CELLS 7, 8 & 9 VIBRATION SWITCHES AND MOTOR HEATERS.
13. BRING 1" CONDUIT FROM PANEL MLC-2 5'-0" FROM BUILDING AND CAP.
14. SEE DIRECT BURIED CONDUIT DETAIL "504A" ON DRAWING E-504.
15. DI/DO JUNCTION BOX MOUNTED ON CONTAINMENT

